On the Informativeness of Credit Watch Placements

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On the Informativeness of Credit Watch Placements

Abstract

This study examines the informational role of credit watch placements in the overall bond rating process. We show that the act of a company's bond being put on a credit watch is, in itself, associated with significant abnormal returns in the company's stock and bond rating revision that are associated with their initial inclusion on credit watch, are more informative than rating changes solely without credit watch. Furthermore, institutional trading in equities displays opportunism around the event of the corresponding companies' bonds being included on the watchlist, around its subsequent upgrade or downgrade, as well as over the interim transitional period. More importantly, institutions earn economically and statistically significant profits from their trades following credit watch events. Overall, our findings underscore the importance of credit watch placements in the overall fabric of credit ratings adjustments and on informed trading behavior.

1. Introduction

In this paper, we extend the existing bond rating literature by explicitly linking the event of a credit watch placement of a publicly traded corporation's bond (also known as inclusion to a watchlist) to the event of an actual rating change, in an effort to improve our understanding of how the overall process of bond rating revisions affect financial markets. In particular, we examine the little-studied question of how a placement in the watchlist might affect the information content of bond rating revisions and how, in turn, that might affect the trading strategies of institutional investors in those company's stocks.[1]

For almost a century, the CRAs, exemplified by Moody's and Standard and Poor's, have served an important credit monitoring role in the financial markets.[2] While many avow the importance of credit ratings, critics cast doubt on the importance of the ratings system accusing them to be a follower, rather than a leader, of investor opinion.[3] This growing skepticism is amplified by the financial scandals involving Enron and, more recently, the burgeoning subprime mortgage crisis in which law makers and market participants question whether the CRAs were slow to react to credit deteriorations and failed to give investors adequate warning of the risks associated with borrowers' creditworthiness.

Such criticisms notwithstanding, there exists a large body of empirical research investigating whether bond rating revisions convey new information by examining market reactions at the announcement of bond rating changes.[4] Overall, these studies

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[1] This topic has taken on new urgency in light of the ongoing subprime mortgage credit crisis and a strong desire amongst academics, practitioners and policy makers alike to understand its drivers which include, among other things, the failure of the credit rating agencies (CRAs) to correctly understand, and react to, the implications of a changing environment for the financial system.

[2] CRA assigns credit ratings for issuers of certain types of debt obligations. Credit rating measures credit worthiness, the ability to pay back a loan, and affects the interest rate applied to loans. It helps to reduce informational asymmetry between issuers and investors, increase market liquidity and, in the process, increase market efficiency. CRAs continue to review the credit worthiness of an issue after the initial rating. In the circumstances in which an issuer's and, by extension, the issue's financial health, contradicts the underlying assumptions, or data, supporting the current rating, the existing rating is revised to reflect current fundamental credit quality and announced to the public.

[3] As Boot, Milbourn and Schmeits (2006) argue, there appears to be a lack of consensus as to whether ratings play an important economic role and whether, at its core, ratings changes are informative. For example, in a recent *New York Times* article ("Triple-A Failure", April 27, 2008), columnist Roger Lowenstein lays out how Thomas Friedman once opined that there were two superpowers in the world – the United States and Moody's bond rating service and that it was not clear which was more powerful. In the late nineties Moody's ventured into the exotic business of rating securities backed by pools of residential mortgages. While this proved phenomenally successful for Moody's the question that has been asked in recent months is: Who was evaluating these securities? Two key questions are whether the credit agencies enjoyed too much official protection and whether their judgment was tainted.

[4] See, for example, Katz (1974), Grier and Katz (1976), Hettenhouse and Sartoris (1976), Pinches and Singleton (1978), Griffin and Sanvicente (1982), Glascock, Davidson and Henderson (1987), , Goh and Ederington (1993), Ederington and Goh (1998), Hite and Warga (1997) and Dichev and Piotroski (2001) and Beaver, Shakespeare and Soliman (2006).

have concluded that a bond downgrade conveys new information while a bond upgrade does not result in a significant price reaction. A notable recent exception is Jorion, Liu and Shi (2005) who report a small, but significant, market reaction for bond upgrades after the implementation of Regulation Fair Disclosure (Reg FD). While this body of literature has undoubtedly provided a better understanding on the impact of bond rating changes on security prices, it has not adequately examined the overall process of bond rating changes which includes the act of including a credit issue on the watchlist and its subsequent rating change.

Beginning in 1991, Moody's initiated an interesting practice as part of a formal bond rating process. Prior to an actual rating revision, it began putting a credit issue on a watchlist in order to provide investors with an indication of the likely direction, and timing, of anticipated credit rating changes. The underpinnings of a corporation's bond being put on a credit watch is to inform investors of the rating agency's opinion that the credit quality of an obligation, or obligor, may be changing, thereby aiming to reduce the company's stock price volatility by moving its credit ratings in a gradual, even predictable, fashion in response to changes in the fundamental credit quality of the credit obligation. Subsequently, over the past almost two decades, the act of including a particular credit issue on the watchlist has been used extensively as an indicator of a potential directional change in credit rating associated with that credit instrument.

Using a comprehensive Moody's database that includes information on both credit watch placements and bond rating changes over an approximately 8-year period, our research design takes into account the complete process of bond rating changes which includes the event of the inclusion to the watchlist, the event of the actual bond rating change and the interim transitional period between the two events. This complete picture afforded by our data set allows us to accurately link credit watch placements to subsequent bond rating changes. Furthermore, we utilize the information inherent in credit watch resolutions to examine market reactions, and institutional trading activities, over the interim period prior to actual rating revisions.

Our empirical investigation is organized in three steps. First, we examine the characteristics and informativeness of credit watch placements. Since a company's bond will be put on the watchlist only when a subsequent rating change is expected to create a large impact on the company's stock price, the overall impact of a rating action, including the credit watch, should collectively be significantly larger than a straight up bond rating change without initial inclusion on credit watch. Second, using proprietary

data of institutional trading, we examine how institutions trade the underlying stocks of a corporation whose bond is included on the watchlist and subsequently either upgraded (or downgraded). Our investigation is motivated by extensive prior research that identifies institutional investors as informed traders.[5] Our hypothesis is that if the event of an issue being put on a watchlist is an informative event about the underlying firm, institutional trading activity in the company's stock should clearly be consistent with the direction of the eventual (bond) rating change (i.e., institutions buying stocks before the company's bond ratings upgrades and selling stocks before the company's bond ratings downgrades). Third, we follow up our examination of institutional trading activity with a computation of institutional trading profits to investigate if institutional trading activity necessarily results in significant economic profits for these entities. Our institutional trading data allows us to track the underlying stock trades by each institutional investor throughout the events of the corresponding corporate bond's placement in the watchlist, the interim period and the actual bond rating change. We derive the actual gains and losses associated with establishing (and closing out) institutional stock positions at the beginning of credit watch event period right up to, and including, the actual bond rating change.

Our main findings are summarized as follows. We confirm that credit watch is used extensively by a CRA as a signal of a future rating revision. For instance, 49.8% (35.7%) of actual bond downgrades (upgrades) are preceded by a negative (positive) credit watch. Inclusion on credit watch also appears to be an accurate predictor of a future rating change. For example, 85.3% (91.5%) of negative (positive) watches result in actual downgrades (upgrades). We further find that the act of a publicly traded corporation's bond being included on a CRA watchlist appears to be an informative event. Thus, for example, we find that the act of being put on a negative (positive) credit watch followed by an downgrade (upgrade) is associated with an average cumulative abnormal return in the company's' stock of -6.31% (+1.33%) over a 7-day period centered on the event of being included on the watchlist, relative to an abnormal equity return of -4.91% (+0.59%) associated with just the event of a bond rating downgrade (upgrade).

