POLICY STUDIES

Do Markets React to Bank Examination Ratings?

Evidence of Indirect Disclosure of Management Quality Through BHC's Applications to Convert to FHC's

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Abstract

Certain nonrecurring circumstances associated with the passage of the Gramm Leach Bliley (GLB) Act have created a unique opportunity for the market to obtain bank examination ratings of management quality (M-ratings). 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 as information about management quality. Revelation of unsatisfactory M-ratings causes a positive wealth effect. Positive abnormal returns upon the release of unsatisfactory M-ratings indicate that regulatory intervention is more likely to occur, resulting in regulatory subsidies. Although upon implementation of the GLB Act, systematic risk increases for all BHCs – converting and non-converting alike – this does not occur for BHCs under regulatory scrutiny. Moreover, we find that bond spreads were smaller for converting BHCs compared to non-converters. While the expanded bank powers from the GLB Act increases systematic risk exposure to shareholders, they seem to have an overall credit-risk reducing diversification effect for bondholders.

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

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 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 strong form market efficiency and the value of bank examination

[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 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.

ratings. Moreover, these studies cannot measure the impact of the revelation of bank examination ratings on private information acquisition and analysis. Therefore, evidence[3] that bank examination ratings lack the power to predict market values is not conclusive.[4] Previous studies 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 bank examination ratings to the market. However, certain nonrecurring circumstances associated with the passage of the Gramm Leach Bliley 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 a broader array of activities. For BHCs to apply for FHC status, they must meet the following requirements: (1) all bank subsidiaries controlled by the BHC must be "well-capitalized"; (2) all bank subsidiaries controlled by the BHC must be "well-managed"; and (3) all bank subsidiaries controlled by the BHC must have satisfactory Community Reinvestment Act (CRA) ratings.[5] By definition, a bank subsidiary is "well-managed" if it receives a satisfactory (1 or 2) composite CAMEL rating and a satisfactory (1 or 2) rating for management. The CRA rating and capitalization are public information, but the CAMEL and management ratings are 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 convert, the market

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

may deduce that the BHC has bank subsidiaries with less than satisfactory rating for management quality.[6] 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 bank examination 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 cut 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 as information about management quality. Revelation of unsatisfactory M-ratings causes BHC stock returns to *increase.* The market thrives on bad news about M-ratings because unsatisfactory M-ratings indicate that regulatory intervention is more likely to occur, possibly providing regulatory subsidies to shareholders. 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 to FHCs. We also examine the impact of conversion on systematic risk. Although we find that the expansion of banking powers increases the systematic risk of the banking environment for all BHCs – those that convert to the FHC format and those that do not – our results show that those BHCs under regulatory control show no increase in their systematic risk exposure. Moreover, we conclude that bond spreads for a subsample of bonds were lower for converting BHCs, consistent with an overall risk reducing diversification effect for bondholders.

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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.

[6] Although there could have been other reasons for these BHCs' non-conversion, we assume that BHCs with Section 20 subsidiaries would convert to FHC status if they could get approval to do so. If these firms are well-capitalized and CRA compliant, then the failure to convert is interpreted as an indication of unsatisfactory M-ratings.

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. The stock market's reaction to the M-ratings inferred from the conversion decision is analyzed using a Seemingly Unrelated Regression analysis in Section 4. We analyze bond spreads for a subsample of 43 BHCs in Section 5 and conclude in Section 6.

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 (1998) 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 Unexpected Non-Converters contained in on-site examination ratings appears to have greater predictive power than the Unexpected Converters.

Unexpected Non-Converters 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 Unexpected Non-Converters; 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.

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 bank examiners focus predominately on 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 interpret the market's reaction to a BHC's decision to convert to the FHC format, we must analyze the conversion decision itself. Not all BHCs should be expected to apply for conversion. For example, a small to moderate-sized community bank may have no interest in pursuing expanded financial 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 "well-managed". The first two of these criteria are publicly available and could be used by the market to predict the conversion to FHC. The third is not and, therefore, the fully-informed model tested the usefulness of this confidential regulatory information in forecasting the conversion decision. In addition, the market predictor of FHC conversion was determined by the incidence of any non-bank activities. If the BHC had a Section 20 subsidiary, it had signaled 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.[7] We also utilized the log of total assets as a predictor of FHC conversion, reasoning that large institutions were more likely to seek the advantages of expanded activities.

[7] We tried other variables (such as off-balance sheet activity; BHC size ranking; proportion of total assets held in nonbank subsidiaries; revenue from securities trading; net income from nonbank activities), but they were all insignificant in the LOGIT analysis.

We isolated 368 BHCs that were both publicly traded on either NYSE, AMEX, or NASDAQ and submitted quarterly Y-9 and Call Reports to the Federal Reserve.[8] All but two of these were fully CRA compliant. Their lack of compliance would disqualify these two BHCs for conversion to FHC status. Since the lack of CRA compliance is observable and disqualifies these BHCs for conversion to FHCs, we dropped them from the sample leaving 366 BHCs. Thus, the remaining sample was comprised of BHCs that were all CRA-compliant, and 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.[9] 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 Gramm-Leach-Bliley Act.[10] The variable *DSEC20* takes on a value of one if the BHC has Section 20 subsidiaries, zero 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 366 BHCs in our sample, 68 converted to FHC format, leaving 298 that chose to retain the BHC structure as of June 30, 2000. Only 25 BHCs (6.8 percent of all BHCs in our sample) had Section 20 subsidiaries. Of

[8] Out of a total of 386 publicly traded BHCs, only 366 had sufficient daily stock return data to estimate the market model to compute abnormal returns.
[9] December 31, 1999 was the latest date, prior to the first conversion approvals, for which we had Y-9 data on capital ratios.
[10] Prior to the passage of the Gramm-Leach-Bliley Act, 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.

