# Does it matter who owns Moody's?

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**Comments welcome**

**Abstract:**

This paper examines the potential influence of Moody's ownership structure on its rating policies. Following Moody's IPO in 2000, Moody's had two shareholders, Berkshire Hathaway and Davis Selected Advisors, who collectively own about 23.5% of Moody's for the entire sample period from 2001 to 2010. We document that Moody's ratings on corporate bonds issued by important investee firms of these two long term 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 through a long term large shareholding in McGraw-Hill, S&P's parent, has a small and weak impact on S&P's ratings. The evidence suggests that direct and long term 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

# Does it matter who owns Moody's?

## 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

[1] http://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 credit rating 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 capital structure (Kisgen 2006), its cost of capital (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 the past quarter. Of the ten such large shareholders, two of them, Berkshire Hathaway and Davis Selected Advisors are unique. First, these two are the largest shareholders as Berkshire Hathaway owns on average 16.5% and Davis Selected Advisors owns an average of 7% of Moody's. Second, their stake is stable as both of them own 5% or more of Moody's for the entire 40 quarters of the sample period. 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 preferential treatment of its large shareholders, via higher ratings on their investee or portfolio firms, is more likely to be observed when the large shareholder has a long term interest in Moody's and when the investee constitutes a material investment for

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

the long term large shareholder. We therefore classify a large shareholder as a *long term large shareholder* if it holds at least 5% of Moody's for the past 12 quarters. We classify an investee firm as *large* if it accounts for at least 0.25% of the large shareholder's portfolio for each of the past four quarters.[3] Bonds issued by these *large* investee firms of Moody's *long term large shareholders*, are regarded as being *related* to Moody's and referred to as *MR_LT*. We investigate whether Moody's assigns favorable ratings to bonds by these firms.

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.[4] 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 9,550 new bonds issued from 2001 to 2010. We find that after controlling for firm and issue characteristics, industry and time fixed effects, Moody's ratings are 0.46 notches higher than S&P for bonds issued by *large* investees of

[3] We perform robustness around these criteria that are discussed later in the paper. Different cut-offs lead to qualitatively similar results.

[4] 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 *long term large shareholders*. This relatively higher rating by Moody's on *related* bonds is robust (i) to various criteria for identifying bonds *related* to Moody's; (ii) when Fitch instead of S&P is used as a benchmark; and (iii) to Fama-Macbeth estimations instead of pooled regressions.

We then examine whether Moody's favorable treatment toward its owners is also observed for its ratings on 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 71 days in downgrading bonds *related* to its *long term large shareholders*. 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 both magnitude and timing. Again, we find that Moody's, relative to S&P, tends to favor bonds issued by *large* investees of its *long term large shareholders*.

However, it is possible that Moody's favorable ratings towards *related* bonds are not due to ownership, 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 potentially omitted common 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 *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 *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 *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 *large* investee firms of McGraw-Hills's *long term large shareholders*. We find one shareholder, Goldman Sachs, who is classified as a *long term large shareholder* of McGraw Hill for 3 quarters over the sample period. S&P gives favorable ratings to the new bond

issues, though not to outstanding bonds, of *large* investees of McGraw Hill's *long term large shareholder*. The evidence suggests some, though much weaker, effect of indirect ownership on credit ratings.

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. Consequently, we examine structured products keeping in mind the caveats discussed above. Specifically, 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 first quarter of 2001 to 2010. Our final sample includes 15,681 tranches in 840 CMBS issues. CMBS issuance increased from $138 billion in 2002 to $530 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 defined as the numerical rating assigned by S&P minus that assigned by Moody's on the same tranche. Tranches issued by *large* investees of Moody's *long term large shareholders* are regarded as *related* to Moody's and are referred to as *MR_LT*. Consistent with the results for corporate bonds, Moody's is relatively more favorable towards *related* tranches. However, we find no evidence that S&P is relatively more

favorable towards tranches issued by *large* investees of McGraw Hill's *long term large shareholders*.

To ensure that ownership in Moody's, rather than other omitted factors are behind these favorable ratings, we compare *related* tranches to other tranches by the same issuer 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.[5] 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.

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 that 5% of the rating agency.[6]

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 on 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.

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

## 2. Literature Review

The paper is related to two streams of literature, the first on credit ratings and the second on large shareholders. 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, He, Qian, and Strahan 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 largest 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 as 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, which 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 Mikkelson 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 in 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. We classify a shareholder as large for a given quarter if it holds at least 5% of Moody's in the prior quarter. As we require one quarter of data to identify large shareholders, our period of study starts from the first quarter of 2001 and extends for 40 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 363 institutional shareholders, and an average of three large shareholders every quarter. Panel B presents the list of ten shareholders, which are classified as large for at least one quarter over our sample period. Two large shareholders, Berkshire Hathaway and Davis Selected Advisors, are classified as large shareholders for every quarter over the sample period. They are also the two largest shareholders of Moody's. 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 5.5% and 8.1%.

We next look at the portfolio or investee firms of these large shareholders. As there are a lot of investee firms, we use various cutoffs to identify which of the investee firms is important. For most of the paper, we classify an investee firm as *large* if it accounts for at

least 0.25% of the portfolio in each of the past four quarters.[7] Based on this criterion, 18 of the 32 portfolio firms of Berkshire Hathaway and 44 of the 181 portfolio firms for Davis Selected are classified as *large* (See Panel B).

*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 9,550 new bonds issued by 972 firms from 2001 to 2010.

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 $325 million with 10 years to maturity (Table 3). On average, the issuing firm has market capitalization of $189 billion and a leverage ratio (long term debt to total assets) of 30%.

## 4. New Bond Issues

*4.1. Moody's relative ratings*

We examine whether Moody's tends to assign higher ratings to bonds issued by *large* investee firms of Moody's 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

[7] We use 0.25% as the cutoff as it is the 75% percentile 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.

numerical values, a positive *RatingDiff* implies that Moody's assigns a higher rating for the new issue relative to S&P.

Of the total 9,550 new bonds in our sample, 2,302 are issued by large investees of Moody's large shareholders. The dummy variable *MR* takes the value of one for these bonds. The median *Ratingdiff* for these *MR* bonds is one and that for other 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 *MR* bonds. Results are similar when we consider means instead of medians. Further, these results are observed across the various ratings categories, i.e., for high-yield as well as for investment-grade bonds.[8]

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 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 (*Stkretstd*). 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 include the variable of interest, the *MR* dummy. In summary, we estimate the following model:

[8] There are only 17 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.

$$Ratingdiff_i = \gamma_0 + \gamma_1 MR_i + \sum_{j=2}^{8} \gamma_j ControlVar_i^j + \varepsilon_i, \qquad (1)$$

where control variables are as defined above. In addition, we include quarter dummies to control for time trends[9], and industry dummies based on a bond's two-digit industry code from FISD to control for potential 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 *MR* is significant at the 1% level, implying that Moody's gives relatively favorable ratings to *related* new issues.

