

Does Corporate Governance Influence Preferred Stock Ratings and Yields?

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Abstract

I explore the relationships between corporate governance and preferred stock ratings and yields. I find that managers in firms that issue rated preferred stock are less protected from control changes than managers of firms that issue non-rated preferred stock. Further, while I find that corporate governance influences preferred stock ratings, I do not find that it exercises a separate effect on preferred stock yields. Instead, I find that preferred stock yield spreads are largely influenced by firm idiosyncratic risk, ratings and the equity positions of selected institutional investors.

1. Introduction

Since Gompers, Ishii, and Metrick (2003), a growing empirical literature has emerged that attempts to link corporate governance mechanisms to security pricing. While preferred stock has attracted very little attention in prior research, it is an interesting class of securities because it is commonly considered a hybrid of debt and equity. Like bondholders, preferred stock holders have seniority over common stock holders on corporate cash flow claims. However, any missed preferred stock dividend payments will not force firms into bankruptcy. Further, unlike interest paid on corporate bond, dividends on preferred stock are not tax-deductible to the issuers, but corporate investors can deduct up to 70% of such dividend income.

As a consequence of these features, the effect of corporate governance on preferred stock ratings and pricing is more complex. For example, while issuers of preferred stock can miss preferred stock dividend payments, such events will not put them in technical default and so not potentially force them into bankruptcy. This feature means that the potential conflict between stockholders and bondholders over the firm's investment policies can be even more severe between stockholders and preferred stockholders. However, the severity of this conflict might be mitigated by the typical presence of cumulative dividends provisions whereby the issuers are required to make up missed preferred stock dividend payments before they can pay common stockholders.

As a result of this complexity, the question of whether corporate governance influences preferred stock ratings and pricing is largely an empirical issue. Using a cross-sectional sample of 496 preferred stock yield observations on Nov 15, 2004, I find evidence for the following inferences. First, managers in firms that issue rated preferred stock are less

protect from control changes than managers in firms that issue non-rated preferred stock. Second, for firm that issue rated preferred stock, their corporate charter features and ownership structure influence their ratings. Third, while preferred stock ratings are influenced by a corporation's charter features, only its ownership structure continues to exercise a separate influence on its yields. Thus, the influence of anti-takeover provisions is largely incorporated into preferred stock ratings. And finally, for firms that issue non-rated preferred stock, neither their charter provisions nor their ownership structure exercises any significant influence on their yields. I interpret this last result to suggest that there are few differences in the governance features of firms that issued non-rated preferred stock.

To present this evidence, I organize the paper as follows. Section 2 reviews the literature and recent empirical research relating corporate governance to equity prices, the cost of debt and firm performance. Section 3 describes the data and the methodology used in this study. Section 4 presents the primary empirical results. Section 5 concludes the paper.

2. Governance and Preferred Stock

The core linkages between corporate governance and the pricing of preferred stock are both conflicts of interest between managers and shareholders, and between different financial claimants on the firm. As noted above, the features of preferred stock mean that it is more exposed to the conflicts between managers and shareholders, and also faces potential conflicts with other financial claimants. To address what effect corporate governance might have on preferred stock pricing, I review some of the prior literature below.

2.1 Corporate Charter Provisions

Gompers, Ishii, and Metrick (2003) construct an index of corporate charter provisions to proxy for the level of shareholder rights: the higher the index, the lower the shareholder rights, thus the weaker the ability of shareholders to control governance of the corporation. Using this simple measure of corporate governance, they find firms with stronger shareholder rights (fewer anti-takeover provisions) had higher firm value, higher profits, higher sales growth, lower capital expenditures, and made fewer corporate acquisitions. Furthermore, the value of good corporate governance is reflected in equity prices. Investors who bought firms with the best governance and sold those with the weakest rights would have earned abnormal returns of 8.5 percent per year during their sample period.

Cremers and Nair (2005) extends this work by distinguishing between external and internal corporate governance mechanisms. Gompers et al's Governance Index tends to focus on external governance features. Cremers and Nair use data on blockholder and public pension fund holdings to capture internal governance features. They find that those mechanisms are strong complements for large firms while for small firms, external governance is independent of internal governance, and that its effectiveness increases with better internal governance. Thus, extant empirical evidence appears to support the view that poor governance is not beneficial for common shareholders.

Turning to debt financing, I observe a slightly different story. Klock, Mansi and Maxwell (2003) examine the relation between the cost of debt financing and one single proxy for governance, "Governance Index." They find that anti-takeover governance provisions lower the cost of debt financing.

Cremers, Nair and Wei (2005) complement the above study by implementing Cremers and Nair (2005) methodology in the study of bond yields. They point out that the interaction between different governance mechanisms is crucial – the relation between governance and bondholder wealth is not uniform across all firms. Stronger shareholder control can either increase or decrease bondholder risk, contingent on the takeover defenses that the firm has in place.

2.2 Institutional Ownership Structure

As noted above, Gompers et al. “Governance Index” is primarily focused on the firm’s anti-takeover provisions, and so largely focuses on changes in control. However, effective corporate governance also embodies internal monitoring of managers by either large non-management shareholders, or the board of directors. In this connection, there has been much attention given to the growing activism of institutional investors in corporate governance. However, past research has been unable to establish a consistent relationship between institutional investors and firm behavior.

The “active monitoring hypothesis” argues that institutional shareholders have incentive to monitor corporate performance since they have greater benefit and enjoy greater voting power (Shleifer and Vishny 1986, Jarrel and Poulsen 1987). The competing “passive monitoring hypothesis” says that it is difficult for institutional shareholders to take collective action, and therefore, they are more likely to sell their holdings in the face of poor performance (Black 1990, Coffee 1991, Karpoff, Malatesta, and Walking 1996).

There are also two conflicting theories on blockholding. While “private benefit hypothesis” suggests that blockholders can exercise undue influence on management and

therefore damage other capital providers, the “shared benefit hypothesis” claims that blockholding leads to more efficient monitoring and such benefits are shared by all other shareholders.

I show note, however, that “the single phrase” institutional investors “obscures important differences” between individual types of institutional investors (Black 1992). Thus, it may be important to distinguish between different types of institutional investors. For example, one can classify them according to their various lines of business and different legal and fiduciary obligations into the following groups; bank trusts, insurance companies, public pensions, private pensions, independent investment advisors, investment companies, and university and foundation endowments. Bushee, Carter, and Grekos (2004) find that only public pensions and investment advisors, which serve as external managers of pension funds, exhibit significant preferences for governance. Qiu (2004) shows that public pension funds are effective monitors of corporate merger and acquisition activity. Sherman, Beldona, and Joshi (1998) also find significantly different relationships between those categories of institutional investors and firms’ strategic investment. Consequently there appears to be some value in distinguishing between types of institutional investors.

In the context of corporate bond research, Bhojraj and Sengupta (2003) focus on an aggregate proxy – the total institutional ownership. They link a greater institutional ownership to a lower yield and a higher rating of bonds. On the other hand, Cremers and Nair (2003) measure internal governance using data on blockholder and public pension fund holdings and observe that concentrated institutional ownership can have an adverse effect on bond yields and ratings.

2.3 Board Features and Insider Ownership

Previous literature has also provided evidence that board size, board composition and CEO stock ownership are potentially important corporate governance features for the pricing of securities. With respect to corporate bonds, which are the most similar securities to preferred stock, there are two relevant studies. Bhojraj and Sengupta (2003) include the percentage of the board of directors who are not also officers of the firm, and find that this percentage is correlated with improved ratings and lowered yields. Ashbaugh-Skaife, Collins, and LaFond (2004) use a framework evaluating corporate governance recently developed by Standard & Poor's. They document that, after controlling for risk characteristics, firm debt credit ratings are positively related to over-all board independence, stock ownership and expertise, and negatively related to CEO power on the board.

2.4 Prior empirical evidence

Given the above discussion, I now turn to prior research on the determinants of preferred stock pricing. While I could find no studies that examine the determinants of preferred stock ratings, I was able to find a study of the determinants of preferred stock yields.

Bajaj, Mazumdar, and Sarin (2000) compare the spreads actually earned on preferred stocks relative to various bond yields. Their data suggest that preferred stock earns a lower yield than comparably rated corporate bonds, consistent with the conventional tax based argument. What is not addressed by Bajaj, Mazumdar, and Sarin's evidence is whether this due to the prevalence of cumulative dividend provisions in preferred stock issues outstanding or not. Cumulative provisions reduce the risk associated with dividend omissions.

An additional line of research on preferred stock of relevance to my study concerns what features differentiate firms that issue different types of preferred stock. Lee and Figlewicz (1999) examine firms that issue convertible debt versus firms that issue convertible preferred stocks. They find that convertible preferred stock issuing firms have larger non-debt tax shields and higher level of bankruptcy risk. Supplementing this evidence, Howe and Lee (2004) use several corporate governance measures to distinguish preferred stock issuers from non issuers. They find preferred issuers have significantly lower managerial equity ownership, thus the use of preferred stock might serve to reduce agency cost.

3. Description of Data

3.1 The Sample

In this study, I examine the effects of a firm's governance features on its preferred stock's ratings and yields while controlling for selected firm and issue specific characteristics. To conduct this examination, I collect data on all traded preferred stocks issues available from "Preferreds Online" (www.epreferreds.com). This online subscription database provides detailed trading information on preferred stocks, including current yield, yield to call, maturity date, call date, rating, last price, and so on. I take the trading record on November the 15th 2004 of more than 3500 issues. Foreign issues are deleted from this master sample. I then match the issuing firm with corporate governance data from IRRC, accounting data from COMPUSTAT, stock return data from CRSP, and stock ownership data from Thomson Financial. The resulting sample with complete data represents 845 straight issues.