these 25 BHCs, 22 of them converted to FHCs by the end of June, 2000.[11] Out of 366 BHCs in the sample, 340 BHCs (92.9 percent) were considered well-capitalized.[12] Of the 298 BHCs in the sample that did not convert, 275 BHCs (92.3 percent) were well-capitalized, and 266 BHCs (89.3 percent) were well managed (rated 1 or 2 for M in the CAMEL ratings for all BHC subsidiaries).[13]

Bank examination ratings are assigned to each bank subsidiary by bank regulators. We constructed a BHC M-rating (CAMEL rating) by averaging the M-ratings (CAMEL ratings) across all bank subsidiaries for each BHC.[14] These BHC ratings (averages across subsidiaries) are presented in Table 1. We see that non-converting BHCs were rated lower overall in their quality of management than converting BHCs. The BHC M-rating for non-converting BHCs was 1.70, as compared to 1.51 for converting BHCs. Similarly, the BHC composite CAMEL rating for non-converting BHCs was 1.66, as compared to 1.50 for converting BHCs. These BHC ratings are averaged across all subsidiaries and may mask considerable dispersion of ratings across subsidiaries within each BHC. Thus, we defined the best (worst) BHC M-rating and composite CAMEL rating as the lowest (highest) rating assigned to any subsidiary within each BHC. On average, the best M-ratings and composite CAMEL ratings of converting BHCs were better (lower in number) than the best ratings for non-converting BHCs. Converting BHCs' best ratings (both M- and CAMEL) averaged 1.38, as compared to 1.61 (1.57) for non-converting BHCs' best M-rating (CAMEL rating). Moreover, the worst ratings were worse for the non-converting BHCs than for converting BHCs. As shown in Table 1, converting BHCs' worst M-

[11] The three BHCs that had Section 20 subsidiaries, but did not convert to FHC format were: Bank One Corporation, Bank of New York, and Commerce Banking Corporation. These were large banks that were experiencing managerial difficulties.

[12] Only 95.6% (65 out of 68 total) of newly converted FHCs were well-capitalized as of December 31, 1999. The remaining three BHCs were able to raise their capital levels by their conversion dates in order to receive approval.

[13] Although 334 BHCs out of the total sample (91.3%) were classified as well managed, the market would have no way of knowing this a priori since bank examination ratings are not revealed publicly. Moreover, the conversion results allow the market to correctly classify the M-ratings of 68 BHCs (18.6% of the total sample).

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

rating (CAMEL rating) was 1.69 (1.68), whereas non-converting BHCs' worst M-rating (CAMEL rating) was 1.82 (1.76).

Table 2 presents the results of the LOGIT analysis. We first predicted conversion using only information available to the market: *DCAP* and *DSEC20* in column (1) of Table 2, and *DCAP, DSEC20,* and *Log(TOTAL ASSETS)* in column (2). The variable *DSEC20* was significant at the 1% level across all regressions, with the expected positive sign. All other variables were generally insignificant, although they demonstrated the expected signs. However, if the market also had access to confidential regulatory information, then the M-ratings would be included in the LOGIT analysis, as shown in columns (3) and (4). Although the coefficient on the M-rating variable was only significant at the 10% level at best, it displays a negative sign in both regressions. Since the higher the M-rating, the lower the bank examiner's approval rating, this denotes that the poorly rated BHCs were less likely to convert to the FHC structure.[15]

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 (2) of Table 2, we found a cut-off point denoted *P* of 0.50. The maximum likelihood classification procedure clearly delineated the data such that low probability estimates (below 0.2433) predicted non-conversion and high probability estimates (above 0.6895) predicted conversion to the FHC status. Thus, if the estimated likelihood value *p* was below *P*=0.5, the market forecast model in column (2) of Table 2 classified the BHC as unlikely to convert. If the estimated likelihood value *p* was above *P*=0.5, then the market forecast model predicted that the BHC would convert to the FHC format.[16]

[15] In order to receive regulatory approval to convert to FHC status, BHCs had to demonstrate acceptability in overall CAMEL ratings, as well as in M-ratings. We reestimated the LOGIT models columns (3) and (4) in Table 2 using the CAMEL composites in place of the M-ratings with no change in results.
[16] There were no estimated probabilities between 0.2433 and 0.6895 and therefore there was no ambiguity in this classification procedure.

We used this cut-off point to define the four groups: Unexpected Converters, Unexpected Non-Converters, Expected Converters, and Expected Non-Converters. If the LOGIT model estimated a probability *p* below 0.5, thereby predicting non-conversion, but the BHC converted, then we considered this to be the release of positive information about the adequacy of BHC M-ratings, and the BHC was classified into the Unexpected Converters group. There were 46 such cases. If the LOGIT probability estimate *p* exceeded 0.5, (i.e., the BHC was expected to convert), but the BHC did not convert, then this could have been because the BHC had unacceptable M-ratings. Since this could be considered the release of negative information about management quality, we classified these BHCs into the Unexpected Non-Converters group. There were three such cases. If the LOGIT probability estimate *p* was less than 0.5 and the BHC did not convert (as predicted by the market forecast model), then we classified the observation into the Expected Non-Converting group, denoting that no information about the M-rating was revealed. There were 295 observations in this group. Finally, Expected Converters were those BHCs that were expected to convert (i.e., had LOGIT probability estimates *p* in excess of 0.5) and did actually convert. There were 22 such BHCs. We performed our analysis on these four groups. The following M-ratings information is revealed for three of the four groups: Unexpected Converters (acceptable M-ratings), Unexpected Non-Converters (unacceptable M-ratings), and Expected Converters (acceptable M-ratings). The only group that does not reveal its M-ratings through the GLB ACT conversion process is the Expected Non-Converters group, because these BHCs were most likely to have reasons other than unsatisfactory M-ratings (as in the Unexpected Non-Converters group) that prevented them from applying for conversion to FHC status.

