Do Markets React to Bank Examination Ratings?
Evidence of Indirect Disclosure of Management Quality Through BHCs' Applications to Convert to FHCs

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Abstract:

Certain nonrecurring circumstances associated with the passage of the Financial Services Modernization Act of 1999 have created a unique opportunity for the market to obtain bank examination ratings of management quality. We utilize this natural experiment in order to determine how the market views this heretofore private information. We find that the stock market utilizes bank examination ratings in order to reveal regulatory intent, rather than simply as information about management quality. Revelation of unsatisfactory M ratings (denoted "bad news") causes BHC stock returns and market risk betas to *increase,* whereas revelation of acceptable M ratings ("good news") causes BHC stock returns and market risk betas to *decrease*. The market thrives on "bad news" because unsatisfactory M ratings indicate that regulatory intervention is likely to occur, possibly benefiting both shareholders and creditors. On the other hand, revelation of acceptable M ratings ("good news") indicates that bank regulators are unprepared to intervene in the near future. Moreover, we find lower bond spreads for a subsample of FHCs with satisfactory M ratings revealed upon conversion.

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Financial audits provide the market with valuable information about a firm's true value. Bank examiners are empowered to conduct "super audits" that can be particularly revealing as a result of the government's power to require banks to reveal pertinent information that may lead to subsequent regulatory action.[1] The results of bank examinations may therefore complement market data produced by non-governmental sources. The potential for an improvement in market disclosure has fueled a proposal to make bank examination ratings public. A countervailing point of view, however, is that the revelation of bank examination ratings might be destabilizing to the banking system and might actually substitute for private information gathering, thereby reducing the allocation of private resources to information production as the market free rides on publicly released regulatory ratings.[2]

The resolution of this debate hinges on the importance of bank examination ratings in determining bank market values – a question that has spawned a substantial empirical literature. However, because on-site bank examination results are not publicly

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[1] After an on-site examination, commercial banks receive CAMEL ratings on a scale of 1 (strongest) to 5 (weakest) from their chartering agency (either the Fed for state member banks, or the state bank commissioner for state non-member banks or the Comptroller of the Currency for national banks), where C=capital adequacy, A=asset quality, M=management quality, E=earnings, and L=liquidity. Bank holding companies are examined by the Federal Reserve Board and receive BOPEC ratings, where B=bank subsidiaries' condition, O=other nonbank subsidiaries' condition, P=parent company's condition, E=earnings, and C=capital adequacy.

[2] Regulators have been unwilling to release bank examination ratings because of a fear that the release of low ratings may become a self-fulfilling prophesy as the market penalizes poor performers, thereby exacerbating their difficulties. Although there is no evidence of irrational market contagion, see Flannery (1998), there is also concern that the publication of low ratings may lead investors to downgrade similar (unexamined) banks, thereby jeopardizing the stability of the entire banking system, see Flannery and

revealed, previous studies of this issue have had to rely on an "as if scenario." The literature examines the contribution of bank examination ratings upon bank valuation, *as if* the ratings were available to the investing public. As sophisticated as their methodologies may be, these studies conduct a joint test of both market efficiency and the value of bank examination ratings. Moreover, these studies cannot measure the impact of the revelation of bank examination ratings on private information acquisition and analysis. Therefore, the consensus in the literature[3] that bank examination ratings lack the power to predict market values is not conclusive.[4] We cannot untangle whether this finding is the result of truly uninformative bank examination ratings or instead the result of the lack of market efficiency in incorporating private information into bank stock prices.

Up until now, this joint test of hypotheses was the best that we could do. Because of concerns about confidentiality, bank regulators have not revealed to the market bank examination ratings. However, certain nonrecurring circumstances associated with the passage of the Financial Services Modernization Act of 1999 have created a unique opportunity for the market to obtain this information. The regulation gives bank holding companies (BHCs) the opportunity to convert to a financial holding company (FHC) status that permits the firm to engage in merchant banking activities. Regulators published the criteria for approval of an application to convert from BHC to FHC status.

Houston (1999). Contradicting this regulatory reticence is the finding of De Young, et.al. (2001) who find that the release of bank examination ratings increases the accuracy of market valuations.

[3] Studies such as Hirshhorn (1987), Simons and Cross (1991), and Berger, Davies and Flannery (2000) have all found that bank examination ratings have little predictive power in estimating equity values. For a more complete discussion, see section 2.

[4] An explanation for the finding that bank examination information has little or no explanatory power in determining BHC market values may stem from the different focus of bank regulators as compared to equity holders. Whereas shareholders are concerned about valuations in the upper tail (solvency region) of

There were three major criteria: (1) Community Reinvestment Act (CRA) ratings in the acceptable range for all bank subsidiaries, (2) status as a well-capitalized BHC, and (3) CAMEL bank examination ratings for each bank subsidiary that give management ("M") the highest ratings (either 1 or 2). The first two of these criteria are public information. Only the last of the three criteria, the M rating, is confidential regulatory information. Thus, the BHC's decision to convert or not may be used by the market to deduce this private information. That is, if a BHC meets all criteria for conversion, but fails to do so, the market may deduce that the BHC has bank subsidiaries with less than acceptable values for M. Alternatively, if a BHC does convert, then the market can ascertain that all bank subsidiaries have high ratings for their management quality. We use this implicit revelation of the heretofore private M rating in order to ascertain the market's valuation of this regulatory information. We then test whether the information is useful in determining both the market value of equity and bond spreads. To our knowledge, this is the first study that can untangle the Gordian knot of the joint test of hypotheses that has hampered interpretation of previous studies examining the predictive power of bank examination ratings in estimating market values.

We find that the stock market utilizes bank examination ratings in order to reveal regulatory intent, rather than simply as information about management quality. Revelation of unsatisfactory M ratings (denoted "bad news") causes BHC stock returns to *increase,* whereas revelation of acceptable M ratings ("good news") causes BHC stock returns to *decrease*. The market thrives on "bad news" because unsatisfactory M ratings indicate that regulatory intervention is likely to occur, possibly benefiting both

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the return distribution, bank examiners are focused on protecting the government's claim in the event of bank insolvency.

shareholders and creditors. Moreover, the stock market appears to be relieved that BHCs with poor management quality will not be permitted to undertake the expanded powers made available through conversion to the FHC format. On the other hand, revelation of acceptable M ratings ("good news") indicates that bank regulators are unprepared to intervene in the near future, perhaps because a case of distress has not been made to justify impending intervention, thereby eliminating any expected regulatory oversight. We also find that the revelation of information about M ratings impacts risk exposure, as well as abnormal returns. We find that market risk increases (decreases) when low (high) quality M ratings are revealed. The stock market apparently uses the revealed M ratings in order to assess the management's ability to handle the risks of expanded powers. Finally, our analysis of a subsample of bond spreads shows that BHCs that convert (thereby revealing satisfactory M ratings) tend to have lower spreads than those that do not convert.

