Financial statement comparability and credit risk

Seil Kim

Pepa Kraft*

Stephen Ryan

New York University

Stern School of Business

May 15, 2012

Abstract

Investors, financial reporting policymakers, and accounting educators emphasize the importance of financial statement comparability. Accounting researchers have found it difficult to develop empirical measures of comparability that correspond to typical views of the construct. The measures used in recent research are removed from firms' accounting treatments and are likely to be driven by economic similarity rather than comparability. We fill this gap by measuring comparability as the within-industry variability of Moody's adjustments to firms' reported accounting numbers. We examine two sets of adjustments: (1) to the interest coverage ratio and (2) for non-recurring income items. Because Moody's makes these adjustments for debt-rating purposes, we examine the benefits of comparability for the debt market, distinct from prior research that focuses on the equity market. We provide evidence that comparability is negatively associated with split ratings by credit rating agencies, estimated bid-ask spreads for traded bonds, and credit spreads. Our results are consistent with financial statement comparability reducing debt market participants' uncertainty about firms' credit risk.

Keywords: Comparability, corporate credit risk, credit rating agency, bond market liquidity

*We thank workshop participants at Tel Aviv University for constructive feedback. We gratefully acknowledge the financial support provided by NYU Stern School of Business. Corresponding author's email: pkraft@stern.nyu.edu

1 Introduction

This study examines the association of reporting firms' financial statement comparability (hereafter, "comparability") and credit rating agencies' and debt investors' uncertainty about firms' credit risk. We predict and provide evidence that these debt market participants benefit from comparability because it reduces their uncertainty about firms' credit risk.

Paragraphs OB2-OB3 of CON 8 (FASB (2010)) state that the objective of general-purpose financial reporting is to provide the reporting firm's existing and potential investors and creditors with information that enables them to assess "the amount, timing, and uncertainty of (the prospects for) future net cash inflows to the entity." Paragraphs QC20-QC25 of CON 8 indicate that information that can be compared across firms and time, enabling "users to identify and understand similarities in, and differences among, items," is more likely to satisfy this objective. Specifically, for "information to be comparable, like things must look alike and different things must look different. Comparability of financial information is not enhanced by making unlike things look alike any more than it is enhanced by making like things look different."

In their corporate-bond-rating manuals (Standard and Poor's (2008), Moody's (2006)), credit rating agencies state they adjust reported accounting numbers for use in ratio and other analyses. Prior studies document significant associations between reported accounting ratios and bond ratings (e.g. Kaplan and Urwitz (1979), Blume et al. (2006)) and between accounting ratios and default (Beaver (1966), Altman (1968), Beaver et al. (2010)).[1] Prior research also provides evidence that credit rating agencies disagree more often when reporting firms' credit risk is harder to assess (Morgan (2002), Ederington (1986)). Disagreement among rating agencies is common; split ratings occur for 65% of bonds rated by at least two of the top three rating agencies and for 53% of bonds rated by the top two agencies.

Consistent with both CON 8 (FASB (2010)) and the activities of credit rating agencies, we argue that more comparable financial information requires users to make fewer, smaller, or more similar adjustments to financial ratios for the constituent firms in an industry. Our empirical measures

[1] Bond ratings issued by rating agencies are widely used by investors to assess corporate default risk.

of comparability pertain to two subsets of the adjustments made by Moody's: (1) adjustments affecting the interest coverage ratio and (2) adjustments for non-recurring income items. The first set of adjustments primarily captures Moody's reclassification of certain off-balance sheet financing as on-balance sheet financing, although it also captures adjustments to operating profit. The second set of adjustments captures Moody's attempt to hone in on ongoing and sustainable earnings.

We argue that the availability of comparable financial statement information for the firms in an industry reduces market participants' uncertainty about the credit risk and other economic characteristics of the constituent firms. For example, comparability should enhance credit rating agencies' ability to use information provided by comparable firms as additional inputs in the rating process.

We propose hypotheses about how our measures of comparability are associated with three proxies for debt investors' uncertainty about reporting firms' credit risk. First, we hypothesize that greater comparability yields lower frequency and smaller magnitude split ratings among the three main credit rating agencies: Moody's, Standard & Poor's and Fitch. Second, we hypothesize that greater comparability leads to lower information asymmetry among debt investors as proxied by estimated bid-ask spreads for traded bonds. Third, recent literature shows that information risk is not a priced risk factor in perfectly competitive markets (Lambert et al. (2011)). Because bond markets are less liquid than stock markets, however, we expect credit spreads to increase with information risk (Armstrong et al. (2011)). We hypothesize that greater comparability is negatively associated with credit spreads implied by the price of traded bonds (hereafter, "spreads") and credit default swaps (hereafter, "CDS").

Consistent with our first hypothesis, we find that firms in industries with lower comparability receive more frequent and larger magnitude split ratings. In terms of economic significance, a one-standard-deviation decrease in our comparability measure based on adjustments to the interest coverage ratio (for non-recurring items) adjustments is associated with an 8% (3%) increase in the probability of a split rating for the average bond in the sample. A one-standard-deviation decrease

in our comparability measure based on adjustments to the interest coverage ratio is associated with a 12% increase in the difference between the maximum and minimum ratings for the average bond.

Consistent with our second hypothesis, we find that both comparability measures are significantly negatively associated with estimates of bid-ask spreads for traded bonds based on a modification of Roll's (1984) measure. Consistent with our third hypothesis, we find that both comparability measures are significantly negatively associated with bond and CDS credit spreads. A one-standard-deviation decrease in our comparability measure based on adjustments to the interest coverage ratio (for non-recurring items) is associated with an increase of 54 (47) basis points for a bond with an average yield spread. Furtermore, a one-standard deviation decrease in our comparability measure based on adjustments to the interest coverage ratio (for non-recurring items) is associated with an increase of 43 basis points (38 basis points) in the firm's CDS spread — representing a 24% (21%) increase for the average CDS spread of 180 basis points — controlling for variation in peer characteristics and the firm's rating.

In summary, these findings are consistent with comparability reducing debt market participants' costs of processing financial report information and uncertainty about reporting firms' credit risk.

Our study contributes to the literature in three primary ways. First, we develop quantitative ouput-based measures of distinct dimensions of comparability from the perspective of users who conduct within-industry ratio analysis to assess firms' credit risk. These measures contrast with prior qualitative input-based definitions of comparability, such as firms' choice of typical or atypical accounting methods. They also differ from prior quantitative output-based measures derived from the strength of associations between accounting numbers and stock returns. The latter measures suffer from intermingling economic similarity and comparability as well as distinct dimensions of comparability. We argue that our measures better capture comparability.

Second, we examine the consequences of comparability for debt market participants' assessment of firms' credit risk, distinct from the growing body of research that examines the consequences of

comparability for equity analysts and investors (De Franco et al. (2011)).[2]

Third, we provide evidence that comparability is negatively associated with the frequency and magnitude of split ratings. Two related papers investigate the association between financial reporting quality and rating dispersion. Akins (2012) finds negative associations between measures of asymmetric timely loss recognition and debt contracting value of accounting information and the frequency of split ratings. Cheng (2012) finds negative associations between measures of the timeliness of banks' loan loss provisions and disagreement between Moody's and S&P. Both of these papers employ measures of financial reporting quality used elsewhere in the literature. A related stream of research finds that financial reporting quality is negatively associated with the cost of debt (for example, Bharath et al. (2008), Mansi et al. (2004)).

We make two related caveats. First, we cannot rule out the possibility of reverse causality. Instead of comparability reducing uncertainty about firms' credit risk, analysts may pressure firms with more uncertain credit risk to report more comparably. To the extent this occurs, however, it likely attenuates our findings of negative associations between comparability and our proxies for uncertainty uncertainty about firm's credit risk. Second, because we conduct cross-sectional tests, correlated omitted variables may contribute to the reported associations. For example, firms in industries with higher comparability may be less complex or provide better disclosures outside of financial reports. We control for various industry characteristics both in the tabulated and specification analyses and have found no evidence that correlated omitted variables drive our results.

The next section defines our measures of comparability. Section 3 develops our hypotheses that comparability reduces disagreement among credit rating agencies, bid-ask spreads for traded bonds, and credit spreads. Section 4 describes the research design. We provide descriptive statistics and the results of our empirical tests in section 5. Section 6 concludes.

[2]Prior research shows that credit ratings are used by both equity and debt investors. Rating downgrades are associated with decreases in stock prices, and upgrades are associated with increases in stock prices (Jorion et al. (2005), Holthausen and Leftwich (1986)). Bond prices react similarly to rating changes, but they exhibit a weaker association than stock prices because bonds are more illiquid (Hand et al. (1992), Dichev and Piotroski (2001)). Of course, bonds are also more senior than equity, which reduces the relative sensitivity of bond prices to news over a wide, but not-too-unfavorable, range (Barth et al. (2008)).

2 Empirical measure of comparability

Accounting researchers often view financial statements as mappings from underlying economic events to accounting numbers (Patell (1979), De Franco et al. (2011)). Under this view, two firms have comparable financial statements if their mappings from economic events to accounting numbers are similar. Intuitively, two mappings are similar if they report similar accounting numbers for similar economic events and appropriately different accounting numbers for different economic events.

Noncomparability can arise from various sources. For example, required accounting treatments differ for economically similar transactions due to the use of bright-line criteria in accounting standards, as is the case for operating- versus capital-lease accounting under FAS 13. Many accounting standards only cover transactions with specified "characteristics", even though the transactions are economically similar to transactions with other characteristics covered by other standards, as is the case for written credit derivatives under FAS 133 and written financial guarantees under FAS 163. Companies often are able to choose among alternative accounting methods (e.g., straight-line versus accelerated depreciation) allowed by GAAP or to exercise judgment over accrual estimates. Even if the FASB and the IASB eliminated all existing sources of noncomparability, newly developed transactions could create new sources, as is sometimes the case for structured finance transactions.

When reported accounting numbers are insufficiently comparable for their purposes, users often adjust those numbers to make them more comparable across firms or time. We have already mentioned the example of credit rating agencies' adjustments and discuss them in further detail below. Other examples include debt contracts, which make various adjustments to net worth and net income to reduce debtholder-equityholder conflicts and other contracting problems (Leftwich (1983), Li (2010)). Equity analysts adjust current cash flows and earnings to better forecast future cash flows and earnings (Gu and Chen (2004), Damodaran (2012)). In financial statement analysis courses, accounting educators teach techniques to adjust accounting numbers to make them more comparable.

Our comparability measures are based on Moody's adjustments to firms' accounting numbers compiled in its Financial Metrics database. Moody's states it adjusts financial statement numbers "to better reflect the underlying economics of transactions and events and to improve the comparability of financial statements" (Moody's (2006)). Moody's is representative of credit rating agencies generally, who compute financial ratios using adjusted accounting numbers and base their ratings on those adjusted, more comparable, ratios (Kraft (2010)). Moody's standard adjustments pertain to the capitalization of operating leases, expensing of capitalized interest, reclassification of hybrid securities, reversal of sale accounting for securitizations with recourse, recognition of underfunded defined benefit pension plans, recognition of employee stock compensation expense, revaluation of inventories on a LIFO cost basis, and segregation of unusual and non-recurring items (Moody's (2006)).

We argue that lower variation adjustments within an industry indicate higher comparability. An industry may have low variation adjustments for two reasons. First, adjustments will be small if each firm's reported accounting numbers capture its underlying economic events well. Second, adjustments will be similar in magnitude if the accounting numbers of the firms in the industry exhibit common biases, say because the firms apply the same accounting approaches to economically similar transactions. To illustrate, assume off-balance sheet operating leases are the sole source of noncomparability in two industries, with one being comparable and the other not. Firms in the comparable industry could have operating leases either for small or similar proportions of their assets, yielding low variation adjustments. Firms in the noncomparable industry must have operating leases for dissimilar proportions of their assets, yielding high variation adjustments.

