Do Changes in Accounting Standards affect Corporate Credit Ratings?

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Abstract

We use SFAS 158 to show that corporate credit ratings are sensitive to whether accounting information is recognized or disclosed in the firm's financial statements. SFAS 158 did not prescribe any new financial information. Rather, it simply required the recognition of the funded position of a firm's defined benefit pension plan, which was previously disclosed in the footnotes, on its balance sheet. Our results show that firms with larger increases in the recognized pension liability due to SFAS 158 received *higher* corporate credit ratings after the standard change. We use the actual quantitative adjustments for pensions made by Standard & Poor's ("S&P") to show that these higher ratings are attributable to differences in how financial statements were adjusted before and after the new standard. We find that the quantitative adjustments made by S&P prior to SFAS 158 penalized firms relative to the combination of the SFAS 158 changes and the adjustments made post-SFAS 158. Our results suggest that credit ratings, which are a critical determinant of the cost of capital and capital structure for many firms, are not independent of changes to the provisions of U.S. GAAP.

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Keywords: Corporate credit ratings, rating agency, off-balance-sheet finance, recognition, pension accounting, SFAS 158

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1. Introduction

Corporate credit ratings are important determinants of a firm's capital structure and its overall financial reputation (e.g., Sufi, 2007; Kisgen and Strahan, 2010). Negative changes in these ratings can increase the cost of borrowing in public markets, and can yield direct and immediate adverse effects on the firm's cashflows not only through public markets but also through the use of performance-pricing provisions in private loan contracts (e.g., Kraft, 2015, Beatty and Weber, 2003). In addition, credit ratings can affect the market for a firm's debt due to their use in federal and state legislation, and in capital adequacy rules issued by regulators.

The primary ingredient in the corporate credit rating process for U.S. firms is financial statements prepared under U.S. GAAP (Kraft, 2014). These statements are adjusted by Credit Rating Agencies ("CRA"), to "better reflect the underlying economics of transactions and events," and then used as inputs into proprietary models (Standard & Poor's, 2008; Moody's 2006). Many of these adjustments arise because CRAs treat off-balance sheet financing, such as defined benefit pension plans ("pension plans") or operating leases, as debt. The majority of a firm's corporate credit rating is determined by these adjusted financial statements, with only small modifications for qualitative soft factors (Kraft, 2014).[1] While prior studies have investigated how broad regulatory changes, such as Dodd-Frank and Sarbanes-Oxley, affect corporate credit ratings, they have not investigated how changes in accounting standards might affect these ratings. This is a significant gap in the literature given the prominent role that accounting information plays in the corporate credit rating process and frequency of changes in accounting standards.

[1] Soft adjustments might include items such as caliber of management, financial transparency, and competitiveness (e.g., Standard & Poor's (2008)).

We provide evidence on the relation between changes in accounting standards and corporate credit ratings by investigating whether these ratings were affected by the implementation of Financial Accounting Standards Board Statement No. 158 ("SFAS 158").[2] This statement requires that the overfunded or underfunded status of a firm's pension plan be recognized on its balance sheet. This information was previously disclosed in the notes to the financial statements, meaning that the new standard generated no new financial information.

SFAS 158 provides an excellent setting to examine the relation between changes in accounting standards and corporate credit ratings for several reasons. First, the CRA pension adjustments are the largest and among most prevalent type of adjustment. This point is supported by the data in Table 1, which summarizes the number and dollar amount of the actual adjustments for each of the major categories of adjustments made by Standard & Poor's ("S&P") for the 2003 through 2008 period. Approximately two-thirds of the firms that were rated by S&P during this period had an adjustment related to a pension plan, second only to leases in frequency. However, the average dollar amount of the pension adjustment ($1.329 billion) was significantly larger than the lease adjustment ($466 million). In fact, the average pension adjustment pre-SFAS 158 is more than the total of all the other adjustments combined. The frequency and scope of the pension adjustments mitigates the concern that SFAS 158 was not carefully analyzed by the CRAs, and allows for the use of a relatively large and diverse set of firms in our analyses.[3]

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[2] The Financial Accounting Standards Board (FASB) adopted SFAS 158: Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans, an Amendment of FASB Statements Nos. 87, 88, 106, and 132(R) in September, 2006 (FASB (2006)). The standard became effective for fiscal years ending after December 15, 2006. The full statement is available at http://www.fasb.org/pdf/fas158.pdf

[3] In Appendix B, we show the actual CRA adjustments for IBM for fiscal 2006 and what the CRA adjustments would have been if the approach mirrored what was done for fiscal 2005, the year before SFAS 158 was effective. Among the many differences highlighted by this example, it shows that total assets were approximately 12% higher in 2006 than they would have been in the absence of SFAS 158. While this clearly reflects a change in how the CRA

Second, SFAS 158 had a profound impact on the balance sheet of firms with pension plans. A study by Merrill Lynch estimated that SFAS 158 resulted in a drop in shareholder equity on the order of $200 billion, or 5 percent, for the S&P 500 (Merrill Lynch, 2006). This regulatory change also had a significant impact on the size of the adjustments made by CRAs. The data in Table 1 show that the average pension adjustment dropped from $1.329 billion to $579 million after SFAS 158. The significant differences in the recognized liability and the CRA adjustments suggest that there is a lot of variation in the pension data, which should aid identification.

We conduct our analysis using a balanced panel of 447 firms, of which 328 sponsor a pension plan. We use a balanced panel to ensure that our results are not attributable to changes in sample composition over time. We have exactly 10 years of data for each firm in our sample—five years for each of the pre- and post-SFAS 158 periods. Each of our regression specifications controls for the determinants of corporate credit ratings identified by prior research (e.g., Baghai et al., 2014), and includes both firm and year fixed effects. We achieve identification by exploiting the variation in the effect of SFAS 158, which depended on the proportion of pension benefits attributable to active employees and the funded status of the pension plan, on firms' balance sheets.[4]

We find that a greater increase in the recognized pension liability due to SFAS 158 is associated with a greater *increase* in firms' corporate credit ratings. In other words, firms that were required to recognize an unfunded pension liability on the balance sheet, as opposed to simply reporting it in the footnotes, received a *higher* corporate credit rating. The effects we

is adjusting for pension obligations, we assume that this is a deliberate choice and not a by-product of a misunderstanding of how pension accounting operates. We discuss this point in more detail in Section 3.

[4] We discuss how attributes of the pension plan result in variation in the treatment effect of SFAS 158 in more detail in Section 2.

document are economically meaningful—we find that a one standard deviation increase in the impact of SFAS 158 is associated with an additional increase of around 0.20 notches in the firm's corporate credit rating after SFAS 158. These results suggest that the quantitative CRA adjustments made pre-SFAS 158 penalized firms relative to the combination of the SFAS 158 requirement and the CRA adjustments post-SFAS 158.

We provide additional support for our hypothesis that the changes in credit ratings we document are attributable to changes in the S&P methodology through a series of cross-sectional analyses. First, we show that the changes in credit ratings are isolated to those firms where the S&P pension adjustment is the most salient. We measure the salience of the S&P pension adjustment in two ways: as the ratio of the S&P pension adjustment to all S&P adjustments, and as the ratio of the S&P pension adjustment to the total assets of the firm. Under both approaches, only firms in the top quartile of these measures had a rating improvement that was associated with the SFAS 158 pension adjustment. Second, we show that the credit rating changes are isolated to those firms where the S&P adjustments are distinct from the SFAS 158 adjustments, by comparing the actual S&P adjustment pre-SFAS 158 to the hypothetical SFAS 158 adjustment. Once again, only firms in the top quartile of this measure had a rating improvement that was associated with the SFAS 158 pension adjustment. Overall, these analyses suggest that changes in the S&P methodology played a key role in the ratings improvements we document.

Next, we examine whether these effects are attributable to certain types of pension plans by conducting a set of cross-sectional tests that splits the sample according to the funded status of the pension plan. We find that our main result is primarily attributable to firms in the highest and lowest quartile of pension funding. This finding is illustrated in Figure 4, which compares the S&P adjustment with the funded status of the pension plan. This analysis indicates that the

source of improvement in credit rating is twofold. First, S&P did not adequately reduce their liability adjustments to reflect the minimum liability provisions under SFAS 87. As a result, a portion of the unfunded pension liability was essentially double-counted by S&P pre-SFAS 158. Second, S&P removed prepaid pension assets that arose due to pension contributions being in excess of pension expense, but did not create a pension asset to reflect the overfunded status of the pension plan. As a result, overfunded pension plans had an asset post-SFAS 158 that was not included by S&P pre-SFAS158.[5] These results provide evidence that the adjustment process itself is responsible for the changes in corporate credit ratings.

Lastly, we document that a greater increase in the recognized pension liability due to SFAS 158 is associated with a reduction in the firm's five-year CDS spread. This finding suggests that the SFAS 158 pension adjustment is associated with the market's assessment of the firm's credit risk. We do not document a specific relation between the credit rating changes and changes in CDS spread, and so we cannot identify whether there are direct economic consequences to the credit rating changes that arose due to SFAS 158. However, our results do suggest that recognizing the previously disclosed pension deficit is associated with positive economic consequences for the firm through the reduction in the firm's CDS spread. The changes in the CDS spread we document are economically meaningful—a one standard deviation increase in S158IMP is associated with an increase of around 12 basis points in the firm's corporate credit rating. For comparison, the average CDS spread is approximately 122 basis points.