Examining the overall impact of a bond rating revision, we find that bond rating change announcements that are associated with their initial inclusion on credit watch are more informative than rating changes solely without credit watch. The overall market

[5] See, for example, Lo and MacKinlay (1990), Lakonishok, Schleifer and Vishny (1992), Meulbroek (1992),), Kim and Verrecchia (1994), Chakravarty and McConnell (1999), Sias and Starks (1997), Koski and Scruggs (1998), Chakravarty (2001), and Hansch and Choe (2006).

reaction (including abnormal equity returns at the credit watch placement, transition period and at actual bond rating change) is -12.47% (+3.71%) for negative watch/downgrade (positive watch/upgrade). This compares to abnormal equity returns of -7.00% (+0.79%) associated with bond rating changes without prior credit watch for downgrades (upgrades). These findings suggest that the impact of bond rating revisions documented in prior research (that focuses on the market reaction only at the event of the bond rating change itself) could potentially be understated. Specifically, we compare the overall market reactions derived from our approach to market reactions *only* at bond rating changes. Thus, when market reactions at credit watch placements and during the transition period are considered, the overall market reaction of credit rating actions for negative (positive) credit rating announcements of -9.81% (+1.83%) is significantly larger than market reactions at *only* bond downgrades (upgrades) of -5.96% (+0.72%).

Furthermore, our finding related to the overall market reaction could partly explain the small market reaction around bond upgrades. Our results suggest that it is the very act of including a bond on a positive watchlist by a CRA that appears to play an important role in diminishing, or attenuating, market reaction at the time of the actual bond rating upgrade. Market participants react strongly at the event of the inclusion of the bond on a positive watch, and the underlying information gets absorbed in the stock price at that very point in time. Hence, the subsequent bond upgrade is, by itself, associated with a small positive abnormal return.

Examining institutional trading activity, we find that institutions are active around credit watch placements. Specifically, institutional trading volume in a company's equity around credit watch is dramatic with an average of 3 million shares transacted around the event of the corresponding bond being included on credit watch. In comparison, institutions trade an average of 2.4 million shares around a 7-day period centered on the dual events of being included on the watchlist and the actual bond rating change itself. Institutions, however, appear to adopt a different trading strategy at the initial release of bad (versus good) news as evident by their (equity) trading at negative and positive credit watch placements. Prior to a company's bond being included on a negative watch, the corresponding stocks lose almost a fifth of their value and institutional investors appear to divest their stock holdings in those companies. Specifically, beginning seven days before negative credit watch announcements, institutional stock sales rise sharply along with an observed steep decline in share prices. Institutional stock sales peak on the day of the corresponding bonds being included on

the watchlist. By the same token, for credit issues that are put under positive watch, we observe insignificant selling activity. This could be partly explained by the fact that some institutions seem to be taking advantage of a significant stock price run up prior to the company's bond issue being included in the positive watchlist by initially buying the stock at a lower price and subsequently selling it around the event of the bond being included on the positive watch in order to take profits from a stock price appreciation.

The empirical results from institutional trading activity also indicate that institutions appear to behave opportunistically during the transition period prior to actual rating changes. The strongest (weakest) evidence of institution trading comes during transition period (actual rating change). The significant trading during the transition suggests that institutions react to the credit watch signal and react strategically in anticipation of the upcoming rating change. Consequently, by the time of the actual rating change, they appear to have achieved their (downward/upward) target holdings. Taken together, our findings suggest that institutions (through their stock trading) appear to behave opportunistically around the event of a publicly traded company's bonds being included on the watchlist, during the transition period and around its subsequent upgrade or downgrade.

More importantly, we find that institutions' trading profits are economically meaningful and statistically significant when selling on bad news. On average, from liquidating their trading positions at the end of the trading period for the linked sample of negative watch/downgrade and downgrade without prior credit watch, institutions earn approximately +4% and +2%, respectively. For the linked sample of positive watch/bond upgrade, however, the institutional equity trading profit is small but statistically significant (+0.71%).

Our paper has several academic and practical implications. From the academic perspective, our findings underscore the importance of credit watch placements in the overall fabric of credit ratings adjustments. Failing to incorporate credit watch placement into bond rating analysis could potentially underestimate the impact of bond rating revision. From a practical perspective, investors can use credit watch placement as a credible signal of future rating revision. More importantly, in light of the recent subprime mortgage crisis, there is an increasing demand for timely credit quality information and CRAs could utilize credit watch placement as an early warning mechanism to an impending change in credit quality, thereby reducing the impact of the actual bond rating revisions.

The remainder of this study is organized in five sections. Section 2 describes background and hypothesis. Section 3 describes data and sample characteristics. Section 4 discusses the empirical methodologies and provides our findings. Section 5 reports robustness checks. Section 6 provides concluding remarks and some directions for future research.

2. Related Literature

Our paper relates to two strands of empirical research: the impact of bond rating revision on security prices and the institutional investor's information advantage. With regard to the first strand, there exists a large body of research investigating the role of the CRAs in financial markets. For example, Katz (1974), Grier and Katz (1976), Hettenhouse and Sartoris (1976), Pinches and Singleton (1978), Griffin and Sanvicente (1982), Holthausen and Leftwich (1986), Glascock, Davidson and Henderson (1987), Hand, Holthausen and Leftwich (1992), Goh and Ederington (1993), Ederington and Goh (1998), Hite and Warga (1997) and Dichev and Piotroski (2001) Beaver, Shakespeare and Soliman (2006), among others, examine stock and bond prices around the announcement of bond rating changes. The general conclusion is that a bond downgrade conveys new information while a bond upgrade does not result in a significant price reaction and, by extension, is not informative.

More recently, Jorion, Liu and Shi (2005) examine the change in information content after Reg FD. They report a small, but significant, market reaction for bond upgrades and a stronger market reaction for bond downgrades after the implementation of Reg FD. They argue that Reg FD allows CRAs access to confidential information that's no longer available to equity analysts. Thus, it potentially increases the information content of the credit rating agency announcements.

While the body of prior research has, no doubt, provided a better understanding on the role of CRAs in financial markets, and on the impact of bond rating changes on security prices, it fails to analyze the overall process of bond rating changes. Since the early 1990s, the CRAs have adopted the use of credit watch as a part of the formal rating process. Prior to an actual rating revision, issues are put under a credit watchlist to signal to market participants of a possible near term rating change.

However, despite the significant use of placing bond issues on the credit watchlist prior to their actual rating revisions by the CRAs, most prior academic studies examining

whether bond rating changes convey new information, do so by investigating market reaction *only* at the announcements of actual bond rating changes. There are, however, a few exceptions. For instance, Holthausen and Leftwich (1986) and Hand, Holthausen and Leftwich (1992) have both examined the impact of credit watch placements on security prices in parts of their studies. They report small and statistically insignificant market reactions of -0.33% when a bond is put on positive watch and small but significant market reactions of -0.79% for negative credit watch. The empirical evidence on the impact of credit watch placements on the financial markets is limited due to a lack of data. The two studies cited above, for example, apart from being over 25 years old, are also based on a small sample of firms (127) being put on the Standard and Poor's credit watchlist. It is not clear if the conclusions from such studies can be generalized to the current markets which have undergone a sea change in the intervening 25 years. More importantly, the data used by these and other past researchers cited above have no information on credit watch resolutions.[6] The resolution (in terms of ratings changes) following a bond being placed on the credit watchlist is important in that it allows the researcher to measure the overall impact of credit watch as a tool to reduce price impact prior to an actual rating change. We incorporate this important information in the current analysis.