The paper proceeds as follows. Section 2 reviews the literature. Section 3 presents our methodology and empirical results for estimating the likelihood of BHC conversion to the FHC format. Section 4 analyzes the stock market's reaction to the revelation of the value of M inferred from the conversion decision. In Section 5, we analyze bond spreads for a subsample of 43 BHCs. Section 6 concludes.

2. Review of the Literature

In reviewing the literature comparing market and supervisory information acquisition, we focus on studies of the efficacy of on-site bank examination ratings. CAMEL and BOPEC ratings have been shown to have some value in forecasting default risk, credit spreads, and bond ratings. However, an early study, Cargill (1989) found that CAMEL ratings had no power in explaining bank CD rates. In contrast, Davies (1993) found that CAMEL ratings helped predict book value insolvency. Studies that have found that bank examinations have a comparative advantage in classifying problem loans are: Wu (1969), Benston and Marlin (1974), Graham and Humphrey (1978), and Flannery (1983). Moreover, Cole and Gunther (1998) found that CAMEL ratings have incremental value in predicting bank failures. De Young, et. al. (2001) measured the impact of CAMEL ratings on subordinated debt risk premiums. They found that the examiners' private information (as incorporated in the CAMEL ratings) has value for only a short period of time. Cole and Gunther (1998) also found that on-site examination ratings become "stale" after about six months. Berger, Davies, and Flannery (2000) found that BOPEC ratings of BHC quality have some explanatory power in forecasting bond market ratings, suggesting that market information is complementary to supervisory information. However, they found that bank examination ratings are not necessarily leading indicators of market information, suggesting that bank examiners could also gain by utilizing market information. When Berger, Davies and Flannery limited their analysis to those observations for which an on-site inspection occurred during the current quarter, however, they found that supervisory ratings outperformed market information in all areas; i.e., predicting changes in the ratio of nonperforming loans, the ratio of equity capital to total assets, and earnings per unit of assets.

Another branch of the literature examines the relationship between on-site examination ratings and bank stock prices. Hirschhorn (1987) found that CAMEL ratings were correlated with stock returns, but had no predictive power. Simons and

Cross (1991) found that the downgrading of banks to the problem level (CAMEL ratings 4 or 5) was not reflected either in bank stock prices nor in the financial press in the year prior to the supervisory action. Berger, Davies, and Flannery (2000) found that on-site bank examination ratings have little predictive power in estimating equity values, with the exception of the quarter immediately following an inspection. These results are consistent with the difference in focus for equity as opposed to bond investors. Bond investors' interests are more closely aligned to regulators' interests in their concern about predicting insolvency. Equity investors are more concerned about valuations in the non-default state. In contrast with small bank examinations, however, the examination of large banks focuses more on risk and is more likely to produce information of interest to shareholders. (See Office of the Comptroller of the Currency (1998), page 1.) Thus, Jordan (1999) used a sample of New England banks to show that supervisory data is useful in determining bank stock prices. Berger, Davies, and Flannery (2000) estimated positive abnormal returns in response to the scheduling of on-site bank examinations. Consistent with this, Flannery and Houston (1998) found that, in 1988, market investors viewed bank financial statements as more informative when the bank had recently been examined, especially if the examination was a "surprise" in that it did not follow the regular exam schedule. However, in 1990, in the wake of the widespread bank and thrift failures of the 1980s, on-site bank examinations were harsher and more likely to be scheduled in response to perceived problems. Thus, 1990 on-site bank examinations were less informative; i.e., there was less of a correlation between the book value and the market value of bank equity.

Although most studies show that on-site examination ratings do not generally impact bank stock prices, supervisory ratings can be useful in forecasting unfavorable events. Berger and Davies (1994) showed that CAMEL downgrades are followed by significant stock price declines, whereas there was no abnormal return associated with CAMEL upgrades. Dahl, Hanweck, and O'Keefe (1995) found that large increases in loan loss reserves occur only after on-site examinations. Therefore, the bad news contained in on-site examination ratings appears to have greater predictive power than the good news.

Bad news may also have a counterintuitive impact on stock prices. Berger, Davies, and Flannery (2000) show that BHC stock values *increase* when their BOPEC rating crosses from the satisfactory into the unsatisfactory range. This suggests that shareholders expect the lower rating to trigger regulatory discipline, thereby resulting in effective intervention that improves firm value. They do not find this result for marginally bad news; i.e., for ratings downgrades that do not push the BHC into the unsatisfactory range. The market appears to anticipate that regulatory intervention, and perhaps even bailout, will be triggered by dramatic ratings downgrades only.

The consensus of empirical studies finds limited evidence of any relationship between on-site examination ratings and bank stock prices, although supervisory ratings appear to have substantial predictive power in explaining default risk, credit spreads, and bond ratings. However, because of the joint test of hypotheses that have hampered all previous studies, the findings regarding the lack of a relationship between examination ratings and bank equity can be interpreted in two ways. One explanation is that on-site examination ratings have limited usefulness in determining bank stock prices because of the differences in the relevant event state space analyzed by examiners concerned predominately about default in contrast to equity investors who are also interested in the firm's upside gain potential. However, there can be another explanation for this empirical finding. If markets do not consistently incorporate private information into stock prices, it is hardly surprising that we find limited evidence of a link between on-site examination ratings (which are kept secret) and bank stock prices. This paper attempts to distinguish between these two competing explanations in order to resolve the inconsistencies in the literature regarding the usefulness of on-site examination ratings in predicting bank stock prices using a natural experiment, during which bank examiner M ratings were revealed to the public.

