Credit rating agency and equity analysts' adjustments to GAAP earnings

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Abstract

We compare credit rating agencies' adjustments to company-reported earnings with those of equity analysts. We find that adjusted earnings of credit rating agencies are lower in level, higher in sensitivity to contemporaneous negative news, and less useful in predicting future earnings. The gap between the adjusted earnings of credit rating agencies and equity analysts is larger when the underlying company's stock returns are more volatile, the company's bonds are rated as speculative, and outstanding levels of company leverage are high. Market participants perceive the gap in adjusted earnings of rating agencies and equity analysts as informative. The corporate bond spreads are higher when the difference is greater, though adjusted earnings of equity analysts better predict future earnings and cash flows. Our evidence indicates greater conservatism incentives of credit rating agencies than those of equity analysts, at the expense of diminished earnings predictability.

JEL Classification: G24, G17.

Key Words: Analysts, Debt ratings, Earnings forecasts.

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1. INTRODUCTION

In an effort to portray companies' earnings potentials, financial analysts adjust various components of company-reported GAAP earnings and arrive at their own earnings definitions. Prior research has documented that adjusted earnings definitions of sell-side equity analysts predict future company earnings better than GAAP earnings do. This evidence points to equity analysts' ability in processing the reported earnings information, notwithstanding the analysts' opportunistic incentives to promote company stocks (Gu and Chen, [2004]; Bhattacharya et al., [2003]; Bradshaw and Sloan [2002]; Johnson and Schwartz [2005]).[1] While mostly known for their debt ratings, the credit rating agency analysts also report adjusted earnings of their client companies. The credit rating agencies use these definitions as key inputs into their ratings of corporate debt. Previous research has also documented that adjusted earnings of credit rating agencies explain bond yield spreads better than GAAP earnings do (Kraft [2010]; Batta, Ganguly, and Rosett [2010]).

Although the earnings adjustments of both sell-side equity analysts and credit rating agency analysts have been documented to be informative, each group of analysts has a different clientele and therefore faces different incentives. That the underlying company-reported earnings and the adjusted earnings definitions of the two groups of analysts are directly comparable enables an interesting examination about the effect of differing incentives of financial intermediaries on their research quality. In this paper, we study differential properties of the adjusted earnings of credit rating agency analysts and equity analysts, in order to shed light on differing incentives of both groups of analysts.

[1] Doyle, Lundholm, and Soliman [2003] and Baik, Farber, and Petroni [2010] show that managers and analysts opportunistically adjust GAAP earnings, especially when analysts have greater incentives to do so. This literature also labels equity analysts' adjusted earnings as "pro forma" or "street" earnings. We choose the more general term "adjusted earnings" throughout our paper to label both credit rating agency and equity analysts' earnings definitions.

Both groups of analysts have incentives to bias their research output optimistically. The equity analysts are known to issue optimistic stock recommendations because of incentives to generate business or curry favour with company management (Lin and McNichols [1998]; Ertimur, Zhang, and Muslu [2010]). Likewise, rating agencies have been accused of biasing their ratings positively on corporate debt or structured products such as mortgage-backed securities and CDOs (Lynch [2009]; Riddiough and Zhu [2010]), because of incentives to generate and retain business or because of investor demand for a high standard of justification for ratings downgrades (Altman and Rijken [2006]).

Contrasting their incentives to generate optimistic ratings, the credit rating agency analysts *(CRA analysts, henceforth)* have incentives to be conservative, because the CRA analysts' primary task is to assess the credit risk of their client companies, and they stand to lose credibility if their optimism proves inaccurate. The Securities and Exchange Commission (SEC) registers selective CRA's as 'Nationally Recognized Statistical Rating Organizations (NRSRO)' based on factors including past integrity, market position, and performance. Such status is vital in the industry, because the users demand that bond ratings come from an NRSRO (Beaver, Shakespeare, and Soliman [2006]). Consistent with prior literature, we argue that equity analysts also have incentives to be conservative (Hugon and Muslu [2010]); however, such incentives are likely to be higher for CRA analysts. In other words, unlike equity analysts, CRA's assume a certification role about corporate debt, and thus CRA analysts face a more asymmetric loss function.

If incentives for conservatism net of those for optimism are greater for CRA analysts, we predict that these incentives will be reflected in adjusted earnings definitions of CRA analysts that, relative to those of equity analysts, will (a) have lower levels, (b) incorporate

contemporaneous negative news more strongly, and (c) be lower under conditions of high uncertainty about firm outcomes. We test our predictions using a sample of earnings adjustments to GAAP financial statements from the quarterly reports of Moody's Inc., one of the two largest CRA's globally. Our sample spans years 2004-2008 and covers all non-financial U.S. public companies that had outstanding Moody's ratings in May 2008. Our empirical analyses compare, at the company and fiscal quarter level, the adjusted earnings of Moody's analysts, those of equity analysts (obtained from the I/B/E/S database), and the actual GAAP earnings that both adjusted earnings are based upon.

In our first set of tests, we show that the adjusted earnings of Moody's analysts are, on average, 20% lower than those of equity analysts, and that Moody's earnings more strongly incorporate bad news, proxied by negative contemporaneous stock returns. In our second set of tests, we cross-sectionally check our 'conservatism' interpretation. We show that the gap between the adjusted earnings of Moody's analysts and equity analysts is greater when there is greater corporate uncertainty, i.e., when the underlying company bonds are rated as speculative, company stock pricess are volatile, and outstanding levels of company debt are high. We also find that, given a rating's level, the gap in adjusted earnings is greater when Moody's has greater incentives to convey conservative views via its earnings definitions only, i.e., when the client company is large and when the client company offers more bond issues.

We also examine whether bond investors value the differing earnings adjustments of the two groups of analysts. We show that corporate bond spreads increase with the gap between the adjusted earnings of Moody's and equity analysts, suggesting that investors find the gap informative about the credit risk of the underlying companies. Overall, the empirical results are consistent with our predictions that Moody's analysts are more conservative in their earnings

adjustments than the equity analysts, and this gap is stronger when the downside risk for the agencies is more apparent and when Moody's incentives to report conservatively is stronger. While not the focus of our study, we note that even Moody's analysts are not as conservative as the company-reported GAAP earnings. This result is expected, because equity and CRA analysts alike segregate effects of many GAAP unusual or non-recurring items, which predominantly consist of expected future losses by the companies.

Our findings offer several insights on the economics of financial intermediation. Researchers have examined the effect of rating changes and announcements of ratings reviews and watch lists on equity and credit derivative valuation (Hand, Holthausen, and Leftwich [1992]; Dichev and Piotroski [2001]; Hull, Pedrescu, and White [2004]), yet have devoted less attention to the CRA's more regular output, including their adjustments to GAAP earnings. Moreover, our study is the first, to our knowledge, to provide a direct comparison of the relative performance and conservatism of equity and credit rating analysts in their research output.

We also contribute to research on the role of accounting conservatism in debt contracting. Positive accounting theory suggests that accounting conservatism, defined as asymmetric verification standards for losses versus gains, enhances efficiency in the debt contracting process (Watts and Zimmerman [1986]; Watts [2003]). Beatty, Weber, and Yu [2008] find that private debt contracts modify accounting numbers for greater conservatism, and rating analysts' adjustments in this paper can be seen as another version of conservative contract modifications. Modifications to GAAP earnings are more conservative when performed by rating agencies that facilitate debt contracts than by equity analysts, who do not directly relate to debt contracts.

Additional results are also consistent with a scenario in which the CRA's are optimistic in ratings levels, but reveal their conservative views of the firm's credit quality in the publicly-

observed earnings adjustments. Such discrepancy in optimism between the two research outputs of the CRA's is more pronounced in settings where CRA's stand to gain more from this discrepancy. This argument is analogous to findings that equity analysts strategically bias their stock recommendations upwards, but keep their earnings forecasts less biased for the use of their more sophisticated clientele (Malmendier and Shantikumar [2009]; Ertimur, Zhang, and Muslu [2010]).

An alternative conservatism argument predicts that CRA's faced with asymmetric loss functions would generate lower ratings rather than lower adjusted earnings. The rationale of this argument is that analysts want to use the best possible inputs into their ratings model, and, therefore, adjusted earnings should not show any bias even if the ratings are biased downwards. Our empirical evidence refutes this alternative story, suggesting that earnings adjustments of CRA's serve as readily observable indicators of conservatism. That is, agencies can point to these inputs as evidence of their caution in the event of an increase in the credit risk of a highly rated company. It might be more challenging to do so by pointing to the rating itself, which is the product of many inputs, which include adjusted financial statements, company's forward-looking disclosures, industry and macroeconomic data, and Moody's other qualitative assessments about the company. This interpretation complements Kraft [2010], who documents that rating agencies make "soft adjustments" to their rating models, to incorporate more qualitative factors, and which on average produce published ratings that are more optimistic than ratings that would be predicted by "harder" inputs like adjusted earnings.