Relevant to the second stream of the literature that the current study relates to, a large and growing body of empirical research shows that institutional investors are sophisticated investors and their trading can consistently predict future stock returns using quarterly holding data (see, for example, Daniel, Grinblatt, Titman, and Wermers (1997), Grinbalatt and Titman (1989), and Nofsinger and Sias (1999)). Additionally, Chen, Jegadeesh, and Wermers (2000) and Wermers (2000) show that mutual funds do earn excess returns prior to fees and transaction costs and that the stocks that mutual funds buy outperform those they sell and find little evidence of return reversal in these stocks in the long run. They conclude that individual stock trading by the mutual funds can predict future stock returns. More recently, Yan and Zhang (2009) segregate total institutional investors into long-term and short-term institutions based on their portfolio-turnover rate, and find that it is only the trading of the short-term investors that can predict future returns which, in turn, implies that short-term investors have an informational advantage over their longer term counterparts.

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[6] As Holthausen and Leftwich (1986) note: "*... Reliable inferences about resolutions contrary to the indicated direction are hampered by small sample sizes. Larger sample sizes available with the passage of time will provide more insight into the announcement effect of those resolutions.*"

More directly relevant to the current paper are research examining the impact of institutional trading on security prices using daily transaction data. Chan and Lakonishok (1993, 1995) examine the price effect of institutional trading and report that price impact of buys is higher than that of sells. They suggest that buys are more informative because the decision to buy one security out of an entire universe of available stocks is indicative of strongly positive private information resulting from research analysis. In contrast, negative information may only be utilized for those stocks already held by the institution. Irvine, Lipson and Puckett (2007) examine the trading, and trading profits, of institutions prior to the release of analysts' recommendations. They report that institutions trade in the same direction as the analyst recommendations and earn significant profits from their trades. Griffin, Shu and Topaloglu (2008) examine institutional investors' ability to trade in the correct direction in the days immediately preceding large value-relevant events. They report the evidence that institutional trading during, and after, earnings announcements is profitable and aggregate institutional profits may stem primarily from their ability to better process publicly available information rather than their ability to extract private information.

In sum, the empirical examination of the current paper builds on three distinct levels. The first level relates to conclusions emerging directly from the characteristics and market reaction associated with a company's bond being placed on credit watch. Having found evidence of significant market reaction associated with this event, our second level of contribution lies in examining just how the informed institutions might react to such information and providing a detailed look at just what kinds of trading strategies they might implement to take advantage of the situation. The third level of contribution lies in investigating whether such institutional trading strategies lead to a significant trading profit for them. It is our hope that our analysis leads to a deeper understanding of the importance of credit watch placements on security prices and (related) institutional equity trading behavior.

3. Data and Sample Characteristics

3.1 Data

We use three databases in the current study: Moody's Default Risk Service database, institutional stock trading data from the Abel Noser Corporation (hereafter, Abel Noser) and daily stock price data from the Center for Research in Security Prices (CRSP).

Specifically, we have access to a large sample of credit watch placements and bond rating changes from January 1, 1997 to September 30, 2004, from the Moody's Default Risk Service database. The objective of a credit watch placement is to offer indications of the likely direction and timing of future credit rating changes. Accordingly, the database provides information on the beginning date, indications and the ending date of a credit watch placement, as well as its subsequent rating change. A credit watch is designated either "positive" (possible upgrade), "negative" (possible downgrade) or "developing" (uncertain direction, insufficient available information or this to be currently assessed).

Second, we obtain proprietary institutional stock trading data from Abel Noser. The data includes stock purchases and sales transactions compiled by Abel Noser's institutional clients as part of their advisory services. Abel Noser provides consulting services to 776 domestic clients who collectively transacted over $20 trillion over the period of 1997-2004. The institutional trading data provide comprehensive information on institutional trading orders and actual transactions and contain information on institutional decisions about what stocks Abel Noser's institutional clients trade, direction of trade (buy or sell), transaction price, quantity of shares traded, and the execution date. Third, we collect information on stock returns, value weighted index returns, volume and shares outstanding from the CRSP database.

We apply six filters to the dataset of credit watch placements and bond ratings changes in order to remove potentially contaminating factors. One, we confine our sample to US domestic taxable corporate bonds, excluding bonds issued via private placement and Yankee bonds. Two, we exclude from our analysis credit watch placements and bond rating changes associated with other news announcements since our study's objective is to examine the impact of rating actions as a result of change in credit quality. To do so, we manually search for news stories in the *Wall Street Journal* for potential contaminated events in the window spanning the three trading days before and after a credit watch placement and a bond rating change announcement. For each news item found, we read the story to determine if it contains a price-moving news announcement. If a story contains information other than the rating agency announcement, we exclude it from our analysis. Three, we exclude credit watch announcements associated with an "uncertainty implication" since it is not a clear signal about a credit rating's future direction. Credit watches with uncertainty implications are very rare. By so doing, we delete less than 1% of the sample. Four, we allow each bond

rating change and credit watch announcement to constitute one observation. This is referred to in subsequent discussions as a "linked sample". Five, in cases where Moody's issued interim credit watches, we consider only the first credit watch that leads to a subsequent rating change because watches in the interim are likely to be uninformative.[7] Six, if a rating change and a credit watch relate to multiple bond issues by the same issuer, we consider only that issue with the largest magnitude of the rating change and subsequent rating change for credit watch, respectively, since that particular bond issue is likely to impact stock prices the most.

3.2 Sample Characteristics for Credit Watch Placements and Bond Rating Changes

Panel A of Table 1 reports the descriptive statistics on the number of credit watch placements and bond rating changes. Panel B presents a linked sample of credit watch placements and bond rating changes based on credit watch resolutions. We highlight four notable aspects of our credit watch sample. First, as we argue earlier, putting an issue on their credit watchlist is a frequently used tool by the CRAs. The annual frequency of issues on credit watch ranges from 68 (in 1997) to 165 (in 2002). The tendency to warn investors against bad news is evident over all years in our sample. Negative watches are more than twice as prevalent as positive watches in our sample period (736 instances of Negative Watch relative to 271 instances of Positive Watch). Similarly, the deterioration in aggregate credit quality that occurred during the market downturn of 2000-2002 is also reflected in the credit watch placements: More credit issues were put on a negative watch over this period. Second, the total number of credit watch and bond rating changes are negatively skewed. Of the total sample, 73% (65%) are negative watches (bond downgrades). Third, credit watch appears to be used extensively by Moody's as a signal to reduce market reactions prior to actual changes in bond rating. For instance, 49.8% (35.7%) of actual bond downgrades (upgrades) are preceded by a negative (positive) credit watch. Finally, being put on a credit watch appears to be an accurate predictor of a future rating change: 91.5% (85.3%) of negative

[7] An Interim credit watch occurs when Moody's issues a new watch on the watch end date and issues a temporary confirmation of the existing credit rating while acknowledging that the uncertainties around the initial placement on the watch list remain unresolved. It enables them to keep the watch duration short but continue the watch designation with a new watch. There are 47 interim credit watches in our sample. For robustness, we repeat all analyses including these observations. The overall results are qualitatively similar.

