

Does it matter who owns Moody's?

Simi Kedia

Professor, Finance and Economics
Rutgers Business School, Rutgers University
Tel: 848 445 4195
Email: skedia@business.rutgers.edu

Shivaram Rajgopal

Schaefer Chaired Professor in Accounting,
Goizueta Business School, Emory University
Tel: 404 727 9043
Email: shivaram.rajgopal@emory.edu

Xing Zhou

Assistant Professor, Finance and Economics
Rutgers Business School, Rutgers University
Tel: 848 445 4446
Email: xing.zhou@rbsmail.rutgers.edu

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Comments welcome

Abstract:

This paper examines the potential influence of Moody's ownership structure on its rating policies. During the ten years following Moody's IPO in 2000, Moody's had two stable large shareholders, Berkshire Hathaway and Davis Selected Advisors, who collectively own about 23.5% of Moody's. We document that Moody's ratings on corporate bonds issued by important investee firms of these two large shareholders were more favorable relative to S&P's ratings on the same bonds. We also find favorable treatment by Moody's towards its owners in their ratings on commercial mortgage backed securities (CMBS). The results cannot be explained by issuer characteristics or by greater informativeness of Moody's ratings. Lastly, indirect ownership by an institution through a large shareholding in McGraw-Hill, S&P's parent, does not affect S&P's ratings. The evidence suggests that direct and stable large shareholders affect the ratings process. These findings are consistent with regulatory concerns about the public ownership of credit rating agencies.

JEL classification: G32; L32

Key words: Moody's; credit rating agencies; ownership structure; conflict of interest; difference-in-difference; corporate bond; CMBS

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Do Moody's large owners affect its ratings?

1. Introduction

Moody's was founded in 1900 to publish manuals of performance statistics related to stocks and bonds. The company was acquired by Dun & Bradstreet in 1962, and remained one of its divisions till October 4th, 2000, when it was spun off and listed on the NYSE. The public listing of Moody's opens up the possibility that its large shareholders influence the rating process. Indeed, a similar concern was raised in 1984, when Security Pacific Bank had proposed acquiring Duff and Phelps, the fourth largest credit rating agency at that time. The Federal Reserve Board discouraged the acquisition, ruling that if the merger were to take place, Duff and Phelps would be prohibited from issuing public ratings because Security Pacific Bank would be effectively rating its own borrowers (Edrington and Yawitz, 1987). Since then, regulators and policy makers have under-emphasized this problem, possibly under the assumption that if a rating agency were publicly held by diffuse owners, or by a non-financial entity, the potential for such conflicts is small.

However, concerns about the public ownership of credit ratings have resurfaced again. In 2011, Securities and Exchange Commission (SEC) investigations found that "two of the larger NRSROs (Nationally Recognized Statistical Rating Organizations) did not have specific policies and procedures for managing the potential conflict of issuers that may be significant shareholders of the NRSRO."¹ Recent media reports have alleged that Moody's

¹http://www.sec.gov/news/studies/2011/2011_nrsro_section15e_examinations_summary_report.pdf. The SEC refers to the accredited rating agencies such as Moody's, S&P and Fitch as Nationally Recognized Statistical Rating Organizations.

has been slow to downgrade Wells Fargo, an investee of Berkshire Hathaway, the largest shareholder of Moody's.²

In this paper, we study whether the credit ratings agencies are influenced by the economic interests of their large shareholders. Credit ratings have a significant impact on the financial market. Ratings affect a firm's cost of capital through its bond yields (Kisgen and Strahan (2010)) and the capital requirements of banks and insurance companies. The regulatory reliance on ratings implies that any material bias in rating agencies' decisions has the potential to impact the financial system and erode market confidence.

We begin with an examination of the ownership structure of Moody's after its IPO in 2000. We classify a shareholder as large if it owns at least 5% of Moody's stock in each of the past four quarters. We find a total of seven such large shareholders for at least one quarter during our sample period. Of the seven large shareholders, there are two *stable* ones, Berkshire Hathaway and Davis Selected Advisors. These two are classified as large shareholders over the entire sample period, i.e., from the fourth quarter of 2001 to 2010. The other five large shareholders, referred to as *transient* large shareholders, are classified as large shareholders for less than five quarters over the sample period. The two *stable* shareholders are also the largest as Berkshire Hathaway owns, on average 16.5% and Davis Selected Advisors owns an average of 7% of Moody's.

Although both these large shareholders of Moody's are investment management firms, their investing styles differ. Berkshire Hathaway holds an average of only 32 firms in its portfolio every quarter whereas Davis Selected Advisors holds 182. Moody's

²<http://www.forbes.com/sites/halahtouryalai/2012/02/16/missing-from-moodys-downgrade-list-warren-buffetts-favorite-bank/>.

preferential treatment of its large shareholders, via higher ratings on their investee or portfolio firms, is more likely to be observed when the investee constitutes a material investment of the large shareholder. We classify an investee firm as *important* if it accounts for at least 0.25% of the large shareholder's portfolio for each of the past four quarters. Bonds issued by these important investee firms of Moody's two *stable* large shareholders, are referred to as being *Moody's related*. We investigate whether Moody's assigns favorable ratings to these *Moody's related* bonds.

Several factors are likely to influence Moody's ratings, ranging from macro-economic issues such as recessions or booms to competitive pressures in the industry, beside firm and bond specific characteristics. To control for a host of these characteristics, we use a difference-in-difference approach by benchmarking Moody's ratings to those of S&P on the same bonds. Moody's and S&P are the two largest NRSROs and S&P is Moody's closest competitor.³ Unobservable and omitted factors that affect credit ratings are likely to impact both Moody's and S&P's ratings and are hence unlikely to influence the difference between their ratings on the same bond. To capture such relative ratings, we create a variable *Ratingdiff*, which is equal to S&P's numerical rating minus Moody's numerical rating on the same bond. Because we assign lower numerical values to higher ratings, a positive *Ratingdiff* implies that Moody's assigns a favorable rating to the bond relative to S&P.

We first study initial ratings on new bonds issued by *Moody's related* firms over the period Q4 2001 to 2010. Of the 8,500 new bonds issued over the sample period, about 13% are issued by firms related to Moody's. Moody's rating, relative to S&P's, for the median

³ For the year 2010, Moody's and S&P have approximately 1 million and 1.2 million ratings reported outstanding, respectively. These magnitudes far exceed those of the third largest rating agency, Fitch, with approximately 500,000 ratings reported outstanding (see SEC 2011).

Moody's related bond is a full notch higher. In contrast, among bond issues made by firms not related to Moody's, there is no significant difference between Moody's and S&P. This relatively higher rating by Moody's on *Moody's related* bonds is robust (i) to controls for a host of firm and bond characteristics; (ii) to tighter and looser criteria for identifying *Moody's related* firms; (iii) when Fitch instead of S&P is used as a benchmark; and (iv) to Fama-Macbeth estimations instead of pooled regressions.

We then examine whether Moody's favorable treatment toward its owners is also observed on its ratings of outstanding bonds. Focusing on instances where both Moody's and S&P gave the same rating change on the same bond, we find that Moody's is slower than S&P by 75 days in downgrading *Moody's related* bonds. There is no significant difference between the two agencies in the timing of the upgrades. Moreover, we compute the proportion of the quarter when Moody's assigns a higher rating than S&P on an outstanding bond to investigate instances where rating changes between the two rating agencies differ in their magnitude and timing. Again, we find that Moody's, relative to S&P, tends to be more favorable towards *Moody's related* bonds.

We go on to examine whether there is any evidence that Moody's ratings are favorable toward the interests of its *transient* shareholders. As before, we identify the important investee firms of *transient* large shareholders, and refer to bonds issued by these important investee firms as *transiently Moody's related*. We find no evidence that Moody's is relatively more favorable than S&P on these *transiently Moody's related* bonds. The results suggest that the interests of *stable*, as opposed to *transient* large shareholders, are more likely to have an influence over Moody's credit ratings.

However, it is possible that Moody's favorable ratings towards *Moody's related* bonds are unrelated to the interests of its large shareholders, but are instead attributable to omitted firm characteristics that drive both Moody's rating decisions and its large shareholders' investment decisions. For example, improved firm performance that leads Berkshire Hathaway to increase its investment in a portfolio firm may also drive Moody's higher credit rating on this firm. To address this concern, we examine Moody's ratings on bonds issued by the investees of Berkshire Hathaway and Davis Selected Advisors in the period prior to Moody's IPO, i.e., when they did not have an ownership link with Moody's. We find no evidence of relatively favorable ratings from Moody's for important investee firms of Berkshire Hathaway and Davis Selected Advisors in the period before Moody's IPO. This finding suggests that ownership in Moody's, as opposed to common potentially omitted firm characteristics, is more likely to account for the results.

Another alternate interpretation of the results is that the relatively favorable ratings are due to Moody's superior information about the important investee firms, potentially through the channel of common shareholders. In this case, the relatively favorable ratings by Moody's on *Moody's related* bonds would reflect better information rather than bias. We conduct two tests to examine this conjecture. First, following Duffie, Saita, and Wang (2007), we calculate a firm's expected default frequency (EDF) and find no evidence that relatively favorable ratings for *Moody's related* bonds are associated with lower EDF. Second, we use change in the spreads of Credit Default Swap contracts (CDS) around ratings changes to measure the informativeness of such changes and find no evidence that Moody's rating changes on *Moody's related* bonds are associated with greater changes in CDS

spreads. In summary, there is little evidence to suggest that Moody's ratings on their related bonds are more informative about expected credit outcomes.

Though S&P is not public, it is a subsidiary of McGraw-Hill, which by itself is a publicly traded firm. Large shareholders potentially exert greater influence when they are direct owners, as in the case of Moody's, as opposed to when they are indirect owners, as in the case of S&P through their ownership in S&P's parent company, McGraw-Hill. We examine the role of indirect ownership by studying whether S&P assigns favorable ratings to important investee firms of McGraw-Hill's large shareholders. We find no *stable* large shareholder in McGraw-Hill over the sample period. There are four *transient* large shareholders who are intermittently classified as large shareholders over this period. There is no evidence that S&P gives higher ratings to bonds issued by important investee firms of McGraw-Hill's transient large shareholders. We also examine the effect of indirect ownership on Moody's ratings through ownership in its parent, Dun & Bradstreet, in the period prior to its IPO. In this period, from 1991 to Q3 2000, Dun & Bradstreet also has no *stable* large shareholders and only three transient large shareholders. There is no evidence that Moody's assigns favorable ratings to the important investee firms of its parent's (Dun & Bradstreet) transient large shareholders. The findings point to little impact of indirect ownership via the parent firm on the ratings process for both rating agencies.

Thus far, we have focused on corporate bonds because both Moody's and S&P rate the majority of corporate bonds. This ensures few selection biases because most corporate bonds are rated by both agencies and hence facilitates the use of the difference-in-difference research design for our analyses. In contrast, structured products are not always rated by both rating agencies, creating incentives for issuers to shop for ratings. However, structured

products represent the fastest growing segment for credit rating agencies during the sample period, and issuers are likely to substantially benefit from favorable ratings. With the caveats mentioned in mind, we study potential bias in Moody's ratings on structured products issued by firms that are related to Moody's.