Finally, we note a competing explanation for our evidence is that agency analysts have privileged access to information. Regulation FD, which is enacted in 2000, banned managers from releasing material information to equity analysts before it reached the investing public, but

carved out an exception for information given to CRA analysts. Therefore, conservative earnings adjustments of CRA analysts may reflect, on average, some of this privileged information. This explanation is unlikely, as our final set of analyses show that adjusted earnings of CRA analysts are inferior to those of equity analysts in predicting one-year-ahead GAAP earnings and cash flows.

We organize our paper as follows. The next section describes the related literature and develops our hypotheses. Section 3 describes our sample selection, and Section 4 provides empirical tests. Section 5 concludes.

2. HYPOTHESES DEVELOPMENT

2.1. Conservatism in earnings adjustments

Corporate debt securities in the U.S. constitute an important capital market; the total debt market capitalization amounts to $6.9 trillion in 2009 whereas the total equity market capitalization is $11.7 trillion.[2] By rating virtually all corporate debt securities in the market, the credit rating agencies serve two critical functions. First, they rank the default risk of the debt securities, helping investors to make informed investment decisions (investment advisory role). Second, they certify the debt securities as investment versus non-investment-grade, and, by doing so, help in regulatory oversight, portfolio governance, and private credit arrangements (certification role).

Many observers have suggested that rating agencies, in their investment advisory role, positively bias their ratings (Lynch [2009]). The turmoil in equity and credit markets in 2008 have turned the spotlight on rating agencies' incentives to curry favour with the rated companies who pay them, although the focus has been on overly optimistic ratings on structured products

[2] Source: Securities Industry and Financial Markets Association (SIFMA) and Wilshire Associates.

like asset-backed securities and insurance products (Riddiough and Zhu [2010]). The agencies' incentives to issue optimistic ratings in their capacity as investment advisors are similar to equity analysts' incentives to issue optimistic stock recommendations (Dugar and Nathan [1995]; Lin and McNichols [1998]).

Additionally, rating agencies, in their certification role, may positively bias their ratings, because agencies have a stated goal of lowering a rating only after declines in credit quality will be permanent. This is because agencies wish to avoid debt downgrades that are followed soon by upgrades, given that institutional investors can hold only limited amounts of speculative grade debt and downgrades require costly portfolio rebalancing. The demand for less volatile rankings may also come from financial regulators and banks seeking to avoid procyclical capital requirements for banks whose capital requirements are linked to asset risk, which in turn is tied to ratings (Loffler, [2004]). This phenomenon known as "through the cycle ratings" causes the ratings to be sticky and result in agencies slowly incorporating negative information into their ratings (Altman and Rijken [2006]).

Countering the incentives to produce optimistic ratings are agencies' incentives to produce more conservative research. Positive accounting theory predicts that different constituents demand conservative financial reporting for different reasons (Watts [2003]). Auditors facing downside litigation risk manage their client relations (Krishnan and Krishnan [1996]) and more greatly scrutinize managers' financial reporting assertions (Nelson et al. [2002]) when bankruptcy risk is elevated. Regulators are conservative due to political considerations, because they are held responsible for failing to prevent or mitigate large investor losses. Institutional investors are conservative due to their fiduciary duties to make prudent investments (Del Guercio [1996]; Gompers and Metrick [2001]). Consistent with prior literature

(Watts [2003]; Holthausen and Leftwich [1986]), we expect that rating agencies have incentives to be conservative because of their certification role—similar to those of auditors—for the use of both regulators and investors. Specifically, the possible default of a positively rated client company or product hampers the credibility of the CRA. Furthermore, the Securities and Exchange Commission (SEC) gives select CRAs 'Nationally Recognized Statistical Rating Organizations (NRSRO) status based on factors including market position, past integrity and performance.[3] Such status is vital in the industry, because the users of ratings data such as the institutional investors, regulators, and bond issuers themselves demand that ratings come from an agency that is a NRSRO (Beaver, Shakespeare, and Soliman [2006]).

We predict that this certification role, in particular, will result in CRA analysts facing more asymmetric loss functions and producing more conservative research than sell-side equity analysts. The equity analysts also have incentives to be conservative primarily because they advise institutional investors for their investments (Hugon and Muslu [2010]). However, unlike bond rating analysts, equity analysts do not certify the downside risk of the companies they follow. Furthermore, equity analysts' conservatism incentives are constrained due to following reasons that do not necessarily follow for rating analysts: 1) the desire to win investment-banking business, 2) incentives to generate trading commissions, and 3) appease investors long in the stock (Lin and McNichols [1998]). Our expectation of greater conservatism for rating analysts over equity analysts is consistent with Beaver, Shakespeare, and Soliman [2006], who find that

[3] The Credit Rating Agency Reform Act of 2006 provides clear guidelines for NRSRO qualifications. The CRAs that are currently registered as NRSRO's for corporate debt issues are LACE Financial Corporation, A.M. Best Company, DBRS, Egan-Jones Company, Japan Credit Rating Agency, Rating and Investment Information, Fitch, Moody's Investor Service, and Standard and Poor's. The ratings industry is more concentrated than the brokerage industry in equity markets (Bongaerts, Cremers, and Goetzmann [2009]). Moody's and Standard and Poor's are the largest and oldest rating agencies, and they are the only two agencies rating almost all corporate bond issues. Fitch is the third largest, rating about half of the bond issues.

NRSRO analysts are more conservative than non-NRSRO analysts, primarily because NRSRO analysts play a more significant certification role than non-NRSRO's do.

We also expect that the greater conservatism of rating agencies will be reflected primarily in the agency-prepared inputs into the ratings. While there exist many inputs into agency ratings, many are either unobservable or are difficult to benchmark in order to assess relative optimism or pessimism of the inputs *ex post*. In contrast, the adjusted earnings are both observable and can be benchmarked against GAAP or equity analyst earnings. The conservative adjusted earnings can mitigate loss of reputation and a less severe threat of litigation in the event of a sudden decline in credit quality. Consistent with the above predictions, Moody's counts as one primary reason to adjust reported financial statements "to reflect estimate and assumptions that we believe are more prudent" (Moody's [2007]).[4] The above discussion serves as a basis for our first hypothesis.

Hypothesis 1a: Adjusted earnings of credit rating analysts are lower than those of equity analysts.

Hypothesis 1b: Compared to those of equity analysts, earnings adjustments of credit rating analysts reflect contemporaneous negative news more strongly.

2.2. Uncertainty and conservatism in adjusted earnings

One corollary of Hypothesis 1 is that rating agency analysts face an asymmetric loss function when there is more uncertainty about the credit risk outcomes. Facing significant reputation loss for failing to predict a credit risk downturn, agency analysts choose to err on the side of greater conservatism. The uncertainty about credit risk may come in two forms. First is the general uncertainty over firm value and earnings realizations. High stock return volatility

[4] Moody's also cites the following three reasons to adjust company reported financials: "To apply accounting principles that we believe more faithfully capture underlying economics", "to identify and segregate effects of unusual or non-recurring items," and "to improve comparability by aligning accounting principles".

and equity analyst forecast dispersion proxy for this type of uncertainty. Second is the uncertainty on company's prospects as going concern. Low bond ratings and high indebtedness are proxies for this type of uncertainty.

In contrast, equity analysts do not face as great a risk of reputation loss in uncertain environments; instead, their optimism incentives are even greater in these circumstances (Lim [2001]). Such a gap between credit rating analysts and equity analysts serves as a basis for our second hypothesis.

Hypothesis 2: The gap between adjusted earnings of credit rating analysts and equity analysts will be greater under conditions of greater uncertainty.