The primary contribution of this paper is to the literature that examines the determinants of credit ratings. The most closely related study is Kraft (2014), which finds that corporate credit

[5] We discuss the accounting requirements for pension plans in more detail in Section 2. A specific illustration of the changes in the adjustment process is provided for IBM in appendix B.

ratings are a function of hard quantitative adjustments to U.S. GAAP numbers and the rating agency's qualitative assessment of credit risk arising from soft factors. Consistent with Kraft (2014), we find that these hard quantitative adjustments have a substantial effect on financial ratios, which are inputs into the proprietary system used to generate the firm's credit rating. We extend Kraft (2014) by finding that the hard quantitative adjustments are not independent of changes in accounting standards. In other words, we find that CRA change their process for making hard quantitative adjustments in response to new accounting standards, and that these changes may result in financial ratios that are different following the implementation of the new accounting standard. In addition, in the case of SFAS 158, we find that differences in these hard adjustments result in higher corporate credit ratings after the new accounting standard is effective. Overall, our results suggest that the corporate credit ratings developed by CRAs are not independent of changes in accounting standards.

This study is also related to prior work that examines how regulatory changes affect credit ratings. Jorion, Liu, and Shi (2005) find that the information content of both credit rating downgrades and upgrades is greater following the passage of Regulation Fair Disclosure (FD). Cheng and Neamtiu (2009) find that rating agencies improve rating timeliness, increase rating accuracy and reduce rating volatility following the passage of Sarbanes-Oxley Act in 2002. Dimitrov et al. (2015) find no evidence that Dodd-Frank disciplines CRAs to provide more accurate and informative credit ratings. Our study extends these papers by considering a specific, but important, type of regulatory change—a change in accounting standards.

This study also contributes to the extensive accounting literature on the effect of recognition versus disclosure. The extant literature has generally found that financial statement users discount information disclosed in the footnotes relative to information recognized on the

face of the financial statements (e.g., Healy and Palepu, 2001). The most commonly cited reason for this finding is the "cognitive" processing of financial statement users. As a result, virtually all studies that evaluate the effect of recognition versus disclosure assume that sophisticated users (typically institutions and analysts) are indifferent to a switch from disclosure to recognition, but that unsophisticated users (typically individual investors) view the firm differently based on the accounting treatment. We show that CRAs, who would likely be categorized as sophisticated users of financial statements, appear to be influenced by an accounting standard which shifts information from the footnotes to the face of the financial statements without providing any new information.

This paper proceeds as follows. In the next section, we outline the recognition requirements under both SFAS 87 and SFAS 158 to explain how the latter accounting standard changed the recognition requirements for defined benefit pension plans. We then summarize the literature and state our hypothesis. Section 4 provides our research design, and Section 5 summarizes our data collection. The results of our analyses are provided in Section 6, followed by our conclusion.

2. Overview of Recognition Requirements for Pension Plans

Prior to the adoption of SFAS 158, neither the pension plan assets nor the pension plan liabilities were recognized in the financial statements. Rather, the accrued (prepaid) pension cost recorded on the balance sheet as a liability (an asset) was equal to the excess (deficiency) of the sum of all prior cash contributions to the pension plan minus the sum of all prior pension expense. The intuition behind this calculation is consistent with other expense items—if the cash outlay is less than (exceeds) the expense, then there is an accrued liability (a prepaid asset). In

practice, the accrued/(prepaid) pension cost is determined by subtracting unrecognized actuarial items (i.e., the unrecognized net transition obligation, the unrecognized prior service cost, and the unrecognized net (gain)/loss) from the funded position of the plan (i.e., the fair value of plan assets minus the projected benefit obligation).

The accrued/(prepaid) pension cost wasn't necessarily the only pension related item recognized on the financial statements. In certain situations, firms were required to record an additional minimum liability (AML) when the accumulated benefit obligation (ABO), at fiscal year-end, exceeded the market value of plan assets. The ABO is the liability associated with pension benefits based on service and pay levels as of the measurement date. This liability measure is used solely for the purposes of calculating the minimum liability adjustments, if any. Pension expense is determined using the Projected Benefit Obligation (PBO), which is the liability associated with pension benefits based on service as of the measurement date and pay projected to the anticipated retirement age. For plans with flat-benefit or non-pay-related pension benefit formulas, including frozen plans, ABO and PBO are the same.

The minimum liability to be recorded equals the amount by which the ABO exceeds pension assets. If the firm already has an accrued pension cost (i.e., the sum of all past years' pension expense exceeds the sum of all past years' cash contributions to the plan) on its books that equals or exceeds that amount, no AML is needed. However, if the firm has an accrued pension cost that is less than the underfunding, an AML must be recorded. AML is not a component of operating income but rather an adjustment to equity that is a component of other comprehensive income. In essence, AML makes sure the balance sheet reflects at least what would be required to fully fund benefits already earned. Plans with excess assets do not need to record a minimum liability, and calculations are made on a plan by plan basis.

The calculation of AML is illustrated in Figure 1. The credit entry to record the AML is accompanied by a debit entry to other comprehensive income (OCI). To the extent that the firm has unrecognized prior service costs (i.e., the PBO associated with a plan amendment that has not yet been fully amortized), then the debit to OCI is offset by this amount. In addition, to the extent that the firm has a prepaid pension cost, then the additional minimum liability is equal to the sum of the minimum required liability and the prepaid pension cost.

Figure 2 provides an example of the balance sheet recognition for pension plans for two firms, A and B, before and after the adoption of SFAS 158. Firm A is a well-funded plan, with plan assets of $9.5m compared with a PBO of $10m and an ABO of $9m. Firm B is a poorly-funded frozen plan, with plan assets of $9.5m compared with a PBO of $12m and an ABO of $12m. These calculations show that Firm A experience an increase in the recognized balance sheet liability of $1m, as SFAS 158 required the recognition of a pension liability of $0.5m compared with a pension asset of $0.5m under the prior regime. In contrast, Firm B experienced no change in the recognized balance sheet liability due to SFAS 158. This demonstrates that if a pension plan's ABO equals its PBO (i.e., pension benefits are either frozen or not pay based), and it is underfunded (i.e., its plan assets at fair value are less than ABO), then there is no impact associated with SFAS 158. We exploit this variation in the impact of SFAS 158 in our research design, which is outlined in Section 4.

3. Literature Review and Hypothesis Development

A credit rating is an assessment of the creditworthiness of a corporation or security, based on the issuer's quality of assets, its existing liabilities, its borrowing and repayment history and its overall business performance (Becker and Milbourn, 2011). There are two main types of

ratings. Bond ratings are provided for a vast majority of publicly traded bonds in the U.S. Corporate (or issuer) ratings are produced for all U.S. public firms that issue public debt. S&P, Moody's and Fitch are the three main providers of corporate credit ratings. Each agency has its own ratings system that doesn't necessarily equate to another firm's ratings scale, but they are all similar.

Prior research has identified a number of reasons why issuers seek credit ratings. For example, credit ratings are important determinants of a firm's capital structure (e.g., Sufi 2007; Kisgen, 2009) and its cost of capital (Beatty and Weber, 2003; Kisgen and Strahan, 2010). In addition, credit ratings are used in federal and state legislation, in capital adequacy rules issued by regulators, and in corporate debt contracts. The regulatory requirement that certain categories of institutional investors rely on ratings for their investment decisions has given rise to regulatory arbitrage, whereby investors derive benefits from the rating label itself as opposed to the actual informativeness of the rating (e.g., Partnoy, 1999; Opp, Opp, and Harris 2013). Prior research has also shown that credit rating announcements generate investor reactions via bond and stock prices, and that the reaction is greater for credit rating downgrades than for upgrades (e.g., Holthausen and Leftwich, 1986; Hand, Holthausen, and Leftwich, 1992; Dichev and Piotroski, 2001).

Not surprisingly, there is a large literature examining the determinants of credit ratings. Prior studies have shown that financial ratios and accounting variables such as leverage, liquidity, accrual quality, earnings timeliness, and firm size are all determinants of a firm's credit rating (e.g. Ederington, 1985; Blume et al., 1998; Kamstra et al., 2001; Ashbaugh-Skaife et al., 2006). A number of studies have also investigated how credit ratings change over time. For example, Amato & Furfine (2004) find that macroeconomic factors, such as GDP growth,

influence credit ratings. Baghai et al. (2014) also find that rating agencies have become more conservative in assigning corporate credit ratings over the 1985 to 2009 period.

A number of papers have also investigated whether the structure of the credit rating market induces biased ratings. This work has generally found that investor-paid rating agencies produce higher quality and lower ratings than issuer-paid rating agencies (Beaver et al., 2006; Cornaggia and Cornaggia, 2013; Jiang et al., 2012) and that issuer pay rating agencies bias their ratings (Griffin and Tang, 2011; Bolton et al., 2012; He et al., 2012; Opp et al., 2013). Becker and Milbourn (2011) examine how the ratings quality of incumbent CRAs responds to the entry of a new CRA. They find that when Fitch entered the market, the ratings quality of the incumbents (i.e., Moody's and S&P) decreased.

A smaller number of studies have investigated how regulatory changes affect credit ratings. Jorion, Liu, and Shi (2005) find that the information content of both credit rating downgrades and upgrades is greater following the passage of Regulation Fair Disclosure (FD). Cheng and Neamtiu (2009) find that following the passage of Sarbanes-Oxley Act in 2002, rating agencies not only improve rating timeliness, but also increase rating accuracy and reduce rating volatility. Dimitrov et al. (2015) analyzes the impact of Dodd-frank on corporate bond ratings. They find no evidence that Dodd-Frank disciplines CRAs to provide more accurate and informative credit ratings. Our study extends these papers by considering a specific, but important, type of regulatory change—a change in accounting standards.

