Bank analysts and bank rating agencies: Who knows what when?

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Abstract

This paper compares the timeliness of rating agency assessment of bank condition against analyst evaluations of U.S. banking firms. We focus on the interactions of rating agency's watch/outlook announcements and actual rating changes with analyst earnings forecast revisions. Our results show that analysts react more strongly to actual rating changes than to watch and outlook announcements. Furthermore, negative watch and outlook announcements have more significant impact on analyst forecasts than positive watch and outlook announcements. We also find that the informational content of negative watches/outlooks is higher for more opaque banks and that downgrades bring more information to analysts for small banks. Finally, the enforcement of the Fair Disclosure Act has improved the informational content of downgrades.

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1. Introduction

In all countries, banks play a central role regarding the stability of the financial system. The most striking feature of the financial environment in the past three decades is the increasing number of banking crises around the world. Many of these crises are the result of excessive growth in bank credit and failure of internal and external governance of financial institutions. The policy response, so far, has been the implementation of sound regulatory and supervisory policies. However, there are concerns that important factors affecting bank instability might be omitted. The aim of this paper is to assess the evaluation of bank conditions focusing on external governance mechanisms such as the information role of rating agencies and financial analysts.

Both bond rating agencies and stock analysts play an important role in monitoring financial institutions and communicate their findings and opinions to investors. Since their spring up, ratings have been heavily used by market participants and regulators. Analysts' earnings forecast are also considered as an important source of information for market participants. However, the effectiveness of the credit rating system and bank analysts during the subprime crisis is a much debated subject. It may be argued that they understated the risk involved with complex securities in the recent crisis caused by banks that took too much risk in mortgage lending. Despite holding a monopoly in the credit rating market, the major credit agencies seemed to have failed to respond swiftly enough to downgrade mortgage-backed securities that included subprime loans in their mortgage pools. Bank analysts also offered earnings forecasts to investors based on their evaluations but very few analysts provided timely information regarding the threat of a credit crisis posed to the global banking system in 2008.

An important regulatory aspect is therefore how to enhance bank monitoring and ensure that credit rating agencies and analysts as well as market participants in general are more responsive. In this paper, we examine what information credit ratings agencies and stock analysts provide and when. This is important to better understand the relative ability of credit rating agencies and stock analysts to monitor banking firms. One way to distinguish whether rating agencies and stock analysts have different information about bank condition is to evaluate the relative ability of rating agencies and stock analysts to obtain timely information about the condition of banking firms.

In this paper, we compare the monitoring roles of stock analysts and rating agencies by examining analysts' forecasts of future earnings around rating changes from three rating agencies (Fitch, Moody's and Standard & Poor's) over the 1990-2010 period. We evaluate the relative timeliness through the concept of Granger-causality, which tests the marginal ability of rating changes to predict analyst earnings forecast.

We contribute to the literature by taking into account the information content of watch/outlook announcements in addition to actual rating changes. Indeed, to avoid criticism of the timeliness in making rating changes, rating agencies have created credit watch or outlook announcements to provide information to investors about potential changes in default risk prior to a possible rating change. One major purpose of these watch/outlook announcements is to ease the tension between the market expectation of rating stability and the market demand for rating timeliness (Altman and Rijken, 2006). When a company is listed on creditwatch or outlook, it is typically listed with either a positive or a negative potential. In a listing with positive potential, the rating of the company will usually be eventually upgraded or affirmed (i.e. unchanged), and the rating is rarely downgraded. Similarly, in a listing with negative potential, the rating of the company will usually be eventually downgraded or affirmed, and the rating is rarely upgraded. We determine in this paper whether watch/outlook announcements improve the timeliness of the information provided by rating agencies and whether rating agencies convey information on changes of bank financial health before/after bank analysts.

In addition, we go further by analysing whether the reaction of bank analysts to rating changes or watch list announcements might be different depending on individual bank opacity. We therefore determine whether analysts and rating agencies are equally able to monitor opaque institutions. To measure opacity, several indicators, such as the coefficients of determination from asset pricing model and the size of the bank are considered (Haggard and Howe, 2009).