4. Stock Market Reaction to the FHC Conversion Decision and News about the Regulatory Rating on Management Quality

4.1 Methodology

Classification the BHCs into the four groups (Unexpected Converters, Unexpected Non-Converters, Expected Converters, and Expected Non-Converters) used the data published on the Federal Reserve website. These data contain the date on which FHC conversion became effective for each converting BHC. A BHC was classified as a converter (non-converter) if it had (not) received approval of its conversion application by June 30, 2000.[17] As of that date, there were a total of 328 conversions to the FHC structure.[18] The first conversion date permitted by the Federal Reserve was March 13, 2000. On that date, the largest single cohort of 117 BHCs received approval to convert. The remaining BHCs converted gradually over the period with the last conversion (as of June 30, 2000) on June 14, 2000.

Market model parameters were estimated using daily stock returns from January 2, 1999 to June 30, 2000, with the daily S&P 500 index as a proxy of market returns (denoted R_M). Following Flannery and James (1984) and Flannery, Hameed, and Harjes (1997), we estimated a Two-Factor model using the market index R_M and an interest rate factor R_I which was constructed using daily returns on 10-year constant maturity US Treasury securities.[19] Since many of the BHCs in our sample were infrequently traded, we performed robustness tests using lagged values of the market index in a Scholes Williams (1977) adjustment. Since this had virtually no impact on our results, we report the results of the estimation of the Two-Factor model only.

We defined three separate event windows: the pre-conversion period, the conversion period, and the post conversion period. The pre-conversion period was denoted by the dummy variable *DPRE*, which took on a value of 1 (0 otherwise) on every date five days prior to March 13, 2000 until five days prior to conversion. The conversion period was an 11-day event window denoted by the dummy variable *DCV,* which took on a value of 1 (0 otherwise) on every date

[17] Although some of these BHCs may convert subsequent to June 30, 2000, we are testing market reactions using information available as of June 30, 2000.
[18] Only 68 out of these 328 converting BHCs had sufficient stock return data to be included in our sample.
[19] We experimented with the use of a banking industry index in place of the Treasury bond factor. Since we are trying to measure industry-wide shifts, the use of a banking industry index obscured all other variables.

five days prior to conversion until five days after conversion. The post conversion period was denoted by the dummy variable *DPOST,* which took on a value of 1 (0 otherwise) on every date five days after conversion until June 30, 2000. Note that *DCV* and *DPOST* always equal zero for BHCs that did not convert to FHC status by June 30, 2000. For these non-converters, *DPRE* took on a value of 1 for every day during the period from five days prior to March 13, 2000 until June 30, 2000. Similarly, there was no pre-conversion period for those BHCs that converted on March 13, 2000.

A shortcoming of the traditional event study methodology is that it assumes that excess returns are independent and identically normally distributed. This assumption is violated whenever there is cross-sectional correlation across observations, as is likely in our analysis which utilized firms (BHCs) in the same industry. We followed Schipper and Thompson (1983) and utilized a Seemingly Unrelated Regression (SUR) analysis in our investigation of the stock market reaction to the new expanded bank powers allowed to FHCs. We estimated the following Two-Factor model:

$$R_{it} = \alpha_{it} + \beta_{1i}R_{Mt} + \beta_{2i}R_{It} + \gamma_{1i}DPRE_{it} + \gamma_{2i}DCV_{it} + \gamma_{3i}DPOST_{it} + \delta_{1i}R_{Mt}DPRE_{it} + \delta_{2i}R_{Mt}(DCV_{it}+CPOST_{it}) + \varepsilon_{it} \quad (1)$$

The dependent variable R_{it} is the daily stock return on an equally-weighted portfolio of BHCs in each group i where i corresponds to the four group classifications: Unexpected Non-Converters, Unexpected Converters, Expected Converters, and Expected Non-Converters. The independent variables are: R_{Mt} which is the daily return on the market index; R_{It} which is the daily return on the 10-year constant maturity US Treasury bond; *DPRE* which is a dummy variable that takes on a value of 1 (0 otherwise) during the pre-conversion period; *DCV* which is a dummy variable that takes on a value of 1 (0 otherwise) during the 11-day conversion period; and *DPOST* which is a dummy variable that takes on a value of 1 (0 otherwise) during the post conversion period.

We measure both the wealth effect and risk effect of the implementation of the Gramm Leach Bliley Act of 1999. The wealth effect was measured by shifts in the return generating model, see equation (1), coincident with an event period: either pre-conversion (denoted by the dummy variable *DPRE*), during conversion (*DCV*), or post conversion (*DPOST*). Thus, the wealth effect was measured by the coefficient on the dummy variable *DPRE* in equation (1) for the pre-conversion period; the coefficient on *DCV* for the conversion period; and the coefficient on *DPOST* for the post conversion period. We distinguished between the effect of conversion and the effect of the release of information about M-ratings by comparing the wealth effects during different periods across the four different subgroups. In particular, distinguish between the impact of FHC conversion and the release of information about M-ratings by comparing the results for the Unexpected Non-Converters group (non-converters with release of unsatisfactory M-ratings) and the Expected Non-Converters group (non-converters without any information about M-ratings).

Finally, we examined the impact of FHC conversion on systematic risk. The risk effect is measured by the shift in the market beta, the slope of the return generating model (1), coincident with an event period: either the pre-conversion period (denoted by the dummy variable *DPRE*), or during the conversion and post conversion period (the dummy variable consisting *DCV* + *DPOST*). Thus, the risk effect is measured by the coefficient on the cross product term between the market index R_M and the dummy variable *DPRE* in equation (1) for the pre-conversion period and the coefficient on R_M(*DCV* + *DPOST*) for the conversion/post conversion period.