We focus on the adjustments to the interest coverage ratio and for non-recurring income items. The adjustment to the coverage ratio is the difference between a firm's adjusted and reported coverage ratios. The reported coverage ratio is reported operating profit divided by reported interest expense. The adjusted coverage ratio is adjusted operating profit divided by adjusted interest expense. The adjustment to the coverage ratio is particularly sensitive to the incremental interest expense arising from reclassification of off-balance financing, but it is also affected by any

adjustment to operating profit. The adjustment for non-recurring income items is the after-tax effect of unusual and non-recurring items identified by Moody's divided by reported revenues.

We use the differences between the upper and lower quartiles (i.e., the interquartile range) of the adjustments to the coverage ratio and non-recurring items within an industry-quarter as our measures of comparability. We use interquartile ranges to ensure that our comparability measures are not driven by outliers.

Two recent papers develop quantitative, accounting output-based measures of comparability using models of the relation between stock returns, which is viewed as a proxy for economic events, and accounting numbers.[3] De Franco et al. (2011) estimate reverse regressions of earnings on stock returns for pairs of firms, denoted i and j, over the prior 16 quarters. They use the two sets of fitted coefficients to predict firm i's earnings using firm i's stock returns and also to predict firm j's earnings using firm j's stock returns. For each firm, their measure of comparability is minus the sum of the absolute values of the difference of the two predicted earnings over the 16 quarters. Barth et al. (2012) take a similar approach but estimate fitted values using a more elaborate equation including stock returns, cash flows, earnings and book values. They investigate whether IFRS adoption by non-US firms increases the comparability of their accounting numbers with US firms' GAAP numbers.

These comparability measures are limited in two primary respects. First, these measures intermingle the similarity of the underlying economic events and comparability. Specifically, given two sets of fitted coefficients, smaller variance returns will yield higher comparability. The variance of returns may also affect the fitted coefficients. Second, these measures are single dimensional, whereas comparability is multidimensional.

Another recent paper develops a qualitative, accounting-input based measure of comparability based on the typicality of firms' accounting methods within their industries (Bradshaw et al. (2009)). This comparability measure primarily is limited because it does not capture the signifi-

[3]These two papers are motivated similarly to a more extensive prior stream of literature that uses the contemporaneous relations between stock returns and accounting ratios or valuation multiples to assess relative financial reporting quality, for example, of different accounting systems internationally (Joos and Lang (1994), Land and Lang (2002)), or to identify peer firms (Bhojraj and Lee (2002)).

cance of specific accounting method choices.

Our quantitative, accounting-output-based measures of comparability address the limitations of the measures in the prior literature. In particular, being based on various actual adjustments made by Moody's to render firms' accounting numbers more comparable, our measures: (1) do not rely on stock returns to proxy for economic events, (2) are multidimensional, and (3) capture the significance of accounting method differences and other sources of noncomparability.

3 Hypotheses: Consequences of comparability

In this section, we develop hypotheses about the effect of comparability on proxies for debt market participants' uncertainty about reporting firms' credit risk. Prior studies find that comparability reduces divergence and noise in analysts' evaluations of firms. For example, Bhojraj and Lee (2002) find that analysts' valuations are more accurate when financial statement data for comparable peer firms is available. De Franco et al. (2011) find that analysts' earnings forecast accuracy is higher for firms with greater comparability. Consistent with these findings, for industries with greater comparability, we expect debt market participants to have lower uncertainty about firms' credit risk, yielding fewer and smaller magnitude split ratings, lower bid-ask spreads for traded bonds, and lower credit spreads. We present the hypotheses in increasing order of complexity; in particular, the hypothesis about bid-ask spreads raises the issue of how buyers and sellers of bonds protect themselves against adverse selection and the hypothesis about credit spreads raises the issue of how debt market participants price uncertainty about credit risk.

Our first hypothesis pertains to whether comparability reduces the frequency and magnitude of split bond ratings among the three main credit rating agencies. Because evaluating credit risk is a difficult and subjective task, we expect different agencies' evaluations of firms' credit risk to vary to some extent even when information is relatively comparable (Ederington (1986)). Due to their prominence, split ratings indicate significant disagreements about firms' credit risk among the major credit rating agencies. Prior research provides evidence that split ratings are more

likely to be observed when the issuer's true credit risk is more uncertain. For example, Morgan (2002) finds that Moody's and Standard & Poor's are more likely to disagree on ratings for firms in opaque industries, namely banking and insurance, than in other industries. Livingston et al. (2007) find that firms with asset opaqueness are more likely to receive split bond ratings. Reducing uncertainty is important because split ratings have adverse economic consequences for issuers. Livingston and Zhou (2010) find that split-rated bonds pay a 7 basis point yield premium over non-split-rated bonds of comparable credit risk and that the premium is larger for greater rating disagreements. We test the following hypothesis, stated in alternative form:

H1: Comparability is negatively associated with rating dispersion, ceteris paribus.

Our second hypothesis pertains to whether comparability lowers bond market participants' need to protect against adverse selection through bid-ask spreads. Uncertainty about reporting firms' credit risk introduces the potential for adverse selection into transactions between buyers and sellers of bonds. Prior research shows that higher adverse selection yields higher bid-ask spreads and lower liquidity (Kyle (1985), Glosten and Milgrom (1985), Copeland and Galai (1983)). Increasing the amount or precision of public information should reduce information asymmetry among bond market participants (Diamond and Verrecchia (1991)) assuming that these participants have similar ability to evaluate information (Gow et al. (2011)). Under this assumption, proxies for information asymmetry should decrease with firms' accounting quality (Welker (1995), Healy et al. (1999), Leuz and Verrecchia (2000)). For example, Leuz (2003) investigates whether firms reporting under U.S. GAAP versus international accounting standards exhibit differences in proxies for information asymmetry, including bid-ask spreads. More generally, research finds that bid-ask spreads and other measures of illiquidity increase during periods of heightened uncertainty (Dick-Nielsen et al. (2012)).

Motivated by this research, we examine whether firms in more comparable industries exhibit lower information asymmetry. We test the following hypothesis, stated in alternative form:

H2: Comparability is negatively associated with traded bonds' bid-ask spreads, ceteris paribus.

Our third hypothesis pertains to whether comparability lowers the pricing of credit risk in bond and CDS markets.[4] To the extent that bond investors and CDS writers must be compensated to assume the credit risk of firms that are difficult to compare, credit spreads will be higher. In both the theoretical and empirical literatures, there is some controversy regarding whether and under what conditions information uncertainty and asymmetry are priced, however. Diamond and Verrecchia (1991) and Baiman and Verrecchia (1996) provide theoretical support for the argument that higher disclosure quality increases demand for and thus reduces the cost of issuing securities, while Lambert et al. (2011) find that information asymmetry does not affect the cost of capital for a given level of information precision when competition is perfect. In a debt market setting, Duffie and Lando (2001) show that credit spreads for shorter maturity bonds increase sharply when there is incomplete information about the firm's credit quality.

Consistent with this theoretical controversy, empirical evidence has been mixed, perhaps reflecting differences in competition across the market settings examined. Most empirical studies examine the relatively competitive and liquid setting of equity markets. Armstrong et al. (2011) use number of investors in a firm as a proxy for the degree of competition in the firm's equity, and find that information asymmetry is priced only when the degree is of competition is low. On the other hand, Doidge et al. (2004) find that firms that cross-list their equity in more stringent disclosure regimes experience valuation premiums and thus lower costs of capital.

In relatively less competitive debt market settings, information asymmetry generally appears to be priced. For example, papers examining the relation between measures of financial reporting quality and the cost of debt capital usually find a negative relation (Bharath et al. (2008), Mansi et al. (2004)).

We examine bond and CDS markets, which are less competitive and liquid than equity markets.

[4]Prior research suggests that credit spreads in CDS markets are less affected by illiquidity than credit spreads in bond markets (Jorion and Zhang (2007) , Longstaff et al. (2005)).

Accordingly, we expect bond investors and CDS writers to require lower credit spreads for firms in industries with more comparable peers. We test the following hypothesis stated in alternative form:

H3: Comparability is negatively associated with credit spreads, ceteris paribus.

4 Research design

To test our hypotheses, we assess the association between our measures of comparability and proxies for debt market participants' uncertainty about credit risk. In this section, we describe our proxies for uncertainty about credit risk and develop the empirical models to test our hypotheses.

Our first two proxies for uncertainty about credit risk are based on the existence and magnitudes of split ratings by the top three credit rating agencies. *split* is an indicator variable that equals one if a given bond has split ratings. *rating_range* is the number of notches between the highest rating and the lowest rating for a given bond. We denote *split* and *rating_range* collectively as *dispersion*.

As discussed in section 2, we use two proxies for comparability. *iqr_cover_delta* is the interquartile range of the adjustment to the interest coverage ratio within peer-quarters. *iqr_nonrecurr_delta_sRev* is the interquartile range of the adjustment for non-recurring items divided by reported sales revenue within peer-quarters. We denote *iqr_cover_delta* and *iqr_nonrecurr_delta_sRev* collectively by *comparability*.

Under hypothesis H1, we expect higher *comparability* to be associated with smaller *dispersion*. To test this hypothesis, we estimate these regressions:

$$
\begin{aligned}
dispersion_{pti} \;=\; & F(comparability_{pt}, rating_{pti}, iqr(size)_{pt}, iqr(lever)_{pt}, \\
& iqr(cover)_{pt}, iqr(roa)_{pt}, iqr(intanpro)_{pt}, \\
& median(cover)_{pt}, median(leverage)_{pt})
\end{aligned}
\tag{1}
$$

In the subscripts of variables in equation (1) and subsequent equations, p denotes industry peers, t denotes time, and i denotes firms.

In equation (1), we control for the average of the available ratings by Moody's, S&P, and Fitch, denoted *average_rating_bond*. These agencies' letter ratings are mapped to a numeric scale, with better letter ratings corresponding to lower numbers, as follows: AAA = Aaa = 1, AA+ = Aa1 = 2, , and C = 21. We expect a positive coefficient on *average_rating_bond* because credit riskier firms likely have higher credit risk uncertainty.

To control for industry heterogeneity, we include the interquartile ranges within peer-quarters for reported revenues (*iqr_size_rep*), leverage (*iqr_lever_rep*), return on assets (*iqr_roa_rep*), interest coverage ratio (*iqr_cover_rep*), and reported intangible assets divided by total assets (*iqr_intanpro_rep*). All else being equal, firms in an industry are presumed to be economically similar. We do not have expectations for the coefficients on these variables because variability of reported numbers could result from either economic variability or noncomparability.

To control for average industry characteristics, we include the medians within peer-quarters of reported leverage (*median_lever_rep*) and the interest coverage ratio (*median_cover_rep*). We do not have expectations for the coefficients on these variables because their effects likely are subsumed by the effect of rating.

In more extensive model specifications than equation (1), we also control for bond offering amount (*offering_amt*) and the natural logarithm of the time until maturity (*LN_timetillmat*).

We estimate traded bonds' bid-ask spreads using an approach attributable to Roll (1984). Roll

(1984) shows that, under certain assumptions, the percentage bid-ask spread equals two times the square root of minus the covariance between consecutive price changes:

$$roll = 2\sqrt{-Cov(\Delta P_t, \Delta P_{t-1})} \tag{2}$$

As indicated in equation (2), we denote our estimates of traded bonds' bid-ask spread by *roll*, after its namesake. Intuitively, *roll* captures the fact that observed bond prices bounce back and forth between the bid and the ask, with higher percentage bid-ask spreads leading to higher negative covariance between consecutive returns. *roll* has been used in prior literature to reflect the degree of information uncertainty (e.g., Dick-Nielsen et al. (2012)). When the sample covariance is positive, as occurs for about 11% of our sample observations, the formula above is undefined and we substitute a numerical value of zero.