Table 1 Panel A presents the issue characteristics of the sample. The largest issuers are from financial sector. Most issues are callable. While most issues by financial and utility sector are straight, half of the industrial issues are convertible. Industrial group also have most of their issues callable. On average about 20% of the issues are trust preferred stocks, and utility sector has a lot of issues by subsidiary firms. As usual, very few preferred stock issues carry voting rights. 162 issues are not rated. While I do not explore the reason why those issues are not rated, according to Moody and Standard and Poor, prior to assignment of any rating, issuing firms have to agree to pay to the rating agency for appraisal and rating services rendered by its fees ranging from \$1,000 to \$1,500,000.

Table 1 panel B describes the industry distribution of my sample. The industry is divided using the standard security industry classification (SIC) codes. Since a large portion of the sample is concentrated in the financial and utility industries, this raises questions about the influence of regulation on the issuance of preferred stock. I try to control for this influence in subsequent analyses.

3.2 Preferred Stock Ratings

While the credit ratings for corporate debt reflect consideration of default risk and the recovery prospects associated with specific debt being rated, the preferred stock ratings must also capture the relative risk that the firm will not be able or willing to make timely payment of dividends.

According to Standard & Poor's Corporate Ratings Criteria (2004), prior to 1999, Standard & Poor's used a separate preferred stock scale. In February 1999, they integrated the debt and preferred stock scales and state the following. "Preferred stock generally is rated

below subordinated debt. When a company's corporate credit rating is investment grade, its preferred stock is rated two notches below the corporate credit rating. For example, if the corporate credit rating is 'A+', the preferred stock would be rated 'A-'. (In case of an 'AAA' corporate credit rating, the preferred stock would be rated 'AA+'.) When the corporate credit rating is non-investment grade, the preferred stock is rated at least three notches (one rating category) below the corporate credit rating.” If there are exceptional situations in which the dividend is especially jeopardized, the notching would exceed the commonly used guidelines.

Default on the preferred stock happens when a company defers or omits a preferred dividend. The rating is changed to 'D' once the payment date has passed. Whenever a company resumes paying preferred dividends but remains in arrears with respect to payments it skipped, the rating is, by definition, 'C'.

Moody's, effective as of July 27 2001 also applied the Aaa-through-C bond rating scale to preferred stock issues. According to Moody's description: “for issuers with senior unsecured or senior implied ratings of Ba2 or higher, preferred stock is generally rated two notches below the lower of the senior unsecured rating or senior implied rating. For issuers with a senior implied rating of Ba3 or lower, preferred stock is generally rated three notches below the senior implied rating.” In addition, Moody's eliminated differentials between ratings of cumulative and non-cumulative preferred stock—all classes of preferred stock issued by a single company are generally rated at the same level. This practice reflects the relatively narrow loss differential between cumulative and noncumulative preferred stock issues because a passed dividend essentially means default on the issue regardless of the cumulative feature.

So both Standard & Poor's and Moody's have integrated preferred stock rating scales with bond rating scales. The notching differences in both rating agencies with preferred stocks are very consistent with each other. These adjustments meet increased investor demand for comparability of credit risk assessments across sectors of the fixed income markets. However, the re-calibration represents a change in the overall rating system for preferred stock but not a change in the risk assessment of any issuer's fundamental credit quality. Appendix B provides the rating scale and definition.

Table 2 illustrates the pattern of all issues with either Moody's or Standard & Poor's rating information or both. Each row represents a preferred rating by Standard & Poor's and each column corresponds to Moody's. NR means not rated. The cell entries are the percentages of the Standard & Poor's preferred stock rating with the Moody's rating given by the column heading. For example, of preferred stock issues with Moody's rating of "Ba2", 50.91% have Standard & Poor's rating "BB". There are several reasons why split ratings occur. First, both S&P and Moody's agree on the creditworthiness of the issuer, but different ratings are assigned because they have different standards for ratings. Second, their methodology of evaluating the creditworthiness may differ from each other. Third, there may be no systematic difference in their rating methodology, but the difficult task requires a rating specialist's subjective judgment. The common practice is to use the average rating to reduce the bias in predicting yields or future forecast (Cantor, Packer, and Cole, 1997; Klock, Mansi, and Maxwell, 2005)

To capture preferred stock ratings, I create “credit_score,” which is an ordinal variable taking on values from 5 to 27.⁸ Appendix B also provides the mapping between this ordinal scaling and the different letter ratings. The rating variable represents the average of Moody’s and S&P ratings if both ratings are available. It is equal to Moody’s rating or S&P’s ratings if only either one of them is available. Thus, credit_score represents the credit rating of a preferred stock issue. A dummy variable is created to indicate investment grade issues apart from speculative grade issues. Investment_grade is equal to 1 if the issue has a credit score greater than or equal to 17, which is corresponding to Moody’s ‘Baa3’ or Standard & Poor’s ‘BBB-’. “Adj_rating” is the adjusted rating information without the influence of corporate governance measures. It is constructed by taking the residual from regressing credit_score on the corporate governance proxies, Gindex and Inst_own. Since in most cases, a firm’s long-term debt rating serves as a benchmark for the rating agencies to set up preferred stock rating, issuer’s long-term credit rating is obtained from Compustat Industrial Annual with the name “SP_LT_issuer_rating” in my analysis.

3.3 Preferred Stock Yields

While I primarily use current preferred stock yields in my analyses, I also compute the preferred stock yield spread as the current yield less a matching U.S. Treasury bond yield. Specifically, “Term_structure” represents the corresponding daily averages of the constant-maturity yield on the U. S. Treasury Bond with matching maturity. The bond rates are obtained from the Federal Reserve Database (FRED). If the maturity period of a preferred

⁸ To be consistent, I use the rating code assigned by S&P in COMPUSTAT Industrial Annual Database.

stock did not exactly match that of a Treasury bond, yield data was matched with the Treasury bond with the closest maturity. Some preferred stock issues do not have maturity date and so I match them with the Treasury bond with the longest maturity. I then define “Spread” as the difference between the yields and the Treasury bond yields.

3.4 Trust Preferred Stock

According to Standard & Poor’s, the credit rating of trust preferred stock is based on the creditworthiness of the parent company and the terms of the loan between the parent company and the trust, especially with respect to the payment flexibility. In Moody’s opinion, trust preferred stock, however, is rated at the same level as assets held or to be held by the trust, which is subordinated debt in most instances. A dummy variable “MIPS” is created to distinguish trust preferred stock from traditional preferred stock. MIPS is equal to 1 if it is a trust preferred stock issue, 0 otherwise.

3.5 Governance Measures

To capture the effects of corporate charter provisions, I use the “Gindex”, developed by Gompers, Ishii, and Metrick (2003). Gompers, et al. construct an index based on twenty-four provisions from the IRRC database. The index is constructed using a point scale from one to twenty four. For every firm, the index adds one point for every added provision. Thus, the higher the index value, the greater the protection afforded managers and the weaker are minority shareholders’ rights. Previous studies have shown that anti-takeover provisions, although not beneficial to stockholders, are viewed favorably in the bond market.

To capture the effects of the firm's ownership structure, I create a number of variables. "Block" is a dummy variable, which takes 1 if there is any institutional investor with no less than 5% ownership, 0 otherwise. The presence of a block shareholder is usually referred to as an active monitor in literature. "Inst_own" is the total percentage holdings by institutional investors. Different types of institutional investors are also considered as follows. "Bank_own" is the percentage of the company's common stocks held by banks. "Inst_own" is the percentage of the company's common stocks held by insurance companies. "Investment_own" is the percentage of the company's common stocks held by investment companies (mutual funds). "Independent_own" is the percentage of the company's common stocks held by independent investment advisors. "Other_own" is the percentage of the company's common stocks held by pension funds, foundations, endowments. And finally, "CEO_own" is percentage of the company's common stocks held by company's chief executive officer.

3.6 Control Variables

In addition to the above variables, I create a number of control variables based on previous research findings. These variables fall into two categories: firm specific and issue specific.

For my firm specific variables, I create the follow measures. "Size" represents natural log of market value of common equity. Larger firms are more likely to survive, and thereby less likely to default. This suggests that size will be negatively related to yield spread and positively related to ratings.

“Leverage” represents the sum of long-term debt and debt in current liability divided by market value of common equity. Firms with higher debt-to-equity ratios are more likely to encounter financial distress. As a consequence, firms with higher leverage ratios are expected to have higher yield spreads and lower ratings.

“MKBK” represents the market value of common equity divided by the book value of common equity. Firms with higher market-to-book ratios typically have greater growth prospects, and hence considered growth firms. MKBK is expected to be negatively related to yield spread and positively related to ratings.

“ROA” represents income before extraordinary items divided by total assets. It is intended to capture the firm’s profitability, and thereby its ability to make future dividend payments. Firms with a higher return on asset have higher profit margins, and thereby are expected to enjoy lower yield spread and higher ratings.

“Beta” represents the systematic risk of the issuing firm calculated using daily stock returns. Associated with this measure is “Idiosyncratic Risk,” which represents the unsystematic risk of the issuing firm calculated using daily stock returns. Campbell and Taksler (2003) show that idiosyncratic firm-level volatility can explain as much cross-sectional variation in corporate bond yields as credit ratings do. To the extent that either the systematic risk or idiosyncratic risk is correlated with default risk, then that measure should be positively related to yield spread and negatively related to ratings.

