DOES CEO TENURE INFLUENCE CORPORATE BOND RATING PROPERTIES?

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TABLE OF CONTENTS

LIST OF TABLES

Table **Page**

LIST OF FIGURES

Figure **Page**

LIST OF APPENDIX

DOES CEO TENURE INFLUENCE CORPORATE BOND RATING PROPERTIES?

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ABSTRACT

This study examines whether and how corporate bond rating quality varies with CEO tenure. Due to the expansive roles of credit ratings in capital market, managers have incentives to maintain or improve their ratings. Accumulated firm experience makes longer-tenured CEOs better at strategic communication with rating agencies and thereby more able to achieve the desired rating outcomes, leading to lower rating quality. Consistent with this prediction, I find that ratings are less accurate, less timely, and more volatile for issuers with longer-tenured CEOs. All these results hold after controlling for the impact of CEO tenure through public information sharing, suggesting that longer-tenured CEOs manage credit ratings through private information sharing with rating agencies. Moreover, investors do not understand such rating management by longer-tenured CEOs.

1. Introduction

Credit rating agencies switched the business model from an investor-pay to an issuer-pay model in the 1970s. Under the issuer-pay model, communication with management is vital for rating decision making. Rating agencies meet with management at least annually to review in detail multiple issues, including operating and financial plans, management policies, management projections, and distinct accounting practices (Standard & Poor's (S&P) 2008). Given information sharing at these meetings, management has the opportunity to influence rating decisions.

Managers have incentives to maintain or improve their ratings because of the critical role that credit ratings play in the capital market (e.g., Listokin and Taibleson 2010; Becker and Milbourn 2011; Kisgen 2006). They are more likely to achieve the desired rating outcomes as they accumulate firm-specific experience. With more firm-specific experience, managers could be more effective in strategically transmitting information to rating agencies and more able to convincingly release information with an upward bias. But no prior research has paid attention to the relation between managerial firm experience and rating quality. To fill the void in the literature, I investigate whether and how CEO tenure influences rating quality. I focus on CEOs because they exercise the most influence over a wide range of corporate decisions, including disclosures (Cheng et al. 2006), and they set the tone for their executive team and organization as a whole (Argenti et al. 2005).

I investigate rating quality because it is essential for proper financial system functioning and there has been increasing attention placed on rating quality.[1]

Accumulated managerial firm experience makes longer-tenured CEOs more able to achieve the desired rating outcomes. First, as CEOs gain *general* experience as senior executives, they become more experienced in strategic communication with various stakeholders and thereby more sophisticated in strategic communication with rating agencies. The reason is that general skills in strategic communication can be transferred from one setting to another. Second, as CEOs acquire *specific* experience with rating agencies, they become better at selecting and packaging information transmitted to rating agencies. For instance, repeated interactions with rating agencies may empower longer-tenured CEOs to intertwine favorable and unfavorable information more strategically, making favorable information more credible but unfavorable information less credible. Repeated experience with rating agencies could also enable longer-tenured CEOs to use the right channel for each message sent to rating agencies because they become aware of rating agencies' preferences. With more effective strategic communication, firms with longer-tenured CEOs are more likely to maintain or improve their ratings, leading to lower rating quality.

While this prediction is plausible, there are at least two reasons why the prediction may not be borne out empirically. First, as CEOs learn over time, they become more

[1] Credit ratings can serve (1) an information role by reducing information asymmetry between companies and capital providers, (2) a contracting role by monitoring debt contracts, and (3) a regulatory role by facilitating compliance with regulations (e.g., Listokin and Taibleson 2010; Becker and Milbourn 2011; Kisgen 2006).[1] However, the provision of accurate and timely ratings was challenged following the corporate scandals in the early 2000s and the recent financial crisis. As a result, regulators have recently introduced regulatory reforms aimed at improving rating quality while a growing number of academic studies examine the factors affecting rating quality (e.g., Becker and Milbourn 2011; Cheng et al. 2009; Bonsall 2014).

capable of conveying relevant and high-quality information to rating agencies. Second, as CEOs repeatedly interact with rating agencies, rating agencies are more likely to see through and adjust "strategic communication" by CEOs. Hence, it is important to investigate whether and how CEO tenure influences rating quality.

To test the relation between CEO tenure and rating quality, I operationalize rating quality using rating accuracy, rating timeliness, and rating stability because prior academic studies (Altman et al. 2004; Loffler 2004; Beaver et al. 2006) and rating agencies identify these rating properties as critical to rating users. I use four approaches to assess rating accuracy: (i) the frequency of Type I errors (i.e., instances where too favorable ratings are assigned/maintained for defaulting issues) and Type II errors (i.e., instances where too harsh ratings are assigned/maintained for nondefaulting issues); (ii) the ability of ratings to predict future default events (aggregate rating accuracy); (iii) relative rating accuracy (the power of credit ratings to correctly rank order debt issues according to their relative credit risk); and (iv) the frequency of rating upgrades (downgrades) benchmarked against the decreases (increases) in the probability of bankruptcy indicated by bankruptcy prediction models. I measure rating timeliness as the weighted average rating levels over the one year leading to default and the number of days between default date and the downgrade date for defaulting issues. For rating stability, I use the standard deviation of credit rating levels over the annual rolling windows. To mitigate the endogeneity concern over CEO tenure, I perform the empirical analyses using a measure of residual CEO tenure, defined as the residual from a regression of raw CEO tenure on its economic determinants.

Although CEOs can influence rating decisions through strategic transmission of private or public information, I focus on strategic transmission of private information

because private information sharing has become a popular concern (Security and Exchange Commission (SEC) 2003).[2] Also, private information is easier to hide, manipulate, or falsify than public information (Anderlini et al. 2012). The focus on private information is also motivated by Crawford and Sobel's (1982) seminal cheap-talk model, which shows that in equilibrium information sender tradeoffs between disclosing information to induce information receiver's response and withholding information so that the receiver's response is as favorable as possible. To empirically disentangle the impact of CEO tenure on rating quality through private versus public information transmission, I control for the effect arising from public information transmission. Specifically, I use three approaches in empirical analyses: (i) control for financial metrics, (ii) control for financial reporting and disclosure quality, and (iii) control for stock market returns. The rationale for the first two approaches is that financial reporting and disclosure reflect publicly available information, whereas the third approach is similar to Beaver et al. (2006), who use changes in stock prices as a proxy for newly available public information.

Using a sample of corporate bonds issued by U.S. firms from 1994 through 2011, I find evidence that CEO tenure is negatively associated with rating quality. Specifically, I find that rating agencies make more Type I errors as CEO tenure increases, but there is no significant change in Type II errors. I also find that as CEO tenure increases, the ability of ratings to predict future defaults declines. Compared to issuers with short CEO tenure, issuers with long CEO tenure have lower relative rating accuracy. Using Ohlson (1980) O score model to compute changes in the probability of bankruptcy, I find that when the

[2] In fact, legislators' concerns about private information sharing are significant enough that the Dodd-Frank Act of 2010 revoked the privilege of exempting credit rating agencies from Regulation Fair Disclosure (Reg FD). Although financial analysts do not have access to non-public firm information, after Reg FD, rating agencies still have such access.

benchmark model indicates that the default risk goes up (down), firms with long CEO tenure experience a significantly lower (larger) percentage of downgrades (upgrades). In addition, I find that issuers with longer-tenured CEOs tend to have worse ratings in a less timely manner and their ratings are downgraded later. Further, I find an increase in rating volatility for issuers with longer-tenured CEOs. All these results hold after controlling for the impact of CEO tenure on rating properties through public information transmission. They suggest that accumulated firm experience empowers longer-tenured CEOs to use strategic transmission of private information more effectively in achieving the desired rating outcomes, resulting in lower rating quality. Moreover, longer-tenured CEOs' influence on rating properties becomes more pronounced for complex firms and less pronounced for firms with concentrated institutional ownership.

As the final step, I investigate whether investors understand the implications of longer-tenured CEOs on rating quality. This examination is essential because investors are among the most important users of ratings and any misperception can be consequential. I find that initial bond yield spreads do not vary with CEO tenure. I also fail to find significant changes in the ability of initial bond ratings to explain initial bond yield spreads as CEO tenure varies. These results suggest that the bond market does not appear to understand rating management by longer-tenured CEOs.

All results hold after controlling for issuer characteristics, issue characteristics, rating types, macroeconomic variables, and regulatory changes. Results are also robust to alternative specifications of the residual tenure that aims to identify a quadratic relation between CEO tenure and rating properties. In addition, results still hold after replacing the residual CEO tenure with raw CEO tenure while controlling for factors that predict CEO

tenure. The results remain similar after replacing macroeconomic and regulatory variables with year fixed effects. Further, the findings are robust to (1) alternative regression procedures; (2) inclusion of industry fixed effects; (4) controls for CEO power, corporate governance, CEO compensation structure, managerial ability, CEOs' prior experience as other firms' CEOs, and credit rating agency tenure; (5) addition of firm fixed effects. Overall, the results suggest that longer-tenured CEOs manage credit ratings through strategic transmission of private information to rating agencies, thereby lowering rating accuracy, rating timeliness, and rating stability. However, market participants do not realize the extent of influence that longer-tenured CEOs have on credit rating agencies.

The findings provide several contributions to the literature. First, this is the first study to examine the role of corporate management in shaping bond-rating properties, highlighting a new factor that can contribute to credit rating quality. Becker and Milbourn (2011) find increased competition is associated with lower rating quality. Cheng and Neamtiu (2009) document an improvement in rating accuracy, rating timeliness, and rating stability following a period of intense regulatory scrutiny and investor criticism. Bonsall (2014) documents changes in credit rating properties following rating agencies' adoption of the issuer-pay business model in the 1970s. Beyond these studies, there is little evidence on the drivers of corporate bond rating properties. My study suggests that management tenure plays a systematic role in influencing credit rating properties.

Second, this study is the first to distinguish the impact of corporate management on rating properties through private versus public information sharing. Although prior studies conjecture that private information sharing plays a predominant role in shaping rating properties after the business model shifts to issuer-pay (e.g., Bonsall 2014; Cheng et al.

2009), there is surprisingly little evidence along this line. Prior studies only provide evidence that management influences ratings through public information sharing, such as financial reporting (e.g., Alissa et al. 2013; Jung et al. 2013; Lee 2012). Complementing these studies, my paper indicates that longer-tenured CEOs influence rating decisions through private information sharing.

Third, this study provides new insights on the significance of management tenure. One prevailing view in extant literature on management tenure is that as management tenure lengthens, management learns about employees, customers, the firm, and its external environment (e.g., Cyert and March, 1963; March, 1991; Luo et al., 2014). As a result, the longer management stays in office, the greater the firm performance and the stronger firm-employee relationships and firm-customer relationships, but the effect on firm performance and firm-customer relationships tapers off after some period in the position (e.g., Henderson et al. 2006; Luo et al. 2014). Different from the above sanguine view on management tenure, my study sheds light on the dark side of management tenure by showing that longer CEO tenure is associated with lower rating quality.

Lastly, my study has significant policy implications. Following the early 2000s' corporate scandals and 2008 through 2009 financial crisis, regulators, investors, business media, and politicians all blame rating agencies for failing to providing accurate and timely ratings. Yet academic studies fail to provide consistent support for these criticisms (e.g., Becker and Milbourn 2011; Bae et al. 2013; Jiang et al. 2012; Bonsall 2014). Naturally, it raises the question of whether rating agencies are the only major parties responsible for observed low rating quality. Instead, corporate management may have played an equally important role in impairing rating quality. Given my study shows that longer-tenured CEOs

influence credit ratings through private information transmission, regulators should consider regulatory reforms on management communication. The latest regulatory change after the Dodd-Frank Act, revoking the privilege of exempting credit rating agencies from Regulation Fair Disclosure (Reg FD), appears to be a step in this direction.[3]

The remainder of the paper is structured as follows. Section 2 provides some institutional background. Section 3 discusses related literature and develops the testable hypotheses. Section 4 describes the sample selection process and measurement of CEO tenure. Sections 5 and 6 present my primary empirical analyses of the impact of CEO tenure on rating properties and the corresponding investor perceptions respectively. Section 7 presents robustness analyses. Section 8 concludes the paper.

[3] Credit analysts can still access material information as "covered persons." See "SEC Issues Final Rule Release: Removal from Regulation FD of the Exception for Credit Rating Agencies" (Skadden, Arps, Slate, Meagher & Flom LLP, October 2010).

2. Institutional background

2.1 The role of credit ratings in capital markets

Credit ratings provide information about default likelihoods and recovery rates of a security, limiting duplicated effort in financial markets. They play a vital role in the allocation of capital for several reasons. First, they reduce information asymmetry between investors and issuers, thereby serving an informational role. This service is especially valuable to the small investors because credit risk assessment is potentially cost prohibitive to them (Grossman and Stiglitz 1980). Second, credit ratings commonly serve as contracting benchmarks because they are easily available and interpretable to market participants (e.g., Beaver et al. 2006; Bruno et al. 2014). Ratings are widely used by banks in debt covenants and performance pricing provisions. This feature makes downgrades extremely harmful to issuers because they trigger higher interest rates, early principal repayment, higher future costs of capital, and other negative consequences (Moody's 2002a, 2002b, 2006). Graham and Harvey's (2001) survey finds that credit ratings represent the second most important consideration shaping firm debt policy. Third, the regulatory compliance of institutional investors further enhances the importance of the Nationally Recognized Statistical Rating Organizations (NRSRO) ratings (e.g., Listokin and Taibleson 2010; Becker and Milbourn 2011; Kisgen 2006; Beaver et al. 2006). Since 1975, a set of government regulations gave the credit rating agencies a quasi-governmental role. For instance, the SEC required broker-dealer firms to calculate net capital requirements using the credit rating assigned by NRSRO.

2.2 The rating process

Though credit rating agencies are sophisticated information intermediaries, the rating process provides opportunities for management to influence ratings. Upon receiving a request for a rating from an issuer, the rating agency assigns a team of analysts to cover the issuer. After analysts evaluate relevant information, they meet with corporate management to review in detail key factors that can impact ratings. The topics discussed at this meeting typically include: the industry environment and prospects, an overview of major business segments, management's financial policies and financial performance goals, distinctive accounting practices, management's projections (including income and cash flow statements and balance sheets, together with the underlying market and operating assumptions), capital spending plans, and financing alternatives and contingency plans. In particular, rating agencies indicate that "management's financial projections are a valuable tool in the rating process" (S&P 2008). Then the analysts assess the information provided by management and propose a rating to a rating committee, which votes on the proposed rating. Before releasing the ratings to the public, the rating agency notifies the issuer of the rating and provides its rationale. After the initial ratings are published, rating agencies still monitor outstanding ratings. Typically, they schedule management meetings at least annually to stay abreast of current developments and financial forecasts, discuss business units that have performed differently from original expectations, and apprise themselves of any changes in the issuer's plans.

3. Literature and hypothesis development

3.1 CEO tenure and rating accuracy

Due to the informational, contracting, and regulatory roles of credit ratings in capital markets (e.g., Listokin and Taibleson 2010; Becker and Milbourn 2011; Kisgen 2006), adverse credit ratings can impose significant cost on companies; hence managers have incentives to maintain or improve their ratings. To achieve this goal, managers can use multiple approaches. One approach is to adjust a range of real corporate activities to influence credit ratings. For instance, Kisgen (2009) shows that managers adjust capital structure when their firms receive low credit ratings. Specifically, firms lower their leverage following a rating downgrade; however, he finds no change in a firm's leverage following a rating upgrade. Hovakimian et al. (2009) find that firms below (above) their target credit rating act to decrease (increase) leverage through security issuance and repurchase decisions. They also find that firms tend to decrease (increase) dividend payments when ratings are below (above) the target and make more (fewer) mergers or acquisitions when ratings are above (below) target.

Another approach that managers can use to influence ratings is to strategically transmit information to rating agencies. Recent research provides evidence that managers use their control over public information such as financial reporting to influence credit ratings (Canton et al. 2011; Alissa et al. 2013; Lee 2012; Jung et al. 2013). For instance, Jung et al. (2013) indicate that firms use earnings smoothing activity to improve credit rating. Specifically, they find that firms with a plus notch rating discretionarily smooth earnings to a greater extent than other firms within the same broad rating category, and

earnings smoothing increases the likelihood of a subsequent rating upgrade for firms with plus notch ratings. Lee (2012) shows that firms manage operating cash flow to maintain or improve credit ratings when ratings are near the investment/noninvestment-grade cutoff.

In addition to strategic transmission of public information, managers can also engage in strategic transmission of private information to rating agencies. In this paper, I focus on strategic transmission of private information while controlling for strategic transmission of public information. My focus is primarily motivated by the popular concern over private information transmission (Security and Exchange Commission (SEC) 2003).[4] The focus on private information is also motivated by Crawford and Sobel's (1982) seminal work describing the cheap-talk model, which applies more to strategic transmission of private information. Assuming that information is unverifiable and an agent can lie without direct costs, Crawford and Sobel (1982) characterize rational behavior in interactive two-person situations where direct communication between agents is a possibility. They show that when information sender and information receiver do not have aligned interests, the information sender cannot reveal all his private information to the information receiver but may transmit information through noisy communication. In other words, in equilibrium information sender tradeoffs between disclosing enough information to induce information receiver to respond and holding back enough so that the receiver's response is as favorable as possible. Based on the above theoretical predictions, managers can strategically transmit private information to rating agencies and induce rating agencies to respond with as favorable ratings as possible.