Institutional investors, including the large shareholders of Moody's, tend to trade frequently. Consequently, large shareholdings in Moody's can be temporary with a 5% holding in one quarter followed by a lower or no holdings in subsequent quarters. If Moody expects the large shareholding to be temporary, they are unlikely to cater to the interests of these large shareholders. To understand this incentive better, we separate large shareholders that are likely to be temporary from those that are likely to be long term. Specifically, an institution is classified as a *long term large shareholder* of Moody's if it holds at least 5% of Moody's in each of the prior 12 quarters. Shareholders with 5% or more stake in Moody's in at least one quarter but less than 12 quarters over the past three years are classified as *short term large shareholders*.[10] The dummy variable *MR_LT* (*MR_ST*) takes the value of one for bonds that are issued by *large* investee firms of Moody's *long term large*

[9] For the existence of time effects, see Liu, Jorion and Shi 2006, Becker and Milbourn 2011, Alp 2012, Bolton, Freixas, Shapiro 2012, and Cornaggia, Cornaggia and Xia 2012.

[10] The three year cutoff is dictated by the data. If Moody's management observes a large stake over several years, it is likely to conclude that this represents long term interests in the firm. In untabulated results we have tried one and two year cutoffs with qualitatively similar results.

*shareholders* (*short term large shareholders*). As we require three years of data to identify long term large shareholders, all large shareholders are classified as being short term prior to the fourth quarter of 2003. A total of 927 bonds are classified as *MR_LT* bonds in our sample.

We find that there are only two institutions – Berkshire Hathaway and Davis Selected Advisors – that are classified as *long term large shareholders* in the fourth quarter of 2003, and they continue to be classified as such for the entire sample period. None of the other eight large shareholders holds their minimum 5% stake for a long enough time to be ever classified as a *long term large shareholder*. To examine whether favorable ratings are seen for large investees of both *long term large shareholders* and *short term large shareholders*, we include *MR_LT* and *MR_ST* in our specification. As seen in Column 2 of Table 5, the coefficient of *MR_LT* is positive and highly significant while that of *MR_ST* is not significant. The result that Moody's gives relatively favorable ratings to related bonds is almost entirely driven by large investee firms of Moody's *long term shareholders*. Consequently, in the remaining analysis, we focus only on bonds issued by *large* investees of *long term large shareholders* (Column 3).

The analysis with *RatingDiff* provides evidence on Moody's more favorable ratings on *MR_LT* bonds relative to S&P. To ensure that this difference in relative ratings is attributable to favorable ratings from Moody's, rather than tougher ratings from S&P, we examine absolute ratings as well. In particular, we re-estimate the results by using Moody's rating (Column 4) and S&P's rating (Column 5) as the dependent variable. We find significant evidence of laxer ratings from Moody's for *MR_LT* bonds, as the coefficient on *MR_LT* in Column 4 is negative and significant at the 1% level. We find no evidence that

S&P ratings for these bonds are tougher (See Column 5). The results suggest that relatively favorable ratings on *MR_LT* bonds 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) for 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.[11] 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 *MR_LT* remains positive and highly significant.

#### *4.2.2 Different ownership cutoffs for investee firms*

Next, we present results that rely on both a tighter and a looser cutoff to define a *large* investee firm. For the tighter cutoff, we consider an investee firm as *large* 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 90$^{th}$ 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 for the group of most important investee firms. Imposing the

[11] As the *long term large shareholders* are only identified from Q4 of 2003 to the end of 2010, the Fama-MacBeth regressions span 27 quarters.

tighter cutoff drops the number of new bond issues of *MR_LT* firms to 275. However, the empirical results are qualitatively similar to those reported earlier (Column 2 of Table 6). For the looser cutoff - an investee firm is classified as *large* 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, 2,168 bonds get classified as *MR_LT*. As shown in Column 3 of Table 6, this change does not materially impact our results.

*4.2.3 Different time criteria for investee firms*

Along with different criteria for the level of holdings, we also conduct robustness tests with different criteria for the length of time during which investee firms are held by the *long term large shareholders* of Moody's. We begin with a longer holding period – an investee firm is considered as being a *large* investee if it accounts for at least 0.25% of the *long term large shareholders*' portfolio for each of the prior eight quarters instead of prior four quarters. The results with this longer time window are reported in Column 4 and are not materially different from those reported earlier (Column 2 of Table 6). We also try the shorter holding period that requires *important* investee firms to account for 0.25% of the *long term large shareholders*' portfolio for each of the prior two quarters. Once again, this does not materially impact the results. As seen in Column 5 – the coefficient of *MR_LT* continues to be positive and highly significant.

*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.[12] As Fitch is smaller than S&P, the number of new

[12] 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%.

bond issues that are rated by both Fitch and Moody's is lower at 8,546. *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 *MR_LT* is positive and highly significant (Column 6 of Table 6). Even in comparison to Fitch, Moody's gives higher ratings to *related* new bonds.

## 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. A straightforward way to address this issue is to examine whether Moody's is relatively faster to upgrade and slower to downgrade bonds issued by *related* firms. 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.[13] We attempt to identify the same rating change as one where 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 566 such identical rating changes by Moody's and S&P, of which 398 are downgrades and the rest are upgrades.

To examine the timeliness of the same rating changes by the two agencies, 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

[13] For example, consider the following typical case with three rating events: (i) S&P downgrades a bond by one notch from AA- to A+ in May 1999; (ii) Moody's downgrades the same bond by the equivalent of three notches, from AA to A, in July 1999; and (iii) finally, S&P downgrades the bond by two notches again from A+ to A- in September 1999. This example highlights the difficulty in identifying a rating change from the same level and of the same magnitude by both rating agencies.

in the ratings change. We then regress *LeadDays* on *MR_LT* and all the control variables used in Model (1). For the sample of downgrades, the coefficient of *MR_LT* is -71 and highly significant, suggesting that Moody's is about 71 days slower, relative to S&P, in downgrading bonds issued by *large* investee firms of Moody's *long term large shareholders* (Column 1 of Table 7). The coefficient on *MR_LT* for the upgrade sample is positive, though is not statistically significant.[14]

Because we can find only a small number of identical rating changes by both agencies, we adopt an alternate approach to examine 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. *S&PLeadDum* is created in a similar way. 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* for any given bond in any given quarter. Because rating actions tend to be the same on all bonds by the same firm, we average the *LeadTimeDiff* variable across bonds by the same issuer to get a firm quarter estimate. A positive *LeadTimeDiff* suggests that Moody's rating on a firm's bonds is higher than S&P's for a larger fraction of the quarter. We then estimate the following empirical model:

$$LeadTimeDiff_i = \gamma_0 + \gamma_1 MR\_LT_i + \sum_{j=2}^{8} \gamma_j ControlVar_i^j + \varepsilon_i \qquad (2)$$

where the control variables, like before, 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

[14] This is not surprising as out of the 168 identical upgrades, only five belong to Moody's *related* firms.