A related issue concerns the regulation of corporate information such as the Regulation Fair disclosure act. Regulation Fair Disclosure (FD) was adopted by the Securities and Exchange Commission on August 10, 2000. Aimed at curbing the selective disclosure of material non-public information by issuers to analysts and institutional investors, Regulation FD requires that when an issuer discloses material information, it does so publicly. However, this restriction on material information disclosure does not include disclosure of information to rating agencies. Therefore, we expect that analysts should response more to rating agencies information after the enforcement of Regulation FD.

The remainder of the paper is structured as follows. Section 2 details the literature review on the information content of ratings and analyst forecasts. The data are discussed in Section 3. Section 4 presents and discusses the empirical results. Section 5 concludes the paper.

2. Literature review

Previous studies of analysts' earnings forecasts have found that the market reacts to both upward and downward revisions in analysts' earnings forecasts (Givoly and Lakonishok (1984), Lys and Sohn (1990), Stickel (1991), and Pinello (2008)). It has also been observed that upward (downward) revisions in these forecasts tend to occur after firms have experienced positive (negative) abnormal returns (e.g., Lys and Sohn (1990), Abarbanell (1991), and Chan, Jegadeesh, and Lakonishok (1996)).

The role of credit rating agencies and their contributions to all market participants is also of great importance given the lesson we learned from the current credit crisis. Fundamental issues on rating agencies center on whether they convey new and timely information to market participants. Ferri, Liu and Stiglitz (1999) and Reinhart (2001) find that rating changes are procyclical, which implies that they only provide limited amount of new information to the market. However, Goh and Ederington (1993), Ederington and Goh (1998), Dichev and Piotroski (2001) and Purda (2007) find that rating downgrades do provide new information to the market.

Rating agencies are often criticized for the lack of timeliness of their ratings (Association for Financial Professionals, 2002) or conflicts of interest (Bolton et al., 2012). This lack of timeliness might be explained by their willingness to issue stable ratings that is to focus on permanent rather than transitory credit risk (Altman and Rijken, 2004). Nevertheless, Cheng and Neamtiu (2009) show that rating agencies have improved rating timeliness and accuracy. To avoid criticism on the timeliness in making rating changes, rating agencies have created credit watch and outlook announcements which provide information to investors about potential changes in default risk prior to a possible rating change. One major purpose of these watch/outlook announcements is to ease the tension between the market's expectation of rating stability and the market's demand for rating timeliness (Altman and Rijken, 2004). Holthausen and Leftwich (1986) examine the information content of firms' rating changes which are preceded by credit watch announcements. Significant abnormal returns are associated with announcements of additions to the Credit Watch

List, if either a potential downgrade or a potential upgrade is indicated. Norden (2011) finds that rating changes and watchlist announcements have a significant impact on firm's credit default swap rates. Bannier and Hirsch (2010), considering Moody's ratings for US companies, find that after the introduction of the watchlist instrument, rating downgrades lead to stronger market reactions than in the pre-watchlist period. Besides, their work confirms the initial statement by Moody's that rating changes for issuers placed on the watchlist are different from those not preceded by a review procedure. Norden and Weber (2004) find that both the stock market and the CDS (credit default swap) market anticipate not only rating downgrades but also watch list announcements. The magnitude of abnormal performance in both markets is influenced by the level of the old rating, previous rating events and, only on the CDS market, by the pre-event average rating level delivered by all the agencies.

However, very few studies focus on the impact of watch list announcements on the information conveyed by rating agencies. Moreover, the issue of how rating agencies interact with bank analysts to produce and convey information on banks is challenging. Indeed, modern banking theory considers that, compared to other firms, banks are inherently opaque institutions. As such, the ability of rating agencies and financial analysts to accurately monitor banks is questionable.

The Regulation Fair Disclosure act, which was implemented on October 23, 2000 in the USA, prohibits U.S. public companies from making selective, nonpublic disclosures to favored investment professionals. However, disclosure of nonpublic information to credit rating agencies is an exclusion of this act. As a result, credit analysts at rating agencies have access to confidential information that is no longer made available to equity analysts, potentially increasing the information content of credit ratings. Jorion, Liu and Shi (2005) examine the effect of credit rating changes on stock prices and find that the informational effect of downgrades and upgrades is much greater in the post-FD period.

3. Data

Our sample of banks consists of 164 US listed banks for which rating information by Fitch, Moody's, or Standard & Poor's is available as well as earnings analysts forecasts on the 1990-2010 period.