I use a number of dummy variables to capture issue specific features in the analysis. “Straight” is a dummy variable that takes on the value 1 if the issue is non convertible, 0 otherwise. “Callable” takes on the value 1 if the issue has a call provision, 0 otherwise. “Perpetual” takes on the value 1 if the issue has no maturity date, 0 otherwise. “Subsidiary”

takes on the value 1 if the issuer is a subsidiary instead of a parent company, 0 otherwise. “Voting rights” takes on the value 1 if the issue carries voting rights, 0 otherwise. “Financial” represents a dummy variable that takes on the value 1 if issuer is a financial institution, 0 otherwise. “Utility” represents a dummy variable that takes on the value 1 if issuer is a utility company, 0 otherwise. Since most issuers are from either the financial sector or the utility sector, regulations within those industries may influence the ratings and yields of preferred stock issuers within those industries.

3.7 Descriptive Statistics

Table 3 provides summary statistics for the sample. Included in Panel A are the mean, median, standard deviation, 25th percentile and 75th percentile for variables used in the total sample. The table shows that while the mean current yield for the whole sample is about 6.7%, The Gindex has a mean of 8.8, median of 9, minimum of 3 and maximum of 18. A lower value for the index indicates that firms have stronger shareholder rights, weaker anti-takeover protection. The average pension fund ownership is about 41.9%, which is the largest institutional investor type among the five. The second largest is bank ownership with an average of 10.2%.

In Panel B, different industrial groups are analyzed. There is considerable variation in the return on assets over different groups. For example, financial sector has the lowest ROA, 3.7%, and the industrial sector has the highest, 10.8%. The three groups do not differ much in terms of their average size and leverage ratio.

Panel C of Table 3 looks at two sub-samples, rated issues and non-rated issues. For the 683 observations with available rating information, the average rating, credit score is

18.3, which is approximately Baa2 in Moody's rating, or BBB in S&P ratings. The issuer's mean long-term debt rating is between BBB+ and A-, with the lowest being CC, and the highest being AAA. Half of the rated issues are in investment grade. The mean current yield for non-rated issues (7.1%) is higher than that of the rated issues (6.6%).

Table 4 gives the correlation, within the sample of preferred stock with ratings, between the governance variables, yield spread, ratings, and various control variables. Rating and spreads are negatively correlated (-17.74%). The correlation between Gindex and rating is negative (-13.7%). However, Rating is positively correlated with most institutional holdings except for pension fund holdings. Rating is positively correlated with firm specific control variables such as size and market-to-book ratio. At the same time, yield and spread are negatively correlated with size, return on asset, market-to-book ratio, and positively correlated with beta and idiosyncratic risk

4. Analysis

4.1 Are There Differences Between Rated and Non-Rated Preferred Stocks in Their Governance?

One hundred and sixty-two out of my total sample of 845 preferred stocks either do not have available ratings or have withdrawn ratings. In order to check whether they are rated by other major rating agency, such as Fitch Rating, I went through LexisNexis and corporate 10K filings and found none were. Actually Fitch rates far fewer preferred stock issues than either S&P or Moody. Thus, it is reasonable to ask whether there are differences between preferred stock issuers with ratings and those without ratings in terms of their governance that might be reflected in the fact some choose to be rated and some do not.

To test this possibility I created a dummy variable “Rated” which takes on the value 1 if the preferred stock has either Moody’s rating or S&P rating or both, 0 otherwise. The probability of having issues rated can be written as follows:

$$\Pr(Y_i = 1 | X) = \frac{\exp(\alpha + x_{1,i}\beta_1 + \dots + x_{k,i}\beta_k)}{1 + \exp(\alpha + x_{1,i}\beta_1 + \dots + x_{k,i}\beta_k)}$$

where X includes both governance variables and firm characteristics, i=1 if the firm has preferred stock issues rated by either S&P or Moody’s or both, 0 otherwise.

The results of the logistic regressions are presented in Table 5.⁹ I first look at the effect of accounting variables alone. It turns out that larger firms are more likely to be rated. Firms with higher profitability are more likely to be rated. When I include the firm’s Beta, the systematic risk and unsystematic risk, the results remain the same. When Gindex is considered, firms with a higher Gindex, which represents weaker shareholder control, are more likely to be rated. Total institutional holdings are also positively related to the likelihood of being rated. In all four specifications, some issue characteristics appear to be very important. Issues with call provisions are more likely to be rated. Perpetuity issues are more likely to be rated. While firms with higher systematic risk are less likely to be rated, idiosyncratic risk plays no significant role. Overall, the evidence suggests that firms with rated preferred stock have lower likelihood of the financial distress or bankruptcy. Despite possessing weaker shareholder friendly governance structures, they have more of their stock held by institutional investors. Because of these differences, I will examine the yields of rated and non-rated preferred stock issues separately.

⁹ The standard error can be biased when the residual are not independent. Petersen (2005) suggests that the Roger (1993) standard error clustered by firm is more accurate. Therefore, I adjust the regression standard errors for clustering by firm for all following regressions.

4.2 Effect of Corporate Governance on Preferred Stock Ratings

Before examining the influence of corporate governance on preferred stock yields, I first examine the influence of corporate governance on preferred stock ratings. My assumed model is: ratings = f (governance variables, control variables). Since ratings have been converted into ordinal numbers, I estimate the implied regression model as an ordered probit model:

Y_i : the ordered categorical dependent variable for observation i that takes one of the integer values from 1 to J where J is the total number of categories

Y_i^* : an unobserved continuous variable

The observation mechanism is

$$Y_i = j \quad \text{if} \quad \tau_{j-1} \leq Y_i^* \leq \tau_j \quad \text{for} \quad j = 1, \dots, J.$$

the probability for each category, is given by

$$\Pr(Y_i = j) = \phi(\tau_j | \mu_i) - \phi(\tau_{j-1} | \mu_i) \quad \text{for} \quad j = 1, \dots, J$$

where $\phi(\mu_i)$ is the cumulative distribution function for the normal distribution with mean μ_i and unit variance.

The systematic component is given by $\mu_i = x_i \beta$,

where x_i is the vector of explanatory variables and β is the vector of coefficients.

This model captures the influence of my explanatory variables on the probability of a higher rating. Using this framework, I investigate how anti-takeover provisions and institutional shareholders affect the probability that an issue falls into a particular rating category. My motivation is to see whether the rating agencies implicitly or explicitly capture these governance functions.

The results are presented in Table 6. Model 1 is based on Gindex, accounting variables and issue characteristics. Model 2 further involves block holding and total institutional ownership. Model 3 includes the Gindex, block holding, total institutional ownership variables, and CEO ownership. Model 4 replaces total institutional ownership with different types of institutional investors. Panel A shows the result using `credit_score` as the dependent variable.¹⁰

The most significant result reported in Table 6 is that the issuer's long-term debt rating plays a significant role in determining preferred stock ratings. This is consistent with the rating agency's general methodology of rating preferred stock below corporate debt ratings: the higher the issuer's debt rating the higher their preferred stock rating.

In all specifications, the Gindex coefficient is negative, but not statistically significant. Total percentage of institutional holdings has a significantly positive influence on rating, confirming one of the main results in Bhojraj and Sengupta (2003). Consistent with 'positive monitor hypothesis', rating agencies view large institutional holdings beneficial to corporate monitoring. Higher CEO ownership is considered detrimental. When the different institutional investors are examined, the heterogeneity among them is evident. Banks and insurance companies are usually referred to the 'pressure-sensitive institutions' because they might have affiliation and potential business relation with management, tend to side with management on major corporate decisions. The pressure-resistant group, like pension funds, mutual funds and investment advisors who are bound by fiduciary duties, tend to oppose

¹⁰ I also define an eight-way classification representing Moody's Aaa, Aa, A, Baa, Ba, Caa, Ca or S&P's AAA, AA, A, BBB, BB, B, CCC, CC, respectively. The results are robust to different classifications.

managerial efforts to entrench themselves, especially pension funds which are thought to benefit the most from shareholder activism because they tend to have relatively long-term investment horizons.

However, these results need to be interpreted with caution since prior research (e.g., Bhojraj and Sengupta (2003)) suggests that the issuer's long-term debt rating impounds the effect of governance and other firm specific characteristics. Specifically, Bhojraj and Sengupta (2003) find that firms that have greater institutional ownership and stronger outside control enjoy higher ratings. While the Gindex's influence on bond ratings has not yet been empirically tested, Klock, Mansi, and Maxwell (2005) do provide evidence that anti-takeover provisions are viewed favorably in the bond market because firms with higher Gindex have their bonds traded at lower yield spreads. The fact that some of the above variables continue to be significant after including the firm's debt rating suggests that they play an even greater role in preferred stock ratings.

Among the control variables, Size and ROA exhibit their expected signs and are statistically significant. The significant role played by size and ROA confirms that one of the risks associated with preferred stocks is the omission of dividend payout. If a firm is larger or more profitable, it is less risky to hold the firm's preferred stock. Interestingly, the coefficient on my leverage variable is insignificantly negative; the coefficient on the systematic risk variable is significantly positive, and the coefficient on my idiosyncratic risk variable is significantly negative. I interpret these results as suggesting that the idiosyncratic risk variable captures the relevant risk with respect to the firm's use of debt. Trust preferred stock is rated lower than traditional preferred stock by the same issuing entity. The main

concern possibly comes from the details about the intra-company loan. Perpetuity issues are viewed negative because of the exposure to larger interest rate risk and re-investment risk.

As a robustness check, I use S&P preferred stock rating as a dependent variable to be consistent with the S&P long-term issuer debt rating. Panel B of Table 6 shows that the main results are similar.

4.3 Effect of Corporate Governance on Preferred Stock Yields

I turn now to examine the effect of corporate governance on preferred stock yields using the model: $\text{spread} = f(\text{governance variables, control variables})$. Again, I examine different specifications in order to examine the incremental effect of selected features. The results are reported in Table 7. In Panel A, all issues with rating information are included.

