Why Do Firms Pay for Bond Ratings When They Can Get Them for Free?

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Abstract

I investigate whether rating agencies (Moody's and S&P) use consistent standards in solicited and unsolicited ratings, that is, whether agencies treat issuers who pay for the service (solicited rating) differently from those who do not pay (unsolicited rating). I find that both agencies give significantly lower ratings to unsolicited issues. However, I do not find a significant difference between the performances of solicited and unsolicited issues. The results are consistent with the hypothesis that rating agencies give worse ratings to un-soliciting issuers not as blackmail, but rather as a necessary adjustment for the difference in the true and unobserved quality. Holding public information constant, issuers with **better** private information self select into the soliciting group since by disclosing the private information to the agencies they can receive higher ratings. The results in this paper do not lend support for more stringent regulation on the rating agencies.

1. Introduction

As intermediaries between issuers and investors, rating agencies have been widely relied upon for opinions on the creditworthiness of issuers across the world. The influence of their opinions on financial markets has increased significantly over time, and has had an impact upon issuers' access to capital, their cost of capital, and the structure of financial transactions.[1] For example, approximately $30 trillion debt issuances are rated and tracked by Moody's, which covers 150,000 corporate, government, and structured finance securities.[2] However, not all the ratings are paid for by the issuers. An unsolicited rating is one in which a bond-rating agency rates a security on its own, without being hired and paid by the issuer. Baker and Mansi (2001) document that about 17.8% of the companies in their survey sample reported that they had received unsolicited ratings.

Unsolicited ratings have been the focus of a recent debate on the role of rating agencies. According to Fitch, the main challenger of the two dominant players, Moody's and S&P, the main barrier to entry into the rating industry is the exercise of monopolistic power by Moody's and S&P through the practice of issuing unsolicited ratings (Setty and Dodd 2003).[3] There are also strong objections to unsolicited ratings from other raters and bond issuers who claim that by initiating a lower unsolicited rating, Moody's and S&P can strongly discourage issuers from exclusively using other smaller agencies.

The difference between solicited and unsolicited ratings is economically significant. On average, both Moody's and S&P give ratings that are half notch lower to unsolicited issues than solicited ones and this costs firms, on average, 18 basis points in additional borrowing costs.[4] The

[1] "Report on the role and function of credit rating agencies in the operation of the securities markets", U.S. Securities and Exchange Commission, January 2003.
[2] Source: Moody's website, http://www.moodys.com
[3] This practice is also refereed as "notching".
[4] For simplicity, I will call an issue with solicited rating a solicited issue and an issue with unsolicited rating an unsolicited issue.

disparity in financing costs is large and in this paper I therefore focus on the determinants of these ratings. In particular, I examine whether rating agencies do assign lower ratings when these are not paid for and why firms pay for ratings when they can get them for free.

I address these questions by first looking at whether unsolicited issues are indeed given lower ratings than their solicited counterparts, controlling for observable characteristics. This is referred to as the ex ante analysis, hereafter. I find that unsolicited issues receive statistically significant lower ratings than solicited issues. This is consistent with complaints by market participants and the evidence in Poon (2003).

There are two interpretations that are consistent with these differences. The first, which I will refer to as the "punishment hypothesis", is in line with the critique mentioned earlier. When a rating agency is compensated by firms whose securities are being rated by the agency, it has an incentive to assign higher ratings to issuers who pay for the service than to issuers who do not. In fact, critics of unsolicited ratings believe that it is hard to find other incentives for rating agencies to give unsolicited ratings except as a means to blackmail issuers.[5] Under the punishment hypothesis, I expect that an unsolicited issue would receive lower rating than a solicited issue with the same observable characteristics. However, ex post the unsolicited issue would perform better than a solicited one with the same rating since the unsolicited issuer was truly discriminated against.

The second hypothesis, which I refer to as the "private information hypothesis", states that the observed lower ratings given to the unsolicited issues are the results of self selection based on private information. Specifically, the true creditworthiness of an issue can be determined partly

[5] According to Moody's, their purpose of releasing unsolicited ratings is to serve the interests of investors. This may be a valid incentive for two reasons: first, even though most profits come from rating fees paid by issuers, there is still a small portion that comes from the subscription and publication fees collected from investors. Second, by issuing unsolicited ratings, agencies can gain credibility and trust from investors, which will guarantee future business. For example, Moody's willingness—some might say eagerness—to anger issuers and roil markets had made it a favorite of investors. Simply put, investors trust Moody's absolutely. Source: "How Far Is Too Far?" *Investment Dealers' Digest*, February 12, 1996.

through public information — such as the financial and accounting information, and partly through private information that is observable only to the issuer itself — such as the nature of its corporate governance, its managerial ability, and its products developments plan. Two firms with the same financial profiles as measured by public information may have quite different true quality. By soliciting a rating, an issuer gets the opportunity to reveal its private information to the rating agency without revealing it to its rivals.[6] In the spirit of Akerlof's model (Akerlof (1970)), one can show that all firms with private information better than some cutoff point would select to pay the rating fees because they can get better ratings than otherwise. While all firms with worse private information would not do so since the benefits are not high enough to overweight the costs. The private information hypothesis predicts that unsolicited ratings may seem to be discriminated against, ex ante. However, ex post, equally rated issues will have similar performance, assuming that rating agencies do a good job in maintaining consistent rating standards using both public and private information.

These two hypotheses can be distinguished by looking at the ex post performance of equally rated issues. I find that there is no statistically significant difference between the solicited and unsolicited groups, measured by default rates and Z-score conditional on rating at issuance. These results are consistent with the private information hypothesis.

To address the potential statistical power issue in my tests, I further compare the firms that are included in the Compustat database and firms that are not. I find that the solicitation effect is stronger for non-Compustat firms and a significant smaller proportion of the non-Compustat firms select to be included in the unsolicited group than the Compustat firms. These results are consistent with the private information hypothesis. Non-Compustat firms face more severe asymmetric information problems and therefore have a wider dispersion of their true quality. The

[6] In fact, rating agencies traditionally claim to receive inside information such as minutes of board meetings, profit breakdowns by product, and new product plans (Ederington and Yawitz, 1987).

absolute distance of the firm at the cutoff point from the firm at the bottom of the quality spectrum is the same in both cases. Therefore the proportion of unsolicited issues is smaller in the non-Compustat case than the Compustat case.[7]

To summarize, the findings in this paper confirm that unsolicited issues are given significant lower ratings. However, I find no evidence in favor of the punishment hypothesis. Therefore, the results do not lend support to the proposition of imposing stronger regulation on the rating industry. Instead, I find that the observed ex ante difference is the result of self selection based upon private information. This sheds light on the question of whether ratings contain private information, which has been the subject of extensive research. Similar to the results documented by Kliger and Sarig (2000), ratings indeed contain private information that investors cannot obtain from other sources.

The remainder of the paper is organized as follows: Section 2 gives a brief introduction on the rating industry and the problems related to unsolicited ratings. In section 3 the related literature is reviewed. Data description and summary statistics are given in section 4. The empirical methods and results are presented in section 5 and 6 respectively. Section 7 summarizes the findings and concludes the paper.

2. Background

Since 1975, the SEC has relied on ratings by market-recognized credible rating agencies for distinguishing among grades of creditworthiness in various regulations under the federal securities laws[8]. At the same time the SEC initiated the recognition of bond rating firms as "nationally recognized statistical rating organizations" (NRSROs). Today, there are only four

[7] For details, see Appendix C.

[8] The reliance on ratings extends to virtually all financial regulators, including the public authorities that oversee banks, thrifts, insurance companies, securities firms, capital markets, mutual funds, and private pensions. For detailed information, refer "the Credit Ratings Industry" by Richard Cantor and Frank Packer, FRBNY Quarterly Review/Summer-Fall 1994.

general-purpose NRSROs: Moody's, S&P, Fitch and DBRS Dominion, among whom the first two dominate the market.[9]

Until the early 1970s the major credit rating firms earned their income by selling publications and related materials to investors (White, 2001). With the spread of low-cost photocopying in the 1970s, it became dramatically more difficult to prevent free-riding on the publications of information. Thus the industry changed its practice to that of charging the issuers for service. Since then most ratings are requested and paid for by bond issuers and are called solicited ratings. However, the history of unsolicited rating dates back to the first rating in 1909.

The dominance of solicited ratings in the past decades has led to the misperception that issuing unsolicited ratings is a new and abnormal practice of the agencies. This practice has drawn strong objections and sentiments from the receivers of those unsolicited ratings. In 1996 a lawsuit against Moody's was brought up by the Jefferson County School District. The School District claimed that Moody's posted unsolicited negative comments on a 1993 municipal-bond issue and this cost them about $800,000.[10] Even though the lawsuit ended with the victory of Moody's, the suspicion and sentiments toward unsolicited ratings remain. Many issuers fear that without all the available information, rating agencies will issue a low unsolicited rating and drive up borrowing costs.[11] In 1998, after an investigation of Moody's on possible antitrust practices, the antitrust division urged the SEC to require rating agencies to disclose when they assign ratings not solicited by the securities issuer.

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[9] At the time of the initial designation, the SEC "grandfathered" Moody's, S&P, and Fitch. It subsequently designated Duff & Phelps (1982) and McCarthy, Crisanti & Maffei (MCM) (1983) as NRSROs (MCM was absorbed by Duff &Phelps in 1991), and designated IBCA (1991) and Thomson Bank Watch (1992) as NRSROs for banks and financial institutions. The SEC had not granted the NRSRO designation to any new entities since then until 2003, despite applications by non-U.S. firms. The latest NRSRO was granted to Dominion Bond Rating Service Limited (DBRS), a Canadian bond rating agency in 2003. The number of U.S. general-purpose rating firms in existence at any given time has fluctuated only narrowly between three and five (Lawrence J. White, "the Credit Rating Industry: An Industrial Organization Analysis", 2001)

[10] "The day of the credit-rating agencies POWER/How are the agencies using their considerable muscle? The U.S. Justice Department, for one, is interested in knowing." *Economist*, April 9, 1996.

[11] "Moody's Upset: Issuers Seen Resentful of Tough Tactics." *Dow Jones International News*, May 2, 1996.

3. Related Literature

This paper is related to two strands of literature: rating determinants and rating consistency. The rating determinants literature starts with the initial attempt of Horrigan (1966) to explain and replicate bond ratings assigned by the agencies. Other early studies such as Pogue and Soldofsky (1969) and West (1970), assign ordinal numbers to the ratings and regress these numbers on accounting and other variables. Later researchers expand the literature by exploring different statistical techniques such as discriminant analysis or ordered probit models. Pinches and Mingo (1973, 1975), Altman and Katz (1976), Kaplan and Urwitz (1979), Ederington (1985), Ederington et al. (1987), Gentry et al. (1988), among others, find that publicly available data predict with a fair degree of accuracy actual ratings assigned by rating agencies.