[4] In fact, legislators' concerns about private information sharing are significant enough that the Dodd-Frank Act of 2010 revoked the privilege of exempting credit rating agencies from Regulation Fair Disclosure (Reg FD). Although financial analysts do not have access to non-public firm information, after Reg FD, rating agencies still have such access.

Although private information is easier to hide, manipulate, or falsify than public information (Anderlini et al. 2012), there are still costs and constraints associated with private information management (Kartik 2009). Such costs can be reduced and constraints can be relaxed through management-accumulated firm experience. Therefore, strategic transmission of private information by more experienced, senior executive management is more likely to succeed in achieving the desired rating outcomes, thereby leading to lower rating accuracy. In empirical exercise, I operationalize managerial firm experience using CEO tenure. CEO tenure can directly capture two dimensions of managerial firm experience— *general* experience as senior executives and *specific* experience with rating agencies.

As CEOs gain *general* experience as senior executives, they become more sophisticated in strategic communication with rating agencies. As senior executives, CEOs engage in strategic communication with multiple stakeholders, including investors, financial analysts, customers, suppliers, and employees. For instance, managers opportunistically disclose information to influence stock prices (Noe 1999; Aboody and Kasznik 2000; Lang and Lundholm 2000; Cheng and Lo 2006; Brockman et al. 2008; Hamm et al. 2014) and to manage analysts' expectations (Cotter et al. 2006). As CEOs stay in office longer, they accumulate experience and become more sophisticated in strategic communication with various stakeholders. Given the skills in strategic communication are transferrable from one setting to another, such prior experience in strategic communication can make strategic communication with rating agencies more likely to achieve the desired outcomes. In other words, longer-tenured CEOs use strategic communication with rating

agencies more effectively, thereby increasing the likelihood of their firms to maintain or improve their ratings.

As CEOs accumulate *specific* experience with rating agencies, they become better at selecting and packaging private information transmitted to rating agencies. For example, repeated experience with rating agencies could enable longer-tenured CEOs to use the right channel for each message sent to rating agencies because they become aware of rating agencies' preferences. Therefore, rating agencies are prone to take information from management at face value and even interpret them more favorably.

Also, repeated interactions with rating agencies may empower longer-tenured CEOs to intertwine favorable and unfavorable information more strategically, making favorable information more credible but unfavorable information less credible. Based on the theory of perturbed communication (Chen 2011), as sophisticated information receivers, rating agencies will discount the face value of any messages sent by managers when they are aware of managerial incentive to inflate ratings. However, such discounting could be weaker for firms with managers who repeatedly interact with rating agencies. The reason is that as managers acquire experience with rating agencies, they learn that pure cheap-talk style of communication (e.g., releasing favorable information only) will not help achieve the desired ratings. As a result, managers strategically mix favorable and unfavorable information but provide more and stronger arguments to justify favorable information rather than unfavorable information. The strategic mix of two-sided messages increases the credibility of favorable information and makes unfavorable information appear to be less credible (Dziuda 2011), increasing the likelihood of attaining favorable ratings for firms with longer-tenured CEOs.

Taken together, with more effective strategic communication of private information, firms with longer-tenured CEOs are more likely to improve or maintain their ratings. Therefore, I predict less accurate ratings for firms with longer-tenured CEOs.[5] This leads to the following hypothesis (in the alternative form):

H1: Credit ratings are less accurate for firms with longer CEO tenure, *ceteris paribus*.

However, it is possible that credit rating accuracy is not impaired by longer-tenured CEOs or rating accuracy becomes even higher for firms with longer-tenured CEOs. As CEOs repeatedly interact with rating agencies, rating agencies are more likely to see through and adjust "strategic communication" by CEOs. In such a scenario, rating accuracy will not be impaired. As CEOs stay in office longer, they learn about employees, customers, the firm, and its external environment (e.g., Cyert and March 1963; March 1991; Luo et al. 2014). Such learning experience could facilitate them to transmit relevant and high-quality private information to rating agencies, thereby improving rating accuracy.

The learning effect could occur for two reasons. First, as longer-tenured CEOs accumulate *general* experience over time, they gain firm-specific knowledge, which gives them an advantage in providing relevant and high-quality information about potential credit risk. In particular, as tenure increases, CEOs gain firm-specific knowledge in generating high-quality projections, which are invaluable to credit risk assessment because ratings are forward looking. To illustrate, Brochet et al. (2011) demonstrate that accumulated firm-specific knowledge increases the likelihood and accuracy of management forecasts. Second, longer-tenured CEOs acquire *specific* experience with rating agencies, making communications increasingly more informative. Management meetings with rating

[5] Alternatively, as CEOs acquire experience, they become more credible to rating agencies, thereby reducing rating agencies' due diligence and resulting in lower rating accuracy.

agencies are often informal and offer a venue for providing soft information, which, over time, becomes more easily understood. In a different setting, Bonsall et al. (2013) document that qualitative disclosures by management with longer tenure will communicate more information to investors. Therefore, with better information sharing between longer-tenured management and rating agencies, it is possible that ratings are more accurate for firms with longer-tenured CEOs.

3.2 CEO tenure and rating timeliness

Conditional on finding a lower rating accuracy associated with longer CEO tenure, I next examine the impact of CEO tenure on rating timeliness. This examination is essential because there is a strong demand for rating timeliness due to the use of ratings in valuation and in evaluating credit worthiness by third parties such as regulators, suppliers, customers, and employees (Cheng and Neamtiu 2009). Also, it is unclear whether longer-tenured CEOs achieve desired rating outcomes at the expense of rating timeliness.

To the extent that longer-tenured CEOs use their accumulated experience to strategically communicate private information with rating agencies, the rating timeliness–CEO tenure relation depends on the specific rating outcomes managers attempt to achieve in using strategic communication. Specifically, if longer-tenured CEOs mainly attempt to maintain certain rating levels, they are more likely to use a communication strategy that allows them to withhold unfavorable information in order to avoid rating downgrades. This could lead to lower rating timeliness. Alternatively, if longer-tenured CEOs primarily aim to improve their ratings, they are more prone to use a communication strategy that targets releasing favorable information immediately to rating agencies to induce rating upgrades. This could result in higher rating timeliness. Given that it is ex ante unclear what rating

outcomes longer-tenured managers attempt to obtain, it is an empirical question how CEO tenure influences rating timeliness. This leads to the following hypothesis (in the alternative form):

H2: CEO tenure is associated with credit rating timeliness, *ceteris paribus*.

3.3 CEO tenure and rating stability

Because prior research shows that rating users such as institutional investors value rating stability (e.g., Fons et al. 2002; Altman et al. 2004), I also examine how CEO tenure affects rating stability. As discussed above, the accumulated firm experience enables longer-tenured CEOs to use strategic communication with rating agencies more effectively, resulting in less accurate ratings for firms with longer-tenured CEOs. Once rating agencies learn about the true credit profile, the less-accurate ratings will be reversed. Thus, rating volatility will increase as CEO tenure increases. The above discussion leads to the following prediction (in the alternative form):

H3: Credit ratings are more volatile for firms with longer CEO tenure, *ceteris paribus*.

3.4 Investor perception about the impact of CEO tenure on rating properties

Conditional on finding an association between CEO tenure and rating accuracy or rating timeliness, I also investigate whether investors understand the implications of CEO tenure on rating informativeness. If investors perceive the implications of CEO tenure to be consistent with the strategic communication perspective, they will adjust reported ratings and underreact to disclosed rating changes for issuers with longer-tenured CEOs. [6]

[6] Investors may not understand rating implications of longer-tenured CEOs. This is in line with the assumption inherent in several recent studies that the market does not see through rating management (e.g., Kisgen 2009; Hovakimian et al. 2009; Canton et al. 2011; Alissa et al. 2013; Lee 2012; Jung et al. 2013). For instance, Alissa et al. (2013) find that firms use income-increasing (decreasing) earnings management to raise (lower) their credit ratings toward a target rating level when current ratings are below (above) the target levels.

H4: Investors perceive credit ratings to be less informative for firms with longer CEO tenure, *ceteris paribus*.

4. Sample selection and measurement of CEO tenure

4.1 Sample selection

The sample begins with bonds issued by U.S. public corporations from fiscal year 1994 through 2011 and rated by the three nationally recognized agencies covered by the Mergent Fixed Investment Securities Database (FISD): Moody's, S&P's, and Fitch.[7] I collect data for several items from FISD: (1) default information (e.g., default date); (2) credit rating information (e.g., credit ratings levels and rating change dates); (3) issue-specific information; and (4) bond yields at issuance. I obtain financial statement data relating to issuer characteristics from Compustat. I collect executive data from ExecuComp. Also, I collect stock market data from CRSP. I exclude from our sample bonds issued by public utility firms (firms with SIC code 4900) and financial services firms (firms with SIC code from 6000 to 6799) because of their unique risk characteristics. Further, I exclude observations with total assets less than one million dollars. In addition, I exclude years when two CEOs are in the office because it is unclear which CEO communicates with credit rating agencies during those years. I winsorize all continuous variables that lie in the upper or lower 1% of the sample distribution to mitigate the influence of extreme observations. Finally, I exclude bond issues with any missing data for variables used in the regression analyses.

Because I focus on several rating properties, the sample composition changes for different empirical tests designed to assess the impact of CEO tenure on various dimensions

[7] The sample period starts with fiscal year 1994 because FISD provides very limited coverage of credit ratings prior to this year.

of rating properties. Some empirical tests use a comprehensive sample of defaulting and non-defaulting issues (e.g., volatility tests), while others are based on a sample of defaulting issues (e.g., some timeliness tests).

4.2 Measurement of CEO tenure

A potential concern with the raw CEO tenure is that it is influenced in mechanical ways or in ways that are not reflective of gaining firm-specific experience. Therefore, I use the residual from the following annual regression as the primary independent variable, *TENURE*:

$$RAW\_TENURE = \alpha_0 + \beta_1 FIRMAGE + \beta_2 IRISK + \beta_3 STOCK\_PER + \beta_4 ACCT\_PER + \beta_5 RESTATE + \beta_6 CEOAGE + \varepsilon \quad (1)$$

where all variables are defined in Appendix A. *RAW_TENURE* is measured at fiscal year t, and all explanatory variables are measured at fiscal year t-1 to mitigate the concern for reverse causality and better isolate the construct of interest. *FIRMAGE* accounts for mechanically shorter CEO tenure in younger firms. However, older firms may have shorter CEO tenure because they have more bargaining power in the labor market and are more capable of changing CEO. *IRISK* captures the impact of firm-specific volatility on CEO tenure. Greater volatility leads to higher levels of management turnover and shorter tenures (Efendi et al., 2012). Yet, it is also possible that high-risk firms retain current management longer because they accumulate more firm-specific knowledge and may be more able to handle firm risk. Several studies document that firm performance plays an important role in management turnover (Desai et al., 2006; Bushman et al., 2010; Efendi et al., 2012). I include both a market-based (*STOCK_PER*) and an accounting-based (*ACCT_PER*) performance metric to account for the impact of firm performance on management turnover. *RESTATE* takes into account the possibility that firms with accounting irregularity are more

likely to have management turnover and shorter tenure (Desai et al., 2006; Leone et al., 2010; Efendi et al., 2012). *CEOAGE* accounts for the mechanical relation that younger CEO tends to have shorter tenure.

Table 1 presents summary statistics for variables in Equation (1) and the regression results. In Panel A, the mean and standard deviation of raw tenure is 7 years and 6.539 respectively, similar to Luo et al. (2014). Eleven percent of firm-years have financial statements restated in the sample period. The mean and median value of CEO age is 56. Panel B shows that raw CEO tenure is significantly negatively related to firm age, but significantly positively associated with firm-specific risk, restatement status, and CEO age.

Panel C reports the mean coefficients from annual cross-sectional regressions for Equation (1). The R^2 of the model is 0.1077. *FIRMAGE* is negatively related to CEO tenure, suggesting that older firms have more power to change CEOs. *IRISK* is positively related to CEO tenure, in line with the argument that riskier firms are more likely to retain the current CEO. Both measures of firm performance (*STOCK_PER* and *ACCT_PER*) are positively associated with CEO tenure, consistent with Efendi et al. (2012). *CEOAGE* is positively related to CEO tenure, implying that older CEOs are more likely to mechanically have longer tenure.

5. CEO tenure and rating properties

5.1 Rating accuracy

5.1.1 Absolute rating accuracy (Type I and II errors)

Research design

To test hypothesis H1, which examines the association between CEO tenure and rating accuracy, I use logit regression to estimate the following model:

$$TYPE\_I(TYPE\_II) = \alpha_0 + \beta_1 TENURE + \sum_{q=2}^{m} \beta_q (q^{th} Control\ Variables) + \varepsilon \qquad (2)$$

where a Type I (Type II) error is defined as a rating better (worse) than the cutoff for a defaulting (non-defaulting) bond issue, and all other variables are defined in Appendix A. Given accumulated firm experience makes longer-tenured CEOs more able to maintain or improve their ratings, Hypothesis H1 predicts that long CEO tenure is associated with lower rating accuracy, in particular, more Type I errors. Therefore, I expect β_1 to be positive for Type I error model, whereas I do not have prediction about the sign of β_1 for Type II error model. However, I conduct analyses of Type II errors for completeness.

Following Cheng and Neamtiu (2009), I capture bond rating accuracy based on misclassification of bond ratings (i.e., Type I and Type II errors). For a sample of issues that have an event of default within one year from the rating date, the variable *TYPE_I* takes the value of 1 (0) if a debt issue has a rating better (worse) than the cutoff point. For the cutoff point, I first follow Cheng and Neamtiu (2009) to assign numeric bond ratings such that higher codes reflect ratings closer to default ratings (See Appendix B for details). I then use the rating score of 11 as the major cutoff because the investment/non-investment

grade threshold is more likely to be targeted by management (Lee 2012).[8]Analogously, for a sample of issues that do not have a default event within one year from the rating date, the variable *TYPE_II* takes the value of 1 (0) if a debt issue has a rating worse (better) than the cutoff point.

Control variables included in the model are drawn primarily from prior research on the determinants of corporate bond rating properties and categorized into the following groups: (i) rating type; (ii) issuer characteristics; (iii) issue characteristics; and (iv) macroeconomic variables (Cheng et al. 2009). For the first category, I use two indicator variables that identify whether ratings are issued by S&P or Fitch to account for the effect of rating agency characteristics on rating properties. For the second category, I include *SIZE*, *LEV*, *LARGE_LOSS*, and *NEG_RET*. As indicated by Cheng et al. (2009), large issuers are more prone to have Type I errors, but less likely to have Type II errors. Issuers with high leverage, large losses, and negative retained earnings tend to have lower frequency of Type I errors, but higher frequency of Type II errors. Also, given these financial metrics are all publicly available information, controlling for them can help isolate the effect of CEO tenure on rating properties through private information transmission. For the third category, I control for *ISSUESIZE*, *SENIOR*, *MATURITY*, *ASSETB*, *CONV*, *ENHANCE*, *PUT*, and *REDEEM* to account for the effect of issue attributes on rating properties. For the fourth category, I employ *GDP*, *BOND30*, and *SPI* to take into account the impact of overall economic conditions, overall bond market conditions, and overall stock market conditions respectively. Appendix A provides detailed definition for these control variables. To address the issue of reverse causality associated

[8] To test the sensitivity of my findings to the choice of a cutoff point, I use 14 as an alternative point and find that the inferences remain unchanged.

with explanatory variables, I measure all the issuer characteristics and macroeconomic variables in the fiscal year ending prior to the rating announcement dates.[9]

In additional analyses, I include two variables to capture regulatory changes, the passage of the Sarbanes-Oxley Act (SOX*) (SOX2002)* and the adoption of the Credit Rating Agency Reform Act of 2006 *(CRA2006)*.[10] SOX requires the SEC to carefully study the role and function of credit rating agencies in the operation of securities market, whereas the bill of 2006 increases oversight of credit rating agencies by bringing them under federal regulation by the SEC. These additional controls serve two purposes. First, they mitigate the potential concern that they jointly alter the way management communicates with rating agencies and the manner ratings agencies make rating decisions. Second, it helps to isolate the effect of management attributes on rating accuracy from the impact of credit rating agencies. As shown by Cheng et al. (2009), rating agencies respond to increased regulatory pressure and investor criticism, and bond ratings become more accurate, more timely, and less volatile in the post-SOX period, but before the Credit Rating Agency Reform Act of 2006 is signed into law.