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2.3. Client incentives and conservatism in adjusted earnings

The equity analysts are known to strategically bias their recommendations upwards to please company management and/or to gain investment banking business, but keep their forecasts less biased for the use of more sophisticated investors (Malmendier and Shantikumar [2009]; Ertimur, Zhang, and Muslu [2010]). Similarly, we expect—for some firms—that rating agencies convey their more conservative views of the firm's credit quality via earnings adjustments at least to sophisticated institutional investors, whereas ratings may be shaded upwards in order to please company management or to achieve the ratings stability objective described above.[5] Given the overarching incentive towards conservatism in corporate debt ratings and earnings adjustments, we anticipate that this discrepancy between ratings and earnings adjustment will both be more muted than in the case of equity analysts, and only be present for firms where the incentives towards this form of strategic bias are greatest. We expect

[5] According to Moody's, 86% of the revenue of Moody's Investors Service, the credit rating division of Moody's Inc., is derived from fees paid by rated issuers, while most of the remaining 14% is derived from credit research and data sold to institutional investors and issuers (see http://www.moodys.com/cust/content/Content.ashx?source=StaticContent/Free%20Pages/Regulatory%20Affairs/Documents/Disclosure.pdf)

the incentives towards such strategic bias to be the greatest when the issuing companies are large and when companies make more annual debt issues in dollar volume and in number. This leads to our third hypothesis:

> *Hypothesis 3: Given a rating level, the gap between adjusted earnings of credit rating analysts and equity analysts will be smaller (i.e., credit rating analysts are less conservative in their earnings adjustments) when companies are larger and make more debt offerings.*

2.4. Consequences of conservatism in adjusted earnings

We also investigate whether investors factor in differential conservatism in earnings adjustments of credit rating analysts and equity analysts. Given that rating analysts focus on creditworthiness of bond issues, the incremental conservatism of rating analysts should indicate reduced debt-paying ability of the companies in question. If adjusted earnings of rating analysts are informative and convey agencies' more nuanced views of credit quality, then investors should react by requiring differential rate of returns to the differences in the adjusted earnings of the two sets of analysts. The above discussion serves as a basis for our fourth hypothesis.

> *Hypothesis 4: Credit spreads increase when the gap between adjusted earnings of CRA's and equity analysts are greater.*

2.5. Predictability of future earnings in adjusted earnings

Rating agency analysts possess an informational advantage over equity analysts, because Regulation Fair Disclosure (Reg FD), enacted in 2000, did not extend its strictures to privileged communication of managerial information to credit rating agencies. Jorion, Liu, and Shi [2005] confirm that credit rating changes generate greater stock returns after Reg FD, suggesting privileged information offered by rating analysts after its enactment. Given that rating analysts have access to privileged information, they may be able to use that information to better identify

nonrecurring items and, thus, generate adjusted earnings that better predict future earnings and cash flows. On the other hand, our previous hypotheses predict that rating analysts choose to be conservative in their adjusted earnings. Such conservative bias and focus on the credit risk should reduce rating analysts' ability to predict future company earnings and cash flows, because rating analysts' adjusted earnings will fail to reflect more persistent gain items. The above discussion, with opposite predictions, serves as a basis for our fifth hypothesis, which we state in null form given the opposite directional predictions.

Hypothesis 5: Adjusted earnings of credit rating analysts have a similar predictive ability for future company earnings and cash flows as those of equity analysts.

3. SAMPLE SELECTION AND RESEARCH DESIGN

3.1. Sample selection

Our empirical tests are based upon ex post comparisons of quarterly company-reported GAAP earnings, Moody's adjusted earnings, and equity analysts' adjusted earnings. We obtain information on company-reported and Moody's adjusted financial numbers from Moody's Financial Metrics, a division of Moody's Inc, which provides detailed company-level information on all rated clients.[6] Specifically, for all industrial U.S. companies that had Moody's ratings outstanding in May 2008, we obtain Moody's adjustments to company-reported earnings from the first quarter of 2004 to the first quarter of 2008. Our initial dataset comprises 9,315 firm-quarters from 1,590 firms.

Moody's adjusts GAAP earnings for a number of different items. The prominent of the adjustments relate to unusual and non-recurring income statement items; those incorporating changes in the fair value of pension plan assets and obligations; expensing interest capitalized

[6] According to Moody's representatives, in rare cases, a rated company may be excluded from the database if the analysis sheets contain material non-public information that cannot be readily separated from public information.

during the period; recognition of the fair value of stock-based compensation at least prior to the implementation of SFAS No. 123(R); and the reclassifying preferred dividends for hybrid debt securities as interest expense.[7]

Financial Metrics reports the cumulative after-tax net income effect of all the adjustments under the 'Unusual & Non-recurring Items-Adjustment, After-tax Adjustment' line item. To develop a measure of Moody's adjusted earnings, we add this line item to the 'Reported Net Profit After-tax Before Unusual Items', which is equivalent to earnings before extraordinary items and discontinued operations (ibq) in the Compustat Fundamentals Quarterly file. We label the resulting adjusted earnings figure as *Moody's*. Because equity analysts generally adjust for only unusual or non-recurring income statement items, in robustness checks in Section 4.7, we also compute an alternative Moody's adjusted earnings specification that only includes these adjustments to net income.

We obtain earnings adjustments of equity analysts using quarterly, unrestated Actuals from the Unadjusted Summary file in the I/B/E/S database; "Unadjusted" refers to the fact that per-share numbers have not been retroactively adjusted for subsequent stock splits. The I/B/E/S Actuals (*hereafter, IBES*) are company-reported earnings adjusted for non-recurring items, discontinued operations, and extraordinary items as defined by the majority of equity analysts following the company. To convert these per-share estimates to dollar levels, we multiply by either the number of diluted earnings per share from Compustat or the number of common shares

[7] Moody's also adjusts for the effect of capitalizing operating leases obligations; however, this only involves an above-the-line shift, lowering operating income and increasing interest expense, rather than a net income effect. Moody's also adjusts income for "non-standard" adjustments based on public information, which are ad hoc or new categories of adjustments that do not fit into the standard categorization scheme. Examples include reclassifying minority interest expense as interest expense on General Mills, Inc.'s financials for the year ended May 31, 2007 or reclassifying cost of cost of goods sold as depreciation and amortization expense for MagnaChip Semiconductor, L.L.C.'s financials for the year ending December 31, 2006. In most cases, non-standard adjustments do not result in a net income effect, although they do affect operating profits and interest expense. Finally, Moody's imputes interest expense on deemed financing from securitizing assets, which again has no bottom-line effect.

for basic EPS.[8] We obtain the company-reported GAAP numbers from 'Reported Net Profit After-tax Before Unusual Items' figure in the Financial Metrics database (*hereafter, GAAP*).[9]

We then deflate *Moody's*, *IBES*, and *GAAP* by the average number of basic shares outstanding (cshprq in Compustat Fundamentals Quarterly) multiplied by share price as of the first day of the fiscal quarter from CRSP. The final dataset encompasses deflated adjusted earnings definitions of 3,860 firm-quarters, representing 841 firms. The final dataset represents more than 50% data attrition from the initial dataset from Financial Metrics due to data requirements about equity analysts and company-reported earnings.

3.2. Research Design

Hypothesis 1a

We test the mean difference between *Moody's* and *IBES* using the following model:

$$Moody's_{it} - IBES_{it} = \alpha_1 + \varepsilon_{it}$$

We cluster standard errors at both the firm and time period level (Cameron, Gelbach, and Miller [2010]). To test Hypothesis 1a, we assess whether $\alpha_1<0$. Additionally, we assess whether the mean differences between both adjusted earnings definitions and GAAP earnings are significantly different from zero.

Hypothesis 1b

To test Hypothesis 1b, we use Basu [1997] reverse regressions of earnings on stock returns, negative return indicator, and interaction between stock returns and negative return indicator.[10] To assess whether the coefficient on the interaction term is different for *Moody's*,

[8] Correspondence with I/B/E/S representatives indicated that, for companies with negative reported GAAP EPS, I/B/E/S Actuals are converted to a per-share amount based on common shares outstanding used to calculate GAAP EPS. In contrast, companies with positive reported GAAP EPS use the number of diluted shares in GAAP EPS.
[9] This amount excludes any quarterly discontinued and extraordinary items. Moody's retains financials as originally-reported by firms, disregarding any subsequent restatements.
[10] Givoly and Hayn [2000] advocate using cumulative non-operating accruals as a measure of conservatism, while Ball and Shivakumar [2005] also have an accruals-based conservatism measure. We believe, out of alternative

we use seemingly unrelated estimation (Weesie [1999]), and test for significant differences across the following equations:

$$Moody's_{it} = \alpha_1 + \beta_1 Negative\ Return_{it} + \beta_2 Negative\ Return_{it}\ x\ Return_{it} + \beta_3 Return_{it} + \varepsilon_{it}$$

$$IBES_{it} = \gamma_1 + \delta_1 Negative\ Return_{it} + \delta_2 Negative\ Return_{it}\ x\ Return_{it} + \delta_3 Return_{it} + v_{it}$$

Return is defined as the monthly-compounded stock return for the three months ending two months after each fiscal quarter-end (three months in the case of fiscal quarter four). *Negative Return* is an indicator variable that is equal to one if *Return*<0, and zero otherwise. We test whether β_2 is equal to δ_2. We cluster standard errors at the firm level. As a robustness check, we also use returns in excess of the monthly compounded, value-weighted NYSE, AMEX, and NASDAQ return. This test requires matching the initial dataset with monthly CRSP returns, resulting in a dataset of 2,896 firm-quarters for 811 firms.