(positive) watches result in actual upgrades (downgrades).[8]

[Insert Table 1 about here]

4. Empirical Results

We present our empirical findings in three stages. First, we examine the cumulative abnormal stock returns surrounding a company's bond from being included on credit watch, the subsequent bond rating change and the transition period between these two events. Doing so allows us to link our findings with those of prior studies and to test for both the differences in market reaction involved in the credit watch and bond rating changes as well as the cumulative market reaction, as a result of the credit rating actions. Second, we provide evidence on institutional investors' stock trading strategy around the event of the corresponding company's bond being placed on a credit watch and around the event of the actual bond rating changes -- including the transition period. Third, we estimate institutional stock trading profits resulting from their trading around these events.

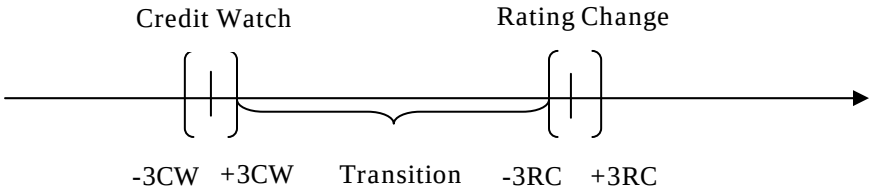
4.1 Information Content of Credit Watch Placement and Bond Rating Changes

To ascertain whether a credit watch placement is an informative event related to the underlying company, we examine market response for the event windows of the credit watch placement, the transition period, and the bond rating change using a standard event study methodology. Cumulative abnormal stock returns, CARs, are calculated over each 7-day event window (-3, +3) centered on day 0 of the credit watch and the bond rating change events. The transition period begins right after the credit watch event period (+4CW) and ends before the bond rating change event period (-4RC).[9] The diagram below illustrates the event windows relative to the two events and the transition period in between the two event periods. Excess, or abnormal, stock returns are computed as the difference between the daily raw stock return and the

[8] Only a small proportion of credit watches (10.6% of the positive watches and 14.9% of the negative watches) results in no changes in the existing rating while less than 2% of the credit watches actually results in a reversal of the direction of the actual rating changes. As a robustness check, we examine 41 (163) occurrences of positive (negative) watches which result in no change in existing rating. The market response to being put on a credit watch without a subsequent rating change is associated with a relatively smaller market impact and is not statistically significant.

[9] The mean (median) duration of transition period is 103 (87) and 95 (78) days for positive and negative watch lists, respectively.

concurrent value weighted NYSE/AMEX/NASDAQ index return.



Our choice of the examination windows reflects the fact that we analyze abnormal market returns running parallel to the extant research on institutional trading. For example, Keim and Madhavan (1995, 1996), Chan and Lakonishok (1995, 1997), Chakravarty, Panchapagesan and Wood (2005) and Chiyachantana, Jain, Jiang and Wood (2004) all show that the mean duration of seller-initiated and buyer-initiated trades is 1.65 and 1.80 days, respectively. Institutions minimize the price impact of a large order by breaking it into several smaller orders and the duration of execution is positively related to the ratio of order size to shares outstanding. As institutions need time to execute their stock orders around the CRA's announcements, a wider window better captures institutional trading behavior and its relationship to contemporaneous stock returns. A potential downside of using a bigger window is that we may pick up institutional stock trading activity unrelated to the event in question.

[Insert Table 2 about here]

Table 2 presents the cumulative abnormal returns (CARs) for the event windows of the credit watch placement, the transition period, and the bond rating change as well as the overall impact of credit rating actions. Panel A and B reports the CARs for negative and positive credit watch, respectively. We divide our sample into two subsets conditional on whether there is an outstanding credit watch existing prior to the actual bond rating change. The first row reports the average stock CARs during the event periods for a linked sample based on credit watch resolutions. The second row reports the bond rating changes without the issue being first put on a credit watch. The last row presents CARs for the full sample of all rating actions.

To ascertain whether credit watch provides new information to the financial markets, we analyze the abnormal returns around the event of the credit watch itself. If the act of being included on a credit watch conveys new information to the market, we should observe a significant reaction on stock prices corresponding to the company's bond being included on credit watch. We find that the market reaction at credit watch

placement is striking. The CARs associated with negative (positive) credit watch inclusions are economically and statistically significant at -6.31% (+1.33%).[10,11] Our evidence on abnormal returns strongly supports the importance of credit watch placements in providing essential information to market participants. During the transition period, the market continues to absorb the credit rating information in anticipation of a future rating change. When the credit rating change becomes evident, we observe the abnormal stock returns surrounding the event of an actual bond downgrade (upgrade) of -4.91% (+0.59%).[12]

Our next analysis focuses on the extent to which rating announcements associated with credit watch might contain more information relative to rating changes *not* preceded by credit watch. We conjecture that CRAs are likely to issue credit watches when an issuer's credit quality has changed substantially and that a rating change with prior warning might cause a major impact in the stock market. The last column reports the overall market reaction for the linked sample (which includes the abnormal returns at credit watch placement, the transition period and the actual bond rating change) and also that for the unlinked cases of bond rating changes without prior credit watch. The overall market reaction associated with the linked samples of Negative Watch/Downgrade (-12.47%) and Positive Watch/Upgrade (+3.71%) are significantly larger than that of bond rating changes without prior credit watches [-7.00% for downgrades and +0.79% for upgrades]. A test of differences in means shows that the overall market reaction for the linked sample is significantly larger than rating changes without initial credit watch.

Our approach of analyzing the impact of bond rating revision takes into account the event of the credit watch placement as well as the transition period while prior

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[10] In comparison, Hand, Holthausen and Leftwich (1992) report CARs of +o.44% for positive watch and -0.83% for negative watch placements.

[11] Two possible explanations have been provided by Ederington and Goh (1998) to explain the asymmetry of market reactions to good versus bad news. First, firms voluntarily release good news to the market prior to rating announcements. Second, the CRAs could be expending more resources in detecting deteriorations in credit quality rather than reporting just on the improvements in credit quality.

[12] Our sample period includes the implementation of Reg FD in which CRAs have access to confidential information that's no longer available to the public, which could potentially increase the value of the information content of the credit rating announcements (See Jorion, Liu and Shi (2005)). To ensure that our results are not driven by implementation of Reg FD, we repeat all analysis for two subsamples partitioned by the effective date of the passage of Reg FD, excluding the implementation month of Reg FD (October, 2000). Specifically, our Pre-FD period spans an approximately 3.5 year period between January, 1997, and September, 2000. Our Post-FD period spans a 4-year period between November, 2000, and September, 2004. In these unreported results, we find that the abnormal returns around credit watch announcement and overall impact of credit rating actions are statistically significant in both the pre and post Reg FD period but with a larger magnitude after the implementation of Reg FD.

research focuses only on the market reaction at bond rating change itself. We compare our findings on the *overall impact* of credit rating actions to market reactions *only* at bond rating changes. The third row (*All* Negative/Downgrade and *All* Positive/Upgrade) reports the overall market reaction derived from our approach to market reactions *only* at bond rating changes. Our findings suggest that the impact of bond rating revisions documented in prior research could potentially be underestimated. Namely, the average market reaction spanning the overall credit rating action of -9.81% (+1.83%) is significantly larger than the average market reaction spanning *only* the bond rating downgrades (upgrades) of -5.96% (+0.72%). This difference is statistically significant at the one percent level.