I also control for whether financial statement restatements are restated in additional analyses.[11] This variable is intended to control for the potential effect of financial reporting quality on credit rating properties.[12] Because financial reporting is the primary source of public information, this additional control helps to tease out the effect of CEO tenure on

[9] I consistently apply this measurement restriction to all the other empirical models in the paper.
[10] For similar reasons, all other tests control for the two regulatory changes in additional analyses.
[11] Analogously, I control for *RESTATE* in the additional analyses of other tests.
[12] Cheng et al. (2009) state that "improved financial reporting and disclosure may not necessarily have an effect on the improvement in credit rating properties. Given that the rating agencies are exempted from the regulation FD's provisions, they could have always requested private information directly from managers to supplement the quality of publicly available disclosures. In their rating methodologies, the agencies (e.g., Standard and Poor's, 2002) explicitly state they use their direct access to debt issues' management to obtain private information."

rating accuracy through private information sharing with rating agencies beyond public information release.

Summary statistics

Table 2 presents descriptive statistics for selected variables used in Equation (2) to test H1. The mean value of *TYPE_I* is 0.200, indicating that about 20% of bond issues exhibit a Type I error in their credit rating. The mean value of *TYPE_II* is 0.291, indicating that about 29.1% of bond issues exhibit a Type II error in their credit rating. The mean value of the total assets is $11,521.84, and median value is $12,222.09 million. The mean and median value of leverage are 0.296 and 0.282, respectively. Moreover, average maturity of bond issues is 15.797 years.

Table 3 presents Pearson correlations among variables. Type I error is positively correlated with *TENURE,* providing some preliminary support for H1. Type II error is also positively correlated with *TENURE,* but the magnitude is low. The correlations among the control variables are low, as are the correlations between the test variable (*TENURE*) and the control variables, suggesting that multicollinearity between *TENURE* and control variables is not likely to be a significant issue in the multivariate regressions.

Results

Table 4 presents the multivariate regression analyses for testing H1, with the full set of control variables. To alleviate concerns about the potential time-series and cross-sectional dependence in the data, I report z-statistics using Huber-White standard errors corrected for firm clustering (Petersen 2009; Gow et al., 2010).[13]

[13] I also correct standard errors and the corresponding t- or z-statistics in a similar way for all the other models estimated in the paper.

Panel A of Table 4 presents the logit regression results using Type I error as the dependent variable. Column 1 through 3 presents the regression results using the cutoff of 11 to define Type I error, while column 4 through 6 presents the results using the cutoff of 14. As shown in column 1, the coefficient on *TENURE* is highly significant with a positive sign (0.358 with z=3.87). This significant positive relation between CEO tenure and the frequency of Type I errors suggests that longer-tenured CEOs influence credit rating agencies to maintain more favorable ratings. In column 2, I add control variables for the regulatory change, the passage of SOX in 2002.[14] The coefficient on *TENURE* remains highly significant positive. Column 3 further controls for the financial reporting quality and shows that the coefficient on *TENURE* is still significantly positive at 1% level. [15] The economic magnitude of this effect is large. When the residual CEO tenure increases from the 25th percentile (-2.02) to the 75th percentile (3.37), the probability of Type I error increases from 1.47% to 3.13%. Using the alternative cutoff of 14, column 4 through 6 provide similar results. Consistent with H1, these results suggest that using effective strategic communication with rating agencies, longer-tenured CEOs are more able to maintain favorable ratings.

Panel B of Table 4 presents the logit regression results using Type II errors as the dependent variable. Analogous to Panel A, column 1 through 3 presents the results using the cutoff of 11 to identify Type II errors, while column 4 through 6 presents the results using the cutoff of 14. Although column 1 and 2 indicate that the coefficients on *TENURE* are marginally significant, the coefficient becomes insignificant after controlling for

[14] Normally, I include two regulatory changes, the passage of SOX and that of the Credit Rating Agency Reform Act in 2006. But I only include the passage of SOX in model for Type I errors identified based on cutoff 11 due to perfect prediction.

[15] Some variables are omitted in the tests due to perfect prediction.

RESTATE in column 3 and replacing *Type II* with alternative specification using the cutoff of 14 in column 4 through 6. Therefore, Panel B does not document significant impact of CEO tenure on the frequency of Type II errors.

Collectively, Table 4 shows that as CEO tenure lengthens, the frequency of Type I errors increases, but there is no significant change in Type II errors. Overall, rating accuracy declines as CEO tenure becomes longer, in line with the argument that accumulated firm experience enables longer-tenured CEOs to have more effective strategic communication with rating agencies and thereby obtain favorable ratings.

5.1.2 Aggregate rating accuracy (default prediction)

Research design

In addition to Type I and Type II errors that shed light on specific types of errors in rating process, it is also important to assess rating accuracy in aggregate. Because the fundamental role of bond ratings is to provide insight on credit risk, this study follows Becker and Milbourn (2011) to utilize the ability of ratings to predict the future defaults to assess aggregate rating accuracy. Empirically, I first relate default events one year ahead to current rating levels or to a broad indicator for whether a bond issue is assigned a speculative-grade rating. I then allow the rating-default relation to vary with CEO tenure. Specifically, I estimate the following model using logit regression:

$$DEFAULT = \alpha_0 + \beta_1 TENURE + \beta_2 RATE + \beta_3 TENURE \times RATE + \sum_{q=4}^{m} \beta_q (q^{th} Control\ Variables) + \varepsilon \quad (3)$$

where *DEFAULT* is an indicator variable that equals 1 if there is a default event within one year from the rating date, and 0 otherwise; *RATE* is either *RATING* or *NONIG*, *RATING* is the assigned numerical code for credit ratings (as detailed in Appendix B) such that higher

code numbers reflect ratings closer to default; *NONIG* is 1 if the credit ratings are within the speculative-grade category, and 0 otherwise; and all other variables are defined in Appendix A. H1 predicts β_3 to be negative.

Control variables include *SP_RATING*, *FT_RATING*, *SIZE*, *LEV*, *COV*, *CAP_INTEN*, *LARGE_LOSS*, *NET_RET*, *ISSUESIZE*, *SENIOR*, *MATURITY*, *ASSETB*, *CONV*, *ENHANCE*, *PUT*, *REDEEM*, *GDP*, *BOND30*, and *SPI*. In particular, the additional controls of *COV* and *CAP_INTEN* are due to the evidence that lower interest coverage reflects greater default risk and greater capital intensity presents lower risk to debt providers (Ashbaugh-Skaife et al. 2006). Similarly, I also control for two regulatory variables (*SOX2002* and *CRA2006*) and the existence of financial statement restatement (*RESTATE*) respectively in alternative model specifications.

Results

Table 5 presents the results of estimating alternative specifications of equation (3). In column (1), the coefficient on *RATING* is positive and significant, implying that issuers with worse ratings are more likely to default. The coefficient on *RATING* × *TENURE* is significantly negative, meaning that the ability of ratings to predict default is mitigated as CEO tenure lengthens. In column (2), I add variables to control for the two regulatory changes. The coefficient on the interaction term remains significant and negative. To further check robustness of my findings to the impact of financial reporting quality, I control for an indicator variable for financial statement restatement and find similar results. In columns (4) through (6), I replace *RATING* with *NONIG* and rerun all the models reported in columns (1) through (3) respectively, to further assess rating-default predictability. The coefficients on *NONIG* ×*TENURE* are negative and highly significant.

Overall, the results of Table 5 suggest that longer CEO tenure leads to impairment of aggregate rating accuracy as reflected in rating-default predictability.[16]

5.1.3 Relative rating accuracy (cumulative accuracy profiles)

All the above measures evaluate rating accuracy more in an absolute sense. However, in the rating methodologies, rating agencies assert that the major function of bond ratings is to provide a measure of relative default risk (Cantor and Mann 2003). To illustrate, when rating agencies assign a favorable rating (e.g., A) to a bond issue, it does not mean that the agencies believe that the issue has no default risk at all or has a certain percent likelihood of default. Instead, the issue is viewed as relatively less risky than other bonds that receive less favorable ratings (e.g., BB, B). Therefore, I employ another measure of rating accuracy, relative rating accuracy that captures the power of credit ratings to correctly rank order debt issues according to their relative credit risk.

Specifically, I calculate cumulative accuracy profiles of ratings for the subsamples partitioned based on *TENURE*. The group with *TENURE* above the median is defined to have long CEO tenure, and short CEO tenure otherwise. I then compare the area underneath each cumulative accuracy profile to evaluate the impact of tenure on cumulative accuracy profiles.[17]

Figure 1 presents the cumulative accuracy profiles for default risk in one year for issuers in the two CEO tenure subgroups. The evidence is consistent with lower rating

[16] As a sensitivity test, I rerun all the models reported in column (1) through (6) by replacing *DEFAULT* with the default indicator that identifies the existence of a default event in three years from the rating date. I find the coefficient on *NONIG* ×*TENURE* to be negative and significant, but the coefficient on *RATING* ×*TENURE* is insignificant, suggesting that longer tenured CEOs are more prone to shift ratings from non-investment grade ratings to investment-grade ratings.

[17] See Bamber, 1975; Hanley and McNeil, 1983; Liu et al., 2005, for detailed description about statistical tests of the area differences under cumulative accuracy profiles.

accuracy when CEO tenure is long than when CEO tenure is short. Table 6 provides statistical tests for the differences of the area under the cumulative accuracy profiles for the different subgroups. The ROC area for the short-tenure group is 0.966, whereas the area for the group with long tenure is only 0.816. Also, the difference between the two groups is statistically significant ($p < 0.01$). Thus, relative to issuers with short CEO tenure, ratings for issuers with long CEO tenure perform worse in discriminating between defaulting and non-defaulting issues in the one-year window.

5.1.4 Rating accuracy: benchmark model tests

In addition to the above rating accuracy tests, I also use benchmark model tests to evaluate changes in rating accuracy. The tests benchmark rating changes issued by rating agencies against changes in default risk implied by bankruptcy prediction models. I choose the bankruptcy prediction model widely used in the academic literature: an Ohlson (1980) O score model. If longer-tenured CEOs are more able to maintain or improve their ratings and thereby lead to lower rating accuracy, I expect their rating downgrades (upgrades) to be less (more) responsive to the increase (decrease) in the default risk suggested by the benchmark bankruptcy models.

To test for changes in rating accuracy, I identify a subsample of firm-year observations with large default probability increases (decreases) by retaining the firm-year observations at the top (bottom) 25% of the Ohlson O score change distribution. I then compare the frequency of rating downgrades (upgrades) for the subsample with substantial default probability increase (decrease). Table 7 presents the empirical results for both upgrades and downgrades. I find that when the benchmark model indicates that the default risk goes down, firms with long CEO tenure experience a significantly larger percentage

of upgrades. But when the benchmark model indicates the default risk goes up, firms with long CEO tenure experience a significantly lower percentage of downgrades. To test robustness of results to outliers, I conduct Wilcoxon rank-sum tests to further assess the differences in rating change frequency for firms with short versus long CEO tenure. The untabulated results are similar.[18] These findings further support the hypothesis that rating accuracy is lower for firms with long CEO tenure.

5.2 Rating timeliness

5.2.1 Average rating during one year leading to default

Research design

To test H2, I follow Cheng et al. (2009) to examine the relation between CEO tenure and rating timeliness after controlling for other determinants of rating timeliness. Specifically, I estimate the following model using OLS regression:

$$WRATE = \alpha_0 + \beta_1 TENURE + \sum_{q=2}^{m} \beta_q (q^{th} Control\ Variables) + \varepsilon \quad (4)$$

where *WRATE* is the weighted average rating level over the one year leading to default; and all other variables are defined in Appendix A. Specifically, *WRATE* is defined as the sum of all rating levels outstanding during the one year leading to default multiplied by the number of days each rating has been outstanding, and then scaled by 365. Higher values of *WRATE* suggest that rating agencies assign worse ratings to defaulting issues in a timelier manner.[19]

[18] As another robustness check, I use an Altman Z score model to predict bankruptcy probability changes and re-do all the tests. The results largely hold.

[19] *WRATE* takes into consideration the timing of rating downgrades, as well as the magnitude and the pattern of rating changes. Therefore, it jointly captures the timeliness and accuracy of such changes. As a result, it very well serves the research purpose of assessing the effect of CEO tenure on multiple dimensions of rating quality. Nevertheless, I use alternative measures of rating timeliness to further assess the impact of CEO tenure on rating timeliness in Section 5.2.2 and find similar results. In addition, I use the sensitivity of rating

Control variables include *SP_RATING*, *FT_RATING*, *DTYPE*, *SIZE*, *LEV*, *COV*, *ISSUESIZE*, *SENIOR*, *MATURITY*, *ASSETB*, *CONV*, *ENHANCE*, *PUT*, *REDEEM*, *GDP*, *BOND30*, and *SPI*. In particular, controlling for *DTYPE* aims to address the concern that rating agencies may release ratings faster or slower for different default types. Similarly, I also include two regulatory variables (*SOX2002* and *CRA2006*) and the existence of financial statement restatement (*RESTATE*) respectively in alternative model specifications.

Results

Panel A of Table 8 presents descriptive statistics for variables included in Equation (4). The mean of *WRATE* is 9.533 with standard deviation of 5.900. About 99% of default is bankruptcy default. Descriptive statistics for other variables are mostly similar to those in Table 2.

Panel B of Table 8 presents the results of estimating alternative specifications of Equation (4). As shown in column 1, *TENURE* is significantly negatively associated with *WRATE* (-0.392 with t statistic=-2.60), indicating that for defaulting issues, issuers with longer CEO tenure receive worse ratings in a less timely manner. The negative relation continues to hold after controlling for the two regulatory changes in column 2 and further including financial reporting quality in column 3. Put together, these results provide empirical support that issuers with longer tenured CEOs tend to have less timely ratings.

5.2.2 Timeliness of rating downgrades relative to defaults

changes to news to further assess rating timeliness. Specifically, I relate newly arrived news, which is captured by stock market returns (the buy-hold abnormal return over the fiscal year ending prior to the rating announcement date), to rating changes and then investigate how CEO tenure affects the relation. The untabulated results show that the sensitivity of rating changes to news is mitigated as CEO tenure gets longer, providing additional support that long CEO tenure is negatively associated with rating timeliness.

Research design

Given the widespread criticism over rating agencies on downgrade staleness (e.g., Watts 2003; Bonsall et al. 2014), I also assess rating downgrade timeliness in particular. Downgrades are timelier if they provide an earlier warning of credit quality deterioration. Therefore, consistent with Cheng et al. (2009), I consider downgrades to be timelier if downgrades lead the actual default dates for a longer time. Using all default events, I examine whether a rating agency downgrades defaulting bonds sooner or later for issuers with longer-tenured CEOs. Specifically, I estimate the following model using an OLS regression:

$$DAYAHEAD = \alpha_0 + \beta_1 TENURE + \sum_{q=2}^{m} \beta_q (q^{th} Control\ Variables) + \varepsilon \quad (5)$$

where *DAYAHEAD*, the number of days between the default date and the downgrade date; and all other variables are defined in Appendix A. To the extent that rating downgrades are timelier, *DAYAHEAD* should be higher. Due to the importance of the investment/non-investment grade cutoff, I alternatively capture downgrade timeliness by *DAYAHEADIG*, the number of days between the default date and the date of downgrade from an investment-grade rating to a speculative-grade rating.[20] In addition to control variables in equation (4), I add *LAGRATE* for this model because debt issues with a closer to default rating will have less room for downgrades.

Results

[20] For instance, Lee (2012) finds that firms tend to inflate their reported cash flow from operations (CFO) when they have a long-term credit rating near the investment/noninvestment grade cutoff.

Panel A and B of Table 9 presents descriptive statistics for variables used to test downgrade timeliness as identified by *DAYAHEAD* and *DAYAHEADIG* respectively. The mean of *DAYAHEAD* is 759.08 days with standard deviation of 885.938, whereas the mean of *DAYAHEADIG* is 964.922 days with standard deviation of 936.007. The mean of *LAGRATE* for both samples of *DAYAHEAD* and *DAYAHEADIG* are investment grade ratings very close to the investment/non-investment grade cutoff. Descriptive statistics for other variables are mostly similar to those in Table 2.

Panel C of Table 9 presents the results of estimating alternative specifications of equation (5). In column 1, the coefficient on *TENURE* is negative and significant, implying that issuers with longer-tenured CEOs have less timely rating downgrades for defaulting issues. The negation relation still holds after adding the regulatory variables and financial statement restatement status in column 2 and 3 respectively. In columns 4 through 6, I replace *DAYAHEAD* with *DAYAHEADIG* and rerun all the models reported in columns 1 through 3, respectively, to further assess the effect of CEO tenure on timeliness of rating downgrades from investment-grade ratings to speculative-grade ratings for defaulting issues. The coefficients on *TENURE* are significantly negative in columns 4 to 6. Overall, the results in Panel C of Table 9 suggest that as CEO tenure lengthens, ratings are downgraded in a less timely manner for defaulting issues.

5.3 Rating stability

Research design

To test H3, which examines the association between CEO tenure and rating stability, I estimate the following model with OLS regression:

$$VOLATILITY = \alpha_0 + \beta_1 TENURE + \sum_{q=2}^{m} \beta_q (q^{th} Control\ Variables) + \varepsilon \quad (6)$$

where *VOLATILITY* is the standard deviation of ratings outstanding over the yearly rolling windows (this measure requires at least three outstanding ratings over the window);[21] and all other variables are defined in Appendix A. In calculating *VOLATILITY*, I apply two different windows. One window is the rolling fiscal year, while the other is the rolling calendar year.[22] Because Hypothesis H3 predicts that long CEO tenure is associated with higher rating volatility, I expect β_1 to be positive.