A few papers with principal objects other than identifying the determinants of bond ratings use the same framework to address specific questions of interest. Blume et al. (1998) generalize and extend the methodology of Kaplan and Urwitz (1979). Using panel data, they examine whether rating standards have become more stringent over time and find that more stringent standards can explain the perception of declining credit quality of corporate debt. Butler and Rodgers (2003) use the ordinal model to explore how the rating agencies process information differently for solicited ratings versus unsolicited ratings. They find that when there is a soliciting relationship, rating agencies rely less on publicly available “hard” information, and are better able to assess “soft” information about bond issuers. This is consistent with my findings and the private information hypothesis. However, the focus of their investigation is on whether rating agencies put less weight on pubic information when there is a soliciting relationship. The consequences of relying more on private information are not assessed.

The second strand of literature is rating consistency, which investigates whether rating agencies use consistent standards in rating issues across certain dimensions such as industries or nations. This literature can be divided into three subgroups according to the methodology employed. The

first uses the same framework as in rating determinants literature, with an additional dummy variable of interests. Since this method focuses on how ratings are assigned at issuance, hereafter it will be called the ex ante method. Moon and Stotsky (1993), Cantor and Packer (1997), and Potrier and Sommer (1999) use this method and find that rating scales, rating determinants, or weights attached to rating determinants differ across rating agencies after accounting for the self-selection bias. Poon (2003) investigates whether unsolicited ratings are biased downward within this framework. Since this is the paper most closely related to mine, I will compare it to my paper in detail later.

The second branch is based on the semi-strong efficiency market assumption. It is assumed that the price of a security reflects all historical and current relevant public information. Under this assumption, the yield spread demanded on debt issues can be used to measure rating consistency. This approach is taken, for example, by Fischer and Mahfoudhi (2002) in analyzing whether agencies rate mutual bank bonds fairly versus stock bank bonds. They find that, after controlling for other sources of variation in the risk premia, investors charge a significantly lower spread on mutual banks than on stock banks. However, rating agencies make no distinction in the rating and thus ignore in their assessment the lower insolvency risk of mutual banks.

The third group addresses the question ex-post, that is, it checks whether the ex post performance, measured by default rates or loss at default, differs between the groups of interests. Ammer and Packer (2000) find that default rates appear to be higher for U.S. financial firms than U.S. industrial firms, but no significant differences exists between U.S. and foreign firms. Cantor and Falkenstein (2001) find that observed differences in one-year default rates across sectors disappear once the macroeconomic and sectoral shocks are controlled for. Japan Center for International Finance finds that Moody's rating of Japanese firms may be "relatively tough." This conclusion comes from the observation that fewer defaults have been observed over time in

Japan than would have been predicted by Moody's rating, compared to U.S. corporate default rates. Beattie and Searle (1992) find that agencies judge issuers from their own country more leniently.

As mentioned, the work of Poon (2003) is most closely related to this paper. Poon investigates the question of whether unsolicited ratings are biased downward, using S&P bond rating on the international market, mainly the Japanese market. Analysis of the Japanese sub-sample indicates that unsolicited ratings are still lower than solicited ones after controlling for differences in sovereign risk and in key financial characteristics. This paper differs from Poon (2003) in at least two ways. First, Poon (2003) uses international, mainly Japanese issuer ratings, given by S&P, while this paper uses corporate bond issues in the U.S. Given the home bias documented by Beattie and Searle (1992), it is difficult to generalize Poon's findings to how rating agencies behave in the U.S. market. Furthermore, since the domestic market accounts more than half of the total revenues, a thorough investigation of the potential bias in unsolicited rating in the U.S. is indispensable for evaluating the industry.[12]

Second and more importantly, Poon's paper uses only the ex ante approach, which controls only for the public information. Even though she uses the Heckman two- stage procedure to correct selection bias, it is not clear from her results whether the practice of unsolicited ratings can be justified or not. In this paper, I combine the ex ante and the ex post methods to check whether the performance, measured by default rate and Altman's Z-score (Altman, 1968), differs systematically between solicited issues and unsolicited issues, controlling for rating assigned at issuance. If unsolicited issues perform better than solicited ones with the same rating, this is consistent with the hypothesis that rating agencies do rate unsolicited issuers lower than they deserve. If there is no difference in performance between the two groups, the results are

[12] Since Moody's is freestanding, only the revenue data for Moody's is readily available. See White (2001).

consistent with the private information hypothesis that rating agencies give seemingly low ratings to unsolicited issues to adjust for the quality difference due to self-selection.

4. Data and Descriptive Statistics

The list of securities issuances for this study is collected from the SDC Platinum Database for the time period of 1/1/1994 to 12/31/1998. This database provides detailed issue information including issue date, filing date, SEC filing number, initial ratings that the bonds received from the main rating agencies and initial pricing of the bonds.[13]

Since rating agencies do not distinguish solicited and unsolicited ratings in the domestic market, I could not get direct information regarding which ratings are solicited and which are not from the public domain. The only publicly available indirect source that I am aware of is from the registration statement that firms file with the SEC (Butler and Rodgers, 2003). In most registration statements, there is an item 14 that requires firms to report expenses of the issuance: rating agency fee, registration fee, accounting fee and legal fee, etc.[14] An example of an item 14 from the registration statement can be found in Appendix A. Rating agency fees can be used to distinguish unsolicited issues from solicited ones, as discussed below. Notice that the fees reported here are not the actual expenses but estimates, because firms have to register with the SEC before the issuance.

I hand-collected the fee information for corporate non-convertible bond new issues of non-financial and non-utility firms from the SEC's EDGAR (Electronic Data Gathering, Analysis and

[13] The main reason for choosing this database instead of using Compustat's rating information directly is that the SDC data set contains the SEC filing number and filing date. These are crucial for identifying the right SEC filing and therefore obtaining rating fee information. The filing number can uniquely identify a specific issue and, in cases of missing filing numbers, the filing date can help identify a specific issue because the filings of an issuer are organized by filing date, not issue date.

[14] There are two different types of registration statement. Most issues filed S-3, registration statement for specified transactions by certain issuers. The S-3 form includes the item 14 item. However, a small portion of the issuers filed S-4, which is the registration of securities issued in business combination transactions. S-4 does not have the item 14.

Retrieval).[15] The electronic filing system started in the early 1990s, and firms were phased in to the new system over a period of several years. By 1994 the majority were using the electronic filing system. To avoid the potential sample selection problem, my sample period starts in 1994.[16] Since I need a few years after issuance to check the ex post performance, my sample period ends in 1998.

The accounting information of the issuing firms comes from the Compustat database. The CRSP daily stock files are the source of the daily returns used in estimating the beta and sigma from the market model. The default information comes from Moody's DRS Database (Default Risk Service Database).

The merging of these sources produces the final sample, with 1,410 bond issues by 303 firms. The detailed data cleaning procedure is as follows: The total number of domestic issues from SDC that have ratings assigned by both Moody's and S&P is 17,914. Keeping only those issued by firms that appear in Compustat leaves 8,524 issues, among which 2,442 are issued by non-financial and non-utility firms. I could hand-collect rating fees for 1,952 issues, which is about 80% of the sample (partly because some firms file S-4 registration statement instead of S-3). Merging with CRSP leaves 1617 observations. Further deleting outlier observations leaves 1,410 issues in the final clean sample[17].

Among these issues, 1,097 issues reported a non-zero rating fee and 313, roughly 22%, did not report a rating fee or reported a zero rating fee. Since in most cases firms did not report zero fee

[15] The exclusion of financial and utility firms is mainly because that there is previous literature that documents the different standards used in rating financial and industrial firms. Another reason is that they are highly regulated, and the conflict of interests may be different.

[16] Not all documents filed with the Commission by public companies are available on EDGAR. Companies were phased in to EDGAR filing over a period of a few years, ending May 6, 1996. As of that date, all public domestic companies were required to make their filings on EDGAR, except for filings made in paper because of a hardship exemption.

[17] Specifically, I delete issues with very high percentage of miscellaneous fees as total fees because it is possible that some firm simply put the rating fee into the miscellaneous fee item.

items and there is a miscellaneous fee item, some of these firms with no rating fee may actually have paid the rating fee and simply included it in the miscellaneous items.

Table 1 compares the fees reported by these two groups (issues with zero or no rating fee and issues with non-zero rating fees). The mean miscellaneous fees for the groups with zero or no rating fee and with non-zero rating fees are $25,549 and $23,169 respectively. The t-test for mean equivalence is not significant at a 5% confidence level. The mean rating fee for non-zero group is $167,994, which is much larger than the mean miscellaneous fee for the zero or no-rating fee group ($25,549). Furthermore, the non-zero rating fee group has a significantly higher total expense ($779,649) than the zero or no rating fee group ($505,493). The difference is in the same magnitude of the average rating fee ($167,994). These figures suggest that in most cases the rating fees are not omitted and included in the miscellaneous fee items, but rather are zeros. Therefore most of the unsolicited issues are properly identified.

The identification of solicited ratings is more problematic. Because I do not observe how many rating agencies a firm hires and to whom the firm pays the rating fees, counting all the firms with non-zero rating fees as having solicited ratings can be misleading because those firms reporting low rating fees probably pay only one agency and have unsolicited ratings from the other. To minimize possible misidentification, I calculate the fees that a firm is supposed to pay to both agencies based on some fee schedules. The fee schedule used for both Moody's and S&P in this paper is as follows: $25,000 for issues of up to $500 million and 0.5 basis points of the issued amount for issues exceeding $500 million (Kliger and Sarig, (2000)). Because the rating fees reported in the SEC filings are based on the amount filed instead of the amount issued, I calculate the scheduled fees based on the amount filed. I define the solicited issues to be those

with reported rating fees greater than the sum of the calculated fees for both Moody's and S&P. There are 829 issues with solicited ratings according to this identification.[18]

Table 2 lists the distribution across 17 rating levels for both solicited and unsolicited issues. Several observations can be made. First, the majority of the sample has received investment grade ratings. Moody's assigned investment grade ratings to 1,049 issues or 91.9% of the sample. S&P assigned investment grade ratings to 1,068 issues or 93.5% of the sample. Second, solicited issues have received on average better ratings than those unsolicited ones. For Moody's rating, 93.4% of the solicited sub-sample received investment grade ratings, while only 87.9% of the unsolicited sub-sample received investment grade ratings. Similarly, S&P assigned investment grade to 95.4% of the solicited group and 88.5% to the unsolicited group.

Table 3 shows that Moody's and S&P have different opinions on some issues and Moody's is a slightly tougher rater. They disagree on 643 issues (or 46% of the whole sample). Among those issues with split ratings, Moody's assigned a lower rating in 350 cases (or 54% of the sample).