4.2 Empirical Results: The Wealth Effect

Table 3 shows the results of the estimation of equation (1). We found evidence of a statistically significant wealth effect in all groups, with the exception of the Expected Converters. This latter group is comprised of the BHCs that were expected to convert and did so, overwhelmingly (in 18 out of 22 observations), on the first possible dates: on either March 13th or 14th, 2000. The insignificance of the wealth effect for this group is consistent with the results of Yu (2001) who found significantly positive abnormal returns for BHCs with Section 20 subsidiaries around November 12, 1999, the date of the passage of the Gramm Leach Bliley Act. Thus, the wealth effect for these BHCs was previously impounded in their stock prices. Thus, announcing conversion in March 2000 contained no new information about their expanded banking powers and abnormal returns were not significantly different from zero in either the pre, post, or conversion periods.[20] However, the March 2000 conversion of those BHCs in the Expected Converters group *did* release information about their M-ratings. The fact that these BHCs received approval for their conversion application signaled that their M-ratings were satisfactory. However, there was no significant market reaction to this information, thereby suggesting that the market did not value the release of this regulatory information. We can interpret the insignificance of the wealth effect for Expected Converters as a rejection of the hypothesis that the market used FHC conversion in order to intuit new information about the BHC's M-ratings. Indeed, apparently all relevant information about FHC conversion had been reflected in market returns months earlier.

To further test the information value of the release of the M-ratings, we note the positive wealth effect, significant at the 5% level, for the Unexpected Non-Converters group.[21] If the unsatisfactory M-ratings released by the failure of these BHCs to convert to FHC status were used by the market to infer poor M-ratings, the *DPRE* coefficient should have been negative. We therefore reject the hypothesis that the market uses information about regulatory M-ratings to discern management quality. Apparently, the market was fully informed about management quality long before any release of M-ratings.

[20] The one outlier is National City Bank which converted on May 15, 2000 and shows a significantly (at the 5% level) positive abnormal return during the conversion period of 0.0111. This may be a reversal of the negative insignficant) abnormal return during the pre-conversion period.

That does not mean that information about M-ratings is without value. To understand the way that the market does use this information, we compared the wealth effect results for the Unexpected Non-Converters and No News Non-Converter groups. A positive wealth effect is shown in Table 3 for both of these groups of BHCs. Both the Unexpected Non-Converters group and the Expected Non-Converters show positive abnormal returns (the coefficients on *DPRE*) that are significant at the 5% level. These results are consistent with a wealth effect for all BHCs upon activation of the Gramm Leach Bliley Act in March 2000 that is independent of any information content regarding M-ratings. Moreover, the positive abnormal returns may be an indication of the market's assessment that these BHCs were not ready for conversion – something presumably known by the market even without the release of regulatory ratings data. However, the coefficient on *DPRE* for the Unexpected Non-Converters group (0.0042) is larger in size than the (0.0010) coefficient on *DPRE* for the Expected Non-Converters (although the F-test on the difference between the coefficients just misses the 10% level of significance). This suggests that M-ratings information may have some additional value for the Unexpected Non-Converters group. These BHCs' failure to convert by June 30, 2000 although the market expected their conversion reveals their unacceptable regulatory M-ratings. Note that no such information was released for the Expected Non-Converters, since they were never expected to convert to FHC status. Since abnormal returns upon release of unsatisfactory M-ratings for the Unexpected Non-Converters group are positive, the market does not appear to value this information as a signal of management quality, but rather for what it conveys about regulatory intent. Specifically, the Unexpected Non-Converters group classification reveals that these BHCs are potential targets of regulatory intervention. The larger abnormal returns for the Unexpected Non-Converters group are consistent with potential gains from regulatory subsidies in addition to the overall wealth effect of expanded banking powers. That is, the finding that the

[21] Yu (2001) finds no wealth effect for BHCs without Section 20 subsidiaries in November 1999. Thus, the impact of expanded banking powers is reflected in positive abnormal returns upon implementation of the GLB Act for these

coefficient on *DPRE* is highest for the Unexpected Non-Converters group (as compared to all other groups) is consistent with an expectation of a regulatory subsidy for these BHCs with poor M-ratings.

Another possible explanation for the finding of positive abnormal returns for non-converting BHCs (both the Unexpected Non-Converters and the Expected Non-Converting groups) could be the existence of a diversification discount. As described by Morck, Shleifer, and Vishny (1990) and DeLong (2001), if diversifying mergers are not value enhancing, then those BHCs that signaled a focusing strategy (by not converting) would have positive abnormal returns. However, if this were the case, then we would also observe negative abnormal returns for converting BHCs. As already mentioned, we observe zero abnormal returns for the Expected Converting group. Moreover, Table 3 shows positive abnormal returns (a *DPOST* coefficient of 0.0022, significant at the 1% level) for the Unexpected Converters group of BHCs that were not expected to convert, but did convert on March 13, 2000. This result is consistent with the above-mentioned positive wealth effect associated with the new regulatory environment upon the activation of the Gramm Leach Bliley Act, but inconsistent with the existence of a diversification discount. However, this coefficient is lower than the *DPRE* coefficient[22] for the Unexpected Non-Converters group (although the difference between the coefficients is not statistically significant), suggesting that there was an expectation of regulatory subsidies for the Unexpected Non-Converters group that contributed to positive abnormal returns that were slightly higher than for the other groups. Thus, the Unexpected Non-Converters group had the largest wealth effect of all four groups.