We collect data on Commercial Mortgage Backed Securities (CMBS) issued over the period from the fourth quarter of 2001 to 2010. Our final sample includes 14,353 tranches over 766 CMBS issues. CMBS issuance increased from \$138 billion in 2002 to \$539 billion in 2007, and dropped dramatically after the onset of financial crisis. We focus on tranches that are rated by both Moody's and S&P, which are a little less than 50% of the sample. As before, *RatingDiff* is the numerical rating by S&P minus that by Moody's on the same tranche. We also use the same criterion as before to classify CMBS as being *Moody's related*. Consistent with the results for corporate bonds, Moody's is relatively more favorable towards *Moody's related* tranches.

To ensure that ownership in Moody's, rather than other omitted factors are behind these favorable ratings, we compare *Moody's related* issues to other CMBS issues by the same firms but in quarters when they are not related to Moody's. This entails comparing, for example, CMBS issues by JP Morgan in quarters when it is related to Moody's to issues by JP Morgan when it is not related to Moody's.⁴ The average *RatingDiff* for tranches issued in related quarters is significantly higher than those in unrelated quarters, underscoring the importance of the link to Moody's.

We go on to examine whether Moody's favorable ratings in the CMBS market are also seen for *transiently Moody's related* tranches. There is some weak evidence that

⁴ This arises as in some quarters JP Morgan is classified as an important portfolio firm of Berkshire Hathaway or Davis Selected Advisors, while in other quarters it is not classified as such.

Moody's issues favorable ratings to CMBS tranches of issuers that are important investees of Moody's transient large shareholders. This finding contrasts with those for corporate bonds where transient large shareholders had no impact. Finally, there is no evidence that S&P is more favorable to CMBS issues made by important portfolio firms of its parent, McGraw Hill's, *transient* large shareholders. This reaffirms evidence from corporate bonds that direct ownership (in Moody's) appears to matter more than indirect ownership (as in S&P's parent firm).

Our paper is perhaps the first to identify a conflict of interest related to the economic interests of a rating agency's owners. The evidence in this study is consistent with recent regulatory concerns related to the potential bias of rating agencies toward their significant shareholders. The evidence informs recent discussions in the European Union that is considering regulation that (i) requires rating agencies to abstain from rating securities issued by shareholders who own 10% or more of the rating agency; (ii) imposes an outright ban on any investor from buying more than 5% of the rating agency.⁵

The remainder of the paper is organized as follows. Section 2 discusses the literature and section 3 describes the data. Section 4 and section 5 report findings from our empirical analyses of ratings for new and outstanding bonds. Section 6 discusses alternative explanations, section 7 examines the effect of indirect ownership, section 8 studies structured finance products and section 9 concludes.

2. Literature Review

The paper is related to two streams of literature, the first on credit ratings and the second on large shareholders.

⁵ <http://www.ft.com/intl/cms/s/0/87b90b60-38dc-11e2-bd13-00144feabdc0.html#axzz2frhAk8IG>

There is a vast literature on the conflicts of interest faced by credit rating agencies. Researchers (e.g., Mathis, McAndrews, and Rochet 2009, Xia 2010, Kraft 2011, Bonsall 2012, Jiang, Stanford and Xie 2012, Cornaggia and Cornaggia 2013) have focused on compromised ratings on account of the “issuer-pay model,” whereby the rating agencies are paid by the issuers seeking ratings. Others (e.g., Benmelech and Dlugosz 2009 and Bongaerts, Cremers and Goetzmann 2012) have highlighted the impact of “ratings shopping,” that enables issuers to go with the agency with the most favorable ratings.

The rating agencies usually counter allegations of conflict of interest by invoking the high cost of damaging their reputation. The reputation capital view argues that as the eventual success and survival of the credit rating agency depends on their credibility, these agencies would not wantonly compromise the quality of their ratings for short run gains. Moreover, the importance of economies of scale, experience, and reputation for bond ratings might explain why the ratings business is highly concentrated with strong barriers to entry and a high franchise value, that the rating firms would want to protect (Smith and Walter 2001, White 2009).

However, several papers question the reputation capital argument. Becker and Milbourn (2011) find that increased competition from Fitch, the third rating agency, is associated with poorer quality ratings from both the incumbent agencies, Moody’s and S&P. Kedia, Rajgopal and Zhou (2014) document that increased market pressures after Moody’s went public in 2000 resulted in Moody’s giving out relatively more favorable ratings to their clients. Partnoy (1999) counters the reputation capital view by proposing an alternate regulatory license view. He argues that Moody’s and S&P have survived and prospered for

so long not because ratings are necessarily informative, accurate or credible, but because ratings enable issuers to reduce the costs of complying with costly regulation.

Partnoy (1999) lists three prominent examples of such licenses. First, in 1991, the SEC adopted a rule requiring money market funds to invest no more than five percent of its holdings in “second tier” commercial paper, where the tier structure depends on the ratings assigned to such paper by one or more of the NRSROs. Second, insurance companies that want to avoid paying a capital charge to the National Association of Insurance Commissioners (NAIC) are required to hold securities that are highly rated by one or more of the NRSROs. A similar regulation applies to risk-based capital held by banks. Finally, the vast markets in asset-based securities and structured investment vehicles would not have arisen, had the regulators not sanctioned holding investments in these securities as long as they were highly rated by an NRSRO.

Moreover, as regulations also impose costs on the entry of new rating agencies, the market power of the two big raters, S&P and Moody’s, increases over time. Moody’s, S&P and Fitch were the first set of NRSROs to be approved. Langohr and Langohr (2008, Page 384) argue that the three rating agencies dominate the market because the process of gaining regulatory approval from the SEC to be designated an NRSRO is onerous. Partnoy (1999) cites the example of, IBCA Ltd., a British firm recognized for ratings of bank debt but not for ratings of corporate debt, that is reported to have battled with the SEC for full recognition from 1988 until 1997 when it merged with Fitch. As White (2009) points out, without the NRSRO designation, any would-be bond rater would likely be ignored by most financial institutions; and, since the financial institutions would ignore the would-be bond rater, so would bond issuers.

Our paper is also related to the vast literature on the role of large shareholders. Large shareholders can play an important role in firm governance as their large stakes gives them incentives to bear the cost of monitoring managers (Shleifer and Vishny (1986)). Admati and Pfleiderer (2009) and Edmans (2009) show that large shareholders can also exert governance through the threat of exit. A large literature empirically examines the effect of large shareholder activism and recently hedge fund activism (for surveys see Gillan and Starks (1998) and Brav, Jiang and Kim (2010) respectively).

However, large shareholders can also extract private benefits of control and influence the firm in following objectives other than value maximization. Barclay and Holderness (1989) document that large blocks trade at a premium of 20% reflecting the private benefits associated with them. Subsequent work by Mikkelsen and Regassa (1991) and Chang and Mayers (2012) confirms the existence of such premiums. In the context of closed-end mutual funds, Barclay, Holderness, and Pontiff (1993) document, via an analysis of press reports, that block holders receive a variety of private benefits leading to significantly larger discounts on the fund. Several papers document the importance of block holders in tunneling resources in overseas corporations (e.g., Dyck and Zingales 2002, Nenova 2003, and Atansov 2005).

As demonstrated by the above literature, whether large shareholders are associated with enhanced monitoring or private benefits is an empirical matter. In the context of Moody's, this issue impacts not just its shareholders but also potentially the financial system. As discussed above, the capital requirements of insurance and banks are based on credit ratings and bias in the ratings can potentially undermine the stability and confidence of the financial system.

3. Data description

3.1. Moody's shareholders and their investee firms

To identify large shareholders of Moody's we obtain quarterly institutional common stock holdings data from the Thomson-Reuters Institutional Holdings (13F) Database for the period following Moody's IPO in October 2000 till the end of 2010. As institutional investors tend to trade frequently, large shareholdings can be temporary, and if that were the case, we should observe little or no association between such shareholders and Moody's credit ratings. We classify a shareholder as large for a given quarter if it holds at least 5% of Moody's in each of the prior four quarters. As we require one year of data to identify large shareholders, our period of study starts from the fourth quarter of 2001 and extends for 37 quarters to the end of 2010.

Panel A of Table 1 displays summary data on Moody's ownership structure. Moody's has an average of 370 institutional shareholders and an average of two large shareholders every quarter. Panel B presents the list of seven shareholders, which are classified as large for at least one quarter during our sample period. Two large shareholders, Berkshire Hathaway and Davis Selected Advisors, are classified as large shareholders for every quarter over the sample period and we designate them as *stable* large shareholders. They are also Moody's largest shareholders. Berkshire Hathaway holds on average 16.5% of Moody's, with a minimum of 12.1% to a maximum of 20.4% (See Panel C). The second largest shareholder, Davis Selected Advisors, holds on average of 7%, with its share varying between 5.9% and 8.1%. The stake of the other five large shareholders in Moody's is more *transient*, whereby Goldman Sachs is classified as a large shareholder for only five of the 37

quarters, and the remaining four are classified as large shareholders in one or two quarters only.

The two stable large shareholders, Berkshire Hathaway and Davis Selected Advisors, differ in their investing styles. Whereas Berkshire Hathaway holds a small number of firms (32 on average) but owns large stakes in these firms, Davis Selected Advisors holds varying stakes in about 182 firms. Because not all firms in their portfolio, referred to as investee firms, are significant investments, we use various cutoffs to identify their important investee firms. For most of the paper, we classify an investee firm as *important* if the investee firm accounts for at least 0.25% of the portfolio in each of the past four quarters.⁶ Based on this criterion, 19 of the 32 portfolio firms of Berkshire Hathaway and 44 of the 182 portfolio firms for Davis Selected are classified as *important* (See Panel B). On average, we identify 56 firms that are classified as *important* portfolio firms in any quarter and these are referred to as *Moody's related*.

3.2. Credit ratings on corporate bonds

The data on the history of credit rating changes by Moody's and S&P and other bond characteristics are obtained from the Mergent's Fixed Income Securities Database (FISD). We retain all bonds that are rated by both Moody's and S&P and issued by firms covered in both CRSP and Compustat. We exclude government agency bonds issued by Freddie Mac and Fannie Mae, leaving us with a final sample of 8,500 new bonds issued by 917 firms from the fourth quarter of 2001 to the end of 2010.

⁶ We use 0.25% as the cutoff as it is the median holding in the 13F universe for the sample period. The results are qualitatively similar with other different cutoffs and have been reported later in the paper.

Table 2 presents the credit rating categories used by Moody's, the equivalent ratings by S&P, and the distribution of our sample new issues across these categories. As shown in Panel A, most of the new issues are rated investment-grade. The average issue size is \$323 million with 10 years to maturity (Table 3). On average, the issuing firm has market capitalization of \$200 billion and a leverage ratio (long term debt to total assets) of 30%.

4. Empirical analysis

4.1. Moody's relative ratings on new bonds issued by its shareholder's investee firms

We examine whether Moody's tends to assign higher ratings to *Moody's related* bonds, i.e., bonds issued by important investee firms of the two *stable* large shareholders. As discussed above, we benchmark Moody's ratings to those by S&P on the same bonds by creating a variable *RatingDiff*, which is S&P's numerical rating minus Moody's numerical rating. As favorable ratings have smaller numerical values, a positive *RatingDiff* implies that Moody's assigns a higher rating for the new issue relative to S&P.