Accounting plays a critical role in the rating process. Rating agencies analyze financial statements and make "analytical adjustments to better portray reality" and "to better reflect the underlying economics of transactions and events" (Standard & Poor's, 2008; Moody's, 2006). Many of these adjustments arise because CRA treat off-balance sheet financing, such as defined

benefit pensions or operating leases, as debt. These adjustments have a substantial effect on financial ratios, which are inputs into the proprietary system used to generate the firm's credit rating.[6]

Despite the fact that accounting statements play a critical role in establishing corporate credit ratings, it is unclear whether changes in accounting standards should have any effect on credit ratings. This is because CRAs already make adjustments to reconcile GAAP treatment with the approach agencies believe is appropriate from an economic standpoint. In the case of SFAS 158, Moody's and S&P stated that this accounting change was unlikely to affect corporate credit ratings because they already recognized the unfunded pension obligation as part of their rating process.[7] Therefore, we focus on a single hypothesis, and state that hypothesis in null form due to the uncertainty as to whether there will be a corporate credit rating effect associated with SFAS 158.

H1: Changes in accounting standards have no effect on corporate credit ratings

All of our analyses focus either on this hypothesis, or on cross-sectional tests that provide additional support for this hypothesis.

4. Research Design

We use a pre-post design that exploits variation in the balance sheet consequence of SFAS 158 to identify the effect of this accounting standard on corporate credit ratings. The main empirical specification we employ is as follows:

$$RATING_{it} = \alpha + \beta_1 S158IMP_{i,t} + \beta_2 S87REC_{i,t} + \beta_3 POST + \sum \gamma_j \, Rating\ Control_{i,t}$$
$$+ \varphi_1 S158IMP_{i,t} * POST + \varphi_2 S87REC_{i,t} * POST + \gamma_i + \delta_t + \varepsilon_{i,t} \quad (1)$$

[6] For a more detailed discussion of the hard and soft adjustments made by Moody's credit analysts, see Kraft (2014).
[7] For example, see "Moody's Underwhelmed by Pension Rule" CFO.com, October, 2006.

We estimate equation (1) using an OLS specification rather than a nonlinear model, which would not assume equal spacing between rankings, for two reasons. First, nonlinear models tend to produce biased estimates in panel data sets with many fixed effects, leading to an incidental parameters problem and inconsistent estimates. Second, nonlinear fixed effects models generate biased estimates for interaction terms, which are the main coefficients of interest in our study (see e.g., Duchin and Sosyura, 2014).

RATING is the Standard & Poor's Domestic Long-Term Issuer Credit Rating. Consistent with recent studies (e.g., Baghai et al., 2014; Becker and Milbourn, 2011; Xia, 2014), we use the credit rating issued three months after the end of fiscal year t to ensure that the financial data are available to the rating agency at the time the rating is issued. Ratings are converted into numeric values, with lower values reflecting better credit ratings. Details of this conversion are provided in Appendix A2.

Post is an indicator variable that takes the value of one for fiscal years that end after December 15, 2008 and before December 15, 2013; and takes the value of zero for fiscal years that end after December 15, 2001 and before December 15, 2006. We choose December 15, 2006 as the cutoff in our pre period because SFAS 158 was effective for fiscal years ending after December 15, 2006. We delay the start of the post period by two years to allow time for credit ratings to reflect the new information incorporated by SFAS 158 and to avoid using data from the financial crisis, which we believe might create significant noise in our estimation approach due to the extreme movements in credit ratings within that period. Even though we exclude the financial crisis period in our main analyses, we show in robustness tests that our results are generally unchanged when we include these years. Our sample period has exactly five years of data for both the pre- and post-period. Our main specification includes both firm fixed effects

(γ_i) and year fixed effects (δ_t), to control for unobservable attributes of the firm and unobservable macroeconomic factors that affect ratings over time. We use a balanced panel to ensure that our inferences are not affected by changes in the composition of rated firms over time.

The remaining independent variables can be categorized into two groups. The first group consists of two pension variables (*S158IMP* and *S87REC*) that capture aspects the accounting regime for pension plans. *S87REC* is the total recognized pension liability under the provisions of SFAS 87. As outlined in Section 2, this is equal to the sum of the accrued pension cost and AML, if any. We include this variable because we want to capture the differential effect of SFAS 158 over the prior SFAS 87 accounting regime. *S158IMP* is the incremental liability that would have been recognized pre-SFAS 158 if the provisions of SFAS 158 were effective, and the incremental liability that was recognized post-SFAS 158 due to the implementation of SFAS 158. As discussed in Section 2, this is equal to the total unfunded projected benefit obligation minus what was recognized under SFAS 87.

The second group of variables (*Ratings Controls*) captures the financial statement determinants of issuer credit ratings identified by prior research. We follow Baghai et al. (2014) in selecting these variables because the financial statement variables employed in that study are comprehensive with regard to prior literature, are closely aligned with the variables employed in the rating process followed by Standard and Poor's (2008), and are well suited to analyses over a long time-series (Baghai et al, 2014). The specific ratings variables we include are: *LEVERAGE* (long-term and short-term debt divided by adjusted assets), *DEBTCOV* (ratio of long- and short-term debt to EBITDA. If this number is negative, we set it equal to zero), *NegDEBTCOV*

(dummy variable equal to one if *DEBTCOV* is negative, and zero otherwise)[8], C*ONVDEBT* (convertible debt divided by adjusted assets), *RENT* (rental payments divided by adjusted assets), *CASH* (cash and short-term investments divided by adjusted assets), *INTCOV* (EBITDA divided by net interest paid), *PROFIT* (EBITDA divided by sales), *PROFITVOL* (standard deviation of PROFIT over the last five years, or at least the last two years if data is not available for the last five years), *SIZE* (log of adjusted assets in constant December 2006 dollars), *TANGIBILITY* (net property, plant, and equipment divided by adjusted assets), and *CAPEX* (capital expenditures divided by adjusted assets).

We scale all independent variables by adjusted assets to control for size differences across firms. We calculate adjusted assets by integrating off balance sheet pension assets and liabilities with reported corporate assets and liabilities following Shivdasani and Stefanescu (2009). This adjustment ensures that total assets are not systematically understated for firms that sponsor pension plans. In robustness tests, we verify that using reported total assets rather than adjusted assets as the deflator has no impact on our results. All explanatory variables are winsorized at the 1st and 99th percentile. Each variable is defined in Appendix A.

The main coefficient of interest is φ_1, which captures the incremental effect of the recognized SFAS 158 pension liability on the firm's credit rating. As discussed in detail in Section 2, the effect of SFAS 158 on reported balance sheet items varies depending on the funded status of the plan, the prior contribution history, and the relative size of the ongoing salary-based benefit accruals. We exploit this source of variation to achieve identification. To the

[8] We do not allow DEBTCOV to be negative because large ratios of debt to EBITDA increase default risk while small ratios decrease default risk. When EBITDA is negative, the ratio becomes negative, while default risk actually increases further. Because we limit DEBTCOV to be positive, we capture the effect of negative values with the binary indicator variable NegDEBTCOV.

extent that increased recognition of previously off balance sheet liabilities results in a lower (higher) credit rating, then the φ_1 will be negative (positive).

5. Sample Selection and Summary Statistics

We obtain most of our data from Compustat by merging Fundamental Annual File, Pension Annual Item, and Ratings databases. We exclude all financial firms (historical SIC codes, data item SICH, that begin with a ``6"), utilities (historical SIC codes that begin with a ``4"), and governmental enterprises (historical SIC codes that begin with a ``9"). We include only firms that are present in every year (pre and post) in our sample period, which consists of fiscal years that end after December 15, 2008 and before December 15, 2013; and fiscal years that end after December 15, 2001 and before December 15, 2006. The resulting sample consists of 447 firms.

Our sample composition is provided in Table 2. The firms in our sample are distributed across most of the tabulated two-digit SIC codes. The most popular industries are both manufacturing: two-digit SIC code 32 has 19.5% of the sample and two-digit SIC code 33 has 32.0% of the sample. Summary statistics for each of the variables used in our analyses are provided in Table 3. The median rating has a numerical score of 10, which corresponds to BBB-, the standard deviation of the ratings is 3.3, and the first and third quartiles are 8 and 13, respectively. This suggests that there is reasonable variation in the dependent variable over the sample period. The mean value for both the S158IMP and S87REC variables are both negative, indicating that each is capturing a liability, rather than an asset.

6. Results

6.1 Main Specification

The results of equation (1) are provided in Table 4. Panel A uses the entire sample of firms, and Panel B uses only those firms that sponsor a defined benefit pension plan. We present four different specifications. In the first column, we only use the pension variables with firm and year fixed effects. As we move across columns, we add the twelve control variables that are determinants of the firm's corporate credit rating in Column (2), and then also interact each of these control variables with *Post* in Column (3). In Column (4), we dropped the year fixed effects and instead include a set of variables that reflect the macroeconomic factors associated with corporate credit ratings.

The coefficient on the *S158IMP*Post* interaction term is positive and significant in each specification. The coefficients range from 12.5 in Column (1) to 8.0 in Column (2) and the associated t-statistics range from 2.56 in Column (1) to 2.07 in Column (3). If a firm experiences a large increase in the recognized pension liability due to SFAS 158, then the value of *S158IMP* will be lower (i.e., there will be a bigger negative value). RATING takes values from 1 (AAA) to 21(C), with lower values representing higher corporate credit ratings. Therefore, the positive coefficient on *S158IMP*Post* indicates that firms with a more significant balance sheet impact from SFAS 158 (i.e., a lower value for *S158IMP*) experience an improvement in their corporate credit rating (i.e., a lower value for *RATING*).

The results in Panel B, which restricts the sample to the 328 firms that sponsored a defined benefit pension plan, are essentially the same as those reported in Panel A. The coefficients on *S158IMP*Post* once again range from 13.8 in Column (1) to 10.1 in Column (3) and the associated t-statistics range from 2.72 in Column (4) to 2.25 in Column (3). These results

are not too surprising, given that 328 of the 447 firms in the full sample analyses in Panel A sponsor pension plans. The coefficients on each of the control variables provide little explanatory power when compared with the firm and year fixed effects. The adjusted R2 increases from 0.872 in Column (1) to 0.907 with the inclusion of these control variables in Column (2). Adding interacted control variables or using the macroeconomic variables in lieu of year fixed effects has virtually no effect on the explanatory power of the regression.