To determine whether inclusion on credit watch works to reduce the uncertainty and the informational asymmetry surrounding a material change in a firm's credit quality, we examine the market reaction surrounding the actual bond rating change conditional on a prior credit watch placement. Recall that the rationale of a credit watch placement is to inform investors of the rating agency's opinion that the credit quality of an obligation, or obligor, may be changing, thereby aiming to reduce the company's stock price volatility by moving its credit ratings in a gradual, even predictable, fashion. This could be eminent in the case of a bond downgrade in which investors react strongly to a downward change in credit quality. Hence, if being put on credit watch serves its purpose of informing market participants of an upcoming significant rating change, and helps in reducing the stock market's reaction to the actual information content underlying the forthcoming rating revision, we should expect to see a smaller market reaction surrounding the event of an actual bond rating change following the event of its inclusion on credit watch relative to those cases of a bond rating change without its initial inclusion on the watchlist.

Consistent with our expectation, the announcement period returns are larger for bond rating changes with no prior credit watch placements. The abnormal stock returns for bond downgrade (upgrade) are -7.00% (+0.79%) for rating changes with no prior credit watch relative to -4.91% (+0.59%) for rating changes associated with a prior credit watch. Our findings suggest that being put on a credit watch appears to have the effect of attenuating market impact associated with the corresponding stocks in the event of an actual bond rating change itself.

Furthermore, our findings on the overall market reaction could partly explain the small market reaction around bond upgrades, documented by prior researchers.

Excluding the market reaction around credit watch placement and the transitional period could potentially understate the market response to good news. It is clear that the very act of including a bond on a positive watchlist by a CRA appears to play an important role in diminishing, or attenuating, market reaction at the time of the actual bond rating upgrade. Market participants appear to react strongly at the event of the inclusion of the bond on a positive watch, and the most of the underlying information gets absorbed in the stock prices at that very point in time. Hence, the subsequent bond upgrade is itself associated with a significantly smaller positive abnormal return since most of the fundamental company-specific information, inherent in the bond rating change, has already been absorbed in the stock price at the earlier date.

4.2 Institutional trading activity

A natural experiment that we perform in the current paper is to examine how institutions (i.e., informed traders) trade in a company's stock around the event of its bond being put on credit watch, over the transitional period, as well as around the subsequent bond rating change. We report abnormal trading imbalances, calculated as the raw trading imbalance in an event period relative to the corresponding benchmark period. A raw trading imbalance is the difference between the number of shares bought and sold by institutions, over a given window, obtained from the Abel Noser database of institutional trading, standardized by the total number of shares outstanding of that particular company. Such standardization avoids the practice of institutions trading in large firms from dominating our results and also lessens the cross-sectional variation in firm-size-related trading activity. For the univariate credit watch and rating change analyses, institutional trading activity is benchmarked against -80 to -61 days *before* and 61 to 80 days *after* the issue is put on the watchlist or the actual rating change.[13] For the linked sample, the pre-event is the period -80 to -61 days before a bond is put on the watchlist while the post-event is the period 61 to 80 days after the actual bond rating change.

Table 3 presents a summary of the stock trading activities by institutional investors around the corresponding company's bond being placed on credit watch, during the transitional period, and around the period of the bond rating change. We also

[13] When we repeat all analyses using only the pre or the post event benchmark periods, the overall results remain qualitatively similar but become slightly stronger using the post-event period benchmark and are discussed briefly in the robustness section.

provide a cumulative measure inclusive of all three periods. Specifically, we report the mean of total share volume, the total share volume normalized by the number of shares outstanding (volume adjusted) and the total share volume normalized by the daily trading volume (share adjusted) from CRSP.

We find that institutions trade the company's stock heavily in all three periods. However, institutional stock trading activity around credit watch placements is especially dramatic with an average trading volume of around 3.19 (2.95) million shares for negative (positive) credit watch placements. By comparison, the average daily institutional trading volume is 3.22 (2.49) million shares in the event of bond downgrades (upgrades). On average, the institutional trading volume, as captured by the Abel Noser data, is over 20 million shares, accounts for approximately one-fifth of all trading volume, and comprises more than one percent of the number of shares outstanding. And the institutional trading volume -- adjusted by the CRSP daily trading volume (the number of shares outstanding) -- are approximately 23% (1.18%) and 17% (0.93%) for the linked sample of negative and positive watches, respectively. This evidence suggests that institutions are active players in a company's stock as the corresponding bonds are included on the watchlist.

[Insert Table 3 about here]

4.3 Institutional Trading Imbalance

Table 4 presents the institutional equity trading imbalance upon the underlying corporation's bond being put on a credit watch, during the transition period, and during the subsequent bond rating change, as well as over the entire period (which includes all three periods). The patterns of institutional stock trading provide important insights on how institutions trade around the release of good, versus bad, news.

[Insert Table 4 about here]

The first row of Panel A and B reports stock trading imbalances for the linked samples of Negative watch/Bond downgrade and Positive watch/Bond upgrade. For bonds that are put on negative watch, we observe a strong institutional selling of the underlying stocks. The abnormal equity trading imbalance is -2.08 and is statistically significant. Figure 1a reports the daily abnormal stock returns and the abnormal institutional equity trading imbalances between 60 trading days before the

corresponding bond is included on credit watch and 60 trading days after the bond's rating change for the linked sample of negative watch/bond downgrades. Prior to the placement of a corporation's bond on negative watch, the corresponding stock appears to lose almost a fifth of its value. Over the same period, institutional investors appear to pare down their stock holdings in that company. In particular, beginning with seven days before the corresponding bond is put on a negative watch, institutional stock sales in the corresponding companies rise sharply relative to their normal trading level, consistent with the observed steep decline in share prices. Institutional stock sales peak at the credit watch announcement and continue up until about one week after the actual bond downgrade.

[Insert Figure 1a about here]

By the same token, we observe insignificant institutional equity trading in a company's stock around the time its bond is placed on positive watch (impending good news). Specifically, while some institutions view the event of a company's bonds being included on positive watch as a buying opportunity, others use it as an occasion for profit taking. While, at first blush, such behavior might seem odd if they are informed traders, consider the following. Figure 1b shows the daily abnormal stock returns and the abnormal trading imbalance between 60 trading days before the corresponding bond is included on credit watch and 60 trading days after the bond rating change, corresponding to the linked sample of positive watch and bond upgrades. During the 60-days preceding the bond being put on positive watch, institutional investors start to accumulate stock positions. We actually see an average price run-up of over 6% over this period. Subsequently, we see evidence of institutions beginning to unload their stock positions as early as a month prior to the bonds being put on a positive watchlist with the highest institutional stock selling being observed at the announcement of the inclusion to the watchlist itself. Such a pattern of institutional trading behavior lends support to the finding in Hirshleifer, Subrahmanyam and Titman (1994) that institutions profit by selling stocks after a significant price run-up.

[Insert Figure 1b about here]

More importantly, institutions (through their stock trading) appear to behave opportunistically during the transition period leading up to the actual bond rating change. The strongest evidence of institutional equity trading comes during the transition period; the weakest is around the actual rating change itself. For example, the

abnormal selling (buying) of stocks during the transitional period of a Negative Watch/Bond Downgrade (Positive Watch/Bond Upgrade) of -4.95 (+3.79) is large and statistically significant compared to -0.76 (+0.09) occurring around the actual bond downgrade (upgrade). This significant trading during the transitional period suggests that institutions are able to better anticipate upcoming future rating changes and react promptly. Overall, institutions are net sellers (buyers) upon the release of bad (good) news. The abnormal equity trading imbalance is –7.79 and +3.66 for Negative Watch/Bond Downgrades and Positive Watch/Bond Upgrades, respectively.