Table 4 compares the mean and standard deviation of some issue and issuer characteristics for solicited and unsolicited groups and the t-stat for mean equality is shown in the last column.[19] The solicited group has lower interest coverage ratio, operating margin, return on equity, and higher long term debt ratio and total debt ratio, compared to the unsolicited group. This implies that soliciting issuers have on average stronger financial profiles than non-soliciting issuers. For issue characteristics, these two groups differ significantly along most dimensions: percentage of senior bonds, Moody's and S&P ratings, yields to maturity, and spread over benchmark. The only variable in which the two groups do not show difference is years to maturity. On average,

[18] One concern is that the issues with a reported rating fee greater than the sum of scheduled fees may indeed pay to Fitch (or Duff&Phelps) and Moody's (or S&P). However, Fitch and Duff&Phelps both have very small coverage, among the 1410 issues in the final sample, only 3.69% have a Fitch rating and 4.40% have a Duff&Phelps rating. Among the 829 solicited issues, only 2.65% have a Fitch rating and 3.86% have a Duff&Phelps rating. So this should not create a serious misidentification problem.

[19] The definitions of variables used in the analysis are given in Appendix B.

the solicited group is more likely to issue senior bonds. Among the solicited issues, 99% are senior, while 95% of the unsolicited issues are senior. Both Moody's and S&P assign higher ratings to solicited issues than to the unsolicited ones and investors demand lower yields or spread for solicited issues.

Overall, solicited issues are more creditworthy, measured by the financial ratios listed in the table, they get better ratings, and their yields are lower. However, in order to answer the question of whether unsolicited issues get lower ratings controlling for pubic information, I turn to multi-variable analysis, which is the main task of the next two sections.

5. Empirical Methods

5.1. Ex ante approach

I use an ordered probit model to check whether rating agencies treat the non-soliciting group differently upon issuance. This model relates the rating categories to observed explanatory variables through an unobserved continuous linking variable. The rating categories map into a partition of the unobserved variables, which is in turn a linear function of the observed explanatory variables. Rather than coding the ratings according to coarse ratings, this paper employs the fine rating system. The reason is that the solicitation bias is not likely to be as large as three notches (a notch is the difference between two close rating levels in the fine rating system) and therefore the coarse rating system might not be able to detect the bias. The best rating, AAA for S&P or Aaa for Moody's, is set to equal 17, and other ratings are set in a decreasing order.

Define R_i as the rating category of bond i, R_i^* is the unobserved linking variable. X_i s are observed explanatory variables and D_{sol} is the dummy for solicited issues, which equals 1 for solicited issues and 0 for unsolicited issues. I follow the literature and take three-year averages of

the financial ratios. The linking variable is continuous and its range is the set of real numbers. The ordered probit model can be expressed as follows:

$$R_i^* = \alpha D_{sol} + X_i \beta + \varepsilon_i$$

$$R_i = \begin{cases} 17 & if \quad R_i^* \in [\mu_{16}, \infty), \\ 16 & if \quad R_i^* \in [\mu_{15}, \mu_{16}), \\ \cdots\cdots & \\ 2 & if \quad R_i^* \in [\mu_1, \mu_2), \\ 1 & if \quad R_i^* \in (-\infty, \mu_1\}, \end{cases}$$

where μ_i are partition points, β is a vector of coefficients and ε_i is a standard normal random error with zero mean.

Following the literature, the independent variables included in this study are some accounting ratios measuring interest coverage, profitability, leverage, the dummy variable indicating whether the issue is solicited or not, some specific characteristics of the issue, and beta and sigma from the market model.[20] The solicited issues dummy variable is the focus of interest. If either the private information or the punishment hypothesis is true, we expect to see a positive coefficient on this dummy variable.

The specific accounting ratios used are interest coverage, operating margin, return on asset, long-term debt-to-asset ratio, and book-to-market ratio. The first three ratios should be positively related to improvements in credit rating, and the last two should be negatively related to improvements in credit ratings. Some previous studies also find a positive relation between credit ratings and firm size measured by total asset or market value, so firm size is included as an explanatory variable in the model as well. The rationale is that larger firms tend to be older, with more established product lines and more varied sources of revenues (Blume et al., 1998). So we

[20] The Beta and Sigma are calculated from the market model using 200 days of return data prior to the bond issue date. I use also Beta and Sigma from the Fama-French three-factor model and the results are qualitatively the same.

should expect a positive correlation between firm size and credit ratings. Since the effect of firm size may not be linear, following the literature, the natural logarithm of firm size is used. Another two important firm level characteristics used in past studies are the beta coefficient and standard errors from the market model. The hypothesis is that a firm's ability to service its debt is decreasing in its equity risk given accounting ratios. The expected signs on these two risk measures of equity are negative.

Seniority and issue size are proved to be important determinants of ratings and they are included in the study as well. The expected sign of seniority is positive and the expected sign of issue size is negative. The reason for the negative sign of issue size is that, ceteris paribus, large issues drive up the leverage ratio and expose the security holders to more risk. Lastly, Blum et al. (1998) show that over the years of 1978 through 1995 S&P has applied more stringent standards in assigning rating categories, at least in terms of the firm characteristics used as explanatory variables in their study. To take this into account, I control for issue years in the ordered probit model as well.

5.2. Ex post performance difference

To distinguish between the punishment hypothesis and private information hypothesis, I check whether there is significant difference between the two groups in the ex post performance. There are different ways to measure ex post performance among which default rate is most widely used in most studies. However, owing to the small number of observations in the final data and the rarity of default events among investment-grade bonds, the default analysis lacks power in this study. Therefore, I use Z-score analysis as an alternative performance measure as well.[21] Z-score is a measure of bankruptcy risk constructed by Altman (1968), which has proven to be reliable tool for bankruptcy forecasting in a wide variety of contexts. The basic model is given by:

[21] Downgrading, or rating migration is not a good choice here because, unlike default, it is not an objective measure: rating agencies can decide whether and when to downgrade a bond.

$$P = \alpha\, Rating + \beta\, D_{sol} + \gamma\, D_{year} + \varepsilon$$

P is the ex post performance measure. When the default rate is used, it is a zero-one dummy variable denoting whether a bond has defaulted by the end of 2002. When Z-score is used, it is calculated using this formula:

$$Z = .012X_1 + .014X_2 + .033X_3 + .006X_4 + .999X_5$$

Where
X_1 ---working capital/total assets
X_2 ---retained earnings/total assets
X_3 ---earnings before interest and taxes/total assets
X_4 ---market value equity/book value of total debt
X_5 ---sales/total assets

For the Z-score measure, I perform the same analysis for one, two, three, and four years after the issuance separately to see whether the ex post performance differences exist for various time spans.

6. Results

I summarize the two hypotheses mentioned in the introduction and their predictions in Table 5 before presenting the results. The private information hypothesis predicts a positive coefficient on the solicitation dummy variable for the ex ante analysis and zero-coefficient for the ex post analysis. For the punishment hypothesis, we would expect a positive coefficient the solicitation dummy variable for the ex ante analysis, a positive coefficient for the default regression, and a negative coefficient for the Z-score regression (note that the bigger the Z score is, the better the quality of the firm in terms of bankruptcy risk).

6.1. Ex ante result

All the variables from Compustat are available on a yearly basis, therefore I randomly keep one issue per firm-year in the regressions to avoid repetition[22]. All the regressions in this subsection are based on this sample of 423 observations, among which 85 are unsolicited issues and 338 are solicited issues. The results from the ordered probit analysis are presented in Table 6.

A few observations can be made. First, the solicitation dummy is positively significant for both Moody's and S&P. This implies that controlling for public information, firms that pay for rating agencies get a better rating than those that do not pay. This result is consistent with both the punishment and the private information hypotheses. To further distinguish them, the ex post analysis is needed. All other estimated coefficients have signs as predicted, and most of them are significant at the conventional confidence level. Consistent with previous literature, other significant variables are firm size, issue size, long-term debt leverage ratio, seniority, return on asset, beta and sigma from the market model. Among them, the first four are the most important determinants and they are all highly significant at the 1% level.

In an ordered probit model, there are no natural magnitudes for the linking variable, making it hard to interpret the economic significances of the size of the estimated coefficients. To aid in interpreting the effect of solicitation, Table 7 compares the predicted ratings assuming all issues to be unsolicited with the predicted rating assuming them to be solicited.[23] The predicted rating is defined as the rating with the highest probability calculated from the estimated parameters. The interpretation of this table is "how much better are the ratings they receive if the firms pay the agencies than the ratings they receive if they do not pay?" Note that private information and

[22] The analysis is repeated on different random samples and the results do not depend on the sampling, therefore only one set of the results is presented.

[23] The model used here for the prediction is the first one in Table 7, i.e. the model with Moody's ratings as dependent variable and firm size measured by market value. Other model specifications lead to qualitatively similar results and therefore are omitted.

possible self-selection are not taken into account in the model and therefore the comparison cannot say anything about whether the favorable treatment is justifiable or not.

Among the 423 issues in the regression, 315 (or 74%) would be assigned the same ratings no matter whether they solicit ratings or not, 108 (or 36%) would get better ratings if they solicit ratings. There are no cases of the opposite possibility, which is getting a better rating without soliciting. These figures give us some sense about the size of the solicitation effect: roughly speaking, an issuer has a one-third chance to get a better rating by soliciting. In the case of the private information hypothesis, this measures the difference in true quality; in the case of the punishment hypothesis, this measures the penalty for not paying the rating fee. Another related question that can be addressed by this table is "how much better a rating can a firm get by soliciting, conditional on getting a better one?" The numbers in the last two rows provide the answer. In more than half of the cases (83 out of 108, or 77%), issue can ratings that are one notch better. In the rest 25 cases, the issues get ratings that are two or more notches better.

There are concerns about this identification technique because the agencies' fee schedules are complex and they change over time. To test the reliability of my identification, in Table 8 I compare the difference between ratings by S&P and Moody's for each of the following groups: those who pay no agency, those who pay one agency, and those who pay two agencies. If the procedure I use does a fairly good job in identifying correctly the solicited issues, one would expect the difference to be larger when only one agency is paid given the results from the ex ante analysis. Table 8 shows that the difference in ratings received is significantly larger when only one agency is paid than when no or two agencies are paid. This gives us confidence in the identification. Furthermore, I try another identification technique as follows: I first calculate the rating fee as a percentage of the amount filed, and then by industry I divide all issues into three groups according to this ratio. Solicited issues are defined as the top group for each industry. All

the results remain qualitatively the same with this second identification. Therefore they are omitted here, but available from the author upon request.