We collect bond rating changes and watch/outlook events by Fitch, Moody's and Standard & Poor's from Fininfo. We focus on both long term and short term debt ratings. Analyst forecasts are

extracted from I/B/E/S and market information from CRSP. We depart from a broad sample of downgrades, upgrades and watch/outlook. We restrict our sample to ensure that we only consider clean events by proceeding in several steps. First, we delete rating/watch/outlook events following another rating event within six months, regardless whether they are from the same credit rating agency or not. Second, we delete bank rating changes if they occurred at the same time when there is a country rating change and make sure that rating changes in our sample are not due to a change in the country rating.

We separate the rating information into two cases: case 1 is watch/outlook announcements and case 2 is actual rating changes. We obtain a total of 671 rating changes and watch/outlook announcements. There are 205 negative and 135 positive watch/outlook announcements and there are 163 downgrades and 168 upgrades. Table 1 presents summary statistics on the rating events.

[Insert Table 1 here]

We retrieve from I/B/E/S tapes earnings forecasts surrounding these rating changes and watch/outlook announcements. We measure the revision during month t of forecasts of bank *i*'s earnings, $FR_{i,t}$, as the change in the consensus forecast of earnings per share deflated by the stock price. Specifically,

$$FR_{i,t} = \frac{\left(F_{i,t} - F_{i,t-1}\right)}{P_i^*} * 100 \qquad (1)$$

where $F_{i,t}$ is the median analyst earnings forecast (from I/B/E/S) as of month t of bank i's annual earnings per share for the current fiscal year, and P_i^* is the price per share six months prior to the rating revision.[2] Since previous studies (Payne and Thomas, 2003) have shown that the I/B/E/S tapes contain data errors, we winsorize analyst earnings forecast at the 0.01 and 0.99 levels in our sample.

[2] Following Ederington and Goh (1998), we normalize the earnings forecasts using the price six months prior to the forecast revision to avoid picking up price changes caused by the earnings forecast revisions during our observation period. $F_{i,t}$ and $F_{i,t-1}$ are always for the same fiscal year.

4. Empirical Analysis

4.1. The Market Reaction to Watch/outlook Announcements and Actual Rating Changes

We first conduct a standard event study of the market reaction to a rating change or watch/outlook announcement in order to compare analysts reactions with the reaction of investors. Table 2 presents the stock market's response to rating events. Following Ederington and Goh (1998), we use a post rating event period to estimate a market model for each bank. Abnormal returns are calculated using a market model estimated over the period (day +60 through +315) where 0 is the day rating agencies announce the rating event. Indeed, previous studies have shown that downgrades tend to occur after other bad news and when the firm's stock has been doing poorly. These market models are estimated using an equally weighted market index and abnormal returns are defined in the usual manner by subtracting the expected return implied by the estimated market model from the daily return for bank *i*.

[Insert Table 2 here]

Panel A in Table 2 shows the abnormal returns and cumulative abnormal returns during the twenty day windows for watch/outlook announcements (case 1). Results indicate that the stock market reacts more significantly to negative watch/outlook announcements than positive watch/outlook announcement of rating agencies. For negative watch/outlook, the (-45, -1) CAR is -6.81% with z = -6.42, while the (2,45) CAR is -3.51% with z = -4.7, indicating that the market receives negative information before negative watch/outlook, but that these announcements also bring some new information to the market.

The results for positive watch/outlook show that rating agencies react to information that the market has already impounded in prices. Indeed, (-45, -1) CAR is 3.71% with z = 11.86, while the (2,45) CAR is not significant, indicating that the market has been receiving positive news about the bank prior to most positive watch/outlook announcements. The reaction of the market after the positive watch/outlook event do not last long after the announcement as only the (0,1) CAR is significant at the ten percent level and is weak (CAR is 1.12%).

The results for actual rating downgrades and upgrades (case 2) are reported in Panel B. Consistent with earlier studies, we observe a significant negative stock market reaction to downgrades. For downgrades, the one-day AR is -1.93% with z = -2.56. 67.39% of the abnormal

returns over this one-day period are negative, which is significantly different from 50% at the 0.05 level. Besides, the (2, 45) CAR is -2.51% with z = -2.97. These results show that the market views most downgrades as informational events. Like earlier studies, we also observe significant negative abnormal returns prior to downgrades. The (-45, -1) CAR is -3.00% with z = -3.81, indicating that the market has been receiving other negative news about the bank prior to most downgrades.