Of the total 8,500 new bonds in our sample, 1,132 are issued by *Moody's related* firms. The median *Ratingdiff* for *Moody's related* bonds is one and that for unrelated bonds is zero. Although Moody's and S&P have similar ratings for bonds unrelated to Moody's, Moody's rating is a significant one notch higher for related bonds. Results are similar when we consider means instead of medians. Further, these results are observed across the various categories of ratings, i.e., for high-yield as well as for investment-grade bonds.⁷

Next, we control for firm and bond characteristics identified by the prior literature in multivariate estimation (See Pinches and Mingo 1973, Kaplan and Urwitz 1979, Blume, Lim

⁷ There are only 11 *Moody's related* bonds in the high yield category. Due to this small sample size, the results are weaker with significant differences observed only in means but not in medians.

and Mckinlay 1998, Campbell and Taskler 2003, and Jiang, Stanford and Xie 2012). In particular, we control for firm size, defined as the natural log of market value of the firms (*IssuerSize*), firm leverage, defined as the ratio of long-term debt to total assets (*Leverage*), operating performance, defined as operating income before depreciation divided by sales (*OpMargin*) and stock volatility, defined as the standard deviation of daily stock returns in the year prior to the issuance (*Stkreststd*). In addition, we control for issue characteristics by including issue size, defined as the logarithm of the par value of the bond issue (*IssueSize*), years to maturity at issuance (*YTM*), and a dummy variable which is equal to one if the bond is a senior bond (*Seniority*). All accounting variables are of annual frequency and are drawn from the fiscal year prior to the issuance of the new bond. Lastly, we control for a *Moody_related* dummy that takes the value of one if the bond is issued by a firm that is related to Moody's. In summary, we estimate the following model:

$$Ratingdiff_i = \gamma_0 + \gamma_1 Moody's_related_i + \sum_{j=2}^8 \gamma_j ControlVar_i^j + \varepsilon_i, \quad (1)$$

where control variables are as defined above. In addition, we include quarter dummies to control for time trends⁸, and industry dummies based on a bond's two-digit industry code from FISD to control for differences in industry expertise of the two rating agencies. We cluster standard errors at the firm-quarter level to control for multiple bond issues by the same firm in a given quarter. We also adjust these standard errors for heteroscedasticity.

The results from the estimation are displayed in Column 1 of Table 5. The coefficient of *Moody's_related* is 0.397, and is significant at the 1% level. Relative to S&P, Moody's ratings are on average laxer by 0.397 notches for bond issues by *Moody's related* firms.

⁸ See for example, Liu, Jorion and Shi (2006); Becker and Milbourn (2011); Alp (2012); Bolton, Freixas, Shapiro (2012); and Cornaggia, Cornaggia and Xia (2012).

Because the dependent variable *Ratingdiff* is the difference between the ratings of Moody's and S&P, the relatively higher ratings for *Moody's related* bonds could either be attributed to Moody's laxity or to S&P's conservatism. To shed some light on this, we re-estimate Model (1) by using Moody's rating (Column 2) and S&P's rating (column 3) as the dependent variable. We find significant evidence of laxer ratings from Moody's for *Moody's related* firms. The coefficient on *Moody's_related* in Column 2 is negative and significant at the 1% level. We find no significant coefficient on *Moody's related* bonds in S&P ratings (See Column 3). The results suggest that relatively favorable ratings on *Moody's related* firms are due to Moody's actions, rather than S&P's.

4.2. Robustness tests

4.2.1. Fama-McBeth estimation

The above results are based on estimating a pooled regression of Model (1) on the sample of new bond issues over the sample period. As the sample includes multiple bond issues by some firms, we have clustered the errors at the firm-quarter level. To address any residual concerns about correlated errors, we also estimate Model (1) using Fama-MacBeth regressions. In particular, we estimate the model in the cross-section every quarter, and then calculate the mean and standard deviation of the parameter estimates across our sample period. To ensure that the estimate of standard deviation is robust, we allow the time-series of the parameter estimates to follow an AR(1) process. As can be seen in Column 1 of Table 6, this does not impact our results. The coefficient of *Moody's_related* remains positive and highly significant.

4.2.2 Different cutoffs for identifying important investee firms

Next, we present results that rely on both a tighter and a looser cutoff to define an *important* investee firm. For the tighter cutoff, we consider an investee firm as *important* if it accounts for at least 1%, instead of the prior 0.25%, of a shareholder's portfolio in each of the past four quarters. Note that 1% is the 90th percentile of a firm's weight within an institution's portfolio from the 13F universe over our sample period. Hence, this cutoff allows us to examine Moody's ratings on the group of most important investee firms. Imposing the tighter cutoff drops the number of new bond issues of *Moody's related* firms to 511. However, the empirical results are qualitatively similar to those reported earlier (Column 2 of Table 6). We also try a looser cutoff - an investee firm is classified as *important* if it is held by a Moody's shareholder in each of the prior four quarters. As this looser cutoff does not require any minimum investment, 3,441 bonds get classified as *Moody's related*. As shown in Column 3 of Table 6, this change does not impact the results.

4.2.3 Different criteria for large shareholders

Thus far we have examined the important investee firms of the two stable large shareholders of Moody's – Berkshire Hathaway and Davis Selected Advisors. However, as displayed in Table 1, there are five other shareholders that are also classified as large shareholders in some quarters during our sample period. Do these shareholders, referred to as *transient* large shareholders, also enjoy favorable treatment from Moody's?

We define a new dummy variable, *Moody's_related_trt*, which takes the value of one if a bond is issued by an *important* investee firm of the *transient* large shareholders.⁹ There are 318 such new bond issues and there is no evidence that they get relatively more

⁹ Note that a shareholder should be classified as a large shareholder of Moody's and the investee firm should be classified as important in the quarter for the dummy to take the value of one.

favorable ratings from Moody's. The coefficient of *Moody's_related_trt* is not significant suggesting that stability of the large shareholding is important in influencing Moody's ratings.

4.2.4 Fitch as a benchmark

We also examine the robustness of our results by using ratings by Fitch, the third largest rating agency, as the benchmark.¹⁰ As Fitch is smaller than S&P, the number of new bond issues that are rated by both Fitch and Moody's is smaller at 7,825. *RatingDiff* is now redefined as Fitch's numerical rating minus Moody's numerical rating. This change in benchmark does not impact the results. The coefficient of *Moody's_related* is positive and highly significant (Column 5, Table 6). Even in comparison to Fitch, Moody's gives higher ratings to new bonds issued by *Moody's related* firms.

5. Outstanding Bonds

In this section, we investigate whether Moody's favorable ratings toward the interests of its owners are also observed in its ratings on outstanding bonds. The straightforward way to address this issue is to examine whether Moody's is relatively faster to upgrade and slower to downgrade bonds issued by firms that are related to Moody's. However, investigating which agency is faster requires the identification of the same rating change by both agencies, which is challenging given that rating changes by different agencies often occur at different levels and are of different magnitudes.¹¹ We attempt to do so by identifying the same rating

¹⁰ Fitch was founded by John Knowles Fitch in 1913. In 1997, it merged with IBCA Limited of London, a subsidiary of Fimalac, S.A., a French holding company. In 2006, Hearst Corporation purchased a 20% stake and in 2009 it purchased another 20%. In 2012, Hearst increased its stake in Fitch to 50%.

¹¹ For example, consider the following typical case with three rating events: (i) S&P downgrades a bond from AA- to A+ in May 1999; (ii) Moody's downgrades the same bond by two notches, from AA to A, in July 1999; and (iii) finally, S&P downgrades the bond again from A+ to A- in September 1999. This example highlights

change when a firm is downgraded/upgraded from the same old rating to the same new rating by both agencies within a one-year period. We identify a total of 509 such identical rating changes by Moody's and S&P, of which 354 are downgrades and remaining are upgrades. To examine the timeliness of rating changes, we create a variable labeled *LeadDays*, which is the number of days by which Moody's leads S&P in initiating the rating change. A negative value of *LeadDays* implies that Moody's lags S&P in the ratings change. We then regress *LeadDays* on *Moody's_related*, and all the control variables used in Model (1). For the sample of downgrades, the coefficient of *Moody's_related* is negative and significant, suggesting that Moody's is about 75 days slower, relative to S&P, in downgrading bonds issued *Moody's related* firms (Column 1, Table 7). The coefficient on *Moody's_related* for the upgrade sample is not statistically significant.¹²

Because we can find only a small number of identical rating changes by both agencies, we adopt an alternate approach to examine the effect on outstanding bonds. We create an indicator variable, *Moody'sLeadDum*, which is equal to one if Moody's rating is higher than S&P's on a particular bond on a particular day, and zero otherwise. We then average *Moody'sLeadDum* across bonds within the same quarter to get a firm-quarter estimate. *S&PLeadDum* is created in a similar way and measures the fraction of a quarter for which S&P's rating is higher than that of Moody's. To capture the fraction of the quarter for which Moody's rating is better than S&P's, we create a new variable, *LeadTimeDiff*, which is the difference in the average value of *Moody'sLeadDum* and *S&PLeadDum*. A

the difficulty in identifying a rating change from the same level and of the same magnitude by both rating agencies.

¹² This is not surprising as we can find only 155 identical upgrades, six of which belong to Moody's related firms.

positive *LeadTimeDiff* suggests that Moody's rating is higher than S&P's for a larger fraction of the quarter. We then estimate the following empirical model:

$$LeadTimeDiff_i = \gamma_0 + \gamma_1 Moody's_related_i + \sum_{j=2}^8 \gamma_j ControlVar_i^j + \varepsilon_i \quad (2)$$

where the control variables include firm characteristics, such *IssuerSize*, *Leverage*, *OpMargin*, and *Stkretstd*, as defined above, and bond characteristics, *IssueSize*, *YTM*, and *Seniority*. *IssueSize* is now defined as the logarithm of the par value of all bonds issued by the same firm. *YTM* and *Seniority* refer respectively to the average number of years to maturity and the average seniority for all outstanding bonds by the same firm.

The results from estimating Model (2) are displayed in Column 3 of Table 7. The coefficient on *Moody's_related* is positive and significant at the 1% level. Outstanding bonds issued by *important* investee firms of Moody's *stable* large shareholders receive higher ratings from Moody's relative to S&P. In untabulated results, we find that the results for outstanding bonds hold in Fama-MacBeth regressions, as well as with looser and tighter cutoffs to identify important investee firms as discussed above. In summary, the results for outstanding bonds mirror those for new bonds and collectively point to Moody's laxity towards the large investees of its stable large shareholders.

6. Alternate Explanations

6.1 Common criteria

A potential alternate explanation for our results is that firm characteristics which lead the two largest shareholders of Moody's to increase their investment in these firms – making them *important* to their portfolios – also affect Moody's risk assessment and its higher rating. In other words, the two stable large shareholders and Moody's could both be good at

identifying better performing firms. If common criteria were to explain our results, the findings should hold irrespective of whether Berkshire Hathaway and Davis Selected Advisors hold a large stake in Moody's.

We test this conjecture by examining a period when Berkshire Hathaway and Davis Selected Advisors are not related to Moody's, i.e. the period before Moody's went public. Specifically, we look at all bonds issued by *important* investee firms of Berkshire Hathaway and Davis Selected Advisors over the period from 1991 to Q3 2000, and study whether they get better ratings from Moody's.¹³

We do so by estimating Model (1) for new bonds issued over the period prior to Moody's IPO where we identify *important* investee firms of Berkshire Hathaway or Davis Selected Advisors based on prior criteria. The dummy variable, *Important*, takes the value of one for bonds issued by these *important* investee firms. The coefficient of *Important* is positive but not significant (Column 1 of Table 8). Moody's was not favorable toward new bond issues made by important investees of Berkshire Hathaway and Davis Selected Advisors, before these firms became large shareholders of Moody's. The coefficient on *Important* is not significant for outstanding bonds as well (Column 2 of Table 8). In summary, potential common ability, shared by Moody's and its *stable* large shareholders, to pick firms with improving performance is not likely to account for the results.