Control variables, such as the residual rating information, size and ROA, are all statistically significant with the expected signs. The higher the rating, the lower the trading yields: a one standard deviation increase in rating (3.270) will result in a 163.5 basis points reduction (3.270×-0.005) in yields. That is, if an issue is upgraded from BBB category to AAA category, the associated change in yields is a decrease of more than 1.6%. The larger the firm, the lower the yields: a one standard deviation increase in firm size (1.901) will lead to a 38.02 basis points (1.901×-0.002) decrease in yields. And the more profitable the firm, the lower the yields: a one standard deviation increase in profitability (0.042) will lower yields by 24.78 basis points (0.042×-0.059). The effect of both the systematic risk and idiosyncratic risk is marginally significant. Thus a firm with higher risk is more likely to default. The inclusion of these variables may account for the fact that I find that the coefficient on the investment grade dummy to be negative and insignificant.

Turning to governance features, the evidence suggests that the market does not view the firm's use of anti-takeover provisions as reducing relevant risks since the Gindex coefficient is significantly positive. Further, the observed effect is economically significant. A one-standard deviation increase in Gindex (2.638) is associated with 26.38 basis point increase (2.638×0.001) in yields. Such a result is not consistent with Klock, Mansi, and Maxwell (2005) finding with regard to bond yields. After they separate out the effect of governance on ratings from the effect of governance on yields, they find Gindex is negatively and significantly related to cost of debt financing. However, my result can still be explained by the managerial entrenchment hypothesis. Preferred shareholders may perceive that anti-takeover amendments are initiated at the expense of shareholders since incumbent managers are more protect from changes in control, and thereby can engage in opportunistic behaviors. Further, total institutional ownership is not statistically significant, although the coefficient is negative, in a direction opposite to that in the rating results.

Finally, turning to issue specific features, MIPS have a higher yield since so that investor do discount trust preferred stock issues. Callable issues enjoy a lower yield spread possibly because the issuer is expected to pay a premium for the call provision. Perpetuity issues also are negatively related to yields. Issues with voting rights are viewed positive by investors so that they have lower yields.

In Panel B, only issues with investment grade ratings are examined since below investment grade bonds are less sensitive to changes in default risk. For example, in a recession interest rates tend to drop, and the drop in interest rates tends to increase the value of investment grade bonds; however, a recession increases the possibility of default in junk bonds. Consistent with this point, Campbell and Taksler (2003) point out that insurance

companies often limit or altogether prohibit the purchase of high-yield debt (speculative grade). So I look at investment grade issues separately. While most results remain the same as in Panel A, for investment grade preferred stock issues, the role of total institutional holdings is more pronounced. Higher institutional ownership tends to lower the yields of investment grade issues, *ceteris paribus*.

I conclude that while the yields of preferred stock are influenced by corporate charter provisions, rating, firm level data, and issue specific characteristics. Anti-takeover provisions increase rather than reduce the yields of preferred stock.

4.4 Effects of Governance on Speculative Grade Preferred Stock, Are Governance Mechanisms More Important for Lower Rated Issues?

The above results suggest that governance mechanisms play a conflicting role in the determination of preferred stock ratings and yields. This evidence raises the question of whether this heterogeneity is due to governance mechanisms having a differential role on preferred stock of different qualities. For speculative grade issues, firm size, profitability may not be very informative about future cash flows so that investors and rating agencies may rely more on the governance structure. Thus governance should have a greater effect in rating or yields for the speculative issues. To test this possibility I interact both *Gindex* and *Inst_own* with *investment_grade*, where “*investment_grade*” equals to 1 if the bond has Moody’s ‘Baa3’, Standard & Poor’s ‘BBB-’, or higher, 0 otherwise. The results with these interaction terms are given in Table 8.

Panel A provides the results with regard to rating. The coefficient on *Gindex* becomes significantly negative. The interaction terms, “*Investment_grade*Gindex*” and

“Investment_grade*Inst_own” are intended to capture the effectiveness of the two governance measures since being an investment grade might be necessary to lower the yields. The coefficient on Investment_grade*Gindex is 0.577 in model 1 and 0.275 in model 3, thus the impact of Gindex on rating is bigger for issues in investment grade than for those in speculative grade. While the coefficient on Investment_grade*Inst_own is -9.992 in model 2 and -9.971 in model 3, it shows that the influence of total institutional ownership is bigger for speculative grade issues than for investment grade issues. In Panel B, corporate governance measures have no significantly different influence on yields between investment grade and speculative grade sub-samples. The effect of total institutional holdings appears to be consistent with those for bonds reported in Bhojraj and Sengupta (2003), since they find that governance mechanisms, such as outside control and institutional holdings tend to have a rating improving effect and a yield lowering effect for poorly rated debt.

4.5 Effects of Governance on Non-Rated Preferred Stock, Are Governance Mechanisms More Important for Non-Rated Issues?

The preferred stock ratings are intended to measure the relative risk that the firm will not be able or willing to make timely payment of dividends. Ratings are determined by rating agency, and then used by preferred shareholders. Preferred shareholders, on the other hand, determine the yields. The previous results show that the cross sectional variation in yields can be largely explained by difference in ratings. However, 162 out of my total sample of 845 preferred stocks do not have available rating. If investors cannot observe a rating for guidance, are they more likely to rely on the corporate governance? To test this possibility, again I interact Gindex and institutional ownership with a dummy variable “Rated”, where

Rated equal to 1 if a rating has been assigned, 0 otherwise. The interaction terms, “Rated*Gindex” and “Rated*Inst_own” are designed to capture the importance of the two governance mechanisms given an issue has been rated. The results in Table 9 do not provide consistent evidence that governance has a significantly larger impact on the yields of non-rated issues than for rated issues.

6. Summary and Conclusions

Since Gompers, Ishii, and Metrick (2003), a growing empirical literature has emerged that attempts to link corporate governance mechanisms to security pricing. For example, they find firms with stronger shareholder rights (fewer anti-takeover provisions) had higher firm value, higher profits, higher sales growth, lower capital expenditures, and made fewer corporate acquisitions. Furthermore, the value of good corporate governance is reflected in equity prices. Investors who bought firms with the best governance and sold those with the weakest rights would have earned abnormal returns of 8.5 percent per year during their sample period. In contrast, Klock, Mansi and Maxwell (2003) examine the relation between the cost of debt financing and anti-takeover provisions. They find that stronger manager power lowers the cost of debt financing.

I examine the influence of corporate governance on preferred stock ratings and yields using a cross-sectional sample of 845 preferred stock yields observed on Nov 15, 2004. I find evidence for the following inferences.

First, larger firms and more profitable firms are more likely to have their preferred stock issues rated. There is no evidence suggesting that these two groups differ much in

institutional share holdings. However, firms with more anti-takeover provisions are more likely to be rated.

Second, for firms that have rated preferred stock issues, their corporate charter features do not exercise significant effect. However, different ownership structures and firm's credit rating influence their ratings.

Third, the rating and accounting data continues to exercise a separate influence on its yields. The influence of anti-takeover provisions is significantly incorporated into preferred yields, which contrast with previous findings for bond markets.

And finally, for firms that have speculative grade preferred stock issues, their institutional ownership exercises larger influence on improving their ratings. For firms that do not have rated preferred stock issues, governance mechanisms do not exhibit a differential role in improving rating or lowering yields.

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Table 1
Preferred Stock Issue Characteristics

This tables provides issue characteristics and distribution among different industry group

Panel A. Issue characteristics

Group	Obs	Callable	Perpetual	MIPS	Subsidiary	Voting rights
All	845	82.49%	63.20%	20.36%	25.80%	3.43%
Financial	402	83.33%	67.41%	26.62%	2.74%	5.97%
Industrial	129	73.64%	37.21%	20.93%	0.78%	0.78%
Utility	314	85.03%	68.47%	12.10%	65.61%	1.27%

Panel B Industrial distribution

Industry Group	SIC Code	Title of Industries	Number of Obs.	Percentage of Obs.(%)
1	0100-999	Agriculture, Forestry, Fishing	0	0
2	1000-1499	Mining	13	1.53
3	1500-1799	Construction	0	0
4	2000-3999	Manufacturing	65	7.69
5	4000-4899	Transportation, Communications	28	3.31
6	4900-4999	Public Utility	314	37.16
7	5000-5999	Wholesale and Retail Trade	10	1.18
8	6000-6999	Finance, Insurance and Real Estate	403	47.70
9	7000-8999	Service	7	0.83
10	9000-9999	Public Administration	5	0.59
		Total	845	100

Table 2
Preferred Stock Ratings by S&P and Moody's

This table provides preferred stock ratings assigned by either S&P or Moody's or both. The cell entries are the percentages of the Standard & Poor's preferred stock rating with the Moody's rating given by the column heading. For example, of preferred stock issues with Moody's rating of "Ba1", 50.91% have Standard & Poor's rating "BB".