Control variables include *SP_RATING*, *FT_RATING*, *COV_STD*, *ISSUESIZE*, *SENIOR*, *MATURITY*, *ASSETB*, *CONV*, *ENHANCE*, *PUT*, *REDEEM*, *LAGIG*, *GDP*, *BOND30*, and *SPI*. In particular, the additional control of *LAGIG* attempts to account for the possibility that investment grade ratings have rating volatility different from non-investment grade ratings. Similarly, I also include the two regulatory variables (*SOX2002* and *CRA2006*) and the existence of financial statement restatement (*RESTATE*) respectively in alternative model specifications.

Results

Panel A of Table 10 presents descriptive statistics for variables used to test rating volatility over a rolling fiscal year. The mean of *VOLATILITY* is 1.061 with a standard deviation of 1.307. At the beginning of the year, 70.2% of ratings are within the investment grade category (*LAGIG*). Descriptive statistics for other variables are basically similar to

[21] For the *VOLATILITY* measure I use only debt issues that have at least three ratings outstanding during the year (to be able to compute the standard deviation). A limitation of this measure is that it excludes issues with less than three outstanding ratings. However, in the stability tests, my purpose is to compare ratings volatility for firms with short versus long CEO tenure. Since I apply the same definition of the *VOLATILITY* measure for both firms with short CEO tenure and those with long CEO tenure, I do not believe that I introduce any bias by requiring at least three ratings.

[22] Without the data requirement on the fiscal year, *VOLATILITY* over the rolling calendar year allows the calculation of rating volatility before the merge of FISD and Compustat, which uses a more comprehensive sample. But because CEO tenure is measured by fiscal year, only firms with fiscal year the same as calendar year are kept in the analysis of rating volatility calculated based on a rolling calendar year.

those in Table 2. Panel B of Table 10 presents descriptive statistics for variables used to test rating volatility over a rolling calendar year. They are all similar to those in Panel B of Table 10.

Panel C of Table 10 presents the results of estimating alternative specifications of Equation (6) using rating volatility over a rolling fiscal year. In column 1, the coefficient on *TENURE* is significant and positive at 10% level. After controlling for the two regulatory changes in column 2 and the effect of financial reporting quality in column 3 respectively, I find the coefficient on *TENURE* is significantly positive at 5% level. In Panel D, I rerun all the tests in Panel C replacing rating volatility over a rolling fiscal year with rating volatility over a rolling calendar year. In column 1 through 3, the coefficients on *TENURE* are consistently positive and significant. Overall, the results in Panel C and D of Table 10 suggest that for issuers with longer CEO tenure, their ratings are more volatile.

5.4 Mechanism: private information sharing

Although longer-tenured CEOs could influence credit ratings through strategic transmission of public or private information, private information transmission plays an even more important role in shaping rating properties. As suggested by Cheng et al. (2009), public information like financial reporting and disclosure may not necessarily have an effect on rating properties because rating agencies are excepted from the regulation FD's provisions and could always request private information from management. In the empirical analyses at sections 5.1 through 5.3, I have used several approaches to isolate the impact of CEO tenure on rating properties through private information sharing: (i) control for financial metrics; (ii) control for financial reporting quality.

To further assess the impact of CEO tenure on rating properties through private information sharing, I control for firms' overall disclosure policy. Specifically, I follow Dhaliwal et al. (2011) to measure disclosure policy using three dimensions of management earnings forecasts. The first dimension (*MF*) is the presence or absence of a management earnings forecasts. It takes 1 if a firm provides at least one quarterly management earnings forecasts over a fiscal year, and 0 otherwise. The second dimension, *FREQ*, is the frequency of the quarterly management earnings forecasts provided by a firm over a fiscal year. The third dimension, *PRECISION*, is the precision of the management earnings forecasts. This input equals the average precision of a firm's quarterly management earnings forecasts over a fiscal year, where forecast precision equals 0 if no forecast issued, 1 for qualitative forecasts, 2 for range forecasts, and 3 for point forecasts. The firm disclosure policy (*DISCLOSURE*) is constructed as the product of *MF*, *FREQ*, and *PRECISION* such that larger values reflect a more expanded disclosure policy. I then add the proxy for disclosure policy in all the multivariate tests in Section 5.1 through 5.3. [23] All my results hold. But I do not find disclosure policy consistently influence all the rating properties. Following Baginski et al. (2012), I also capture overall disclosure policy using an alternative specification based on the three dimensions of management earnings forecasts and re-do all the tests in Section 5.1 through 5.3. All the results remain similar.

Alternatively, I control for stock market returns to further take into account the effect of public information sharing and thereby tease out the effect of CEO tenure on rating properties through private information sharing. Specifically, I control for the buy-hold abnormal return over the fiscal year ending prior to the rating announcement date in

[23] To normalize the distribution of *DISCLOSURE*, I use the natural logarithm of *DISCLOSURE* plus 1 in all the multivariate tests.

the tests of rating accuracy and rating timeliness and the standard deviation of daily abnormal return over the year prior to year t in the tests of rating volatility. This approach assumes that stock market returns capture the release of public information in a timely manner. The general approach is similar to Beaver et al. (2006), who use changes in stock prices to investigate whether Egan Jones are timelier than Moody's in updating ratings in response to newly available public information.

Table 11 presents the results of estimating the third model specifications in the tests of credit rating properties after including stock market returns.[24] Specifically, I follow Bonsall et al. (2013) to include the buy-hold abnormal returns in the tests of rating accuracy and timeliness and the standard deviation of daily abnormal return in the tests of rating volatility. For all the tests in this table, the results reported in Section 5.1 through 5.3 still hold, providing further support that longer-tenured CEOs manage credit ratings through private information transmission, leading to lower rating accuracy, lower rating timeliness, and higher rating volatility.

5.5 Cross-sectional analyses

The results in the previous sections suggest that longer-tenured CEOs manage credit ratings through strategic transmission of private information and thereby lead to lower rating quality. To further assess whether the basic economic story holds, I examine how the effect of CEO tenure on rating properties varies cross-sectionally. Specifically, I partition the sample based on firm complexity and information environment using concentration of institutional ownership. For complex firms, rating agencies rely more on

[24] The third model specifications refer to the model that includes all the basic control variables and additional control variables like two regulatory change variables and restatement status variable. For brevity, I only report coefficients on the test variables.

managers to obtain firm-specific information. As a result, managers with more firm experience have more opportunities to influence rating decisions and thereby affect rating properties. For firms with concentrated institutional ownership, they have more transparent information environment. In such a scenario, if managers strategically communicate with rating agencies attempting to maintain or improve ratings, rating agencies are more likely to see through the "strategic communication".

To test the cross-sectional predictions, I capture firm complexity using an indicator variable that takes 1 if the Herfindahl index based on the firm's business segment sales falls in the top tercile by fiscal year, and 0 otherwise. I measure concentration of institutional ownership using an indicator variable that takes 1 if the concentration index of institutional ownership falls in the top tercile by fiscal year, and 0 otherwise. Table 12 presents the results of the cross-sectional analyses based on the third model specifications in the tests of credit rating properties. For brevity, only coefficients on variables of interest are reported. The results are largely consistent with the prediction that the effect of CEO tenure on rating quality becomes less pronounced for simple firms as well as for firms with concentrated institutional ownership.

6. Do investors understand the rating implications of CEO tenure?

Despite the significant rating implications of CEO tenure, it is unclear whether investors understand such implications. If not, the market consequence can be severe. Therefore, I next assess investor perception about the impact of CEO tenure on rating properties using bond market reaction. The advantage of using bond data is that bond yields are more directly influenced by changes in default probabilities, which credit ratings ostensibly measure. However, bonds are relatively illiquid and many do not trade around rating changes.

6.1 Research design

To test H4, I use two approaches. One approach is to follow He et al. (2012) to investigate whether bond yield spreads at issuance vary with CEO tenure after holding all the determinants of yield spreads, including bond ratings at issuance, constant. The other approach is to assess whether the relation between initial ratings and initial yield spreads change as CEO tenure alters. Specifically, I estimate the following two models using OLS procedure:

$$YSPREAD = \alpha_0 + \beta_1 TENURE + \sum_{q=2}^{m} \beta_q (q^{th} Control\ Variables) + \varepsilon \tag{7}$$

$$YSPREAD = \alpha_0 + \beta_1 TENURE + \beta_2 RTINIT + \beta_3 TENURE \times RTINIT + \sum_{q=4}^{m} \beta_q (q^{th} Control\ Variables) + \varepsilon \tag{8}$$

where *YSPREAD* is the difference between a bond's initial yield-to-maturity and the yield on a U.S. Treasury bond with the closest maturity;[25] *RTINIT* is the initial ratings outstanding for the newly issued bonds;[26] and all other variables are defined in Appendix A. Hypothesis H4 predicts that investors perceive ratings to be less informative for issuers with longer-tenured CEOs. This translates into a positive coefficient on *TENURE* in Eq. (7) and a negative coefficient on *TENURE*×*RTINIT* in Eq. (8).

Control variables include *RTINIT*, *SP_RATING*, *FT_RATING*, *SIZE*, *LEV*, *COV*, *ROA*, *ISSUESIZE*, *SENIOR*, *MATURITY*, *ASSETB*, *CONV*, *ENHANCE*, *PUT*, *REDEEM*, *GDP*, *BOND30*, and *SPI*. Analogous to other hypothesis tests, I also include two regulatory variables (*SOX2002* and *CRA2006*) and the existence of financial statement restatement (*RESTATE*) respectively in alternative model specifications.

6.2 Results

Panel A of Table 13 presents descriptive statistics for variables included in Equation (7) and (8). The mean of *YSPREAD* is 1.927 with standard deviation of 1.579. Descriptive statistics for other variables are largely similar to those in Table 2.

Panel B of Table 13 presents the regression results for testing whether investors understand the rating implications of CEO tenure. Column 1 through 3 presents the results of estimating equation (7), whereas column 4 through 6 presents the results of estimating equation (8). In column (1), the coefficient on *TENURE* is marginally significant and positive (at 10% level). But such marginally significant result does not hold after

[25] The choice of initial bond yield spreads is due to the particular importance of initial ratings and the fact that management is more concerned about initial ratings than subsequent ratings (Bonsall et al. 2013).
[26] Initial ratings are not directly available in FISD. In the reported results, I identify initial ratings using the ratings closest to offering date. Alternatively, I use the average ratings in the three months leading to offering date and one month after the offering date to identify initial ratings. The results remain similar.

controlling for the two regulatory changes in column 2. In column 3, where financial reporting quality is controlled for, the coefficient on *TENURE* remains insignificant. These results suggest that investors do not understand the implications of longer-tenured CEOs on rating properties.

Alternatively, I assess investor perception about the relation between CEO tenure and rating properties by estimating equation (8). Regardless of the model specifications, I fail to find any significant results on the interaction between *RTINIT* and *TENURE* in column 4 through 6. Taken together, Panel B of Table 13 suggests that investors fail to see through the influence of longer-tenured CEOs on rating properties.

7. Robustness analyses

7.1 Alternative specifications of CEO tenure

To test whether there is a non-linear relation between CEO tenure and rating properties, I repeat all the multivariate tests after including the quadratic form of *TENURE* into the regressions above. Untabulated results indicate that the coefficients on the second-order polynomial term for *TENURE* are insignificant with one exception. In particular, the likelihood of Type I error initially increases, and later on declines as CEO tenure becomes longer. But this result is not robust to the OLS estimation.

I also examine whether the results are sensitive to alternative ways of computing the residual CEO tenure. Specifically, I add accounting-based firm performance and market-based firm performance in the past three years to model CEO tenure. I then use the newly constructed residual CEO tenure to re-do all the multivariate tests. All the results are qualitatively similar.[27]

7.2 Alternative regression procedures

In testing Type I errors, Type II errors, and rating-default predictability, I use logit regressions. But logit regressions require more assumptions to be satisfied. To test robustness of the previous results to alternative regression procedures, I rerun all the multivariate tests using OLS regressions. All the results still hold.

For tests of rating-default predictability, I conduct rare events logistic regressions. I do so because King and Zeng (2001) consider events that occur in less than 5% of

[27] All the results are similar with the following exceptions: (1) the regressions testing Type I errors identified based on cutoff 11 do not converge; (2) results do not hold for *DAYAHEAD*.

observations as rare events and rare events can lead to bias in the coefficient estimates using logistic regression. Given the default rate in the sample is 2.2%, default events are rare in my sample. Therefore, to address the concern associated with rare events, I first conduct rare events logistic regressions for the tests using rating-default predictability.[28] My results still hold.

In tests of rating timeliness, I follow Cheng et al. (2009) to use OLS regression. But measures for downgrade timeliness (*DAYAHEAD* and *DAYAHEADIG*) are count data and their conditional variances exceed the conditional mean. In such a scenario, OLS regression can cause a bias in the estimated coefficients. To test robustness of the results, I rerun all the tests of downgrade timeliness using negative binomial. All the results are similar.

7.3 Year fixed effects regressions

In the primary empirical analyses in Section 5 and 6, I include several macroeconomic variables and regulatory changes to address the concern that some constant cross-sectional variables confound the results. To further mitigate this concern, I replace the macroeconomic variables and regulatory variables with year fixed effects. The results are qualitatively similar.

7.4 Inclusion of industry fixed effects

To test whether the results are sensitive to industry fixed effects, I add industry fixed effects into the third model specifications in all the multivariate tests. All the results

[28] But according to Paul D. Allison, rare events in my context will not cause bias in estimating traditional logit regression. Paul D. Allison states that whether rare events cause a bias in logit regression is conditional on the sample size. Specifically, he said that "The problem is not specifically the *rarity* of events, but rather the possibility of a small number of cases on the rarer of the two outcomes. If you have a sample size of 1000 but only 20 events, you have a problem. If you have a sample size of 10,000 with 200 events, you may be OK. If your sample has 100,000 cases with 2000 events, you're golden." For details, please refer to http://www.statisticalhorizons.com/logistic-regression-for-rare-events. In my sample of 60910 observations, there are 1340 cases of default. Thus, this will not cause bias in estimating traditional logit regression.

hold with the following exceptions: (1) the results on downgrade timeliness do not hold; (2) regressions for Type I error using cutoff 11 do not converge.

7.5 Use raw CEO tenure, but control for factors that predict CEO tenure

In the primary empirical analyses in Section 5 and 6, I use the residual CEO tenure as the independent variable of interest. Given the difficulty in interpreting the economic meanings of the coefficients, I re-run all the tests using raw CEO tenure while controlling for the factors that predict CEO tenure in Equation (1). All the results are similar with the only exception that the results using *DAYAHEAD* do not hold. The economic impact of CEO tenure is large. For instance, as raw CEO tenure increases by 1 year, the probability of Type I error increases by 1.04% (the average frequency of Type I error is 20%).

7.6 Control for CEO power and corporate governance

It is possible that powerful CEOs have more opportunities to influence rating outcomes. It is also likely that corporate governance can influence information environment, which can constrain CEOs to affect rating outcomes. To address these concerns, I control for CEO power and corporate governance one at a time and jointly. Following prior studies (e.g., Liu et al. 2010; Custodio et al. 2013), I capture CEO power using CEO pay slice ratio (CPS) and governance quality using G index from Gompers et al. (2003). My results remain similar with the only exception that the results on rating downgrade timeliness do not hold.

7.7 Control for CEO compensation structure

Given it is possible that CEO compensation structure shapes CEO incentive in influencing rating decisions, I control for CEOs' incentive ratio for stock holdings. Following Kim et al. (2011a), I measure incentive ratio as *ONEPCT*/(*ONEPCT* + *SALARY*

+ *BONUS*), where *ONEPCT* is the dollar change in the value of CEOs' stock holdings that would come from a 1% increase in the company stock price. All the results generally hold.

7.8 Control for managerial ability

If rating agencies over-trust more able managers and thereby reduce due diligence, then rating quality could decline. To mitigate the concern that managerial ability is driving the results, I control for managerial ability using managerial ability score constructed by Demerjian et al. (2012).[29] The results are qualitatively similar. In addition, I drop the residual CEO tenure from the third model specifications in all the multivariate tests, but add managerial ability. Managerial ability generally does not exhibit a significant effect on rating properties with the following exceptions: (1) managerial ability is negatively associated with the frequency of Type II errors; (2) managerial ability is positively associated with rating-default predictability; (3) managerial ability is associated with lower initial bond yield spread. These results suggest that managerial ability could even improve some dimensions of rating quality and is perceived favorably by investors. Therefore, it is not likely that managerial ability can be a correlated omitted variable that drives the results in the previous sections.

7.9 Control for CEOs' prior experience as other firms' CEOs

If a CEO holds a CEO position in another firm before joining the current firm, then it is possible that he/she obtains prior experience in communicating with rating agencies. Therefore, the concern is that such prior experience can be an omitted variable. To alleviate the concern, I control for CEOs' prior experience as other firms' CEOs. Specifically, I capture such prior experience using two measures. One is the number of firms for which

[29] Managerial ability score can be downloaded at http://faculty.washington.edu/smcvay/abilitydata.html.