In the case of upgrades, consistent with previous studies, we observe that the market has obtained positive information before the upgrade as the (-45, -1) CAR is significant and positive (5.76). Thus, it confirms that bond rating agencies are reacting to information that the market has already impounded in prices. However, contrary to positive watch/outlook, upgrades also bring new information to the market as the (2, 45) CAR is also significantly positive (3.35%).

Thus, both negative watch/ outlook and downgrades and upgrades bring new information to the market. Only positive watch/ outlook are not informative and based on information already impounded in market prices.

4.2 Granger Causality between Rating Changes and Analysts' Earnings Forecasts.

We complete our analysis by testing Granger causality between rating changes and analysts' earnings forecasts revisions. Table 3 reports mean values of earnings forecast revisions from 3 months before a rating event through 3 months after.

Panel A in Table 3 shows large and significant negative revisions in analysts' earnings forecasts both prior to and after negative watches/outlooks, while there is no significant pattern either before or after positive watches/outlooks. Panel B in Table 3 provides the results for actual downgrades and upgrades. The patterns are similar to those presented in Panel A in Table 3: only negative rating information (downgrades) have significant effects on analysts' earnings forecasts. These results show that analysts do care about negative watches/outlooks as well as they care about the actual rating downgrades. However, the absolute mean revision in median analyst forecast is higher for actual rating changes than for watch/outlook events.

The significant negative forecast revisions observed after negative rating events imply that downgrades and negative watch/outlook announcements Granger cause negative forecast revisions. It means that downgrades and negative watch/outlooks bring new information about the bank's future earnings to stock analysts. The significant negative forecast revisions observed before negative rating events imply that forecast revisions also Granger cause negative rating events.

Thus, downgrades and negative watch/outlooks are partially a response to information that the market and analysts already have but also bring them new information.

For positive rating events, they do not Granger cause forecast revisions. Thus, earnings analysts do not view upgrades nor positive watches/outlooks as providing new information. Besides, there are no significant forecast revisions in the three preceding months implying that rating agencies may be reacting to information that analysts knew more than three months before. This might be explained by the fact that rating agencies expend more resources in detecting deteriorations in credit quality than improvements.

[Insert Table 3]

4.3 Response of earnings analysts to rating events according to bank opacity

Following Ederington and Goh (1998), we complete our analysis by using Granger causality regressions to test whether analyst forecast revisions react to rating events. We consider not only analysts' reactions to credit rating changes announcements, but also their reactions to watch and outlook announcements.

We estimate:

$$FR_{i,t} = \alpha_0 + \alpha_1 FR_{i,t-1} + \alpha_2 FR_{i,t-2} + \sum_{j=1}^{5} \beta_j Dpos_{i,t-j} + \sum_{j=1}^{5} \gamma_j Dneg_{i,t-j} + e_{i,t} \qquad (2)$$

where $Dpos_{i,s}$ = 1 if a positive watch/outlook (in case 1) or an upgrade (in case 2) is announced for bank *i* in month *s* and zero otherwise, $Dneg_{i,s}$ = 1 if a negative watch/outlook (in case 1) or a downgrade (in case 2) is announced for bank *i* in month *s* and zero otherwise.

Several features have been documented in previous studies (Ederington and Goh (1998), Chan, Jegadeesh, and Lakonishok (1996)): analysts tend to be excessively optimistic initially and lower their forecast as the earnings release date approaches which implies negative forecast revisions, and forecast revisions tend to be serially correlated as not all analysts update their forecasts each month. The hypothesis that analysts tend to lower their forecasts over time implies $\alpha_0 < 0$, while the hypothesis that the FRs are correlated because only a portion of the analysts update monthly implies $\alpha_j > 0$ for j = 1,2. The hypothesis that upgrades or positive

watches/outlooks Granger cause upward forecast revisions implies $\beta_j > 0$, while downgrades or negative watches/outlooks Granger cause negative earnings forecast revisions implies that $\gamma_j < 0$.