3. Analyzing the Conversion Decision

3.1 Methodology

Before we interpreted the market's reaction to a BHC's decision to convert to the FHC format, we analyzed the conversion decision itself. Not all BHCs can be expected to apply for conversion. For example, a small to moderate-sized community bank may have no interest in pursuing merchant banking activities, and it would not be surprising, therefore, that such an institution would not choose to convert to the FHC structure. We performed a LOGIT analysis to estimate the predictors of the conversion of a BHC to an FHC. There were both regulatory predictors (i.e., set to comply with the Federal Reserve's approval criteria) and market predictors. The three regulatory predictors were that the BHC had to be CRA-compliant, well-capitalized, and the recipient of high rankings for management quality (the M in the CAMEL ratings). The first two of these criteria are publicly available and could be used by the market to predict BHC conversion. The third is not and, therefore, we test the usefulness of this confidential regulatory information in forecasting the conversion decision. In addition, the market predictor of FHC conversion is determined by the incidence of any nonbanking activities. If the BHC has a Section 20 subsidiary, it had expressed a prior interest in expanding beyond traditional banking powers. We considered the presence of Section 20 subsidiaries a market predictor of a latent demand for FHC conversion.

We isolated 386 bank holding companies that were both publicly traded on either NYSE, AMEX, or NASDAQ and submit quarterly Y-9 and Call Reports to the Federal Reserve. All but two of these were fully CRA compliant. Since their lack of compliance would disqualify these two BHCs for conversion to FHC, but we did not have enough noncompliant observations for analysis, we dropped these two BHCs from our sample, leaving 384 BHCs. Since the remaining sample was comprised of BHCs that were all CRA-compliant, we dropped this condition as a criterion for FHC conversion.

We constructed two dummy variables. One was DCAP, which takes on the value of one if the BHC was considered well-capitalized as of December 31, 1999, and zero otherwise.[5] The other dummy variable, DSEC20, represented the market predictor of BHC conversion to the FHC structure. If the BHC had established Section 20 subsidiaries, it presumably had engaged in broader banking activities to the extent possible prior to the passage of the Financial Services Modernization Act of 1999.[6] The variable DSEC20 takes on a value of one if the BHC has Section 20 subsidiaries, zero

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[5] The FDIC Improvement Act of 1991 defined well-capitalized to be a total risk-based capital ratio of 10% or above, a tier I risk-based ratio of 6% or above, and a tier I leverage ratio of 5% or above, as well as compliance on all other capital directives. December 31, 1999 was the latest date, prior to the first conversion approvals, for which we had Y-9 data on capital ratios.

[6] Section 20 subsidiaries were permitted to underwrite corporate debt and equity, subject to the restriction that gross revenue earned from underwriting corporate securities did not exceed 25 percent of the total gross revenues earned by the Section 20 subsidiary.

otherwise. BHCs with Section 20 subsidiaries would be considered to be more likely to convert to the FHC structure in order to remove some of the constraints placed on their nontraditional banking activities.

3.2 Empirical Results

Table 1 presents descriptive statistics. Out of the 384 BHCs in our sample, 65 converted to FHC format, leaving 319 that chose to retain the BHC structure as of June 30, 2000. Only 24 BHCs (6.25 percent of all BHCs) had Section 20 subsidiaries. Of these 24 BHCs, 20 of them converted to FHCs by the end of June, 2000. Out of 384 BHCs in the sample, 358 BHCs (93.2 percent) were considered well-capitalized.[7] Of the 319 BHCs in the sample that did not convert, 295 BHCs (92.5 percent) were well-capitalized, and 284 BHCs (89 percent) were well managed (rated 1 or 2 for M in the CAMEL ratings).[8] We see that non-converting BHC management was rated lower in quality than FHC management. The average M rating for non-converting BHCs was 1.73, as compared to 1.51 for converting BHCs. Moreover, the maximum (minimum) average M rating was 1.84 (1.64) for all non-converting BHCs as compared to 1.68 (1.40) for those that converted to FHCs.

Table 2 presents the results of the LOGIT analysis. If the market had access to public information only, the independent variables DCAP and DSEC20, shown in column (1) were used to predict conversion. Both were significant at the 5% level or better, with the expected signs. However, if the market had access to confidential regulatory information

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[7] Only 96.9% (63 out of 65 total) of newly converted FHCs were well-capitalized as of December 31, 1999. The remaining two BHCs were able to raise their capital levels by their conversion dates in order to receive approval.

about M, then the model score increased to a chi-squared value of 85.618 from 83.635, both significant at the 1% level. The coefficient on the M variable was significant at the 10% level with a negative sign, denoting that the higher the M rating, the lower the bank examiner's approval rating, and the less likely the BHC will be to convert to the FHC structure. Moreover, the use of M in the LOGIT analysis improved the classification performance. The market estimate (without M) had 63.6% tied observations that could not be classified. The introduction of the M variable reduced the percentage of tied observations to 19.8%. Specifically, the proportion of BHCs that were correctly predicted to convert (Concordant) increased from 35.5 to 60.8 percent, and the proportion of BHCs that were correctly predicted not to convert (Discordant) increased from 0.9 to 19.4 percent.

The LOGIT model was utilized to estimate a probability p that any particular BHC would convert to the FHC structure. Utilizing the coefficients of the incomplete information LOGIT model, presented in column (1) of Table 2, we found a cut-off range (denoted P) of 0.14 through 0.50. That is, if the estimated likelihood value p was below P=0.14, the public information model classified the BHC as unlikely to convert. If the estimated likelihood value p was above P=0.50, the public information model predicted that the BHC would convert to the FHC format.[9] We used these cut-off points to define the dummy variable DNEWS. If the LOGIT model estimated a probability p below 0.14, but the BHC converted, then we considered this to be the release of "good news" about M, and the value of DNEWS was set to equal one over the 11-day event window. There

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[8] The M-rating for a BHC is an equally weighted average of the M-ratings of all the bank subsidiaries within the BHC.

[9] There were no estimated probabilities between 0.14 and 0.50 and therefore there was no ambiguity in this classification procedure.

were 45 such cases. If the LOGIT probability estimate *p* exceeded 0.50, but the BHC did not convert, this was considered the release of "bad news" about M, and the value of DNEWS was set to equal one around the event window. [10] There were four such cases. In all other cases, DNEWS was set equal to zero for the entire period. We used this dummy variable to assess the impact of confidential regulatory information about bank ratings on stock returns.