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 *MR_LT* is positive and significant at the 1% level. Outstanding bonds issued by large investee firms of Moody's long term 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 various criteria 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 relative laxity towards the bonds issued by *large* investees of its *long term large shareholders*.

## 6. Alternate Explanations

### *6.1 Common criteria*

A potential alternate explanation for our findings is that firm characteristics which lead Berkshire Hathaway and Davis Selected Advisors, the *long term large shareholders* of Moody's, to increase their investment in portfolio firms – making them *large* investees – also affect Moody's risk assessment and its higher rating. In other words, the *long term 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 or not.

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 *large* 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.[15] Like before, we create a dummy variable, *Important*, that takes the value of one for bonds issued by *large* investee firms of Berkshire Hathaway or Davis Selected Advisors based on prior criteria. We then estimate Model (1) including this dummy variable.

The coefficient of *Important* is positive but not significant (Column 1 of Table 8). Moody's did not assign favorable ratings to new bond issues of *large* 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 long term 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 Hathaway or Davis Selected Advisors could generate private information that makes Moody's ratings relatively more informative and accurate for bonds issued by *related* investee firms. It is worth noting, however, that an informed Moody's does not automatically imply favorable ratings. When Moody's information about *related* bonds is negative, its ratings should be tougher than S&P's. However, we examine the

[15] Over this period, Moody's is owned by Dun & Bradstreet, but neither Berkshire Hathaway nor Davis Selected Advisors are large shareholders of Dun & Bradstreet.

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.[16]

*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 *MR_LT* in Model (1) and Model (2). If Moody's relatively higher ratings on bonds by related firms are more informative, they should be associated with a lower EDF, and the coefficient of the interaction of *EDF* and *MR_LT* should be negative and significant. As can be seen in Table 9, the coefficient of the interaction of *EDF* and *MR_LT* is insignificant for new issues (column 1) as well as for outstanding issues (Column 2). Overall, there is little evidence that Moody's relatively higher ratings for bonds issued by *large* investees of Moody's *long term large shareholders* 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

[16] We also examined actual bond defaults. Because none of the *MR_LT* new bond issues defaulted within two years of issuance, we cannot ascertain whether higher Moody's ratings of these bonds was associated with lower defaults.

accompanied by a significant drop (increase) in 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.[17] 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.[18] Over the sample period, we have data to calculate changes in CDS spreads over a three-day window for 1,703 rating actions, including 1,071 downgrades and 632 upgrades. Around 50% of both upgrades and downgrades are by Moody's and about 4% of those are for *large* investee firms of *Moody's long term large shareholders*. 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, Predescu, and White (2004)). We then estimate the following model for downgrades and upgrade separately:

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

where *SPdum* (*MRdum*) takes the value of one if the rating change is by S&P (Moody's), and *MR_LT* 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

[17] 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.

[18] 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).

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 *MR_LT* 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 *MR_LT* 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 *MR_LT* 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. Throughout the ten year period following Moody's IPO, S&P remains a subsidiary of McGraw-Hill. In this section, we evaluate whether indirect ownership, through a large holding in the parent firm of S&P, McGraw-Hill also impacts ratings.

Much like Moody's, McGraw Hill through S&P, its ratings division, is also likely to cater to the interests of its *long term large shareholders* by assigning favorable ratings to its

*large* investee firms. However, a direct listing engenders sharper incentives for Moody's executives. For Moody's executives, the value of equity linked compensation is impacted only by the performance of the rating business rather than by the performance of other divisions as in the case of S&P. This clearer focus gives Moody's executives greater incentives to assign favorable ratings to cater to the interests of its *long term large shareholders*. For the large shareholders as well, the performance of the ratings division is likely to have a stronger impact on their decision to hold the stake for the long term in the case of Moody's as opposed to McGraw Hill. Consequently, we expect direct ownership as in the case of Moody's to have stronger effect on rating than indirect ownership through the parent, as in S&P's case.

A study of McGraw-Hill's ownership structure reveals that it has, on average, 496 shareholders each quarter (Panel A, Table 11). A total of six investment management firms are classified as large shareholders, based on our criteria, in at least one quarter over the sample period. Only one large shareholder, Goldman Sachs, is classified as a *long term large shareholder* for only 3 quarters during our sample period(Panel B of Table 11).

As before, we identify *large* investee firms of McGraw-Hill's *long term large shareholders*. We find that, on average, there are 59 *large* investees of Goldman Sachs in the three quarters that it is deemed a *long term large shareholder* of McGraw Hill. These *large* investee firms issued 179 new bonds in the three quarters. To study the effect of McGraw-Hill's *long term large shareholders* on S&P ratings, we create a dummy variable, *McGraw_LT*, which is equal to one if a bond is issued by a *large* investee of a *long term large shareholder* of McGraw Hill, and estimate Model (1) and Model (2) by using *McGraw_LT*, instead of *MR_LT*, as the key explanatory variable. If S&P gives favorable

ratings to its parent's *long term large shareholders*, we would expect a negative and significant coefficient on *McGraw_LT*.[19]

As seen in Column 1 of Table 12, the coefficient on *McGraw_LT* is negative and significant for new issues. This suggests that S&P is favorable towards the interests of its parent's *long term large shareholders*. However, it is possible that some of the large investee firms of McGraw Hill's *long term shareholders* are also held by Moody's *long term large shareholders*. To understand this better, we create *McGraw_LT Only* which takes the value of one for bonds that are issued by McGraw Hill *related* firms but not Moody's *related* firms. Similarly, the dummy *MR_LT Only* takes the value one for bonds that are issued by *large* investees of Moody's *long term shareholders* who are not related to McGraw Hill. Finally, the dummy variable *Both* takes the value of one for the 25 bonds issued by firms that are *related* to both McGraw Hill and Moody's. As seen in Model 2, after controlling for Moody's *related* firms, there continues to be some evidence that S&P gives relatively better ratings to the bonds issued by the *large* investee firms of its parent's *long term large shareholders*. As before, there is strong evidence that Moody's gives favorable ratings for *large* investees of its *long term large shareholders*. For bonds that are *related* to both Moody's and McGraw Hill, the biases counter each other and there is no significant observed relative bias.