Hypothesis 2

The following regression model tests whether the mean difference between *Moody's* and *IBES* depends on the level of uncertainty over company prospects:

$$Moody's_{it} - IBES_{it} = \alpha_1 + \alpha_2 Uncertainty_{it} + \varepsilon_{it}$$

Uncertainty is one of the following uncertainty indicators: Above sample-median stock return volatility, above sample-median earnings forecast standard deviation, speculative-grade status, above industry-median leverage. To test Hypothesis 2, we assess whether α_2<0. We cluster standard errors at both the firm and time period level. This test requires matching the initial dataset with uncertainty indicators, resulting in a dataset of 3,496 firm-quarters for 800 firms.

Hypothesis 3

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measures of accounting conservatism, only the Basu [1997] measure is appropriate in this research setting; to measure accruals properly for equity analysts, we would need equity analyst adjusted cash flows, which are not available. Givoly and Hayn also consider the differences in the relative skewness of earnings and cash flows; again, we do not have adjusted cash flow measures for equity analysts to properly compute this measure.

To test for the effect of client incentives on the difference between *Moody's* and *IBES*, we first rank all firm-quarters based on the *Moody's- IBES* difference, and slot them into three terciles based on this rank. To control for firm credit risk, we then partition firms in each tercile into five S&P credit rating partitions: AAA, AA, and A; BBB; BB; B; and CCC and below.[11]

Next, we identify firm characteristics that are associated with greater incentives to please institutional investor clients. Revenue from sales of credit research to institutional investors should be greater the larger is the institutional investor base. We use several proxies for this, including the log of total assets, the log of the dollar value of debt offerings each fiscal year, the log of the dollar value of large (above $250 million) debt offerings each year, the number of debt offerings each year, and the number of large debt offerings each year.

Our expectation is that proxies for the institutional investor base will be greater in the tercile with the most negative *Moody's-IBES* difference, relative to the tercile with the highest *Moody's- IBES* difference, within each ratings partition. Although we do not have a direct measure of "overoptimism" for ratings designations, we expect our predictions to hold more strongly among more favorably-rated firms, as these are the most likely to have overoptimistic ratings. For dollar-value investor base proxies, we test for differences in a regression framework, with standard errors clustered at both the firm and calendar quarter level. For count data, we use a Poisson regression framework, with standard errors clustered at the firm level.

Hypothesis 4

We test Hypothesis 4 on bond spreads and adjusted earnings, using the following regression model:

[11] We group AAA, AA, and A firm-quarters together to ensure there are a sufficient number of firms in each partition.

$$Spread_{it} = \alpha_1 + \beta_1 (Moody's_{k,\,it} - IBES_{it}) + \beta_2\, Risk\ Controls_{it} + \beta_3\, Liquidity\ Controls_{it} + \varepsilon_{it}$$

Spread is the value-weighted bond credit spread for the firm as of two months after each fiscal quarter end (three months in the case of fiscal quarter four). Appendix 2 provides details on the computation of *Spread*. *Risk Controls* is a set of credit risk control variables used by Bharath and Shumway [2008] in their study of default risk and credit pricing models, including financial ratios (operating margin, long-term debt, debt-to-total-capitalization, earnings before interest and taxes, partitioned into five regions, EBIT<0, 0<EBIT<5, 5<EBIT<10, 10<EBIT<20, EBIT>20), equity return volatility, and firm size. *Liquidity Controls* is a set of bond liquidity controls, also utilized in Bharath and Shumway [2008], including the value-weighted bond coupon rate, the average offering amount, and the value-weighted time-to-maturity. Following Campbell and Taksler [2003], we also include the 30-day Eurodollar-T-bill spread to proxy for marketwide liquidity demand. Our key variable of interest is β_1. We cluster standard errors clustered at both the firm and time period level. This test requires matching the initial dataset with control variables on company risk, credit spreads, and bond liquidity, resulting in a dataset of 664 firm-quarters for 212 distinct firms.

Hypothesis 5

We test Hypothesis 5 on the relation between earnings predictability and adjusted earnings, using the following regression model:

$$Performance_{it+4} = \alpha_1 + \beta_1 Adjusted\ Earnings_{it} + \varepsilon_{it}$$

where *Adjusted Earnings* is *Moody's* or *IBES*, and with standard errors clustered at both the firm and time period level. $Performance_{it+4}$ represents one of three four-quarters-ahead income definitions: GAAP net income, $GAAP_{it+4}$, GAAP net income excluding special items,

$GAAPSI_{it+4}$, and operating cash flows, $OPCf_{it+4}$, described in Appendix 1.[12] To assess whether *Moody's* or *IBES* better explain variation in future income, we run the Davidson and MacKinnon [1981] J-test, assessing whether fitted values from the model above load significantly in a model using the alternative adjusted earnings definition. This test requires matching the initial dataset with one-year-ahead quarterly earnings, resulting in a dataset of 2,320 firm-quarters for 809 distinct firms.

4. RESULTS

Table 1 shows time period breakdown of the final sample, which includes 3,860 firm-quarter observations representing 841 unique firms from the first quarter of 2004 to the first fiscal quarter of 2008. The majority of firm-quarters are from the fourth quarter of 2006 to the fourth quarter of 2007. This is because we obtained our dataset from Financial Metrics at the end of 2007, and Financial Metrics provides only a rolling window of adjusted data for rated firms, rather than the entire history of adjusted data. When a company is no longer rated (due do Moody's dropping coverage or due to mergers and acquisitions), the company remains in the dataset, which is why 2.3% of the data come from quarters earlier than the fourth quarter of 2006.

We first consider descriptive statistics for sample firm-quarters (untabulated). Sample firms have average (median) assets of $9.8 ($3.2) of billion, winsorized at the 1% level. This compares with the average (median) assets of $2.0 ($0.2) billion for all U.S. industrial firms during the sample period. The larger size of sample firms is not surprising, given that rated firms tend to be larger than the average publicly listed company. Sample firms' market-to-book ratios

[12] We use GAAP earnings from Compustat, rather than from Moody's Financial Metrics, for Hypothesis 4 in order to maximize the number of observations, as the bulk of our Moody's sample ends in the fourth quarter of 2007.

have a mean (median) of 2.94 (2.35), which is similar to the mean (median) of 2.94 (2.23) for Compustat firms over the same period. Out of sample firm-quarters, only 16.8% are *GAAP* loss firm-quarters, and 55.8% (44.2%) are rated by Moody's as speculative (investment) grade.

4.1. Differences among adjusted earnings and GAAP earnings

Table 2 provides descriptive statistics on Moody's- and IBES-adjusted earnings and company-reported GAAP earnings, all earnings definitions deflated by company market capitalization at the beginning of the respective fiscal quarters. The average *Moody's*, *IBES*, and *GAAP* earnings are 0.54%, 0.76%, and 0.32% of market capitalization, respectively. The median *Moody's*, *IBES*, and *GAAP* earnings are 1.26%, 1.34%, and 1.25% of market capitalization, respectively. Both statistics show that Moody's earnings definitions are considerably lower than equity analysts' earnings definitions. The company-reported earnings are the lowest in mean and median among the three earnings definitions, suggesting that both Moody's and equity analysts adjustments undo one-time predominantly negative charges embedded in GAAP earnings.

Table 2 also assesses differences between *Moody's* and *IBES*, which serve as a test of Hypothesis 1a. The average (median) difference between *Moody's* and *IBES* is -0.15% (0.03%) of market capitalization.[13] The difference is statistically significant at 1% adjusting for, in a regression framework, standard error clustering at both firm and time period. These results confirm that Moody's-adjusted earnings are systematically lower than IBES-adjusted earnings. We also assess differences in both adjusted earnings and *GAAP* earnings. Both *Moody's* and *IBES* earnings are also uniformly larger than *GAAP*, with mean (median) differences of 0.11%

[13] The difference is smaller than the difference of reported means of *Moody's* and *IBES* (0.54% and 0.76%, respectively), because the variables are independently winsorized at 1% and 99%. We compute the *Moody's/IBES* difference using unwinsorized numbers to ensure the difference is always computed using the same firm's numbers. Computing the difference using already-winsorized values also fails to ensure that this difference is subject to a severe outlier issue. Nevertheless, the alternative of using winsorized figures of *Moody's* and *IBES* does not qualitatively change our results.

(0.00%) of market capitalization for *Moody's* and 0.28% (0.01%) for *IBES*. Overall, summary statistics show that Moody's adjustments result in higher levels of earnings definitions than the company-reported levels, but these adjustments are significantly lower than those of equity analysts.