Interestingly, those BHCs in the Unexpected Converters group that did not convert on March 13th experienced negative abnormal returns. That is, the coefficient on the *DPRE* variable for the April 13th and May 19th converters was negative, significant at the 10% level or

BHCs.

better. All others (with the exception of the May 26th converters) had no wealth effect. This is consistent with a penalty on those well-managed (Unexpected Converters) BHCs that appeared to be non-converters during their pre-conversion period. Thus, rather than discounting diversification, the market appears to discount the failure to diversify for this group of well-managed BHCs.

The ability of the market to differentiate between well-managed BHCs and poorly managed BHCs can be seen from a comparison between the pre-conversion period abnormal returns for the Unexpected Non-Converters group and those of the late converters in the Expected Converting group (i.e., the four BHCs that converted after March 14, 2000). Prior to their conversion to FHC status, those four BHCs in the latter group appeared to the market to be indistinguishable from the Unexpected Non-Converters group. That is, they were BHCs that were expected to convert (based on their Section 20 subsidiary activity), but as yet had not done so. However, with one exception (the BHC that converted on April 13, 2000), their pre-conversion period abnormal returns were not significantly positive, as they were for the Unexpected Non-Converters group. Therefore, the market did not expect the same regulatory subsidy for these well-managed BHCs as for the poorly managed BHCs in the Unexpected Non-Converters group. Even without the release of any M-ratings information, the market appears to make informed decisions using non-regulatory information about management quality. The market knew that these four late converting firms were well managed. Their late conversion did not lead the market to believe that their regulatory M-ratings were, in fact, not satisfactory, and did not produce either a positive or negative wealth effect on these firms. Thus, the insignificance of the abnormal returns in the pre-conversion period for the late converters in this group may be interpreted as further evidence for the rejection of the hypothesis that the release

[22] The *DPRE* variable for non-converting BHCs covers approximately the same time period as the *DPOST* variable for BHCs that converted on March 13, 2000.

of private, regulatory M-ratings would offer information useful to the market in the formulation of stock prices.

4.3 Empirical Results: The Risk Effect

Table 3 shows a significant increase in systematic risk during March-June 2000 for many BHCs. Upon the implementation of the Gramm Leach Bliley Act in March 2000, even Expected Non-Converters experienced an increase in systematic risk, as shown in Table 3 by a positive coefficient of 0.1014 significant at the 1% level. Moreover, Unexpected Converters BHCs that converted on March 13th had a significant (at the 1% level) increase of 0.1849 in their systematic risk exposure. Indeed, on many of the conversion dates, F-tests[23] comparing coefficients show for both the Unexpected Converters and the Expected Converting groups that the post conversion betas are significantly greater than pre-conversion betas. Implementation of the Gramm Leach Bliley Act appears to have created a banking environment with more systematic risk for both converters and non-converters alike.

There are two exceptions to this finding of increased risk in the wake of the implementation of the GLB. First, the market betas for the Expected Converting BHCs that converted on March 13th or 14th are all insignificantly different from zero. This is consistent with Yu (2001) who finds a significant (at the 5% level) increase in market betas in November 1999 for BHCs with Section 20 subsidiaries that ultimately convert to FHC status. Thus, as in the wealth effect, the risk impact of expanded banking powers appears to have been incorporated into stock prices long before March 2000 for Expected Converting BHCs.

The second exception to the general increase in systematic risk is for the Unexpected Non-Converters group, which experienced no significant increase in the market beta (the insignificant 0.0571 coefficient in Table 3). This result is consistent with the use of information about M-ratings by the market to gauge regulatory intent only. If the revelation of these BHCs' unsatisfactory M-ratings signals regulatory intervention, then the market may expect that supervisors will limit the risk exposure for the BHCs in this group. Thus, anticipated activity restrictions on Unexpected Non-Converters BHCs under regulatory control eliminated the industry-wide increase in systematic risk for these firms only. As in the analysis of the wealth effects, these findings suggest that the market does not rely on regulatory M-ratings in order to formulate opinions about management quality, but only in order to assess regulatory intent.

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.[24] 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.[25]

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

[23] For ease of exposition, these results are not shown in Table 3, but are available upon request.
[24] The sample was restricted to bonds without embedded options 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.
[25] Hancock and Kwast (2001) show that bond pricing is consistent across data sources for liquid bond issues only.

comparable maturity Treasury yield was obtained from yield 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.[26] The dependent variable was either the bond spreads on June 30, 2000 or the change in yield spreads for the sampled bonds, 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. Following Ronn and Verma (1987), the ratings were 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, *Split Rating*, which takes the value of one when the two credit ratings, Moody's and S&P, do not agree, and zero otherwise. Dummy variables (*Expected Converter, Unexpected Converters,* and *Unexpected Non-Converters*) were defined to take on the value of 1 (0 otherwise) for all BHCs classified into each of the three groups, where the Expected Non-Converting group was the omitted base case.

6.2 Empirical Results

Panel A of Table 4 shows the mean bond spreads for each of the four groups: Unexpected Converters, Unexpected Non-Converters, Expected Converters, and Expected Non-Converters. Interestingly, the bonds issued by BHCs in the Unexpected Converters group have the same average bond ratings of 3.67 as the bonds of the Expected Non-Converters, but the Unexpected Converters group has mean bond spreads of 1.91 as compared to mean bond

[26] 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 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.

spreads of 2.0 for group Expected Non-Converters. This suggests that, holding bond ratings constant, Unexpected Converters lowers bond spreads (although the means differences are not statistically significant). In contrast, the lower bond spreads of the Expected Converters can be attributed to the significantly (at the 10% level or better) better bond ratings (i.e., z-statistics for pairwise means differences between Expected Converters and all other groups are significant at the 10% level or better). Thus, the lower bond spreads are a result of higher bond ratings, not the release of any information about M-ratings.