For outstanding bonds, there is no evidence that S&P gives favorable ratings to *large* investees of its parent's *long term shareholders* (See Columns 3 and 4). This might be due

[19] 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*.

to the fact that rating stability is another goal of rating agencies, and it is difficult to test for any bias on outstanding bonds given that *long term large shareholders* can be identified for only 3 out of the 40 quarters in our sample. As before, there continues to be significant evidence that Moody's gives favorable ratings to its related outstanding bonds. In summary, there is some evidence in new bond issues that indirect ownership in the parent firm of the rating agency is also associated with favorable treatment. The impact of indirect ownership is however confined to new bond issues (not seen in outstanding bonds) and is not as strong as the effect of direct ownership seen in the case of Moody's ratings.

**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 1,043 CMBS deals with a total of 17,364

tranches. After removing agency-related CMBS (Freddie and Fannie), we are left with a final sample of 840 CMBS issues that span 15,681 tranches.

We choose to study CMBS for several reasons. First, the majority of CMBS issues are non-agency securities 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.[20]

Table 13 presents summary data on the total issuance of CMBS over our sample period. The issuance of CMBS increased from $138 billion in 2002 to $530 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, 6,606 or about 44% of the 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

[20] 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.

Moody's on the same tranche.[21] In line with prior analyses, we create a dummy variable *MR_LT* if the deal was issued by a *large* investee firm of Moody's *long term large shareholders*. There are six CMBS issuers that are classified as *MR_LT* for at least one quarter (Panel A of Table 14) and account for 55% of our sample tranches. About a third of the tranches issued by these six issuers were in periods when they are *related* to Moody's. 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 *long term large shareholders* of Moody's for most of the sample period, JP Morgan was not always a *large* investee firm for them, with its weight in their portfolios falling below 0.25% in some quarters.

In a similar vein, we also classify CMBS issues by *large* investee firms of McGraw Hill's *long term large shareholders* which are referred to as *McGraw_LT*. As seen in panel B, there are five issuers that are classified as being *related* to McGraw Hill in at least one quarter in our sample. Four of the five issuers that are *related* to McGraw Hill are also *related* to Moody's. As we examine relative ratings, if the issuer is related to both rating agencies they are likely to get favorable ratings from both, leaving little observable bias in the relative ratings. To isolate such cases, we create *MR_LT Only* (*Mcgraw_LT Only*) that takes the value of one for tranches that are issued by *large* investees of only Moody's

[21] 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).

(McGraw Hill's) *long term large shareholders*. The dummy variable *Both* takes the value of one for tranches by issuers that are large investee firms of both Moody's and McGraw Hill's *long term large shareholders*.

The average value of *RatingDiff* for the different groups is displayed in Table 15. In the CMBS market, Moody's is significantly tougher than S&P on average. The average *RatingDiff* for the 5,281 unrelated (to any rating agency) tranches is a significant -0.062 as seen in Panel A for Group 2. Though, Moody's is on average tougher than S&P, this toughness is not seen for *related* tranches. The mean *RatingDiff* for tranches classified as *MR_LT Only* is 0 and not significant. This difference between the average *RatingDiff* for *related* and unrelated tranches is significant. A similar effect is also seen when we examine medians, Moody's being significantly less tough on *related* tranches.

The average value of *RatingDiff* for *McGraw_LT Only* is a -0.023 but this is higher than the mean *RatingDiff* for unrelated tranches. S&P tends to give more favorable ratings to all tranches but relatively less so to *related* tranches. This counter intuitive result is significant only at the 10% level and not significant when we examine medians. Overall, there is no evidence that a laxer S&P is relatively even easier towards *related* tranches. As expected, there is no relative bias for tranches that are *related* to both agencies. The mean *RatingDiff* for tranches that are *related* to both is not different from that for unrelated tranches.

These results 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 *related* to Moody's to those issued when they are not. As both groups of tranches belong to 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 *MR_LT Only* issues is zero while the average for tranches by the same issuers but in quarters when they were not *related* to Moody's is -0.037 (Panel B, Table 15). This difference in the average *RatingDiff* is significant. Therefore, the result that Moody's gives relatively more favorable ratings to tranches issued by *large* investees of its *long term large shareholders* is unlikely to be attributable entirely due to issuer characteristics. Keeping issuer characteristics constant does not impact S&P results as well – there is still no evidence that S&P gives relatively favorable ratings to the *large* investee firms of its parent's *long term large shareholders*.

**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 and CMBS issued by *large* investees of its *long term large shareholders* are more favorable relative to S&P's ratings on the same issue. We do not find evidence of favorable treatment by Moody's towards the *large* investees of its post-IPO *long term large shareholders* (i.e., Berkshire Hathaway and Davis Selected Advisors) prior to its IPO. This result suggests that omitted firm characteristics regarded as important by both Moody's and its *long term 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 the type of ownership. Favorable ratings are seen for the *large* investees of *long term large shareholders* with no discernable effect for *short term large shareholders*. Also, the results suggest the importance of direct ownership as in the case of Moody's. Indirect ownership, through large holdings in McGraw Hill, S&P's parent firm is associated with some favorable treatment in new corporate bonds but none in outstanding corporate bonds or CMBS issues. 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**

An institutional shareholder of Moody's is classified as a large shareholder in a given quarter if it owned at least 5% of Moody's in the prior quarter. An investee firm of a shareholder is classified as being large if it accounts for at least 0.25% of the shareholder's portfolio in each of the past four quarters. Panel A provides summary information on Moody's shareholders and their investee firms.

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

| | Mean | Median | Min | Max | STD | N |
|---|---|---|---|---|---|---|
| Number of Shareholders | 363 | 356 | 261 | 474 | 61 | 40 |
| Number of Large Shareholders | 3 | 3 | 2 | 5 | 1 | 40 |
| Number of Investees of Large Shareholders | 1,846 | 1,708 | 169 | 4,724 | 1,688 | 40 |
| Number of Large Investees of Large Shareholders | 90 | 88 | 50 | 176 | 36 | 40 |

**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 | 40 | 32 | 18 |
| DAVIS SELECTED ADVISERS | 40 | 181 | 44 |
| GOLDMAN SACHS | 9 | 3,571 | 55 |
| CAPITAL RESEARCH GBL INVESTORS | 5 | 488 | 55 |
| CAPITAL WORLD INVESTORS | 5 | 504 | 58 |
| BARCLAYS | 5 | 4,374 | 48 |
| SANDS CAPITAL MANAGEMENT | 4 | 47 | 18 |
| FIDELITY MGMT & RESEARCH | 4 | 2,887 | 56 |
| HARRIS ASSOCIATES | 2 | 226 | 66 |
| MSDW & COMPANY | 2 | 3,680 | 49 |