It is also important to investigate whether the results are influenced by the opacity of banks. To measure opacity, we consider several criteria. First, we use the coefficients of determination from a standard market model as a proxy for the opacity of the bank (Haggard and Howe (2009)). We regress individual bank returns on market returns and obtain R-squared for each bank. Banks with more firm-specific information in their returns exhibit lower R-squared. Thus, lower R-squared indicates lower opacity. We construct two sub-samples on the basis of the median value of R-squared of the regressions and estimate equation (2) separately on these two sub-samples. Banks with higher than median R-squared are considered as more opaque than firms with lower than median R-squared. Second, we use bank size as another proxy of bank opacity. We posit that small banks are more opaque than large banks. We define small banks as banks with total assets lower than the median value of total assets in our sample of banks.

We still separate the sample into watches/outlooks (case 1) and actual downgrades/upgrades (group 2) and conduct Granger-causality regressions to test the response of analysts to rating information. Results for different bank opacity measures are provided in Tables 5 to 6.

Table 4 shows the results using R-squared as an opacity proxy in the regression. As expected, $\alpha_j > 0$ confirms that analysts tend to be slow in revising their forecasts. The results for the watches/outlooks (case 1) indicate that negative watches/outlooks dummy variables are significant for more opaque banks at time intervals (t-1 to t-3) while it is not for less opaque banks. This indicates that negative watches/outlooks bring new information to analysts for more opaque banks. Positive watches/outlooks dummy variables are not significant for more opaque banks and only one dummy variable is significant for less opaque banks but the coefficient associated has the wrong sign. These results confirm that positive watches/outlooks do not bring new information to analyst.

The results for the actual rating changes (case 2) show that upgrades dummy variables are not significant whatever the opacity of the bank. Downgrades dummy variables are significant with the associated coefficient presenting the expected sign for less opaque banks at time intervals (t-1) and (t-3 to t-5). Besides, the impact of downgrades on forecast revisions is higher than the

one of negative watches/outlooks. However, for more opaque banks, the downgrades dummy variables at time (t-2) and (t-4) are significant but with an unexpected positive coefficient.

Table 5 provides results with bank size as an opacity measure. We posit that banks with small size are more opaque than large banks. Results in Table 6 also indicate that positive Watches/outlooks or upgrades dummy variables are not significant whatever the opacity of the bank. Negative watches/outlooks dummy variable are not significant whatever the size of the bank but downgrades dummy variables are significant only for small banks at time (t-3 to t-5). This indicates that downgrades bring information to analysts for small banks that can be considered as more opaque.

[Insert Tables 4 and 5 here]

4.4 Impact of the Fair Disclosure act on the response of earnings analysts to rating events

We study the impact of the Fair disclosure act on the informational content of rating events for analysts before and after the enforcement of this act. Because disclosure of non public information to credit rating agencies is an exclusion of this act, we expect that rating information will have a stronger impact on analyst forecast revisions after the enforcement of the Regulation Fair Disclosure act. Table 6 provides results obtained in case 2[3] for two sub-samples covering the pre- enforcement and post-enforcement periods of the Fair disclosure act that took place in November 2000. As expected, the results presented in Table 7 show that downgrades have a more significant impact on analyst forecast revisions after the enforcement of the Regulation Fair Disclosure act: 4 out of the 5 downgrades dummy variables are significant after FD and only 2 before. Besides, the coefficients associated with these dummy variables are higher after FD. Thus, the informational content of downgrades for analysts has improved after the enforcement of the Fair Disclosure act.

[Insert Table 6 here]

[3] We only consider case 2, that is rating changes, due to an insufficient number of watches/outlooks in the pre FD period.

4. Conclusion

This paper assesses the timeliness of rating agency assessment of bank condition against analyst earnings forecast of U.S. banking firms. Both rating agencies and stock analysts play an important role in monitoring financial institutions. Very few studies consider the information content of credit watch procedures, which occur before an actual rating change, and their interaction with analyst earnings forecast. We address this gap in the literature by focusing on the interaction of credit watch procedures and analyst earnings forecast at the bank level. Our results show that analysts react more strongly to actual rating changes than to watch and outlook announcements. In addition, concerning watches/outlooks announcements, only negative announcements have a significant impact on analyst forecasts.

We further consider how the analyst reactions to rating information can be affected by the degree of bank opacity. We show that the informational content of negative watches/outlooks is higher for more opaque banks and that downgrades bring more information to analysts for small banks. Besides, the enforcement of the Fair Disclosure Act in November 2000 has improved the informational content of downgrades for analysts.