Under hypothesis H2, we expect higher comparability to be associated with smaller *roll*. To test this hypothesis, analogous to equation (1), we regress *roll* on our comparability measures and control variables:

$$\begin{aligned} roll_{pti} \;=\; & F(comparability_{pt}, rating_{pti}, iqr(size)_{pt}, iqr(lever)_{pt}, \\ & iqr(cover)_{pt}, iqr(roa)_{pt}, iqr(intanpro)_{pt}, \\ & median(cover)_{pt}, median(leverage)_{pt}) \end{aligned} \tag{3}$$

We estimate bond credit spreads as the difference between bond yields and the yield on maturity-matched treasury bonds, denoted *spread*. Prior research shows that bond yield spreads are larger than can be explained by credit risk alone (Elton et al. (2001), Dick-Nielsen et al. (2012)), Huang and Huang (2003), Collin-Dufresne et al. (2001)), in part because they also reflect liquidity spreads (Chen et al. (2007)). Because spreads reflects both credit and liquidity premia,

in principle we could use spreads to test both hypotheses H2 and H3. We view spreads as more obviously related to hypothesis H3, however.

We estimate the CDS credit spread for a firm as the spread on its five-year CDS contract, denoted *CDS5y*. *rating_fq* denotes the mean rating of all bond issues for a given issuer-quarter. No controls are necessary for the contractual features of CDS contracts (i.e., maturity, seniority, restructuring clause, and denomination) because these feature are constant across contracts. Compared to bond credit spreads, CDS credit spreads are less affected by liquidity (Longstaff et al. (2005)) and thus a cleaner test of hypothesis H3.

Under hypothesis H3, we expect higher *comparability* to be associated with smaller *spread* and *CDS5y*, which we collective denote *credit spread*. To test this hypothesis, the following regressions are estimated, analogous to equations (1) and (3), we regress *credit spread* on *comparability* measures and control variables:

$$\begin{aligned} credit\_spread_{ptj} &= F(comparability_{pt}, averagerating_{ptj}, iqr(size)_{pt}, iqr(lever)_{pt}, \\ &\quad iqr(cover)_{pt}, iqr(roa)_{pt}, iqr(intanpro)_{pt} \\ &\quad median(cover)_{pt}, median(leverage)_{pt}) \end{aligned} \tag{4}$$

5 Data

Our sample comprises 44,148 bonds issued by 711 issuers. Our sample period ranges from the first fiscal quarter of 2005 to the third fiscal quarter of 2010. We use the Fixed Income Securities Database (FISD) to collect bond issues and rating history. We exclude bonds with unusual features (bonds that are exchangeable, convertible, putable, asset-backed, enhanced or preferred) and retain senior bonds only. We match the bond sample with Moody's Financial Metrics. Furthermore, all bond issues are required to have ratings by at least two of the three rating agencies Moody's,

Standard & Poor's and Fitch. Firms in default (i.e., those with D-rated bonds) are not included in the sample.

As shown in Table 1, split ratings occur for 65% of outstanding bonds rated by at least two of the top three rating agencies, and 53% of bonds rated by the top two. Rating differences (*rating_range*) between agencies are calculated by subtracting the associated numerical values from each other and taking the absolute value. The units of *rating_range* are expressed as rating notches. The majority of bonds with split ratings differ by one or two notches.

Split ratings are more common for bonds with greater credit risk. Only 14% of AAA-rated bonds have split ratings but this proportion increases to 67% for bonds rated just below investment grade. The *rating_range* generally is higher for lower ratings, albeit this increase is not as monotonic as for the proportion of split ratings. AAA-rated bonds have an average *rating_range* of 0.14 notches, and BBBminus-rated bonds have an average *rating_range* of 1.00 notch. These measures of disagreement suggest greater uncertainty about firms with higher credit risk. Moody's and S&P disagree more frequently as credit risk increases. High investment grade firms have the lowest rating dispersion, low investment grade firms have higher rating dispersion and speculative firms exhibit the highest dispersion.

Table 2 provides descriptive statistics for the sample. Financial statement data on the bond issuers are collected from Moody's Financial Metrics. The issuers are classified according to Moody's industry classification and assigned to 28 different peer groups. For each peer group-quarter, the median and interquartile ranges of the bond issuers' characteristics are calculated. Bond issuers' characteristics include size (total revenues), interest coverage (operating profit divided by interest expense and winsorized at 0 and 100 following Blume et al. (2006)), leverage (long-term debt / total assets), return on assets (operating profit / total assets), and the ratio of intangibles and goodwill to total assets. The average of the median coverage ratio across peers is 4.60, the average of the median leverage is 0.33 and, on average, the median peer-quarter has 15% intangible assets. Peer groups exhibit variation in those firm characteristics. On average, the interquartile range for coverage is 7.10 and for leverage the range is 0.21. The table indicates substantial variation in

peer groups' underlying fundamentals.

The coverage ratio captures the degree of indebtedness and profitability of the firm. The adjustment to coverage is calculated as the difference between the adjusted coverage ratio and the reported coverage ratio. The adjustment is winsorized at the first and 99th percentile. For each peer group-quarter, the median and interquartile range of the winsorized adjustments are calculated. Variation of credit rating agencies' adjustments within peer-quarter is the empirical measure that captures the uncertainty about the bond issuer's leverage and profitability. The average median adjustment to the coverage ratio reduces coverage by 0.83. There is substantial variation in the extent to which coverage ratios are adjusted downward: from -0.89 for the 25th percentile to 0.22 for the 75th percentile. On average, the interquartile range for the adjustment to coverage is 2.80, ranging from 0.70 for the 25th percentile to 3.20 for the 75th percentile. Moody's makes an adjustment for what its credit analysts consider to be non-recurring items. This adjustment is divided by total revenues and winsorized at the first and 99th percentile. Again, the median and interquartile range of this statistic are calculated for each peer group-quarter. Variation in the assessment of non-recurring items within peer-quarters is supposed to capture the uncertainty about the bond issuer's earnings persistence.

The average bond rating is 9.60 which corresponds to a BBBminus rating. The average and median *rating_range*, that is, the absolute difference between ratings for a given bond is one notch. The average bond has a face value of USD393,319 and 3,481 days till maturity. The subsample of bonds with ratings from both Moody's and S&P has similar characteristics and slightly smaller rating dispersion. On average, the difference between Moody's and S&P ratings is slightly smaller at 0.8 notches.

We use TRACE (Trade Reporting and Compliance Engine) transactions for corporate bonds to estimate the Roll (1984) measure of illiquidity and bond spreads. We clean the TRACE data to eliminate reporting errors following methodology in Dick-Nielsen (2009). We calculate the bond yield as the average yield for all trades on the filing date. If the bond did not trade on that day, we use the first yield available during the quarter. Yield spreads are calculated as the difference

between the bond yield and the interpolated maturity-matched treasury yield calculated on the same day as the yield is measured. Following methodology in Dick-Nielsen et al. (2012), we exclude yield spreads for bonds that have less than one month to maturity or have a time to maturity when issued of more than 30 years. Furthermore, we winsorize the 0.5% highest and lowest spreads. The average (median) bond yield spread is 2.5% (1.6%). We proxy for the bid-ask spread using the Roll measure (Roll (1984)) as described in section 4 and equation (2). We define a daily Roll measure on days with at least one transaction using a rolling window of 21 days, and the measure is only well-defined if there are at least four transactions in the window. We define a quarterly *roll* measure by taking the median of daily measures within the quarter. The percentiles of *roll* for our sample are very similar to those in Dick-Nielsen et al. (2012)).

We retrieve credit default swap (CDS) spreads from the Markit database which covers a majority of CDS contracts written on U.S. based entities. Markit provides daily CDS spread quotes which are available for different contract maturities ranging from 6 months to 30 years. Typically Markit reports a composite daily CDS spread which is an average across the quotes provided by all market makers after removing outlying observations. We focus on 5-year maturity contracts as they represent the most liquid contracts across different maturities. To maintain uniformity in contracts, we only keep CDS quotations for senior debt with modified restructuring (MR) clause and denominated in U.S. dollars. Out of 711 issuers in the sample, 468 can be identified in the Markit database. For those issuers with ratings by at least two of the top three rating agencies, information on the five-year CDS spread is available for 3,187 firm-quarters (278 issuers). The average CDS spread is 180 basis points.

Table 3 reports descriptive statistics by peer group. Some peer groups, such as telecommunications, utility, environment services and gaming exhibit very little variation in adjustments, whereas other peer groups, such as aircraft & aerospace and pharmaceuticals, exhibit significant variation. Similarly, the proportion of split ratings differs as well as the average creditworthiness varies substantially across peer groups. To assess how well Moody's peer group classification maps into other industry classifications, we construct Herfindahl indices that measure homogeneity of

classification for Fama-French 30 and 48, two-digit SIC and three-digit NAICS. We calculate the Herfindahl index for industry composition within each peer. For example, for a given peer group by Moody's, the index will be 1.00 if all firms are assigned to the same Fama-French-30 industry group; the index will be 0.50 if half the firms are in one Fama-French category and the other half are in another, etc. The Herfindahl indices generally are high, with most industries exhibiting levels greater than 0.25. The greatest dispersion is in consumer products and manufacturing. The index does not change materially when it is constructed based on Fama-French-48, two-digit SIC codes or three-digit NAICS codes. We conclude that Moody's classification maps in quite well into conventional classifications.

Table 4 reports the pairwise Pearson correlations for the key empirical measures. Higher numerical ratings, that is, lower creditworthiness, are positively correlated with the measures of rating dispersion and *roll*. Rating dispersion measures are highly correlated with one another. *CDS5y* is highly correlated with rating and measures of rating dispersion. Rating agencies disagree more often as credit risk deteriorates. Within-peer variation of the adjustment to coverage is negatively correlated with rating dispersion and positively with *roll*. Within-peer variation of the adjustment for non-recurring items is positively correlated with rating dispersion and *roll*. Measures of within-peer variation of issuers' leverage, profitability, size and proportion of intangible assets are negatively correlated with rating dispersion. Higher measures of within-peer median leverage are positively associated with credit risk and the corresponding measure for size has a negative association with credit risk.

To test formally whether the lack of comparability generates more disagreement among the credit rating agencies, we regress rating dispersion on interquartile range of adjustments to coverage and for non-recurring items and control variables. Table 5 Panel A reports the results of the regressions using *split* as the dependant variable. Because *split* is a binary variable, we estimate both OLS and probit specifications of the model. An increase in the numerical rating is associated with higher probability of split ratings. Variation in characteristics within a peer group, such as leverage and return on assets, is negatively associated with split ratings. Ceteris paribus,

an industry with heterogeneous accounting ratios generates less disagreement among credit rating agencies than industries with homogenous accounting ratios. All else being equal, an industry where firms report very different magnitudes of ratios exhibits a high degree of financial statement transparency. One interpretation is that firms are presumed to be economically similar as they are part of the same industry, but due to different circumstances firms report different accounting numbers. Rating analysts are more likely to disagree when firms report numbers that are cosmetically too similar and require adjustments. Higher levels of industry-medians of leverage and lower levels of coverage are associated with the presence of split ratings.

Holding industry characteristics and credit risk constant, greater variation of adjustments to coverage is significantly positively associated with split ratings. A one-standard deviation change in comparability is associated with an increase in the probability of a split rating of 0.055 (=3.90*0.014) using the estimated coefficient in model 1. The average bond in our sample has a 65% probability of a split rating, so the decrease in comparability translates into an increase in likelihood of a split rating of 8.4%. Uncertainty about issuers' earnings persistence is significantly associated with rating splits. A one-standard deviation change in the second comparability measure is associated with an increase in the probability of a split rating of 0.020 (=0.06*0.314), which translates into an increase in likelihood of a split rating of 3.0% (model 2). Including both sets of comparability measures in the regression (model 3) does not change any inferences: lack of comparability as measured on two dimensions is associated with ratings splits. The results of the probit specification are very similar (models 4-6). The regression results in Table 5 Panel A are consistent with our hypothesis: As accounting numbers are perceived to be less reflective of the underlying economics, adjustments become necessary, and rating analysts increasingly disagree.

In addition, a more extensive model specification (models 7-12) includes controls for bond characteristics such as the offering amount and maturity. The results remain unchanged: variation in reported numbers generates less disagreement among rating analysts whereas greater variation in adjustments to reported numbers generates greater disagreement.