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

| Firm Name | Mean | Median | Min | Max | STD | N |
|---|---|---|---|---|---|---|
| BERKSHIRE HATHAWAY | 16.4% | 16.2% | 12.1% | 20.4% | 2.0% | 40 |
| DAVIS SELECTED ADVISERS | 6.9% | 6.8% | 5.5% | 8.1% | 0.7% | 40 |
| GOLDMAN SACHS | 2.9% | 2.4% | 0.0% | 7.2% | 2.5% | 40 |
| CAPITAL RESEARCH GBL 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 |
| BARCLAYS | 3.8% | 3.3% | 2.9% | 6.3% | 1.0% | 34 |
| SANDS CAPITAL MANAGEMENT | 3.0% | 3.0% | 0.4% | 5.6% | 1.6% | 28 |
| FIDELITY MGMT & RESEARCH | 2.6% | 2.6% | 0.0% | 9.1% | 2.2% | 40 |
| HARRIS ASSOCIATES | 2.4% | 2.2% | 0.0% | 5.0% | 1.1% | 21 |
| MSDW & COMPANY | 2.3% | 1.8% | 0.2% | 8.1% | 1.8% | 38 |

**Table 2: Distribution of new bond issues across numeric rating categories**

This table provides summary information on Moody's and S&P's credit rating on new bonds issued between the first quarter of 2001 and the last quarter of 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 | 1.65 | AAA | 1.77 |
| Very High Quality | 2 | Aa1 | 0.98 | AA+ | 0.03 |
| | 3 | Aa2 | 3.2 | AA | 1.38 |
| | 4 | Aa3 | 25.49 | AA- | 8.75 |
| High Quality | 5 | A1 | 12.74 | A+ | 21.17 |
| | 6 | A2 | 14.86 | A | 30.43 |
| | 7 | A3 | 8.04 | A- | 4.04 |
| Minimum Investment Grade | 8 | Baa1 | 4.14 | BBB+ | 4.1 |
| | 9 | Baa2 | 5.53 | BBB | 5.75 |
| | 10 | Baa3 | 5.26 | BBB- | 5.1 |
| | | High-yield | | | |
| Low Grade | 11 | Ba1 | 2.04 | BB+ | 2.03 |
| | 12 | Ba2 | 1.74 | BB | 3.36 |
| | 13 | Ba3 | 4.23 | BB- | 2.41 |
| Very Speculative | 14 | B1 | 2.57 | B+ | 3.11 |
| | 15 | B3 | 3.16 | B | 3.1 |
| | 16 | B3 | 2.79 | B- | 2.28 |
| Substantial Risk | 17 | Caa1 | 0.97 | CCC+ | 0.58 |
| | 18 | Caa2 | 0.41 | CCC | 0.49 |
| | 19 | Caa3 | 0.16 | CCC- | 0.07 |
| Very Poor Quality | 20 | Ca | 0.04 | CC | 0.03 |
| | 21 | C | 0.00 | C | 0 |

**Panel B: Summary statistics on numerical ratings**

| | Moody's | | S&P | |
|---|---|---|---|---|
| | Mean | Median | Mean | Median |
| Full Sample | 7.14 | 6.00 | 7.36 | 6.00 |
| Investment-grade | 5.61 | 5.00 | 5.98 | 6.00 |
| High-yield | 14.03 | 14.00 | 13.81 | 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) | 189.46 | 82.82 | 233.86 |
| Leverage | 0.30 | 0.24 | 0.18 |
| Operating Margin | 0.32 | 0.38 | 4.61 |
| Stock Return Standard Deviation | 0.03 | 0.02 | 0.06 |
| Issue Size ($ million) | 324.98 | 66.35 | 1,983.29 |
| Time to Maturity at Issuance (Years) | 9.76 | 7.07 | 8.45 |
| Moody's Ratings | 7.35 | 6.00 | 3.48 |
| S&P Ratings | 7.14 | 6.00 | 3.82 |

**Table 4: Univariate analysis of relative ratings**

The sample consists of new bond issues from 2001 to 2010. The numbers displayed are mean or median values of numerical ratings given by *Moody's* and *S&P*. *Ratingdiff*, is the S&P numerical rating minus Moody's numerical rating. *Moody's related* includes bond issues by firms that are large investee firms of Moody's large shareholders. *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. ***, **, * represent significance at 1%, 5%, and 10% level, respectively.

| | Moody's related | | | Other Firms | | | Difference |
|---|---|---|---|---|---|---|---|
| | Moody's | S&P | *RatingDiff* | Moody's | S&P | *RatingDiff* | Test |
| **Panel A: Full sample** | | | | | | | |
| Mean | 4.622 | 5.241 | 0.619 | 7.936 | 8.014 | 0.078 | (0.000)*** |
| Median | 4.000 | 5.000 | 1.000 | 7.000 | 6.000 | 0.000 | (0.000)*** |
| Nobs | 2,302 | 2,302 | 2,302 | 7,248 | 7,248 | 7,248 | |
| **Panel B: Investment-grade** | | | | | | | |
| Mean | 4.564 | 5.186 | 0.622 | 6.008 | 6.223 | 0.214 | (0.000)*** |
| Median | 4.000 | 5.000 | 1.000 | 6.000 | 6.000 | 0.000 | (0.000)*** |
| Nobs | 2,285 | 2,285 | 2,285 | 5,480 | 5,480 | 5,480 | |
| **Panel C: High-yield** | | | | | | | |
| Mean | 12.471 | 12.588 | 0.118 | 13.911 | 13.564 | -0.347 | (0.085)* |
| Median | 13.000 | 12.000 | 1.000 | 14.000 | 14.000 | 0.000 | (0.188) |
| Nobs | 17 | 17 | 17 | 1,768 | 1,768 | 1,768 | |

**Table 5: Moody's ratings on new bond issues**

The dependent variable for Column 1 to 3 is *RatingDiff*, the difference between S&P numerical rating and Moody's. The dependent variable in Column 4(5) is Moody's (S&P) numerical rating. The sample includes a total of 9,500 new bond issues from 2001 to 2010. *MR* takes the value of one if the bond is issued by a large investee firm of Moody's large shareholders. *MR_LT* (*MR_ST*) takes the value of one if the bond is issued by a large investee firm of Moody's long term (short term) large shareholder. *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. *Stkreststd* 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. ***, **, * represent significance at 1%, 5%, and 10% level, respectively.