6.2. Ex post results

The purpose of this section is to distinguish the private information hypothesis from the punishment hypothesis using the ex post analysis. The results are presented in Table 9. In panel A the default rate is used as the ex post performance measure and in panel B the Z-score is used. For the Z-score, the same sets of regressions are run for one, two, three and four years after the issuance. For all the measures and for all the years, the coefficient on the solicitation dummy is not significantly different from zero at the 5% confidence level. Taken together with the ex ante result, this finding is inconsistent with the punishment hypothesis and consistent with the private information hypothesis. Even though the conflicts of interest may give rating agencies the incentives to apply different standards for solicited and unsolicited issues, the findings in this study are not in favor of this suspicion. Instead, they are in line with the claim that the reputation concern is strong enough to make rating agencies forgo short-run profits and maintain long-run credibility.

In panel A, it is easy to see that ratings assigned at issuance in general are good predictors for defaults: the higher the rating an issue receives, the lower is the probability of default. The coefficient on the solicitation dummy is negative, but is is not significantly different from zero. In panel B, the dependent variable is the Z-score, rating is highly significant in all the specifications as well. For all the regressions, the year dummy variables are not significantly different from zero. Therefore they are omitted from the tables to save space.

Overall, the significantly positive coefficient on the solicitation dummy variable in the ex ante analysis and the insignificant coefficient on this dummy in the ex post regressions are consistent with the private information hypothesis. Firms have some private information that can be

disclosed to rating agencies only through direct contacts. Depending upon the quality of the private information (relative to the issuer's public information) the expected gain from getting a better rating can be calculated. If the benefit is larger than the cost of soliciting a rating, a firm will do so. Otherwise the firm will not pay for it.

There is another piece of evidence that is consistent with the private information hypothesis and inconsistent the punishment hypothesis. These two hypotheses have different predictions with respect to the behavioral changes of repeated issuers. Under the punishment hypothesis, only change from unsolicited to solicited ratings should be observed; while under the private information hypothesis, there is no clear prediction. In the final data, there are 303 distinct issuers, among whom 207 have multi debt issues during the sample period. Only 17 have ever changed behaviors regarding rating solicitation. Among these 17 events, only 4 changed from unsolicited to solicited ratings and 13 changed the opposite direction. This can be viewed as a piece of additional evidence against the punishment and for the private information hypothesis.

6.3. Robustness check

There are concerns about the identification technique employed in this paper: the actual rating fee schedules are more complicated and change over time, this technique may not be able to correctly identify the solicited issues. To address this concern, I change the identification point up and down to check the robustness of the baseline results. More specifically, instead of taking all issues with rating fees greater than the sum of calculated fees according to the fee schedule (hereafter I call this number "the sum"), I try to take issues with rating fees greater than a certain number times the sum (say 0.8 times, 1.5 times, etc). The predictions are as follows: When we increase the criterion, the accuracy should not decrease, and therefore we should have the same or even stronger results. However, if we drop the criterion the prediction is not clear. It may be the case that those issuers with reported rating fees slightly smaller than the sum have hired some

smaller rating agencies.[24] In this case, dropping down the criterion might deteriorate the identification and the results could become weaker. Another possibility is that these issues with rating fees slightly smaller than the sum belong to frequent issuers. Frequent issuers get some discount since it is less costly to evaluate the same firm over a short period of time (White, 2001). In this case, the results should remain unchanged.

In Table 10 panel A, I report the ex ante robustness check. In all the columns, firm size, issue size, seniority, long-term debt leverage ratio, and sigma are all highly significant. The dummies for solicited issues are all positively significant when the criterion moves up to 1.25 and 1.5 times of the sum, just as predicted. When the criterion moves downward to 0.9 and 0.8, the coefficient on the solicitation dummy becomes less significant. To be more specific, in the two columns with S&P ratings the coefficients are significant only at the 10% level.

To further test the robustness of the results, I keep only the issues by frequent issuers when the criterion is moved down. By keeping only the frequent issuers, we would expect the solicitation effect to be more or less unchanged from the baseline result. The results are reported in Panel B. When only the frequent issuers' bonds are kept, the coefficient on the solicitation dummy becomes significant at the 5% level for all specifications. I try two different definitions for "frequent issuer": issuers with at least 3 (or 5) issues in the sample. There is weak pattern that the solicitation effect is stronger when number 5 is used than when number 3 is used. The results give further support of the basic conclusion that unsolicited issues get lower ratings when only pubic information is controlled for.

In panel C, the results are reported for the ex post robustness check with a Z-score measure. In all columns, the coefficients on the solicitation dummy are not significant at the 5% level. Even

[24] For example, *LACE Issue Rating Service* has rating fee schedule for new issue as follows: One-quarter of one basis point based on the total par value of the issue with a minimum charge of $3,000and maximum of $25,000. (http://www.lacefinancial.com/NewIssueFeeSchedule.htm)

though Z-score is not a perfect measure of the credit risk, the fact that the ratings turn out to be highly significant in all the specifications, and the R-square range from 0.27 to 0.32 gives further confidence that the Z-score measure is not too noisy. I use also default rate as the performance measure in the ex post robustness check. The results are qualitatively the same, and therefore are omitted.

6.4. Non-Compustat firms

One concern with the results so far is that the private information hypothesis is based on the inability to reject the null hypothesis in the ex post analysis, and the inability to reject the null may be simply driven by the lack of statistical power. The comparison between the Compustat firms and the non-Compustat firms can alleviate this concern, and provide further support for the private information hypothesis.

For the period of January1, 1994 to December 31, 2002, I could find rating fees from EDGAR for 1,074 non-Compustat debt issues and 3,186 Compustat issues. Defining solicited issues and unsolicited issues as described in the data section leaves 600 issues in the final sample of non-Compustat firms and 1,898 in the final sample of Compustat firms.

Table 11 compares the difference between the solicited and unsolicited issues for Compustat firms and non-Compustat firms. Because the accounting data for non-Compustat firms come only from the SDC dataset, which has lots of missing values, I include only variables that have at least 30 observations for non-Compustat unsolicited issues. A few observations can be made. First, on the firm level non-Compustat issuers are smaller in size measured by total asset and common equity. Non-Compustat issuers have a higher debt leverage ratio (both long-term debt and total debt). Second, solicited issues differ from unsolicited issues in the same pattern for both Compustat firms and non-Compustat firms, but the differences are larger for non-Compustat firms.

The results from the ex ante analysis for non-Compustat firms are presented in Table 12 Panel A. The model is very similar to the analysis for Compustat firms except that I have to drop some explanatory variables owing to missing values. Luckily, the most significant variables in baseline analysis all have a reasonable number of observations. Similar to previous results, firm size, seniority and leverage ratio (only for Moody's) are all significant and have the expected signs. The coefficient on the solicitation dummy is positive and significant at the 5% level. The size of these coefficients is 0.93 and 0.89 for Moody's and S&P respectively, which are much larger than those in the Compustat case. These findings imply that for both Compustat and non-Compustat firms, solicited issues get better ratings controlling only for public information. However, the difference is larger for non-Compustat firms than for Compustat firms. The reason is that investors know much less about non-Compustat firms, therefore the private information plays a more important role in non-Compustat case. To further check whether this difference is significant, I run the ordered probit regression using pooled data—Compustat firms and non-Compustat firms. The interaction term of the solicitation dummy and the Compustat dummy has negative sign, which is as expected. However, the coefficients are not significantly different from zero, probably because we have very few non-Compustat firms in the regression.

Another prediction of the private information hypothesis is that the proportion of unsolicited issues is smaller for non-Compustat firms than Compustat firms. The rationale is as follows: the true quality among firms with the same public information has a larger dispersion in the case of non-Compustat firms because the investors have less information on them. If the benefit from soliciting is determined in the same fashion and the rating fee is the same for the two types of firms, the absolute distance between the firm that is indifferent between soliciting and un-soliciting a rating and the firm at the bottom of the quality distribution is the same in both cases.

Since the non-Compustat firms have wider dispersion, the proportion of unsolicited issues should be smaller[25].

The results from my identification confirm this prediction. Among 686 issues of non-Compustat firms, 84 (12.24%) are unsolicited issues, while among the 1,543 debts issued by Compustat firms, 465 (24.5%) are unsolicited issues. A proportion test yields a Z-stat of 6.725, which is highly significant. Further more, I conduct the proportion tests for each rating category that has a significant number of observations, the same pattern is observed.

The ex post analysis is limited to a default measure because the accounting data for calculating a Z-score is not available for non-Compustat firms. The results are reported in Table 12 Panel B. The same pattern as the case for Compustat firms appears, solicitation dummy variable is not significantly different from zero for both Moody's and S&P. Taken together with the ex ante results, this implies that firms hire agencies and pay for ratings to get the opportunity to present their private information and get fair ratings. Rating agencies do a fairly good job in maintaining consistent standards for different type of issuers.

6.5. How do investors think?

In this sub-section, I compare the pricing of solicited and unsolicited ratings. This analysis cannot be used to distinguish the punishment hypothesis from the private information hypothesis for two reasons. First, investors may have no information on whether a rating is solicited or not.[26] Second, if investors do have the information and can adjust prices to account for the difference in true quality, issuers can sell their bonds to the rational investors at the fair price no matter what the actual ratings assigned by agencies. Therefore whether the issuers will be unfavorably treated would not change their decision to pay for ratings and in equilibrium the

[25] For a numerical illustration, please see Appendix C.

[26] It is not clear whether issuers disclose this information to the public. The fact that the antitrust division urges the SEC to require rating agencies to disclose this information can be viewed as evidence that there does not exist an easy way for investors to get this information through issuers.

punishment hypothesis could not hold. Nevertheless, this approach can still be used as an additional check for the private information hypothesis. Under the private information hypothesis, investors would not require different spreads. To test this, following model is used.

$$y_i = \varphi D_{sol} + \gamma C_i + \eta_i$$

where y_i is the spread over benchmark or the yields to maturity at issuance and C_i is the vector of control variables that take explicitly into consideration factors that are known to influence bond spreads. Specifically, it includes rating, the size of the issue, maturity, nature of coupon, and call provision.

I report the results from the yields (spreads) regressions in Table 13. In panel A the ratings are measured by ordinal numbers and in panel B the dummy variables for each notch are included instead of one ordinal number to take into account the non-linearity. The rating assigned to the issue is highly significant in all columns. On average, a rating that is one notch better can bring the yields demanded by the market down by 0.19 (or the spread over benchmark by18 basis point). Panel B shows the strong non-linearity: the change from speculative grade to investment grade drops the yields down by 0.59 (Moody's) or 0.66 (S&P) and brings down the spread over benchmark by 53 basis point (Moody's) or 66 basis point (S&P).