The second row of Panel A and B presents the stock trading imbalances for bond downgrades (upgrades) when the bonds are not put on a prior credit watch. Sell (buy) imbalances of stocks around the event of bond downgrades(upgrades) without prior credit watch are considerably more than the imbalances around the event of the corresponding bond downgrades (upgrades) that are preceded by their placement on credit watch. The abnormal equity trading imbalance computed solely during the period of a downgrade (upgrade) [when preceded by the corresponding company's bonds being included on a negative (positive) watchlist – i.e., when the rating change was expected] is -0.76 (+0.09), and not statistically significant. This compares to an abnormal equity trading imbalance of -1.57 (+0.72) associated with a downgrade (upgrade) [when the corresponding bonds are not put on prior credit watch – i.e., the rating change was unexpected]. The comparatively small institutional stock trading around the actual rating changes that were expected (in comparison to those rating changes that were unexpected) is not surprising when we consider the fact that institutions sell (buy) stocks strongly at credit watch announcements and during the transitional period. Thus, by the time of the actual rating change, the institutions appear to have achieved their (downward/upward) target holdings.

In sum, institutions (through their stock trading) appear to behave opportunistically around the event of a publicly traded company's bonds being included on a credit watchlist, during the transitional period and around their subsequent upgrade or downgrade. This would be consistent with their role as informed traders. Next we examine the all important question of whether the institutional stock trading patterns documented above result in economic trading profits for them as a group.

4.4 Institutional trading profits

The last section revealed that institutions appear to be active around the period of the corresponding bond being put on the watchlist and leading up to the actual bond rating adjustment. At the very least, they appear to be able to process information more efficiently compared to the non-institutional investors. Institutions buy (sell) the company's shares after the release of good (bad) news. In this section, we examine if institutions can make economic profits from such stock trading strategies. To do so, we rely on the institutions' actual stock execution prices and shares transacted at those prices in order to evaluate the actual profits that would be earned by them.

The institutional trading data allows us to track trades by each institution throughout credit watch placement, transition period and actual bond rating changes. Following the approach used by Irvine, Lipson and Puckett (2007), we derive the actual gains and losses associated with establishing their stock positions at the beginning of the credit watch event period up until the end of actual rating change event period (Day 0). We then acknowledge any gains over the subsequent holding period by applying CRSP returns to the net position at three different points in time.[14]

Table 5 presents institutions' stock trading profits derived from initiating positions at the beginning of credit watch placement event period for our linked sample, and at the beginning of bond rating change event in the case of rating changes without prior credit watch (the unexpected rating change sample). In the case of the linked sample on a negative watch and subsequent bond downgrade, institutions' cumulative trading profit when they (a) sell stocks around the corresponding bonds being put on negative watch, (b) during the transition period as well as (c) over the day of the bond rating downgrade (day 0) and (d) the resultant liquidation of any open position at the end of trading on day 0, averages to 4% and is economically and statistically significant. There is no evidence of an increase in institutional trading profit after this period which suggests that the market is fully adjusted to the information inherent in the credit rating information. Institutions also profit from shorting the stock around unexpected downgrades. Following such a strategy, their profit is +2.04% at the end of the trading period. For the linked sample of positive watch and bond upgrade, the trading profit is small but statistically significant, ranging from 0.37% to 1.13%. We find that a simple

[14] Specifically, we assume that the initial position for all institutions before the announcement date to be zero and compute the realized gains and losses during the trading window based on actually executed prices. For example, if an institution buys 100,000 shares on day -3 at $10 and subsequently sells 40,000 shares at $12 on day -2, the realized profit is $80,000 (=40,000 x $2). Next, we mark to market the net position at the end of the trading period. If the price is $11 at the end of day -1 then the unrealized profit during the trading window is $60,000 (=60,000 x $1). Finally, we take into consideration any gains or losses subsequent to the accumulation period. Thus, if the cumulative returns are 1% over the next 5 days, the total profit is $140,600 (=$80,000 + $60,000 + $600). We express the trading profit as a fraction of the position established at the end of day -3: $140,600/ (60,000 x $11) = 21.3%.

strategy of buying the underlying shares around the corresponding bond being upgraded does not yield significant trading profits for the institutions.

[Insert Table 5 about here]

5. Robustness

5.1 Alternative benchmark index and model specifications

Our findings on abnormal returns (reported in Table 2) are based on value weighted market averages. To verify that our findings on market reactions to credit watch placements and bond rating changes are robust to alternative benchmark indices and estimation methods, we repeat the all analyses using standardized CARs, the equally weighted market index and a matched firm approach by size, industry and volatility. The choice of the benchmark index and model specifications does not alter the significance of our results. For example, the market reactions at credit watch placements using standardized CARs remain large and statistically significant (-0.31 and +o.11 for negative watch and positive watch, respectively). Using the matched firm approach, the market reactions at negative (positive) credit watch placements are statistically significant (-6.14% and +1.32% for negative watch and positive watch, respectively). Likewise, the overall market reactions are both economically meaningful and statistically significant (-14.46% and +2.05% for linked samples of Negative Watch/Downgrade and Positive Watch/Upgrade, respectively).

5.2 Alternative Benchmark Periods

Our calculation of abnormal trading imbalance (reported in Table 4) is calculated as the raw trading imbalance in an event period relative *both* pre and post announcement periods. To ensure that our results are robust to alternative benchmark periods, we repeat our analysis using only the pre or post benchmark periods. Results, not reported here for brevity, show that key findings are qualitatively the same but generally stronger using the post benchmark period. For example, the abnormal trading imbalance at negative watch announcements using the pre (post) benchmark period is -1.92 (-2.23). Similarly, the overall abnormal trading imbalance using pre (post) benchmark period is -5.91 (-9.31).

5.3 Contaminated versus Noncontaminated Sample

All the main results reported in the paper are based on a sample of noncontaminated rating announcements. While this approach is conservative and is consistent with the extant literature in classifying bond rating announcements as a result of change in credit quality, we notice that doing so eliminates a significant number of credit watch and bond rating announcements. To ensure that our earlier results are not unduly influenced by excluding the announcements associated with other news, we repeat out key tables without this restriction. We expect that the results with the contaminated sample will be stronger than the one with only the noncontaminated sample since it includes the impact of other news items which are generally expected to impact the stock in the same direction as that implied by the credit watch announcement.[15] Consistent with our expectation, Results show that abnormal returns for credit watch announcement as well as overall market reaction using both contaminated and noncontaminated sample are generally stronger than our reported results with the noncontaminated sample.

6. Conclusion

We examine institutional equity trading behavior around the period of the underlying companies' bonds being put on Moody's watchlist prior to their rating adjustment. We do so using an extensive database of credit watch placements and the subsequent bond rating changes over an eight year period. We approach the problem from two different perspectives. On the one hand, we examine the abnormal stock returns of the corresponding companies over the two windows associated with the bond being included on the credit watchlist and its subsequent rating change. On the other hand, we also examine the stock trading pattern of institutional investors over the same two periods in order to better understand the role of informational transmittal in financial markets since there is a voluminous literature documenting the role of institutions as informed traders.