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Table 1 : Sample description

Case	Negative events	Positive events	total
1(Watch/outlook events)	205	135	340
2(Actual Rating changes)	163	168	331

Table 2: The Market Response to rating Events

Panel A: Case 1 (Watch/outlook events)

Day or Window	Negative Events			Positive Events		
	AR-CAR	t-values	% Positive	AR-CAR	t-values	% Positive
-10	0.41	0.81	60.42	-0.81	-3.06***	26.67***
-9	-0.47	-1.13	37.50*	-1.04	-2.40**	30.00**
-8	0.04	0.07	43.75	0.09	0.29	53.33
-7	-0.26	-0.52	39.58	-0.55	-1.62	46.67
-6	-1.51	-3.15***	31.25***	0.52	1.53	60.00
-5	-0.90	-1.94*	35.42**	-0.31	-0.77	36.67
-4	0.14	0.30	47.92	0.25	0.66	50.00
-3	-0.13	-0.28	39.58**	-0.31	-0.80	46.67
-2	0.14	0.26	50.00	0.00	-0.01	56.67
-1	-0.80	-1.33	52.08	0.88	1.68	50.00
0	0.20	0.30	45.83	1.20	1.60	63.33
1	-0.91	-1.65*	27.08***	-0.08	-0.35	50.00
2	0.27	0.53	48.98	0.06	0.26	56.67
3	-0.38	-0.89	40.82	0.27	0.95	46.67
4	0.12	0.25	55.10	-0.58	-2.31**	36.67
5	-0.69	-1.47	34.69**	0.36	1.26	60.00
6	-0.33	-0.79	48.98	-0.30	-0.77	46.67
7	-0.15	-0.28	51.02	0.29	1.11	60.00
8	-0.64	-1.26	42.86	-0.52	-1.20	43.33
9	0.70	1.32	61.22	-0.41	-1.13	43.33
10	-0.77	-1.72	38.78	-0.48	-1.35	43.33
[0,1]	-0.72	-1.39	36.46***	1.12	2.00*	56.67
[-45, -1]	-6.81	-6.42***	46.20***	3.71	11.86***	48.37***
[2, 45]	-3.51	-4.70***	47.17***	-0.35	-0.95	46.74***

Panel B: Case 2(Actual rating changes)

Day or Window	Negative Events			Positive Events		
	AR-CAR	t-values	% Positive	AR-CAR	t-values	% Positive
-10	1.18	1.94*	54.35	-0.07	-0.30	59.57
-9	0.12	0.21	47.83	0.19	0.85	44.68
-8	0.70	1.10	60.87	0.15	0.64	55.32
-7	-0.22	-0.34	43.48	0.39	1.42	51.06
-6	-0.47	-0.80	50.00	0.31	1.35	59.57
-5	-0.26	-0.44	43.48	0.04	0.12	38.30
-4	-0.44	-0.78	43.48	-0.48	-1.83*	44.68
-3	-0.52	-0.79	41.30	0.37	1.03	53.19
-2	-0.62	-0.84	45.65	0.77	5.79***	70.30***
-1	-0.66	-1.02	36.96*	0.12	0.43	41.30
0	-1.93	-2.56**	32.61**	0.18	0.85	51.11
1	0.78	1.17	55.32	0.05	0.20	56.52
2	-0.01	-0.01	48.94	0.32	1.08	50.00
3	0.60	0.96	53.19	0.02	0.07	47.83
4	-0.60	-0.95	44.68	-0.14	-0.48	50.00
5	-0.37	-0.67	51.06	-0.46	-2.14**	34.78**
6	-0.42	-0.73	31.91**	-0.05	-0.16	50.00
7	0.37	0.64	61.70	0.04	0.22	54.35
8	0.01	0.02	48.94	0.41	2.61**	67.39**
9	0.34	0.69	46.81	-0.21	-0.95	47.83
10	0.35	0.66	57.45	-0.06	-0.19	45.65
[0,1]	-1.12	-1.49	44.09	0.23	1.00	53.85
[-45, -1]	-3.00	-3.81***	46.14***	5.76	11.98***	48.34***
[2, 45]	-2.51	-2.97***	47.00***	3.35	13.42***	50.94***

Note: Using an equally weighted market index, abnormal returns are calculated using a market model estimated over the period (+60, +315) where 0 is the day rating agencies announce the rating change. *, **, *** denote z-statistics which are significantly different from zero at the10%, 5% or 1% levels or ratios of positive abnormal returns which are significantly different from 50% in two-tailed tests.