6.2 *The informativeness explanation*

Another potential explanation for our findings could be that Moody's higher ratings reflect better information rather than favorable treatment. Common ownership by Berkshire

¹³ Over this period, Moody's is owned by Dun & Bradstreet, but neither Berkshire Hathaway nor Davis Selected Advisors are large shareholders of Dun & Bradstreet. In the next section, we investigate Moody's bond ratings for large investee firms of Dun & Bradstreet's large shareholders.

Hathaway or Davis Selected Advisors could generate private information that makes Moody's ratings relatively more informative and accurate for bonds issued by investee firms, relative to S&P. It is worth noting, however, that a better informed Moody's does not automatically imply systematically favorable ratings. When Moody's information about *Moody's related* issues is negative, Moody's ratings should be tougher than S&P's. However, we examine the informativeness hypothesis via (i) the correlation of ratings with the issuer's expected default frequencies (EDF); and (ii) changes in CDS spreads around rating changes.¹⁴

6.2.1 Expected Default Frequency (EDF)

We follow Duffie, Saita, and Wang (2007) and estimate a distance-to-default (*DtD*) measure for each firm-quarter based on the Black–Scholes–Merton specification. The *DtD* measure estimates the number of standard deviations of asset growth by which a firm's market value of assets exceeds the firm's liabilities. We go on to estimate the Expected Default Frequency (*EDF*) as the cumulative standard normal distribution function valued at the negative distance to default.

We then include *EDF* and its interaction with *Moody's_related* in Model (1) and Model (2). If Moody's relatively higher ratings on bonds by *Moody's related* firms are indeed more informative, they should be associated with a lower EDF, and the coefficient of the interaction of *EDF* and *Moody's_related* should be negative and significant. As can be seen in Table 9, the coefficient of the interaction of *EDF* and *Moody's_related* is insignificant for new issues (column 1) as well as for outstanding issues (Column 2).

¹⁴ We also examined the actual bond defaults. Because none of the *Moody's related* new bond issues defaulted within two years of issuance, we could not shed light on whether the higher ratings of *Moody's related* bonds was associated with lower defaults.

Overall, there is little evidence that Moody's relatively higher ratings for bonds issued by *Moody's related* firms represent superior information about the credit risks of the underlying bonds.

6.2.2 Change in CDS spreads

Another way to shed light on the informativeness of credit ratings is to study bond price movements around rating changes. An informative downgrade (upgrade) should be accompanied by a significant drop (increase) in the bond prices. However, due to limited trading in bonds, it is difficult to examine changes in bond prices within a short time window around ratings changes. Consequently, we study changes in CDS spreads around rating changes.¹⁵ This research design allows us to capture any information that is new to the credit market.

We obtain daily CDS composite spreads from Markit Group Ltd.¹⁶ Over the sample period, we have data to calculate changes in CDS spreads over a three-day window for 1,665 rating actions, including 1,047 downgrades and 618 upgrades. Around 50% of both upgrades and downgrades are by Moody's and about 5% of those are for *Moody's related* firms. We create a variable *CDSCHG*, which is the change in the spreads for the five-year CDS contract from day -1 to day +1, where day 0 is the day of the rating change. We use the 5-year CDS contract as it is the most actively traded contract for a given entity (Hull,

¹⁵ CDSs contain useful information regarding a firm's credit risks (Longstaff, Mithal, and Neis (2005). Blanco, Brennan, and Marsh (2005) find that corporate bond and CDS markets price credit risk equally well. Further, CDSs lead bonds in incorporating credit risk information.

¹⁶ Markit averages daily closing prices obtained from contributing global banks and their most recent trade prices to produce its daily CDS composite spreads. See Markit (2009).

Predescu, and White (2004)). We then estimate the following model for downgrades and upgrade separately:

$$CDSCHG_i = \gamma_1 SPdum_i + \gamma_2 MRdum_i + \gamma_3 MRdum_i * Moody's_related_i + \sum_{j=4}^7 \gamma_j ControlVar_i^j + \varepsilon_i, \quad (3)$$

where *SPdum* (*MRdum*) takes the value of one if the rating change is by S&P (Moody's), and *Moody's_related* is as defined before. In line with Hull, Predescu, and White (2004) we include *CDSCHG_LAG*, which is the change in the CDS spread from day -10 to -2, to control for the CDS market's anticipation of rating changes. Other control variables include *RatingCHG*, the absolute magnitude of the rating change, *CROSSdum*, a dummy variable equal to one if the rating change crosses the investment and speculative-grade boundary, and *DAYS*, the natural log of the number of days since the previous rating change in the same direction. These control variables have also been used in Jorion, Liu, and Shi (2006) to examine the informativeness of rating changes.

If Moody's rating changes on their related firms tend to be more informative, we would expect a positive (negative) coefficient of the interaction of *MRdum* and *Moody's_related* for the downgrades (upgrades). Column 1 of Table 10 shows that for downgrades, the coefficient on both *SPdum* and *MRdum* is positive and significant, suggesting that downgrades by both agencies are significant negative events, which are associated with an increase in CDS spreads. However, the interaction of *MRdum* with *Moody's_related* is not significant. For the upgrade sample, none of the variables is significant (See Column 2). Similar absence of significant results for the upgrade sample is also reported by Hull, Predescu, and White (2004). Overall, there is little evidence to suggest

that relatively favorable ratings by Moody's for *Moody's related* bonds represent more informative ratings.

7. Large shareholders of the parent company

Thus far, we have examined the impact of large shareholders on Moody's ratings. This inquiry has been motivated by the fact that Moody's is directly listed on a stock exchange whereas S&P, although a division of a public firm, is not itself publicly listed. In this section we evaluate whether indirect ownership, through a large holding in the parent firm of a rating agency, also impacts ratings. We begin by examining the impact of a large shareholding in McGraw-Hill, S&P parent company, on S&P ratings. Next, we investigate whether a large shareholding in Dun & Bradstreet, Moody's parent, affects Moody's ratings during the period prior to its IPO.

7.1. McGraw-Hill

Throughout the ten years following Moody's IPO, S&P remains a subsidiary of McGraw-Hill. A study of McGraw-Hill's ownership structure reveals that it has, on average, 504 shareholders each quarter (Panel A, Table 11). Four investment management firms are classified as large shareholders, based on our criteria, in at least one quarter over the sample period. It is worth noting, that unlike Moody's there are no *stable* large shareholders, i.e., those that are classified as a large shareholder over the entire sample period. The most stable large shareholder is Goldman Sachs, which is classified as a large shareholder in only 11 of the 37 quarters (Panel B, Table 11). Moreover, in 18 of the 37 quarters, McGraw-Hill has no large shareholders as per our criteria.

As McGraw-Hill does not have a *stable* large shareholder, we examine the impact of its transient large shareholders on S&P's ratings. In line with the prior criteria, we create a

dummy variable *McGrawHill_related_trt* that takes the value of one if the bond is issued by an important investee firm of a *transient* large shareholder of McGraw-Hill. We then re-estimate Model (1) and Model (2) by using *McGrawHill_related_trt*, instead of *Moody's_related*, as the key explanatory variable. If S&P gives favorable ratings to its parent's large shareholders, we would expect a negative and significant coefficient on *McGrawHill_related_trt*.¹⁷ However, as seen in Table 12, the coefficient on *McGrawHill_related_trt* is positive and insignificant for new issues (Column 1) as well as for outstanding issues (Column 2). Overall, there is no evidence that transient large shareholdings in McGraw Hill impact S&P's ratings.

7.2. Dun & Bradstreet

We also examine the impact of indirect large shareholdings on Moody's for the period prior to its IPO, when it was a division of a publicly traded Dun & Bradstreet. Over the 39 quarters from 1991 to Q3 2000, Dun & Bradstreet had an average of 365 shareholders every quarter (Panel A, Table 13) and three large shareholders as per our criteria. Though a publicly listed Moody's has two stable large shareholders, we find no stable large shareholders in Moody's parent prior to its IPO. As before, we create a dummy variable *D&B_related_trt* that takes the value of one if the bond is issued by an *important* investee firm of Dun and Bradstreet's *transient* large shareholders.

The coefficient on *D&B_related_trt* should be positive and significant if Moody's is favorable towards the interests of Dun & Bradstreet's *transient* large shareholders.

¹⁷ Note that the dependent variable for Model (1) is still *Ratingdiff*, the numerical rating of S&P minus the numerical rating of Moody's. As larger *Ratingdiff* implies a relatively higher rating by Moody's, favorable ratings from S&P implies, on average, negative values of *Ratingdiff*. Similarly, for all outstanding issues, we estimate Model (2) with the dependent variable *Leadtimediff* as before. Favorable ratings from S&P should be associated with negative *Leadtimediff*.

However, it is insignificant for both new issues (Column 1, Table 14) and outstanding issues (Column 2, Table 14). Taken together, transient large shareholdings in the parent firms of ratings agencies have no impact on their ratings. This holds for both S&P and for Moody's prior to its IPO.

8. Structured finance products

In this section, we examine whether Moody's favorable treatment of its large shareholders is also observed in their ratings of structured finance products. Unlike corporate bonds, structured products are not always rated by both major rating agencies. This creates incentives for issuers to shop for ratings and makes our research design of difference-in-difference between Moody's and S&P's ratings difficult to implement. However, structured products represent the fastest growing segment for credit rating agencies during the sample period, and issuers are likely to substantially benefit from favorable ratings. With these caveats in mind, we study the effect of large shareholders in Moody's ratings of structured products.

We collect both deal level and tranche level information on Commercial Mortgage Backed Securities (CMBS) from Bloomberg over the sample period. This data includes issue date, the name of the issuer, the par amount, and initial ratings from Moody's and S&P for each tranche. The initial sample consists of 1,034 CMBS deals with a total of 17,224 tranches. After removing agency-related CMBS (Freddie and Fannie), we are left with a final sample of 766 CMBS issues that span 14,353 tranches.

We choose to study CMBS for several reasons. First, the majority of CMBS issued are non-agency or private label securities. In contrast, Residential Mortgage Backed Securities (RMBS) are mostly issued by a government agency (e.g., Ginnie Mae), or by

government sponsored enterprises (e.g., Fannie Mae and Freddie Mac). Consequently, credit risk is the main pricing characteristic that matters for CMBS. Second, CMBS also benefits from a standardized rating process that is analogous to the corporate bond market (Fisher and Maxam, 2001). Lastly, there is sufficient overlap between firms that are related to Moody's and CMBS issuers to allow us to comment on whether Moody's is favorable towards them.¹⁸

Table 15 presents summary data on the total issuance of CMBS over our sample period. The issuance of CMBS increased from \$138 billion in 2002 to \$539 billion in 2007, and dropped dramatically after the onset of financial crisis. S&P has a larger market share in CMBS before the financial crisis -- about 70% of the tranches were rated by S&P, compared to about 60% by Moody's.

In line with the previous analyses on corporate bonds, we benchmark Moody's ratings on a CMBS tranche to that assigned by S&P. Consequently, we only examine tranches that were rated by both Moody's and S&P. In our sample, about 44% or 6,321 out of the total 14,353 tranches are rated by both Moody's and S&P. The relative rating of a CMBS tranche is captured by *RatingDiff*, which is, as before, the numerical rating by S&P minus that by Moody's on the same tranche.¹⁹ In line with prior analyses, we create a

¹⁸ We also examined collateralized debt obligations (CDOs) issued during our sample period, only to find that less than ten CDOs were issued by firms that are related to Moody's.