CEOs serve as other firms' CEOs before they become CEOs of the current firms. The other is the number of years for which CEOs serve as other firms' CEOs before they become CEOs of the current firms. All my results hold after including either measure or both jointly with the only exception that these additional controls are dropped due to collinearity or perfect prediction when examining Type I errors.

7.10 Control for credit rating agency tenure

As rating agencies repeatedly interact with managers, they could have built up a close relationship with managers and their firms. With such a relationship, rating agencies are more likely to compromise their independence and issue favourable ratings. To address this concern, I control for credit rating agency tenure using the number of years for which a given rating agency consistently rate one client. All the results still hold.

7.11 Endogeneity concern

In my context, endogeneity concern mainly stems from the correlated omitted variables. In the major empirical analyses in Section 5 and 6, I use the residual CEO tenure to address this concern. In the above sensitivity analyses, I also add a few other variables to mitigate the concern. To further address this concern, I add firm fixed effects into the third model specifications of all the multivariate tests. The results hold for rating-default predictability, rating downgrade timeliness, rating volatility, and investor perception identified using the main effect. But the results do not hold for rating timeliness captured by *WRATE*. The logit fixed effects model is not estimable for Type II errors and it does not converge for Type I errors. But the limitation of firm fixed effects is that it only addresses the concern for time-constant firm attributes. Since my independent variable of interest is

time-varying, the inclusion of firm fixed effects may not be a sufficiently good approach to address the concern for correlated omitted variables.

To further address the concern for correlated omitted variables, I consider 2SLS regression analyses using CEO age and industry-year median CEO tenure as instruments. CEO age and CEO tenure are highly correlated, not only mechanically but also because general labor market trends suggest that older workers are less likely to change their jobs (Dixon 2003; Ng and Feldman 2010). Importantly, there is no research on the association between CEO age and rating properties. Thus, I use CEO age as an instrument. The spirit of this approach is similar to Kim et al. (2014). The use of industry-year median CEO tenure is similar to that of Liu et al. (2010). I first conduct tests of endogeneity using the third model specifications in all the multivariate tests in Section 5 and 6. All the tests produce insignificant results, failing to reject the null hypothesis that CEO tenure is exogenous. Alternatively, I only use CEO age as an instrument given the concern that industry-year median CEO tenure may not be exogenous, and still fail to reject the null hypothesis. In short, my empirical tests do not reveal a significant endogeneity concern over CEO tenure.

8. Conclusion

This study examines whether and how longer-tenured CEOs shape corporate bond rating quality and whether the market understands such rating implications. Due to the expansive roles of credit ratings in the financial system, managers have incentives to maintain or improve their ratings. Accumulated firm experience makes longer-tenured CEOs more able to achieve the desired rating outcomes through strategic communication with rating agencies, leading to lower rating quality. Using a sample of corporate bonds issued by U.S. firms from 1994 through 2011, I find evidence consistent with this prediction. Specifically, I find that ratings are less accurate, less timely, and more volatile for issuers with longer-tenured CEOs. All these results hold after controlling for the impact of CEO tenure through public information sharing, suggesting that longer-tenured CEOs manage credit ratings through private information sharing with rating agencies. However, I fail to find significant changes in initial bond yield spreads or the ability of initial bond ratings to explain initial bond yield spreads as CEO tenure varies, which suggest that investors do not understand such rating management by longer-tenured CEOs.

One contribution of this study is that it examines the role of corporate management in shaping corporate bond-rating properties and the corresponding market perception. While recent criticism of rating agencies has centered around the potential conflict of interest that arises from issuers paying for ratings, very little discussion about the information-sharing aspect of issuer-pay has occurred. Although Bonsall (2014) points to the positive aspect of information sharing, this study sheds light on the dark side of such sharing. The evidence should alert regulators, investors, and researchers about the

importance of corporate management in influencing rating quality. Moreover, this study provides support for the conjecture in Bonsall (2014) that at least for corporate bonds, the issuer-pay model alone does not lead to net declines in bond-rating quality; instead, the interaction effect between the issuer-pay model and other attributes of the rating environment, such as the rating process, work to reduce rating quality. Finally, my findings provide support for the latest regulatory change after the Dodd-Frank Act that revokes the Reg FD exemption privilege for credit rating agencies.

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Appendix A: Variable definitions

1. Dependent variables

TYPE_I	=	An indicator that takes the value of 1 for missed defaults, and 0 otherwise. Specifically, for a sample of issues that have an event of default within 1 year from the rating date, this variable takes the value 1 (0), if a debt issue has a rating better (worse) than the cutoff point.
TYPE_II	=	An indicator that takes the value of 1 for missed non-defaults, and 0 otherwise. Specifically, for a sample of issues that don't have an event of default 1 year from the rating date, this indicator takes the value 1 (0), if a debt issue has a rating worse (better) than the cut-off point.
DEFAULT	=	An indicator that takes 1 if there is a default event within one year from the rating date, 0 otherwise.
WRATE	=	The sum of all rating levels outstanding during the one year leading to default multiplied by the number of days each rating has been outstanding, and then scaled by 365.
DAYAHEAD	=	The number of days between the default date and the downgrade date.
DAYAHEADIG	=	The number of days between the default date and the date of the downgrade from an investment grade to a speculative grade.
VOLATILITY	=	The standard deviation of ratings outstanding over annual rolling windows (this measure requires at least three outstanding ratings).
YSPREAD	=	The difference between a bond's initial yield-to-maturity and the yield on a U.S. Treasury bond with the closest maturity.

2. Test variable

TENURE = Residuals from annual regressions from the following model:

$$RAW\_TENURE = \alpha_0 + \beta_1 FIRMAGE + \beta_2 IRISK + \beta_3 STOCK\_PER + \beta_4 ACCT\_PER + \beta_5 RESTATE + \beta_6 CEOAGE + \varepsilon$$

where *RAW_TENURE* is the number of years of experience in the CEO office of a given company at fiscal year t; *FIRMAGE* is the number of years since the firm was first traded in the public market at fiscal year t-1; *IRISK* is natural logarithm of 1 plus the standard deviation of residuals from a regression of daily stock returns on daily value-weighted market returns over a fiscal year t-1; *STOCK_PER* is buy-and-hold return in the 12 months identified by a fiscal year t-1; *ACCT_PER* is income before extraordinary items and discontinued operations divided by average book value of assets at fiscal year t-1; *RESTATE* is an indicator variable that takes a value of 1 if the firm has a financial statement restatement at fiscal year *t-1; CEOAGE* is age of CEO at a fiscal year t-1.

3. Control variables

Rating type and default type

SP_RATING	=	An indicator that takes 1 if the rating agency is S&P, 0 otherwise.
FT_RATING	=	An indicator that takes 1 if the rating agency is Fitch, 0 otherwise.
DTYPE	=	An indicator that takes 1 if the default type is Bankruptcy, and 0 for other types of defaults (i.e., interest default and principal default).

Issuer characteristics

SIZE	=	The natural logarithm of an issuer's total assets for the fiscal year ending prior to the rating announcement date.
LEV	=	Long-term debt divided by total assets for the fiscal year ending prior to the rating announcement date.
COV	=	Income before extraordinary items divided by interest expense for the fiscal year ending prior to the rating announcement date.
ROA	=	Net income before extraordinary items divided by total assets for the fiscal year ending prior to the rating announcement date.
LARGE_LOSS	=	An indicator variable that takes a value of 1 if a firm experiences an annual loss equal or greater than 25% of total assets for the fiscal year ending prior to the rating announcement date, 0 otherwise.
NEG_RET	=	An indicator variable that takes a value of 1 if a firm reports negative retained earnings for the fiscal year ending prior to the rating announcement date and 0 otherwise.
CAP_INTEN	=	PPE over total assets for the fiscal year ending prior to the rating announcement dates.
COV_STD	=	The standard deviation of annual interest coverage over the three-year period ending at the fiscal year with the end prior to the rating announcement dates.
RESTATE	=	An indicator variable that takes a value of 1 if the firm has a financial statement restatement for the fiscal year ending prior to the rating announcement dates.

Issue characteristics

RATING	=	Assigned numeric rating score following Cheng and Neamtiu (2009).
NONIG	=	An indicator that takes 1 if the credit ratings are within the speculative-grade category, 0 otherwise.
LAGRATE	=	The first credit rating level of the defaulting bond issue.
LAGIG	=	An indicator that takes 1 if the outstanding credit rating at the beginning of the year is within the investment grade category, 0 otherwise.
RTINIT	=	The initial ratings *(RATING)*outstanding for the newly issued bonds.
ISSUESIZE	=	The natural logarithm of the face value of the bond issue.
SENIOR	=	A binary variable set equal to one if a bond has seniority status and zero otherwise.

MATURITY	=	The number of years until maturity.
ASSETB	=	An indicator variable that takes a value of 1 if the issue is an asset-based, 0 otherwise.
CONV	=	An indicator variable that takes a value of 1 if the issue can be converted to the common stock of the issuer, 0 otherwise.
ENHANCE	=	An indicator variable that takes a value of 1 if the issue has the credit enhancement feature, 0 otherwise.
PUT	=	An indicator variable that takes a value of 1 if the issue has the option, but not the obligation, to sell the security back to the issuer under certain circumstances, 0 otherwise.
REDEEM	=	An indicator variable that takes a value of 1 if the issue is redeemable under certain circumstances, 0 otherwise.

Macroeconomic variables

GDP	=	The annual gross domestic product for the fiscal year ending prior to the rating announcement date.
BOND30	=	The annual return on the CRSP 30-year bond for the fiscal year ending prior to the rating announcement date.
SPI	=	The level of the S&P 500 index for the fiscal year ending prior to the rating announcement date.

Regulatory variables

SOX2002	=	An indicator that takes a value of 1 if the rating change date falls after July 25, 2002 and before Sep. 29, 2006, and 0 otherwise.
CRA2006	=	An indicator that takes a value of 1 if the rating change date falls after Sep.29, 2006, and 0 otherwise.

4. Partitioning variables

SEGHHI	=	An indicator variable that takes 1 if the Herfindahl index based on the firm's business segment sales falls in the top tercile by fiscal year, and 0 otherwise.
IOC	=	An indicator variable that takes 1 if the concentration index of institutional ownership falls in the top tercile by fiscal year, and 0 otherwise.

Appendix B: Rating schemes definitions

Credit risk	Moody's	S&P's	Fitch's	Code assigned
Highest grade	Aaa	AAA	AAA	1
	Aa1	AA+	AA+	2
High grade	Aa2	AA	AA	3
	Aa3	AA-	AA-	4
	A1	A+	A+	5
Upper medium grade	A2	A	A	6
	A3	A-	A-	7
	Baa1	BBB+	BBB+	8
Medium grade	Baa2	BBB	BBB	9
	Baa3	BBB-	BBB-	10
	Ba1	BB+	BB+	11
Lower medium grade	Ba2	BB	BB	12
	Ba3	BB-	BB-	13
	B1	B+	B+	14
Low grade	B2	B	B	15
	B3	B-	B-	16
	Caa1	CCC+	CCC+	17
	Caa2	CCC	CCC	18
	Caa3	CCC-	CCC-	19
	Ca	CC	CC	20
	C	C	C	21
Default		D	DDD/DD/D	22

Figure 1: Cumulative accuracy profiles (ROC curves) for default risk in one year

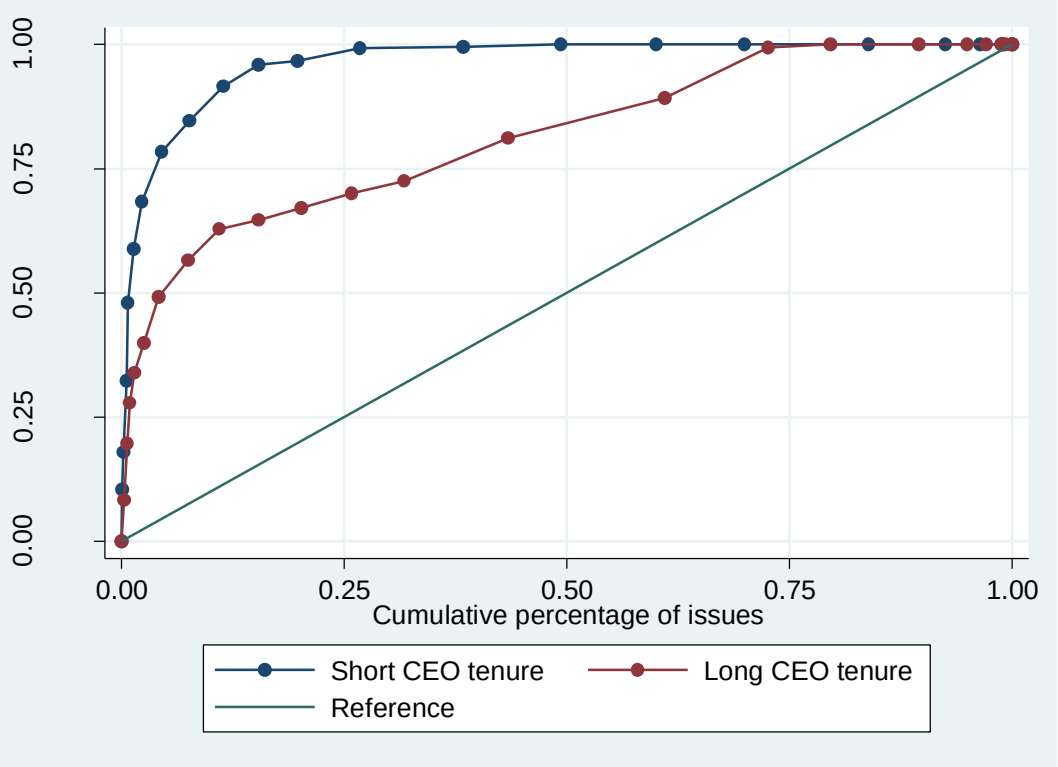

Table 1 Determinants of CEO tenure

This table presents summary statistics for variables in CEO tenure regressions and the regression results. Panel A presents descriptive statistics for CEO tenure and all the control variables. Panel B presents the Pearson correlation for the regression variables. In this table, boldface text indicates significance at 0.05 or lower (two-tailed). Panel C presents mean coefficients from annual cross-sectional (Fama-Macbeth) regressions of CEO tenure on the variables listed. The sample period is from fiscal year 1994 through 2011. *T* statistics are reported in parentheses. $^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$. Significance levels are based on two-tailed tests. All variables are defined in Appendix A.

Panel A: Descriptive statistics

	N	Mean	Median	25%	75%	Std
RAW_TENURE	6124	7.067	5.000	3.000	9.000	6.539
FIRMAGE	6124	27.100	31.000	14.000	38.000	13.454
IRISK	6124	0.021	0.019	0.014	0.026	0.011
STOCK_PER	6124	0.178	0.106	-0.126	0.353	0.632
ACCT_PER	6124	0.043	0.046	0.019	0.077	0.079
RESTATE	6124	0.110	0.000	0.000	0.000	0.313
CEOAGE	6124	56.155	56.000	52.000	61.000	7.042

Panel B: Correlations

		A	*B*	*C*	*D*	*E*	*F*
RAW_TENURE	*A*	1.000					
FIRMAGE	*B*	**-0.084**					
IRISK	*C*	**0.059**	**-0.354**				
STOCK_PER	*D*	0.020	**-0.076**	0.001			
ACCT_PER	*E*	0.018	**0.102**	**-0.375**	**0.058**		
RESTATE	*F*	**0.055**	**-0.054**	**0.141**	0.004	**-0.102**	
CEOAGE	*G*	**0.288**	**0.143**	**-0.130**	**-0.050**	**0.049**	**-0.070**

Panel C: Determinants of CEO tenure

	Dependent variable: *TENURE*	
	Pred. sign	(1)
FIRMAGE	?	-0.046***
		(-7.94)
IRISK	?	57.405***
		(5.49)
STOCK_PER	+	0.429**
		(2.25)
ACCT_PER	+	4.487***
		(2.95)
RESTATE	-	0.895*
		(2.09)
CEOAGE	+	0.300***
		(18.26)
Constant		-10.066***
		(-10.70)
N		6124
R^2		0.1077

Table 2 Descriptive statistics

This table presents descriptive statistics for variables in the main regressions of rating accuracy. The sample period is from fiscal year 1994 through 2011. All variables are defined in Appendix A.