4. The Impact of the Conversion Decision on Equity Value

4.1 Methodology

We estimated a single index market model, using the daily S&P 500 index (denoted RM) as the market proxy, over the period January 1, 1999 through June 30, 2000. The event window was an 11-day period (-5, +5) centered around the announcement date. We assumed that the announcement date was the date that FHC conversion was approved and published on the Federal Reserve website. This date corresponds to the date on which FHC conversion became effective. As of June 30, 2000, there were a total of 328 conversions to the FHC structure.[11] The first conversion date permitted by the Federal Reserve was March 13, 2000. On that date, 117 BHCs received approval to convert. A few days later, on March 23, 2000, another 27 BHCs converted to the FHC structure. The remaining 184 BHCs converted gradually over the period ending June 14, 2000.

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[10] Since there was no conversion date for BHCs that did not convert, we defined the event window to be five days prior to March 13, 2000 (the first possible conversion date) until five days after March 23, 2000 (the only other date on which a large number of conversions were announced). We experimented with different event windows, without qualitative differences in results.

[11] Only 65 out of these 328 converting BHCs were publicly traded and therefore were included in our sample.

We tested the stock market's reaction to news about the M rating in two alternative ways. First, we multiplied the dummy variable DNEWS by the difference between the estimated probability and the cut-off point, thereby constructing the independent variable DNEWS x $(P - p)$. This served two functions. First, by imposing a positive sign for good news $(P - p>0)$ and a negative sign for bad news $(P - p<0)$, we could combine both events into a single dummy variable. Moreover, utilizing the magnitude of the difference between the cut-off point P and the predicted probability p weighted the DNEWS variable by a measure of market confidence in the forecast of BHC behavior.[12] That is, if the difference was great (in absolute value), then the market was very surprised by the information revealed in the conversion decision, thereby imparting greater weight to the unanticipated news revealed to the market.

The second approach that we used to separate the stock market impact of good news from the impact of bad news required the definition of two additional dummy variables: GOODNEWS and BADNEWS. The GOODNEWS variable was assigned a value of one on each day of the (-5,+5) event window if the BHC converted although it was not expected to do so (i.e., P-p>0); and zero otherwise. The BADNEWS variable was assigned a value of one if the BHC was expected to convert (i.e., P-p<0), although it did not. If the BHC had not converted by June 30, 2000, we assumed that the market learned of this decision over the two dates that most of the conversions took place; i.e., March 13th and March 23rd. Therefore, the dummy variable BADNEWS was assigned a value of one on each day of the period March 6, 2000 (five days prior to March 13th) to March 30th (five days after March 23rd); and zero for all other days. In other words, the

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[12] For good (bad) news events, we used the lower (upper) bound, 0.14 (0.50), of the cut-off range in order to construct $(P - p)$.

event windows for each of the dummy variables GOODNEWS and BADNEWS was the same as that of DNEWS. Finally, a dummy variable DCONVERT was assigned a value of one on each day of the (-5,+5) event window around the date that the BHC converted to FHC status, with zero otherwise. We utilized the variable DCONVERT in both the intercept (to measure a wealth effect) and the slope (to measure a risk effect) in order to differentiate the impact of the FHC conversion from the impact of the release of bank ratings information about management quality.

4.2 Empirical Results

Table 3 shows the results of the estimation of the single index market model. As expected, the beta coefficient on the market index was significant at the 1% level. The low level of market risk implied by a beta of 0.25 is an average for all BHCs in the sample. Since many of the BHCs were relatively small, community banks that were not actively traded, the average exposure to market risk was quite small.[13]

We first discuss the impact on shareholders' abnormal returns from the BHC's conversion to the FHC structure. This is shown as the shift term in the regressions in Table 3. Column (1) shows that the coefficient on DCONVERT was insignificant, consistent with the absence of any abnormal returns resulting from conversion to the FHC structure. However, the negative and statistically significant (at the 1% level) coefficient on the dummy variable DNEWS x $(P - p)$ is consistent with the opposite signed effects of good news versus bad news. When bad news was revealed about an unsatisfactory M rating, then the variable DNEWS x $(P - p)$ was negative (since P-p<0), thereby resulting in an <u>increase</u> in BHC abnormal returns. In contrast, when good news was revealed about an acceptable M rating, then the variable DNEWS x *(P – p)* was positive (since *P-p*>0), thereby resulting in a decrease in BHC abnormal returns.

This result is reinforced by the results presented in column (2) of Table 3. Here, the coefficient on DCONVERT is significantly (at the 1% level) positive, consistent with the presence of positive abnormal returns upon conversion to the FHC structure.[14] However, if good news was revealed about management quality, this positive abnormal return was reduced by the negative coefficient (significant at the 1% level) on GOODNEWS x *(P-p)*, whereas if bad news was revealed, positive abnormal returns increase, as shown by the negative coefficient on the negative variable BADNEWS x *(P-p)* which is significant at the 1% level. These results are consistent with the market's assessment of the likelihood of receiving regulatory subsidies from the bank safety net. If there is good news about bank management quality, then the likelihood of regulatory intervention decreases, thereby creating negative abnormal returns for shareholders. On the other hand, if there is bad news about the quality of bank management, then the likelihood of regulatory intervention increases, thereby creating positive abnormal returns for shareholders. These results are consistent with those of Berger, Davies and Flannery (2000).

The expectation of greater regulatory intervention for banks with expanded powers may be the result of the market's assessment of the risks of the new FHCs. The positive and statistically significant (at the 1% level) coefficients on the cross product term DCONVERT x RM in all columns of Table 3 suggest a significant increase in BHC

[13] We followed Scholes and Williams (1977) and adjusted for nonsynchronous trading (a possible explanation for the low betas) by lagging the market return by both one day and two days and then summed the three market coefficients, with no appreciable increase in the average beta.

market risk exposure as a result of the decision to convert. Again, however, the effect is asymmetric contingent upon the quality of the FHC's management. When good news was revealed about management quality, the FHC's market risk exposure was expected to decrease, as shown by the significantly (at the 1% level) negative coefficient on the variable GOODNEWS x *(P-p)* x RM of –125.898.[15] In contrast, the market risk exposure was expected to increase for BHCs with bad news about the quality of their management. Since *(P-p)* is negative whenever BADNEWS=1, the negative coefficient on the BADNEWS x *(P-p)* x RM variable denotes an increase in the beta coefficient for BHCs with bad news revealed about their M ratings. That is, the market perceived that these BHCs were even riskier than FHCs with expanded powers.