The interquartile range for the adjustment to coverage and the interquartile range of the re-

ported coverage ratio are highly correlated. To address the issue of multicollinearity, we drop the latter variable and include the interquartile ranges for the other four peer characteristics only. Results are reported in Table 5 Panel B (models 1-6). The direction and statistical significance remain unchanged, although the size of the coefficient for the variation of the adjustment to coverage decreases. In addition, we compute a variable *IQR* which is the average of the quintiles for the interquartile ranges of the five peer characteristics, including coverage.*IQR* remains correlated with the interquartile range for the coverage adjustment, but the correlation drops to less than half the prior level. Substituting *IQR* for the five peer interquartile ranges does not affect the significance of the coefficient for the interquartile range for the coverage adjustment, but the coefficient and significance of the variation for the adjustment for non-recurring items decreases.

Table 5 Panel C reports the results for the regressions with *rating_range* as the dependent variable. The rating difference in notches (*rating_range*) is regressed on financial statement comparability and controls. We estimate both OLS and Poisson models for *rating_range* because it is a count variable. Worse ratings are associated with greater *rating_range*. Variation in peer characteristics within a peer group, such as leverage and coverage, is negatively associated with *rating_range*. Ceteris paribus, an industry with heterogeneous accounting ratios generates less disagreement among credit rating agencies than industries with homogenous accounting ratios.

Holding industry characteristics and credit risk constant, greater variation of adjustments to coverage is significantly positively associated with *rating_range*. In terms of economic significance, a one-standard deviation change in the comparability measure based on the adjustment to coverage is associated with an increase in *rating_range* of 0.121 (=3.90*0.031) in model 1. Given that the average bond in our sample exhibits a *rating_range* of 1.00 notch, this effect translates into an increase in split dispersion at 12% per notch, suggesting that the effect is modestly economically significant.

Greater variation in adjustments for non-recurring items is positively associated with *rating_range* but no longer significant (model 2). (However, its coefficient is significant in the Poisson specifications in model 5.) As in model 1, worse credit ratings are associated with greater rating

dispersion, and greater heterogeneity in reported accounting numbers is associated with smaller rating dispersion. Model 3 includes both sets of comparability measures, the variation of adjustments to coverage and the variation of adjustments for non-recurring items. As reported in models 1-2, lack of comparability in terms of coverage and earnings persistence is associated with greater disagreement among credit rating agencies. The adjustment to coverage remains statistically significant, and the estimate for the adjustment for earnings persistence remains positive. These results are consistent with findings in De Franco et al. (2011) in that equity analysts do not react to the non-recurring adjustments by Moody's. Credit analysts, like equity analysts, may discount the importance of non-recurring adjustments in the rating process. As before, worse bond ratings have a positive association with *rating_range*, and heterogeneity in ratios based on reported financial statements have a negative association with *rating_range*. Models 7-12 report the results for the regressions without variation of coverage. The inferences for the OLS specification do not change, but the Poisson specification results in diminished significance for the coefficient on the interquartile range of the coverage adjustment but increased significance of the coefficient on the interquartile range of the non-recurring item adjustment.

One potential concern is that disagreement by Fitch is due to other factors than disagreement about credit risk. We re-estimate the regressions of rating dispersion and comparability measures for the subsample of bonds with ratings by both Moody's and S&P. The results are robust to the specification using rating disagreements between the top two agencies only. Lack of financial statement comparability with respect to coverage is associated with greater likelihood of having split ratings (that is, split between Moody's and S&P ratings) and greater differences between Moody's and S&P ratings.

Another potential issue is whether Moody's adjustments appropriately capture credit risk or differ from credit risk assessments by other agencies. However, Kraft (2010) shows that financial ratios adjusted by Moody's explain default risk better than do unadjusted numbers. Furthermore, De Franco et al. (2011) find that Moody's adjustments are partly reflected into analyst target price revisions and also partly reflected into stock prices. This result suggests that different parties may

apply different adjustments, which does not conflict with our interpretation of greater variation in adjustments as greater uncertainty in credit analysis.

In our next set of regressions (Table 6 models 1-3), we regress corporate bond yield spreads on our comparability variables one at a time and jointly while controlling for industry characteristics and firm's credit risk. This allows us to see how financial statement comparability is priced. As dependent variable we use the yield spread to the maturity-matched treasury yield for every bond. Higher variation in adjustments to coverage ratios and adjustments for non-recurring items is associated with greater bond yield spreads. A one-standard deviation increase in the variation of our first comparability measure is associated with an increase in bond spread of 54 basis points (=3.90*0.138) which translates into an increase of 22% of the average bond yield spread. A one standard-deviation increase in our second measure results in an increase of 47 basis points. Both measures remain significant when they are jointly included in the regression.

As a more direct test of the relation of financial statement comparability on uncertainty about credit risk, we employ *roll* as dependent variable (models 4-6). *roll* is our proxy for the bid-ask spread, which we do not observe for bond prices. Our two measures of financial statement comparability are significantly positively associated with this measure of illiquidity. Consistent with prior research, bonds with higher credit risk are associated with greater illiquidity and bid-ask spreads. Greater variation in reported characteristics for leverage and coverage is weakly related to higher bond yield spreads and higher illiquidity, but greater variation in reported size and return on assets has the opposite association. The significant and positive relation between our financial statement comparability measures and bond yields spreads and illiquidity is robust to various alternative specifications involving subsets of control variables (models 7-12 and untabulated results).

Bonds trade infrequently: the average bond only trades 52 days a year, and conditional on trading, only 4.6 times a day (Bessembinder et al. (2009)). In contrast, CDS contracts are traded more frequently for those firms for which they exist. Bond yield spreads reflect other factors that are not related to the pricing of default risk, such as tax differences or liquidity (Elton et al. (2001), Jorion and Zhang (2007)). To assess the relation between financial statement comparability

and the pricing of credit risk, we use 5-year CDS spreads as the dependent variables. Table 7 reports the results. Consistent with structural models of credit risk, the numerical rating is significantly positively associated with the CDS spread. Holding industry characteristics and credit risk constant, greater variation of adjustments to coverage is significantly positively associated with CDS spreads. In terms of economic significance, a one-standard deviation change in the comparability measure based on the adjustment to coverage is associated with a change in CDS spread of 46 basis points (=3.90*0.119*100). Given that the average CDS in our sample has a spread of 180 basis points, this effect translates into an increase of 26%, suggesting that the effect is significant on an economic basis. The effect of a one-standard deviation increase in within-industry variation of the adjustment for non-recurring items translates into an increase of 38 basis points. Both coefficients retain their size and statistical significance when they are combined into one model, which provides assurance that the adjustment to coverage and the adjustment for non-recurring items measure different dimensions of comparability. The regression results in table 7 are consistent with our hypothesis: Within-industry variation of adjustments to reported accounting numbers is associated with greater CDS spreads.

6 Conclusion

The objective of financial reporting is to provide information to the reporting firm's existing and potential investors and creditors to improve their ability to evaluate the risks and rewards of investing in the firm. To satisfy this objective, one of the most important attributes of accounting numbers is comparability across peer firms, which facilitates standard financial analyses such as ratio analysis. When reported accounting numbers are less comparable, investors must make more frequent and larger adjustments to conduct these analyses. These adjustments likely entail information acquisition and processing costs and engender differences in investors' judgmental evaluations of firms. Despite the importance of comparability, relatively little research examine the benefits of comparability and extant measures of comparability exhibit various significant

limitations.

This paper makes three primary contributions to the accounting research on comparability and its beneficial effects. First, we develop quantitative, accounting-output-based measures of distinct dimensions of comparability. Our measures are based on the adjustments Moody's makes to reported accounting numbers to make them more useful in its credit rating processes. They incorporate the significance and multidimensional nature of the adjustments. They do not intermingle comparability with economic similarity. We examine two sets of Moody's adjustments: (1) to interest coverage ratios, which capture its reclassification of off-balance sheet financing and adjustments to operating profit; and (2) for non-recurring income items, which capture its attempt to hone in on ongoing, sustainable earnings. We argue our measures are superior to those used in prior research and are promising for future research. They can be easily modified to capture alternative dimensions of comparability.

Second, we examine the effect of comparability on various proxies for debt market participants' uncertainty about reporting firms' credit risk. Our study is distinct from prior research that focuses on the benefits of comparability for equity markets.

Third, we predict and find that greater comparability reduces the frequency and magnitude of split ratings by credit rating agencies, the bid-ask spreads of traded bonds, and credit spreads in both bond and CDS markets. Our results are consistent with comparability reducing debt market participants' uncertainty about firms' credit risk.

The caveats to our study mentioned in the introduction indicate several possibilities for future research. First, do credit rating agencies or other users of financial reports induce firms to increase comparability? Second, do certain facts and circumstances cause firms to supply comparable information? Third, does increasing comparability entail costs that reduce the optimal level of comparability?

References

Akins, B. (2012). Financial reporting quality and uncertainty about credit risk among the ratings agencies. Working Paper.

Altman, E. I. (1968). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The Journal of Finance 23*(4), pp. 589–609.

Armstrong, C. S., J. E. Core, D. J. Taylor, and R. E. Verrecchia (2011). When does information asymmetry affect the cost of capital? *Journal of Accounting Research 49*(1), 1–40.

Baiman, S. and R. E. Verrecchia (1996). The relation among capital markets, financial disclosure, production efficiency, and insider trading. *Journal of Accounting Research 34*(1), pp. 1–22.

Barth, M., L. D. Hodder, and S. E. Stubben (2008). Fair value accounting for liabilities and own credit risk. *The Accounting Review 83*(3), 629–664.

Barth, M., W. R. Landsman, M. Lang, and C. Williams (2012). Are IFRS-based and US GAAP-based accounting amounts comparable? *Journal of Accounting and Economics forthcoming*.

Beaver, W. H. (1966). Financial ratios as predictors of failure. *Journal of Accounting Research 4*, pp. 71–111.

Beaver, W. H., M. Correia, and M. F. McNichols (2010). Financial statement analysis and the prediction of financial distress. *Foundations and Trends in Accounting 5*(2), 99–173.

Bessembinder, H., K. M. Kahle, W. F. Maxwell, and D. Xu (2009). Measuring abnormal bond performance. *Review of Financial Studies 22*(10), 4219–4258.

Bharath, S. T., J. Sunder, and S. V. Sunder (2008). Accounting quality and debt contracting. *The Accounting Review 83*(1), 1–28.

Bhojraj, S. and C. Lee (2002). Who is my peer? A valuation-based approach to the selection of comparable firms. *Journal of Accounting Research 40*(2), 407–439.

Blume, M. E., F. Lim, and A. C. Mackinley (2006). The declining credit quality of U.S. corporate debt: Myth or reality? *Journal of Finance 53*(4), 1389–1413.

Bradshaw, M. T., G. S. Miller, and G. Serafeim (2009). Accounting method heterogeneity and analysts forecasts. Working Paper.

Chen, L., D. A. Lesmond, and J. Wei (2007). Corporate yield spreads and bond liquidity. *Journal of Finance 62*(1), 119–149.

Cheng, L. (2012). Loan loss provisioning and differences of opinion. Working Paper.

Collin-Dufresne, P., R. S. Goldstein, and J. S. Martin (2001). The determinants of credit spread changes. *The Journal of Finance 56*(6), 2177–2207.

Copeland, T. E. and D. Galai (1983). Information effects on the bid-ask spread. *The Journal of Finance 38*(5), pp. 1457–1469.

Damodaran, A. (2012). *Investment valuation: Tools and techniques for determining the value of any asset* (2 ed.). Hoboken, NJ: Wiley.

De Franco, G., S. Kothari, and R. S. Verdi (2011). The benefits of financial statement comparability. *Journal of Accounting Research 49*(4), 895–931.

De Franco, G., F. Wong, and Y. Zhou (2011). Accounting adjustments and the valuation of financial statement note information in 10-K filings. *The Accounting Review 86*(5), 1577–1604.

Diamond, D. W. and R. E. Verrecchia (1991). Disclosure, liquidity, and the cost of capital. *The Journal of Finance 46*(4), pp. 1325–1359.

Dichev, I. D. and J. D. Piotroski (2001). The long-run stock returns following bond ratings changes. *Journal of Finance 56*(1), 173–203.

Dick-Nielsen, J. (2009). Liquidity biases in TRACE. *Journal of Fixed Income 19*(2), 43–55.