Sigma is positively significant in spread regressions, which is consistent with the intuition that there exists a connection between equity and bond. Year to maturity is highly significant in all specifications, which is as expected. Call provision dummy variable is positively significant. Many of the year dummy variables are negatively significant, which implies that investors demand a lower yield in the later years.

Lastly, in all the models the solicited rating dummy is not significantly different from zero. This is consistent with that investors do not have the information on whether a rating is solicited or

not. More importantly, it is also consistent with the private information hypothesis. In this case, investors do have the information about which issue is solicited or not, but since they know that the rating agencies incorporate fairly the quality of the issue in both cases, they do not adjust the required yields.

7. Conclusion

This paper empirically investigates whether rating agencies treat unsolicited issues unfavorably. Using rating fees reported in the registration statement to distinguish unsolicited issues from those solicited ones, I am able to test different hypotheses explaining the observed lower unsolicited ratings by looking at the ex post performance. The results do not support the concern that rating agencies give unfavorable ratings to non-soliciting issuers to force future payments.

The findings that solicited issues receive better ratings than those unsolicited ones controlling for only pubic information, and that there is no statistically significant difference in ex post performance between solicited and unsolicited issues, are consistent with the private information hypothesis. The robustness checks further provide strong support for the baseline analysis. Issuers with better private information self-select to solicit for ratings, and rating agencies can value private information together with pubic information in a consistent way. This leads to the result that the ex post performances are similar for solicited and unsolicited issues controlling for ratings.

The comparison between Compustat firms and non-Compustat firms further alleviate the test power concern for the private information hypothesis. A larger proportion of non-Compustat firms solicit for ratings than do Compustat firms. The solicitation effect is stronger for non-Compustat firms than for Compustat firms owing to a more severe asymmetric information problem.

The results obtained in this paper have strong public policy implications. The debate on whether the SEC should impose stronger regulation and oversight has been the focus of attentions for a while. The arguments on both sides can be summarized as follows: Those supporting stronger regulation argue that the small number of NRSROs and the entry barrier give strong monopoly power to the incumbents and they use “strong arm” tactics to threaten competitors and issuers. Those against direct regulations argue that the reputation concern can solve the problem pretty well and there is no need for direct regulation and oversight on the rating industry, and direct regulation could even have negative consequences. The results in this paper give support for the latter, at least with respect to the unsolicited rating issue. It seems that the reputation concern of the rating agencies is strong enough to hold them back from treating firms that pay for ratings favorably.

One thing worth mentioning is that the rating fees used in this study are estimates, not the actual fees paid to the agencies. To some extent, this weakens the power of the results. Another weakness of the paper is that I do not directly observe how many agencies the issuers hire and to whom they pay, therefore I have to proxy solicitation. Furthermore, in the ex post performance test, the default analysis lacks power owing to the small number of observations and the rarity of defaults. Given these weaknesses, the results should be interpreted with caution.

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Table 1 Comparison of Fees

This table presents the t-test for mean equality of two groups: issues with zero or no reported rating fees and issues with non-zero reported rating fees. The fees are in U.S. dollars. The total expenses include SEC registration fees, accounting fees, rating agency fees, legal fees, and miscellaneous fees. The test statistics for the mean is t-stat and the test statistics for the median is Pearson Chi2.

	Miscellaneous Fees			*Total Fee*		
	zero or no rating fee	*non-zero rating fee*	*test*	*zero or no rating fee*	*non-zero rating fee*	*test*
Observations	313	1097		313	1096	
Mean	25549	23169	-1.1579	505493	779649	8.5695
S.D.	38687	29923		394980	525109	
Min	0	0		63681	137931	
P25	8424	7200		328965	425000	
P50	13422	15000	0.9714	400000	586450	84.9064
P75	33182	27586		600000	1013000	
Max	317000	322775		2025000	3300000	

Table 2 Initial Ratings for Solicited and Unsolicited Issues

This table describes the rating distribution of the final sample of 1,142 issues, among which 829 are defined as solicited issues according to the criterion that the reported rating fee is greater than the sum of the scheduled fees. The other 313 are defined as unsolicited issues because they have zero or no reported rating fee.

Rating level	*Moody*	*Solicited*		*Unsolicited*		*S&P*	*Solicited*		*Unsolicited*	
		#	*%*	*#*	*%*		*#*	*%*	*#*	*%*
17	Aaa	5	0.6	0	0.0	AAA	8	1.0	0	0.0
16	Aa1	17	2.1	1	0.3	AA+	6	0.7	0	0.0
15	Aa2	39	4.7	1	0.3	AA	36	4.3	1	0.3
14	Aa3	32	3.9	19	6.1	AA-	57	6.9	27	8.6
13	A1	95	11.5	56	17.9	A+	69	8.3	54	17.3
12	A2	160	19.3	15	4.8	A	206	24.8	26	8.3
11	A3c	120	14.5	101	32.3	A-	85	10.3	86	27.5
10	Baa1	90	10.9	32	10.2	BBB+	138	16.6	31	9.9
9	Baa2	138	16.6	29	9.3	BBB	101	12.2	30	9.6
8	Baa3	78	9.4	21	6.7	BBB-	85	10.3	22	7.0
Investment subtotal		774	93.4	275	87.9		791	95.4	277	88.5
7	Ba1	34	4.1	4	1.3	BB+	11	1.3	10	3.2
6	Ba2	4	0.5	7	2.2	BB	9	1.1	1	0.3
5	Ba3	6	0.7	6	1.9	BB-	6	0.7	5	1.6
4	B1	5	0.6	9	2.9	B+	5	0.6	3	1.0
3	B2	4	0.5	5	1.6	B	5	0.6	9	2.9
2	B3	2	0.2	6	1.9	B-	2	0.2	7	2.2
1	Caa	0	0.0	1	0.3	CCC	0	0.0	1	0.3
Speculative subtotal		55	6.6	38	12.1		38	4.6	36	11.5
Total		829	100.0	313	100.0		829	100.0	313	100.0

Table 3 Difference in Moody's and S&P Ratings

This table compares the ratings assigned by Moody's with S&P for 1410 issues in the final sample. The second last row is the number of issues that get better rating from S&P than Moody's by the number of notches given in the last row. The last two columns are similarly defined. For example, there are 280 issues with S&P rating that is one notch better than Moody's rating and 56 issues with S&P rating that is two notches better than Moody's rating.

S&P \ Moody's	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	***M>SP***	***by***
1	**1**	0	0	0	0	0													17
2	0	**5**	3	0	1	0	0												16
3	0	4	**5**	6	1	0	0												15
4	0	0	2	**5**	1	2	0	0											14
5	0	0	0	2	**7**	1	3	0	0										13
6		0	0	1	1	**3**	5	0	0	0									12
7			0	1	1	7	**11**	4	0	0	0								11
8				0	0	0	20	**67**	27	1	0	0							10
9					0	0	5	20	**107**	42	5	20	1						9
10						0	1	15	49	**88**	26	0	0	0					8
11							0	1	14	16	**154**	2	2	6	0				7
12								0	2	4	49	**172**	78	2	0	0			6
13									0	1	8	32	**81**	25	0	1	0		5
14										0	7	3	44	**16**	18	2	0	1	4
15											0	0	0	30	**32**	8	0	28	3
16												1	0	5	0	**5**	0	18	2
17													0	0	0	4	**8**	246	1
SP>M														*1*	*13*	*56*	*280*	**767**	0
by	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	

Table 4 Comparison of Solicited-rating and Unsolicited-rating Groups

This table compares the mean and standard deviation of selected firm and issue characteristics for the solicited-rating group (829 issues) and the unsolicited-rating group (313 issues). Current ratio, quick ratio, and cash ratio are measurements of liquidity. Interest coverage ratio, ROC, ROA, and ROE are measurements of profitability. Book-to-market ratio and debt leverage ratio capture the capital structure of the issuing firm. Beta and Sigma are calculated from a market model using data for the 200-day period before the bond issue. Seniority is defined as 1 for senior bonds and 0 for subordinated bonds.

	Solicited		*Unsolicited*		
Issuer Characteristics	*mean*	*st.d.*	*mean*	*st.d.*	*t-stat for equa*
Total Asset(MM$)	9499	10490	9692	9873	0.28
Common Equity(MM$)	2924	3156	2664	2600	-1.30
Current Ratio (%)	1.35	0.55	1.39	0.56	1.17
Quick Ratio (%)	0.74	0.39	0.71	0.46	-1.19
Cash Ratio (%)	0.16	0.24	0.16	0.34	-0.10
Interest Coverage	7.68	5.36	6.59	3.12	**-3.37**
Operating Margin (%)	18.25	9.86	16.80	10.75	**-2.16**
ROC (%)	12.86	6.70	12.31	7.02	-1.21
ROE (%)	17.92	20.90	14.67	15.82	**-2.49**
ROA (%)	4.37	2.90	4.13	2.71	-1.25
B2M	0.37	0.20	0.38	0.21	0.26
Long Debt Lev (%)	25.59	11.48	28.02	12.29	**3.13**
Tot Debt Lev (%)	32.42	11.68	37.31	14.74	**5.85**
Beta	0.85	0.34	0.84	0.30	-0.48
Sigma	1.90	0.91	1.96	0.80	1.00
Issue Characteristics					
Seniority	0.99	0.10	0.95	0.21	**-3.92**
Years to Maturity	14.9	13.9	14.7	15.1	-0.17
S&P Rating	10.91	2.37	10.43	2.83	**-2.89**
Moody's Rating	10.81	2.43	10.32	2.80	**-2.92**
Yield to Maturity (%)	6.97	0.97	7.15	1.29	**2.26**
Spread over Benchmark(bp)	94.62	67.79	113.08	105.77	**3.02**

Table 5 Hypotheses and Predictions

This table lists the predictions of the two hypotheses discussed in the introduction. The plus symbol stands for an expected positive coefficient on the dummy variable for solicited issues. The minus symbol stands for an expected negative coefficient, and 0 stands for "no impact expected."

Hypothesis	*Ex ante Regression*	*Ex post Performance Regression*
Private Information	+	0
Punishment	+	+(Default) / -(Z-score)

Table 6 Ordered Probit Regression of Rating

This table presents the ordered probit regression result of rating determination. The dependent variable is the rating assigned by Moody's or S&P. Solicited is a binary variable equaling 1 for solicited issues and 0 for unsolicited issues. Year1995 is dummy variable equaling 1 if the issue year is 1995, and other year dummy variables are similarly defined. Significance at the 5% and 1% levels is indicated by * and **, respectively.