| | 1. *RatingDiff* | 2. *RatingDiff* | 3. *RatingDiff* | 4. Moody's | 5. S&P |
|---|---|---|---|---|---|
| Intercept | -1.850 | -1.864 | -1.863 | 8.075 | 6.212 |
| | (0.000)*** | (0.000)*** | (0.000)*** | (0.000)*** | (0.000)*** |
| MR | 0.213 | | | | |
| | (0.000)*** | | | | |
| MR_LT | | 0.465 | 0.467 | -0.401 | 0.066 |
| | | (0.000)*** | (0.000)*** | (0.003)*** | (0.627) |
| MR_ST | | 0.069 | | | |
| | | (0.233) | | | |
| IssuerSize | 0.062 | 0.060 | 0.071 | -1.098 | -1.027 |
| | (0.000)*** | (0.000)*** | (0.000)*** | (0.000)*** | (0.000)*** |
| Leverage | -0.567 | -0.539 | -0.541 | 5.585 | 5.045 |
| | (0.000)*** | (0.000)*** | (0.000)*** | (0.000)*** | (0.000)*** |
| OpMargin | 0.001 | 0.001 | 0.001 | -0.013 | -0.013 |
| | (0.315) | (0.281) | (0.328) | (0.000)*** | (0.000)*** |
| Stkretstd | -0.144 | -0.136 | -0.143 | 0.691 | 0.548 |
| | (0.346) | (0.353) | (0.323) | (0.443) | (0.495) |
| IssueSize | 0.039 | 0.038 | 0.039 | 0.066 | 0.104 |
| | (0.000)*** | (0.000)*** | (0.000)*** | 0.004 | (0.000)*** |
| YTM | -0.017 | -0.010 | -0.012 | -0.334 | -0.345 |
| | (0.313) | (0.528) | (0.466) | (0.000)*** | (0.000)*** |
| Seniority | -0.258 | -0.247 | -0.252 | -1.626 | -1.878 |
| | (0.000)*** | (0.000)*** | (0.000)*** | (0.000)*** | (0.000)*** |
| Adj. R-square | 0.449 | 0.445 | 0.445 | 0.797 | 0.758 |
| N | 9,550 | 9,550 | 9,550 | 9,550 | 9,550 |
| Industry Fixed Effects | Yes | Yes | Yes | Yes | Yes |
| Time Fixed Effects | Yes | Yes | Yes | Yes | Yes |

**Table 6: Robustness tests**

The dependent variable is *RatingDiff*, the difference in the S&P numerical rating and Moody's rating. *MR_LT* takes the value of one if the bond is issued by a large investee firm of Moody's long term large shareholders. 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 large investee firms. Column 4 (Column 5) present results from using a longer (shorter) holding period criterion to define large investee firms. Column 6 uses Fitch ratings, instead of S&P ratings, as the benchmark. *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. *Stkreststd* 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. ***, **, * represent significance at 1%, 5%, and 10% level, respectively.

| | 1.Fama-MacBeth | 2.Tigher Criterion | 3.Looser Criterion | 4.Longer Criteria | 5. Shorter Criteria | 6.Fitch as Benchmark |
|---|---|---|---|---|---|---|
| Intercept | 0.211 | -1.832 | -1.854 | -1.862 | -1.862 | -1.251 |
| | (0.189) | (0.000)*** | (0.000)*** | (0.000)*** | (0.000)*** | (0.000)*** |
| MR_LT | 0.378 | 0.441 | 0.271 | 0.504 | 0.462 | 0.251 |
| | (0.000)*** | (0.000)*** | (0.000)*** | (0.000)*** | (0.000)*** | (0.001)*** |
| IssuerSize | 0.065 | 0.080 | 0.059 | 0.074 | 0.070 | 0.116 |
| | (0.000) | (0.000)*** | (0.000) | (0.000)*** | (0.000)*** | (0.000) |
| Leverage | -0.461 | -0.592 | -0.569 | -0.538 | -0.542 | -0.587 |
| | (0.007)*** | (0.000)*** | (0.000)*** | (0.000)*** | (0.000)*** | (0.010)*** |
| OpMargin | -0.511 | 0.001 | 0.001 | 0.001 | 0.001 | -0.098 |
| | (0.077)* | (0.304) | (0.227) | (0.334) | (0.323) | (0.109) |
| Stkretstd | 5.013 | -0.130 | -0.166 | -0.146 | -0.144 | -0.071 |
| | (0.211) | (0.353) | (0.284) | (0.311) | (0.319) | (0.637) |
| IssueSize | -0.002 | 0.038 | 0.035 | 0.039 | 0.039 | 0.049 |
| | 0.898 | (0.000)*** | (0.000)*** | (0.000)*** | (0.000)*** | (0.004)*** |
| YTM | -0.041 | -0.021 | -0.012 | -0.008 | -0.014 | 0.003 |
| | (0.153) | (0.212) | (0.451) | (0.618) | (0.385) | (0.898) |
| Seniority | -0.202 | -0.278 | -0.256 | -0.264 | -0.250 | -0.194 |
| | (0.164) | (0.000)*** | (0.000)*** | (0.000)*** | (0.000)*** | (0.094)* |
| Adj R-square | 0.514 | 0.434 | 0.436 | 0.445 | 0.445 | 0.343 |
| N | 6,041 | 9,550 | 9,550 | 9,550 | 9,550 | 8,546 |
| Number of Quarters | 29 | 40 | 40 | 40 | 40 | 40 |
| Industry Fixed Effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Time Fixed Effects | N/A | Yes | 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 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. *MR_LT* takes the value of one if the bond is issued by a large investee firm of Moody's long term large shareholders.. *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. *Stkreststd* 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. ***, **, * represent significance at 1%, 5%, and 10% level, respectively.

| | 1.Downgrade | 2.Upgrade | 3.All Outstanding Bonds |
|---|---|---|---|
| Intercept | 1.973 | -3.203 | -0.166 |
| | (0.762) | (0.868) | (0.001)*** |
| MR_LT | -71.054 | 21.309 | 0.062 |
| | (0.055)* | (0.564) | (0.006)*** |
| IssuerSize | 7.018 | -0.604 | -0.001 |
| | (0.123) | (0.961) | (0.713) |
| Leverage | 46.994 | 138.615 | 0.035 |
| | (0.101) | (0.111) | (0.046)** |
| OpMargin | -6.146 | -43.197 | 0.000 |
| | (0.270) | (0.672) | (0.001)*** |
| Stkretstd | 11.728 | -1.114 | -0.011 |
| | (0.532) | (0.502) | (0.020)** |
| IssueSize | 2.452 | -10.173 | -0.016 |
| | (0.648) | (0.415) | (0.000)*** |
| YTM | -6.000 | -19.439 | 0.004 |
| | (0.454) | (0.495) | (0.000)*** |
| Seniority | 7.829 | -12.982 | -0.145 |
| | (0.668) | (0.708) | (0.000)*** |
| Adj R-square | 0.020 | 0.029 | 0.106 |
| N | 398 | 168 | 32,924 |
| Industry Fixed Effects | Yes | Yes | Yes |
| Time Fixed Effects | Yes | Yes | Yes |