Dick-Nielsen, J., P. Feldhuetter, and D. Lando (2012). Corporate bond liquidity before and after the onset of the subprime crisis. *Journal of Financial Economics 103*(3), 471 – 492.

Doidge, C., G. A. Karolyi, and R. M. Stulz (2004). Why are foreign firms listed in the U.S. worth more? *Journal of Financial Economics 71*(2), 205–238.

Duffie, D. and D. Lando (2001). Term structures of credit spreads with incomplete accounting information. *Econometrica 69*(3), 633–664.

Ederington, L. H. (1986). Why split ratings occur. *Financial Management 15*(1), pp. 37–47.

Elton, E. J., M. J. Gruber, D. Agrawal, and C. Mann (2001). Explaining the rate spread on corporate bonds. *Journal of Finance 56*(1), 247–278.

FASB (2010). Statement of Financial Accounting Concepts No. 8. Conceptual framework for finanical reporting.

Glosten, L. R. and P. R. Milgrom (1985). Bid, ask and transaction prices in a specialist market with heterogeneously informed traders. *Journal of Financial Economics 14*(1), 71 – 100.

Gow, I. D., D. Taylor, and R. Verrecchia (2011). Disclosure and the cost of capital: Evidence of information complementarities. Working Paper.

Gu, Z. and T. Chen (2004, December). Analysts' treatment of nonrecurring items in street earnings. *Journal of Accounting and Economics 38*(1), 129–170.

Hand, J. R. M., R. W. Holthausen, and R. W. Leftwich (1992). The effect of bond rating agency announcements on bond and stock prices. *Journal of Finance 47*(2), 733–752.

Healy, P. M., A. P. Hutton, and K. G. Palepu (1999). Stock performance and intermediation changes surrounding sustained increases in disclosure. *Contemporary Accounting Research 16*(3), 485–520.

Holthausen, R. W. and R. W. Leftwich (1986). The effect of bond rating changes on common stock prices. *Journal of Financial Economics 17*(1), 57–89.

Huang, J. and M. Huang (2003). How much of the corporate-treasury yield spread is due to credit risk? Working Paper.

Joos, P. and M. Lang (1994). The effects of accounting diversity: Evidence from the European Union. *Journal of Accounting Research 32*, pp. 141–168.

Jorion, P., Z. Liu, and C. Shi (2005). Informational effects of Regulation FD: Evidence from rating agencies. *Journal of Financial Economics 76*(2), 309–330.

Jorion, P. and G. Zhang (2007). Good and bad credit contagion: Evidence from credit default swaps. *Journal of Financial Economics 84*(3), 860–883.

Kaplan, R. S. and G. Urwitz (1979). Statistical models of bond ratings: A methodological inquiry. *Journal of Business 52*(2), 231–61.

Kraft, P. (2010). Rating agency adjustments to GAAP financial statements and their effect on ratings and bond yields. Working Paper.

Kyle, A. S. (1985). Continuous auctions and insider trading. *Econometrica 53*(6), pp. 1315–1335.

Lambert, R. A., C. Leuz, and R. E. Verrecchia (2011). Information asymmetry, information precision, and the cost of capital. *Review of Finance 16*(1), 1–29.

Land, J. and M. H. Lang (2002). Empirical evidence on the evolution of international earnings. *The Accounting Review 77*, pp. 115–133.

Leftwich, R. (1983). Accounting information in private markets: Evidence from private lending agreements. *The Accounting Review 58*(1), 23–42.

Leuz, C. (2003). IAS versus U.S. GAAP: Information asymmetry-based evidence from Germany's New Market. *Journal of Accounting Research 41*(3), 445–472.

Leuz, C. and R. E. Verrecchia (2000). The economic consequences of increased disclosure. *Journal of Accounting Research 38 (Supplement)*, 91–124.

Li, N. (2010). Negotiated measurement rules in debt contracts. *Journal of Accounting Research 48*(5), 1103–1144.

Livingston, M., A. Naranjo, and L. Zhou (2007). Asset opaqueness and split bond ratings. *Financial Management 36*(3), pp. 49–62.

Livingston, M. and L. Zhou (2010). Split bond ratings and information opacity premiums. *Financial Management 39*(2), pp. 515–532.

Longstaff, F. A., S. Mithal, and E. Neis (2005). Corporate yield spreads: Default risk or liquidity? new evidence from the credit default swap market. *Journal of Finance 60*(5), 2213–2253.

Mansi, S. A., W. F. Maxwell, and D. P. Miller (2004). Does auditor quality and tenure matter to investors? evidence from the bond market. *Journal of Accounting Research 42*(4), 755–793.

Moody's (2006). Moody's approach to global standard adjustments in the analysis of financial statements for non-financial corporations - part I.

Morgan, D. P. (2002). Rating banks: Risk and uncertainty in an opaque industry. *The American Economic Review 92*(4), pp. 874–888.

Patell, J. M. (1979). The API and the design of experiments. *Journal of Accounting Research 17*(2), pp. 528–549.

Roll, R. (1984). A simple implicit measure of the effective bid-ask spread in an efficient market. *The Journal of Finance 39*(4), pp. 1127–1139.

Standard and Poor's (2008). Corporate ratings criteria.

Welker, M. (1995). Disclosure policy, information asymmetry, and liquidity in equity markets. *Contemporary Accounting Research 11*(2), 801–827.

Appendix A
Variable definitions

Variable	Explanation
Firm characteristics, as reported	
cover_rep	Operating profit / Interest expense (winsorized at 0 and 100)
roa_rep	Operating profit / Total assets
intanpro_rep	Goodwill and other intangibles / Total assets
lever_rep	Long-term debt / Total assets
size_rep	Revenues in USD thousands
Peer-quarter variables	
median_[x]	Median of [x] by peer-quarter
iqr_[x]	Interquartile range of [x] by peer-quarter
IQR	Mean of quintiles. Quintiles for interquartile range for size, leverage, coverage, ROA and proportion of intangibles.
Financial statement comparability, based on adjustments	
cover_delta	Adjusted coverage - reported coverage, winsorized at 1st and 99th percentile
nonrecurr_delta_sRev	Adjustment for non-recurring items / reported revenues, winsorized at 1st and 99th percentile
iqr_cover_delta	Interquartile range of cover_delta by peer-quarter
iqr_nonrecurr_delta_sRev	Interquartile range of nonrecurr_delta_sRev by peer-quarter
Bond characteristics	
average_rating_bond	Average of Moody's, S&P and Fitch rating on filing day for a given bond
averagerating	Average of Moody's, S&P and Fitch rating on filing day for all bonds by the same issuer
split	Indicator equals one if any of Moody's, S&P or Fitch rating differ
ms_split	Indicator equals one if Moody's not equal to S&P rating
rating_range	Difference between maximum and mininum rating by Moody's, S&P and Fitch (notches)
rating_ms_range	Difference between maximum and mininum rating by Moody's and S&P (notches)
spread	Difference between average yield of bond and interpolated maturity-matched treasury yield (percent), winsorized at 0.5 and 99.5 percentile
roll	Estimate of bid-ask spread based on Roll (1984), winsorized at 1st and 99th percentile
offering_amt	Par value of debt issued
timetillmat	Time from filing date to maturity (days)
LN_timetillmat	Ln(Time from filing date to maturity)
default rate	Historic default rate for corporate bonds over one-year horizon. Average of Moody's, S&P and Fitch (percent)
Credit default swap	
CDS5y	Five-year CDS spread on filing day (basis points)
Industry classifications	
hhi_ff30	Herfindahl index of Fama-French 30 classification for Moody's peer groups

Table 1

Summary statistics - Rating dispersion

This table provides the breakdown in notches of differences between ratings (rating range) and differences between Moody's and S&P ratings (rating_ms_range). Default rates, rating differences and the proportion of split rating are reported for each average bond rating.

	rating_range		rating_ms_range	
No. of notches	Freq.	Percent	Freq.	Percent
0	15,268	34.6%	19,785	46.9%
split rating	28,880	65.4%	22,435	53.1%
1	18,848	42.7%	16,108	38.2%
2	6,574	14.9%	4,624	11.0%
3	1,997	4.5%	963	2.3%
4	698	1.6%	299	0.7%
5 or more	763	1.7%	441	1.0%
Total	44,148	100.0%	42,220	100.0%

Average bond rating	default rate	rating_range	split	rating_ms_range	ms_split
AAA	0.000	0.14	13.9%	0.10	9.6%
AA+	0.000	0.54	37.8%	0.49	37.8%
AA	0.007	0.54	37.6%	0.35	34.9%
AA-	0.046	1.02	66.5%	0.65	46.6%
A+	0.047	0.81	72.2%	0.39	31.7%
A	0.069	0.83	53.4%	0.67	48.3%
A-	0.111	1.03	72.7%	0.81	62.9%
BBB+	0.147	0.92	70.6%	0.74	59.5%
BBB	0.173	0.70	55.5%	0.56	47.2%
BBB-	0.377	1.00	59.1%	0.80	50.1%
BB+	0.771	1.47	67.6%	1.02	56.1%
BB	0.824	1.69	72.9%	0.99	56.9%
BB-	1.482	1.79	78.1%	1.43	72.2%
B+	2.033	1.60	80.2%	1.22	76.2%
B	4.050	1.59	75.1%	1.05	60.8%
B-	5.964	1.30	72.1%	0.94	56.3%
CCC+	20.032	1.58	80.2%	1.15	69.8%
CCC	23.187	2.05	73.5%	1.00	65.4%
CCC-	26.593	2.02	85.2%	1.84	75.6%
CC	30.293	0.79	79.2%	0.79	79.2%

Table 2

Summary statistics

This table provides descriptive statistics. Size_rep equals revenues in USD thousands. Lever_rep equals the ratio of long-term debt / total assets. Cover_rep equals the ratio of operating profit to interest expense, winsorized at 0 and 100. Roa_rep equals the ratio of operating profit to total assets. Intanpro_rep equals the ratio of goodwill and other intangibles to total assets. Median_[x] equals the median of [x] by peer-quarter. Iqr_[x] equals the interquartile range of [x] by peer-quarter. IQR equals the mean of the quintiles for interquartile range for size, leverage, coverage, ROA and proportion of intangibles. Cover_delta equals the difference between adjusted coverage and reported coverage, winsorized at 1st and 99th percentile. Nonrecurr_delta_sRev equals the ratio of the adjustment for non-recurring items to reported revenues, winsorized at 1st and 99th percentile. Iqr_cover_delta equals the interquartile range of cover_delta by peer-quarter. Iqr_nonrecurr_delta_sRev equals the interquartile range of nonrecurr_delta_sRev by peer-quarter. Average_rating_bond equals the average of Moody's, S&P and Fitch rating on filing day for a given bond. Split is an indicator that equals one if any of Moody's, S&P or Fitch rating differ and zero otherwise. Ms_split is an indicator that equals one if Moody's not equal to S&P rating and zero otherwise. Rating_range equals the difference between maximum and mininum rating by Moody's, S&P and Fitch (notches). Rating_ms_range equals the difference between maximum and mininum rating by Moody's and S&P (notches). Offering_amt equals par value of debt issued. Timetillmat equals time from filing date to maturity (days). Roll equals estimate of bid-ask spread based on Roll (1984), winsorized at 1st and 99th percentile. Spread equals the difference between average yield of bond and interpolated maturity-matched treasury yield (percent), winsorized at 0.5 and 99.5th percentile. CDS5y equals five-year CDS spread on filing day (basis points).