		Moody's																				
		NR	Ca	Caa3	Caa2	Caa1	B3	B2	B1	Ba3	Ba2	Ba1	Baa3	baa2	Baa1	A3	A2	A1	Aa3	Aa2	Aa1	Aaa
S&P	NR		50.00%	60.00%	28.57%	22.22%	26.32%	57.14%	25.00%	10.53%	16.36%	7.84%	15.89%	26.58%	13.51%	32.26%	7.41%	16.22%	34.62%			20.00%
	CC	1.89%			14.29%		5.26%															
	CCC-																					
	CCC-		33.33%			11.11%																
	CCC+	3.77%	16.67%	20.00%	28.57%	22.22%	26.32%	14.29%														
	B-	5.66%			28.57%	44.44%	15.79%	14.29%	8.33%					0.93%								
	B	3.77%		20.00%			21.05%		33.33%	10.53%	5.45%											
	B+	1.89%					5.26%	14.29%	16.67%	15.79%	1.82%											
	BB-																					
	BB	7.55%								42.11%	50.91%	13.73%	1.87%	2.53%								
	BB+	5.66%									21.82%	54.90%	33.64%	3.80%	9.46%							
	BBB-	9.43%							16.67%		1.82%	5.88%	29.91%	18.99%	9.46%	6.45%						
	BBB	13.21%								21.05%		17.65%	11.21%	29.11%	22.97%	16.13%						
	BBB+	18.87%											6.54%	17.72%	25.68%	41.94%	29.63%					
	A-	1.89%												1.27%	13.51%	3.23%	18.52%	64.86%	7.69%	5.56%		
	A	11.32%									1.82%				4.05%		44.44%	16.22%	9.62%	50.00%		
	A+	5.66%													1.35%			2.70%	21.15%			
	AA-	7.55%																		26.92%		
	AA																				44.44%	
	AA+																					
AAA	1.89%																					80.00%

Table 3
Descriptive Statistics for various variables

This table provides summary statistics for the variables used in this study. Yield is the preferred stock yields reported by 'Preferreds Online'. Spread is yield minus constant-maturity yield on the U. S. Treasury Bond with similar maturity. Gindex is the governance index developed by Gompers, Ishii, and Metrick. Inst_own is total percentage of common stocks held by institutional investors. Bank_own is the institutional ownership by banks. Insurance_own is the institutional ownership by insurance companies. Investment_own is the institutional ownership by investment companies (mutual funds). Independent_own is the institutional ownership by independent investment advisors. Others_own is the institutional ownership by pension funds, foundations and endowments. CEO_own is the shares owned by CEO. Size is measured as the logarithm as total assets. Leverage is measured as the ratio of total debt to total assets. MKBK, market to-book ratio, is the ratio of market value of equity to book value of equity. ROA, return on asset, is computed by dividing the operating income before depreciation by total assets. Idiosyncratic Risk is the mean square error from regressing the daily stock returns on the value weighted market returns. SP_LT_Issuer_rating is the S&P domestic long-term issuer credit rating. Credit_score is the average of S&P ratings and Moody's ratings.

Panel A. all sample

	Mean	Median	Std	Min	25%	75%	Max
Current_yield	0.067	0.067	0.021	0.002	0.058	0.075	0.281
Spread	0.018	0.017	0.022	-0.049	0.008	0.028	0.239
Size	9.784	9.697	2.032	3.595	8.379	10.512	14.050
ROA	0.074	0.077	0.044	-0.141	0.037	0.096	0.279
Leverage	0.411	0.391	0.210	0.014	0.273	0.531	1.259
Mkbk	1.952	1.751	3.516	-61.810	1.401	2.342	44.926
Beta	0.839	0.754	0.417	-0.343	0.539	1.107	2.921
Idiosyncratic risk	0.012	0.011	0.006	0.006	0.009	0.014	0.052
Gindex	8.844	9	2.638	3	7	11	18
CEO_own	0.004	0	0.026	0	0	0	0.583
Inst_own	0.607	0.640	0.182	0.006	0.505	0.728	0.992
Bank_own	0.102	0.105	0.046	0	0.075	0.123	0.477
Insurance_own	0.022	0.014	0.024	0	0.006	0.029	0.145
Investment_own	0.012	0.010	0.009	0	0.007	0.013	0.085
Independent_own	0.064	0.060	0.029	0	0.047	0.075	0.246
Others_own	0.419	0.408	0.162	0	0.321	0.525	1.061

Table 3 continued

Panel B. different industry group

Financials	Mean	Median	Std	Min	25%	75%	Max
Current_yield	0.070	0.071	0.015	0.004	0.062	0.079	0.111
Spread	0.021	0.022	0.015	-0.046	0.013	0.030	0.061
Size	10.004	9.352	2.501	4.096	7.924	12.697	14.050
ROA	0.037	0.032	0.023	-0.003	0.025	0.043	0.152
Leverage	0.426	0.454	0.265	0.014	0.223	0.590	0.953
Mkbk	1.902	2.012	3.323	-61.810	1.565	2.419	6.843
Beta	0.903	0.823	0.291	-0.343	0.718	1.118	1.606
Idiosyncratic risk	0.012	0.012	0.004	0.006	0.010	0.014	0.052
Gindex	8.049	8	2.868	3	6	10	15
CEO_own	0.004	0.000	0.016	0	0	0	0.135
Inst_own	0.638	0.660	0.196	0.013	0.542	0.760	0.969
Bank_own	0.097	0.105	0.048	0	0.061	0.123	0.477
Insurance_own	0.021	0.017	0.017	0	0.007	0.029	0.098
Investment_own	0.013	0.011	0.010	0	0.007	0.014	0.085
Independent_own	0.067	0.067	0.031	0	0.048	0.080	0.203
Others_own	0.428	0.404	0.176	0	0.321	0.556	1.061

Utilities	Mean	Median	Std	Min	25%	75%	Max
Current_yield	0.064	0.059	0.016	0.031	0.057	0.069	0.193
Spread	0.016	0.009	0.019	-0.019	0.006	0.023	0.143
Size	9.725	9.999	0.938	6.275	9.506	10.364	10.937
ROA	0.091	0.090	0.021	0.001	0.082	0.100	0.148
Leverage	0.392	0.389	0.105	0.163	0.334	0.442	0.760
Mkbk	1.768	1.531	1.150	0.432	1.355	1.871	9.162
Beta	0.604	0.527	0.303	0.324	0.436	0.646	2.114
Idiosyncratic risk	0.010	0.009	0.005	0.006	0.007	0.011	0.032
Gindex	9.421	10	1.963	6	8	11	16
CEO_own	0.001	0	0.007	0	0	0	0.083
Inst_own	0.568	0.574	0.140	0.232	0.459	0.665	0.876
Bank_own	0.107	0.105	0.029	0.034	0.093	0.120	0.184
Insurance_own	0.025	0.011	0.029	0.002	0.007	0.029	0.100
Investment_own	0.011	0.009	0.006	0	0.007	0.011	0.049
Independent_own	0.060	0.054	0.023	0.003	0.047	0.072	0.246
Others_own	0.380	0.378	0.122	0.088	0.301	0.453	0.906

Table 3 continued

Industrials	Mean	Median	Std	Min	25%	75%	Max
Current_yield	0.064	0.067	0.037	0.002	0.048	0.073	0.281
Spread	0.017	0.018	0.039	-0.049	-0.001	0.030	0.239
Size	9.247	9.148	2.244	3.595	7.979	10.364	13.381
ROA	0.108	0.092	0.064	-0.141	0.057	0.154	0.279
Leverage	0.406	0.384	0.208	0.028	0.268	0.562	1.259
Mkbk	2.539	2.056	6.494	-39.317	1.188	2.686	44.926
Beta	1.195	1.109	0.610	-0.272	0.799	1.442	2.921
Idiosyncratic risk	0.017	0.015	0.009	0.007	0.011	0.022	0.052
Gindex	9.482	9	2.988	4	7	12	18
CEO_own	0.011	0	0.059	0	0	0	0.583
Inst_own	0.604	0.634	0.228	0.006	0.421	0.771	0.992
Bank_own	0.109	0.101	0.067	0.002	0.073	0.139	0.265
Insurance_own	0.017	0.011	0.025	0	0.005	0.017	0.145
Investment_own	0.012	0.009	0.010	0	0.007	0.013	0.058
Independent_own	0.061	0.057	0.036	0	0.043	0.075	0.215
Others_own	0.485	0.477	0.178	0.001	0.341	0.596	0.955

Table 3 continued

Panel C Rated sample vs. not-rated sample

Rated Sample	Mean	Median	Std	Min	25%	75%	Max
Current_yield	0.066	0.066	0.019	0.006	0.057	0.073	0.281
Spread	0.017	0.016	0.021	-0.045	0.007	0.025	0.239
Size	10.131	9.999	1.901	4.056	8.863	10.696	14.050
ROA	0.075	0.079	0.042	-0.141	0.043	0.097	0.252
Leverage	0.413	0.390	0.209	0.014	0.282	0.529	1.259
Mkbk	2.007	1.732	2.928	-39.317	1.367	2.304	44.926
Beta	0.824	0.750	0.409	0.147	0.539	1.042	2.921
Idiosyncratic risk	0.012	0.010	0.005	0.006	0.008	0.013	0.052
Gindex	8.817	9	2.638	3	7	11	16
CEO_own	0.004	0	0.026	0	0	0	0.583
Inst_own	0.624	0.641	0.162	0.119	0.538	0.737	0.992
Bank_own	0.107	0.107	0.042	0	0.087	0.123	0.265
Insurance_own	0.023	0.014	0.024	0	0.007	0.029	0.141
Investment_own	0.012	0.010	0.009	0	0.007	0.013	0.085
Independent_own	0.065	0.060	0.027	0	0.049	0.073	0.246
Others_own	0.426	0.418	0.145	0	0.329	0.519	0.986
SP_LT_issuer_rating	19.46	19	3.104	6	18	21	27
Investment Grade	0.527	1	0.495	0	0	1	1
Credit_score	18.34	18	3.27	6	18	21	27