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

The sample consists of new bond issues (Column 1) and outstanding bond issues (Column (2)) over the period 1991 to the third quarter of 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. ***, **, * represent significance at 1%, 5%, and 10% level, respectively.

| | 1. New Issues | 2. All Issues |
|---|---|---|
| Intercept | -0.732 | 1.179 |
| | (0.000)*** | (0.000)*** |
| Important | 0.064 | -0.041 |
| | (0.310) | (0.392) |
| IssuerSize | 0.036 | 0.015 |
| | (0.008)*** | (0.224) |
| Leverage | -0.178 | 0.111 |
| | (0.155) | (0.152) |
| OpMargin | -0.006 | 0.000 |
| | (0.000)*** | (0.641) |
| Stkretstd | -0.044 | -0.093 |
| | (0.143) | (0.000)*** |
| IssueSize | 0.045 | 0.024 |
| | (0.000)*** | (0.110) |
| YTM | 0.032 | 0.004 |
| | (0.044)** | (0.055)* |
| sSeniority | -0.029 | -0.168 |
| | (0.601) | (0.000)*** |
| 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**

The sample consists of new bonds issues (Column 1) and outstanding bond issues (Column (2)) over the period 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. *MR_LT* takes the value of one if the bond is issued by a large investee firm of Moody's long term large shareholder. *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. ***, **, * represent significance at 1%, 5%, and 10% level, respectively.

| | 1.New Issues | 2.All Issues |
|---|---|---|
| Intercept | -1.874 | -0.320 |
| | (0.000)*** | (0.000)*** |
| MR_LT | 0.483 | 0.053 |
| | (0.000)*** | (0.019)** |
| EDF | -0.523 | 0.025 |
| | (0.000)*** | (0.228) |
| MR_LT * EDF | -0.435 | 0.131 |
| | (0.426) | (0.508) |
| IssuerSize | 0.067 | 0.003 |
| | (0.000)*** | (0.192) |
| Leverage | -0.497 | 0.037 |
| | (0.000)*** | (0.060)* |
| OpMargin | 0.000 | 0.000 |
| | (0.942) | (0.001)*** |
| Stkretstd | -0.073 | 0.016 |
| | (0.539) | (0.016)** |
| IssueSize | 0.044 | -0.018 |
| | (0.000)*** | (0.000)*** |
| YTM | -0.016 | 0.004 |
| | (0.304) | (0.000)*** |
| Seniority | -0.264 | -0.138 |
| | (0.000)*** | (0.000)*** |
| Adj R-square | 0.451 | 0.106 |
| N | 9,550 | 32,924 |
| Industry Fixed Effects | Yes | Yes |
| Time Fixed Effects | Yes | Yes |

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

The sample includes all downgrades (upgrades) by either Moody's or S&P with available CDS spreads. 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). *MR_LT* takes the value of one if the bond is issued by a large investee firm of Moody's long term large shareholders. 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. ***, **, * represent significance at 1%, 5%, and 10% level, respectively.

| | 1.Downgrade | 2.Upgrade |
|---|---|---|
| SPdum | 0.158 | 0.001 |
| | (0.094)* | (0.982) |
| MRdum | 0.235 | 0.000 |
| | (0.040)** | (0.999) |
| MRdum*Moody's_related | 0.291 | 0.009 |
| | (0.463) | (0.538) |
| CDSCHG_LAG | 0.254 | 0.034 |
| | (0.035)** | (0.745) |
| RatingCHG | -0.004 | 0.007 |
| | (0.937) | (0.695) |
| CROSSdum | -0.147 | 0.034 |
| | (0.555) | (0.440) |
| DAYS | -0.019 | -0.004 |
| | (0.207) | (0.326) |
| Adj Rsquare | 0.074 | 0.010 |
| N | 1,071 | 632 |

**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 2001 to 2010, spanning 40 quarters. A large shareholder is one who owned at least 5% in the prior quarter. A long term large shareholder is one who owned at least 5% in each of the past 12 quarters. An investee firm of a shareholder is considered large if it accounts for at least 0.25% of the shareholder's portfolio in each of the past four quarters. 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 | 496 | 479 | 392 | 640 | 74 | 40 |
| Number of Large Shareholders | 1 | 1 | 1 | 2 | 0 | 30 |
| Number of Investee f Large Shareholders | 3,161 | 3,267 | 460 | 4,886 | 1,175 | 30 |
| Number of Large Investees of Large Shareholders | 70 | 65 | 48 | 130 | 22 | 30 |
| Number of Long Term (LT) Large Shareholders | 1 | 1 | 1 | 1 | 0 | 3 |
| Number of Large Investees of LT Large Shareholders | 59 | 61 | 52 | 65 | 7 | 3 |

**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 | 14 | 3,571 | 55 |
| T. ROWE PRICE ASSOCIATES | 10 | 1,946 | 71 |
| BARCLAYS | 8 | 4,374 | 48 |
| CAPITAL WORLD INVESTORS | 4 | 504 | 58 |
| FIDELITY MGMT & RESEARCH | 3 | 2,887 | 56 |
| MSDW & COMPANY | 1 | 3,680 | 49 |

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

| Firm Name | Mean | Median | Min | Max | STD | N |
|---|---|---|---|---|---|---|
| GOLDMAN SACHS & COMPANY | 3.1% | 3.3% | 0.0% | 7.5% | 2.8% | 40 |
| T. ROWE PRICE ASSOCIATES | 2.9% | 0.7% | 0.2% | 10.5% | 3.6% | 40 |
| BARCLAYS | 4.9% | 4.2% | 3.0% | 10.2% | 2.3% | 34 |
| CAPITAL WORLD INVESTORS | 9.1% | 10.4% | 1.8% | 12.2% | 4.0% | 6 |
| FIDELITY MGMT & RESEARCH | 2.6% | 2.5% | 0.3% | 5.3% | 1.4% | 40 |
| MSDW & COMPANY | 1.1% | 0.6% | 0.1% | 5.6% | 1.3% | 38 |

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

The sample consists of new bonds issues (Column 1 and 2) and outstanding bond issues (Column 3 and 4) over the period 2001 to 2010. *McGraw_LT* takes the value one if the bond is issued by a large investee of a McGraw Hill long term large shareholder. *MT_LT_Only* takes the value one if the bond is issued by a large investee of Moody's but not McGraw Hill's long term large shareholders. *McGraw_LT_Only* takes the value of one if the bond is issued by a large investee of McGraw Hill but not Moody's long term shareholders. *Both* takes the value of one if the bond is issued by a large investee of both McGraw Hill and Moody's long term large shareholders. The dependent variable for Column 1and 2 is *RatingDiff*, which is S&P numerical rating minus Moody's numerical rating on the same bond. The dependent variable for Column 3 and 4 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 are as defined as in Tables 4 and 7. Heteroscedasticity adjusted robust *p*-values are provided below each estimates. ***, **, * represent significance at 1%, 5%, and 10% level, respectively.