	Moody's	*S&P*	*Moody's*	*S&P*
	0.342	0.274	0.327	0.262
Solicited	[2.52]*	[2.16]*	[2.47]*	[2.08]*
	0.155	-0.008	0.16	-0.019
IntCov	[0.75]	[0.05]	[0.74]	[0.12]
	-0.005	0.005	0.002	0.012
OM	[0.82]	[0.98]	[0.35]	[2.28]*
	0.053	0.066	0.111	0.124
ROA	[1.51]	[2.42]*	[2.80]**	[4.32]**
	-0.03	-0.041	-0.037	-0.047
LDevtLev	[4.01]**	[5.87]**	[5.07]**	[7.17]**
	-0.357	-0.4	-0.307	-0.353
Beta	[1.95]	[2.26]*	[1.68]	[1.99]*
	-0.182	-0.156	-0.181	-0.158
Sigma	[3.12]**	[2.48]*	[3.10]**	[2.48]*
Market	0.745	0.66		
Value	[12.61]**	[10.64]**		
			0.667	0.593
Total Asset			[11.37]**	[9.43]**
	-0.348	-0.506	-1.209	-1.24
B2M	[1.19]	[1.67]	[4.31]**	[4.35]**
	2	2.059	1.809	1.967
Senior	[4.91]**	[5.04]**	[4.28]**	[5.03]**
	-0.002	-0.002	-0.002	-0.002
PrincAmt	[4.40]**	[4.46]**	[4.54]**	[4.24]**
	-0.074	-0.129	0.03	-0.042
Year1995	[0.30]	[0.54]	[0.13]	[0.18]
	-0.295	-0.417	-0.173	-0.304
Year1996	[1.22]	[1.77]	[0.73]	[1.31]
	-0.416	-0.474	-0.279	-0.352
Year1997	[1.73]	[2.06]*	[1.18]	[1.55]
	-0.37	-0.432	-0.208	-0.295
Year1998	[1.54]	[1.87]	[0.88]	[1.30]
Observations	423	423	423	423
Pseudo-R^2	0.2356	0.2293	0.2149	0.2123

Table 7 Unsolicited Ratings versus Solicited Ratings Using the Ordered-Probit Model

This table compares the predicted solicited ratings (by setting a solicited-ratings dummy equal to 1) with the predicted unsolicited ratings (by setting a solicited-ratings dummy equal to 0) for the 423 issues in the ordered probit regression. The last row lists the number of issues that have a predicted solicited rating better than the unsolicited prediction by number of notches given in the last row. The last two columns are defined in a similar way.

Predicted Unsolicited Ratings

Predicted Solicited Ratings	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	***unsl >sl***	***by***
1	**0**																	0	17
2	1	**6**																0	16
3	0	3	**4**															0	15
4	0	0	4	**4**														0	14
5	0	0	0	0	**0**													0	13
6		0	0	0	0	**0**												0	12
7			0	4	0	0	**17**											0	11
8				0	0	0	9	**2**										0	10
9					0	0	0	14	**141**									0	9
10						0	0	0	17	**0**								0	8
11							0	0	17	0	**0**							0	7
12								0	0	0	19	**103**						0	6
13									0	0	0	16	**35**					0	5
14										0	0	0	0	**0**				0	4
15											0	0	0	0	**0**			0	3
16												0	1	0	0	**0**		0	2
17													3	0	0	0	**3**	0	1
sl> unsl	0	0	0	0	0	0	0	0	0	0	0	0	0	3	5	17	83	**315**	0
by	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	

Table 8 Comparing the Issues with Zero, One, or Two Solicited Ratings

This table compares the absolute difference between ratings give by Moody's and S&P among issuers that pay no, one, and two agencies. Group 0 denotes issues for which no agency is paid; group 1 denotes issues for which only one agency is paid; and group 2 denotes issues for which two agencies are paid.

Group	*Obs*	*Mean*	*Std. Err.*	*Std. Dev.*	*T-stat*
0	313	0.4696	0.0332	0.5882	t=-6.5775
1	268	0.9030	0.0569	0.9311	
1	268	0.9030	0.0569	0.9311	t = 6.5087
2	829	0.5018	0.0238	0.6839	

Table 9 Ex post Regressions

This table presents the results from ex post regressions. The dependent variables are the dummy variable for default by the end of 2002 and the Z-score (Altman, 1968) calculated for one up to four years after issuance. Rating is the ordinal number for initial ratings. Solicited is the dummy variable, equal to 1 for solicited issues and 0 otherwise. Significance at the 5% and 1% levels is indicated by * and ** respectively.

Panel A: Default

Default	*Moody's*	*S&P*
Solicited	-0.36	-0.382
	[1.01]	[1.08]
Rating	-0.182	-0.157
	[3.67]***	[3.75]***
Year1995	0.543	0.495
	[1.21]	[1.12]
Year1996	0.263	0.234
	[0.64]	[0.58]
Year1997	0.146	0.085
	[0.30]	[0.17]
Year1998	0.365	0.307
	[0.83]	[0.70]
Constant	-0.29	-0.417
	[0.54]	[0.80]
Observations[27]	651	651
Seudo_R^2	0.1963	0.1675

Panel B: Z-Score regression

	One Year After		*Two Years After*		*Three Years After*		*Four Years After*	
	Moody's	*S&P*	*Moody's*	*S&P*	*Moody's*	*S&P*	*Moody's*	*S&P*
Solicited	0.225	0.301	-0.236	-0.205	0.055	0.115	0.098	0.205
	[0.47]	[0.64]	[0.66]	[0.57]	[0.15]	[0.32]	[0.28]	[0.57]
Rating	0.817	0.807	0.53	0.513	0.534	0.499	0.582	0.536
	[6.79]**	[7.18]**	[8.41]**	[8.57]**	[7.39]**	[7.26]**	[8.82]**	[8.39]**
Constant	-2.723	-2.915	-0.377	-0.39	-0.353	-0.242	-1.241	-1.071
	[1.97]*	[2.16]*	[0.47]	[0.50]	[0.38]	[0.26]	[1.54]	[1.31]
Observations	382	382	352	352	334	334	315	315
R-squared	0.17	0.18	0.23	0.23	0.22	0.2	0.26	0.24

[27] The number of observations in the default regression is bigger than others because in the default regression we use all the 1410 issues to merge with DRS data. While in other regression we keep only 423 observations to avoid repetition.

Table 10 Robustness Check

Panel A: Ex ante

This table presents the results from robustness check for the ex ante regression. Four different identifications are used and the results are listed separately. 0.8*sum is the specification that takes the issues with a reported rating fee greater than 0.8 times the sum as solicited issues. Other specifications are defined in a similar way. All other variables are defined the same way as the baseline analysis reported before. Significance at the 5% and 1% levels is indicated by * and ** respectively.

Criteria	*0.8*sum*		*0.9*sum*		*1.25*sum*		*1.5*sum*	
	Moody's	*S&P*	*Moody's*	*S&P*	*Moody's*	*S&P*	*Moody's*	*S&P*
Solicited	0.265	0.207	0.266	0.219	0.344	0.326	0.364	0.347
	[2.03]*	[1.66]	[2.04]*	[1.75]	[2.62]**	[2.56]*	[2.76]**	[2.69]**
IntCov	0.144	-0.033	0.144	-0.027	0.166	-0.039	0.174	-0.022
	[0.75]	[0.23]	[0.74]	[0.18]	[0.80]	[0.25]	[0.84]	[0.13]
OM	-0.005	0.004	-0.005	0.005	-0.003	0.007	-0.005	0.006
	[0.93]	[0.84]	[0.85]	[0.90]	[0.51]	[1.13]	[0.71]	[0.94]
ROA	0.055	0.074	0.055	0.073	0.045	0.071	0.033	0.06
	[1.65]	[2.86]**	[1.61]	[2.77]**	[1.28]	[2.45]*	[0.96]	[2.10]*
LDebtLev	-0.032	-0.041	-0.031	-0.041	-0.03	-0.038	-0.028	-0.036
	[4.36]**	[6.08]**	[4.20]**	[5.92]**	[4.01]**	[5.33]**	[3.69]**	[5.01]**
Beta	-0.443	-0.483	-0.406	-0.445	-0.414	-0.474	-0.392	-0.51
	[2.53]*	[2.86]**	[2.28]*	[2.58]**	[2.25]*	[2.68]**	[1.98]*	[2.70]**
Sigma	-0.203	-0.197	-0.211	-0.204	-0.188	-0.178	-0.179	-0.158
	[3.96]**	[3.42]**	[3.93]**	[3.35]**	[3.31]**	[2.72]**	[3.03]**	[2.22]*
Firm Size	0.767	0.66	0.758	0.659	0.799	0.716	0.815	0.72
	[13.84]**	[11.13]**	[13.01]**	[10.67]**	[11.97]**	[10.25]**	[12.04]**	[9.90]**
B2M	-0.349	-0.595	-0.319	-0.533	-0.332	-0.337	-0.309	-0.311
	[1.22]	[2.02]*	[1.10]	[1.78]	[1.14]	[1.11]	[1.08]	[1.04]
Senior	2.053	2.039	2.052	2.074	1.63	1.632	1.662	1.627
	[4.85]**	[5.11]**	[4.87]**	[5.19]**	[3.83]**	[4.43]**	[4.00]**	[4.46]**
PrincAmt	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
	[5.82]**	[4.85]**	[5.71]**	[4.80]**	[5.09]**	[4.92]**	[4.90]**	[4.75]**
Year1995	-0.131	-0.18	-0.132	-0.168	-0.046	-0.005	-0.048	-0.001
	[0.55]	[0.79]	[0.54]	[0.71]	[0.19]	[0.02]	[0.18]	[0.00]
Year1996	-0.363	-0.459	-0.362	-0.45	-0.3	-0.306	-0.245	-0.233
	[1.57]	[2.02]*	[1.51]	[1.93]	[1.26]	[1.29]	[0.99]	[0.94]
Year1997	-0.442	-0.488	-0.449	-0.483	-0.427	-0.408	-0.38	-0.362
	[1.91]	[2.20]*	[1.87]	[2.12]*	[1.81]	[1.78]	[1.54]	[1.52]
Year1998	-0.453	-0.481	-0.443	-0.467	-0.357	-0.316	-0.309	-0.265
	[1.99]*	[2.18]*	[1.87]	[2.05]*	[1.53]	[1.40]	[1.26]	[1.12]
Observations	446	446	431	431	377	377	354	354
Pseu-R^2	0.2405	0.2301	0.2372	0.2297	0.2418	0.2328	0.2382	0.2264

Panel B: Ex ante with only frequent issuers

This table presents the results of a further robustness check by taking into account the fact that frequent issuers get discounts. The first row is the rating fee criterion and the second row is the frequency criterion for those issues with rating fees that fall below the sum. Frequency gt 5 means keeping only bonds issued by a firm with 5 or more issues. Significance at the 5% and 1% levels is indicated by * and ** respectively.