variable	mean	p25	p50	p75	sd	N
Peer-quarter characteristics						
median_size_rep	1,507,901	613,562	1,112,958	1,530,043	1,563,582	44,148
median_lever_rep	0.33	0.27	0.32	0.35	0.10	44,148
median_cover_rep	4.60	2.70	3.90	5.40	3.60	44,148
median_roa_rep	0.02	0.02	0.02	0.03	0.01	44,148
median_intanpro_rep	0.15	0.02	0.08	0.29	0.15	44,148
iqr_size_rep	3,194,102	1,512,008	2,295,811	3,420,927	3,039,282	44,148
iqr_lever_rep	0.21	0.13	0.18	0.27	0.12	44,148
iqr_cover_rep	7.10	3.00	5.90	8.90	7.50	44,148
iqr_roa_rep	0.02	0.01	0.02	0.03	0.01	44,148
iqr_intanpro_rep	0.20	0.10	0.19	0.28	0.11	44,148
IQR	3.00	2.20	3.00	3.80	0.92	44,148
Comparability measures						
iqr_cover_delta	2.80	0.70	1.70	3.20	3.90	44,148
iqr_nonrecurr_delta_sRev	0.02	0.00	0.01	0.01	0.06	44,148
median_cover_delta	-0.83	-0.89	-0.47	-0.22	1.50	44,148
median_nonrecurr_delta_sRev	0.00	0.00	0.00	0.00	0.02	44,148
Bond properties						
Rating by at least two CRAs out of Moody's, S&P or Fitch						
average_rating_bond	9.4	7.0	9.0	11.0	3.5	44,148
split	65.0%	0.0%	100.0%	100.0%	48.0%	44,148
rating_range	1.0	0.0	1.0	1.0	1.2	44,148
offering_amt	393,319	200,000	300,000	500,000	356,440	44,148
timetillmat	3,481	1,157	2,283	3,673	3,930	44,148
Rating by at least Moody's and S&P						
average_rating_bond	9.4	7.0	9.0	11.0	3.5	42,220
ms_split	53.0%	0.0%	100.0%	100.0%	50.0%	42,220
rating_ms_range	0.8	0.0	1.0	1.0	1.0	42,220
offering_amt	395,786	200,000	300,000	500,000	359,314	42,220
timetillmat	3,493	1,168	2,279	3,642	3,956	42,220
Liquidity and bond yield spreads						
roll	0.9	0.3	0.6	1.1	1.1	24,173
spread (%)	2.5	1.0	1.6	2.9	2.9	23,964
CDS spread						
CDS5y (bps)	180.00	41.00	78.00	190.00	310.00	3,187

Table 3

Summary statistics by peer group

This table provides descriptive statistics by peer group. Cover_delta equals the difference between adjusted coverage and reported coverage, winsorized at 1st and 99th percentile. Nonrecurr_delta_sRev equals the ratio of the adjustment for non-recurring items to reported revenues, winsorized at 1st and 99th percentile. Iqr_cover_delta equals the interquartile range of cover_delta by peer-quarter. Iqr_nonrecurr_delta_sRev equals the interquartile range of nonrecurr_delta_sRev by peer-quarter. Cover_rep equals the ratio of operating profit to interest expense, winsorized at 0 and 100. Roa_rep equals the ratio of operating profit to total assets. Intanpro_rep equals the ratio of goodwill and other intangibles to total assets. Lever_rep equals the ratio of long-term debt / total assets. Size_rep equals revenues in USD thousands. Iqr_[x] equals the interquartile range of [x] by peer-quarter. Split is an indicator that equals one if any of Moody's, S&P or Fitch rating differ and zero otherwise. Average_rating_bond equals the average of Moody's, S&P and Fitch rating on filing day for a given bond. Hhi_ff30 equals Herfindahl index of Fama-French 30 classification for Moody's peer groups.

peer	N	iqr_cover_delta	iqr_nonrecurr_ delta_sRev	iqr_size_rep	iqr_lever_rep	iqr_cover_rep	iqr_roa_rep	iqr_intanpro_re p	split	average_rating _bond	hhi_ff30
AIRCRAFT & AEROSPACE	395	16.52	0.03	650,742	0.15	36.96	0.02	0.24	0.71	9.4	0.38
AUTOMOTIVE	1,098	2.67	0.02	4,383,635	0.25	6.02	0.02	0.23	0.84	13.0	0.31
CHEMICALS	1,534	3.82	0.02	1,394,179	0.13	7.92	0.02	0.25	0.39	9.0	0.67
CONSTR & ENGINEERING SERV	610	3.76	0.03	354,381	0.12	13.98	0.03	0.02	0.64	12.0	0.67
CONSUMER PRODUCTS	4,217	2.27	0.01	3,009,076	0.25	8.16	0.03	0.29	0.53	7.7	0.12
DEFENSE	1,601	6.00	0.03	10,900,000	0.29	9.88	0.01	0.41	0.77	7.0	0.24
ENERGY	7,137	1.74	0.03	1,985,229	0.18	6.15	0.02	0.08	0.65	10.3	0.30
ENVIRONMENT	236	0.72	0.05	2,405,365	0.14	3.35	0.02	0.26	0.89	10.5	0.82
FOREST PRODUCTS	1,265	1.65	0.01	885,458	0.20	3.94	0.02	0.15	0.69	10.3	0.71
GAMING	305	0.86	0.09	700,255	0.23	1.72	0.03	0.25	0.65	13.1	0.82
HEALTHCARE	972	1.82	0.06	690,253	0.28	4.31	0.02	0.31	0.87	11.3	0.69
LEISURE & ENTERTAINMENT	202	6.47	0.03	2,767,287	0.37	13.37	0.03	0.04	0.23	11.0	0.60
LODGING	277	2.05	0.09	823,497	0.30	7.74	0.08	0.28	0.45	11.1	0.51
MANUFACTURING	2,420	2.33	0.02	1,109,508	0.19	7.10	0.03	0.28	0.55	9.8	0.13
MEDIA PUBLISHING	170	1.34	0.01	393,545	0.46	4.13	0.02	0.28	0.69	11.6	0.65
METALS & MINING	717	4.62	0.01	2,455,762	0.07	15.44	0.04	0.12	0.59	9.5	0.45
NATURAL PRODUCTS PROCESSOR	835	1.16	0.00	5,013,058	0.12	4.14	0.02	0.19	0.67	9.7	0.74
PACKAGING	306	0.91	0.06	1,035,148	0.35	3.20	0.02	0.21	0.68	13.0	0.50
PHARMACEUTICALS	875	12.07	0.06	7,280,909	0.15	23.08	0.04	0.21	0.73	4.4	0.93
RESTAURANTS	521	3.98	0.01	2,715,250	0.29	8.02	0.04	0.40	0.66	8.6	0.75
RETAIL	3,710	6.10	0.00	8,311,335	0.29	11.44	0.03	0.20	0.61	8.7	0.72
SERVICES	986	0.99	0.02	602,916	0.45	2.86	0.02	0.40	0.83	13.0	0.25
TECHN SERVICES	801	1.78	0.02	1,223,370	0.19	5.72	0.03	0.25	0.62	9.6	0.32
TECHNOLOGY	1,796	5.63	0.05	3,373,494	0.33	12.11	0.02	0.30	0.63	8.8	0.42
TELECOMMUNICATIONS	1,795	0.32	0.02	2,480,414	0.44	2.95	0.02	0.29	0.66	11.6	0.72
TRANSPORTATION SERVICES	1,607	1.78	0.02	3,626,985	0.19	4.80	0.02	0.03	0.42	10.4	0.86
UTILITY	7,401	0.60	0.02	2,293,326	0.10	1.94	0.01	0.12	0.80	8.1	0.97
WHLSL DSTRBTN	359	2.23	0.00	9,533,541	0.19	8.90	0.02	0.23	0.55	9.8	0.49

Table 4

Pairwise Pearson correlations

This table provides pairwise Pearson correlations between the variables used in the multivariate analysis. * denotes significance at the 5% level. Average_rating_bond equals the average of Moody's, S&P and Fitch rating on filing day for a given bond. Spread equals the difference between average yield of bond and interpolated maturity-matched treasury yield (percent), winsorized at 0.5 and 99.5th percentile. Roll equals estimate of bid-ask spread based on Roll (1984), winsorized at 1st and 99th percentile. Split is an indicator that equals one if any of Moody's, S&P or Fitch rating differ and zero otherwise. Ms_split is an indicator that equals one if Moody's not equal to S&P rating and zero otherwise. Rating_range equals the difference between maximum and mininum rating by Moody's, S&P and Fitch (notches). CDS5y equals five-year CDS spread on filing day (basis points). Cover_delta equals the difference between adjusted coverage and reported coverage, winsorized at 1st and 99th percentile. Nonrecurr_delta_sRev equals the ratio of the adjustment for non-recurring items to reported revenues, winsorized at 1st and 99th percentile. Iqr_cover_delta equals the interquartile range of cover_delta by peer-quarter. Iqr_nonrecurr_delta_sRev equals the interquartile range of nonrecurr_delta_sRev by peer-quarter. Size_rep equals revenues in USD thousands. Lever_rep equals the ratio of long-term debt / total assets. Cover_rep equals the ratio of operating profit to interest expense, winsorized at 0 and 100. Roa_rep equals the ratio of operating profit to total assets. Intanpro_rep equals the ratio of goodwill and other intangibles to total assets. Median_[x] equals the median of [x] by peer-quarter. Iqr_[x] equals the interquartile range of [x] by peer-quarter. IQR equals the mean of the quintiles for interquartile range for size, leverage, coverage, ROA and proportion of intangibles.

	average_rating_bond	spread	roll	split	ms_split	rating_range	CDS5y	iqr_cover_delta	iqr_nonrecurr_delta_sRev	median_size_rep	median_lever_rep	median_cover_rep	IQR	iqr_size_rep	iqr_lever_rep	iqr_cover_rep	iqr_roa_rep
average_rating_bond	1.0000																
spread	0.5692*	1.0000															
roll	0.1024*	0.3846*	1.0000														
split	0.1602*	0.0898*	0.0134*	1.0000													
ms_split	0.1745*	0.0911*	0.0278*	0.7391*	1.0000												
rating_range	0.2501*	0.2388*	0.0626*	0.6096*	0.4838*	1.0000											
CDS5y	0.5450*	0.7664*	0.2171*	0.1097*	0.1017*	0.3093*	1.0000										
iqr_cover_delta	-0.1415*	-0.0431*	0.0142*	-0.0298*	-0.0113*	-0.0560*	-0.0552*	1.0000									
iqr_nonrecurr_delta_sRev	0.0108*	0.1986*	0.1077*	0.0102*	0.0145*	0.0175*	0.1544*	0.0545*	1.0000								
median_size_rep	-0.2625*	-0.1028*	-0.0153*	0.0143*	-0.0471*	-0.0378*	-0.0908*	0.3187*	-0.0119*	1.0000							
median_lever_rep	0.2596*	0.1363*	0.0214*	0.0450*	0.0769*	0.1075*	0.1556*	-0.3968*	0.0570*	-0.4630*	1.0000						
median_cover_rep	-0.1745*	-0.1421*	-0.0505*	-0.0630*	-0.0439*	-0.0766*	-0.1409*	0.6471*	-0.0859*	0.3700*	-0.4573*	1.0000					
IQR	-0.0654*	0.0301*	0.0039	-0.0877*	-0.0526*	-0.0605*	0.0037	0.4136*	0.0777*	0.3029*	-0.1417*	0.2539*	1.0000				
iqr_size_rep	-0.2051*	-0.0304*	0.0346*	-0.0154*	-0.0564*	-0.0360*	-0.0327*	0.3272*	-0.0144*	0.7738*	-0.3547*	0.2906*	0.4676*	1.0000			
iqr_lever_rep	0.1272*	0.0697*	-0.0136*	-0.0258*	0.0014	-0.0041*	0.0806*	0.1791*	0.0709*	-0.0020	0.3040*	-0.0466*	0.5956*	0.2070*	1.0000		
iqr_cover_rep	-0.1133*	-0.0540*	-0.0063*	-0.0530*	-0.0207*	-0.0678*	-0.0633*	0.8957*	0.0379*	0.2275*	-0.3642*	0.7289*	0.4331*	0.2385*	0.1273*	1.0000	
iqr_roa_rep	0.0248*	0.1438*	0.0500*	-0.0708*	-0.0115*	-0.0239*	0.0853*	0.1984*	0.4065*	-0.0425*	0.0467*	0.1076*	0.5188*	0.0297*	0.2495*	0.2868*	1.0000
iqr_intanpro_rep	-0.0279*	-0.0253*	-0.0262*	0.0053*	-0.0012	-0.0232*	-0.0337*	0.1775*	0.0274*	0.2276*	0.0571*	0.1069*	0.6243*	0.2027*	0.5141*	0.1403*	0.1801*