¹⁹ A typical CMBS uses a waterfall payment structure, where cash flow in the form of principal and interest from underlying commercial mortgage pool is distributed first to the senior tranches, and continues down the security waterfall until no remaining cash is left for distribution. A careful examination of the data reveals that most CMBS issued in our sample have a much more complicated structure. For about 65% of the sample CMBS, we find that some of the lower tranches carry a AAA rating while some higher tranches are either not rated or receive a lower than AAA rating. This is mainly because those lower tranches have priority on the cash flows from a certain sub-group of loans within the underlying pool, which differs from other structured products such as CDOs. Therefore, we conduct our analysis for each tranche rated by both Moody's and S&P, rather than for aggregate ratings across tranches as done in some of the prior studies on CDOs (e.g., Griffin and Tang 2011).

dummy variable *Moody_related* if the tranche was issued by an *important* investee firm of Moody's two *stable* large shareholders. Although there are only six CMBS issuers that are *Moody's related* for at least one quarter over the sample period (Panel A of Table 16), they account for 50% of our sample CMBSs. Of these six firms, the largest is JP Morgan that issued 23 deals in the quarters when it was related to Moody's and 30 deals in quarters when it was not related to Moody's. Note that though Berkshire Hathaway and Davis Selected Advisors were large shareholders of Moody's for the entire period, JP Morgan was not always an *important* investee firm for them, with its weight in their portfolio falling below 0.25% in some quarters.

Panel A of Table 17 shows that the average *RatingDiff* for *Moody's related* tranches (Group 1) is -0.011 and not significantly different from zero. However, the average *RatingDiff* for tranches not related to Moody's (Group 2) is -0.065, and it is significantly different from zero. The difference in *RatingDiff* between *Moody's related* and non-related tranches is highly significant. The results are similar when we examine median values. In other words, Moody's is tougher than S&P in the CMBS market for most issuers, but it relaxes its standards for *Moody's related* issues. Note that our findings do not imply that Moody's ratings are tougher or laxer than S&P overall. Instead, we simply claim that Moody's ratings are relatively more favorable for issues by firms that are related to Moody's.

The results in panel A could potentially be driven by the characteristics of the issuers rather than by their relation to Moody's. For example, the findings could merely reflect stronger credit characteristics of CMBS issuers that make them important investees as well as help them garner a better rating from Moody's. To rule out this possibility, we try to keep issuer characteristics constant and compare the issues of the six CMBS issuers during

quarters when they are *Moody's related* to those issued when they are not. As both groups of tranches are created by the same issuer, this test keeps issuer characteristics constant and isolates the importance of the issuer's relation to Moody's. The average *RatingDiff* for issues in quarters when the issuer is not related to Moody's (Group 3) is -0.039 which is significantly lower than -0.011, the average *RatingDiff* for issues in quarters when the issuer is related to Moody's (Group 1).

8.1. Issuers related to transient large shareholders of Moody's

In the above section, we examine ratings on CMBS issued by important investee firms of the stable large shareholders. Here, we investigate whether a similar effect is seen for important investee firms of Moody's transient large shareholders. Five CMBS issuers are classified as *important* investee firms of Moody's *transient* large shareholders for at least one quarter (Panel B, Table 16). For these issues, where *Moody_related_trt* takes the value of one (Group 2), the average *RatingDiff* is -0.019, and is significantly higher than -0.071, the average *Ratingdiff* for unrelated issues (Group 4).

However, one concern with this finding is that the five CMBS issuers that are classified as important investees of Moody's *transient* large shareholder can also be important to Moody's two *stable* large shareholders. Hence, it is unclear whether the favorable rating for these issuers reflects Moody's favorable treatments of its two *stable* shareholders or for its *transient* large shareholders. To distinguish these two potential biases, we identify tranches created by these five issuers in quarters when they are *important* investee firms of Moody's *transient* large shareholders, but not of the two *stable* large shareholders, referred to as Group (3). There are 675 such tranches, and the average *RatingDiff* for this group is -0.028 which is still significantly higher than the -0.071 for non-

related issues (Group (4)). Moody's favorable treatment of CMBS issued by the investees of its transient large shareholders contrasts with the absence of such treatment for corporate bonds issued by such investees.

Finally, to ensure that the above results are not attributable solely to issuer characteristics, we focus on unrelated issues which are made by firms that are related to Moody's in some other quarter. This group (Group 5) consists of 1,521 tranches, and has a mean *RatingDiff* of -0.044. This is significantly lower than that for Group (1). However, their differences from issues that are related to only *transient* large shareholders (Group 3) are mixed – it is significant in medians but not in means. Overall, CMBSs issued by *important* investee firms of Moody's two *stable* large shareholders receive relatively favorable ratings from Moody's. There is also weak evidence to suggest that Moody's is favorable towards its *transient* large shareholders in the CMBS market.

8.2. Issuers of transient large shareholders of McGraw-Hill

Finally, we examine whether indirect ownership in the rating agency's parent company has any impact on CMBS ratings. As there are no stable large shareholders in the parent firm, this analysis sheds light on the influence, if any, of indirect transient ownership. There are six CMBS issuers who are classified as *important* investee firms of McGraw-Hill's *transient* shareholders for at least one quarter (Panel C, Table 16). As before, *McGrawHill_related_trt* takes the value of one if the tranche is issued by above mentioned six CMBS issuers. The average *RatingDiff* for *McGrawHill_related_trt* (Group 1) is -0.047 (Panel A of Table 18). The negative sign implies that S&P provides relatively favorable ratings for these issues. However, the average *RatingDiff* is negative for issues that are unrelated to McGraw-Hill (Group 2), and also for the subset of unrelated tranches that are

created by issuers that are related to McGraw-Hill in other quarters (Group 3). There is no significant difference in S&P's relative ratings among these three groups, suggesting that the relative laxity in S&P's ratings is seen for all CMBS issues, irrespective of the issuer's relation to its parent company, McGraw Hill.

Interestingly, all of the *McGrawHill_related_trt* issuers are also related to Moody's with the exception of one, although they are not always related to both agencies during the same quarter. To better understand the role of this overlap, we separate the issues into four categories: (i) those that are related to Moody's *stable* and *transient* shareholders only (Group 1); (ii) those that are related to McGraw-Hill *transient* shareholders only (Group 2); (iii) those that are connected to both (Group 3); and (iv) those that are connected to neither (Group 4). Issues related to Moody's *stable* or *transient* large shareholders (Group 1 and Group 3) did get significantly favorable ratings from Moody's. However, for the 305 tranches that are related to McGraw-Hill only (Group 2), there is no significant evidence of favorable ratings from S&P. These results highlight the influence of direct ownership of the rating agency versus indirect ownership of the agency through the parent company because there is evidence of favorable treatment by Moody's towards the interests of its transient large shareholders. However, there is no evidence of such treatment by S&P towards the transient shareholders of its parent company, McGraw Hill.

9. Conclusions

The SEC and the EU have recently expressed concerns about potential conflicts of interest faced by ratings agencies with regard to the interests of their large owners. We provide evidence to suggest that these concerns are not misplaced. We find that Moody's ratings for corporate bonds issued by *important* investee firms of Moody's *stable* large

shareholders are more favorable relative to S&P's ratings on the same bonds. Similarly, we find favorable treatment by Moody's in its ratings on CMBS tranches issued by the important investees of its stable large shareholders.

We do not find evidence of favorable treatment by Moody's towards investee firms of the two stable large shareholders when they are not shareholders, i.e., in the period prior to Moody's IPO. This result suggests that omitted firm characteristics regarded as important by both Moody's and its stable large shareholders cannot account for the results. Further, there is no evidence that the favorable ratings by Moody's are more informative. Therefore, better information flows arising from a common large shareholder also cannot account for the results.

The results point to the importance of stable versus transient large shareholdings on the ratings. Whereas transient large shareholders do not get any favorable treatment from Moody's in the corporate bond market, there is some weak evidence of favorable ratings in the CMBS market for such issuers. The findings also underscore the importance of direct ownership rather than indirect ownership through a parent. Though Moody's ratings on CMBS issued by the investees of its transient large shareholders are favorable, S&P's ratings on CMBS issued by the transient large shareholders of McGraw Hill, S&P parent firm, are not. We hope our evidence contributes to the regulatory debate about the organization and ownership of the credit rating industry.

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Table 1: Summary Information on Moody's Ownership Structure

Moody's ownership data are obtained from Thomson-Reuters Institutional Holdings (13F) for the period Q4 2001 to 2010, spanning 37 quarters. A shareholder of Moody's is classified as a large shareholder in a given quarter if it owned at least 5% of Moody's in each of the past four quarters. Two large shareholders, Berkshire Hathaway and Davis Selected Advisers, are classified as large shareholders of Moody's for the entire 37 quarters, and they are considered as Moody's stable large shareholders. An investee firm of a shareholder is considered important if it accounts for at least 0.25% of the shareholder's portfolio in each of the past four quarters. Important investee firms of the two stable large shareholders are considered as being *Moody's related*. Panel A provides summary information on Moody's shareholders and their investee firms. Panel B lists Moody's shareholders that are classified as large shareholders for at least one quarter during the sample period. Panel C provides summary statistics on the quarterly holdings of these large shareholders of Moody's.

Panel A: Summary information on Moody's shareholders and their investee firms

	Mean	Median	Min	Max	STD	N
Number of Shareholders	370	362	262	474	57	37
Number of Large Shareholders	2	2	2	5	1	37
Number of Investees of Stable Large Shareholders	196	189	167	327	29	37
Number of <i>Moody's related</i> Firms	56	56	43	66	6	37

Panel B: Summary information on Moody's large shareholders

Firm Name	Number of Quarters Classified as Large Owner	Number of Investees per Quarter	Number of Large Investees per Quarter
BERKSHIRE HATHAWAY	37	32	19
DAVIS SELECTED ADVISERS	37	182	44
GOLDMAN SACHS	5	3,622	55
CAPITAL RESEARCH GLOBAL INVESTORS	2	488	55
CAPITAL WORLD INVESTORS	2	504	58
SANDS CAPITAL MANAGEMENT	1	48	18
FIDELITY MANAGEMENT & RESEARCH	1	2,912	56

Panel C: Summary statistics of Moody's large shareholders' quarterly stake in Moody's

Firm Name	Mean	Median	Min	Max	STD	N
BERKSHIRE HATHAWAY	16.5%	16.2%	12.1%	20.4%	2.1%	37
DAVIS SELECTED ADVISERS	7.0%	6.8%	5.9%	8.1%	0.7%	37
GOLDMAN SACHS	3.1%	2.6%	0.2%	7.2%	2.4%	37
CAPITAL RESEARCH GLOBAL INVESTORS	8.8%	10.3%	4.2%	11.3%	2.8%	6
CAPITAL WORLD INVESTORS	6.1%	5.9%	1.2%	12.1%	4.5%	11
SANDS CAPITAL MANAGEMENT	3.0%	3.0%	0.4%	5.6%	1.6%	28
FIDELITY MANAGEMENT & RESEARCH	2.6%	2.6%	0.0%	9.1%	2.2%	37

Table 2: Numerical coding of rating categories and the distribution of new bond issues across rating categories

This table provides summary information on Moody's and S&P's credit rating on new bonds issued between the fourth quarter of 2001 and 2010. Panel A presents the frequency distributions of the sample bonds across different rating categories by Moody's and S&P, and the numerical coding of each rating category. Panel B presents the mean and median of the numerical ratings of our sample bonds assigned by Moody's and S&P.