Rating Fee greater than	*0.9*sum*				*0.8*sum*			
Frequency greater than	*5*		*3*		*5*		*3*	
	Moody's	*S&P*	*Moody's*	*S&P*	*Moody's*	*S&P*	*Moody's*	*S&P*
Solicited	0.397	0.367	0.419	0.327	0.413	0.37	0.434	0.335
	[2.78]**	[2.70]**	[2.93]**	[2.37]*	[2.89]**	[2.73]**	[3.04]**	[2.44]*
IntCov	0.85	0.357	0.55	0.244	0.805	0.267	0.546	0.211
	[2.82]**	[1.32]	[2.40]*	[1.17]	[2.75]**	[1.02]	[2.45]*	[1.04]
OM	-0.003	0.009	-0.007	0.002	-0.004	0.009	-0.008	0.002
	[0.41]	[1.22]	[1.09]	[0.40]	[0.50]	[1.27]	[1.21]	[0.35]
ROA	0.028	0.028	0.073	0.068	0.037	0.04	0.077	0.075
	[0.66]	[0.68]	[1.92]	[1.77]	[0.86]	[0.95]	[2.06]*	[2.00]*
LDebtLev	-0.029	-0.04	-0.034	-0.043	-0.03	-0.043	-0.034	-0.044
	[2.67]**	[3.84]**	[3.91]**	[4.82]**	[2.88]**	[4.17]**	[4.03]**	[5.04]**
Beta	-0.277	-0.22	-0.176	-0.091	-0.341	-0.285	-0.229	-0.148
	[1.21]	[0.95]	[0.78]	[0.43]	[1.50]	[1.24]	[1.04]	[0.72]
Sigma	-0.168	-0.199	-0.181	-0.194	-0.158	-0.201	-0.174	-0.197
	[2.27]*	[2.17]*	[2.96]**	[2.64]**	[2.28]*	[2.38]*	[2.95]**	[2.83]**
Firm Size	0.802	0.625	0.767	0.633	0.785	0.593	0.755	0.606
	[9.17]**	[7.59]**	[10.02]**	[8.37]**	[9.59]**	[7.44]**	[10.51]**	[8.24]**
B2M	-0.08	-0.388	-0.312	-0.624	-0.135	-0.518	-0.326	-0.694
	[0.20]	[0.91]	[0.84]	[1.66]	[0.34]	[1.23]	[0.90]	[1.88]
Senior	3.028	2.488	2.715	2.27	3.009	2.503	2.705	2.271
	[5.81]**	[5.18]**	[5.05]**	[5.26]**	[5.75]**	[5.25]**	[5.08]**	[5.31]**
PrincAmt	-0.003	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
	[4.79]**	[3.78]**	[4.48]**	[4.06]**	[4.88]**	[3.67]**	[4.64]**	[3.99]**
Year1995	-0.635	-0.525	-0.645	-0.516	-0.617	-0.548	-0.611	-0.512
	[1.90]	[1.49]	[2.25]*	[1.74]	[1.92]	[1.60]	[2.20]*	[1.78]
Year1996	-0.766	-0.68	-0.836	-0.716	-0.779	-0.74	-0.836	-0.757
	[2.35]*	[1.93]	[2.96]**	[2.38]*	[2.45]*	[2.13]*	[3.03]**	[2.57]*
Year1997	-1.043	-0.893	-0.917	-0.802	-1.029	-0.922	-0.901	-0.822
	[3.21]**	[2.48]*	[3.26]**	[2.73]**	[3.25]**	[2.61]**	[3.27]**	[2.86]**
Year1998	-0.977	-0.93	-1.021	-0.889	-0.97	-0.963	-1.007	-0.907
	[3.13]**	[2.64]**	[3.78]**	[3.04]**	[3.21]**	[2.78]**	[3.84]**	[3.19]**
Observations	230	230	289	289	239	239	299	299
Pseudo-R^2	0.2942	0.2523	0.2866	0.256	0.2966	0.253	0.2883	0.2557

Panel C: Ex post

This table presents the results from a robustness check for the ex post regression. Four different identifications are used and results are listed separately. 0.8*sum is a specification that takes the issues with a reported rating fee greater than 0.8 times the sum of the calculated rating fees according to the pricing schedules of the agencies. Other specifications are defined similarly. All other variables are defined the same way as the baseline analysis reported before. Significance at the 5% and 1% levels are indicated by * and ** respectively.

Criteria	*0.8*sum*		*0.9*sum*		*1.25*sum*		*1.5*sum*	
	Moody's	*S&P*	*Moody's*	*S&P*	*Moody's*	*S&P*	*Moody's*	*S&P*
	-0.389	-0.301	-0.35	-0.271	-0.412	-0.346	-0.375	-0.308
Solicited	[0.92]	[0.72]	[0.83]	[0.64]	[1.00]	[0.82]	[0.90]	[0.73]
	0.638	0.619	0.662	0.645	0.682	0.647	0.681	0.642
Rating	[9.66]**	[9.72]**	[9.78]**	[9.91]**	[10.49]**	[9.93]**	[10.21]**	[9.65]**
	0.129	0.219	0.08	0.145	0.42	0.435	0.507	0.522
Year1995	[0.23]	[0.39]	[0.14]	[0.25]	[0.84]	[0.89]	[0.97]	[1.02]
	0.542	0.676	0.541	0.661	0.618	0.709	0.552	0.633
Year1996	[0.95]	[1.17]	[0.92]	[1.12]	[1.30]	[1.45]	[1.11]	[1.25]
	0.027	0.159	-0.042	0.076	-0.008	0.1	-0.156	-0.04
Year1997	[0.05]	[0.28]	[0.07]	[0.13]	[0.02]	[0.20]	[0.31]	[0.08]
	0.463	0.551	0.363	0.448	0.537	0.637	0.435	0.534
Year1998	[0.80]	[0.94]	[0.60]	[0.74]	[1.02]	[1.20]	[0.79]	[0.97]
	-1.381	-1.458	-1.558	-1.646	-1.876	-1.776	-1.807	-1.67
Constant	[1.95]	[2.05]*	[2.13]*	[2.25]*	[2.64]**	[2.45]*	[2.53]*	[2.30]*
Observations	394	394	379	379	331	331	314	314
R-Squared	0.27	0.28	0.29	0.29	0.32	0.31	0.32	0.31

Table 11 Comparison of Issues of Compustat Firms and Non-Compustat Firms

This table compares the mean and standard deviation of selected firm and issue characteristics for Compustat firms and non-Compustat firms, broken down by solicited and unsolicited groups. Only a limited number of variables is kept owing to a missing- value problem in the SDC database.

	Compustat Firms					*Non-Compustat Firms*				
	Solicited		*Unsolicited*			*Solicited*		*Unsolicited*		
Issuer Characteristics	*mean*	*st.d.*	*mean*	*st.d.*	*t-stat*	*mean*	*st.d.*	*mean*	*st.d.*	*t-stat*
Total Asset (MM$)	9499	10490	9692	9873	0.28	6167	5417	6096	8201	-0.07
Common Equity (MM$)	2924	3156	2664	2600	-1.30	1711	2180	2851	4812	2.57
Interest Coverage	7.68	5.36	6.59	3.12	-3.37	4.25	7.00	0.39	4.35	-2.98
LDebtLev (%)	25.59	11.48	28.02	12.29	3.13	27.85	31.79	52.28	55.11	3.74
TDebtLev (%)	32.42	11.68	37.31	14.74	5.85	42.10	26.86	61.93	48.07	3.53
Issue Characteristics										
Principle(MM$)	137	152	117	165	-1.94	167	261	387	380	6.80
Seniority	0.99	0.10	0.95	0.21	-3.92	0.98	0.16	0.82	0.39	-6.65
Years to Maturity	14.9	13.9	14.7	15.1	-0.17	9.66	10.37	11.87	7.15	1.89
S&P Rating	10.91	2.37	10.43	2.83	-2.89	11.15	3.00	7.61	4.19	-9.59
Moody's Rating	10.81	2.43	10.32	2.80	-2.92	10.78	2.90	7.12	3.96	-10.31
Yield (%)	6.97	0.97	7.15	1.29	2.26	7.19	1.56	8.29	2.03	5.60
Spread over BM(bp)	94.62	67.79	113.08	105.77	3.02	156.29	127.71	237.23	165.46	4.95

Table 12 Analysis for Non-Compustat Firms

Panel A: Ex ante

In this table, the ordered probit regression results for non-Compustat firms and for pooled data are presented. The dependent variable is the rating assigned by Moody's or S&P. Solicited is a binary variable equaling 1 for solicited issues and 0 for unsolicited issues. Solicited*Compustat is the interaction of the solicited-rating dummy and the Compustat dummy (equals 1 for Compustat firms and 0 otherwise). Significance at the 5% and 1% levels is indicated by * and **, respectively.

	Moody's	*S&P*	*Moody's*	*S&P*
Solicited	0.829	0.885	0.637	0.625
	[2.28]*	[2.44]*	[1.74]	[1.66]
Solicited*Comp			-0.27	-0.292
			[0.72]	[0.76]
IntCov	0.014	0.006	0.011	0.003
	[0.65]	[0.31]	[0.49]	[0.12]
IntCov*Comp			0.769	0.776
			[7.35]**	[7.58]**
DebtLev	-0.013	-0.007	-0.023	-0.018
	[1.71]	[0.91]	[4.15]**	[3.25]**
LDebtLev *Comp			0.041	0.085
			[0.26]	[0.51]
Total Asset	0.893	0.932	0.808	0.765
	[7.16]**	[6.95]**	[11.60]**	[10.23]**
Total Asset*Comp			-0.268	-0.256
			[4.21]**	[3.85]**
Senior	1.698	1.991	1.992	2.056
	[4.06]**	[4.54]**	[4.62]**	[5.30]**
Senior*Comp			0.055	0.189
			[0.12]	[0.45]
Year Dummies	Y	Y	Y	Y
Observations	90	89	877	876
Pseudo-R^2	0.2532	0.2482	0.175	0.1704

Panel B: Ex post

This table presents the results from ex post regressions for non-Compustat firms. The dependent variable is the dummy variable for default by the end of 2002. Rating is the ordinal number for initial ratings. Solicited is the dummy variable, equal to 1 for solicited issues and 0 otherwise. Significance at the 5% and 1% levels is indicated by * and ** respectively.