	N	Mean	Median	25%	75%	Std
TYPE_I	1513	0.200	0.000	0.000	0.000	0.400
TYPE_II	62582	0.291	0.000	0.000	1.000	0.454
TENURE	64095	-0.408	-1.504	-3.729	1.828	5.317
SP_RATING	64095	0.386	0.000	0.000	1.000	0.487
FT_RATING	64095	0.279	0.000	0.000	1.000	0.448
SIZE	64095	9.352	9.411	8.435	10.179	1.360
LEV	64095	0.296	0.282	0.201	0.369	0.135
LARGE_LOSS	64095	0.013	0.000	0.000	0.000	0.113
NET_RET	64095	0.152	0.000	0.000	0.000	0.359
RESTATE	64095	0.162	0.000	0.000	0.000	0.368
ISSUESIZE	64095	12.395	12.429	11.918	13.122	1.279
SENIOR	64095	0.834	1.000	1.000	1.000	0.372
MATURITY	64095	15.797	10.026	8.014	20.088	12.883
ASSETB	64095	0.035	0.000	0.000	0.000	0.183
CONV	64095	0.071	0.000	0.000	0.000	0.256
ENHANCE	64095	0.106	0.000	0.000	0.000	0.307
PUT	64095	0.067	0.000	0.000	0.000	0.251
REDEEM	64095	0.648	1.000	0.000	1.000	0.478
GDP	64095	136682.50	136049.70	123794.30	151856.80	15621.65
BOND30	64095	0.086	0.089	-0.012	0.171	0.162
SPI	64095	1135.260	1191.330	970.430	1320.280	251.817
SOX2002	64095	0.226	0.000	0.000	0.000	0.418
CRA2006	64095	0.255	0.000	0.000	1.000	0.436

Table 3 Correlations

This table presents the Pearson correlation for variables in the main regressions of rating accuracy. The sample period is from fiscal year 1994 to 2011. A (B) represents *Type I* (*Type II*). Boldface text indicates significance at 0.05 or lower (two-tailed). All variables are defined in Appendix A.

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
TENURE	C	**0.462**	**0.050**																				
SP_RATING	D	0.021	**0.013**	**0.040**																			
FT_RATING	E	0.007	**-0.075**	**-0.046**	**-0.493**																		
SIZE	F	**0.298**	**-0.292**	**-0.083**	**-0.114**	**0.208**																	
LEV	G	**-0.369**	**0.406**	**-0.031**	-0.007	**-0.013**	**-0.180**																
LARGE_LOSS	H	**-0.247**	**0.102**	**0.012**	-0.003	**0.012**	-0.004	**0.100**															
NET_RET	I	**-0.482**	**0.331**	**-0.010**	**0.014**	**-0.013**	**-0.052**	**0.338**	**0.219**														
ISSUESIZE	J	**-0.218**	**0.001**	**-0.050**	**-0.114**	**0.182**	**0.288**	**-0.020**	**0.043**	**0.040**													
SENIOR	K	**0.148**	**-0.254**	**-0.016**	**-0.086**	**0.126**	**0.236**	**-0.155**	-0.002	**-0.078**	**0.386**												
MATURITY	L	**-0.045**	**-0.126**	**-0.049**	**-0.021**	**0.036**	**0.179**	**-0.053**	**0.012**	**-0.059**	**-0.066**	**0.050**											
ASSETB	M	/	**-0.011**	**0.028**	**0.091**	**-0.114**	**0.050**	**-0.030**	**-0.022**	**0.028**	**-0.617**	**-0.423**	0.003										
CONV	N	**-0.126**	**0.207**	**0.058**	**0.037**	**-0.019**	**-0.159**	**0.044**	**0.077**	**0.104**	**0.092**	**-0.236**	**-0.020**	**-0.052**									
ENHANCE	O	**-0.205**	**0.216**	**0.020**	**-0.027**	**0.034**	**-0.097**	**0.115**	0.007	**0.095**	**0.041**	**-0.070**	**-0.098**	**-0.065**	**-0.015**								
PUT	P	**-0.058**	**0.043**	**0.022**	-0.006	**0.011**	**-0.037**	**-0.008**	**0.023**	**0.025**	**0.069**	**0.009**	**0.165**	**-0.051**	**0.443**	**-0.019**							
REDEEM	Q	**-0.198**	**0.176**	**0.016**	**-0.030**	**0.073**	**-0.111**	**0.083**	**0.019**	**0.084**	**0.118**	**-0.151**	**-0.011**	**0.044**	**0.094**	**0.168**	**0.059**						
GDP	R	**-0.246**	**0.159**	**-0.035**	**-0.162**	**0.310**	**0.209**	**-0.018**	**0.087**	**0.071**	**0.338**	**0.182**	**-0.068**	**-0.121**	**0.047**	**0.191**	0.004	**0.317**					
BOND30	S	0.032	**0.023**	**0.017**	-0.003	**0.009**	**0.020**	**-0.010**	**0.051**	**-0.029**	**0.010**	-0.004	**-0.017**	**0.037**	**0.008**	**0.024**	**-0.010**	**0.045**	**0.097**				
SPI	T	**0.137**	**0.029**	-0.002	**-0.087**	**0.099**	**0.117**	-0.004	**0.025**	**0.010**	**0.182**	**0.144**	**-0.025**	**-0.121**	**0.009**	**0.077**	**0.022**	**0.087**	**0.508**	**-0.215**			
SOX2002	U	**-0.169**	**0.166**	**-0.022**	**-0.030**	**0.041**	**0.038**	**0.064**	**-0.021**	**0.099**	**0.056**	**0.025**	**-0.017**	**0.012**	**0.063**	**0.038**	**0.043**	**0.107**	**0.196**	0.001	**-0.126**		
CRA2006	V	**-0.269**	**0.053**	**-0.020**	**-0.126**	**0.283**	**0.150**	**-0.069**	**0.093**	**0.017**	**0.264**	**0.130**	**-0.045**	**-0.107**	0.001	**0.154**	**-0.035**	**0.247**	**0.751**	**0.097**	**0.232**	**-0.316**	
RESTATE	W	**0.427**	**0.197**	**0.092**	-0.002	**0.011**	-0.004	**0.076**	-0.003	**0.063**	**0.076**	**0.020**	**-0.062**	**-0.075**	**0.048**	**0.080**	**0.015**	**0.078**	**0.119**	**0.027**	**0.090**	**0.116**	**-0.008**

Table 4 CEO tenure and absolute rating accuracy (Type I and Type II errors)

This table presents logit regressions that test the impact of CEO tenure on absolute rating accuracy. The sample for Type I errors has 222 new bond issues from 71 unique firms, whereas the sample for Type II errors has 8317 new bond issues from 1087 unique firms. The sample period is from fiscal year 1994 through 2011. All variables are defined in Appendix A. Standard errors for the coefficient estimates are heteroskedasticity-robust and clustered by firm. *Z* statistics are reported in parentheses. $^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$. Significance levels are based on two-tailed tests.

Panel A: Type I errors

		Dependent variable: *TYPE_I*					
		Cutoff: 11			Cutoff: 14		
	Pred. sign	(1)	(2)	(3)	(4)	(5)	(6)
TENURE	+	**0.358*** **	**0.347*** **	**0.352*** **	**0.223*** **	**0.237*** **	**0.243*** **
		(3.87)	**(2.70)**	**(3.00)**	**(3.41)**	**(3.64)**	**(3.35)**
SP_RATING		-0.089	-0.056	-0.061	0.052	0.026	0.021
		(-0.78)	(-0.44)	(-0.51)	(0.33)	(0.18)	(0.14)
FT_RATING		0.036	0.101	0.093	0.085	0.03	0.021
		(0.11)	(0.28)	(0.26)	(0.34)	(0.13)	(0.09)
SIZE		0.614*	1.032**	1.077**	0.597***	0.548**	0.562**
		(1.78)	(2.51)	(2.27)	(2.75)	(2.30)	(2.29)
LEV		-5.777***	-6.492**	-6.638**	-3.788**	-4.119***	-4.261***
		(-2.72)	(-2.25)	(-2.05)	(-2.23)	(-2.93)	(-3.07)
LARGE_LOSS		/	/	/	-0.395	0.663	0.748
					(-0.30)	(0.66)	(0.69)
NET_RET		-1.783***	-2.098***	-2.115***	-0.709	-0.541	-0.582
		(-3.06)	(-3.03)	(-2.88)	(-1.47)	(-1.00)	(-1.02)
ISSUESIZE		0.011	0.073	0.065	0.087	0.1	0.091
		(0.15)	(1.01)	(0.99)	(1.03)	(1.22)	(1.16)
SENIOR		1.961**	1.982**	1.981**	1.397*	1.328	1.331*
		(2.12)	(2.17)	(2.18)	(1.69)	(1.64)	(1.65)
MATURITY		0.014	0.01	0.01	0.002	0.012	0.013
		(1.39)	(1.40)	(1.50)	(0.27)	(1.40)	(1.45)
ASSETB		/	/	/	/	/	/
CONV		-0.5	-1.103*	-1.052*	-1.003	-0.993*	-0.944*
		(-0.86)	(-1.72)	(-1.76)	(-1.60)	(-1.72)	(-1.81)
ENHANCE		/	/	/	0.991	1.144*	1.175*
					(1.37)	(1.89)	(1.85)

PUT	0.075	0.506*	0.504*	-0.217	-0.18	-0.193
	(0.23)	(1.74)	(1.76)	(-0.52)	(-0.44)	(-0.46)
REDEEM	-0.184	-0.284*	-0.291*	0.014	-0.13	-0.13
	(-1.17)	(-1.70)	(-1.77)	(0.06)	(-0.59)	(-0.58)
GDP	-0.000**	-0.000***	-0.000***	-0.000***	0.000	0.000
	(-2.20)	(-2.95)	(-2.78)	(-3.67)	(-0.81)	(-0.81)
BOND30	-11.624***	-11.028**	-10.837**	-10.283***	-10.607***	-10.526***
	(-3.54)	(-2.38)	(-2.27)	(-3.30)	(-4.05)	(-4.09)
SPI	-0.001	0.004	0.003	-0.005	-0.005	-0.005
	(-0.45)	(1.22)	(1.17)	(-1.52)	(-1.33)	(-1.33)
SOX2002		4.073*	4.071*		-0.092	-0.097
		(1.90)	(1.93)		(-0.05)	(-0.06)
CRA2006	/	/	/		-4.260*	-4.401*
					(-1.90)	(-1.94)
RESTATE			-0.279			-0.188
			(-0.24)			(-0.31)
Constant	13.306***	24.984***	25.616**	14.128**	8.042	8.15
	(2.68)	(2.76)	(2.49)	(2.30)	(1.00)	(1.02)
N	1513	1513	1513	1513	1513	1513
Pseudo R^2	0.517	0.528	0.528	0.416	0.428	0.428

Panel B: Type II errors

	Dependent variable: TYPE_II						
		Cutoff: 11			Cutoff: 14		
	Pred. sign	(1)	(2)	(3)	(4)	(5)	(6)
TENURE	***?***	**0.029***	**0.030***	**0.025**	**0.013**	**0.014**	**0.009**
		(1.86)	**(1.87)**	**(1.56)**	**(0.95)**	**(1.02)**	**(0.72)**
SP_RATING		-0.264**	-0.248**	-0.264**	-0.260***	-0.237***	-0.252***
		(-2.26)	(-2.28)	(-2.39)	(-2.69)	(-2.77)	(-2.89)
FT_RATING		-0.762***	-0.705***	-0.713***	-1.157***	-1.093***	-1.101***
		(-5.80)	(-6.02)	(-6.09)	(-6.65)	(-7.14)	(-7.36)
SIZE		-0.528***	-0.550***	-0.566***	-0.466***	-0.482***	-0.504***
		(-4.72)	(-5.37)	(-5.32)	(-3.30)	(-3.64)	(-3.50)
LEV		6.790***	6.735***	6.709***	5.980***	6.060***	5.972***
		(8.42)	(8.65)	(8.56)	(6.84)	(7.06)	(7.50)
LARGE_LOSS		0.86	1.019	1.07	0.289	0.47	0.522
		(1.26)	(1.45)	(1.51)	(0.46)	(0.72)	(0.78)
NET_RET		1.414***	1.390***	1.387***	1.670***	1.618***	1.619***
		(6.22)	(6.26)	(6.59)	(6.91)	(6.69)	(6.94)
ISSUESIZE		0.116*	0.127**	0.124**	0.025	0.035	0.024

	(1.96)	(2.12)	(2.07)	(0.39)	(0.50)	(0.34)
SENIOR	-1.332***	-1.424***	-1.450***	-1.336***	-1.379***	-1.397***
	(-6.47)	(-6.75)	(-6.81)	(-7.02)	(-7.01)	(-7.28)
MATURITY	-0.005	-0.005	-0.003	0.002	0.002	0.004
	(-0.86)	(-0.79)	(-0.54)	(0.21)	(0.25)	(0.58)
ASSETB	-0.121	-0.217	-0.078	-0.029	-0.125	-0.002
	(-0.26)	(-0.47)	(-0.16)	(-0.06)	(-0.27)	(-0.00)
CONV	0.937***	0.881***	0.858***	1.268***	1.268***	1.255***
	(5.40)	(5.06)	(4.81)	(7.57)	(7.50)	(7.27)
ENHANCE	0.764***	0.782***	0.746***	0.1	0.115	0.052
	(3.52)	(3.58)	(3.31)	(0.53)	(0.62)	(0.32)
PUT	-0.06	-0.114	-0.121	-0.377**	-0.467**	-0.484***
	(-0.39)	(-0.72)	(-0.76)	(-2.06)	(-2.50)	(-2.61)
REDEEM	0.005	-0.014	-0.044	0.078	0.066	0.028
	(0.03)	(-0.09)	(-0.29)	(0.43)	(0.38)	(0.16)
GDP	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(8.21)	(5.00)	(4.38)	(7.28)	(3.01)	(2.64)
BOND30	-0.08	0.088	0.072	-0.316	0.04	-0.016
	(-0.28)	(0.27)	(0.22)	(-1.04)	(0.14)	(-0.06)
SPI	-0.001***	-0.001	-0.001	-0.001***	0.000	0.000
	(-3.03)	(-1.55)	(-1.39)	(-2.97)	(-0.55)	(-0.48)
SOX2002		0.558***	0.634***		0.974***	1.040***
		(2.80)	(3.28)		(2.91)	(3.32)
CRA2006		-0.331	-0.073		0.474	0.699*
		(-0.98)	(-0.22)		(1.30)	(1.96)
RESTATE			0.917***			0.883***
			(3.73)			(3.38)
Constant	-4.840***	-5.494***	-4.550***	-6.431***	-4.983**	-3.873*
	(-3.58)	(-3.33)	(-2.76)	(-3.98)	(-2.47)	(-1.87)
N	62582	62582	62582	62582	62582	62582
Pseudo R^2	0.34	0.351	0.363	0.371	0.38	0.392

Table 5 CEO tenure and aggregate rating accuracy (default prediction)

This table presents logit regressions that test the impact of CEO tenure on the ability of credit ratings to forecast the occurrence of default in one year. The sample has 8242 new bond issues from 1084 unique firms. The sample period is from fiscal year 1994 through 2011. All variables are defined in Appendix A. Standard errors for the coefficient estimates are heteroskedasticity-robust and clustered by firm. *Z* statistics are reported in parentheses. $^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$. Significance levels are based on two-tailed tests.