Panel A: Frequency distribution

	Numeric Rating	Moody's		S&P	
		Rating Letter	Frequency (%)	Rating Letter	Frequency (%)
Investment-grade					
Highest Quality	1	Aaa	1.15	AAA	1.28
Very High Quality	2	Aa1	1.07	AA+	0.01
	3	Aa2	3.18	AA	1.35
	4	Aa3	25.84	AA-	7.85
High Quality	5	A1	13.48	A+	22.73
	6	A2	15.27	A	31.75
	7	A3	8.51	A-	4.13
Minimum Investment Grade	8	Baa1	3.95	BBB+	4.15
	9	Baa2	5.31	BBB	5.35
	10	Baa3	5.27	BBB-	5.07
High-yield					
Low Grade	11	Ba1	1.91	BB+	1.98
	12	Ba2	1.75	BB	2.32
	13	Ba3	3.13	BB-	2.32
Very Speculative	14	B1	2.64	B+	3.13
	15	B3	3.07	B	3.06
	16	B3	2.79	B-	2.22
Substantial Risk	17	Caa1	1.06	CCC+	0.65
	18	Caa2	0.42	CCC	0.54
	19	Caa3	0.16	CCC-	0.07
Very Poor Quality	20	Ca	0.05	CC	0.04
	21	C	0.00	C	0.04

Panel B: Summary statistics on numerical ratings

	Moody's		S&P	
	Mean	Median	Mean	Median
Full Sample	7.07	6.00	7.30	6.00
Investment-grade	5.62	5.00	6.00	6.00
High-yield	14.13	14.00	13.96	14.00

Table 3: Descriptive statistics of new bonds and their issuers

The table presents summary information on the characteristics of our sample new bonds and their issuers. *Issuer Size* is the market value of equity plus the book value of debt. *Leverage* is long term debt divided by total assets. *Operating Margin* is operating income before depreciation divided by sales. *Stock Return Standard Deviation* is the standard deviation of daily stock returns in the year prior. *Issue Size* is the par value of the bond issue. *Time to Maturity* is a bond's number of years to maturity at issuance. *Moody's and S&P's Ratings* are the numerical values of the ratings assigned by Moody's and S&P, coded as per Table 1. All firm characteristics are measured for the year prior to the issuance.

	Mean	Median	STD
Issuer Size (\$ billion)	200.85	91.19	241.96
Leverage	0.30	0.24	0.18
Operating Margin	0.37	0.41	0.29
Stock Return Standard Deviation	0.02	0.02	0.04
Issue Size (\$ million)	323.40	52.00	2,080.15
Time to Maturity (Years)	9.92	7.38	8.59
Moody's Ratings	7.30	6.00	3.42
S&P Ratings	7.07	6.00	3.77

Table 4: Univariate analysis of relative ratings

The sample consists of new bond issues over the period Q4 2001 to 2010. The numbers displayed are mean or median values of numerical ratings given by *Moody's* and *S&P*, and *Ratingdiff*, which is S&P numerical rating minus Moody's numerical rating. *Moody's related* includes bond issues by firms that are important investee firms of Moody's two stable large shareholders: Berkshire Hathaway and Davis Selected Advisors. *Other Firms* include bonds issued by all the other issuers in our sample. Panel A presents the result from using the full sample. Panel B displays the results for bond issues rated as investment-grade by both agencies. For Panel C, the sample includes bonds rated as high-yield by at least one agency. The last column displays p-values from a test on the difference in means and medians of *Ratingdiff* for the two groups of bonds, i.e., *Moody's related* and other firms.

	Moody's related			Other Firms			Difference Test
	Moody's	S&P	<i>RatingDiff</i>	Moody's	S&P	<i>RatingDiff</i>	
Panel A: Full sample							
Mean	4.263	4.924	0.661	7.499	7.661	0.163	0.00***
Median	4.000	5.000	1.000	6.000	6.000	0.000	0.00***
N	1,132	1,132	1,132	7,368	7,368	7,368	
Panel B: Investment-grade							
Mean	4.187	4.853	0.665	5.860	6.146	0.286	0.00***
Median	4.000	5.000	1.000	6.000	6.000	0.000	0.00***
N	1,121	1,121	1,121	5,886	5,886	5,886	
Panel C: High-yield							
Mean	12.000	12.182	0.182	14.005	13.679	-0.326	0.07*
Median	13.000	12.000	1.000	14.000	14.000	0.000	0.17
N	11	11	11	1,482	1,482	1,482	

Table 5: Moody's ratings on new bond issues

The dependent variable for Column 1 is *RatingDiff*, which is S&P numerical rating minus Moody's numerical rating on the same bond. The dependent variable in Column 2(3) is Moody's (S&P) numerical rating. The sample includes a total of 8,500 new bond issues by firms covered in Compustat and CRSP over the period 2001 Q4 to 2010. *Moody's_related* is a dummy variable that takes the value of one if a bond is issued by an important investee firm of Moody's two stable large shareholders, Berkshire Hathaway and Davis Selected Advisors. *IssuerSize* is the natural log of market value. *Leverage* is ratio of long-term debt to total assets. *OpMargin* is operating income before depreciation divided by sales. *Stkretstd* is the standard deviation of daily stock returns in the year prior to the issuance. *IssueSize* is the logarithm of the par value of the bond issue. *YTM* is a bond's number of years to maturity at issuance. *Seniority* is a dummy variable for whether the issue is senior debt. All control variables are measured in the year prior to the new issue. Heteroscedasticity adjusted robust *p*-values are provided below each estimates.

	1. RatingDiff	2. Moody's Rating	3. S&P Rating
Intercept	-1.843 (0.000)***	7.959 (0.000)***	6.116 (0.000)***
Moody's_related	0.397 (0.000)***	-0.577 (0.000)***	-0.180 (0.159)
IssuerSize	0.068 (0.000)***	-1.057 (0.000)***	-0.989 (0.000)***
Leverage	-0.582 (0.000)***	5.382 (0.000)***	4.800 (0.000)***
OpMargin	-0.133 (0.152)	-0.951 (0.049)**	-1.085 (0.010)***
Stkretstd	-0.536 (0.071)*	3.584 (0.223)	3.048 (0.265)
IssueSize	0.031 (0.002)***	0.076 (0.001)***	0.107 (0.000)***
YTM	-0.029 (0.087)*	-0.321 (0.000)***	-0.351 (0.000)***
Seniority	-0.263 (0.000)***	-1.580 (0.000)***	-1.843 (0.000)***
Adj. R-square	0.449	0.803	0.759
N	8,500	8,500	8,500
Industry Fixed Effects	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes

Table 6: Robustness tests

The sample for all tests in this table consists of new bond issues over the period Q4 2001 to 2010. The dependent variable is *RatingDiff*, which is S&P numerical rating minus Moody's numerical rating on the same bond. *Moody's_related* takes the value of one if the bond is issued by an important investee firm of Moody's two stable large shareholder, Berkshire Hathaway and Davis Selected Advisors. Column 1 presents results from estimating Model (1) using Fama-MacBeth regressions. Column 2 (Column 3) present results from using a tighter (looser) criterion to define important investee firms. Column 4 examine Moody's potential bias toward its transient large shareholders. *Moody's_related_trt*, which takes the value one if a bond is issued by an important investee of the five Moody's transient large shareholders in a quarter when they are considered as being large shareholders of Moody's, i.e., being *transiently Moody's related*. Column 5 present results from using Fitch ratings as the benchmark. The dependent variable, *RatingDiff*, is redefined as being Fitch's numerical rating minus Moody's numerical rating on the same bond. *IssuerSize* is the natural log of market value. *Leverage* is ratio of long-term debt to total assets. *OpMargin* is operating income before depreciation divided by sales. *Stkretstd* is the standard deviation of daily stock returns in the year prior to the issuance. *IssueSize* is the logarithm of the par value of the bond issue. *YTM* is a bond's number of years to maturity at issuance. *Seniority* is a dummy variable for whether the issue is senior debt. All control variables are measured in the year prior to the new issue. Heteroscedasticity adjusted robust *p*-values are provided below each estimates.

	1.Fama-MacBeth	2.Tigher Criterion	3.Looser Criterion	4.Other Owners	5.Fitch as Benchmark
Intercept	0.121 (0.480)	-1.815 (0.000)** *	-1.866 (0.000)** *		-1.038 (0.000)***
Moody's_related	0.336 (0.000)** *	0.325 (0.000)** *	0.361 (0.000)** *	0.376 (0.000)** *	0.206 (0.003)***
Moody's_related_trt				-0.237 (0.241)	
IssuerSize	0.087 (0.000)** *	0.078 (0.000)** *	0.034 (0.063)*	0.077 (0.001)** *	0.107 (0.001)***
Leverage	-0.327 (0.035)**	-0.651 (0.000)** *	-0.591 (0.000)** *	-0.578 (0.001)** *	-0.658 (0.006)***
OpMargin	3.097 (0.349)	-0.122 (0.218)	-0.096 (0.370)	-0.139 (0.341)	-0.108 (0.065)*
Stkretstd	-0.323 (0.192)	-0.508 (0.068)*	-0.592 (0.079)*	-0.521 (0.102)	-0.702 (0.057)*
IssueSize	0.006 (0.673)	0.031 (0.001)** *	0.023 (0.014)**	0.031 (0.062)*	0.039 (0.009)***
YTM	-0.037 (0.170)	-0.038 (0.033)**	-0.023 (0.188)	-0.030 (0.161)	-0.011 (0.626)
Seniority	-0.216 (0.064)*	-0.281 (0.000)** *	-0.243 (0.000)** *	-0.263 (0.007)** *	-0.167 (0.137)
Adj R-square	0.514	0.439	0.450	0.451	0.316
N	8,500	8,500	8,500	8,500	7,826
Number of Quarters	37	37	37	37	37
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	N/A	Yes	Yes	Yes	Yes

Table 7: Outstanding bond issues

The sample for Column 1 (Column 2) consists of all downgrades (upgrades) by both Moody's and S&P over the period from Q1 2001 to 2010, and the sample for Column 3 consists of all outstanding bond issues over the same sample period. The dependent variable for Column 1 and Column 2 is *LeadDays*, which is the number of days by which Moody's leads S&P in making the same rating change. The dependent variable for Column 3 is *LeadtimeDiff*, which is the fraction of a quarter where Moody's assigns a higher rating minus the fraction of a quarter where S&P assigns a higher rating. *Moody's_related* takes the value of one if the bond is issued by an important investee firm of Moody's two stable large shareholder, Berkshire Hathaway and Davis Selected Advisors. *IssuerSize* is the natural log of market value. *Leverage* is ratio of long-term debt to total assets. *OpMargin* is operating income before depreciation divided by sales. *Stkretstd* is the standard deviation of daily stock returns in the year prior to the issuance. *IssueSize* the logarithm of the par value of all bonds issued by the same firm. *YTM* and *Seniority* refers to average number of years to maturity and average seniority for all outstanding bonds by the same firm respectively. All control variables are measured in the year prior. Heteroscedasticity adjusted robust *p*-values are provided below each estimates.