4.2. Earnings adjustments in the presence of special items

Table 3 examines the extent to which different types of company-reported special earnings items affect Moody's and equity analysts' adjustments. Specifically, we examine the differences among the earnings definitions when companies report different types of special items. We find that Moody's analysts are even more conservative and report earnings even lower than what would be predicted by the unconditional gap of 0.15% between *Moody's* and *IBES* earnings. Specifically, *Moody's* are lower than *IBES* when companies report goodwill impairment (by 1.39%), asset write-downs (0.43%), in-process R&D expensing (0.34%), restructuring costs (0.23%), and acquisition and merger-related expenses (0.20%), and when companies report implied option expenses (0.26%). Different special items may, of course, coexist, and therefore the effect of reported special items on the earnings differences may be even larger than the above univariate effects. For instance, untabulated tests show that goodwill impairment and restructuring charges often occur together. The results suggest that *Moody's* and *IBES* differences are driven by a variety of adjustment types, rather than a single adjustment category on which agency and equity analysts disagree.

As expected, the above special items also correspond to positive and significant differences between *Moody's* and *GAAP* earnings. *Moody's* is also greater than *GAAP* in some additional cases, such as debt extinguishment, litigation, and insurance settlement, reversals of

restructuring and acquisition and other special items. However, in these cases, *Moody's* earnings is not significantly different from *IBES* earnings.

4.3. Differential asymmetric recognition of bad news in adjusted earnings

To test Hypothesis 1b, we examine whether adjusted earnings of credit rating analysts are timelier with respect to negative news. Table 4 presents results of Basu [1997] reverse regressions of different definitions of quarterly earnings (deflated by beginning-of-quarter share price) on contemporaneous returns, negative return indicators, and interaction between returns and negative return indicators, using both raw and market-adjusted returns. We perform a χ^2 test of differences on the interaction term coefficients between *Moody's* and *IBES* earnings as the dependent variable in these regressions. First, using both raw and market-adjusted returns, we find significant and positive coefficient estimates for the interaction terms, suggesting that both credit rating analysts and equity analysts are conservative in absolute terms. Second, the interaction coefficient is significantly larger for *Moody's* than for *IBES* at below the 5% significance level. In other words, *Moody's* is timelier with respect to negative news, relative to equity analyst earnings. We also test whether *GAAP* is timelier with respect to negative news relative to *Moody's*, given that *Moody's* is likely to retain many large, non-recurring charges that are included in *GAAP*. We indeed find this to be the case, with the coefficient on the interaction term significantly larger for *GAAP* relative to *Moody's*.

4.4. Adjusted earnings differences in the presence of uncertainty

In Table 5, Panel A, we provide empirical results for Hypothesis 2, which makes predictions on how uncertainty affects *Moody's* and *IBES* earnings. We use different proxies of uncertainty. Our first two proxies assess uncertainty with respect to future performance. Our first proxy is daily stock return volatility during the past year. The differences between *Moody's* and

IBES are 0.19% of market capitalization larger for firm-quarters with above sample-median return volatility, relative to those with below sample-median volatility. This suggests that *Moody's* involves greater adjustments from *GAAP* in conditions of high uncertainty. To compare, we find that the earnings difference between *Moody's* and *GAAP* is 0.14% of market capitalization larger for the above median-volatility quarters, relative to below median-volatility quarters. This finding may be prompted by a greater incidence of GAAP conservatism-driven losses, as 23.6% of above median-volatility firm quarters are loss quarters. Our second proxy for uncertainty is the standard deviation of equity analyst forecasts. The differences are directionally similar. The *Moody's–GAAP* and *IBES–GAAP* differences are negative and larger with larger dispersion in analyst forecasts. However, the *Moody's–IBES* is not statistically different from zero across high and low forecast dispersion groups.

The last two proxies for uncertainty measure uncertainty about company solvency. The first of these is an indicator about whether companies have investment- or speculative-grade ratings. The second is an indicator about whether the long-term debt-to-total capitalization ratio is above the industry median. The *Moody's–IBES* is greater by 0.15% of market capitalization for speculative-grade firms and greater by 0.14% of market capitalization for above industry-median debt ratios. All differences are statistically significant at the 1% level (standard errors are clustered by firm and calendar quarter). Among all uncertainty groupings, we also find that differences between both adjusted earnings definitions and *GAAP* earnings are greater for high uncertainty firms. In sum, the presented differences between *Moody's* and *IBES* are consistent with Hypothesis 2, which predict enhanced conservatism for *Moody's* earnings under conditions of uncertainty.

4.5. Adjusted earnings differences in the presence of client incentives

In Table 5, Panel B, we provide empirical results for Hypothesis 3, on the effect of client incentives on *Moody's* conservatism. For the most highly rated firms, where we expect Moody's optimism to be most prevalent, we find that four out of the five proxies for the size of the institutional investor base are significantly greater for the most conservative tercile (Q1) for *Moody's - IBES*, relative to the least conservative tercile (Q3): The log of total assets is 9.938 for Q1, while it is only 9.337 for Q3; the log of the total dollar value of debt offerings is 9.197 for Q1, but drops to 8.667 for Q3; the log of the total dollar value of large (above $250 million in principal) debt offerings is 9.267 for Q1, but falls to 8.754 for Q3; and the number of large debt issues is 3.073 for Q1, vs. 2.729 for Q3.

In other ratings partitions, the results are less clear: In all but the BB partition, no institutional investor base differences are significant. Even in the BB partition, only the log of assets and the log of total dollar debt offerings are significantly higher.

The results are broadly supportive of our predictions on incentives to cater to sophisticated institutional investor clients with conservative earnings adjustments, while maintaining issuer relations with less conservative ratings.

4.5. Differential credit spreads of adjusted earnings

Table 6 provides testing results for Hypothesis 4, which makes predictions on how *Moody's* conservatism affects market's assessments about company credit risk. In these tests, we use bond credit spreads, which relates to credit risk assessments about a company, as the dependent variable. We regress spreads on *Moody's-IBES* and a set of credit risk and bond liquidity controls. In baseline regression that excludes control variables, the difference between *Moody's* and *IBES* has an economically significant and negative correlation with credit spreads.

If the earnings difference decreases by one standard deviation of 0.0152 (Table 2), it would produce a 27 basis points increase in credit spreads, given that the coefficient on *Moody's-IBES* is -18.033. This amount is economically significant, given that the average (median) value-weighted spread is 209 (165) basis points.

When we include all credit risk and liquidity controls, the coefficient on *Moody's* is lower by more than half (-7.312), but remains statistically and economically significant. A one standard decrease of *Moody's-IBES* would produce an increase of 11 basis points in credit spreads when we include all control variables. Tests of Hypothesis 4 thus suggest that *Moody's* conservatism has economic consequences. When Moody's are more conservative than equity analysts in earnings definitions, investors become more wary about companies earnings prospects, driving the bond yield spreads significantly higher.

4.6. Differential predictive ability of adjusted earnings

Table 7 provides test results for Hypothesis 5, which makes predictions on the relative ability of *Moody's* and *IBES* earnings to predict future earnings and cash flows. Results from our tests of Hypothesis 4 suggest that *Moody's-IBES* correlates with privileged information Moody's possesses on rated borrowers, which equity analysts are not privy to. Should *Moody's* better predict future earnings and cash flows, it would provide support for the notion that *Moody's-IBES* correlates with this privileged information.

We use two definitions of four-quarter-ahead earnings as dependent variables: $GAAP_{t+4}$, which is four-quarters-ahead net income before extraordinary items and discontinued operations, and $GAAPSI_{t+4}$, which is $GAAP_{t+4}$ excluding Compustat-defined special items, such as litigation settlements, restructuring charges, and write-downs (Appendix 1 provides detailed definitions on

these variables). The latter definition thus corresponds better to recurring earnings, which many adjustments in *Moody's* and *IBES* intend to identify.

Different regressions of $GAAPSI_{t+4}$, and $GAAP_{t+4}$ on *Moody's* and *IBES* suggest, as predicted, that both Moody's and equity analyst's adjusted earnings definitions predict future earnings. The question of interest in Hypothesis 5 is which earnings definition has better ability to predict future earnings. In the case of $GAAPSI_{t+4}$, Davidson and MacKinnon [1981] J-test suggests that *IBES* has relatively greater explanatory power for future earnings than *Moody's*: The t-statistic on *IBES* predicted values included in the *Moody's* regression is statistically significant at the 1% level, while the t-statistic on *Moody's* predicted values included in the *IBES* regression is statistically insignificant. For $GAAP_{t+4}$, the results are a bit more ambiguous. The t-statistic on the IBES predicted values is significant at 1%, whereas the Moody's predicted values is only significant at the 10% level. Overall, however, *IBES* adjusted earnings appear to do a better job of predicting future earnings than *Moody's*.