These results are reinforced by the regression results shown in columns (1) and (2) of Table 4 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 (1), and discrete ratings classes in column (2). The significantly (at the 10% level or better) negative coefficients on both the dummy variables for *Unexpected Converters* and *Expected Converters* in both columns (1) and (2) are consistent with the reduction in bond spreads for all BHCs converting to FHC status. Moreover, the regression on bond spreads as of June 30, 2000 shown in column (4) of Table 4 Panel B also shows a negative coefficient on the *Unexpected Converter* dummy variable (significant at the 10% level), although the coefficient is insignificant when cardinal bond ratings are used in the regression shown in column (3). Similarly, the significantly (at the 5% level) negative coefficient on the dummy variable *Expected Converters* in all columns of Table 4 Panel B suggests that bond spreads for the Expected Converting BHCs were lower than for Expected Non-Converters (the base case). In summary, the regression results show that bond spreads were lower for all converting BHCs than for non-converting BHCs. An interpretation of these results is that bond spreads decline upon conversion (either expected or unexpected) because of the risk-reducing effects of diversification. Thus, even if there was no revelation of M-ratings, converting BHCs diversify bondholders' risks, thereby reducing bond spreads. However, this result is also 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 higher bond spreads, as shown by the positive significant (at the 5% level) coefficient on S&P bond ratings in column (3) of Table 4 Panel B. Moreover, the significantly (at the 1% level) positive coefficients on the intercept in columns (1) and (2) suggest that bond spreads increased on average over the March 1 – June 30, 2000 period.

Contrary to assertions about the alignment of interests between bank examiners and bondholders, the results for bond prices appear to parallel those for stock prices presented in Section 4. That is, the release of bank examination ratings has no significant impact on either stock or bond returns. However, there is a difference in the risk effect of conversion on bond prices as compared to stock prices. As shown in Table 3, the implementation of the Gramm Leach Bliley Act significantly increased the systematic risk component of stock returns for all BHCs except those under regulatory control. In contrast, Table 4 shows that FHC conversion, whether expected or unexpected, generally reduced bond spreads, lowering bondholders' overall risk exposure by permitting greater diversification across banking and non-banking activities.

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 Gramm Leach Bliley Act of 1999 enabled the market to observe bank examination ratings on management quality of the banking firms 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. Previous studies examining the information content of regulatory ratings have relied on the assumption that financial markets are strong-form efficient, and thus prices incorporate all private information. This is the first study that can directly measure the impact of the release of private, regulatory information on bank stock and bond prices without making any assumptions about market efficiency.

We find no support for the hypothesis that the market incorporates regulatory ratings into either stock or bond prices. That is, the market does not appear to rely on M-ratings in order to assess management quality. However, the market does use regulatory bank examination ratings in order to judge regulatory intent. To the extent that regulatory subsidies exist, this is reflected in both a positive wealth effect and a decrease in systematic risk exposure for BHCs with unsatisfactory M-ratings that would signal increased regulatory supervision and intervention. That is, unsatisfactory bank examination ratings signal imminent regulatory intervention, thereby decreasing the BHC's market risk exposure and increasing the expectation of the receipt of regulatory subsidies.

The implementation of the Gramm Leach Bliley Act of 1999 produced a positive wealth effect for all BHCs – whether or not they converted to FHC status. Thus, even traditional banking business is expected to be more lucrative under an environment of expanded banking powers. However, the cost of this integrated banking market is an increase in systematic risk exposure. Although converters and non-converters alike experienced an increase in their market betas, those BHCs that converted experienced larger increases in their market betas after the conversion. However, those BHCs with unsatisfactory M-ratings had no significant increase in market beta, reflecting the role of greater regulatory scrutiny in circumscribing their risk exposure. Finally, we find that bond spreads were smaller for converting BHCs compared to non-converters. While the expanded bank powers from the GLB Act increases systematic risk exposure to shareholders, they seem to have an overall credit-risk reducing diversification effect for bondholders.

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Table 1:
Descriptive Statistics
(Percent of Each Subsample, Number of Observations)

Converting (non-converting) BHCs are those that converted (did not convert) to FHC status by June 30, 2000, as recorded on the Federal Reserve Bank website’s list of FHC conversions. The BHC M-ratings and composite CAMEL ratings are equally weighted averages of M-ratings (composite CAMEL ratings) for all bank subsidiaries within each BHC. The best (worst) BHC M-rating or CAMEL rating is the lowest (highest) value for either rating attained by any subsidiary within each BHC. Group means are presented in the table. Note that ratings of 1 or 2 are considered satisfactory; 3, 4, or 5 are considered unsatisfactory so that the higher the rating, the lower the quality.

Variable	Entire Sample	Non-Converted BHCs	Converted to FHC Format
BHCs with Section 20 subsidiaries	6.8 % 25	1.0 % 3	32.4 % 22
Well capitalized BHCs	92.9 % 340	92.3 % 275	95.6 % 65
All BHCs with M-ratings=1,2	91.3% 334	89.3 % 266	100 % 68
BHC M-Rating	1.67	1.70	1.51
Best BHC M-Rating	1.57	1.61	1.38
Worst BHC M-Rating	1.80	1.82	1.69
BHC Composite CAMEL	1.63	1.66	1.50
Best BHC CAMEL	1.54	1.57	1.38
Worst BHC CAMEL	1.77	1.76	1.68
Number of Observations	***366***	***298***	***68***

Table 2
The LOGIT Analysis of BHC Conversion to FHC
(Estimation of *p* = probability of conversion)

Results of a LOGIT estimation with dependent variable *p* set equal to 0 if the BHC does not convert and equal to 1 if it does convert to the FHC format. A pair of observations with different responses is said to be concordant (discordant) if the larger valued observation has a lower (higher) predicted event probability than the smaller valued observation. If the difference between the predicted probabilities for a pair of observations with different responses is less than 0.002, then the pair of observations is classified as a tie. If *nc* is the number of concordant pairs and *nd* is the number of discordant pairs, then the Goodman-Kruskal Gamma is defined as *(nc-nd)/(nc+nd).* *, **, *** denote 10%, 5%, and 1% significance levels, respectively. Standard errors shown in parentheses.