	Pred. sign	Dependent variable: *DEFAULT*					
		RATE=RATING			*RATE=NONIG*		
		(1)	(2)	(3)	(4)	(5)	(6)
TENURE		0.351**	0.362**	0.364**	0.162***	0.171***	0.170***
		(2.57)	(2.48)	(2.49)	(3.99)	(4.02)	(4.22)
RATE		0.441***	0.440***	0.438***	2.020***	2.012***	1.980***
		(6.57)	(6.39)	(6.20)	(5.63)	(5.57)	(5.45)
RATE× TENURE	-	**-0.025****	**-0.026****	**-0.026****	**-0.182*****	**-0.193*****	**-0.198*****
		(-2.36)	**(-2.27)**	**(-2.26)**	**(-5.22)**	**(-4.92)**	**(-4.82)**
SP_RATING		0.187**	0.200**	0.200**	0.233***	0.246***	0.230***
		(2.19)	(2.35)	(2.38)	(2.83)	(3.04)	(2.99)
FT_RATING		-0.152	-0.152	-0.154	-0.16	-0.131	-0.138
		(-0.86)	(-0.81)	(-0.81)	(-1.03)	(-0.83)	(-0.88)
SIZE		0.336*	0.323**	0.310**	0.221	0.195	0.184
		(1.91)	(2.05)	(2.20)	(1.19)	(1.21)	(1.26)
LEV		-3.329**	-3.538**	-3.412**	-3.568*	-3.778**	-3.599**
		(-2.16)	(-2.20)	(-2.31)	(-1.79)	(-2.01)	(-2.16)
COV		-0.172	-0.174	-0.165	-0.291***	-0.296***	-0.287***
		(-1.51)	(-1.51)	(-1.58)	(-3.24)	(-3.27)	(-3.54)
CAP_INTEN		-0.201	-0.118	-0.082	0.099	0.204	0.233
		(-0.56)	(-0.34)	(-0.24)	(0.26)	(0.55)	(0.63)
LARGE_LOSS		1.694***	1.748***	1.839***	1.832***	2.025***	2.137***
		(3.26)	(3.17)	(3.24)	(3.10)	(3.26)	(3.42)
NET_RET		0.571*	0.612*	0.670**	1.256***	1.290***	1.331***
		(1.77)	(1.87)	(2.02)	(3.96)	(4.00)	(4.11)
ISSUESIZE		-0.359***	-0.349***	-0.336***	-0.230***	-0.220***	-0.211***
		(-5.25)	(-5.63)	(-5.67)	(-3.79)	(-3.92)	(-4.00)
SENIOR		0.296	0.264	0.252	0.157	0.153	0.134
		(0.71)	(0.63)	(0.59)	(0.45)	(0.44)	(0.39)
MATURITY		-0.005	-0.002	0.000	0.000	0.003	0.005
		(-0.45)	(-0.25)	(0.05)	(0.04)	(0.27)	(0.68)
CONV		-0.706**	-0.701**	-0.677**	-0.346	-0.351	-0.347

	(-2.11)	(-2.09)	(-2.01)	(-1.02)	(-1.04)	(-1.02)
ENHANCE	0.272	0.307	0.342	0.109	0.191	0.257
	(0.67)	(0.77)	(0.86)	(0.25)	(0.47)	(0.63)
PUT	-0.132	-0.116	-0.106	-0.106	-0.101	-0.09
	(-0.45)	(-0.40)	(-0.36)	(-0.37)	(-0.37)	(-0.33)
REDEEM	0.337	0.312	0.261	0.2	0.17	0.129
	(1.40)	(1.33)	(1.09)	(0.78)	(0.70)	(0.54)
GDP	-0.000***	0.000	0.000	-0.000***	0.000	0.000
	(-5.01)	(-0.12)	(-0.36)	(-3.16)	(0.63)	(0.37)
BOND30	3.075	2.245	2.227	3.936**	3.277**	3.231**
	(1.44)	(1.42)	(1.46)	(2.05)	(2.13)	(2.18)
SPI	0.005***	0.004***	0.004***	0.005***	0.004***	0.004***
	(3.63)	(4.71)	(4.57)	(4.15)	(4.49)	(4.38)
SOX2002		-1.277	-1.186		-1.215	-1.131
		(-1.32)	(-1.33)		(-1.48)	(-1.47)
CRA2006		-1.807	-1.603		-2.223*	-1.955*
		(-1.41)	(-1.40)		(-1.78)	(-1.78)
RESTATE			0.422			0.515
			(1.01)			(1.26)
Constant	-4.563**	-10.233**	-9.667**	-2.911*	-9.918**	-9.207**
	(-2.38)	(-2.33)	(-2.35)	(-1.69)	(-2.32)	(-2.29)
N	60910	60910	60910	60910	60910	60910
Pseudo R^2	0.47	0.475	0.477	0.359	0.368	0.372

Table 6 CEO tenure and relative rating accuracy using cumulative accuracy profiles (ROC curves)

This table presents the area beneath cumulative accuracy profiles (ordinal dominance graphs) for subsamples with different CEO tenures. The sample period is from fiscal year 1994 through 2011. Significance levels are based on two-tailed tests.

	ROC Area	Standard Error
Short tenure	0.966	0.003
Long tenure	0.816	0.007
Chi2 (P-value)	374.38 (0.000)	

Table 7 Benchmark model tests

This table presents rating change comparisons for the subsamples with different CEO tenures. I use Ohlson (1980) O score model to measure bankruptcy probability changes. Based on the model, I identify a subsample of firm-year observations with large default probability increases (decreases) by retaining the firm-years at the top (bottom) 25% of the Ohlson O score change distribution. This table compares the percentage of rating downgrades (upgrades) for the subsample with a large default probability increase (decrease). The sample has 4590 new bond issues from 782 unique firms. The sample period is from fiscal year 1994 through 2011. P-values are based on two-tailed tests.

	Ohlson O score model		
	Short tenure	Long tenure	P-value
Upgrades	18.98%	20.32%	0.081
Downgrades	36.27%	33.16%	0.001

Table 8 CEO tenure and rating timeliness (average rating during one year leading to default)

This table presents descriptive statistics for variables in OLS regressions that test the impact of CEO tenure on the average rating during one year leading to default, and the regression results. The sample has 236 new bond issues from 75 unique firms. The sample period is from fiscal year 1994 through 2011. All variables are defined in Appendix A. Standard errors for the coefficient estimates are heteroskedasticity-robust and clustered by firm. *T* statistics are reported in parentheses. $^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$. Significance levels are based on two-tailed tests.

Panel A: Descriptive statistics for variables in tests of rating timeliness

	N	Mean	Median	25%	75%	Std
WRATE	485	9.533	8.255	4.923	14.384	5.900
TENURE	485	0.649	-0.376	-2.552	4.303	4.494
SP_RATING	485	0.404	0.000	0.000	1.000	0.491
FT_RATING	485	0.264	0.000	0.000	1.000	0.441
DTYPE	485	0.990	1.000	1.000	1.000	0.101
SIZE	485	9.076	9.171	7.897	10.053	1.694
LEV	485	0.336	0.302	0.228	0.444	0.148
COV	485	4.629	3.317	2.432	5.407	4.315
ISSUESIZE	485	12.585	12.429	11.918	13.122	0.954
SENIOR	485	0.794	1.000	1.000	1.000	0.405
MATURITY	485	15.196	10.010	7.502	20.058	10.714
ASSETB	485	0.012	0.000	0.000	0.000	0.111
CONV	485	0.082	0.000	0.000	0.000	0.275
ENHANCE	485	0.118	0.000	0.000	0.000	0.322
PUT	485	0.085	0.000	0.000	0.000	0.278
REDEEM	485	0.695	1.000	0.000	1.000	0.461
GDP	485	127222.30	129247.50	113110.20	136049.70	13650.35
BOND30	485	0.079	0.157	-0.045	0.171	0.146
SPI	485	1026.549	1111.920	740.740	1248.290	298.733
SOX2002	485	0.239	0.000	0.000	0.000	0.427
CRA2006	485	0.033	0.000	0.000	0.000	0.179
RESTATE	485	0.241	0.000	0.000	0.000	0.428

Panel B: Regressions of rating timeliness

	Pred. sign	Dependent variable: *WRATE*		
		(1)	(2)	(3)
TENURE	**-**	**-0.392****	**-0.404*****	**-0.373*****

	(-2.60)	**(-2.85)**	**(-2.94)**
SP_RATING	2.030***	2.052***	2.099***
	(2.66)	(2.66)	(2.72)
FT_RATING	1.358	1.124	1.255
	(1.08)	(0.92)	(1.01)
DTYPE	-4.433*	-4.552**	-4.288
	(-1.87)	(-2.01)	(-1.64)
SIZE	0.159	0.07	0.122
	(0.36)	(0.14)	(0.27)
LEV	8.772**	8.317*	6.597*
	(2.08)	(1.94)	(1.81)
COV	0.154	0.147	0.129
	(1.29)	(1.22)	(1.13)
ISSUESIZE	0.585	0.596	0.627
	(1.43)	(1.46)	(1.52)
SENIOR	-1.358	-1.117	-1.143
	(-1.10)	(-0.87)	(-0.97)
MATURITY	0.073**	0.068**	0.045
	(2.48)	(2.19)	(1.57)
ASSETB	2.151	2.53	3.024
	(0.92)	(1.14)	(1.17)
CONV	1.666	1.96	1.487
	(1.30)	(1.50)	(1.16)
ENHANCE	0.176	0.025	-0.23
	(0.13)	(0.02)	(-0.18)
PUT	-1.473	-1.611	-1.431
	(-1.25)	(-1.31)	(-1.21)
REDEEM	-0.713	-0.837	-0.508
	(-0.62)	(-0.74)	(-0.47)
GDP	0.000*	0.000	0.000
	(1.87)	(0.92)	(1.42)
BOND30	-4.832*	-4.821*	-3.98
	(-1.73)	(-1.73)	(-1.30)
SPI	-0.003	-0.003	-0.004
	(-1.57)	(-0.95)	(-1.20)
SOX2002		0.385	-0.655
		(0.18)	(-0.32)
CRA2006		-3.687	-5.575
		(-0.78)	(-1.27)
RESTATE			-2.395*
			(-1.86)
Constant	-9.216	-10.35	-16.151
	(-1.24)	(-0.94)	(-1.55)
N	485	485	485
Adj. R^2	0.232	0.243	0.262

Table 9 CEO tenure and timeliness of rating downgrades relative to defaults

This table presents descriptive statistics and OLS regressions that test the impact of CEO tenure on the number of days between the default date and the downgrade date. The sample for *DAYAHEAD* has 322 new bond issues from 95 unique firms, whereas the sample for *DAYAHEADIG* has 177 new bond issues from 29 unique firms. The sample period is from fiscal year 1994 through 2011. All variables are defined in Appendix A. Standard errors for the coefficient estimates are heteroskedasticity-robust and clustered by firm. *T* statistics are reported in parentheses. $^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$. Significance levels are based on two-tailed tests.

Panel A: Descriptive statistics for variables in tests of timeliness of rating downgrades in general (*DAYAHEAD)*

	N	Mean	Median	25%	75%	Std
DAYAHEAD	2960	759.080	391.000	56.000	1232.000	885.938
TENURE	2960	0.393	-0.346	-2.731	2.238	4.228
SP_RATING	2960	0.397	0.000	0.000	1.000	0.489
FT_RATING	2960	0.203	0.000	0.000	0.000	0.402
DTYPE	2960	0.988	1.000	1.000	1.000	0.111
SIZE	2960	9.943	10.053	8.393	11.428	1.890
LEV	2960	0.357	0.358	0.257	0.432	0.175
COV	2960	2.735	2.411	0.775	3.310	2.902
ISSUESIZE	2960	12.350	12.429	11.736	13.122	1.408
SENIOR	2960	0.802	1.000	1.000	1.000	0.399
MATURITY	2960	18.950	15.017	9.651	30.001	11.873
ASSETB	2960	0.097	0.000	0.000	0.000	0.296
CONV	2960	0.075	0.000	0.000	0.000	0.263
ENHANCE	2960	0.083	0.000	0.000	0.000	0.277
PUT	2960	0.082	0.000	0.000	0.000	0.274
REDEEM	2960	0.670	1.000	0.000	1.000	0.470
LAGRATE	2960	9.770	9.000	7.000	11.000	3.022
GDP	2960	139815.80	136049.70	134597.10	146963.10	10636.57
BOND30	2960	0.099	0.089	0.034	0.171	0.111
SPI	2960	1212.667	1229.230	1115.100	1320.280	178.922
SOX2002	2960	0.368	0.000	0.000	1.000	0.482
CRA2006	2960	0.143	0.000	0.000	0.000	0.350
RESTATE	2960	0.289	0.000	0.000	1.000	0.453

Panel B: Descriptive statistics for variables in tests of timeliness of rating downgrades from investment grade to non-investment grade (*DAYAHEADIG)*

	N	Mean	Median	25%	75%	Std
DAYAHEADIG	408	964.922	923.000	73.000	1467.000	936.007
TENURE	408	0.934	-0.346	-3.628	6.035	4.658
SP_RATING	408	0.380	0.000	0.000	1.000	0.486
FT_RATING	408	0.221	0.000	0.000	0.000	0.415
DTYPE	408	0.995	1.000	1.000	1.000	0.070
SIZE	408	10.278	10.174	9.184	11.090	1.645
LEV	408	0.310	0.269	0.209	0.432	0.133
COV	408	3.858	3.205	2.190	5.531	2.851
ISSUESIZE	408	11.948	12.206	11.513	13.091	1.718
SENIOR	408	0.760	1.000	1.000	1.000	0.428
MATURITY	408	19.451	17.908	10.012	29.996	11.223
ASSETB	408	0.201	0.000	0.000	0.000	0.401
CONV	408	0.029	0.000	0.000	0.000	0.169
ENHANCE	408	0.020	0.000	0.000	0.000	0.139
PUT	408	0.064	0.000	0.000	0.000	0.245
REDEEM	408	0.647	1.000	0.000	1.000	0.478
LAGRATE	408	8.696	9.000	8.000	10.000	1.606
GDP	408	136930.00	134597.10	134597.10	142037.10	6818.56
BOND30	408	0.107	0.123	0.034	0.201	0.104
SPI	408	1248.710	1282.710	1148.080	1320.280	119.551
SOX2002	408	0.343	0.000	0.000	1.000	0.475
CRA2006	408	0.000	0.000	0.000	0.000	0.000
RESTATE	408	0.368	0.000	0.000	1.000	0.483

Panel C: Regressions of timeliness of rating downgrades

	Pred. sign	Dependent variable					
		DAYAHEAD			*DAYAHEADIG*		
		(1)	(2)	(3)	(4)	(5)	(6)
TENURE	**-**	**-62.487****	**-54.656****	**-46.445****	**-87.039****	**-85.663****	**-73.784****
		(-2.36)	**(-2.36)**	**(-2.21)**	**(-2.67)**	**(-2.62)**	**(-2.74)**
SP_RATING		-29.643	-13.194	-16.114	6.039	4.941	9.713
		(-0.82)	(-0.35)	(-0.43)	(0.06)	(0.05)	(0.09)
FT_RATING		-134.235*	-110.591*	-107.027	-57.771	-52.579	-22.293
		(-1.95)	(-1.70)	(-1.63)	(-0.73)	(-0.64)	(-0.31)
DTYPE		27.377	51.135	76.751	-1050.780**	-999.081**	-817.518
		(0.10)	(0.20)	(0.29)	(-2.49)	(-2.15)	(-1.54)
SIZE		79.736	49.93	38.86	-44.937	-23.603	-50.898

	(1.10)	(0.86)	(0.70)	(-0.57)	(-0.30)	(-0.62)
LEV	912.433**	834.865*	683.699	1591.847*	1539.360*	1197.518
	(2.01)	(1.86)	(1.36)	(1.80)	(1.85)	(1.37)
COV	109.846***	115.488***	110.339***	93.885*	104.971*	79.331
	(3.57)	(4.02)	(3.75)	(1.77)	(1.79)	(1.25)
ISSUESIZE	-91.393	-54.854	-54.386	-30.153	-14.027	6.402
	(-1.38)	(-1.08)	(-1.13)	(-0.88)	(-0.40)	(0.21)
SENIOR	180.723	189.56	198.324	555.923**	544.985**	547.847*
	(1.29)	(1.39)	(1.42)	(2.14)	(2.11)	(1.83)
MATURITY	21.238**	21.044**	19.165**	16.912**	15.718*	12.406
	(2.33)	(2.29)	(2.14)	(2.14)	(1.88)	(1.53)
ASSETB	-229.273	-103.941	-154.322	-192.548	-152.797	-189.458
	(-0.84)	(-0.49)	(-0.71)	(-0.67)	(-0.53)	(-0.54)
CONV	222.758	186.607	185.584	667.662**	577.391*	584.670*
	(1.52)	(1.32)	(1.35)	(2.32)	(1.87)	(2.00)
ENHANCE	-227.102	-271.326*	-274.210*	416.136*	450.038	455.499
	(-1.61)	(-1.97)	(-1.92)	(1.70)	(1.63)	(1.60)
PUT	-303.611	-298.67	-310.045	-563.833*	-522.682*	-597.561*
	(-1.50)	(-1.57)	(-1.63)	(-1.97)	(-1.74)	(-1.89)
REDEEM	-165.216	-191.008	-182.99	-101.43	-85.166	-101.144
	(-1.22)	(-1.36)	(-1.33)	(-0.79)	(-0.64)	(-0.78)
LAGRATE	-7.822	-1.042	-9.071	74.403	74.465	57.488
	(-0.24)	(-0.03)	(-0.26)	(0.89)	(0.89)	(0.78)
GDP	-0.011	-0.02	-0.015	0.016	-0.007	0.012
	(-1.18)	(-1.32)	(-0.98)	(0.85)	(-0.18)	(0.29)
BOND30	160.326	711.52	698.466	3680.736***	4050.431***	4266.959***
	(0.29)	(1.56)	(1.56)	(5.57)	(5.81)	(5.31)
SPI	-0.802**	-0.069	-0.234	-0.739	-0.366	-0.815
	(-2.18)	(-0.17)	(-0.62)	(-1.13)	(-0.57)	(-1.06)
SOX2002		487.622	399.973		392.415	26.057
		(1.48)	(1.26)		(0.77)	(0.04)
CRA2006		57.16	-102.475		/	/
		(0.15)	(-0.27)			
RESTATE			-212.037			-457.017
			(-1.09)			(-1.32)
Constant	2621.159**	2581.428	2405.392	-933.823	1121.778	-413.773
	(2.13)	(1.51)	(1.47)	(-0.33)	(0.25)	(-0.09)
N	2960	2960	2960	408	408	408
Adj. R^2	0.377	0.407	0.413	0.534	0.537	0.559

Table 10 CEO tenure and rating volatility

This table presents descriptive statistics for variables in OLS regressions that test the impact of CEO tenure on rating volatility and the regression results. The sample for rating volatility over a rolling fiscal year has 1436 new bond issues from 281 unique firms, whereas the sample for rating volatility over a rolling calendar year has 1177 new bond issues from 218 unique firms. The sample period is from fiscal year 1994 through 2011. All variables are defined in Appendix A. Standard errors for the coefficient estimates are heteroskedasticity-robust and clustered by firm. *T* statistics are reported in parentheses. $^{*}p<$ 0.10, $^{**}p<$ 0.05, $^{***}p<$ 0.01. Significance levels are based on two-tailed tests.