The coefficients presented in Table 4 are also economically meaningful. Table 2 reports that the standard deviation of *S158IMP* is 0.018. Therefore, based on the results in our main specification in Column (2) of Panel B, a one standard deviation increase in *S158IMP* is associated with an increase of around 0.20 notches (i.e., 10.726 * 0.018) in the firm's corporate credit rating. This is approximately half the economic impact of average soft adjustments of 0.36 and hard adjustments of 0.45 documented by Kraft (2014).

6.2 S&P Adjustment and Rating Changes

Our next set of analyses takes the main result from Column (2) of Table 4 and splits the sample across a dimension that captures the salience of the S&P pension adjustments. We collect information on the actual adjustments made by S&P during the pre-SFAS 158 period for each firm in our sample using *CreditStats Direct*[9], a subscription-based service offered by S&P that provides the user with access to the financial statement data as adjusted by S&P credit analysts. We then measure the importance of these adjustments in two ways. First, we calculate the ratio of sum of the S&P pension adjustments for all years prior to 2006 to the sum of all S&P adjustments over the same period. This measure captures the importance of the pension adjustments relative to other adjustments made by S&P. Second, we calculate the average of the

[9] http://profile.standardandpoors.com/?elqPURLPage=117

ratio of the S&P pension adjustment divided by the total assets of the firm. This measure captures the importance of the pension adjustment to the overall capital structure of the firm. Both sets of analyses are provided in Table 5.

Panel A of Table 5 replicates the specification from Column (2) of Table 4, with the sample split into quartiles based on the ratio of the S&P pension adjustment to the total of all S&P adjustments over the pre-SFAS 158 period. The coefficients for each of the rating controls are not shown for ease of presentation. The overall sample consists of those firms with pension plans, as the ratio is zero by construction if the firm did not sponsor a pension plan. Therefore, there are a total of 328 firms in these analyses. The firms in the first (fourth) quartile have small (large) values for this ratio, consistent with the idea that the S&P pension adjustments play an insignificant (a significant) role in these firms' corporate credit ratings. The results in Panel A suggest that the overall improvement in credit ratings following SFAS 158 appears to be primarily attributable to those firms where the S&P pension adjustment is large relative to the total S&P adjustments.

We find similar results in Panel B, when the sample is split into quartiles based on the ratio of the S&P pension adjustment to the total assets of the firm. The firms in the first (fourth) quartile have small (large) values for this ratio, consistent with the idea that the S&P pension adjustments play an insignificant (a significant) role in these firms' corporate credit ratings. The coefficient on *S158IMP*Post* is no different from zero for each of the first three quartiles, but positive and significant (coefficient of 20.8 and t-statistic of 2.3) for the fourth quartile. This suggests that the overall improvement in credit ratings is attributable to those firms where the S&P pension adjustment was important relative to the size of the firm. Overall, the results in Table 5 suggest that the ratings improvements are attributable to those firms that had large S&P

adjustments pre-SFAS 158, either relative to the other adjustments made by S&P or relative to the size of the firm.

Table 6 separates the sample into firms based on the difference between the actual S&P adjustment and the hypothetical SFAS158 adjustment. This partition identifies groups of firms where the S&P adjustment is most different from the effect of SFAS158. The firms in column (1) have virtually no difference between the S&P and SFAS158 adjustments, whereas those in column (4) have the largest difference. These results suggest that the improvements in credit ratings are entirely attributable to those firms where there was a substantial difference between the S&P adjustment and the SFAS158 impact. This provides additional support for the conclusion that the changes in credit ratings are attributable to the adjustment process.

6.3 Role of Funded Status

The results so far suggest that firms with large adjustments due to SFAS158 experienced improvements in their corporate credit rating, and that this effect appears to be attributable to the manner in which S&P was making quantitative adjustments for pensions. Next, we examine whether these effects are attributable to certain types of pension plans by conducting a set of cross-sectional tests that splits the sample according the funded status of the pension plan. The funded status is equal to the ratio of pension assets to the PBO, where a high (low) value is consistent with a funded (underfunded) plan. The results in Table 5 and 6 suggest that there is something systematically different about the S&P adjustments. The results based on quartiles of funded status in Table 7 show that the ratings improvements appear to be attributable to those firms in the first or fourth quartile of pension funding.

These results suggest that the ratings adjustments were (a) too harsh for firms with the worst funded pension plans in the pre-SFAS 158 period relative to the post-SFAS 158 period (b) too harsh for firms with the best funded pension plans in the pre-SFAS 158 period relative to the post-SFAS 158 period. These conclusions can be reconciled with S&P's claim that it recognized the unfunded pension liability on the firm's balance sheet in the following way. First, for underfunded plans there was already a pension liability due to the minimum liability requirements that existed prior to SFAS 158. Therefore, if S&P adjusted the financial statements of these firms by adding an additional liability that reflected the funded status of the pension plan, this would result in an overall level of the pension liability that is too high. Upon the adoption of SFAS 158, these extra adjustments would no longer be made, resulting in an overall level of the pension liability that is lower than it was pre-SFAS 158.

Second, for overfunded plans, the only item recognized on the balance sheet pre-SFAS 158 was likely to be a prepaid pension cost. To the extent that S&P removed this asset, which is consistent with the IBM example provided in Appendix B, then the adjustment is again overly harsh relative to the post-SFAS 158 treatment. This is because SFAS 158 allows the firm to record the excess of pension plan assets over the PBO as an asset on the balance sheet.

The overall message is Table 7 is illustrated graphically in Figure 3. The observations highlighted in red are firms with the lowest funded status and the high S&P adjustments. In general, firms that are poorly funded should not have large S&P adjustments because these plans are already recognizing the unfunded ABO on its balance sheet due to the AML reporting requirements. Therefore, the adjustment should only reflect the difference between the PBO and the ABO, which is less likely to produce a very large adjustment. This suggests that for a subset of underfunded plans, S&P appears to be making an adjustment that ignores the AML reporting

requirements, which the result that the unfunded pension liability is being double-counted in the pre-SFAS158 period. The observations highlighted in green are firms with the best funded status and high S&P adjustments. The S&P adjustment is most likely due to the reversal of a prepaid pension cost without any adjustment for the overfunded status of the plan. These firms mirror the IBM example. Overall, Figure 3 illustrates that firms with the highest and lowest levels of funding experienced a change in the S&P adjustment methodology post-SFAS158, and that this change resulted in higher corporate credit ratings.

6.4 Economic Consequences

The next set of analyses examines whether there are economic consequences to the ratings changes that arose from SFAS158. We measure the economic consequences using five-year CDS spreads. Under a CDS contract, the protection seller promises to buy the reference bond at its par value when a predefined default event occurs. In return, the protection buyer makes periodic payments to the seller until the maturity date of the contract or until a credit event occurs. This periodic payment, which is usually expressed as a percentage (in basis points) of the bond's notional value, is called the CDS spread. By construction, this spread provides a pure measure of the default risk of the reference entity and higher values of the CDS spread reflect higher credit risk. We use five-year CDS spreads because these contracts are the most liquid; thus they provide the most reasonable pricing estimate of the default risk for the underlying entity (Micu et al., 2006; Zhang et al., 2009; Ham and Koharki, 2016). Because Markit provides daily CDS spreads, *CDS_Spread* is the average of a firm's daily CDS spread in a given fiscal year. For these analyses, we restrict our sample of firms to those with credit ratings that range from AA to BB as these are the most liquid CDS contracts (Micu et al., 2006).

We examine whether bond market participants alter their assessments of firms' credit risk after the implementation of SFAS158 using the following specification:

$$CDS\_Spread_{it} = \alpha + \beta_1 S158IMP_{i,t} + \beta_2 S87REC_{i,t} + \beta_3 POST + \sum \gamma_j \, Rating\ Control_{i,t}$$

$$+ \varphi_1 S158IMP_{i,t} * POST + \varphi_2 S87REC_{i,t} * POST + \gamma_i + \delta_t + \varepsilon_{i,t} \quad (2)$$

We estimate equation (1) using an OLS specification. *CDS_Spread* is the five-year CDS spread. All other variables are defined the same as in equation (1). The main coefficient of interest is φ_1, which captures the incremental effect of the recognized SFAS 158 pension liability on the firm's CDS spread. To the extent that increased recognition of previously off balance sheet liabilities results in an increase (reduction) in the credit quality of the firm, and hence a reduction (increase) in the firm's CDS spread, then φ_1 will be negative (positive).

The results in Table 8 indicate that there was a greater reduction in CDS spreads for firms that experienced a greater impact from SFAS 158. These analyses use fewer observations that our main tests of the credit rating changes in Table 4 because CDS spread data is not available for all firms in our main tests and because we restrict these analyses to firms with credit ratings that range from AA to BB to ensure we have reliable CDS spread data. The coefficients presented in Table 8 are also economically meaningful. Table 2 reports that the standard deviation of *S158IMP* is 0.018. Therefore, based on the results in our main specification in Column (1), a one standard deviation increase in *S158IMP* is associated with an increase of around 12 basis points (i.e., 6.938 * 0.018) in the firm's corporate credit rating. For comparison, the average CDS spread is approximately 122 basis points.

While the results in Table 8 are consistent with the idea that there were economic consequences to the ratings changes induced by SFAS 158, they are not conclusive. A more direct test would examine the short-window market response to ratings changes that are likely to

be attributable to SFAS 158. We undertook this type of analysis by focusing on those firms in top and bottom quartile of funded status (as shown in Table 7). We gathered information on the first rating upgrade following SFAS 158 for these firms and examined whether this market response was statistically different that zero. In untabulated analyses, we find that there is a statistically significant reduction in CDS spreads for these firms, consistent with the idea that the rating upgrades provided new information about the credit quality of the firm. However, these analyses are not particularly robust due to the small number of observations. In addition, we cannot directly examine whether the response by the CDS market is because of new information (rather than the new treatment of pension items).