Variable	Market Forecast Of Conversion (1)	Market Forecast Of Conversion (incl. assets) (2)	Fully-Informed Forecast (incl. M-ratings) (3)	Fully-Informed Forecast (incl.M-rating and assets) (4)
Intercept	-3.2016*** (0.8668)	-5.6643*** (1.9103)	-2.2816** (1.0369)	-4.5300** (2.0443)
DCAP = 1 if well capitalized; 0 otherwise	1.3487 (0.8713)	1.3741 (0.8927)	1.2248 (0.9004)	1.2503 (0.9166)
DSEC20 = 1 if has Section 20 subsidiaries; and 0 otherwise	4.0498*** (0.6798)	3.3962*** (0.7934)	3.9437*** (0.6776)	3.3586*** (0.7972)
Log(TOTAL ASSETS)		0.1743 (0.1180)		0.1547 (0.1190)
Average M Rating across all bank subsidiaries controlled by the BHC			-0.4866* (0.2976)	-0.4508 (0.3012)
Likelihood Value Chi-Squared	64.721*** (df=2)	66.830*** (df=3)	67.523*** (df=3)	69.163*** (df=4)
Concordant	37.2%	71.3%	61.6%	73.3%
Discordant	0.7%	27.2%	19.2%	25.7%
Tied	62.1%	1.5 %	19.1 %	1.0 %
Goodman-Kruskal Gamma	0.962	0.448	0.524	0.480

Table 3
The Market's Reaction to BHC Conversion Using A

Seemingly Unrelated Regression Analysis

The table presents SUR coefficients for the following model estimated over the period 1/2/99-6/30/00:
$R_{it} = \alpha_{it} + \beta_{1i}R_{Mt} + \beta_{2i}R_{It} + \gamma_{1i}DPRE_{it} + \gamma_{2i}DCV_{it} + \gamma_{3i}DPOST_{it} + \delta_{1i}R_{Mt}DPRE + \delta_{2i}R_{Mt}(DCV+CPOST) + \varepsilon_{it}$
The dependent variable R_{it} is the daily stock return on an equally weighted portfolio of BHCs in each group i where i corresponds to the BHCs classified as Unexpected Non-Converters, Expected Non-Converters, Unexpected Converters for each conversion date, and Expected Converters for each conversion date. Unexpected Non-Converters are those BHCs that were expected to convert, but did not by 6/30/00. Expected Non-Converters are those BHCs that were not expected to convert and did not do so by 6/30/00. Unexpected Converters BHCs are those BHCs that were not expected to convert, but did convert on any one of the 17 dates from 3/13/00 to 6/9/00 shown in the table. Expected Converters are those BHCs that were expected to convert and converted on one of the 6 dates from 3/13/00 to 6/14/00 shown in the table.
The independent variables are: R_{Mt} which is the daily return on the market index; R_{It} which is the daily return on the 10 year constant maturity US Treasury bond; *DPRE* which is a dummy variable that takes on a value of 1 (0 otherwise) on every date from five days prior to 3/13/00 (the first possible conversion date) to five days prior to the BHC's actual conversion date; *DCV* which is a dummy variable that takes on a value of 1 (0 otherwise) on every date from five days prior to conversion date to five days after conversion date; and *DPOST* which is a dummy variable that takes on a value of 1 (0 otherwise) on every date from five days after conversion date until 6/30/00 (the date the sample period ends).
Standard errors in parentheses. *, **, *** denote 10%, 5%, and 1% levels of significance, respectively.

Group Conversion Date	**Wealth Effects** Dummy Variables: *DPRE, DCV, DPOST*			**Risk Effects** *DPRE* x Market Return *(DCV+DPOST)* x RM		
	Pre-Conversion Period γ_{1i}	**Conversion Period** γ_{2i}	**Post-Conversion Period** γ_{3i}	**Pre-Conversion Shift in Mkt** δ_{1i}	**Post-Conversion Shift in Mkt** δ_{2i}	**Number of BHCs in Each Group**
Unexpected Non-Converters	0.0042** (0.0021)			0.0571 (0.1432)		3
Expected Non-Converters	0.0010** (0.0004)			0.1014*** (0.0292)		295
Expected Converters						22
3/13/00		0.0020 (0.0028)	0.0012 (0.0019)		0.0029 (0.1258)	16
3/14/00	-0.0078 (0.0112)	0.0024 (0.0043)	0.0032 (0.0024)		0.1335 (0.1622)	2
3/23/00	0.0074 (0.0064)	0.0061 (0.0055)	0.0032 (0.0029)	-0.1758 (0.3638)	0.1977 (0.1913)	1
4/13/00	0.0070* (0.0037)	-0.0001 (0.0047)	0.0010 (0.0028)	0.7527*** (0.2277)	0.4826*** (0.1786)	1
5/15/00	-0.0025 (0.0028)	0.0111** (0.0044)	0.0015 (0.0032)	0.0309 (0.1733)	-0.0756 (0.2141)	1
6/14/00	0.0024	0.0006	-0.0052	0.1585	-0.4561	1

	(0.0025)	(0.0042)	(0.0051)	(0.1649)	(0.3533)	