Panel A: Descriptive statistics for variables in tests of rating volatility over a rolling fiscal year

	N	Mean	Median	25%	75%	Std
VOLATILITY	2764	1.061	0.577	0.000	1.528	1.307
TENURE	2764	-0.721	-1.612	-3.628	1.175	4.101
SP_RATING	2764	0.429	0.000	0.000	1.000	0.495
FT_RATING	2764	0.227	0.000	0.000	0.000	0.419
STDCOV	2764	1.951	0.878	0.384	1.908	8.512
ISSUESIZE	2764	12.378	12.429	11.918	13.122	1.236
SENIOR	2764	0.831	1.000	1.000	1.000	0.375
MATURITY	2764	18.175	12.003	9.771	29.990	13.698
ASSETB	2764	0.044	0.000	0.000	0.000	0.205
CONV	2764	0.052	0.000	0.000	0.000	0.223
ENHANCE	2764	0.092	0.000	0.000	0.000	0.289
PUT	2764	0.070	0.000	0.000	0.000	0.255
REDEEM	2764	0.511	1.000	0.000	1.000	0.500
LAGIG	2764	0.702	1.000	0.000	1.000	0.458
GDP	2764	133951.70	134597.10	129247.50	136229.00	12161.12
BOND30	2764	0.085	0.103	0.007	0.201	0.145
SPI	2764	1211.614	1248.290	1130.200	1320.280	210.403
SOX2002	2764	0.135	0.000	0.000	0.000	0.342
CRA2006	2764	0.110	0.000	0.000	0.000	0.313
RESTATE	2764	0.226	0.000	0.000	0.000	0.418

Panel B: Descriptive statistics for variables in tests of rating volatility over a rolling calendar year

	N	Mean	Median	25%	75%	Std
VOLATILITY	2315	1.084	0.577	0.000	1.528	1.367
TENURE	2315	-0.822	-1.844	-3.742	1.101	4.146
SP_RATING	2315	0.428	0.000	0.000	1.000	0.495
FT_RATING	2315	0.225	0.000	0.000	0.000	0.418
STDCOV	2315	1.911	0.840	0.358	1.908	9.048
ISSUESIZE	2315	12.383	12.468	11.918	13.122	1.304
SENIOR	2315	0.822	1.000	1.000	1.000	0.383
MATURITY	2315	18.443	12.011	9.821	29.993	13.776
ASSETB	2315	0.052	0.000	0.000	0.000	0.223
CONV	2315	0.051	0.000	0.000	0.000	0.219
ENHANCE	2315	0.078	0.000	0.000	0.000	0.269
PUT	2315	0.066	0.000	0.000	0.000	0.248
REDEEM	2315	0.510	1.000	0.000	1.000	0.500
LAGIG	2315	0.703	1.000	0.000	1.000	0.457
GDP	2315	134350.70	134597.10	129247.50	136049.70	12251.60
BOND30	2315	0.089	0.103	0.034	0.201	0.144
SPI	2315	1214.507	1248.290	1148.080	1320.280	211.031
SOX2002	2315	0.133	0.000	0.000	0.000	0.340
CRA2006	2315	0.119	0.000	0.000	0.000	0.324
RESTATE	2315	0.206	0.000	0.000	0.000	0.405

Panel C: Regressions of rating volatility over a rolling fiscal year

	Pred. sign	Dependent variable: *VOLATILITY*		
		(1)	(2)	(3)
TENURE	+	**0.088***	**0.086****	**0.071****
		(1.92)	**(2.00)**	**(2.12)**
SP_RATING		-0.209**	-0.253**	-0.231**
		(-2.10)	(-2.57)	(-2.20)
FT_RATING		-0.21	-0.126	-0.11
		(-1.13)	(-0.60)	(-0.51)
COV_STD		-0.003	0.000	0.000
		(-0.84)	(-0.04)	(0.03)
ISSUESIZE		-0.057	-0.06	-0.064
		(-0.58)	(-0.66)	(-0.75)
SENIOR		0.179	0.139	0.102
		(1.10)	(0.83)	(0.60)
MATURITY		-0.005*	-0.004	-0.002

	(-1.82)	(-1.42)	(-0.85)
ASSETB	0.259	0.027	0.142
	(0.46)	(0.05)	(0.29)
CONV	-0.188	-0.179	-0.16
	(-1.00)	(-1.00)	(-0.95)
ENHANCE	-0.186	-0.168	-0.203
	(-0.90)	(-0.81)	(-0.89)
PUT	0.068	0.055	0.068
	(0.49)	(0.43)	(0.51)
REDEEM	0.256***	0.210**	0.183**
	(2.75)	(2.44)	(2.19)
LAGIG	0.14	0.015	0.069
	(0.63)	(0.08)	(0.37)
GDP	0.000***	0.000***	0.000***
	(2.87)	(2.95)	(2.60)
BOND30	0.526	0.462	0.305
	(0.58)	(0.50)	(0.36)
SPI	0.000	0.000	0.000
	(0.63)	(-0.43)	(-0.10)
SOX2002		-0.762*	-0.584
		(-1.78)	(-1.43)
CRA2006		-1.635**	-1.298**
		(-2.29)	(-2.05)
RESTATE			0.609**
			(2.23)
Constant	-1.251	-5.187**	-4.125**
	(-1.18)	(-2.26)	(-2.04)
N	2764	2764	2764
Adj. R^2	0.153	0.188	0.218

Panel D: Regressions of rating volatility over a rolling calendar year

	Pred. sign	Dependent variable: *VOLATILITY*		
		(1)	(2)	(3)
TENURE	+	**0.103****	**0.101****	**0.085****
		(1.98)	**(2.08)**	**(2.31)**
SP_RATING		-0.221**	-0.274**	-0.238**
		(-1.99)	(-2.54)	(-2.01)
FT_RATING		-0.182	-0.071	-0.047
		(-0.86)	(-0.30)	(-0.19)

COV_STD	-0.005	-0.001	-0.001
	(-1.52)	(-0.51)	(-0.44)
ISSUESIZE	-0.069	-0.066	-0.063
	(-0.62)	(-0.65)	(-0.68)
SENIOR	0.272	0.191	0.175
	(1.48)	(0.99)	(0.91)
MATURITY	-0.006	-0.004	-0.003
	(-1.63)	(-1.35)	(-1.00)
ASSETB	0.369	0.077	0.259
	(0.57)	(0.12)	(0.47)
CONV	-0.278	-0.289	-0.26
	(-1.27)	(-1.34)	(-1.30)
ENHANCE	-0.014	0.029	0.008
	(-0.06)	(0.14)	(0.03)
PUT	0.059	0.02	0.043
	(0.37)	(0.13)	(0.28)
REDEEM	0.320***	0.271***	0.239**
	(2.87)	(2.71)	(2.55)
LAGIG	0.196	0.06	0.07
	(0.74)	(0.27)	(0.33)
GDP	0.000***	0.000***	0.000***
	(2.85)	(3.32)	(3.02)
BOND30	0.137	0.007	-0.205
	(0.13)	(0.01)	(-0.22)
SPI	0	-0.001	0
	(0.23)	(-0.88)	(-0.51)
SOX2002		-0.892*	-0.722*
		(-1.94)	(-1.67)
CRA2006		-2.043**	-1.695**
		(-2.58)	(-2.47)
RESTATE			0.615*
			(1.91)
Constant	-1.242	-6.258**	-5.147**
	(-1.04)	(-2.54)	(-2.45)
N	2315	2315	2315
Adj. R^2	0.176	0.228	0.253

Table 11 Mechanism: private information communication

This table presents the estimates for the main tests conducted in this study after controlling for annual buy-hold return over the year before the rating announcement dates. The sample period is from fiscal year 1994 through 2011. All variables are defined in Appendix A. Standard errors for the coefficient estimates are heteroskedasticity-robust and clustered by firm. *T* statistics are reported in parentheses. $^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$. Significance levels are based on two-tailed tests.

Test	Variable	*Coefficient*	*t-/z-statistic*
Accuracy - Type I errors	*TENURE*	0.290**	2.5
Accuracy - Type II errors	*TENURE*	0.026*	1.65
Accuracy - Default prediction	*RATING× TENURE*	-0.027**	-2.16
	NONIG×TENURE	-0.198***	-4.86
Timeliness - Average rating	*TENURE*	-0.373***	-2.93
Timeliness - Downgrade days (DAYAHEAD)	*TENURE*	-56.503**	-2.45
Timeliness - Downgrade days (DAYAHEADIG)	*TENURE*	-76.647**	-2.67
Stability - Volatility over rolling fiscal year	*TENURE*	0.076**	2.23
Stability - Volatility over rolling calendar year	*TENURE*	0.089**	2.35

Table 12 Cross-sectional analyses on the effect of CEO tenure on rating properties

This table presents the cross-sectional variation of the effect of CEO tenure on rating properties. The cross-sectional variables are *SEGHHI* and *IOC*. *SEGHHI* is an indicator variable that takes 1 if the Herfindahl index based on the firm's business segment sales falls in the top tercile by fiscal year, and 0 otherwise. *IOC* is an indicator variable that takes 1 if the concentration index of institutional ownership falls in the top tercile by fiscal year, and 0 otherwise. The sample period is from fiscal year 1994 through 2011. All other variables are defined in Appendix A. Standard errors for the coefficient estimates are heteroskedasticity-robust and clustered by firm. *T* statistics are reported in parentheses. $^{*}p<$ 0.10, $^{**}p<$ 0.05, $^{***}p<$ 0.01. Significance levels are based on two-tailed tests.

Test	Variable	Cross-sectional variable	
		SEGHHI	*IOC*
Accuracy - Type I errors	*TENURE×Cross-sectional*	-1.005***	-0.586***
		(-3.60)	(-2.68)
Accuracy - Type II errors	*TENURE×Cross-sectional*	-0.022	0.034*
		(-0.80)	(1.70)
Accuracy - Default prediction	*RATING× TENURE×Cross-sectional*	0.043**	0.038**
		(2.20)	(2.18)
	NONIG×TENURE×Cross-sectional	0.435***	-0.071
		(4.16)	(-1.26)
Timeliness - Average rating	*TENURE×Cross-sectional*	0.407*	0.155
		(1.95)	(0.40)
Timeliness - Downgrade days (DAYAHEAD)	*TENURE×Cross-sectional*	-11.644	153.626***
		(-0.18)	(3.92)
Timeliness - Downgrade days (DAYAHEADIG)	*TENURE×Cross-sectional*	-469.659	251.267***
		(-1.51)	(3.06)
Stability - Volatility over rolling fiscal year	*TENURE×Cross-sectional*	-0.087*	-0.090*
		(-1.90)	(-1.87)
Stability - Volatility over rolling calendar year	*TENURE×Cross-sectional*	-0.085*	-0.123***
		(-1.71)	(-2.61)

Table 13 CEO tenure and initial bond yield spreads

This table presents descriptive statistics for variables in OLS regressions that test the impact of CEO tenure on initial bond yield spreads and the regression results. The sample has 3499 new bond issues from 735 unique firms. The sample period is from fiscal year 1994 through 2011. All variables are defined in Appendix A. Standard errors for the coefficient estimates are heteroskedasticity-robust and clustered by firm. *T* statistics are reported in parentheses. $^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$. Significance levels are based on two-tailed tests.

Panel A: Descriptive statistics for variables in tests of investor perception

	N	Mean	Median	25%	75%	Std
YSPREAD	8079	1.927	1.430	0.860	2.400	1.579
TENURE	8079	-0.395	-1.347	-3.864	1.801	5.497
SP_RATING	8079	0.417	0.000	0.000	1.000	0.493
FT_RATING	8079	0.166	0.000	0.000	0.000	0.372
SIZE	8079	9.259	9.285	8.282	10.261	1.375
LEV	8079	0.259	0.247	0.158	0.341	0.135
COV	8079	11.703	7.791	4.539	13.803	11.465
ROA	8079	0.060	0.058	0.029	0.092	0.065
ISSUESIZE	8079	12.846	12.766	12.429	13.305	0.787
SENIOR	8079	0.931	1.000	1.000	1.000	0.253
MATURITY	8079	12.577	10.010	6.070	10.240	11.187
ASSETB	8079	0.001	0.000	0.000	0.000	0.035
CONV	8079	0.001	0.000	0.000	0.000	0.039
ENHANCE	8079	0.100	0.000	0.000	0.000	0.301
PUT	8079	0.025	0.000	0.000	0.000	0.155
REDEEM	8079	0.818	1.000	1.000	1.000	0.386
GDP	8079	139150.00	138517.20	123297.00	155980.80	17371.07
BOND30	8079	0.100	0.103	-0.012	0.201	0.178
SPI	8079	1096.571	1147.390	903.250	1257.640	256.395
SOX2002	8079	0.196	0.000	0.000	0.000	0.397
CRA2006	8079	0.383	0.000	0.000	1.000	0.486
RESTATE	8079	0.122	0.000	0.000	0.000	0.328

Panel B: Regressions results on investor perception

	Pred. sign	Dependent variable: *YSPREAD*					
		(1)	(2)	(3)	(4)	(5)	(6)
TENURE	+	**0.008***	**0.007**	**0.007**	0.013	0.008	0.008
		(1.75)	**(1.58)**	**(1.58)**	(1.05)	(0.69)	(0.69)
RTINIT		0.247***	0.255***	0.254***	0.246***	0.255***	0.254***
		(17.70)	(18.40)	(18.34)	(17.71)	(18.42)	(18.35)
RTINIT × TENURE	-				**-0.001**	**0.000**	**0.000**
					(-0.43)	**(-0.13)**	**(-0.13)**
SP_RATING		0.043***	0.046***	0.046***	0.043***	0.046***	0.046***
		(3.65)	(3.92)	(3.91)	(3.65)	(3.92)	(3.91)
FT_RATING		0.038	0.052*	0.051*	0.038	0.052*	0.051*
		(1.27)	(1.71)	(1.70)	(1.27)	(1.71)	(1.70)
SIZE		-0.146***	-0.133***	-0.133***	-0.146***	-0.133***	-0.133***
		(-4.23)	(-3.96)	(-3.97)	(-4.23)	(-3.96)	(-3.97)
LEV		0.362	0.315	0.32	0.362	0.315	0.32
		(1.25)	(1.11)	(1.12)	(1.26)	(1.11)	(1.12)
COV		0.005	0.005	0.005	0.005	0.005	0.005
		(1.33)	(1.30)	(1.31)	(1.34)	(1.30)	(1.31)
ROA		-3.399***	-3.151***	-3.143***	-3.409***	-3.154***	-3.146***
		(-5.38)	(-4.75)	(-4.75)	(-5.38)	(-4.75)	(-4.75)
ISSUESIZE		0.216***	0.170***	0.170***	0.216***	0.170***	0.169***
		(4.72)	(3.83)	(3.82)	(4.71)	(3.82)	(3.82)
SENIOR		-0.575***	-0.587***	-0.588***	-0.575***	-0.587***	-0.588***
		(-3.81)	(-4.05)	(-4.04)	(-3.82)	(-4.05)	(-4.04)
MATURITY		0.003**	0.003**	0.003**	0.003**	0.003**	0.003**
		(2.30)	(2.16)	(2.17)	(2.30)	(2.16)	(2.17)
ASSETB		0.257	0.033	0.032	0.251	0.031	0.03
		(1.57)	(0.21)	(0.20)	(1.53)	(0.20)	(0.19)
CONV		-2.178**	-2.282**	-2.280**	-2.168**	-2.280**	-2.277**
		(-2.46)	(-2.56)	(-2.56)	(-2.46)	(-2.56)	(-2.56)
ENHANCE		0.093	0.073	0.072	0.094	0.073	0.073
		(0.60)	(0.49)	(0.49)	(0.61)	(0.49)	(0.49)
PUT		-0.303***	-0.341***	-0.341***	-0.302***	-0.341***	-0.341***
		(-2.83)	(-3.19)	(-3.19)	(-2.83)	(-3.19)	(-3.19)
REDEEM		-0.015	0.041	0.041	-0.015	0.041	0.041
		(-0.23)	(0.68)	(0.66)	(-0.23)	(0.68)	(0.66)
GDP		0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
		(9.36)	(7.75)	(7.80)	(9.39)	(7.75)	(7.80)

BOND30	0.863***	0.573***	0.574***	0.864***	0.573***	0.575***
	(6.62)	(4.43)	(4.46)	(6.63)	(4.44)	(4.47)
SPI	0.000**	-0.000**	-0.000**	0.000**	-0.000**	-0.000**
	(2.11)	(-2.31)	(-2.31)	(2.11)	(-2.31)	(-2.30)
SOX2002		-1.017***	-1.016***		-1.016***	-1.016***
		(-7.33)	(-7.33)		(-7.35)	(-7.35)
CRA2006		-0.800***	-0.797***		-0.800***	-0.797***
		(-4.40)	(-4.44)		(-4.41)	(-4.44)
RESTATE			0.025			0.025
			(0.28)			(0.28)
Constant	-4.436***	-6.432***	-6.418***	-4.434***	-6.430***	-6.416***
	(-8.74)	(-9.12)	(-9.19)	(-8.74)	(-9.12)	(-9.19)
N	8079	8079	8079	8079	8079	8079
Adj. R^2	0.494	0.514	0.513	0.494	0.513	0.513

VITA

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