Similar results hold when we use four-quarter-ahead operating cash flows, $OPCF_{t+4}$ as a dependent variable. Although the explanatory power of these regressions is smaller than in the earnings prediction regressions (ranging from a low of 27% in the earnings case to 2% in all cash flows cases), the t-statistic on the *IBES* (*Moody's*) predicted values is statistically significant (insignificant). Results of Hypothesis 5 tests thus suggest that *Moody's* conservatism comes at the price of diminished predictive power of *Moody's* earnings.

4.7. Robustness Checks

Alternative Moody's Earning Definitions

We assess whether results are robust to the use of an alternative Moody's earnings definition that only includes Moody's adjustment for unusual and nonrecurring items, given that equity analysts typically make only these types of adjustments. All results are qualitatively similar, barring those for accounting conservatism in Table 4, where we find no significant differences in asymmetric timeliness between *Moody's* and *IBES*.

Timing of Adjusted Earnings Releases

Moody's typically release reports containing their earnings definitions well after earnings definitions included in analysts' consensus earnings forecasts are collected. Equity analysts will make their adjustments around when companies report their earnings to investors, while Moody's generally releases their information ten to twelve days after 10-Q and 10-K reports are filed.[14] Hollie, Livnat, and Segal [2005] find that firms sometimes will revise information contained in preliminary earnings releases when they eventually file with the SEC. Since Moody's analysts use a slightly different information set than I/B/E/S analysts, we assess whether results are qualitatively different when we include the differences between preliminary earnings and 10-Q or 10-K net income, pretax income, or operating income (scaled by market capitalization) in all regressions. Though we generally find that, indeed, *Moody's-IBES* is significantly and positively related to the preliminary-filed earnings difference, including this variable in regressions does not change our results materially.

5. CONCLUSION

In this paper, we examine the usefulness of the adjusted earnings of credit rating agencies and how this definition compares with that of equity analysts. Our sample of adjusted earnings is obtained from the quarterly reports of Moody's Inc., one of the two largest credit rating

[14] This is based on our discussions with Moody's representatives.

agencies. The sample covers all U.S. corporations that had outstanding Moody's ratings in May 2008.

We show that Moody's adjusted earnings are about 20% lower, and incorporate bad news faster, than the adjusted earnings of equity analysts. However, the adjusted earnings of Moody's are inferior in predicting future company earnings. We also found that the gap between the earnings definitions of Moody's and equity analysts are larger at times of heightened incentives to be conservative, such as when debt is rated as speculative-grade, when stock prices and earnings forecasts are volatile, and when there exists high levels of company debt. These findings suggest greater incentives of Moody's analysts to be conservative, at the expense of reduced earnings predictability. Finally, we show that investors appear to price the conservatism gap between Moody's and equity analysts; bond spreads increase as Moody's adjusted earnings drop lower than that of equity analyst earnings.

Credit rating agencies are known for their ratings on corporate bonds, and they have been criticized for overly optimistic ratings. In this paper, we examine the validity of this criticism, using the agencies' somewhat less visible, yet informationally richer research output, i.e., their adjusted earnings definitions. We find that Moody's earnings are more optimistic than the company-reported GAAP earnings. Nevertheless, Moody's analysts use their earnings adjustment choices to show that they are less sanguine of companies' going concern positions than equity analysts. Our finding is consistent with the notion that Moody's adjusted earnings can serve as more readily observable indicators of conservatism in the event of sudden increases in credit risk of rated companies. However, we also find—for select firms which potentially have larger institutional investor following—evidence consistent with CRA's revealing their more reserved views of the firm's credit quality in the publicly-observed earnings adjustments

but not in the ratings themselves, akin to the phenomenon of "speaking in two tongues" found in equity analysts (Hirshleifer and Teoh [2003]; Malmendier and Shantikumar [2009]).

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Appendix 1

Variable Definitions

Variable	Definition
Assets	As reported accounting book value of assets from Moody's.
EBIT	The firm's interest coverage ratio, equal to pretax income (piq from Compustat) plus interest expense (xintq), divided by interest expense. In empirical analysis, we divided this into five regions: EBIT <0, 0< EBIT<5, 5< EBIT<10, 10< EBIT<20, and EBIT>20; each variable is equal to EBIT within the specified boundaries, and zero otherwise.
Equity volatility	The firm's stock return volatility, equal to the standard deviation of the daily holding period return from CRSP for the 252 trading days ending two months after each fiscal quarter end (three months for the fourth fiscal quarter).
Eurodollar T-Bill spread	The 30-day Eurodollar to Treasury bill spread as of two months after each fiscal quarter end (three months for fiscal quarter four), available from the Federal Reserve website.
GAAP	Company-reported quarterly earnings, equal to earnings before discontinued operations and extraordinary items (ibq) from Compustat. Alternatively, this number is the 'Reported Net Profit After-tax Before Unusual Items' from Financial Metrics. This number is deflated by the number of shares used to calculate basic EPS (cshprq), multiplied by the price per share as of the beginning of each fiscal quarter.
GAAPSI	Company-reported quarterly earnings before special items. This figure corresponds to earnings before discontinued operations and extraordinary items (ibq) from Compustat before Compustat-defined special items: After-tax settlement from litigation or insurance (setaq), debt extinguishment gains and losses (dteaq), gains and losses (glpq), restructuring charges (rcaq), write-downs (wdaq), in-process research and development (rdip), and other special items (spioaq). This number is deflated by the number of shares used to calculate basic EPS (cshprq), multiplied by the price per share as of the beginning of each fiscal quarter.
IBES	The firm's I/B/E/S adjusted earnings, which is the I/B/E/S Actual from Unadjusted Summary file. The figure is first multiplied by the number of diluted shares used to calculate EPS (cshfdq in Compustat) when income (epsfiq) is positive, and by the number of basic shares (cshprq) when income is negative, which is based on I/B/E/S earnings scaling practices. This figure is then deflated by the number of shares used to calculate basic EPS (cshprq), multiplied by the price per share as of the beginning of each fiscal quarter.
Loss quarter	The percentage of GAAP earnings below zero.
Ln(Assets)	The natural log of total reported assets, from Compustat.
Ln(Average offering amount)	The average issue amount of the firm's bonds with trading data available two months after each fiscal quarter-end (three months for fiscal quarter four). Appendix 2 describes details on bond data collection.

Long-term debt to assets	The ratio of long-term debt (dlttq) to total assets (atq) from Compustat.
Market-to-book	The ratio of equity market capitalization to common shareholders' equity, with prices taken two months after each quarter end date (three months for the fourth fiscal quarter).
Moody's	The Moody's adjusted earnings number, incorporating all Moody's analytic adjustments to net income. This number is deflated by the number of shares used to calculate basic EPS (cshprq in Compustat), multiplied by the price per share as of the beginning of each fiscal quarter.
NEGDUM	Bad economic news indicator, equal to one if Return is less than zero, and zero otherwise.
OPCF	Quarterly operating cash flows, equal to oancf from Compustat. This number is deflated by the number of shares used to calculate basic EPS (cshprq), multiplied by the price per share as of the beginning of each fiscal quarter.
Operating margin	The ratio of operating income (oiadpq in Compustat) to sales (saleq).
Return	The monthly compounded holding period raw or market-adjusted return from CRSP, for the three months ending two months after each fiscal quarter end (three months for fiscal quarter four).
Speculative-grade	The incidence of firm-quarters where the Standard & Poor's long-term issuer-level debt rating from Compustat (splticrm) is below BBB.
Spread	The value-weighted difference between the yield-to-maturity on the firm's bonds and yield on equivalent-maturity Treasury bonds, for bonds with trading data available two months after each fiscal quarter end (three months for fiscal quarter four). Appendix 2 describes details on bond data collection.
Total debt to total capitalization	The firm's debt-to-total-capitalization ratio, equal to long-term debt (dlttq) over long-term debt plus equity market capitalization as of two months after each fiscal quarter-end (three months for fiscal quarter four).
Value-weighted bond coupon rate	The value-weighted coupon rate on the firm's bonds with trading data available two months after each fiscal quarter-end (three months for fiscal quarter four). Appendix 2 describes details on bond data collection.
Value-weighted time-to-maturity	The value-weighted time-to-maturity, in years, on the firm's bonds with trading data available two months after each fiscal quarter-end (three months for fiscal quarter four). Appendix 2 describes details on bond data collection.

Appendix 2
Details on Bond Credit Spread Construction

To gather bond market data, we follow Bongaerts, Cremers, and Goetzmann [2009]. We gather pricing data from the TRACE database and bond characteristics from Mergent/FISD. We apply several filters to remove bonds with special features and to remove erroneous entries. We remove trades that include commission, have a settlement period of more than five days, trades that are canceled or corrected, and those that are listed as have a "special price" in TRACE. Additionally, we remove trades with negative reported yield, since these will be mainly driven by implicit option premium in the yield. We also found trades with a settlement date later than or equal to the maturity date and removed those bonds and filter out duplicate trades that have identical prices, trading time and volume. Finally, we remove trades with yields of more than 1,500 bps, as they are most likely erroneous entries.