| | 1.New Issues | | 2.All Issues | |
|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 |
| Intercept | -1.810 | -1.858 | -0.166 | -0.166 |
| | (0.000)*** | (0.000)*** | (0.001)*** | (0.001)*** |
| McGraw_LT | -0.328 | | 0.014 | |
| | (0.068)* | | (0.817) | |
| MR_LT_Only | | 0.441 | | 0.069 |
| | | (0.000)*** | | (0.003)*** |
| McGraw_LT_Only | | -0.272 | | 0.077 |
| | | (0.070)* | | (0.327) |
| Both | | 0.599 | | -0.118 |
| | | (0.157) | | (0.126) |
| IssuerSize | 0.093 | 0.074 | 0.000 | -0.001 |
| | (0.000)*** | (0.000)*** | (0.877) | (0.704) |
| Leverage | -0.583 | -0.542 | 0.034 | 0.036 |
| | (0.000)*** | (0.000)*** | (0.054)* | (0.043)** |
| OpMargin | 0.000 | 0.001 | 0.000 | 0.000 |
| | (0.496) | (0.339) | (0.001)*** | (0.001)*** |
| Stkretstd | -0.159 | -0.144 | -0.011 | -0.011 |
| | (0.277) | (0.320) | (0.020)** | (0.020)** |
| IssueSize | 0.043 | 0.040 | -0.016 | -0.016 |
| | (0.000)*** | (0.000)*** | (0.000)*** | (0.000)*** |
| YTM | -0.023 | -0.014 | 0.004 | 0.004 |
| | (0.165) | (0.386) | (0.000)*** | (0.000)*** |
| Seniority | -0.269 | -0.255 | -0.146 | -0.145 |
| | (0.000)*** | (0.000)*** | (0.000)*** | (0.000)*** |
| Adj R-square | 0.431 | 0.446 | 0.106 | 0.106 |
| N | 9,550 | 9,550 | 32,924 | 32,924 |
| Industry Fixed Effects | Yes | Yes | Yes | Yes |
| Time Fixed Effects | Yes | Yes | Yes | Yes |

**Table 13: Summary: Commercial Mortgage Backed Securities (CMBS)**
This table provides summary information on the issuance of Commercial Mortgage Backed Securities (CMBS) from 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 | 106 | 153 | 1,705 | 57% | 54% | 31% |
| 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 | 840 | 2,424 | 15,681 | 58% | 68% | 42% |

**Table 14: 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 *MR_LT* for at least one quarter over our sample period, from 2001 to 2010. We present the number of deals (*Ndeals*), total par amount (*Par Amout*), 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 reports the same information for the list of CMBS issuers who are classified as being *McGraw_Lt* for at least one quarter over our sample period. ***, **, * represent significance at 1%, 5%, and 10% level, respectively.

| 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 long term large shareholders of Moody's** | | | | | | |
| JP Morgan | 23 | 138 | 473 | 30 | 95 | 478 |
| Morgan Stanley | 15 | 46 | 264 | 15 | 22 | 156 |
| Citigroup | 14 | 81 | 306 | 9 | 17 | 178 |
| Bank of America | 2 | 4 | 53 | 46 | 181 | 747 |
| General Electric | 2 | 13 | 31 | 16 | 29 | 153 |
| Wachovia Bank | 1 | 3 | 23 | 39 | 204 | 746 |
| Sum | 57 | 285 | 1,150 | 155 | 548 | 2,458 |
| **Panel B: List of CMBS issuers related to long term large shareholders of McGraw-Hill** | | | | | | |
| JPMorgan Chase | 16 | 104 | 335 | 46 | 181 | 801 |
| Wachovia Bank | 16 | 66 | 302 | 34 | 171 | 649 |
| Citigroup | 26 | 162 | 550 | 20 | 71 | 436 |
| Bank of America | 9 | 64 | 193 | 46 | 173 | 752 |
| General Electric | 8 | 23 | 82 | 16 | 29 | 153 |
| Sum | 75 | 419 | 1,462 | 162 | 625 | 2,791 |

**Table 15: Relative ratings on CMBSs by firms related to Moody's**

The table presents summary statistics on *RatingDiff* for different groups of CMBSs from 2001 to 2010. *RatingDiff* is S&P's numerical rating minus the Moody's numerical rating on the same tranche. *MR_LT Only* include tranches issued by large investees firms of Moody's long term large shareholders. *McGraw_LT Only* include tranches issued by large investees firms of McGraw Hill's long term large shareholders. *Both* include tranches issued by firms that are large investees of both Moody's and McGraw Hill's long term large shareholders. Group 2 includes trances by issued by firms not related to either rating agency at the time of issuance. Panel A includes the full sample. In Panel B, Group 2 includes tranches issued by firms that are not related to either rating agency at the time of issuance but have been related to some rating agency in other quarters. Difference in value reports the p values of a test for difference in means and median between Group 1 and Group2. ***, **, * represent significance at 1%, 5%, and 10% level, respectively.

**Panel A: Full Sample**

| | Group 1:When Related to a Rating Agency | | | Group 2:When not related to a Rating agency | | | Difference in Value | |
|---|---|---|---|---|---|---|---|---|
| | Mean | Median | N | Mean | Median | N | Mean | Median |
| MR_LT Only | 0.000 | 0.000 | 921 | -0.062*** | -0.00*** | 5,281 | 0.002*** | 0.001*** |
| McGraw_LT Only | -0.023 | -0.000 | 175 | -0.062*** | -0.00*** | 5,281 | 0.072* | 0.312 |
| Both | -0.061* | -0.000* | 229 | -0.062*** | -0.00*** | 5,281 | 0.990 | 0.145 |

**Panel B: Same Issuers**

| | Group 1: When Related to a Rating Agency | | | Group 2: When not related to a Rating agency | | | Difference in Value | |
|---|---|---|---|---|---|---|---|---|
| | Mean | Median | N | Mean | Median | N | Mean | Median |
| MR_LT Only | 0.000 | 0.000 | 921 | -0.037*** | -0.000*** | 2,137 | 0.012* | 0.036* |
| McGraw_LT Only | -0.023 | -0.000 | 175 | -0.060**** | -0.000*** | 1,325 | 0.221 | 0.623 |
| Both | -0.061* | -0.000* | 229 | -0.059*** | -0.000*** | 809 | 0.829 | 0.431 |