In Table 4, we confirm the results of Table 3 using time series cross sectional regression analysis. The number of observations decreased from 384 to 371, since some of the BHCs did not have enough daily equity return observations for the time series cross sectional analysis. Consistent with the results of Table 3, we show in Table 4 the absence of any abnormal returns and the increase in market risk exposure upon conversion to the FHC format. Moreover, we find evidence of the asymmetric effect of good and bad news on both abnormal returns and risk exposure. Columns (2), (3), and (4) of Table 4 show that good news leads to decreases in abnormal returns and decreases in market risk exposure. Bad news is consistent with increases in abnormal returns and increases in market risk exposure.

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[14] Yu (2000) finds that BHCs with Section 20 subsidiaries experienced both positive abnormal returns and an increase in market risk upon passage of the Gramm-Leach-Bliley Act in November of 1999.

[15] The very high coefficient on the beta coefficient both the good news and bad news groups is the result of the weighting of the independent variable by the fraction *(P-p).*

The cross sectional variation in the BHCs that comprise our sample is demonstrated in the results presented in Table 5. In this analysis, we divided our sample into four groups: (1) "good news" (i.e., BHCs that convert, but were not expected to do so because *P*-*p*>0); (2) "bad news" (i.e., BHCs that do not convert, but were expected to do so because *P*-*p*<0); (3) "no news conversions" (i.e., BHCs that convert and were expected to do so because *P*-p<0); and (4) "no news non-conversions" (i.e., BHCs that do not convert and were not expected to do so because *P*-*p*>0). For these regressions, we altered the definition of the dummy variable DCONVERT somewhat. As before, DCONVERT was defined as one on the 11-day window surrounding the conversion date for those BHCs that converted to the FHC format. However, for those BHCs that did not convert (groups 2 and 4 above), we defined DCONVERT to equal one over the period from March 6, 2000 through March 30, 2000, denoting the time period covering the dates with multiple conversions as the dates on which the market was most likely to learn of the decision not to convert to the FHC format.

Market betas varied from 0.1936 for BHCs that do not convert and were not expected to do so (group 4), up to 0.9274 for those FHCs that were prime candidates for conversion (group 3). The insignificant coefficients on the dummy variable DCONVERT are consistent with the absence of any impact on abnormal returns of the conversion decision. The exception is the bad news group 2. The positive significant (at the 5% level) coefficient on DCONVERT is consistent with positive abnormal returns upon *nonconversion* that may reflect expectations of regulatory subsidies. Moreover, the risk effects varied considerably across groups. The bad news group 2 reflected the greatest increase in market risk as shown by the positive and significant (at the 1% level) coefficient of 0.6403 on the DCONVERT x RM variable. Therefore, the revelation of bad news about M ratings increased the assessment of market risk exposure (i.e., the slope effect), as well as the expectation of the receipt of regulatory subsidies (i.e., the intercept effect).

5. The Impact of the Conversion Decision on Bond Spreads

5.1 Methodology

We collected detailed information on the BHC's outstanding bonds from Bloomberg Data Services. We selected one representative subordinated bond for each BHC. To be included in the sample, the selected debt securities had to meet the following seven criteria: 1) publicly traded in the secondary market, 2) in issues of at least $100 million, 3) U.S. dollar denominated, 4) issued and traded in the U.S. capital market, 5) rated by either or both S&P and/or Moody's, 6) straight bonds with no call, put, conversion, or other option features, 7) outstanding as of March 1, 2000 and June 30, 2000.[16] If issuers had more than one qualifying bond issue outstanding as of the above dates, we picked the bigger issue since it was likely to be more actively traded.

To isolate the yield factors that reflect only the credit risk of the securities and not general market conditions, we computed the yield spread above Treasury securities, holding maturity constant. The yield spreads (as of March 1, 2000 and June 30, 2000) on the selected bonds were calculated by subtracting the estimated yield on a U.S. Treasury security with the same term to maturity from the concurrent yield on the sampled subordinated bonds. The comparable maturity Treasury yield is obtained from yield

[16] The sample was restricted to option-free bonds for two reasons. First, in order obtain a more homogeneous group of bonds, and second, to avoid excessive noise introduced by the models used for computing option adjusted spreads, which vary substantially among market participants.

curves as of March 1, 2000 and June 30, 2000, as estimated by straight-line extrapolation from market yields reported by Bloomberg for 3, 6, and 9 month and 1, 2, 3, 5, 7, 10, 15, and 30 year Treasury securities.[17] The dependent variable was either the bond spreads on June 30, 2000 or the change in yield spreads for the sampled bonds, *SPREAD_C*, which was calculated by subtracting the calculated yield spread as of June 30, 2000 from that as of March 1, 2000.

The independent variables included issue-specific credit ratings assigned by Moody's and S&P. The variable *SPMOODY* is an equally-weighted average of credit ratings assigned by S&P and Moody's. Following Ronn and Verma (1987), the ratings are cardinalized as shown in Appendix 1. The lower the rating value, the higher the credit quality. We also used discrete ratings classes, differentiating among all A-rated bonds (cardinal values 1.00-3.33), all BBB-rated bonds (3.66-4.33), and all below investment grade bonds (above 4.66). To reflect the degree of transparency in the securities market regarding the sampled bonds, we defined a dummy variable, which takes the value of one when the two credit ratings, Moody's and S&P, do not agree, and zero otherwise.

5.2 Empirical Results

Panel A of Table 6 shows the mean bond spreads for each of the four groups: (1) good news; (2) bad news; (3) no news conversions; and (4) no news non-converters. Interestingly, groups (1) and (4) have the same average bond ratings of 3.67, but the good news group (1) has mean bond spreads of 1.91 as compared to mean bond spreads of 2.0

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[17] Bond spreads and BHC risk characteristics are both observed on December 31st of each year, even though the market generally cannot observe the reported risk measures on bank financial statements until they are publicly released a few weeks later. We also estimated the regressions with the spread observed

for group (4) no news non-converters. This suggests that, holding bond ratings constant, good news lowers bond spreads (although the means differences are not statistically significant). In contrast, the lower (z-statistics for means differences are significant at the 1% level) bond spreads of group (3) can be attributed to the significantly (at the 10% level or better) better bond ratings.