6.5 Robustness Tests

We examine the sensitivity of our results to the inclusion of data from the financial crisis years (i.e., 2007 and 2008). The results in Table 7 are very similar to our results in Table 4. The size of the coefficients on the *S158IMP*Post* interaction term drop from a median of approximately 10.8 to a median of 7.0, and the level of significance also drops slightly, from a median t-statistic of 2.7 to a median t-statistic of 2.2. The size of the coefficients and the level of statistical significance are consistent with those in Table 4 for the *DBPENSION*Post* interaction term. Overall, these changes in the main coefficient of interest are consistent with the financial crisis years introducing some noise into our estimation.

7. Conclusion

We use SFAS 158 to show that credit ratings are sensitive to changes in accounting standards. Even though SFAS 158 only required the recognition of an item that was previously

disclosed in the footnotes, we find that firms exposed to SFAS 158 received higher corporate credit ratings. This increase in credit rating is higher for firms that experienced a greater increase in the recognized balance sheet liability due to SFAS 158. We also find the greatest improvement in credit ratings for firms where the credit rating agency applied the largest pension adjustment, and that the improvements vary predictably with differences in the funded status of firms' pension plans. These results suggest that the quantitative adjustments made by the rating agency prior to SFAS 158 penalized firms relative to the combination of the SFAS 158 changes and the adjustments made post-SFAS 158. Our results suggest that credit ratings, which are a critical determinant of the cost of capital and capital structure for many firms, are not independent of changes in accounting standards.

Appendix A1: Variable Definitions

Variable	Description	Data Source
Panel A: Credit Variables		
Rating	Standard & Poor's Domestic Long-Term Issuer Credit Rating (SPLTICRM) issued three months after the end of year t expressed numerically as shown in Appendix A2	WRDS
CDS_Spread	Average daily 5-Year CDS spread in a given fiscal year	Markit
Panel B: Pension Accounting Variables		
S158IMP	The pension asset or liability disclosed off-balance sheet prior to SFAS 158 and then incrementally recognized as a result of SFAS 158, scaled by adjusted assets ((PPLAO - PBPRO - S87REC)/(ADJAT))	Compustat
S87REC	The pension asset or liability recognized on the balance sheet prior to SFAS 158 scaled by adjusted assets ((S87ACC + S87AML)/(ADJAT), where S87ACC is the accrued or prepaid pension cost prior to SFAS 158, and S87AML is the additional minimum liability prior to SFAS 158. Liabilities are recorded as negative values	Compustat
PENSION	Indicator equal 1 if the firm has a defined benefit pension plan, determined by checking whether pension assets (PPLAO) is greater than zero	Compustat
Panel C: Firm-Level Economic Determinants of Corporate Credit Rating		
CASH	Cash and short-term investments (CHE) scaled by adjusted assets (ADJAT), measured at the end of fiscal year *t*	Compustat
LEVERAGE	Sum of long-term debt and debt in current liabilities divided by adjusted assets (ADJAT), measured at the end of fiscal year *t*	Compustat
RENT	Rental payments (XRENT) divided by adjusted assets (ADJAT), measured at the end of fiscal year *t*	Compustat
CONVDEBT	Convertible debt divided by adjusted assets (ADJAT)	Compustat
INTCOV	EBITDA (OIBDP) over net interest paid (INTPN)	Compustat
SIZE	Log of adjusted assets (ADJAT) in constant December 2006 dollars	Compustat
TANGIBILITY	Net property, plant, and equipment (PPENT) over adjusted assets (ADJAT)	Compustat
CAPEX	Capital expenditures (CAPX) over adjusted assets (ADJAT).	Compustat
PROFIT	EBITDA (OIBDP) over sales (SALE)	Compustat
PROFITVOL	Standard deviation of PROFIT over the last five years, or at least the last two years if insufficient data	Compustat
DEBTCOV	EBITDA (OIBDP) over net interest paid (INTPN), or zero if ratio is negative for fiscal year *t*	Compustat

Variable	Description	Data Source
NegDEBTCOV	Equals 1 if DEBTCOV is negative	Compustat
Panel D: Macroeconomic Determinants of Corporate Credit Rating		
INFL_RATE	Inflation rate (in %)	Bureau of Labor Statistics
TS_SLOPE	Slope of the term structure (in %), computed as the yield on the constant maturity 10-year Treasury bond minus the yield on the constant-maturity three-month T-bill	FED
TED_SPREAD	3-month LIBOR (from Bank of England) minus the three-month constant-maturity T-bill rate	FED
AGG_PE	Aggregate price-to-earnings ratio based on previous year's earnings	Shiller
VIX	Annual average of the market volatility index	CBOE
GDP_GROWTH	The real GDP growth (in %) at 2009 prices	Bureau of Economic Analysis
Panel E: Other		
POST	An indicator variable that takes the value of one for fiscal years that end after December 15, 2008 and before December 15, 2013; and takes the value of zero for fiscal years that end after December 15, 2001 and before December 15, 20061 if post SFAS 158 implementation date (16 Dec 2006) =0 otherwise	Constructed
ADJAT	Adjusted Assets. Operating assets plus pension assets less prepaid pension cost (AT + PPLAO - S87ACC)	Compustat

Appendix A2: Ratings Scale

The table describes categories for credit ratings, as well as the numerical scale used in the paper. Multiple numerical values for a single rating level represents the number assigned to ratings with a + qualifier, no qualifier, and a − qualifier, respectively. The source for ratings definitions is Standard & Poor's (S&P) Ratings Definitions from November 20, 2014 (http://www.standardandpoors.com/).

Rating group	Assigned Value	Group Description	Standard & Poor's (S&P) Ratings Definitions
AAA	1	Prime	An obligation rated 'AAA' has the highest rating assigned by Standard & Poor's. The obligor's capacity to meet its financial commitment on the obligation is extremely strong.
AA	2, 3, 4	High grade	An obligation rated 'AA' differs from the highest-rated obligations only to a small degree. The obligor's capacity to meet its financial commitment on the obligation is very strong.
A	5, 6, 7	Upper medium grade	An obligation rated 'A' is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligations in higher-rated categories. However, the obligor's capacity to meet its financial commitment on the obligation is still strong.
BBB	8, 9, 10	Lower medium grade	An obligation rated 'BBB' exhibits adequate protection parameters. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity of the obligor to meet its financial commitment on the obligation.
BB	11, 12, 13	Non-investment grade speculative	An obligation rated 'BB' is less vulnerable to nonpayment than other speculative issues. However, it faces major ongoing uncertainties or exposure to adverse business, financial, or economic conditions which could lead to the obligor's inadequate capacity to meet its financial commitment on the obligation.
B	14, 15, 16	Highly speculative	An obligation rated 'B' is more vulnerable to nonpayment than obligations rated 'BB', but the obligor currently has the capacity to meet its financial commitment on the obligation. Adverse business, financial, or economic conditions will likely impair the obligor's capacity or willingness to meet its financial commitment on the obligation.
CCC	17, 18, 19	Substantial risks	An obligation rated 'CCC' is currently vulnerable to nonpayment, and is dependent upon favorable business, financial, and economic conditions for the obligor to meet its financial commitment on the obligation. In the event of adverse business, financial, or economic conditions, the obligor is not likely to have the capacity to meet its financial commitment on the obligation.
CC	20	Extremely speculative	An obligation rated 'CC' is currently highly vulnerable to nonpayment. The 'CC' rating is used when a default has not yet occurred, but Standard & Poor's expects default to be a virtual certainty, regardless of the anticipated time to default.
C	21	Default imminent	An obligation rated 'C' is currently highly vulnerable to nonpayment, and the obligation is expected to have lower relative seniority or lower ultimate recovery compared to obligations that are rated higher.
D	N/A	In default	An obligation rated 'D' is in default or in breach of an imputed promise.

Appendix B: Illustration of Credit Rating Adjustments for IBM

Table B.1 illustrates the actual adjusted balance sheet developed by Moody's for IBM for the fiscal year ending December 31, 2006 and what that hypothetical adjusted balance sheet would have looked like after Moody's adjustments if SFAS 158 was not adopted. We develop the hypothetical by following the precise methodology used by Moody's for 2005. We also separately identify the effects of SFAS 158, as reported by IBM in its 2006 annual report.

Table B.1 Credit Rating Adjustments to Balance Sheet of IBM for 2006 Fiscal Year

Balance Sheet	(A) Base	(B) SFAS 158	(C) CRA Adjust.	(D) Actual Adjusted	(E) Hypoth. CRA Adj.	(F) Hypoth. Adjusted
ASSETS						
Current Assets	44,660			44,660		44,660
Net PPE	14,439			14,439		14,439
Goodwill	12,854			12,854		12,854
Intangibles - Other	2,202			2,202		2,202
Other Assets	38,319	(9,240)		29,079	(21,046)	17,273
TOTAL ASSETS	112,474	(9,240)		103,234	(21,046)	91,428
LIAB & EQUITY						
Current Liabilities	40,091			40,091		40,091
Long-Term Debt-Gross	16,548		5,975	22,523		16,548
Less: Current Maturities	(2,768)			(2,768)		(2,768)
Net Long-term Debt	13,780		5,975	19,755		13,780
Unfunded APBO	11,898		(5,975)	7,578	(5,975)	7,578
Other Long-term Liab	4,544	258		4,802	(191)	4,353
Deferred income	2,502			2,502		2,502
TOTAL LIABILITIES	74,470	258		74,728	(6,166)	68,304
Common stock	(15,025)			(15,025)		(15,025)
Total Retained Earnings	52,432			52,432		52,432
AOCI	597	(9,498)		(8,901)	(14,880)	(14,283)
TOTAL EQUITY	38,004	(9,498)		28,506	(14,880)	23,124
TOTAL LIAB & EQUITY	112,474	(9,240)		103,234	(21,046)	91,428

The sum of (A) and (B) is what is reported in IBM's 2006 annual report. (A) is what would have been reported but for the implementation of SFAS 158. The effects of SFAS 158 (as reported by IBM) are provided in (B). (C) provides the actual adjustments made by Moody's, and (D) provides the actual adjusted balance sheet numbers after the Moody's adjustments. (E) shows what the Moody's adjustments would have been if the methodology mirrored what was used in the prior year. If it was the case that Moody's changed its approach to pension adjustments to fully incorporate SFAS 158, then (E) would be identical to the sum of (B) and (C). It would also be the case the (D) would be identical to (F), as (F) is the sum of (A) and (E). Because (D) and (F) are very different, this example indicates that Moody's changed the process used to incorporate adjustments related to pension obligations following SFAS 158.