	Moody's		*S&P*	
Default	*Coef.*	*z-stat*	*Coef.*	*z-stat*
Solicited	-0.054	[0.14]	-0.069	[0.17]
Rating	-0.167	[3.44]**	-0.169	[3.45]**
Year1995	-0.001	[0.00]	-0.023	[0.04]
Year1996	0.354	[0.75]	0.307	[0.67]
Year1997	0.355	[0.51]	0.321	[0.47]
Year1999	0.997	[1.74]	1.025	[1.82]
Constant	-0.494	[1.13]	-0.416	[0.97]
Observations	149		148	
Pseudo-R^2	0.1604		0.1984	

Table 13 Yield/Spread Regressions

Panel A

This table presents the OLS regression results of yield to maturity and spread to benchmark. The dependent variables are yield to maturity (in percentage) and spread to benchmark (in basis point), respectively. The ratings are the ordinal numbers with Aaa (AAA) equal to 17 and the others in decreasing order. Issue size is the principle amount in millions of dollars. Beta and sigma are calculated from a market model using data in the 200-day period before the issuance. Significance at the 5% and 1% levels is indicated by * and ** respectively.

	Yield		*Spread*	
	Moody's	*S&P*	*Moody's*	*S&P*
Solicited	-0.004	-0.022	2.342	1.028
	[0.04]	[0.21]	[0.25]	[0.11]
Rating	-0.185	-0.18	-17.899	-17.738
	[11.58]**	[12.07]**	[13.89]**	[14.13]**
PrincAmt	0.001	0.001	0.05	0.049
	[2.15]*	[2.12]*	[1.69]	[1.80]
Beta	0.13	0.074	12.063	6.353
	[1.19]	[0.67]	[1.36]	[0.74]
Sigma	0.079	0.098	11.255	12.855
	[1.85]	[2.34]*	[2.96]**	[3.48]**
Maturity	0.009	0.009	0.147	0.123
	[5.60]**	[5.35]**	[1.20]	[0.97]
Callable	1.02	0.987	80.164	76.232
	[5.27]**	[5.11]**	[4.36]**	[4.24]**
Senior	-0.539	-0.54	-57.636	-55.998
	[1.66]	[1.61]	[1.89]	[1.82]
Year1995	-0.909	-0.91	-16.996	-17.258
	[4.37]**	[4.37]**	[1.28]	[1.32]
Year1996	-0.737	-0.762	-7.604	-10.349
	[3.49]**	[3.62]**	[0.51]	[0.71]
Year1997	-1.169	-1.188	-39.273	-41.448
	[5.73]**	[5.81]**	[2.86]**	[3.04]**
Year1998	-1.699	-1.687	3.643	4.683
	[8.39]**	[8.29]**	[0.26]	[0.33]
Constant	10.127	10.154	309.195	314.283
	[26.22]**	[25.80]**	[9.10]**	[9.35]**
Observations	373	373	367	367
R-squared	0.74	0.73	0.72	0.72

Panel B

This table presents the OLS regression results of yield to maturity and spread to benchmark. The dependent variables are yield to maturity (in percentage) and spread to benchmark (in basis point), respectively. CCC to AA+ are dummy variables for each fine rating category. Issue size is the principle amount in millions of dollars. Beta and sigma are calculated from a market model using data in the 200-day period before the issuance. Significance at the 5% and 1% levels is indicated by * and ** respectively.

	Yield				*Spread*			
	Moody's		*S&P*		*Moody's*		*S&P*	
	Coef.	*T-stat*	*Coef.*	*T-stat*	*Coef.*	*T-stat*	*Coef.*	*T-stat*
Solicited	0.017	[0.18]	-0.051	[0.51]	7.193	[0.88]	-0.005	[0.00]
CCC	4.679	[9.61]**	4.033	[9.28]**	523.077	[15.94]**	465.738	[12.88]**
B-	3.929	[7.72]**	3.066	[6.23]**	416.554	[11.21]**	334.611	[7.85]**
B	3.597	[5.13]**	2.843	[5.72]**	392.325	[9.03]**	337.537	[7.81]**
B+	3.169	[7.55]**	2.998	[7.27]**	336.759	[10.18]**	333.166	[9.90]**
BB-	3.013	[6.79]**	2.827	[6.26]**	337.803	[10.55]**	301.363	[7.06]**
BB	1.776	[4.72]**	2.291	[6.39]**	192.674	[8.30]**	222.672	[6.43]**
BB+	1.757	[5.50]**	1.661	[5.36]**	164.016	[6.73]**	171.131	[7.00]**
BBB-	1.165	[4.20]**	1.004	[4.49]**	111.049	[6.32]**	104.715	[7.59]**
BBB	0.933	[3.35]**	0.696	[3.36]**	95.848	[5.67]**	79.645	[5.87]**
BBB+	0.905	[3.32]**	0.699	[3.59]**	97.784	[5.67]**	72.705	[6.19]**
A-	0.714	[2.64]**	0.615	[2.97]**	71.472	[4.59]**	68.722	[5.16]**
A	0.55	[2.05]*	0.439	[2.19]*	66.689	[4.28]**	52.463	[4.88]**
A+	0.428	[1.56]	0.224	[1.09]	53.69	[3.55]**	44.68	[3.83]**
AA-	0.41	[1.35]	0.288	[1.35]	45.951	[2.86]**	38.128	[3.21]**
AA	0.212	[0.64]	0.082	[0.35]	37.304	[2.13]*	25.022	[2.08]*
AA+	0.505	[1.55]	0.062	[0.18]	46.302	[2.80]**	33.456	[2.95]**
Issue Size	0.001	[2.30]*	0	[1.43]	0.062	[2.10]*	0.036	[1.14]
Beta	0.097	[0.93]	0.069	[0.59]	8.973	[1.32]	3.742	[0.50]
Sigma	0.041	[1.16]	0.065	[1.87]	6.573	[2.34]*	8.47	[2.90]**
Maturity	0.01	[6.09]**	0.01	[6.25]**	0.241	[2.66]**	0.235	[2.66]**
Callable	0.634	[3.30]**	0.639	[3.63]**	33.827	[2.00]*	32.996	[2.26]*
Senior	0.331	[0.80]	-0.004	[0.01]	47.566	[1.61]	14.441	[0.41]
Year1995	-0.868	[4.29]**	-0.922	[4.41]**	-12.348	[1.26]	-13.581	[1.31]
Year1996	-0.715	[3.59]**	-0.832	[4.03]**	-4.246	[0.41]	-11.614	[1.08]
Year1997	-1.031	[5.16]**	-1.109	[5.42]**	-22.322	[2.12]*	-26.251	[2.40]*
Year1998	-1.568	[7.79]**	-1.643	[7.91]**	17.309	[1.49]	15.108	[1.22]
Constant	6.438	[11.98]**	7.13	[14.43]**	-79.252	[1.92]	-16.166	[0.37]
Observations	373		373		367		367	
R-Squared	0.78		0.77		0.8		0.8	

Appendix A: Item 14 Sample

This is item 14 from the registration statement filed by Disney Enterprises Inc. The amount filed is $5,000mm, and three rating agencies (Moody's, S&P, and Duff) are hired.

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PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

ITEM 14. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION

All expenses other than the Securities and Exchange Commission filing fees are estimated.

VIEW THIS TABLE IN EXCEL

SEC registration fee	1,559,207
Accountants' fees and expenses	20,000
Legal fees and expenses	50,000
Blue Sky fees and expenses	20,000
Printing and engraving expenses	75,000
Rating agencies' fees	750,000
Trustee's and registrar's fees and expenses	25,000
Miscellaneous	250,793
Total:	$2,750,000

Appendix B: Variable Definitions

This appendix lists variables used in the analysis including the names, definitions, and corresponding Compustat variable names. For example, "current ratio=(4)/(5)" means current ratio is calculated as data 4 divided by data 5 in the Compustat Industrial Annual file.

Variable code	Variable Name and Definition	Compustat Variable Name
Liquidity		
CR	Current Ratio =current asset/current liabilities	=(4)/(5)
QUICK	Quick Asset Ratio =quick asset[28]/current liabilities	=[(1)+(2)]/(5)
CASH	Cash Ratio =(cash and short-term investments)/current liabilities	=(1)/(5)
Profitability		
IntCov	Interest Coverage =(operating income after depreciation+interest expense)/interest	=[(178)+(15)]/(15)
OM	Operating Margin =operating income before depreciation/(sales-net)	=(13)/(12)
ROC	Return on Capital =(Income before EI+Interest)/total invested capital	=[(18)+(15)]/(37)
ROE	Return on Equity =(Income before EI-avail for Common)/Common Equity-Total	=(237)/(60)
ROA	Return on Assets = Income before EI+Interest/ (total asset+Depr.,Depl.&Amort.)	=(18)/[(6)+(196)]
Capital Structure		
LDebtLev	Long-term Debt to Total Assets = long-term debt/total asset	=(9)/(6)
TDebtLev	Total Debt to Capital =long-term debt+debt in current liabilities/total asset	=[(9)+ (34))]/ (6)
M2B	Market to Book Ratio =Common Equity-Total/(price*Common Shares Outstanding)	=(60)/[(24)*(25)]

[28] quick asset is equal to current asset minus inventory

Appendix C: A Numerical Example

In this appendix, I illustrate the point that in the case of non-Compustat firms the proportion of unsolicited issues is smaller than that of Compustat firms because the private information plays a more important role in the former case.

The basic assumption is that investors have less information about non-Compustat firms; therefore, for firms with the same public information, the true quality of the non-Compustat firms has larger dispersion. For simplicity, let us assume the quality can be translated into the interest rate at which the firm can borrow from the capital market.

Assume that the interest rate of the median firm is 10%, which is the same for both Compustat and non-Compustat firms. The true quality of non-Compustat firms is uniformly distributed between 0% and 20%, and the true quality of Compustat firms is uniformly distributed between 5% and 15%.

Firm i can borrow at the interest rate of i% if it discloses the private information, otherwise the rating agency assume it has the average quality of all firms who do not solicit for ratings. Suppose all firms issue bonds with the same principle value P and the rating fee is the same for all firms at R.

Among non-Compustat firms, the firm x_{nc} that is indifferent between the two choices is given by

$(x_{nc} + \frac{20 - x_{nc}}{2}) * P = x_{nc} * P + R$, and this gives $x_{nc} = 20 - \frac{2R}{P}$

The proportion of unsolicited issuers is then $\frac{R}{10P}$.

Similarly, firm x_c that is indifferent between the two choices for Compustat firms is given by

$(x_c + \frac{15 - x_c}{2}) * P = x_c * P + R$, and this yields $x_c = 15 - \frac{2R}{P}$

The proportion of unsolicited issuers is $\frac{R}{5P}$, which is larger than the non-Compustat case. The intuition of this simple example is that the minimum benefit needed to be indifferent between the two choices is the same for Compustat firms and non-Compustat firms, the absolute difference between the indifference firm and the worst firm is the also the same. Because the dispersion of the Compustat firms is narrower, the percentage of firms that fall in the range is larger, that is the percentage of unsolicited issues is larger for the Compustat firms than for the non-Compustat firms.