These results are reinforced by the regression results shown in columns (3) and (4) of Table 6 Panel B. These regressions examine the change in bond spreads from March 1, 2000 (before the first conversion took place) until June 30, 2000 (the last date in our sample period) using the Ronn and Verma cardinal bond ratings in column 3, and discrete ratings classes in column 4. The significantly (at the 10% level or better) negative coefficients on the GOODNEWS variable in both columns (3) and (4) are consistent with the reduction in bond spreads for those converting BHCs with good news about management quality. Moreover, the regression on bond spreads as of June 30, 2000 shown in column (2) of Table 6 Panel B also shows a negative coefficient on the GOODNEWS variable (significant at the 10% level), although the coefficient is insignificant when cardinal bond ratings are used in the regression shown in column (1).

The significantly (at the 5% level) negative coefficient on the variable NO NEWS CONVERSIONS in all columns of Table 6 Panel B suggests that bond spreads for the group (3) converting BHCs that were expected to convert were lower than for the no news non-converters (the base case). This is consistent with lower spreads for BHCs with the better M ratings necessary for approval of their applications for conversion to FHCs. As expected, increases in bond ratings (greater credit risk exposure) result in

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on January 31st of each following year, but the results were weaker and are not reported. This suggests that the market may correctly anticipate the issuers' financials.

higher bond spreads, as shown by the positive significant (at the 5% level) coefficient on S&P bond ratings in column (1) of Table 6 Panel B. Moreover, the significantly (at the 1% level) positive coefficients on the intercept in columns (3) and (4) suggest that bond spreads increased on average over the March 1 – June 30, 2000 period.

6. Conclusion

We use the results of a natural experiment to assess the impact of public revelation of bank examination ratings. The passage of the Financial Modernization Act of 1999 enabled the market to observe bank examination M ratings, ranking management quality, for the first time. Because a rating of either 1 (the highest on the five point scale) or 2 for each bank subsidiary was a prerequisite for approval of a BHC's application to convert to FHC status, the market could use public information together with the observation of the conversion decision in order to deduce bank management quality as assessed by bank examiners.

The stock market apparently finds the information about bank examination ratings useful in assessing the impact of the conversion to FHC status on both abnormal returns and market risk exposure. We find evidence of a significant increase in abnormal returns when the market receives "bad news" about the quality of a BHC's management (i.e., a poor M rating). That is, if a BHC is expected to convert because all the other regulatory and market factors are conducive to conversion, but instead it does not do so, this reveals a poor M rating as the impediment to conversion. In contrast, if a BHC is not expected to convert, but does so, this reveals an acceptable quality rating for management – the good news case.

Our results show that good news is consistent with decreases in abnormal returns and decreases in market risk exposure. Bad news is consistent with increases in abnormal returns and increases in market risk exposure. This suggests that the stock market utilizes bank examination ratings in order to reveal regulatory intent, rather than simply as information about management quality. Bad news about management quality, then, signals imminent regulatory intervention, with the enhancement of market risk exposure and the expectation of the receipt of regulatory subsidies. Revelation of high management quality ratings signals that regulators are unlikely to intervene, thereby reducing the abnormal returns from potential regulatory subsidies and reducing market risk exposure. Moreover, we conclude that bond spreads for a subsample of bonds were lower for converting BHCs with acceptable M ratings. Finally, we find that bank examination ratings are useful in estimating the likelihood of conversion to the FHC structure.

References

Benston, G. and J. Marlin, 1974, “Bank Examiners’ Evaluation of Credit,” *Journal of Money, Credit, and Banking*, 6, February, 23-44.

Berger, A., S. Davies, and M. Flannery, 2000, “Comparing Market and Supervisory Assessments of Bank Performance: Who Knows What When?” *Journal of Money Credit and Banking,* August.

Berger, A. and S. Davies, 1994, “The Information Content of Bank Examinations,” *Proceedings* of a Conference on Bank Structure and Competition, Federal Reserve Bank of Chicago, May.

Bhushan, R., 1989, “Collection of Information about Publicly Traded Firms: Theory and Evidence,” *Journal of Accounting and Economics*, 11, 183-206.

Billett, M., J. Garfinkel, E. O’Neal, 1999 “Market Discipline, Regulatory Discipline, and the Price of Risk in Banking,” *Journal of Financial Economics*.

Cargill, T. 1989, “CAMEL Ratings and the CD Market,” *Journal of Financial Services Research* 2, 347-358.

Cole, R. and J. Gunther, 1999, “Predicting Bank Failures: A Comparison of On- and Off-Site Monitoring Systems,” *Journal of Financial Services Research.*

Dahl, D., G. Hanweck, J. O’Keefe, 1995, “The Influence of Auditors and Examiners on Accounting Discretion in the Banking Industry,” FDIC working paper, October.

Davies, S., 1993, “The Importance of Market Information in Predicting Bank Performance,” Board of Governors of the Federal Reserve System working paper, April.

De Young, R., M. Flannery, W. Lang, and S. Sorescu, 2001, “Could Publication of CAMELS Ratings Improve Market Discipline?” *Journal of Money Credit and Banking,* forthcoming.

Flannery, M. 1983, “Can State Bank Examination Data Replace FDIC Examination Visits?” *Journal of Banking Research,* 312-316.

Flannery, M. 1998, “Using Market Information in Prudential Bank Supervision: A Review of the US Empirical Evidence,” *Journal of Money, Credit, and Banking,* August, Part I, 273-305.

Flannery, M., S. Kwan, and M. Nimalendran, 1998, “Market Evidence on the Opaqueness of Banking Firms’ Assets,” Working Paper.

Flannery, M. and J. Houston, 1999, "The Value of a Government Monitor for US Banking Firms," *Journal of Money, Credit, and Banking,* February, 14-34.

Gilbert, A., 1993, "Implications of Annual Examinations for the Bank Insurance Fund," Federal Reserver Bank of St. Louis *Review*, 75 January/February, 35-52.

Graham, D. and D. Humphrey, 1978, "Bank Examination Data as Predictors of Bank Net Loan Losses," *Journal of Money, Credit, and Banking,* 10 November, 491-504.

Jordan, J., 1999, "Pricing Bank Stocks: The Contribution of Bank Examinations," Federal Reserve Bank of New England *Economic Review*, May/June, 39-53.

Kane, E. and H. Unal, 1990, "Modeling Structural and Temporal Variation in the Market's Valuation of Banking Firms," *Journal of Finance*, 45, 113-136.