	1.Downgrade	2.Upgrade	3.All Outstanding Bonds
Intercept	-2.959 (0.778)	-2.792 (0.894)	-0.149 (0.002)***
Moody's_related	-75.545 (0.035)**	41.464 (0.479)	0.070 (0.001)***
IssuerSize	9.360 (0.086)*	3.336 (0.791)	-0.002 (0.458)
Leverage	53.733 (0.095)*	118.414 (0.222)	0.045 (0.015)**
OpMargin	-7.351 (0.213)	-55.340 (0.604)	0.000 (0.001)***
Stkretstd	-92.467 (0.641)	-0.153 (0.936)	-0.012 (0.013)**
IssueSize	3.907 (0.507)	-27.857 (0.086)*	-0.018 (0.0001)***
YTM	-5.442 (0.523)	-38.176 (0.212)	0.004 (0.0001)***
Seniority	12.112 (0.567)	4.227 (0.913)	-0.132 (0.0001)***
Adj R-square	0.026	0.045	0.105
N	354	155	30,278
Industry Fixed Effects	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes

Table 8: Moody's rating bias prior to going public

Column 1 (Column (2)) presents results from estimating Model (1) (Model (2)) on the sample of new bonds issues (outstanding bond issues) over the period 1991 to Q3 2000. The dependent variable for Column 1 is *RatingDiff*, which is S&P numerical rating minus Moody's numerical rating on the same bond. The dependent variable for Column 2 is *LeadTimeDiff*, which is the fraction of a quarter where Moody's assigns a higher rating minus the fraction of a quarter where S&P assigns a higher rating. *Important* is a dummy variable that takes the value of one if the bond is issued by a firm that is an important investee firm of either Berkshire Hathaway or Davis Selected Advisors in that quarter. Control variables for Model (1) and Model (2) are as defined as in Tables 4 and 7. Heteroscedasticity adjusted robust *p*-values are provided below each estimates.

	1. New Issues	2. All Issues
Intercept	-0.732 ($<.0001$) ^{***}	1.179 ($<.0001$) ^{***}
Important	0.064 (0.310)	-0.041 (0.392)
IssuerSize	0.036 (0.008) ^{***}	0.015 (0.224)
Leverage	-0.178 (0.155)	0.111 (0.152)
OpMargin	-0.006 ($<.0001$) ^{***}	0.000 (0.641)
Stkretstd	-0.044 (0.143)	-0.093 ($<.0001$) ^{***}
IssueSize	0.045 (0.000) ^{***}	0.024 (0.110)
YTM	0.032 (0.044) ^{**}	0.004 (0.055) [*]
Seniority	-0.029 (0.601)	-0.168 ($<.0001$) ^{***}
Adj R-square	0.093	0.044
N	7,401	27,984
Industry Fixed Effects	Yes	Yes
Time Fixed Effects	Yes	Yes

Table 9: The Informativeness of Moody's Ratings - EDF

Column 1 (Column (2)) presents results from estimating Model (1) (Model (2)) on the sample of new bonds issues (outstanding bond issues) over the period Q3 2001 to 2010. The dependent variable for Column 1 is *RatingDiff*, which is S&P numerical rating minus Moody's numerical rating on the same bond. The dependent variable for Column 2 is *LeadTimeDiff*, which is the fraction of a quarter where Moody's assigns a higher rating minus the fraction of a quarter where S&P assigns a higher rating. *Moody's_related* takes the value of one if the bond is issued by an important investee firm of Moody's two stable large shareholder, Berkshire Hathaway and Davis Selected Advisors. *EDF* refers to a firm's Expected Default Frequency, which is estimated following Duffie, Saita, and Wang (2007). Control variables for Model (1) and Model (2) are as defined as in Tables 4 and 7. Heteroscedasticity adjusted robust *p*-values are provided below each estimates.

	1.New Issues	2.All Issues
Intercept	0.098 (0.658)	-0.309 (<.0001)***
Moody's_related	0.297 (<.0001)***	0.061 (0.001)**
EDF	-0.676 (0.000)***	0.034 (0.130)
Moody's_related*EDF	-0.401 (0.391)	0.096 (0.580)
IssuerSize	0.063 (0.000)***	0.003 (0.363)
Leverage	-0.542 (<.0001)***	0.047 (0.024)**
OpMargin	-0.214 (0.019)**	0.000 (0.001)**
Stkretstd	-0.275 (0.195)	0.014 (0.024)**
IssueSize	0.038 (0.000)***	-0.020 (<.0001)***
YTM	-0.035 (0.035)**	0.004 (<.0001)***
Seniority	-0.273 (<.0001)***	-0.127 (<.0001)***
Adj R-square	0.449	0.106
N	8,500	27,984
Industry Fixed Effects	Yes	Yes
Time Fixed Effects	Yes	Yes

Table 10: The Informativeness of Moody's Ratings – CDS Spreads

The table presents results from estimating Model (3). The sample for Column 1 (Column 2) includes all downgrades (upgrades) by either Moody's or S&P. The dependent variable for both Columns is *CDSCHG*, which is the spread changes for the five-year CDS contract from day -1 to day +1, where day 0 is the day of the rating change. *SPdum* (*MRdum*) takes the value one if the rating change is by S&P (Moody's). *Moody's_related* takes the value of one if the bond is issued by an important investee firm of Moody's two stable large shareholder, Berkshire Hathaway and Davis Selected Advisors. *CDSCHG_LAG* is the CDS spread change from day-10 to day -2. *RatingCHG* is the absolute magnitude of the rating change. *CROSSdum* is a dummy variable equal to one if a rating change crosses the investment and speculative-grade boundary. *DAYS* is the natural log of the number of days since the previous rating change in the same direction. Heteroscedasticity adjusted robust *p*-values are provided below each estimates.

	1.Downgrade	2.Upgrade
SPdum	0.157 (0.098)*	0.000 (0.994)
MRdum	0.233 (0.045)**	-0.003 (0.947)
MRdum*Moody's_related	0.177 (0.463)	0.013 (0.373)
CDSCHG_LAG	0.255 (0.034)**	0.032 (0.756)
RatingCHG	-0.004 (0.937)	0.008 (0.671)
CROSSdum	-0.146 (0.557)	0.033 (0.457)
DAYS	-0.019 (0.212)	-0.004 (0.372)
Adj Rsquare	0.074	0.008
N	1,047	618

Table 11: Summary information on McGraw-Hill's ownership structure

McGraw-Hill's ownership data are obtained from Thomson-Reuters Institutional Holdings (13F) for the period Q4 2001 to 2010, spanning 37 quarters. A shareholder of McGraw-Hill is classified as a large shareholder in a given quarter if it owned at least 5% of McGraw-Hill in each of the past four quarters. McGraw-Hill does not have stable large shareholders during the sample period. It has only 4 transient large shareholders. An investee firm of a shareholder is considered important if it accounts for at least 0.25% of the shareholder's portfolio in each of the past four quarters. Important investee firms of the transient large shareholders are considered as being *Transiently McGrawHill related*. Panel A provides summary information on McGraw-Hill's shareholders and their investee firms. Panel B lists McGraw-Hill's shareholders that are classified as large shareholders for at least one quarter during the sample period. Panel C provides summary statistics on the quarterly holdings of these large shareholders of McGraw-Hill.

Panel A: Summary information on McGraw-Hill's shareholders and their investee firms

	Mean	Median	Min	Max	STD	N
Number of Shareholders	504	483	398	640	71	37
Number of Large Shareholders	1	1	1	2	0	19
Number of Investee Firms of Large Shareholders	2,927	3,082	460	4,474	974	19
Number of Transiently McGrawHill related firms	64	65	48	93	13	19

Panel B: Summary information on McGraw-Hill's large shareholders

Firm Name	Number of Quarters Classified as Large Owner	Number of Investees per Quarter	Number of Large Investees per Quarter
GOLDMAN SACHS & COMPANY	11	3,622	55
T. ROWE PRICE ASSOCIATES	7	1,959	72
BARCLAYS BANK	2	4,352	47
CAPITAL WORLD INVESTORS	1	504	58

Panel C: Summary statistics of McGraw-Hill's large shareholders' quarterly

Firm Name	Mean	Median	Min	Max	STD	N
GOLDMAN SACHS & COMPANY	3.4%	4.2%	0.0%	7.5%	2.7%	37
T. ROWE PRICE ASSOCIATES	3.0%	0.6%	0.2%	10.5%	3.7%	37
BARCLAYS BANK	5.1%	4.4%	3.1%	10.2%	2.4%	31
CAPITAL WORLD INVESTORS	9.1%	10.4%	1.8%	12.2%	4.0%	6

Table 12: S&P's bias toward McGraw-Hill's large shareholders

Column 1 (Column 2)) presents results from re-estimating Model (1) (Model 2)) using *McGrawHill_related_trt* as the key explanatory variable on the sample of new bonds issues (outstanding bond issues) over the period Q4 2001 to 2010. *McGrawHill_related_trt* is a dummy variable takes the value of one if the bond is issued by an important investee firm of a transient large shareholder in a quarter when this shareholder is classified as McGraw-Hill's large shareholder. The dependent variable for Column 1 is *RatingDiff*, which is S&P numerical rating minus Moody's numerical rating on the same bond. The dependent variable for Column 2 is *LeadTimeDiff*, which is the fraction of a quarter where Moody's assigns a higher rating minus the fraction of a quarter where S&P assigns a higher rating. Control variables for Model (1) and Model (2) are as defined as in Tables 4 and 7. Heteroscedasticity adjusted robust *p*-values are provided below each estimates.

	1.New Issues	2.All Issues
Intercept	-1.774 (<.0001)***	-0.146 (0.002)**
McGrawHill_related_trt	-0.100 (0.297)	0.045 (0.191)
IssuerSize	0.094 (<.0001)***	-0.001 (0.780)
Leverage	-0.678 (<.0001)***	0.043 (0.020)**
OpMargin	-0.134 (0.197)	0.000 (0.001)***
Stkretstd	-0.580 (0.050)**	-0.012 (0.013)**
IssueSize	0.036 (0.000)***	-0.018 (<.0001)***
YTM	-0.039 (0.028)**	0.004 (<.0001)***
Seniority	-0.264 (<.0001)***	-0.133 (<.0001)***
Adj R-square	0.435	0.105
N	8,500	27,984
Industry Fixed Effects	Yes	Yes
Time Fixed Effects	Yes	Yes

Table 13: Summary information on Dun & Bradstreet's ownership structure

Dun & Brad's ownership data are obtained from Thomson-Reuters Institutional Holdings (13F) for the period 1991 to Q3 2000, spanning 39 quarters. A shareholder of Dun & Bradstreet is classified as a large shareholder in a given quarter if it owned at least 5% of Dun & Bradstreet in each of the past four quarters. Dun & Bradstreet does not have stable large shareholders during the sample period. It has only 3 transient large shareholders. An investee firm of a shareholder is considered important if it accounts for at least 0.25% of the shareholder's portfolio in each of the past four quarters. Important investee firms of the transient large shareholders are considered as being *Transiently D&B related*. Panel A provides summary information on Dun & Bradstreet's shareholders and their investee firms. Panel B lists Dun & Bradstreet's shareholders that are classified as large shareholders for at least one quarter during the sample period. Panel C provides summary statistics on the quarterly holdings of these large shareholders of Dun & Bradstreet.