We show that the act of being put on a credit watchlist is, in itself, an informative

[15] For example, if a company announces lower than expected earnings and on the same day Moody's puts the company on a negative watchlist, the market reaction is likely to be higher since market reacts adversely to 'both the earnings news and the negative watch.

event. We also provide a potential explanation for a finding reported in the literature that the event of an actual bond upgrade is associated with a small abnormal return. In fact, we demonstrate that the same sample is associated with a large 7-day stock CAR of almost 3% around the event of being included on the watchlist. Hence, we argue that the actual information assimilation occurs around the corresponding bond being included on the watchlist and not around the actual event of the bond upgrade itself. Institutions also appear to be active stock traders around the corresponding bonds being placed on credit watch with the highest activity occurring around the bond being included on a negative watchlist. More importantly, institutional stock trading activity around the bond being included on credit watch is significantly greater than that of around the event of the actual bond rating change itself which lends further credence to watchlist event being the true information event – more so than the event of the bond rating change. Furthermore, upon computing institutional trading profits based on their stock trading strategies, we show that such profits are statistically and economically significant when they: (1) sell (buy) at positive watches (unexpected bond upgrades) and (2) sell at negative watches and bond downgrades. In sum, we conclude that being included on the credit watchlist is a significant information event and one that should be focused on by researchers, practitioners and policy makers, rather than the event of the actual bond rating change itself.

One issue that is revealed in the current research is that about 50% of the bond downgrades and 64% of bond upgrades are not preceded by their inclusion on credit watch. This naturally leads to questions like: What are the determinants of credit watch (either positive or negative)? Why are some bond ratings changes preceded by their inclusion on credit watch while a lot of the ratings changes are not? Are the same drivers driving inclusion in both the positive and negative direction? While the answers to these questions are outside the scope of the current study, it should form the basis of an interesting future study.

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Table 1 Summary Statistics of Credit Watch Placements and Bond Rating Changes

This table presents the number of credit watch placements and bond rating changes by calendar year as well as the number of credit watch placements and bond rating changes based on credit watch resolution. Data on Moody's credit watch placements and bond ratings is obtained from Moody's Corporate Default Risk Service (DRS) database. The analysis covers time period from January 1997 to September 2004. Panel A reports total number of credit watch placements and bond rating changes by calendar year. Positive (Negative) Watch occurs when bond is placed on review for possible upgrade (downgrade). Bond Upgrade (Downgrade) refers to actual credit rating change. Panel B reports linked sample of credit watch placements and bond rating changes. Linked sample is defined based on the resolution of credit watch. Positive-Upgrade (Negative-Downgrade) is defined as if bond is Upgrade (Downgrade) follows the placement of Positive (Negative) Watch. No Rating Change is defined as Credit Watch follows by no change of rating.

Panel A Credit Watch Placements and Bond Rating Changes by Calendar Year

	Credit Watch			Bond Rating		
Year	Negative Watch	Positive Watch	Total	Bond Downgrade	Bond Upgrade	Total
1997	43	25	68	101	101	202
1998	63	42	105	131	92	223
1999	86	29	115	149	90	239
2000	111	23	134	155	56	211
2001	137	21	158	253	94	347
2002	143	22	165	233	51	284
2003	102	62	164	144	95	239
2004	51	47	98	96	115	211
Total	736	271	1,007	1,262	694	1,956

Panel B Credit Watch Resolution

Credit Watch / Bond Rating	Credit Watch	Bond Rating
Negative/Downgrade	628	628
Negative/No Rating Change	108	
No Credit Watch/Downgrade		634
Total Credit Watch and Bond Rating	736	1262
% of Negative Credit Watch follow by Downgrade	*85.33%*	
% Negative Watch to Total Downgrade		*49.76%*
Positive/Upgrade	248	248
Positive/No Rating Change	23	
No Credit Watch/Upgrade		446
Total Credit Watch and Bond Rating	271	694
% of Positive Credit Watch follow by Upgrade	*91.51%*	
% Positive Watch to Total Upgrade		*35.73%*

Table 2 Cumulative Abnormal Returns

The table reports cumulative abnormal returns (CARs). CAR is defined as stock return minus the contemporaneous return on the value-weighted market portfolio. The first row presents CARs for linked sample of credit watch placements and bond rating changes (Negative Watch/Downgrade and Positive Watch/Upgrade) for event window of credit watch placement (-3 to 3, where day 0 denotes the day of the credit watch placements), during the interim, or transition, period and event window of bond rating changes (-3 to 3, where day 0 denotes the day of the bond rating changes). The second row presents CARs for downgrade/upgrade without prior credit watch (No Credit Watch/Downgrade and No Credit Watch/Upgrade) for event window of bond rating changes (-3 to 3, where day 0 denotes the day of the bond rating changes). The last column reports overall impact which includes CARs for all three event periods (Credit Watch, Transition Period and Rating Change) for linked sample and only rating change period for upgrade/downgrade without prior credit watch. T-statistics, the test of whether the mean is different from zero, is presented in parenthesis below the CARs. The last row reports the difference and test statistics of CARs between overall impact of rating actions for linked sample (Row1) and overall impact of rating change without prior credit watch placement (Row2). *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Negative Watch and Bond Downgrade

Credit Watch / Bond Rating	**Obs**	**Cumulative Abnormal Return (%)**			
		Credit Watch	**Transition Period**	**Rating Change**	**Overall Impact**
Negative Watch / Downgrade	628	-6.31% ***	-1.25%	-4.91% ***	-12.47% ***
		(8.60)	(0.99)	(6.49)	(7.59)
No Credit Watch / Downgrade	634			-7.00% ***	-7.00% ***
				(7.80)	(7.80)
All Negative Watch/ Downgrade	1262			-5.96% ***	-9.81% ***
				(10.14)	(10.35)
Diff (Overall Impact With and Without Credit Watch)					-5.47% ***
					(2.98)

Positive Watch and Bond Upgrade

Credit Watch / Bond Rating	**Obs**	**Cumulative Abnormal Return (%)**			
		Credit Watch	**Transition Period**	**Rating Change**	**Overall Impact**
Positive / Upgrade	248	1.33% **	1.79% **	0.59% *	3.71% ***
		(2.19)	(2.13)	(1.70)	(3.43)
No Credit Watch / Upgrade	446			0.79% **	0.79% **
				(2.44)	(2.44)
All Positive Watch / Upgrade	694			0.72% ***	1.83% ***
				(2.97)	(4.15)
Diff (Overall Impact With and Without Credit Watch)					2.92% **
					(2.59)

Table 3 Institutional Trading around Credit Watch Placement and Bond Rating

The table presents summary information of institutional trading changes for event windows of credit watch placement (-3 to 3, where day 0 denotes the day of the credit watch placements), during the interim, or transition, period and event window of bond rating changes (-3 to 3, where day 0 denotes the day of the bond rating changes). The last column reports overall institutional trading which includes all trading activity for all three event periods (Credit Watch, Transition Period and Rating Change) for linked sample and only rating change period for upgrade/downgrade without prior credit watch. Total Share Volume is the total share volume of institutions from Abel Noser Corp. Volume (Shares) Adjusted is share volume normalized by CRSP daily trading volume (number of share outstanding).