Office of the Comptroller of the Currency, 1998, "Large Bank Supervision," *Comptroller's Handbook*, July.

Ronn, E. and A. Verma, 1987, "A Multi-Attribute Comparative Evaluation of Relative Risk for A Sample of Banks," *Journal of Banking and Finance*, 11, 499-523.

Scholes, M. and Williams, 1977, "Estimating Betas From Nonsynchronous Data," *Journal of Financial Economics*, 5 (3) 309-27.

Simons, K. and S. Cross, 1991, "Do Capital Markets Predict Problems in Large Commercial Banks?" Federal Reserve Bank of New England *Economic Review*, May/June, 51-56.

Wu, H. 1969, "Bank Examiner Criticisms, Loan Defaults, and Bank Loan Quality," *Journal of Finance*, 24 September, 697-705.

Yu, L., 2000, "On the Wealth and Risk Impacts of the Glass-Steagall Overhaul," New York University working paper, July.

Table 1
Descriptive Statistics

Group Means
Percent of Total Group
Number of Observations

Variable	Entire Sample	Nonconverting BHCs	BHCs That Convert to FHC
Section 20 subs	6.3 % 24	1.3 % 4	30.8 % 20
Well capitalized	93.2 % 358	92.5 % 295	96.9 % 63
All M-ratings=1,2	90.9 % 349	89.0 % 284	100 % 65
Average M-rating	1.69	1.73	1.51
Av. Best M-rating	1.60	1.64	1.40
Av. Worst M-rating	1.82	1.84	1.68
No.of Observations	384	319	65

Table 2
The LOGIT Analysis of BHC Conversion to FHC

Estimation of *p* = probability of conversion

Variable	Market Forecast Of Conversion (1)	Fully Informed Forecast Of Conversion (2)
Intercept	-3.8483*** (0.9890)	-2.9738*** (1.1077)
DCAP = 1 if well capitalized; 0 otherwise.	1.9658** (0.9879)	1.9344** (1.0089)
DSEC20 = 1 if has Section 20 subsidiaries; 0 if not.	3.8749*** (0.6474)	3.7868*** (0.6476)
M = the average of all M ratings for all bank subs.		-0.5189* (0.2932)
Likelihood Value Chi-Squared	61.887*** (2 degrees of freedom)	65.193*** (3 degrees of freedom)
Concordant (Proportion of BHCs Correctly Predicted to Convert)	35.5%	60.8%
Discordant (Proportion of BHCs Correctly Predicted Not to Convert)	0.9%	19.4%
Model Score Chi-Squared	83.635***	85.618***
Somers' D	0.346	0.413

Notes: *, **, *** denote 10%, 5%, and 1% significance levels, respectively.
Standard errors shown in parentheses.

Table 3
The Market's Reaction to BHC Conversion to FHC

The dependent variable is the daily stock return for each of 384 BHCs. The independent variables are: RM is the daily return on the S&P 500 index; DCONVERT is a dummy variable that takes on a value of one for the 11-day event window (-5,+5) around the conversion date and 0 if the BHC does not convert to FHC format; DNEWS is a dummy variable that takes on a value of 1 for the (-5,+5) event window around the conversion date (or March 6-30, 2000 for non-converters) if there is either good or bad news released about the bank examination M rating; *(P – p)* is the weight on the DNEWS variable denoting the surprise value of the news about the M rating (i.e., the difference between the market's predicted value of conversion using only publicly available information and the conversion cut-off point). To control for asymmetric effects, the dummy variable NEWS was divided into GOODNEWS (a value of one denoting revelation of a satisfactory value for M) and BADNEWS (a value of one denoting revelation of an unsatisfactory value for M). To control for any fixed effect related to the identity of the BHC, 384 dummy variables, one for each BHC, are used as independent variables (coefficients not shown).

Variable	OLS Regression Coefficients		
Intercept	-.0005 (.0016)	-.0005 (.0016)	-.0005 (.0016)
Market Index, RM	0.2532*** (.0064)	0.2532*** (.0064)	0.2522*** (.0064)
DCONVERT x RM	0.5855*** (.0600)	0.5822*** (.0600)	1.2554*** (.1040)
DCONVERT	0.0014 (.0012)	0.0061*** (.0022)	0.0011 (.0012)
DNEWS x *(P – p)*	-.0309*** (.0111)		
GOODNEWS x *(P-p)*		-.8605*** (.3287)	
BADNEWS x *(P – p)*		-.0292*** (.0108)	
GOODNEWS x *(P-p)* x RM			-125.898*** (15.9972)
BADNEWS x *(P – p)* x RM			-3.4069*** (.5855)
Adjusted R-squared	1.13 %	1.14 %	1.19 %

Notes: *, **, *** denote 10%, 5%, and 1% significance levels, respectively.
Standard errors shown in parentheses.

Table 4
Times Series Cross Sectional Regressions

The dependent variable is the daily stock return for each of 371 BHCs. The independent variables are: RM is the daily return on the S&P 500 index; DCONVERT is a dummy variable that takes on a value of one for the 11-day event window (-5,+5) around the conversion date and 0 if the BHC does not convert to FHC format; DNEWS is a dummy variable that takes on a value of 1 for the (-5,+5) event window around the conversion date (or March 6-30, 2000 for non-converters) if there is either good or bad news released about the bank examination M rating; *(P – p)* is the weight on the DNEWS variable denoting the surprise value of the news about the M rating (i.e., the difference between the market's predicted value of conversion using only publicly available information and the conversion cut-off point). To control for asymmetric effects, the dummy variable NEWS was divided into GOODNEWS (a value of one denoting revelation of a satisfactory value for M) and BADNEWS (a value of one denoting revelation of an unsatisfactory value for M).

Variable	**Times Series Cross Sectional Regression Coefficients**			
Intercept	-.0004 (.0003)	-.0004 (.0003)	-.0004 (.0003)	-.0004 (.0003)
Market Index, RM	0.2537*** (.0197)	0.2537*** (.0197)	0.2537*** (.0197)	.2527*** (.0196)
DCONVERT x RM	0.4589*** (.0613)	0.4590*** (.0613)	0.4554*** (.0613)	1.1116*** (.1048)
DCONVERT	0.0008 (.0012)	0.0010 (.0012)	0.0060*** (.0022)	0.0007 (.0012)
DNEWS x *(P – p)*		-.0294*** (.0108)		
GOODNEWS x *(P-p)*			-.9098*** (.3223)	
BADNEWS x *(P – p)*			-.0278*** (.0105)	
GOODNEWS x *(P-p)* x RM				-120.71*** (15.8998)
BADNEWS x *(P – p)* x RM				-3.0732*** (.5827)
Hausman m-statistic	5.4622* p-value .065	5.5716 p-value .134	6.8063 p-value .147	4.8770 p-value .30

Notes: *, **, *** denote 10%, 5%, and 1% significance levels, respectively.
Standard errors shown in parentheses.