Table 5 - Panel A

Regressions of bond dispersion on comparability and peer-quarter characteristics

This table reports an analysis of the relation between financial statement comparability and rating dispersion for the sample of bonds with ratings by at least two of the top three rating agencies. Standard errors are clustered at the peer level. Robust t-statistics are in brackets. **, *, + denote significance at the 1%, 5% and 10% levels, respectively. Split is an indicator that equals one if any of Moody's, S&P or Fitch rating differ and zero otherwise. Rating_range equals the difference between maximum and mininum rating by Moody's, S&P and Fitch (notches). Average_rating_bond equals the average of Moody's, S&P and Fitch rating on filing day for a given bond. Cover_delta equals the difference between adjusted coverage and reported coverage, winsorized at 1st and 99th percentile. Nonrecurr_delta_sRev equals the ratio of the adjustment for non-recurring items to reported revenues, winsorized at 1st and 99th percentile. Iqr_cover_delta equals the interquartile range of cover_delta by peer-quarter. Iqr_nonrecurr_delta_sRev equals the interquartile range of nonrecurr_delta_sRev by peer-quarter. Cover_rep equals the ratio of operating profit to interest expense, winsorized at 0 and 100. Roa_rep equals the ratio of operating profit to total assets. Intanpro_rep equals the ratio of goodwill and other intangibles to total assets. Lever_rep equals the ratio of long-term debt / total assets. Size_rep equals revenues in USD thousands. Median_[x] equals the median of [x] by peer-quarter. Iqr_[x] equals the interquartile range of [x] by peer-quarter. IQR equals the mean of the quintiles for interquartile range for size, leverage, coverage, ROA and proportion of intangibles. Offering_amt equals par value of debt issued. LN_timetillmat equals Ln(Time from filing date to maturity).

	1	2	3	4	5	6	7	8	9	10	11	12
Model	OLS	OLS	OLS	Probit	Probit	Probit	OLS	OLS	OLS	Probit	Probit	Probit
Cluster	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer
Dependent variable	split	split	split	split	split	split	split	split	split	split	split	split
iqr_cover_delta	**0.014***		**0.013***	**0.037***		**0.034***	**0.014***		**0.013***	**0.037***		**0.034***
	[2.31]		**[2.27]**	**[2.24]**		**[2.20]**	**[2.32]**		**[2.27]**	**[2.24]**		**[2.21]**
iqr_nonrecurr_delta_sRev		**0.314***	**0.271+**		**0.864+**	**0.746+**		**0.313***	**0.270+**		**0.862+**	**0.744+**
		[2.09]	**[1.92]**		**[1.94]**	**[1.80]**		**[2.09]**	**[1.92]**		**[1.94]**	**[1.79]**
average_rating_bond	0.023**	0.023**	0.024**	0.067**	0.066**	0.067**	0.024**	0.023**	0.024**	0.067**	0.067**	0.067**
	[4.01]	[3.92]	[4.05]	[4.06]	[3.98]	[4.09]	[3.87]	[3.78]	[3.90]	[3.90]	[3.83]	[3.93]
iqr_size_rep	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	[0.79]	[0.98]	[0.82]	[0.86]	[1.04]	[0.88]	[0.81]	[1.01]	[0.84]	[0.87]	[1.07]	[0.90]
iqr_lever_rep	-0.359+	-0.316+	-0.350+	-0.990+	-0.869+	-0.966+	-0.361*	-0.317+	-0.352*	-0.999*	-0.877+	-0.974*
	[2.00]	[1.84]	[2.02]	[1.94]	[1.78]	[1.94]	[2.07]	[1.90]	[2.08]	[2.02]	[1.84]	[2.01]
iqr_cover_rep	-0.004	0.002	-0.004	-0.012	0.005	-0.010	-0.004	0.002	-0.004	-0.012	0.005	-0.011
	[1.29]	[1.01]	[1.19]	[1.26]	[1.00]	[1.17]	[1.30]	[1.01]	[1.20]	[1.27]	[0.99]	[1.18]
iqr_roa_rep	-2.110+	-3.006*	-2.661*	-5.618+	-8.102*	-7.172*	-2.115+	-3.009*	-2.665*	-5.638+	-8.116*	-7.188*
	[1.78]	[2.29]	[2.16]	[1.71]	[2.17]	[2.05]	[1.81]	[2.31]	[2.19]	[1.75]	[2.19]	[2.07]
iqr_intanpro_rep	0.229	0.241	0.233	0.655	0.688	0.667	0.229	0.240	0.233	0.655	0.688	0.667
	[1.11]	[1.16]	[1.14]	[1.15]	[1.20]	[1.18]	[1.10]	[1.16]	[1.13]	[1.14]	[1.20]	[1.17]
median_lever_rep	0.172	0.125	0.168	0.489	0.357	0.480	0.169	0.123	0.166	0.478	0.348	0.470
	[0.84]	[0.62]	[0.85]	[0.85]	[0.63]	[0.85]	[0.82]	[0.60]	[0.82]	[0.81]	[0.60]	[0.82]
median_cover_rep	-0.007+	-0.007+	-0.006	-0.019+	-0.019+	-0.017	-0.007+	-0.007+	-0.006	-0.019+	-0.019+	-0.017
	[1.74]	[1.88]	[1.55]	[1.72]	[1.89]	[1.54]	[1.73]	[1.87]	[1.55]	[1.71]	[1.87]	[1.53]
offering_amt							0.000	0.000	0.000	0.000	0.000	0.000
							[0.14]	[0.12]	[0.13]	[0.20]	[0.18]	[0.19]
LN_timetillmat							0.001	0.001	0.000	0.002	0.002	0.002
							[0.11]	[0.12]	[0.08]	[0.15]	[0.16]	[0.13]
Constant	0.461**	0.469**	0.462**	-0.163	-0.136	-0.159	0.454**	0.463**	0.457**	-0.186	-0.160	-0.180
	[4.08]	[4.12]	[4.16]	[0.53]	[0.43]	[0.52]	[3.97]	[4.02]	[4.04]	[0.59]	[0.50]	[0.58]
Observations	44,148	44,148	44,148	44,148	44,148	44,148	44,148	44,148	44,148	44,148	44,148	44,148
R-squared	0.040	0.040	0.040				0.040	0.040	0.040			
Pseudo R2				0.030	0.030	0.030				0.030	0.030	0.030

Table 5 Panel B

	1	2	3	4	5	6	7	8	9	10	11	12
Model	OLS	OLS	OLS	Probit	Probit	Probit	OLS	OLS	OLS	Probit	Probit	Probit
Cluster	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer
Dependent variable	split	split	split	split	split	split	split	split	split	split	split	split
iqr_cover_delta	**0.008***		**0.007***	**0.021***		**0.019***	**0.008****		**0.008****	**0.021****		**0.021****
	[2.68]		**[2.61]**	**[2.56]**		**[2.48]**	**[3.18]**		**[3.19]**	**[2.98]**		**[2.99]**
iqr_nonrecurr_delta_sRev		**0.318***	**0.287+**		**0.876***	**0.789+**		0.100	0.059		0.278	0.166
		[2.13]	**[1.95]**		**[1.99]**	**[1.82]**		[0.96]	[0.63]		[0.95]	[0.62]
average_rating_bond	0.023**	0.023**	0.023**	0.066**	0.066**	0.067**	0.021**	0.021**	0.021**	0.060**	0.060**	0.060**
	[3.92]	[3.92]	[3.97]	[3.99]	[3.98]	[4.02]	[3.32]	[3.27]	[3.32]	[3.28]	[3.24]	[3.29]
iqr_size_rep	0.00	0.00	0.00	0.00	0.00	0.00						
	[0.89]	[0.96]	[0.92]	[0.95]	[1.02]	[0.98]						
iqr_lever_rep	-0.359+	-0.30	-0.350+	-0.990+	-0.81	-0.964+						
	[1.98]	[1.70]	[2.00]	[1.92]	[1.64]	[1.92]						
iqr_roa_rep	-2.390+	-2.827*	-2.944*	-6.365+	-7.623*	-7.934*						
	[1.88]	[2.15]	[2.24]	[1.81]	[2.05]	[2.12]						
iqr_intanpro_rep	0.24	0.24	0.24	0.68	0.67	0.69						
	[1.13]	[1.13]	[1.16]	[1.17]	[1.17]	[1.20]						
IQR							-0.047	-0.039	-0.047	-0.123	-0.101	-0.124
							[1.53]	[1.25]	[1.54]	[1.42]	[1.16]	[1.43]
median_lever_rep	0.17	0.11	0.16	0.47	0.31	0.46	-0.045	-0.081	-0.047	-0.120	-0.223	-0.124
	[0.80]	[0.55]	[0.81]	[0.81]	[0.56]	[0.81]	[0.27]	[0.51]	[0.28]	[0.26]	[0.50]	[0.27]
median_cover_rep	-0.009**	0.00	-0.008*	-0.026**	-0.01	-0.023**	-0.008*	-0.003	-0.007*	-0.021*	-0.009	-0.020*
	[2.96]	[1.09]	[2.73]	[2.89]	[1.10]	[2.69]	[2.30]	[0.76]	[2.17]	[2.29]	[0.79]	[2.16]
Constant	0.464**	0.469**	0.465**	-0.15	-0.14	-0.15	0.622**	0.609**	0.622**	0.292	0.257	0.291
	[4.02]	[4.15]	[4.10]	[0.48]	[0.44]	[0.48]	[3.70]	[3.58]	[3.70]	[0.62]	[0.54]	[0.61]
Observations	44,148	44,148	44,148	44,148	44,148	44,148	44,148	44,148	44,148	44,148	44,148	44,148
R-squared	0.04	0.04	0.04				0.030	0.030	0.030			
Pseudo R2				0.03	0.03	0.03				0.030	0.030	0.030

Table 5 Panel C

	1	2	3	4	5	6	7	8	9	10	11	12
Model	OLS	OLS	OLS	Poisson	Poisson	Poisson	OLS	OLS	OLS	Poisson	Poisson	Poisson
Cluster	Peer rating_range	Peer rating_range	Peer rating_range	Peer rating_range	Peer rating_range	Peer rating_range	Peer rating_range	Peer rating_range	Peer rating_range	Peer rating_range	Peer rating_range	Peer rating_range
Dependent variable												
iqr_cover_delta	**0.031****		**0.029****	**0.032****		**0.030****	**0.011+**		**0.010+**	0.009		0.008
	[3.24]		**[3.28]**	**[3.13]**		**[3.16]**	**[1.86]**		**[1.75]**	[1.47]		[1.37]
iqr_nonrecurr_delta_sRev		0.525	0.425		**0.498+**	0.400		0.525	0.479		**0.498+**	**0.469+**
		[1.58]	[1.38]		**[1.78]**	[1.54]		[1.57]	[1.49]		**[1.78]**	**[1.74]**
average_rating_bond	0.090**	0.089**	0.090**	0.080**	0.080**	0.080**	0.090**	0.089**	0.090**	0.080**	0.080**	0.080**
	[5.66]	[5.59]	[5.67]	[5.83]	[5.74]	[5.85]	[5.59]	[5.59]	[5.61]	[5.70]	[5.73]	[5.74]
iqr_size_rep	0.000*	0.000*	0.000*	0.000+	0.000*	0.000+	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*
	[2.08]	[2.37]	[2.15]	[1.77]	[2.06]	[1.84]	[2.29]	[2.39]	[2.39]	[1.96]	[2.08]	[2.06]
iqr_lever_rep	-0.837**	-0.743**	-0.824**	-0.829**	-0.745**	-0.816**	-0.838**	-0.743**	-0.823**	-0.833**	-0.759**	-0.819**
	[3.21]	[2.85]	[3.24]	[3.37]	[3.06]	[3.43]	[3.13]	[2.79]	[3.17]	[3.25]	[3.01]	[3.34]
iqr_cover_rep	-0.014*	0.000	-0.014*	-0.016**	-0.001	-0.015**						
	[2.73]	[0.02]	[2.69]	[2.92]	[0.33]	[2.86]						
iqr_roa_rep	-0.897	-2.566	-1.761	-1.029	-2.648	-1.936	-1.812	-2.572	-2.738	-1.969	-2.779	-2.955
	[0.45]	[1.28]	[0.90]	[0.54]	[1.28]	[0.99]	[0.95]	[1.33]	[1.46]	[1.01]	[1.42]	[1.50]
iqr_intanpro_rep	0.090	0.114	0.096	-0.002	0.025	0.005	0.116	0.114	0.121	0.022	0.028	0.030
	[0.35]	[0.42]	[0.37]	[0.01]	[0.10]	[0.02]	[0.43]	[0.41]	[0.45]	[0.09]	[0.11]	[0.12]
median_lever_rep	1.076*	0.970*	1.070*	0.928*	0.839*	0.919**	1.055*	0.971*	1.049*	0.918*	0.850*	0.907*
	[2.38]	[2.15]	[2.42]	[2.51]	[2.27]	[2.58]	[2.27]	[2.14]	[2.32]	[2.39]	[2.28]	[2.46]
median_cover_rep	-0.004	-0.005	-0.003	-0.005	-0.005	-0.004	-0.012	-0.005	-0.011	-0.013	-0.006	-0.011
	[0.46]	[0.49]	[0.33]	[0.46]	[0.46]	[0.36]	[1.48]	[0.54]	[1.23]	[1.39]	[0.71]	[1.20]
Constant	-0.008	0.012	-0.006	-0.873**	-0.861**	-0.872**	0.005	0.012	0.006	-0.865**	-0.861**	-0.864**
	[0.03]	[0.05]	[0.03]	[3.84]	[3.80]	[3.91]	[0.02]	[0.05]	[0.02]	[3.71]	[3.78]	[3.79]
Observations	44,148	44,148	44,148	44,148	44,148	44,148	44,148	44,148	44,148	44,148	44,148	44,148
R-squared	0.070	0.070	0.070				0.070	0.070	0.070			