Not Rated Sample	Mean	Median	Std	Min	25%	75%	Max
Current_yield	0.071	0.074	0.024	0.002	0.062	0.083	0.217
Spread	0.023	0.025	0.025	-0.049	0.015	0.035	0.167
Size	8.322	7.940	1.916	3.595	7.026	9.352	14.050
ROA	0.066	0.039	0.055	0.000	0.025	0.094	0.279
Leverage	0.399	0.405	0.214	0.014	0.249	0.538	0.946
Mkbk	1.726	1.857	5.307	-61.810	1.461	2.433	9.162
Beta	0.904	0.850	0.447	-0.343	0.600	1.191	2.617
Idiosyncratic risk	0.015	0.014	0.007	0.007	0.011	0.016	0.052
Gindex	9.034	9	2.648	5	7	10	18
CEO_own	0.004	0	0.026	0	0	0	0.304
Inst_own	0.531	0.538	0.241	0.006	0.342	0.717	0.969
Bank_own	0.081	0.080	0.054	0	0.040	0.109	0.477
Insurance_own	0.018	0.010	0.023	0	0.004	0.024	0.145
Investment_own	0.009	0.008	0.008	0	0.006	0.011	0.046
Independent_own	0.060	0.059	0.037	0	0.031	0.079	0.181
Others_own	0.388	0.380	0.219	0	0.240	0.526	1.061

Table 4
Pearson correlations

This panel provides data on the correlation between various variables used in this study. Yield is the preferred stock yields reported by ‘Preferreds Online’. Spread is yield minus constant-maturity yield on the U. S. Treasury Bond with similar maturity. Gindex is the governance index developed by Gompers, Ishii, and Metrick. Bank_own is the institutional ownership by banks. Insurance_own is the institutional ownership by insurance companies. Investment_own is the institutional ownership by investment companies (mutual funds). Independent_own is the institutional ownership by independent investment advisors. Others_own is the institutional ownership by pension funds, foundations and endowments. CEO_own is the shares owned by CEO. Size is measured as the logarithm as total assets. Leverage is measured as the ratio of total debt to total assets. MKBK, market to-book ratio, is the ratio of market value of equity to book value of equity. ROA, return on asset, is computed by dividing the operating income before depreciation by total assets. ROA_chg, change in ROA, is the difference between previous year’s and current year’s ROA. Idiosyncratic Risk is the mean square error from regressing the daily stock returns on the value weighted market returns. Significance is provided below coefficient in parenthesis.

	Yield	Spread	Credit Score	Gindex	Bank Own	Insurance Own	Investment Own	Independent Own	Others Own	CEO Own	Size	Leverage	MKBK	ROA	Beta
Spread	0.942 <.0001														
Credit Score	-0.064 0.153	-0.117 0.009													
Gindex	0.011 0.807	0.006 0.889	-0.137 0.002												
Bank own	-0.092 0.043	-0.100 0.029	0.210 <.0001	0.187 <.0001											
Insurance own	-0.085 0.063	-0.097 0.034	0.317 <.0001	0.008 0.855	0.167 0.000										
Investment own	-0.042 0.354	-0.019 0.680	0.182 <.0001	-0.156 0.001	0.075 0.099	0.304 <.0001									
Independent own	-0.061 0.182	-0.050 0.267	0.120 0.008	-0.178 <.0001	0.168 0.000	0.235 <.0001	0.270 <.0001								

Table 4 continued

CEO	-0.028	-0.039	-0.213	-0.058	-0.151	-0.075	-0.084	0.018	0.064						
own	0.571	0.423	<.0001	0.235	0.002	0.127	0.087	0.708	0.191						
Size	-0.126	-0.154	0.582	-0.163	0.439	0.392	0.242	0.318	0.102	-0.304					
	0.006	0.001	<.0001	0.000	<.0001	<.0001	<.0001	<.0001	0.025	<.0001					
Leverage	0.002	-0.032	0.001	-0.122	0.209	0.076	0.068	0.106	0.228	-0.014	0.214				
	0.973	0.481	0.984	0.008	<.0001	0.098	0.135	0.020	<.0001	0.783	<.0001				
MKBK	-0.114	-0.121	0.204	-0.042	0.051	0.076	0.194	0.053	-0.041	-0.162	0.180	-0.096			
	0.013	0.008	<.0001	0.365	0.268	0.098	<.0001	0.249	0.376	0.001	<.0001	0.037			
ROA	-0.160	-0.131	-0.352	0.066	-0.211	-0.227	-0.150	-0.232	0.035	-0.067	-0.513	0.039	0.047		
	0.001	0.006	<.0001	0.164	<.0001	<.0001	0.001	<.0001	0.454	0.181	<.0001	0.412	0.317		
Beta	0.096	0.117	-0.096	0.053	-0.084	-0.136	-0.172	0.045	0.059	0.133	-0.068	-0.091	-0.202	-0.142	
	0.047	0.016	0.048	0.273	0.085	0.005	0.000	0.353	0.226	0.009	0.161	0.062	<.0001	0.003	
Idiosyn_	0.117	0.167	-0.428	-0.145	-0.185	-0.216	0.009	0.110	0.363	0.297	-0.272	0.180	-0.144	0.037	0.245
Risk	0.010	0.000	<.0001	0.001	<.0001	<.0001	0.843	0.016	<.0001	<.0001	<.0001	<.0001	0.002	0.429	<.0001

Table 5
Differences between Rated and Non-Rated Issues

This table gives the estimated coefficient of a logistic regression relating to the effects of corporate governance variables and various control variables on the rating information. Rated is a dummy variable to denote observations with either Moody's or S&P or both ratings available. Rated=1 if the issue is rated, 0 otherwise. Gindex is the governance index developed by Gompers, Ishii, and Metrick. Inst_own is the total percentage of institutional holdings. Block is a dummy variable, equal to 1 if there is an institutional investor with no less than 5% holding. Bank_own is the institutional ownership by banks. Insurance_own is the institutional ownership by insurance companies. Investment_own is the institutional ownership by investment companies (mutual funds). Independent_own is the institutional ownership by independent investment advisors. Others_own is the institutional ownership by pension funds, foundations and endowments. CEO_own is the shares owned by CEO. Size is measured as the logarithm as total assets. Leverage is measured as the ratio of total debt to total assets. MKBK, market to-book ratio, is the ratio of market value of equity to book value of equity. ROA, return on asset, is computed by dividing the operating income before depreciation by total assets. Beta, is the beta coefficient from regressing the daily stock returns on the value weighted market returns. Idiosyncratic Risk is the mean square error from regressing the daily stock returns on the value weighted market returns. MIPS is a dummy variable, equal to 1 if the issue is a trust preferred stock, 0 otherwise. Perpetual is a dummy variable, equal to 1 if the issue is perpetuity, 0 otherwise. Callable is a dummy variable, equal to 1 if the issue is callable, 0 otherwise. Voting_rights is a dummy variable, equal to 1 if the issue has voting rights, 0 otherwise. Subsidiary is a dummy variable, equal to 1 if the issue is by subsidiary, 0 otherwise. The Chi-square statistics are adjusted for correlations across observations of a given firm (White(1980) and Rogers(1993)). *, **, *** Significance at the 10%, 5%, 1% level respectively.

	Binary Logistic Regression Dependent Variable= Rated				
Gindex		0.173**		0.169**	0.218**
Block			-0.423	-0.659	-0.448
Inst_own			2.385**	2.714**	
Bank_own					-1.321
Insurance_own					9.341
Independent_own					-0.853
Investment_own					37.861*
Other_own					1.945
CEO_own				2.755	3.400
Size	1.001***	0.851***	0.873***	0.764***	0.836***
ROA	32.503***	27.900***	31.689***	29.282***	26.270***
Leverage	-0.625	-0.181	-0.493	0.209	0.500
MKBK	0.004	0.014	-0.098**	-0.123**	-0.014
Beta	-0.451	-1.684**	-0.587	-1.821**	-1.968**
Idiosyncratic risk	-15.200	81.432	-37.071	58.873	75.967
MIPS	-0.257	0.108	-0.033	0.395	0.389
Perpetual	-1.000*	-0.895	-0.899	-0.650	-0.752
Callable	2.559***	2.413***	2.476***	2.443***	2.573***
Votingrights	-1.316	-1.319	-1.517	-1.491	-1.300
Subsidiary	0.201	-0.319	0.051	-0.541	-0.430
OBS	562	510	553	507	509
Model Chi-sq	197.33	97.71	192.50	103.60	105.87

Table 6
Effects of Corporate Governance on Preferred Stock Ratings

This table reports the results from regressing ordinal preferred stocks ratings on corporate governance variables and various control variables using an ordinal regression model. Credit_score is the average of S&P ratings and Moody's ratings. Yield is the preferred stock yields reported by 'Preferreds Online'. Gindex is the governance index developed by Gompers, Ishii, and Metrick. Inst_own is the total percentage of institutional holdings. Block is a dummy variable, equal to 1 if there is an institutional investor with no less than 5% holding. Bank_own is the institutional ownership by banks. Insurance_own is the institutional ownership by insurance companies. Investment_own is the institutional ownership by investment companies (mutual funds). Independent_own is the institutional ownership by independent investment advisors. Others_own is the institutional ownership by pension funds, foundations and endowments. CEO_own is the shares owned by CEO. SP_LT_Issuer_rating is the S&P domestic long-term issuer credit rating. Size is measured as the logarithm as total assets. Leverage is measured as the ratio of total debt to total assets. MKBK, market to-book ratio, is the ratio of market value of equity to book value of equity. ROA, return on asset, is computed by dividing the operating income before depreciation by total assets. Beta, is the beta coefficient from regressing the daily stock returns on the value weighted market returns. Idiosyncratic Risk is the mean square error from regressing the daily stock returns on the value weighted market returns. MIPS is a dummy variable, equal to 1 if the issue is a trust preferred stock, 0 otherwise. Perpetual is a dummy variable, equal to 1 if the issue is perpetuity, 0 otherwise. Callable is a dummy variable, equal to 1 if the issue is callable, 0 otherwise. Voting_rights is a dummy variable, equal to 1 if the issue has voting rights, 0 otherwise. Subsidiary is a dummy variable, equal to 1 if the issue is by subsidiary, 0 otherwise. In Panel A, the dependent variable is the average of S&P rating and Moody's rating. In Panel B, the dependent variable is S&P rating. The Chi-square statistics are adjusted for correlations across observations of a given firm (White(1980) and Rogers(1993)). *, **, *** Significance at the 10%, 5%, 1% level respectively.