The specific adjustments with and without the SFAS 158 changes are as follows:

1. ***Other Assets***: The adjustment in (B) is because the implementation of SFAS 158 resulted in a decline of $9,240 in Prepaid pension assets due to the requirement that only overfunded plans (i.e., plan assets exceed the PBO) be recognized as a Prepaid pension

asset for the excess amount. The hypothetical adjustment in (E) is equal to the Prepaid Pension Asset as of December 31, 2006, as the actual adjustment to Other Assets in 2005 was the Prepaid Pension Asset as of December 31, 2005. These differences are consistent with a change in process. Prior to SFAS 158, all pension assets were removed from the balance sheet. After SFAS 158, pension assets were not adjusted in any way.

2. ***Senior Debt***: The actual adjustment for 2006 makes no sense, as it is the APBO (i.e., the Accumulated Postretirement Benefit Obligation, which is the liability associated with postemployment benefits other than pensions, see SFAS 106). The actual adjustment for the prior year was equal to the unfunded PBO times (1 – tax rate). This is equivalent to recording the unfunded pension liability, net of tax, as debt. There is no hypothetical adjustment because the pension plan was overfunded as of December 31, 2006.
3. ***APBO***: It is unclear what this adjustment is for. Moody's subtracts the unfunded pension obligations for IBM's non-U.S. plans from the unfunded APBO for all plans. It is possible that the rating analyst wanted to subtract the U.S. APBO, but that he pulled the incorrect information.
4. ***Other Long-term Liabilities***: This reflects changes in deferred tax positions due to the recognition requirements of SFAS 158. The adjustment in prior years was related to the deferred tax position arising from other adjustments, most of which is related to the creation of additional senior debt.
5. ***AOCI***: This reflects changes attributable to non-cash equity impacts related to the implementation of SFAS No. 158.

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Figure 1: Determination of Additional Minimum Liability

	Accumulated Benefit Obligation	
less:	Fair Value of Plan Assets	
equals:	Minimum Required Liability	← *Pension liability that must appear on balance sheet*
less:	Existing Balance Sheet Liability	← *Accumulated accrued but unpaid pension costs*
equals:	**Additional Minimum Liability**	← *Extra balance sheet liability before adjustments*

Figure 2: Balance Sheet Recognition Pre- and Post-SFAS 158

Accounting Item	**Firm A**	**Firm B**
(1) Projected Benefit Obligation (PBO)	(10,000)	(12,000)
(2) Market Value of Assets	9,500	9,500
(3) Funded Status (PBO)	(500)	(2,500)
(1) Accum. Benefit Obligation (ABO)	(9,000)	(12,000)
(2) Market Value of Assets	9,500	9,500
(3) Funded Status (ABO)	500	(2,500)
(4) Minimum Liability	0	(2,500)
(5) (Accrued)/Prepaid Pension Cost	500	(500)
(6) AML; (4) - (5)	N/A	(2,000)
(7) Prior Service Cost	200	200
(8) Charge to OCI; (6) + (7)	N/A	1,800
Pension asset/(liability) recognized		
Pre-SFAS 158	500	(2,500)
Post-SFAS158	(500)	(2,500)
Delta	(1,000)	0

Figure 3: Interpretation of Funded Status Results

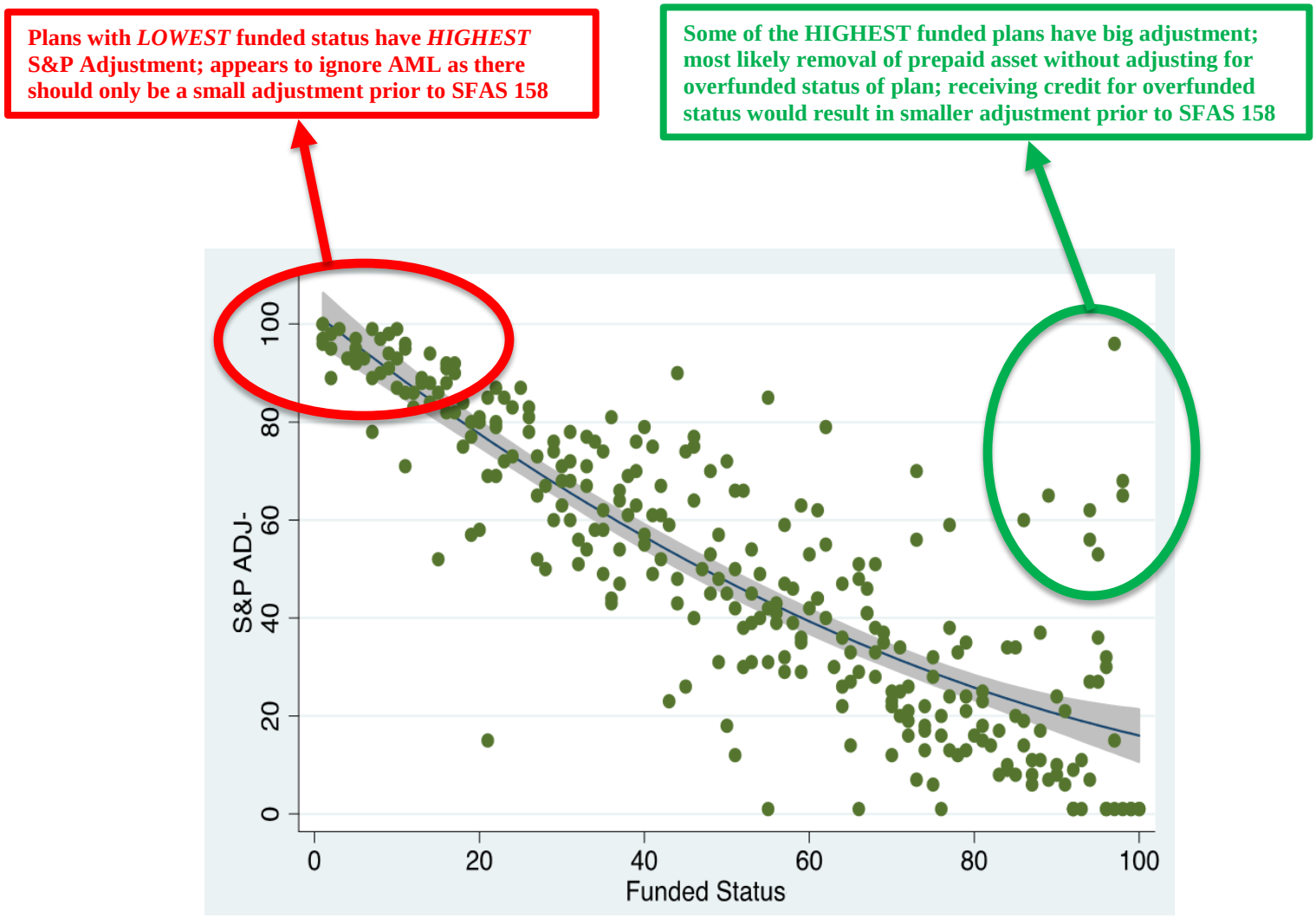

Table 1: Overview of Standard and Poor's (S&P) adjustments to U.S. GAAP

This table summarizes the most common Balance Sheet Adjustments performed by S&P. The data consists of 612 firms that were rated by S&P and for whom data was available on CreditStats for each of the 2003 through 2008 fiscal years.