Table 6

Regressions of bond spreads and Roll measure on comparability and peer-quarter characteristics

This table reports an analysis of the relation between financial statement comparability and rating dispersion for the sample of bonds with ratings by at least two of the top three rating agencies. Standard errors are clustered at the peer level. Robust t-statistics are in brackets. **, *, + denote significance at the 1%, 5% and 10% levels, respectively. Spread equals the difference between average yield of bond and interpolated maturity-matched treasury yield (percent), winsorized at 0.5 and 99.5th percentile. Roll equals estimate of bid-ask spread based on Roll (1984), winsorized at 1st and 99th percentile. Average_rating_bond equals the average of Moody's, S&P and Fitch rating on filing day for a given bond. Cover_delta equals the difference between adjusted coverage and reported coverage, winsorized at 1st and 99th percentile. Nonrecurr_delta_sRev equals the ratio of the adjustment for non-recurring items to reported revenues, winsorized at 1st and 99th percentile. Iqr_cover_delta equals the interquartile range of cover_delta by peer-quarter. Iqr_nonrecurr_delta_sRev equals the interquartile range of nonrecurr_delta_sRev by peer-quarter. Cover_rep equals the ratio of operating profit to interest expense, winsorized at 0 and 100. Roa_rep equals the ratio of operating profit to total assets. Intanpro_rep equals the ratio of goodwill and other intangibles to total assets. Lever_rep equals the ratio of long-term debt / total assets. Size_rep equals revenues in USD thousands. Median_[x] equals the median of [x] by peer-quarter. Iqr_[x] equals the interquartile range of [x] by peer-quarter.

	1	2	3	4	5	6	7	8	9	10	11	12
Model	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Cluster	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer
Dependent variable	spread	spread	spread	roll	roll	roll	spread	spread	spread	roll	roll	roll
iqr_cover_delta	**0.138***		**0.105***	**0.045***		**0.038***	**0.098****		**0.068****	**0.026***		**0.020***
	[2.72]		**[2.42]**	**[2.52]**		**[2.35]**	**[3.99]**		**[3.24]**	**[2.77]**		**[2.25]**
iqr_nonrecurr_delta_sRev		**7.506****	**7.150****		**1.706****	**1.583****		**9.337****	**8.832****		**1.888****	**1.743****
		[5.63]	**[5.32]**		**[3.89]**	**[3.59]**		**[6.70]**	**[6.04]**		**[5.01]**	**[4.25]**
average_rating_bond	0.533**	0.533**	0.535**	0.040**	0.040**	0.040**	0.511**	0.514**	0.515**	0.034*	0.035*	0.035*
	[12.98]	[12.96]	[13.00]	[2.84]	[2.81]	[2.84]	[12.33]	[12.29]	[12.48]	[2.45]	[2.43]	[2.48]
iqr_size_rep	0.000**	0.000**	0.000**	0.000**	0.000**	0.000**						
	[4.40]	[4.05]	[3.47]	[4.29]	[4.38]	[3.86]						
iqr_lever_rep	-1.767+	-1.214	-1.506	-0.809+	-0.645	-0.752+						
	[1.72]	[1.34]	[1.65]	[1.97]	[1.66]	[2.04]						
iqr_cover_rep	-0.046	0.016	-0.033	-0.012	0.008+	-0.010						
	[1.66]	[1.19]	[1.41]	[1.47]	[1.85]	[1.31]						
iqr_roa_rep	35.258*	17.363	20.459	5.806*	1.427	2.520						
	[2.73]	[1.43]	[1.66]	[2.51]	[0.60]	[1.06]						
iqr_intanpro_rep	0.145	0.218	0.217	-0.047	-0.044	-0.038						
	[0.15]	[0.22]	[0.23]	[0.17]	[0.15]	[0.14]						
median_lever_rep	1.846	1.591	1.936	0.490	0.386	0.510	0.713	0.254	0.606	-0.072	-0.194	-0.093
	[1.58]	[1.37]	[1.61]	[1.11]	[0.86]	[1.13]	[0.83]	[0.29]	[0.67]	[0.19]	[0.54]	[0.23]
median_cover_rep	-0.077*	-0.055*	-0.054+	-0.029**	-0.024**	-0.024*	-0.083**	-0.001	-0.049*	-0.029**	-0.009	-0.023**
	[2.55]	[2.12]	[2.02]	[3.00]	[2.89]	[2.58]	[3.24]	[0.03]	[2.10]	[3.32]	[1.43]	[2.78]
Constant	-3.298**	-3.308**	-3.352**	0.476*	0.478*	0.464*	-2.093**	-2.270**	-2.360**	0.726**	0.698**	0.671**
	[5.05]	[5.27]	[5.24]	[2.51]	[2.47]	[2.40]	[4.48]	[4.77]	[4.92]	[4.93]	[4.97]	[4.52]
Observations	23,964	23,964	23,964	24,173	24,173	24,173	23,964	23,964	23,964	24,173	24,173	24,173
R-squared	0.370	0.390	0.390	0.030	0.030	0.030	0.330	0.370	0.370	0.020	0.020	0.030

Table 7

Regressions of CDS spreads on comparability and peer-quarter characteristics

This table reports an analysis of the relation between financial statement comparability and CDS spreads. CDS spread is the five-year CDS spread expressed in percent. Standard errors are clustered at the peer level. Robust t-statistics are in brackets. **, *, + denote significance at the 1%, 5% and 10% levels, respectively. CDS5y equals five-year CDS spread on filing day (basis points). Averagerating equals the average of Moody's, S&P and Fitch rating on filing day for all bonds by the same issuer. Cover_delta equals the difference between adjusted coverage and reported coverage, winsorized at 1st and 99th percentile. Nonrecurr_delta_sRev equals the ratio of the adjustment for non-recurring items to reported revenues, winsorized at 1st and 99th percentile. Iqr_cover_delta equals the interquartile range of cover_delta by peer-quarter. Iqr_nonrecurr_delta_sRev equals the interquartile range of nonrecurr_delta_sRev by peer-quarter. Cover_rep equals the ratio of operating profit to interest expense, winsorized at 0 and 100. Roa_rep equals the ratio of operating profit to total assets. Intanpro_rep equals the ratio of goodwill and other intangibles to total assets. Lever_rep equals the ratio of long-term debt / total assets. Size_rep equals revenues in USD thousands. Median_[x] equals the median of [x] by peer-quarter. Iqr_[x] equals the interquartile range of [x] by peer-quarter.

	1	2	3	4	5	6	7	8	9	10	11	12
Model	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Cluster	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer	Peer
Dependent variable	CDS5y	CDS5y	CDS5y	CDS5y	CDS5y	CDS5y	CDS5y	CDS5y	CDS5y	CDS5y	CDS5y	CDS5y
iqr_cover_delta	**0.119***		**0.096***	**0.113***		**0.092***	**0.063***		**0.043+**	**0.057***		**0.038+**
	[2.63]		**[2.67]**	**[2.58]**		**[2.62]**	**[2.66]**		**[1.91]**	**[2.77]**		**[2.01]**
iqr_nonrecurr_delta_sRev		**6.044****	**5.648****		**5.904****	**5.557****		**6.715****	**6.339****		**6.567****	**6.246****
		[2.84]	**[2.83]**		**[2.84]**	**[2.83]**		**[3.30]**	**[3.12]**		**[3.28]**	**[3.10]**
rating_fq	0.539**	0.538**	0.540**	0.541**	0.540**	0.542**	0.530**	0.529**	0.530**	0.541**	0.540**	0.541**
	[8.43]	[8.41]	[8.44]	[8.36]	[8.35]	[8.37]	[7.96]	[7.96]	[8.02]	[8.10]	[8.11]	[8.14]
iqr_size_rep	0.000**	0.000**	0.000**	0.000**	0.000**	0.000**						
	[3.92]	[3.83]	[3.91]	[3.00]	[2.98]	[3.45]						
iqr_lever_rep	-2.020	-1.509	-1.855	-1.810	-1.336	-1.706						
	[1.30]	[1.04]	[1.24]	[1.20]	[0.95]	[1.16]						
iqr_cover_rep	-0.041*	0.010	-0.034*	-0.038+	0.011	-0.032+						
	[2.08]	[1.23]	[2.12]	[1.97]	[1.25]	[1.99]						
iqr_roa_rep	22.149*	5.946	8.904	22.485*	6.698	9.361						
	[2.15]	[0.62]	[0.92]	[2.14]	[0.69]	[0.95]						
iqr_intanpro_rep	0.141	0.448	0.312	-0.060	0.250	0.164						
	[0.14]	[0.41]	[0.30]	[0.06]	[0.23]	[0.16]						
median_size_rep				0.000	0.000	0.000				0.000*	0.000*	0.000*
				[1.26]	[1.04]	[0.90]				[2.65]	[2.39]	[2.44]
median_lever_rep	2.058	1.453	1.902	2.224	1.635	2.024	0.800	0.225	0.513	1.674	1.144	1.365
	[0.89]	[0.69]	[0.88]	[0.94]	[0.76]	[0.91]	[0.43]	[0.14]	[0.30]	[0.82]	[0.63]	[0.74]
median_cover_rep	-0.069*	-0.058*	-0.053*	-0.076*	-0.064*	-0.058*	-0.079**	-0.033	-0.059**	-0.092**	-0.049*	-0.071**
	[2.51]	[2.43]	[2.13]	[2.64]	[2.57]	[2.25]	[4.29]	[1.53]	[3.32]	[4.27]	[2.42]	[3.63]
Constant	-4.119**	-3.963**	-4.047**	-4.225**	-4.068**	-4.124**	-3.202**	-3.212**	-3.322**	-3.861**	-3.884**	-3.959**
	[4.55]	[4.62]	[4.66]	[4.41]	[4.47]	[4.51]	[3.91]	[4.10]	[4.19]	[3.97]	[4.15]	[4.20]
Observations	3,187	3,187	3,187	3,187	3,187	3,187	3,187	3,187	3,187	3,187	3,187	3,187
R-squared	0.330	0.330	0.340	0.330	0.340	0.340	0.300	0.320	0.320	0.310	0.330	0.330