Panel A. Using the average of S&P and Moody's rating

	Ordered Probit Regression Dependent Variable =Credit Score			
Gindex	-0.012		-0.021	-0.032
Block		0.305	0.331	0.369*
Inst_own		1.532***	1.916***	
Bank_own				-6.403**
insurance_own				-1.290
independent_own				7.503**
investment_own				14.818**
other_own				2.449***
CEO_own			-3.416***	-2.245**
SP LT issuer rating	0.529***	0.546***	0.540***	0.629***
Size	0.173**	0.232***	0.224***	0.080
ROA	4.676*	4.411*	4.533*	3.110
Leverage	-0.446	-0.587	-0.624	-0.693
MKBK	-0.008	-0.006	-0.005	0.019
Beta	0.680**	0.662**	0.725**	0.606**
Idiosyncratic risk	-67.138***	-46.971**	-45.645**	-26.835
MIPS	-0.796***	-0.826***	-0.890***	-0.886***
Perpetual	-1.123***	-1.097***	-1.124***	-1.097***
Callable	-0.591**	-0.529**	-0.550**	-0.539***
Voting rights	0.243	0.320	0.316	0.221
Subsidiary	-0.063	-0.018	-0.135	-0.137
OBS	440	447	438	412
Chi-sq	642.33	670.77	658.64	299.45

Table 6 continued

Panel B Using S&P rating

	Ordered Probit Regression Dependent Variable =S&P preferred stock rating			
Gindex	-0.003		-0.006	-0.009
Block		0.281	0.296	0.244
Inst_own		0.966*	1.394**	
Bank_own				-7.415**
insurance_own				-6.842**
independent_own				7.254**
investment_own				12.126
other_own				2.280***
CEO_own			-3.510***	-3.035**
SP LT issuer rating	0.586***	0.593***	0.593***	0.680***
Size	0.109**	0.121**	0.124**	0.060
ROA	4.796*	4.510*	4.936*	3.630
Leverage	-0.326	-0.363	-0.281	-0.291
MKBK	-0.039	-0.013	-0.016	0.046
Beta	0.692*	0.589*	0.624*	0.416
Idiosyncratic risk	-16.890	-11.134	4.089	36.806
MIPS	-1.207***	-1.207***	-1.303***	-1.374***
Perpetual	-1.042***	-1.001***	-1.079***	-1.095***
Callable	-0.538	0.514	-0.521	-0.502*
Voting rights	0.198	0.263	0.265	0.235
Subsidiary	-0.022	0.013	-0.068	-0.220
OBS	370	377	370	370
Chi-sq	494.55	514.31	505.00	535.79

Table 7**Effects of Corporate Governance on Yields of Rated Preferred Stock Issues**

This table reports the results from regressing yields on corporate governance variables and various control variables using an ordinal regression model. Credit_score is the average of S&P ratings and Moody's ratings. Yield is the preferred stock yields reported by 'Preferreds Online'. Gindex is the governance index developed by Gompers, Ishii, and Metrick. Inst_own is the total percentage of institutional holdings. Block is a dummy variable, equal to 1 if there is an institutional investor with no less than 5% holding. Bank_own is the institutional ownership by banks. Insurance_own is the institutional ownership by insurance companies. Investment_own is the institutional ownership by investment companies (mutual funds). Independent_own is the institutional ownership by independent investment advisors. Others_own is the institutional ownership by pension funds, foundations and endowments. CEO_own is the shares owned by CEO. Investment grade is a dummy variable, equal to 1 if the rating is higher than Moody's 'Baa3' or Standard & Poor's 'BBB-'. Term_structure is constant-maturity yield on U.S. treasury bond with matching maturity. Adj_rating, the adjusted rating without governance influence, is the residual from regressing the credit_score on Gindex and Inst_own. Size is measured as the logarithm as total assets. Leverage is measured as the ratio of total debt to total assets. MKBK, market to-book ratio, is the ratio of market value of equity to book value of equity. ROA, return on asset, is computed by dividing the operating income before depreciation by total assets. Beta, is the beta coefficient from regressing the daily stock returns on the value weighted market returns. Idiosyncratic Risk is the mean square error from regressing the daily stock returns on the value weighted market returns. MIPS is a dummy variable, equal to 1 if the issue is a trust preferred stock, 0 otherwise. Perpetual is a dummy variable, equal to 1 if the issue is perpetuity, 0 otherwise. Callable is a dummy variable, equal to 1 if the issue is callable, 0 otherwise. Voting_rights is a dummy variable, equal to 1 if the issue has voting rights, 0 otherwise. Subsidiary is a dummy variable, equal to 1 if the issue is by subsidiary, 0 otherwise. In Panel A, the sample includes all issues with rating information. In Panel B, the sample includes investment grade issues. The t- statistic are adjusted for correlations across observations of a given firm (White(1980) and Rogers(1993)). *, **, *** Significance at the 10%, 5%, 1% level respectively.

Panel A. all rated issues

	OLS Regression: Dependent Variable=Current Yield			
Gindex	0.001**		0.001**	0.001*
Block		0.001	0.001	-0.0001
Inst_own		-0.004	-0.002	
Bank_own				0.033*
insurance_own				0.040
independent_own				-0.030
investment_own				-0.005
other_own				-0.004
CEO_own			0.021	0.026
Investment Grade	-0.002	-0.002	-0.002	-0.002*
Term structure	-0.105	-0.097	-0.102	-0.090
Adj_rating	-0.005***	-0.005***	-0.005***	-0.004**
size	-0.002***	-0.002***	-0.002***	-0.002***
ROA	-0.059***	-0.058***	-0.058***	-0.060***
Leverage	-0.001	-0.001	-0.001	0.0004
MKBK	0.0001	-0.0001	-0.0001	0.0001
Beta	0.006*	0.008**	0.005*	0.006*
Idiosyncratic	0.833**	0.827*	0.827*	0.876*
MIPS	0.003*	0.003**	0.003**	0.003*
Perpetual	-0.008***	-0.008***	-0.008***	-0.008***
Callable	-0.005*	-0.006**	-0.006*	-0.005*
Voting rights	-0.005*	-0.005**	-0.005*	-0.005*
Subsidiary	0.001	0.001	0.001	0.001
OBS	459	469	457	458
R-sq	0.393	0.367	0.377	0.4056

Table 7 continued

Panel B investment grade issues

	OLS Regression			
	Dependent Variable=Current Yield			
Gindex	0.001*		0.001**	0.001*
Block		0.001	0.002*	0.002
Inst_own		-0.007*	-0.008**	
Bank_own				0.035*
insurance_own				0.017
independent_own				-0.087**
investment_own				-0.033
other_own				-0.008
CEO_own			-0.056*	-0.054
Term structure	-0.407*	-0.427*	-0.385*	-0.380
Adj_rating	-0.005***	-0.005***	-0.004**	-0.002**
size	-0.002***	-0.002***	-0.002***	-0.002***
ROA	-0.052**	-0.044**	-0.060***	-0.063***
Leverage	0.001	-0.001	0.002	0.001
MKBK	-0.0001	-0.0001	-0.0001	-0.0001
Beta	0.003	0.005	0.002	0.009
Idiosyncratic	0.228	0.187	0.348	0.239
MIPS	0.003	0.003*	0.002	0.002
Perpetual	-0.008***	-0.007***	-0.008***	-0.008***
Callable	-0.005***	-0.008***	-0.008***	-0.007***
Voting rights	-0.006**	-0.006***	-0.006**	-0.005*
Subsidiary	-0.002*	-0.002	-0.003**	-0.004***
OBS	321	328	321	320
R-sq	0.334	0.312	0.343	0.366

Table 8
Effects of Corporate Governance
on Investment versus Speculative Grade Preferred Stock Issues

This table reports the results from regressing interaction of governance variables with a dummy variable representing issues of investment grade versus speculative grade. Credit_score is the average of S&P ratings and Moody's ratings. Yield is the preferred stock yields reported by 'Preferreds Online'. Gindex is the governance index developed by Gompers, Ishii, and Metrick. Inst_own is the total percentage of institutional holdings. Block is a dummy variable, equal to 1 if there is an institutional investor with no less than 5% holding. Bank_own is the institutional ownership by banks. Insurance_own is the institutional ownership by insurance companies. Investment_own is the institutional ownership by investment companies (mutual funds). Independent_own is the institutional ownership by independent investment advisors. Others_own is the institutional ownership by pension funds, foundations and endowments. CEO_own is the shares owned by CEO. Term_structure is constant-maturity yield on U.S. treasury bond with matching maturity. SP_LT_Issuer_rating is the S&P domestic long-term issuer credit rating. Size is measured as the logarithm as total assets. Leverage is measured as the ratio of total debt to total assets. MKBK, market to-book ratio, is the ratio of market value of equity to book value of equity. ROA, return on asset, is computed by dividing the operating income before depreciation by total assets. Beta, is the beta coefficient from regressing the daily stock returns on the value weighted market returns. Idiosyncratic Risk is the mean square error from regressing the daily stock returns on the value weighted market returns. MIPS is a dummy variable, equal to 1 if the issue is a trust preferred stock, 0 otherwise. Perpetual is a dummy variable, equal to 1 if the issue is perpetuity, 0 otherwise. Callable is a dummy variable, equal to 1 if the issue is callable, 0 otherwise. Voting_rights is a dummy variable, equal to 1 if the issue has voting rights, 0 otherwise. Subsidiary is a dummy variable, equal to 1 if the issue is by subsidiary, 0 otherwise. In Panel A, the dependent variable is the average of S&P rating and Moody's rating. In Panel B, the dependent variable is current yield. The Chi-square statistic are adjusted for correlations across observations of a given firm (White(1980) and Rogers(1993)). *, **, *** Significance at the 10%, 5%, 1% level respectively.