Next, we use the FISD characteristics to match the trades with bond characteristics using CUSIPs. We only take senior unsecured notes and bonds. We discard bonds that are exchangeable, putable, convertible or pay-in-kind, that have a non-fixed coupon, that are subordinated, secured or guaranteed or are zero coupon bonds.

To mitigate the impact of small trades, we generate a trade-size-weighted yield for each trade day of the bond. To aggregate to firm-level, we compute value-weighted average of firm's bonds , based on the trade-size-weighted bond price each day and bond issue amount. To generate an end-of-month firm-yield series that also yields a sufficient number of observations, we then take the yield observation that is on or closest to the actual calendar end date.

Finally, we exclude all AAA-rated bonds, as these tend to be illiquid. To create credit spread, we subtract from the yield data an interpolated yield from Treasury bonds (available from the Federal Reserve) that bracket the value-weighted time-to-maturity of the firm's bonds.

Table 1
Sample

The table lists the number of unique firms per year and quarter for 3,860 sample firm-quarters, representing 841 unique firms.

Calendar Quarter	Number of Firms	%
2004Q1	11	0.3
Q2	16	0.4
Q3	24	0.6
Q4	34	0.9
2005Q1	40	1.0
Q2	49	1.3
Q3	51	1.3
Q4	48	1.2
2006Q1	55	1.4
Q2	56	1.5
Q3	89	2.3
Q4	643	16.7
2007Q1	690	17.9
Q2	705	18.3
Q3	685	17.8
Q4	654	16.9
2008Q1	10	0.3
Total	3,860	100.0

Table 2
Summary Statistics

The table lists summary statistics of earnings definitions for the sample, which includes 3,860 firm-quarters from 841 unique firms. Appendix 1 provides the earnings definitions from Moody's and IBES as well as GAAP earnings. All variables are winsorized at the 1% level. Tests of mean differences use standard errors adjusted for firm and time clusters. ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

	Moody's (% of MCap)	IBES (% of MCap)	GAAP (% of MCap)	Moody's – IBES (% of MCap)	Moody's – GAAP (% of MCap)	IBES – GAAP (% of MCap)
Mean	0.54	0.76	0.32	-0.15 ***	0.11 ***	0.28 ***
Std dev	4.01	3.42	4.92	1.52	1.00	1.74
Min	-28.01	-24.30	-35.10	-9.63	-2.24	-4.65
Q1	0.61	0.79	0.56	-0.21	-0.07	-0.01
Q2	1.26	1.34	1.25	-0.03	0.00	0.01
Q3	1.83	1.83	1.83	0.04	0.02	0.17
Max	6.32	5.48	6.38	6.58	7.22	12.39

Table 3
Earnings Differences in Presence of Special Items

The table presents differences in earnings definitions in the presence of non-zero special items from Compustat. Appendix 1 provides the earnings definitions. All special items are on an after-tax basis. All variables are winsorized at 1% level. Tests of mean differences use standard errors adjusted for firm and time clusters. ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Special Items	Moody's – IBES (% of MCap) Mean (Median)		% positive	Moody's – GAAP (% of MCap) Mean (Median)		% positive	IBES – GAAP (% of MCap) Mean (Median)		% positive
Impairment of goodwill	-1.39 (-0.13)	***	39.0	1.09 (0.00)	***	52.8	1.27 (0.01)	***	74.8
Write-downs	-0.43 (-0.13)	***	33.0	0.28 (0.00)	***	42.1	0.38 (0.00)	***	73.1
In process R&D expense	-0.34 (-0.22)	***	14.8	0.43 (0.04)	***	63.6	0.44 (0.03)	***	92.0
Implied option expense	-0.26 (-0.10)	***	26.4	-0.04 (0.00)		26.8	-0.14 (-0.05)	***	63.0
Restructuring cost	-0.23 (-0.08)	***	32.1	0.14 (0.00)	***	43.8	0.19 (0.00)	***	71.3
Acquisition/Merger	-0.20 (-0.11)	***	29.2	0.15 (0.00)	***	45.5	0.14 (0.00)		72.2
Reversal - restructuring/ acquisition	-0.14 (-0.12)		32.7	0.13 (0.00)	***	40.1	0.23 (0.00)	***	65.8
Other special items	-0.10 (-0.05)		37.6	0.07 (0.00)	***	38.6	0.13 (-0.01)	***	61.6
Gain/ loss on ineffective hedges	-0.04 (-0.06)		38.9	0.03 (0.00)		32.2	0.10 (-0.01)		56.6
Extinguishment of debt	-0.02 (-0.06)		37.5	0.15 (0.00)	***	42.6	0.18 (0.00)	***	62.5
Nonrecurring income taxes	0.04 (-0.01)		46.2	-0.03 (0.00)		36.3	0.01 (-0.01)		52.6
Settlement (Litigation/ insurance)	0.04 (-0.06)		38.1	0.14 (0.00)	***	37.9	0.15 (-0.01)	***	61.9

Table 4
Accounting Conservatism Tests

The table presents results of tests for differences in magnitude of accounting conservatism between Moody's and IBES earnings definitions, based on Basu (1997). Regressions are based on the following specification:

$$X_{it}/P_{it} = \alpha_1 + \beta_1 NEGDUM_{it} + \beta_2 NEGDUM_{it} \times Return_{it} + \beta_3 Return_{it} + \varepsilon_{it}.$$

X is alternatively Moody's, IBES, and GAAP earnings, which are defined in Appendix 1. $Return_{it}$ is the monthly-compounded raw or market-adjusted stock return for the three months ending two months after each fiscal quarter-end (three months for fiscal quarter four), with market returns based on the value-weighted NYSE, NASDAQ, and AMEX index from CRSP. T-statistics are based on standard errors clustered at the firm level. NEGDUM is an indicator variable for negative returns. All variables are winsorized at the 1% level. $\chi 2$ statistics for differences in β_2 between Moody's and either IBES or GAAP regressions are listed below each regression. ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

	Raw returns			Market-adjusted returns		
	Moody's	IBES	GAAP	Moody's	IBES	GAAP
NEGDUM	0.0045 ***	0.0047 ***	0.0054 ***	0.0045 ***	0.0045 ***	0.0049 ***
	(2.77)	(3.17)	(2.63)	(2.99)	(3.36)	(2.59)
NEGDUM x Return	0.1160 ***	0.1030 ***	0.1330 ***	0.1270 ***	0.1120 ***	0.1450 ***
	(7.26)	(6.91)	(6.89)	(7.99)	(7.46)	(7.65)
Return	-0.0006	-0.0003	-0.0010	-0.0059	-0.0044	-0.0075
	(0.09)	(0.05)	(0.14)	(0.78)	(0.63)	(0.95)
Constant	0.0120 ***	0.0130 ***	0.0113 ***	0.0131 ***	0.0139 ***	0.0126 ***
	(15.20)	(17.49)	(11.33)	(16.45)	(19.20)	(13.02)
Firm-quarters	2,896	2,896	2,896	2,896	2,896	2,896
Firms	811	811	811	811	811	811
R^2	12.8%	12.2%	11.0%	13.9%	13.6%	11.8%
$\chi 2$, NEGDUM x Return (Moody's) - NEGDUM x Return (IBES) = 0		4.66			3.81	
$\chi 2$, NEGDUM x Return (Moody's) - NEGDUM x Return (GAAP) = 0			7.08			7.25
Prob > $\chi 2$		0.03	0.01		0.05	0.01

Table 5, Panel A
Tests of Earnings Differences Based on Uncertainty Partitions

The table lists summary statistics for 3,496 sample firm-quarters with available data on all partitioning variables, representing 800 firms. Appendix 1 provides the earnings definitions. Below and above median stock volatility is for firm-quarters ranked based on standard deviation of daily stock returns, for the 252-trading days ending two months after each fiscal quarter end (three months for fiscal quarter four). Below and above median standard deviation of analyst forecasts is for firm-quarters ranked based on the standard deviation of year-ahead analyst earnings estimates from the I/B/E/S Unadjusted Summary file, as of each fiscal quarter end date. Investment and speculative-grade is whether the Standard & Poor's long-term issuer-level debt rating from Compustat is above or below BBB. Below industry median debt ratio is for firm-quarters that are above or below quarterly median GICS-industry total-debt-to-total capitalization, calculated as the ratio of total debt (long-term debt plus debt in current liabilities from Compustat) divided by total debt plus equity market capitalization observed two months after each fiscal-quarter end (three months for fiscal quarter four). Assets, market-to-book, and loss quarter are defined as in Table 1. All variables are winsorized at the 1% level. ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