Panel A: Summary information on Dun & Bradstreet's shareholders and their investee firms

	Mean	Median	Min	Max	STD	N
Number of Shareholders	365	407	16	469	88	39
Number of Large Shareholders	1	1	1	2	0	22
Number of Investee Firms of Large Shareholders	714	697	240	1,151	237	22
Number of Transiently D&B Related Firms	97	93	46	136	24	22

Panel B: Summary information on Dun & Bradstreet's large shareholders

Firm Name	Number of Quarters Classified as Large Owner	Number of Investees per Quarter	Number of Large Investees per Quarter
CAPITAL RESEARCH & MANAGEMENT	14	654	84
HARRIS ASSOCIATES	7	242	42
INVESCO CAPITAL MANAGEMENT	6	692	89

Panel C: Summary statistics of Dun & Bradstreet's large shareholders' quarterly stake

Firm Name	Mean	Median	Min	Max	STD	N
CAPITAL RESEARCH & MANAGEMENT	4.6%	4.7%	0.9%	7.7%	2.0%	38
HARRIS ASSOCIATES	3.6%	0.0%	0.0%	12.7%	4.7%	36
INVESCO CAPITAL MANAGEMENT	4.1%	4.1%	0.0%	6.5%	1.5%	39

Table 14: Moody's bias toward Dun & Bradstreet's large shareholders prior to its IPO

Column 1 (Column 2)) presents results from re-estimating Model (1) (Model (2)) using *D&B_related_trt* as the key explanatory variable on the sample of new bonds issues (outstanding bond issues) over the period 1991 to Q3 2000. *D&B_related_trt* is a dummy variable takes the value of one if the bond is issued by an important investee firm of a transient large shareholder in a quarter when this shareholder is classified as Dun & Bradstreet's large shareholder. The dependent variable for Column 1 is *RatingDiff*, which is S&P numerical rating minus Moody's numerical rating on the same bond. The dependent variable for Column 2 is *LeadTimeDiff*, which is the fraction of a quarter where Moody's assigns a higher rating minus the fraction of a quarter where S&P assigns a higher rating. Control variables for Model (1) and Model (2) are as defined as in Tables 4 and 7. Heteroscedasticity adjusted robust *p*-values are provided below each estimates.

	New Issues	All Issues
Intercept	-0.708 ($<.0001$) ^{***}	1.175 ($<.0001$) ^{***}
D&B_related_trt	-0.015 (0.840)	0.028 (0.141)
IssuerSize	0.042 (0.009) ^{***}	0.012 (0.000) ^{***}
Leverage	-0.190 (0.124)	0.115 ($<.0001$) ^{***}
OpMargin	-0.006 ($<.0001$) ^{***}	0.000 (0.243)
Stkretstd	-0.030 (0.255)	-0.093 ($<.0001$) ^{***}
IssueSize	0.046 (0.000) ^{***}	0.023 ($<.0001$) ^{***}
YTM	0.033 (0.037) ^{**}	0.004 ($<.0001$) ^{***}
Seniority	-0.033 (0.542)	-0.168 ($<.0001$) ^{***}
Adj R-square	0.092	0.044
N	7,401	27,984
Industry Fixed Effects	Yes	Yes
Time Fixed Effects	Yes	Yes

Table 15: Summary information on the issuance of Commercial Mortgage Backed Securities (CMBS)

This table provides summary information on the issuance of Commercial Mortgage Backed Securities (CMBS) from Q4 2001 to 2010. *Percentage Rated by Moody's (Percentage Rated by S&P)* refers to the percent of total number of CMBS tranches rated by Moody's (S&P). Similarly, *Percentage Rated by both* refers to the percent of total number of CMBS tranches rated by both rating agencies. The data are obtained from Bloomberg.

Year	Number of Deals	Par Amount (\$ Billion)	Total Number of Tranches	Percentage Rated by Moody's	Percentage Rated by S&P	Percentage Rated by both
2001(Q4 only)	32	51	517	58%	70%	46%
2002	76	138	1,342	61%	75%	49%
2003	104	224	1,794	57%	73%	44%
2004	109	273	2,078	59%	72%	47%
2005	116	464	2,524	58%	73%	46%
2006	133	527	2,743	63%	69%	45%
2007	117	530	2,485	58%	73%	43%
2008	22	46	350	61%	73%	54%
2009	22	16	197	45%	8%	2%
2010	35	43	323	35%	18%	2%
Total	766	2,313	14,353	8,405	10,053	6,321

Table 16: List of CMBS issuers and their relation to Moody's and S&P

Panel A presents a list of CMBS issuers who are classified as being *Moody's related* for at least one quarter over our sample period, i.e., from Q4 2001 to 2010. We present the number of deals (*Ndeals*), total par amount (*Par Amount*), and number of tranches (*Ntranches*) of the CMBSs issued by each firm both when it is related to Moody's and it is not. Panel B (Panel C) reports the same information for the list of CMBS issuers who are classified as being *Transiently Moody's related* (*Transiently Mc-GrawHill related*) for at least one quarter over our sample period.

Firm	in quarters when a firm is related to a rating agency			in quarters when a firm is not related to a rating agency		
	Ndeals	Par Amount (\$ Billion)	Ntranches	Ndeals	Par Amount (\$ Billion)	Ntranches
Panel A: List of CMBS issuers related to the stable large shareholders of Moody's						
JP Morgan	23	138.218	473	30	94.617	478
Morgan Stanley	21	58.464	334	5	7.974	61
Citigroup	18	87.845	394	1	2.239	19
Bank of America	2	4.395	53	45	180.878	740
General Electric	2	12.566	31	15	28.425	152
Wachovia Bank	1	2.933	23	39	204.002	746
Sum	67	304.421	1,308	135	518.136	2,196
Panel B: List of CMBS issuers related to the transient large shareholders of Moody's						
Bank of America	14	54.354	256	33	130.919	537
JPMorgan	12	66.340	234	41	166.495	717
Wachovia Bank	10	54.873	219	30	152.062	550
Citigroup	4	19.046	82	15	71.039	331
General Electric	3	7.539	37	14	33.452	146
Sum	43	202.151	828	133	553.967	2,281
Panel C: List of CMBS issuers related to transient large shareholders of McGraw-Hill						
JPMorgan	26	162.246	550	27	70.589	401
Wachovia Bank	16	103.611	335	24	103.324	434
Bank of America	16	65.634	302	31	119.639	491
Citigroup	9	63.989	193	10	26.096	220
General Electric	8	23.026	82	9	17.965	101
Goldman Sachs	3	16.320	47	10	41.220	125
Sum	78	434.826	1,509	111	378.833	1,772

Table 17: Relative ratings on CMBSs by firms related to Moody's

The table presents summary statistics on *RatingDiff* for different groups of CMBSs over the period Q4 2001 to 2010. *RatingDiff* is S&P's numerical rating minus the Moody's numerical rating on the same tranche. In Panel A, CMBSs are divided into various groups based on their issuers' relation with Moody's two stable large shareholders: Berkshire Hathaway and Davis Selected Advisors. Group 1 includes CMBSs issued by important investees of Moody's stable large shareholders. Group 2 includes the other CMBSs in our sample. Group 3 include CMBSs issued by firms who are *Moody's related* for at least quarter, but at times when they are not related to Moody's. In Panel B, CMBSs are divided into various groups based on their issuers' relation with Moody's stable and transient large shareholders. Group 1 includes CMBSs issued by important investees of Moody's stable large shareholders. Group 2 includes CMBSs issued by important investees of Moody's transient large shareholders. Group 3 includes CMBSs related to Moody's transient large shareholders, but not stable large shareholders, i.e., those from Group (2) but not Group (1). Group 4 includes all our sample CMBSs that do not belong to Group (1) or Group (3), i.e., not related to Moody's stable and transient large shareholders. Group 5 includes CMBSs issued by those firms who are related to Moody's large shareholders for at least one quarter, but at times when they are not related.

	Mean	Median	N
Panel A: Moody's stable large shareholders			
Moody's related issues (1)	-0.011	-0.000	1,308
All Non-related issues (2)	-0.065***	-0.000***	5,013
Non-related issues by issuers related to Moody's at least once (3)	-0.039***	-0.000***	2,196
Difference Test (<i>p</i> -value):			
(1) versus (2)	0.000***	0.003***	
(1) versus (3)	0.036**	0.158	
Panel B: Moody's transient large shareholders			
Moody's related issues(1)	-0.011	-0.000	1,308
Transiently Moody's related issues (2)	-0.019	-0.000	828
Transiently Moody's related but not Moody's related issues (3)	-0.028	-0.000	675
All Non-related issues (4)	-0.071***	-0.000***	4,338
Non-related issues by issuers related to Moody's at least once (5)	-0.044***	-0.000***	1,521
Difference Test (<i>p</i> -value):			
(1) versus (4)	0.000***	0.001***	
(2) versus (4)	0.002***	0.000***	
(3) versus (4)	0.028**	0.005***	
(1) versus (5)	0.024**	0.057*	
(2) versus (5)	0.086*	0.020**	
(3) versus (5)	0.221	0.048**	

Table 18: Relative ratings on CMBSs by firms related to McGraw-Hill

The table presents summary statistics on *RatingDiff* for different groups of CMBSs over the period Q4 2001 to 2010. *RatingDiff* is S&P's numerical rating minus the Moody's numerical rating on the same tranche. In Panel A, CMBSs are divided into various groups based on their issuers' relation with McGraw-Hill's transient large shareholders. Group 1 includes CMBSs issued by important investees of McGraw-Hill's transient stable large shareholders. Group 2 includes the other CMBSs in our sample. Group 3 include CMBSs issued by firms who are *Transiently McGrawHill related* for at least one quarter, but at times when they are not related to *McGraw-Hill*. In Panel B, CMBSs are divided into various groups based on their issuers' relation with Moody's and McGraw-Hill's large shareholders. Group 1 includes CMBSs which are only related to Moody's, i.e., those issued by important investees of Moody's stable or transient large shareholders. Group 2 includes CMBSs only related to McGraw-Hill, i.e., those issued by important investees of McGraw-Hill transient large shareholders. Group 3 includes CMBSs related to both Moody's and McGraw-Hill. Group 4 includes all our sample CMBSs that do not belong to the first 3 groups, i.e., not related to Moody's and McGraw-Hill. Group 5 includes CMBSs issued by those firms who are related to either Moody's or McGraw-Hill for at least one quarter, but at times when they are not related. ***, **, * represent significance at 1%, 5% and 10% level, respectively.

	Mean	Median	N
Panel A: McGraw-Hill transient large shareholders			
Transiently McGraw-Hill related issues (1)	-0.047***	-0.000***	1,509
All other issues (2)	-0.056***	-0.000***	4,812
Non-related issues by issuers transiently related to McGraw-Hill at least once (3)	-0.038***	-0.000***	1,772
Difference Test (<i>p</i> -value):			
(1) versus (2)	0.524	0.202	
(1) versus (3)	0.293	0.321	
Panel B: Moody's related versus McGraw-Hill related			
Moody's related or Transiently Moody's related issues only (1)	0.008	0.000	779
Transiently McGrawHill related issues only (2)	-0.105***	-0.000***	305
Related to both Moody's and Mc-GrawHill (3)	-0.032***	-0.000***	1,204
All other issues (4)	-0.068***	-0.000***	4,033
Non-related issues by related issuers (5)	-0.070***	-0.000***	1,388
Difference Test (<i>p</i> -value):			
(1) versus (4)	0.000***	0.000***	
(2) versus (4)	0.237	0.679	
(3) versus (4)	0.020**	0.012**	
(1) versus (5)	0.001***	0.000***	
(2) versus (5)	0.135	0.234	
(3) versus (5)	0.021**	0.019**	