Panel A. Investment grade vs speculative grade rating

	Ordered Probit Regression: Dependent Variable=Credit_Score		
Gindex	-0.543***		-0.322***
Block		0.435	0.619
Inst_own		9.549***	10.632***
Investment grade * Gindex	0.577***		0.275**
Investment grade * Inst_own		-9.992***	-9.971***
CEO_own			-10.637***
SP LT Issuer Rating	0.941***	0.936***	0.920***
Size	0.406***	0.552***	0.547***
ROA	10.241**	10.35***	10.72**
Leverage	-0.676	-1.09	-1.420
MKBK	-0.016	0.060	0.063
Beta	1.240**	-0.732	0.99*
Idiosyncratic risk	-167.3***	-19.23	-55.434
MIPS	-1.394***	-1.155***	-1.272***
Perpetual	-1.492***	-1.518***	-1.429***
Callable	-1.196***	-1.1137**	-1.272***
Voting rights	0.362	0.707	0.771
Subsidiary	-0.374	0.008	-0.149
OBS	440	447	438
Chi-sq	668.54	729.15	785.12

Table 8 continued

Panel B Investment grade vs speculative grade yields

	OLS Regression Dependent Variable=Current_Yield		
Gindex	0.001 (2.38)**		0.0003 (0.56)
Block			0.001 (0.89)
Inst_own		0.006 (0.14)	0.009 (1.03)
Investment grade * Gindex	-0.002 (-1.44)		0.0006 (1.13)
Investment grade * Inst_own		-0.004 (-1.87)*	-0.014 (-1.53)
CEO_own			0.029 (1.28)
Term Structure	-0.121 (-0.60)	-0.099 (-0.45)	-0.070 (-0.32)
Size	-0.002 (-3.30)***	-0.002 (-4.95)***	-0.002 (-3.12)***
ROA	-0.057 (-2.92)***	-0.055 (-2.98)***	-0.060 (-2.99)***
Leverage	-0.0006 (-0.16)	-0.002 (-0.67)	0.0003 (0.10)
MKBK	0.0001 (0.61)	-0.0001 (-0.25)	-0.0001 (-0.47)
Beta	0.006 (1.93)*	0.008 (2.01)**	0.006 (1.80)*
Idiosyncratic risk	0.855 (1.90)*	0.706 (1.48)	0.648 (1.19)
MIPS	0.003 (1.89)*	0.003 (2.16)**	0.002 (1.48)
Perpetual	-0.008 (-5.61)***	-0.007 (-4.74)***	-0.008 (-5.66)***
Callable	-0.005 (-1.92)*	-0.005 (-1.95)*	-0.004 (-1.94)*
Voting rights	-0.005 (-1.88)*	-0.006 (-2.46)*	-0.005 (-1.70)*
Subsidiary	0.001 (0.55)	0.0003 (0.18)	0.0001 (0.09)
OBS	459	469	457
Adj R-sq	0.392	0.368	0.385

Table 9
Effects of Corporate Governance
On Rated versus Non-rated Preferred Stock Issues

This table reports the results from regressing interaction of governance variables with a dummy variable representing issues of rated versus non-rated. Credit_score is the average of S&P ratings and Moody's ratings. Yield is the preferred stock yields reported by 'Preferreds Online'. Gindex is the governance index developed by Gompers, Ishii, and Metrick. Inst_own is the total percentage of institutional holdings. Block is a dummy variable, equal to 1 if there is an institutional investor with no less than 5% holding. Bank_own is the institutional ownership by banks. Insurance_own is the institutional ownership by insurance companies. Investment_own is the institutional ownership by investment companies (mutual funds). Independent_own is the institutional ownership by independent investment advisors. Others_own is the institutional ownership by pension funds, foundations and endowments. CEO_own is the shares owned by CEO. Term_structure is constant-maturity yield on U.S. treasury bond with matching maturity. SP_LT_Issuer_rating is the S&P domestic long-term issuer credit rating. Size is measured as the logarithm as total assets. Leverage is measured as the ratio of total debt to total assets. MKBK, market to-book ratio, is the ratio of market value of equity to book value of equity. ROA, return on asset, is computed by dividing the operating income before depreciation by total assets. Beta, is the beta coefficient from regressing the daily stock returns on the value weighted market returns. Idiosyncratic Risk is the mean square error from regressing the daily stock returns on the value weighted market returns. MIPS is a dummy variable, equal to 1 if the issue is a trust preferred stock, 0 otherwise. Perpetual is a dummy variable, equal to 1 if the issue is perpetuity, 0 otherwise. Callable is a dummy variable, equal to 1 if the issue is callable, 0 otherwise. Voting_rights is a dummy variable, equal to 1 if the issue has voting rights, 0 otherwise. Subsidiary is a dummy variable, equal to 1 if the issue is by subsidiary, 0 otherwise. In Panel A, the dependent variable is the average of S&P rating and Moody's rating. In Panel B, the dependent variable is current yield. The Chi-square statistic are reported in parenthesis below each estimate respectively, adjusted for correlations across observations of a given firm (White(1980) and Rogers(1993)). *, **, *** Significance at the 10%, 5%, 1% level respectively.

	OLS Regression		
	Dependent Variable=Current_Yield		
Gindex	0.001		-0.001
Block		0.002**	0.001
Inst_own		-0.003	0.014
Rated * Gindex	0.001		0.001***
Rated * Inst_own		0.001	-0.020*
CEO_own			0.252
Term Structure	-0.163	-0.143	-0.156
Size	-0.002***	-0.001***	-0.001**
ROA	-0.054**	-0.043***	-0.045**
Leverage	-0.001	-0.002	-0.001
MKBK	0.0001	-0.0001	-0.0001
Beta	0.004	0.005*	0.004
Idiosyncratic risk	0.945**	0.782**	0.915*
MIPS	0.002	0.002	0.002
Perpetual	-0.007***	-0.007***	-0.007***
Callable	-0.007***	-0.007***	-0.007***
Voting rights	-0.003	-0.001	-0.002
Subsidiary	0.001	-0.0001	0.0006
OBS	510	553	507
Adj R-sq	0.325	0.338	0.322

APPENDIX A
VARIABLE DEFINITIONS

<i>Variable</i>	<i>Description</i>	<i>Source</i>
Gindex	Governance Index constructed by Gompers, Ishii and Metrick	IRRC
Block	If there is any institutional holder with no less than 5% ownership	TFN
Inst_own	Total institutional holdings	TFN
Bank_own	Institutional holdings by banks	TFN
Insurance_own	Institutional holdings by insurance companies	TFN
Investment_own	Institutional holdings by investment companies (mutual funds)	TFN
Independent_own	Institutional holdings by independent investment advisors	TFN
Others_own	Institutional holdings by pension funds, foundations, endowments	TFN
CEO_own	CEO's share holdings	Executive Compensation
SP LT Issuer rating	S&P Long-term domestic issuer credit rating	Comupstat Industrial Annual
Size	Log of total assets Log(data6)	Comupstat Industrial Annual
Leverage	(Long-term debt + debt in current liability)/total assets (data9+data34)/data6	Comupstat Industrial Annual
ROA	Operating income before deprec./total assets data13/data6	Comupstat Industrial Annual

Continued

MKBK	Market value of common equity / book value of common equity data25*data199/data60	Comupstat Industrial Annual
Beta	The beta coefficient from regressing daily stock returns on value-weighted market returns	CRSP
Idiosyncratic Risk	MSE from regressing daily stock returns on value-weighted market returns	CRSP
SP Rating	Preferred stock ratings by S&P	epreferreds.com
Moody's Rating	Preferred stock ratings by Moody's	epreferreds.com
Credit_score	The average of Moody's and S&P ratings	epreferreds.com
Adj_Rating	Adjusted rating, residual from regressing Credit_score on Gindex and Inst_ow	epreferreds.com IRRC TFN
Current_yield	Dividend divided by current price	epreferreds.com
Straight	the issue is non convertible to common stock	epreferreds.com
Callable	the issue has a call provision	epreferreds.com
Perpetual	the issue is a perpetuity	epreferreds.com
MIPS	The issue is a trust preferred stock instead of regular preferred stock	epreferreds.com
Subsidiary	The issuer is a subsidiary instead of a parent company	epreferreds.com
Voting rights	The issue carries limited voting rights	epreferreds.com
Financial	the issuer is financial institution	epreferreds.com
Utility	the issuer is utility company	epreferreds.com

APPENDIX B

RATING CLASSIFICATION AND NUMERICAL CONVERSION

This table provides bond rating conversion codes for Moody's and S&P ratings used in this study. Rating score codes are assigned in consistency with S&P domestic long-term issuer rating provided by COMPUSTAT Industrial Annual.

Moody's	S&P	Rating Score	Definition	Notes
Aaa	AAA	27	Highest Rating Available	Investment Grade
Aa1	AA+	25	Very High Quality	
Aa2	AA	24		
Aa3	AA-	23		
A1	A+	22	High Quality	
A2	A	21		
A3	A-	20		
Baa1	BBB+	19	Minimum Investment Grade	
Baa2	BBB	18		
Baa3	BBB-	17		
Ba1	BB+	16	Low Grade	Speculative Grade
Ba2	BB	15		
Ba3	BB-	14		
B1	B+	13	Very Speculative	
B2	B	12		
B3	B-	11		
Caa1	CCC+	10	Substantial Risk	
Caa2	CCC	9		
Caa3	CCC-	8		
Ca	CC	6	Very Poor Quality	
C	C	5	Imminent Default or in Default	
D	D			