	N	Moody's – IBES (% of MCap)	Moody's – GAAP (% of MCap)	IBES – GAAP (% of MCap)	Assets	Market-to-book	Loss Quarter (%)
Below median stock volatility	1,748	-0.06	0.04	0.10	15.1	3.18	6.75
Above median stock volatility	1,748	-0.25	0.18	0.45	5.2	2.81	23.63
Below minus above median		0.19 ***	-0.14 ***	-0.35 ***			
Below median standard deviation of analyst forecasts	1,690	-0.13	0.06	0.21	10.3	3.21	8.93
Above median standard deviation of analyst forecasts	1,806	-0.18	0.15	0.33	10.1	2.79	21.04
Below minus above median		0.05	-0.08 **	-0.13 **			
Investment-grade	1,637	-0.07	0.03	0.11	17.0	3.56	5.19
Speculative-grade	1,859	-0.22	0.17	0.42	4.2	2.49	22.19
Investment minus Speculative-grade		0.15 ***	-0.14 ***	-0.30 ***			
Below industry median debt ratio	1,748	-0.09	0.02	0.10	13.0	3.34	8.70
Above industry median debt ratio	1,708	-0.22	0.20	0.45	7.3	2.62	22.01
Below minus above median		0.14 ***	-0.18 ***	-0.30 ***			

Table 5, Panel B
Tests of Earnings Differences Based on Client Incentives

The table lists for 3,307 sample firm-quarters with available data on all institutional investor base proxies, representing 720 firms. AAA, AA, A, BBB, BB, B, CCC, CC, D are quarterly Standard and Poor's long-term issuer credit ratings from Compustat. Moody's and IBES are defined as in Appendix 1. Q1, Q2, and Q3 refer to terciles of firm-quarters ranked on Moody's - IBES. Ln(Assets) is equal to the logarithm of total reported assets for each firm-quarter. Ln(total dollar offerings) is the logarithm of each fiscal year's total dollar amount of issued debt. Ln(total dollar large offerings) is the logarithm of each fiscal year's total dollar amount of large debt offerings, which are individually above $250 million in principal value. Total number offerings is the count of the number of debt offerings each fiscal year. Total number large offerings is the count of the number of large debt offerings each fiscal year. Tests of differences in means for dollar value measures (in logs) between Q1 and Q3 partitions use standard errors clustered at both the firm and calendar-quarter level. Tests for differences in means for count variables between Q1 and Q3 use Poisson regressions, with standard errors clustered at the firm level. All variables are winsorized at the 1% level. ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

(Moody's – IBES) Terciles	Measure	AAA, AA,A	BBB	BB	B	CCC, CC,D
		Mean value within each partition				
Q1	Ln(Assets)	9.938	8.982	7.978	7.496	7.454
(Most	Ln(total dollar offerings)	21.745	11.258	6.85	6.952	5.151
conservative)	Ln(total dollar large offerings)	20.005	9.274	4.945	5.201	3.579
	Total number offerings	3.389	3.291	2.988	2.933	3.053
	Total number large offerings	3.073	2.748	2.163	2.094	1.952
Q2	Ln(Assets)	9.418	8.668	7.77	7.066	6.972
	Ln(total dollar offerings)	15.014	9.335	5.761	5.149	2.825
	Ln(total dollar large offerings)	12.622	6.774	3.625	3.428	1.69
	Total number offerings	3.477	3.324	2.992	2.814	2.342
	Total number large offerings	2.956	2.581	1.962	1.806	1.436
Q3	Ln(Assets)	9.337	8.812	7.833	7.338	6.84
(Least	Ln(total dollar offerings)	11.728	10.828	5.517	6.796	4.691
conservative)	Ln(total dollar large offerings)	9.003	8.767	3.596	5.085	3.492
	Total number offerings	3.426	3.279	2.946	2.995	2.761
	Total number large offerings	2.729	2.705	1.991	2.202	2.115
Q1-Q3	*t-statistics from OLS*					
	Ln(Assets)	3.03 ***	1.52	2.33 **	1.01	1.27
	Ln(total dollar offerings)	2.29 **	0.32	2.85 ***	-0.22	0.58
	Ln(total dollar large offerings)	2.45 **	0.96	0.25	-0.49	0.05
	z-statistics from Poisson					
	Total number offerings	-0.25	0.10	0.48	0.45	0.57
	Total number large offerings	1.84 *	0.28	1.03	0.46	0.31
	Observations	560	967	1,040	689	51

Table 6
Credit Spreads

The table presents results of regressions of bond credit spreads on *Moody's-IBES* and control variables. The dependent variable is value-weighted bond credit spread (in basis points) from TRACE database, based on the bond trading day closest to each month end; bond data construction is detailed in Appendix 2. *Moody's* and *IBES* are defined in Appendix 1. Operating margin is the ratio of operating income to sales. Long-term debt to assets is the ratio of long-term debt to the firm's accounting book value. Total debt to total capitalization is long-term debt plus short-term debt divided by long-term debt plus short-term debt plus the market value of shareholders' equity. EBIT coverage is the ratio of earnings before interest and tax expense to interest expense from Moody's, and is divided into five regions, with each variable equal to EBIT within the specified boundaries and equal to zero otherwise: coverage below zero (0<EBIT coverage); coverage between zero and five (0<EBIT coverage<5); coverage between five and ten (5<EBIT coverage<10); coverage between ten and twenty (10<EBIT coverage<20); and coverage above twenty (EBIT coverage>20). Equity volatility is the standard deviation of daily equity returns for the past 252 trading days. Value-weighted bond coupon rate is the bond-value-weighted coupon rate on the firm's outstanding bonds. Ln(average offering amount) is the natural logarithm of the average issue amount of the firm's outstanding bonds. Eurodollar-T-Bill spread is the 30-day Eurodollar to Treasury yield. Value-weighted years-to-maturity is the value-weighted average number of years to maturity of the firm's outstanding bonds. All market variables are defined as of two months after each fiscal quarter-end (three months for fiscal quarter four). T-statistics are based on standard errors clustered at both the firm and calendar quarter level. Earnings differences, spreads, equity volatility, and all financial variables are winsorized at the 1% level.

	Spread	
Moody's – IBES	-18.033 ***	-7.312 *
	(-2.64)	(-1.78)
Operating margin		0.121
		(-0.18)
Long-term debt to assets		-1.377 *
		(-1.86)
Total debt to total capitalization		5.164 ***
		(-5.31)
EBIT coverage below 0		-0.055
		(-1.13)
EBIT coverage between 0 and 5		-0.052
		(-1.04)
EBIT coverage between 5 and 10		-0.031
		(-1.25)
EBIT coverage between 10 and 20		-0.022 *
		(-1.68)
EBIT coverage above 20		-0.01
		(-1.64)
Equity volatility		91.393 ***
		(-4.34)
Value-weighted bond coupon rate		0.133 ***
		(-3.63)
Ln(Average offering amount)		0.001
		(-0.01)
Eurodollar T-Bill spread		0.871 ***

		(-7.39)
Ln(Assets)		-0.117 **
		(-2.01)
Value-weighted time-to-maturity		0.001
		(-0.85)
Constant	-2.06	-0.715
	(-7.12)	(-1.14)
Firm-quarters	664	664
Firms	212	212
R^2	4.8%	59.4%

Table 7
Earnings and Cash Flow Prediction Tests

The table presents four-quarter ahead quarterly earnings and cash flow prediction regression results for different earnings definitions. All variables are described in Appendix 1. Results of Davidson and McKinnon [1981] J-test are reported below each set of results. T-statistics are based on standard errors clustered at both the firm and calendar quarter level. All variables are winsorized at the 1% level.

	$GAAPSI_{t+4}$	$GAAP_{t+4}$	$OPCF_{t+4}$
Moody's	2.49 ***	2.77 ***	0.25
	(5.40)	(5.49)	(1.55)
CONST	-0.04 ***	-0.04 ***	0.03 ***
	(5.90)	(5.80)	(6.15)
R^2	28.9%	27.4%	1.6%
IBES	3.03 ***	3.35 ***	0.32 *
	(8.38)	(8.02)	(1.85)
CONST	-0.04 ***	-0.05 ***	0.03 ***
	(6.96)	(6.83)	(5.76)
R^2	32.7%	30.8%	2.0%
Firm-quarters	2,320	2,320	2,320
Firms	809	809	809
<u>J-tests for relative explanatory power</u>			
T-stat on IBES predicted values included in Moody's regression	4.62	4.52	2.26
T-stat on Moody's predicted values included in IBES regression	1.64	1.75	0.57