Table 3 (continued)

Group Conversion Date	**Wealth Effects** Dummy Variables: *DPRE*, *DCV*, *DPOST*			**Risk Effects** *DPRE* x Market Return *(DCV+DPOST)* x RM		
	Pre-Conversion Period γ_{1i}	**Conversion Period** γ_{2i}	**Post-Conversion Period** γ_{3i}	**Pre-Conversion Shift in Mkt** δ_{1i}	**Post-Conversion Shift in Mkt** δ_{2i}	**Number of BHCs in Each Group**
Unexpected Converters						46
3/13/00		0.0005 (0.0019)	0.0022*** (0.0010)		0.1848*** (0.0643)	19
3/23/00	-0.0110 (0.0077)	-0.0014 (0.0067)	0.0001 (0.0030)	-0.5848 (0.4407)	0.7241*** (0.1964)	3
4/3/00	-0.0036 (0.0055)	-0.0046 (0.0062)	0.0027 (0.0030)	0.9210*** (0.2933)	-0.1487 (0.1974)	1
4/10/00	0.0024 (0.0064)	-0.0054 (0.0083)	0.0012 (0.0041)	0.1828 (0.3736)	-0.2896 (0.2651)	1
4/13/00	-.0118*** (0.0046)	0.0007 (0.0063)	-0.0013 (0.0033)	0.3309 (0.2848)	0.1946 (0.2028)	2
4/18/00	0.0009 (0.0039)	0.0023 (0.0056)	0.0016 (0.0030)	-0.4625* (0.2485)	-0.2089 (0.1804)	1
4/28/00	-0.0025 (0.0053)	-0.0110 (0.0086)	0.0035 (0.0049)	0.5022* (0.2949)	-0.4139 (0.3363)	1
5/11/00	-0.0011 (0.0044)	-0.0065 (0.0079)	-0.0026 (0.0051)	0.2356 (0.2603)	-0.3851 (0.3485)	1
5/12/00	-0.0015 (0.0025)	-0.0038 (0.0045)	0.0002 (0.0030)	-0.0880 (0.1509)	0.2332 (0.2004)	6
5/18/00	0.0010 (0.0045)	-0.0004 (0.0083)	-0.0001 (0.0059)	0.5112* (0.2738)	0.4618 (0.3908)	1
5/19/00	-0.0043* (0.0024)	-0.0000 (0.0047)	-0.0005 (0.0033)	0.1523 (0.1489)	0.0805 (0.2226)	2
5/24/00	-0.0022 (0.0027)	-0.0062 (0.0053)	-0.0017 (0.0040)	0.1699 (0.1655)	-0.0405 (0.2622)	1
5/25/00	0.0017 (0.0031)	0.0036 (0.0061)	-0.0012 (0.0047)	0.2366 (0.1942)	0.0892 (0.3123)	1
5/26/00	0.0034* (0.0019)	0.0032 (0.0039)	0.0012 (0.0030)	0.2048* (0.1193)	0.1746 (0.1964)	3
5/31/00	0.0034	-0.0042	-0.0084	-0.4636	0.1825	1

	(0.0048)	(0.0102)	(0.0081)	(0.3020)	(0.5358)	
6/8/00	-0.0078 (0.0206)	0.0083 (0.0457)	-0.0072 (0.0444)	0.0717 (1.300)	0.0408 (3.1516)	1
6/9/00	0.0011 (0.0037)	-0.0050 (0.0077)	0.0066 (0.0081)	0.1340 (0.2300)	2.2382*** (0.5781)	1

Table 4
Bond Market Reaction to the Conversion and News

Panel A: Group Means

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

Variable	Unexpected Converters (1)	Unexpected Non-Converters (2)	Expected Converters (3)	Expected Non-Converters (4)
Bond Spreads	1.91	1.98	1.46	2.0
3/1-6/30/00 ∆ Bond Spreads	21 bps	37 bps	30 bps	42 bps
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)
Observation No.	6	4	18	15

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); *Unexpected Converters* (a dummy variable that equals one for the Unexpected Converters group; 0 otherwise); *Unexpected Non-Converters* (a dummy variable that equals one for the Unexpected Non-Converters group; 0 otherwise); and *Expected Converters* (a dummy variable that equals one for the group of converting BHCs for which conversion was expected; 0 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). *, **, *** denote 10%, 5%, and 1% significance levels, respectively. Standard errors are shown in parentheses.

Independent Variables	Dependent Variable: Change in Bond Spreads		Dependent Variable: Bond Spreads	
	Cardinal Ratings (1)	Discrete Rating (2)	Cardinal Ratings (3)	Discrete Ratings (4)
Intercept	0.8419*** (.2697)	0.6173*** (.1261)	0.7646 (.5780)	1.6486*** (.2267)
S&P Bond Rating	-.1169 (.0769)	-.1193* (.0666)	0.4038** (.1544)	0.0841 (.1198)
Split Rating	0.0177 (.0919)	0.0021 (.0805)	-.3553* (.1832)	0.0534 (.1448)
Unexpected Converters	-.2040* (.1060)	-.2181** (.0960)	0.0963 (.2245)	-.3123* (.1727)
Unexpected Non-Converters	-.1165 (.1262)	-.0936 (.1185)	-.1230 (.2916)	-.2278 (.2131)
Expected Converters	-.1758** (.0789)	-.1692** (.0728)	-.3684** (.1794)	-.3372** (.1309)

Adjusted R-Squared	6.47 %	10.54 %	32.17 %	14.33 %

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: S&P/Moody’s (in Table 4 Panel A) 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 S&P/Moody’s bond ratings (in Panel A of Table 4) takes the cardinalized value of the assigned rating.

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