		Adjustment Item					
Year		**Pension**	**Receivables**	**LIFO**	**Leases**	**ARO**	**Other Debt**
FY2003	*# of Firms*	*409*	*7*	*184*	*571*	*54*	*20*
	Avg Adjust	$1,401.8	$4,451.9	$156.6	$431.4	$208.3	$780.7
	Total Adjust	***$573,343***	***$31,163***	***$28,821***	***$246,321***	***$11,248***	***$15,615***
FY2004	*# of Firms*	*418*	*6*	*179*	*581*	*72*	*21*
	Avg Adjust	$1,417.4	$4,775.8	$217.5	$472.4	$179.9	$753.0
	Total Adjust	***$592,481***	***$28,655***	***$38,938***	***$274,445***	***$12,953***	***$15,812***
FY2005	*# of Firms*	*411*	*6*	*172*	*572*	*89*	*22*
	Avg Adjust	$1,166.3	$4,650.7	$312.1	$493.4	$184.8	$824.6
	Total Adjust	***$479,361***	***$27,904***	***$53,673***	***$282,218***	***$16,444***	***$18,140***
FY2006	*# of Firms*	*402*	*5*	*170*	*577*	*106*	*24*
	Avg Adjust	$559.0	$5,682.4	$327.5	$545.5	$210.5	$822.0
	Total Adjust	***$224,714***	***$28,412***	***$55,677***	***$314,779***	***$22,311***	***$19,728***
FY2007	*# of Firms*	*383*	*6*	*166*	*591*	*120*	*26*
	Avg Adjust	$376.0	$6,273.0	$471.6	$574.3	$217.7	$766.3
	Total Adjust	***$144,020***	***$37,638***	***$78,293***	***$339,389***	***$26,123***	***$19,924***
FY2008	*# of Firms*	*425*	*7*	*158*	*595*	*130*	*32*
	Avg Adjust	$781.2	$4,871.8	$329.5	$591.6	$218.9	$717.4
	Total Adjust	***$331,996***	***$34,102***	***$52,063***	***$351,976***	***$28,456***	***$22,957***
Pre-SFAS 158	*# of Firms*	*1,238*	*19*	*535*	*1,724*	*215*	*63*
	Avg Adjust	$1,328.9	$4,617.0	$227.0	$465.8	$189.0	$786.8
	Total Adjust	***$1,645,186***	***$87,722***	***$121,432***	***$802,984***	***$40,645***	***$49,567***
Post-SFAS 158	*# of Firms*	*1,210*	*18*	*494*	*1,763*	*356*	*82*
	Avg Adjust	$579.1	$5,564.0	$376.6	$570.7	$216.0	$763.5
	Total Adjust	***$700,730***	***$100,152***	***$186,033***	***$1,006,143***	***$76,889***	***$62,609***

Table 2: Sample Composition

Breakdown of the sample of firms using the industry classification for the 2005 fiscal year

NAICS	*Description*	*Firms*	*Percent*
11	Agriculture, Forestry, Fishing and Hunting	1	0.2%
21	Mining, Quarrying, and Oil and Gas Extraction	41	9.2%
22	Utilities	1	0.2%
23	Construction	15	3.4%
31	Manufacturing: Food, Textile, Apparel	39	8.7%
32	Manufacturing: Wood, Paper, Printing, Petroleum, Chemicals	87	19.5%
33	Manufacturing: Metals, Machinery, Computers, Electrical, Furniture	143	32.0%
42	Wholesale Trade	17	3.8%
44	Retail Trade: Motor Vehicles, Furniture, Electronics, Food, Gas	27	6.0%
45	Retail Trade: Sporting goods, Books, Florists, Office Supplies, Vending	14	3.1%
48	Transportation and Warehousing: Air Transport, Trucks, Pipelines	1	0.2%
49	Transportation and Warehousing: Messengers, Storage	0	0.0%
51	Information	11	2.5%
52	Finance and Insurance	0	0.0%
53	Real Estate and Rental and Leasing	6	1.3%
54	Professional, Scientific, and Technical Services	10	2.2%
55	Management of Companies and Enterprises	0	0.0%
56	Administrative and Support and Waste Management	5	1.1%
61	Educational Services	1	0.2%
62	Health Care and Social Assistance	10	2.2%
71	Arts, Entertainment, and Recreation	7	1.6%
72	Accommodation and Food Services	8	1.8%
81	Other Services (except Public Administration)	2	0.4%
99	Other	1	0.2%
Total		447	*100.0%*

Table 3: Descriptive Statistics

Descriptive statistics of the variables used in the regression analyses. All variables are defined in Appendix A.

	Mean	*Std. Dev.*	*P25*	*Median*	*P75*
Dependent Variable:					
RATING	9.496	3.309	7	9	12
CDS_Spread	1.222	1.329	0.414	0.748	1.490
PENSION Variables:					
S158IMP	-0.009	0.019	-0.012	-0.002	0
S87REC	-0.017	0.045	-0.027	-0.006	0
Rating Control Variables:					
CONVDEBT	0.018	0.050	0	0	0
RENT	0.017	0.024	0.005	0.01	0.017
CASH	0.094	0.092	0.027	0.067	0.131
DEBTCOV	2.711	3.297	1.086	1.899	3.148
NegDEBTCOV	0.019	0.136	0	0	0
INTCOV	39.454	106.76	5.128	10.367	22.096
PROFIT	-0.037	14.289	0.091	0.141	0.217
PROFITVOL	0.031	0.058	0.009	0.016	0.03
SIZE	8.73	1.322	7.753	8.597	9.608
TANGIBILITY	0.292	0.222	0.121	0.221	0.429
CAPEX	0.047	0.048	0.019	0.033	0.057
LEVERAGE	0.382	0.199	0.239	0.36	0.5
Macroeconomic Control Variables:					
INFL_RATE	2.251	1.124	1.6	2.3	3.2
GDP_GROWTH	1.699	1.81	1.5	2.2	2.8
TS_SLOPE	2.387	0.813	1.72	2.87	2.99
TED_SPREAD	0.397	0.332	0.21	0.28	0.41
AGG_PE	23.771	3.695	21.21	22.98	26.59
VIX	22.232	6.33	15.48	22.549	27.292

Table 4: Impact of SFAS 158 on Corporate Credit Ratings

Results from a balanced-panel OLS estimation of the S&P Issuer Credit Rating on a set of pension variables and a set of variables associated with issuer credit ratings. All variables are defined in Appendix A. Panel A uses the full sample of firms, and Panel B uses only those firms with a pension plan. A positive coefficient on *S158IMP*Post* indicates that firms with greater increases in the recognized pension liability due to SFAS 158 received, on average, a higher corporate credit rating in the post period. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively, using two-tailed tests and standard errors clustered by firm and by year.

Table 4 (continued)

Panel A: Full Sample of Firms

	(1) RATING	(2) RATING	(3) RATING	(4) RATING
Post	0.427***	0.946***	0.611	0.627***
	(3.641)	(8.148)	(0.958)	(5.102)
S158IMP*Post	12.491**	8.029**	8.944**	8.125**
	(2.563)	(2.149)	(2.071)	(2.191)
Pension Controls				
S158IMP	-9.218***	-1.037	-0.818	-1.322
	(2.872)	(0.398)	(0.291)	(0.512)
S87REC	-8.147***	-0.953	-0.789	-1.053
	(3.602)	(0.594)	(0.443)	(0.663)
S87REC*Post	0.833	0.802	0.435	1.016
	(0.286)	(0.372)	(0.185)	(0.468)
Rating Controls				
CONVDEBT		0.570	0.150	0.567
		(0.499)	(0.148)	(0.497)
RENT		11.056*	4.869	10.955*
		(1.747)	(0.797)	(1.719)
CASH		-0.128	1.564**	-0.026
		(0.218)	(2.327)	(0.045)
DEBTCOV		0.116***	0.115***	0.115***
		(7.430)	(5.621)	(7.487)
NegDEBTCOV		1.251***	1.311***	1.271***
		(4.881)	(5.657)	(4.954)
INTCOV		-0.000	-0.001	-0.000
		(0.791)	(1.445)	(0.624)
PROFIT		0.001**	-0.344	0.001***
		(2.318)	(0.647)	(2.777)
PROFITVOL		0.717	0.112	0.644
		(0.681)	(0.101)	(0.612)
SIZE		-0.883***	-0.937***	-0.890***
		(6.414)	(6.209)	(6.490)
TANGIBILITY		-0.518	-0.714	-0.572
		(0.731)	(0.952)	(0.802)
CAPEX		-5.749***	-4.128***	-6.034***
		(4.448)	(2.756)	(4.531)
LEVERAGE		3.102***	3.006***	3.037***
		(7.017)	(6.857)	(6.843)
Number of Firms	447	447	447	447
Adjusted R-squared	0.872	0.907	0.909	0.906
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	No
Macroeconomic Controls	No	No	No	Yes
Interacted Rating Controls	No	No	Yes	No

Table 4 (continued)

Panel B: Only Firms with Pension Plans

	(1) RATING	(2) RATING	(3) RATING	(4) RATING
Post	0.544***	1.014***	1.070	0.724***
	(3.863)	(6.780)	(1.463)	(4.842)
S158IMP*Post	13.774***	10.726***	10.074**	10.734***
	(2.721)	(2.659)	(2.252)	(2.688)
Pension Controls				
S158IMP	-9.164***	-2.233	-1.303	-2.397
	(2.987)	(0.774)	(0.405)	(0.838)
S87REC	-8.376***	-1.481	-0.995	-1.479
	(3.756)	(0.841)	(0.492)	(0.852)
S87REC*Post	1.235	0.932	0.288	1.130
	(0.425)	(0.432)	(0.119)	(0.524)
Rating Controls				
CONVDEBT		-0.034	-0.302	-0.014
		(0.030)	(0.274)	(0.012)
RENT		5.462	1.149	5.407
		(0.868)	(0.196)	(0.863)
CASH		-0.097	1.196	0.063
		(0.126)	(1.398)	(0.083)
DEBTCOV		0.138***	0.116***	0.138***
		(6.798)	(5.533)	(6.817)
NegDEBTCOV		1.275***	1.087***	1.265***
		(3.162)	(3.339)	(3.059)
INTCOV		-0.001	-0.002**	-0.001
		(1.543)	(2.101)	(1.305)
PROFIT		0.001	-0.941	0.001
		(1.012)	(1.344)	(1.244)
PROFITVOL		-0.342	2.502	-0.367
		(0.186)	(0.972)	(0.199)
SIZE		-0.791***	-0.828***	-0.802***
		(4.775)	(4.771)	(4.918)
TANGIBILITY		-0.515	-0.720	-0.641
		(0.550)	(0.722)	(0.680)
CAPEX		-8.690***	-8.126***	-9.048***
		(4.642)	(3.235)	(4.738)
LEVERAGE		3.298***	3.306***	3.248***
		(6.309)	(5.536)	(6.198)
Number of Firms	328	328	328	328
Adjusted R-squared	0.864	0.899	0.901	0.898
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	No
Macroeconomic Controls	No	No	No	Yes
Interacted Rating Controls	No	No	Yes	No

Table 5: Role of S&P Adjustment

Results from a balanced-panel OLS estimation of the S&P Issuer Credit Rating on a set of pension variables and a set of variables associated with issuer credit ratings. The sample consists of 328 firms that were rated by S&P each year and that sponsored a defined benefit pension plan. Coefficients on control variables are not shown for ease of presentation. All variables are defined in Appendix A. A positive coefficient on *S158IMP*Post* indicates that firms with greater increases in the recognized pension liability due to SFAS 158 received, on average, a higher corporate credit rating in the post period. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively, using two-tailed tests and standard errors clustered by firm and by year.