Negative Watch and Bond Downgrade

Credit Watch / Bond Rating	Trading Measures	Credit Watch	Transition Period	Rating Change	Overall Trading
Negative Watch / Downgrade	Shares Volume	3,193,156	17,018,442	3,217,502	23,429,100
	Volume Adjusted	0.20	0.23	0.19	0.23
	Shares Adjusted	1.73	1.09	1.27	1.18
No Credit Watch / Downgrade	Shares Volume			1,077,873	1,077,873
	Volume Adjusted			0.21	0.21
	Shares Adjusted			1.03	1.03

Positive Watch and Bond Upgrade

Credit Watch / Bond Rating	Measure	Credit Watch	Transition Period	Rating Change	Overall Trading
Positive Watch / Upgrade	Shares Volume	2,950,469	17,242,507	2,489,839	22,682,815
	Volume Adjusted	0.17	0.17	0.17	0.17
	Shares Adjusted	0.99	0.94	0.90	0.93
No Credit Watch / Upgrade	Shares Volume			1,308,423	1,308,423
	Volume Adjusted			0.20	0.20
	Shares Adjusted			0.94	0.94

Table 4 Abnormal Trading Imbalance

The table reports abnormal trading imbalance by institutions. Trading imbalance is the difference between the number of shares bought and sold by institutions, over a given window, obtained from the Abel Noser database of institutional trading, standardized by the total number of shares outstanding. Abnormal trading imbalance is the trading imbalance in an event period relative to the benchmark period. Benchmark period is defined as the combined pre-event period (-80 to -61 days before a bond is put on the Watchlist) and post-event period (61 to 80 days after the actual bond rating change). The first row presents abnormal trading imbalance for linked sample of credit watch placements and bond rating changes (Negative Watch/Downgrade and Positive Watch/Upgrade) for event window of credit watch placement (-3 to 3, where day 0 denotes the day of the credit watch placements), during the interim, or transition, period and event window of bond rating changes (-3 to 3, where day 0 denotes the day of the bond rating changes). The second row presents abnormal trading imbalance for downgrade/upgrade without prior credit watch (No Credit Watch/Downgrade and No Credit Watch/Upgrade) for event window of bond rating changes (-3 to 3, where day 0 denotes the day of the bond rating changes). The last column reports overall impact which includes abnormal trading imbalance for all three event periods (Credit Watch, Transition Period and Rating Change) for linked sample and only rating change period for upgrade/downgrade without prior credit watch. T-statistics, the test of whether the mean is different from zero, is presented in parenthesis below the abnormal trading imbalance. The last row reports the difference and test statistics of abnormal trading imbalance between overall impact of rating actions for linked sample (Row1) and overall impact of rating change without prior credit watch placement (Row2). *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Negative Watch and Bond Downgrade

Credit Watch / Bond Rating	Obs	Abnormal Trading Imbalance			
		Credit Watch	Transition Period	Rating Change	Overall Impact
Negative Watch / Downgrade	628	-2.08 ***	-4.95 **	-0.76	-7.79 ***
		(2.83)	(2.43)	(1.47)	(2.82)
No Credit Watch / Downgrade	634			-1.57 **	-1.57 **
				(2.27)	(2.27)
All Negative Watch/ Downgrade	1262			-1.17 ***	-4.67 ***
				(2.70)	(3.47)
Diff (Overall Impact With and Without Credit Watch)					-6.22 **
					(2.31)

Positive Watch and Bond Upgrade

Credit Watch / Bond Rating	Obs	Abnormal Trading Imbalance			
		Credit Watch	Transition Period	Rating Change	Overall Impact
Positive Watch / Upgrade	248	-0.22	3.79 **	0.09	3.66 *
		(0.56)	(2.19)	(0.29)	(1.78)
No Credit Watch / Upgrade	446			0.72 *	0.72 *
				(1.73)	(1.73)
All Positive Watch / Upgrade	694			0.49 *	1.77 **
				(1.71)	(2.26)
Diff (Overall Impact With and Without Credit Watch)					2.94
					(1.40)

Table 5 Trading Profit

The table reports trading profits of institutions' trades derived from initiating positions at the beginning of credit watch placement event period for linked sample of Negative Watch/Downgrade and Positive Watch/Upgrade and at the beginning of bond rating change event period for the sample of No Credit Watch/Downgrade and No Credit Watch/Upgrade until the end of bond rating change event period (Day 0). We then acknowledge any gains over the subsequent holding period by applying CRSP returns to the net position at three different points in time (Day5, Day10 and Day30). *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

	Trading Profit			
Credit Watch / Bond Rating	**Day 0**	**Day 5**	**Day 10**	**Day 30**
Negative Watch / Downgrade	3.95 ***	3.85 ***	3.92 ***	3.89 ***
No Credit Watch / Downgrade	2.04 ***	1.75 ***	2.19 ***	1.82 ***
Positive Watch / Upgrade	0.71 ***	1.13 ***	0.37 **	0.62 ***
No Credit Watch / Upgrade	-0.05	-0.09	0.01	-0.59 ***

Figure 1 Cumulative Abnormal Returns and Abnormal Trading Imbalance

Figure 1a shows daily abnormal return and abnormal trading imbalance over the window (-60,+60) around Negative Watch/Bond Downgrade. Figure 1b shows daily abnormal return and abnormal trading imbalance over the window (-60,+60) around Positive Watch/Bond Upgrade. Daily abnormal return is defined as stock return minus the contemporaneous return on the value-weighted market portfolio. Abnormal imbalance is the trading imbalance, defined as difference in number of share buy and sell obtained from the Abel-Noser database of institutional trading, standardized by the total number of shares outstanding minus the benchmark trade imbalance.

Figure 1a Negative Watch and Bond Downgrade

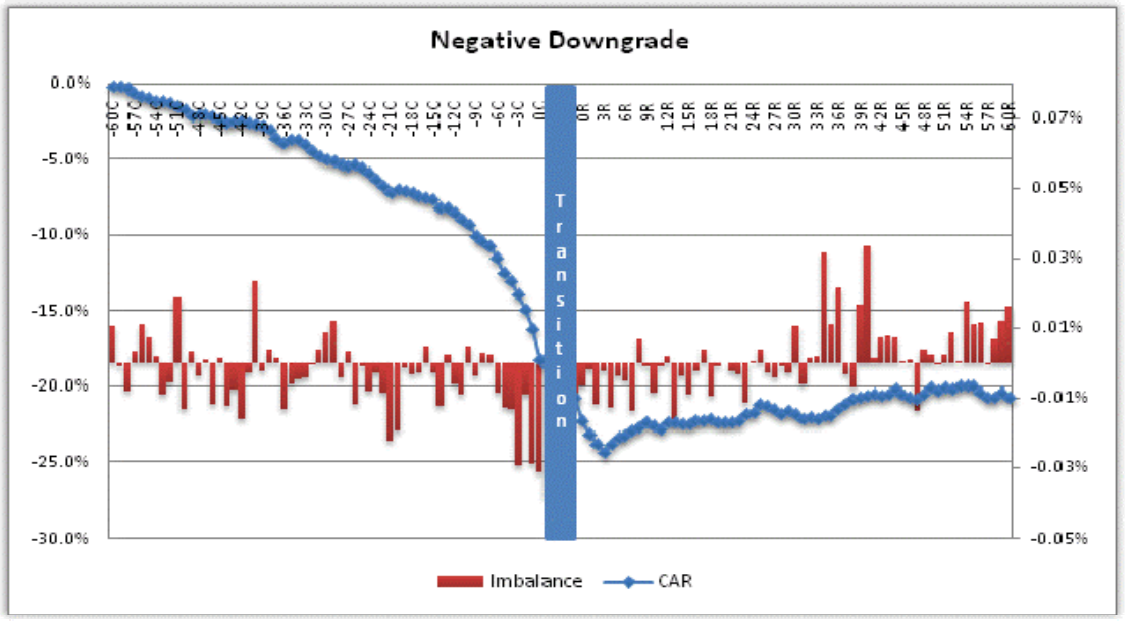

Figure 1b Positive Watch and Bond Upgrade