Table 5
Cell-By-Cell Times Series Cross Sectional Regressions

The dependent variable is the daily stock return for each of 371 BHCs. The independent variables are: RM is the daily return on the S&P 500 index; DCONVERT is a dummy variable that takes on a value of one for the 11-day event window (-5,+5) around the conversion date or, for BHCs that did not convert, DCONVERT equals one over the period from March 6 – March 30, 2000 over which the decision not to convert was revealed. Each of the four columns represents another group of BHCs sorted as follows: (1) "good news" - BHCs that convert, but were not expected to do so because P-p>0; (2) "bad news" - BHCs that do not convert, but were expected to do so because P-p<0; (3) "no news" conversions - BHCs that convert and were expected to do so because P-p<0; and (4) "no news" non-conversions - BHCs that do not convert and were not expected to do so because P-p>0.

Variable	**GOOD NEWS**	**BAD NEWS**	**NO NEWS ExpectFHC Conversion**	**NO NEWS No FHC Conversion**
	(1)	(2)	(3)	(4)
Intercept	-.0004 (.0003)	-.0010 (.0009)	-.0010 (.0007)	-.0003 (.0002)
Market Index, RM	0.2531*** (.0264)	0.8405*** (.0702)	0.9274*** (.0585)	0.1936*** (.0186)
DCONVERT x RM	0.1549** (.0739)	0.6403*** (.2279)	0.2084* (.1233)	0.1742*** (.0601)
DCONVERT	0.0001 (.0014)	0.0076** (.0040)	0.0017 (.0024)	-.0003 (.0011)
Hausman m-statistic	11.9997*** p-value .003	N/A	8.5969** p-value .014	N/A

Notes: *, **, *** denote 10%, 5%, and 1% significance levels, respectively.
Standard errors shown in parentheses.

Table 6

Panel A: Group Means

Variable	GOOD NEWS (1)	BAD NEWS (2)	NO NEWS Expect FHC Conversion (3)	NO NEWS No FHC Conversion (4)
Bond Spreads	1.91	1.98	1.46	2.0
3/1-6/30/00 ΔBond Spreads	21 basis points	37 basis points	30 basis points	42 basis points
S&P/Moody's Ratings (June)	3.67 (2 up, 0 down)	3.50 (1 up, 0 down)	3.05 (2 up, 1 down)	3.67 (0 up, 1 down)
No. of Observ.	6	4	18	15

Notes: The number of ratings upgrades (up) and downgrades (down) during the 3/1-6/1/00 period are shown in parentheses.

Panel B: Regression Results

The dependent variable is either: (Cols. 1&2) bond spreads on June 30, 2000 or (Cols. 3&4) the change in bond spreads from March 1 to June 30, 2000 for each of 43 BHCs. The independent variables are: S&P Bond Rating; Split Rating (a dummy variable that equals one if S&P and Moody's assign a different bond rating; zero otherwise); GOODNEWS (a dummy variable that equals one for the good news group; zero otherwise); BADNEWS (a dummy variable that equals one for the bad news group; zero otherwise); and NO NEWS CONVERSIONS (a dummy variable that equals one for the group of converting BHCs for which conversion was expected because *P*-*p*>0; zero otherwise). Discrete bond ratings are used in the regressions in columns (2) and (4) and the Ronn and Verma (1987) cardinal bond ratings (see Appendix) are used in columns (1) and (3).

Variable	Dependent Variable: Bond Spreads		Dependent Variable: Change in Bond Spreads	
	(1)	(2)	(3)	(4)
Intercept	0.7646 (.5780)	1.6486*** (.2267)	0.8419*** (.2697)	0.6173*** (.1261)
S&P Bond Rating	0.4038** (.1544)	0.0841 (.1198)	-.1169 (.0769)	-.1193* (.0666)
Split Rating	-.3553* (.1832)	0.0534 (.1448)	0.0177 (.0919)	0.0021 (.0805)
GOODNEWS	0.0963 (.2245)	-.3123* (.1727)	-.2040* (.1060)	-.2181** (.0960)
BADNEWS	-.1230 (.2916)	-.2278 (.2131)	-.1165 (.1262)	-.0936 (.1185)
NO NEWS CONVERSIONS	-.3684** (.1794)	-.3372** (.1309)	-.1758** (.0789)	-.1692** (.0728)
R-squared (adjusted)	32.17 %	14.33 %	6.47 %	10.54 %

Notes: *, **, *** denote 10%, 5%, and 1% significance levels, respectively.
Standard errors are shown in parentheses.

Appendix

Cardinalization of S&P and Moody's Bond Ratings

S&P Rating	MOODY's	Cardinalization
AAA	***Aaa***	**1.00**
AA+	***Aa1***	**1.66**
AA	***Aa2***	**2.00**
AA-	***Aa3***	**2.33**
A+	***A1***	**2.66**
A	***A2***	**3.00**
A-	***A3***	**3.33**
BBB+	***Baa1***	**3.66**
BBB	***Baa2***	**4.00**
BBB-	***Baa3***	**4.33**
BB+	***Ba1***	**4.66**
BB	***Ba2***	**5.00**
BB-	***Ba3***	**5.33**
B+	***B1***	**5.66**
B	***B2***	**6.00**
B-	***B3***	**6.33**
CCC+	***Caa1***	**6.66**
CCC	***Caa2***	**7.00**
CCC-	***Caa3***	**7.33**
CC+	***Ca1***	**7.66**
CC	***Ca2***	**8.00**
CC-	***Ca3***	**8.33**
C+	***C1***	**8.66**
C	***C2***	**9.00**
C-	***C3***	**9.33**

Note: *SPMOODY* is defined as an average of the cardinalized ratings by S&P and Moody's (Ronn and Verma, 1987). For the few institutions that are rated by only one agency, the variable *SPMOODY* takes the cardinalized value of the assigned rating.