Panel A: This panel divides the sample into four groups based on the ratio of the S&P Pre-SFAS 158 Pension Adjustment to the Total of all S&P Adjustments. This ratio captures the importance of the S&P pension adjustment relative to the other adjustments made by S&P. Firms in the first (fourth) quartile have small (large) values for this ratio.

Quartiles of the Ratio of S&P Pension Adjustment to Total of All S&P Adjustments

	(Quartile 1) RATING	*(Quartile 2)* RATING	*(Quartile 3)* RATING	*(Quartile 4)* RATING
Post	1.298***	0.865***	0.398	0.901***
	(3.421)	(5.622)	(1.136)	(3.487)
S158IMP*Post	15.041	3.449	3.634	15.559**
	(1.455)	(0.275)	(0.389)	(2.128)
Pension Controls				
S158IMP	5.829	8.573	5.241	-4.124
	(1.108)	(1.350)	(1.327)	(0.737)
S87REC	-1.730	10.651*	0.997	-2.471
	(0.513)	(1.669)	(0.334)	(0.784)
S87REC*Post	-0.661	-9.827	-0.901	3.613
	(0.148)	(1.506)	(0.185)	(1.175)
Number of Firms	82	82	82	82
Adjusted R-squared	0.905	0.914	0.907	0.874
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Rating Controls	Yes	Yes	Yes	Yes

Table 5 (continued)

Panel B: This panel divides the sample into four groups based on the ratio of the S&P Pre-SFAS 158 Pension Adjustment to the Total Assets of the firm. This ratio captures the importance of the S&P pension adjustment relative to the size of the firm. Firms in the first (fourth) quartile have small (large) values for this ratio.

	Quartiles of the Ratio of S&P Pension Adjustment to Total Assets			
	(Quartile 1) RATING	*(Quartile 2)* RATING	*(Quartile 3)* RATING	*(Quartile 4)* RATING
Post	1.030***	0.982	0.198	0.775**
	(3.176)	(1.644)	(0.536)	(2.447)
S158IMP*Post	6.265	-8.087	12.361	20.777**
	(0.796)	(0.428)	(1.123)	(2.306)
Pension Controls				
S158IMP	-1.473	-3.798	0.006	8.229*
	(0.407)	(0.285)	(0.001)	(1.673)
S87REC	-9.363*	3.941	4.287	5.149
	(1.845)	(0.436)	(0.829)	(1.518)
S87REC*Post	6.836	-5.746	-11.011	-3.531
	(1.066)	(0.483)	(1.434)	(0.952)
Number of Firms	82	82	82	82
Adjusted R-squared	0.922	0.933	0.931	0.905
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Rating Controls	Yes	Yes	Yes	Yes

Table 6: Role of S&P Pension Adjustment Relative to SFAS158 Adjustment

Results from a balanced-panel OLS estimation of the S&P Issuer Credit Rating on a set of pension variables and a set of variables associated with issuer credit ratings. The sample consists of 328 firms that were rated by S&P each year and that sponsored a defined benefit pension plan. This panel divides the sample into four groups based on the absolute value of the difference between the S&P Pension Adjustment and the hypothetical SFAS 158 Pension Adjustment for the year prior to the implementation of SFAS 158. This difference captures whether S&P was making adjustments that were distinct from SFAS 158. Firms in the first (fourth) quartile have small (large) values for this difference. Coefficients on control variables are not shown for ease of presentation. All variables are defined in Appendix A. A positive coefficient on *S158IMP*Post* indicates that firms with greater increases in the recognized pension liability due to SFAS 158 received, on average, a higher corporate credit rating in the post period. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively, using two-tailed tests and standard errors clustered by firm and by year.

Quartiles of difference between S&P and hypothetical SFAS 158 Pension Adjustment

	(Quartile 1) RATING	*(Quartile 2)* RATING	*(Quartile 3)* RATING	*(Quartile 4)* RATING
Post	1.306***	0.047	1.006***	0.778**
	(4.324)	(0.093)	(3.786)	(2.442)
S158IMP*Post	20.300	-23.332	5.927	19.536**
	(0.781)	(1.073)	(1.226)	(2.296)
Pension Controls				
S158IMP	-15.310	6.671	-1.060	7.016
	(1.131)	(0.423)	(0.357)	(1.439)
S87REC	-20.208**	-3.138	1.291	5.516*
	(2.090)	(0.496)	(0.465)	(1.664)
S87REC*Post	16.669	-10.826	2.472	-4.709
	(1.535)	(1.294)	(0.778)	(1.261)
Number of Firms	82	82	82	82
Adjusted R-squared	0.905	0.916	0.951	0.894
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Rating Controls	Yes	Yes	Yes	Yes

Table 7: Role of Pension Funding

Results from a balanced-panel OLS estimation of the S&P Issuer Credit Rating on a set of pension variables and a set of variables associated with issuer credit ratings. The sample consists of 328 firms that were rated by S&P each year and that sponsored a defined benefit pension plan. The sample is divided into four groups based on the funded status of the pension plan, calculated as pension assets divided by the projected benefit obligation. Firms in the first (fourth) quartile have pension plans that are poorly (well) funded. Coefficients on control variables are not shown for ease of presentation. All variables are defined in Appendix A. A positive coefficient on *S158IMP*Post* indicates that firms with greater increases in the recognized pension liability due to SFAS 158 received, on average, a higher corporate credit rating in the post period. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively, using two-tailed tests and standard errors clustered by firm and by year.

	Quartiles of Funded Status of Pension Plan			
	(Quartile 1) RATING	*(Quartile 2)* RATING	*(Quartile 3)* RATING	*(Quartile 4)* RATING
Post	1.316***	0.667**	0.981***	1.070***
	(4.210)	(2.002)	(4.139)	(3.223)
S158IMP*Post	31.850***	14.270	11.601	12.552***
	(2.960)	(1.204)	(1.285)	(3.345)
Pension Controls				
S158IMP	6.452	9.192	6.793	-11.014***
	(0.623)	(1.333)	(1.184)	(3.085)
S87REC	-3.712	3.182	1.890	-7.039***
	(0.898)	(1.006)	(0.652)	(2.691)
S87REC*Post	7.491***	-6.945	-1.512	4.145
	(2.622)	(0.981)	(0.540)	(1.600)
Number of Firms	82	82	82	82
Adjusted R-squared	0.893	0.913	0.890	0.894
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Rating Controls	Yes	Yes	Yes	Yes

Table 8: Economic Implications of Rating Adjustments

Results from a balanced-panel OLS estimation of the average daily 5 Year CDS Spread on a set of pension variables and a set of variables associated with issuer credit ratings. Column (1) uses the full sample of firms for whom CDS data was available from Markit, and Column (2) uses only those firms with a pension plan for whom CDS data was available from Markit. Coefficients on control variables are not shown for ease of presentation. All variables are defined in Appendix A. A positive coefficient on *S158IMP*Post* indicates that firms with greater increases in the recognized pension liability due to SFAS 158 experienced a reduction in the firm's 5-year CDS spread in the post period. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively, using two-tailed tests and standard errors clustered by firm and by year.

	(1) CDS_Spread	*(2)* CDS_Spread
Post	-0.457**	-0.500**
	(2.336)	(2.314)
S158IMP*Post	6.938***	5.823**
	(2.611)	(2.082)
Pension Controls		
S158IMP	-5.425**	-5.298**
	(2.336)	(2.288)
S87REC	-2.934	-2.952
	(1.194)	(1.183)
S87REC*Post	1.152	0.470
	(0.726)	(0.278)
Number of Firms	261	199
Adjusted R-squared	0.648	0.632
Firm Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Rating Controls	Yes	Yes

Table 9: Robustness of Sample Period

Results from a balanced-panel OLS estimation of the S&P Issuer Credit Rating on a set of pension variables and a set of variables associated with issuer credit ratings. All variables are defined in Appendix A. A positive coefficient on *S158IMP*Post* indicates that firms with greater increases in the recognized pension liability due to SFAS 158 received, on average, a higher corporate credit rating in the post period. Coefficients on control variables are not shown for ease of presentation. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively, using two-tailed tests and standard errors clustered by firm and by year.

	(1) RATING	(2) RATING	(3) RATING	(4) RATING
Post	0.336*	0.745***	0.452	0.338**
	(1.914)	(5.518)	(0.809)	(2.358)
S158IMP*Post	6.825	6.998**	6.976**	7.048**
	(1.566)	(2.225)	(2.123)	(2.220)
Pension Controls				
S158IMP	-8.214***	-2.596	-2.154	-2.751
	(2.977)	(1.123)	(0.893)	(1.183)
S87REC	-7.115***	-1.195	-1.008	-1.152
	(3.633)	(0.921)	(0.729)	(0.867)
S87REC*Post	1.293	1.019	0.953	0.834
	(0.536)	(0.577)	(0.508)	(0.459)
Number of Firms	447	447	447	447
Adjusted R-squared	0.882	0.913	0.914	0.912
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	No
Rating Controls	No	Yes	Yes	Yes
Macroeconomic Controls	No	No	No	Yes
Interacted Rating Controls	No	No	Yes	No