Table 3: Earnings Forecast Revisions before and after Rating Events

Panel A: case 1 (Watch/outlook events)

Month relative to event	Negative events			Positive events		
	mean	t-value	% Positive	mean	t-value	% Positive
-3	-1.36	-0.67**	21.23%***	-0.09	-0.27	53.07%
-2	-0.95	-1.18***	24.71%***	0.13	0.43	53.95%
-1	-1.23	0.23*	22.42%***	0.13	0.42	57.74%
0	-2.75	-0.96**	21.60%***	0.26	0.77	59.56%**
1	-1.92	-2.04**	25.25%***	-1.00	-1.00	57.25%
2	-2.62	-2.32**	23.75%***	-1.50	-1.27	53.37%
3	-1.43	1.69	36.00%***	-1.47	-1.30	47.25%

Panel B: case 2(Actual rating changes)

Month relative to event	Negative events			Positive events		
	mean	t-value	% Positive	mean	t-value	% Positive
-3	-5.25	-2.42**	20.72%***	2.13	1.72*	59.53%*
-2	-9.11	-2.58**	23.43%***	-0.48	-0.37	48.17%
-1	-2.36	-0.96	24.83%***	-1.44	-1.18	65.30%***
0	-5.69	-2.58**	27.25%***	0.00	-0.02	52.56%
1	-9.40	-2.57**	30.91%***	0.26	1.26	42.91%
2	-2.46	-1.05	30.39%***	-0.07	-1.28	43.71%
3	-3.12	-1.67*	28.41%***	0.06	0.76	51.68%

The mean forecast revision $FR_{it}=\frac{F_{i,t}-F_{i,t-1}}{P_i^*}*100$ is reported where $F_{i,t}$ is the median analyst forecast in month t of earnings per share for the current fiscal year, and P_i^* is the price per share six months prior to the rating revision. *, **, and *** on the t-values denote means that are significantly different from zero at the 10%, 5% and 1% levels, respectively, in two-tailed tests.

Table 4: Regression Tests of whether rating events granger cause earnings forecast revisions – Sub-samples defined according to bank opacity measured by R-Squared obtained for asset pricing model regressions

$$FR_{i,t} = \alpha_0 + \alpha_1 FR_{i,t-1} + \alpha_2 FR_{i,t-2} + \sum_{j=1}^{5} \beta_j Dpos_{i,t-j} + \sum_{j=1}^{5} \gamma_j Dneg_{i,t-j} + e_{i,t}$$

		Case 1			Case 2		
	Exp. sign	Full sample	R_Squared low =low opacity	R_Squared high = high opacity	Full sample	R_Squared low =low opacity	R_Squared high = high opacity
Intercept		*-0.3919** (-2.18)*	*-0.6066 (-1.39)*	*-0.0795* (-1.68)*	*-0.1818 (-1.45)*	*-0.1247 (-0.41)*	*-0.0557 (-1.11)*
FRi, t-1	+	*0.1380*** (8.31)*	*0.2096*** (7.23)*	*-0.3180*** (-7.26)*	*0.2236*** (8.86)*	*0.1809*** (4.16)*	*-0.2433*** (-7.14)*
FRi, t-2	+	*0.2406*** (11.51)*	*0.1538*** (4.17)*	*0.3138*** (6.90)*	*0.2293*** (8.47)*	*0.1683*** (3.72)*	*0.4257*** (12.65)*
Dposi, t-1	+	*-0.7181 (-0.67)*	*-2.8621 (-1.06)*	*0.1871 (0.61)*	*0.4402 (0.68)*	*1.0073 (0.66)*	*0.0961 (0.38)*
Dposi, t-2	+	*-1.5886 (-1.49)*	*-6.3570** (-2.20)*	*0.2056 (0.69)*	*0.1140 (0.18)*	*0.2129 (0.13)*	*0.0255 (0.10)*
Dposi, t-3	+	*-0.5604 (-0.50)*	*-2.6162 (-0.91)*	*-0.0671 (-0.21)*	*0.3159 (0.48)*	*0.4023 (0.25)*	*0.0890 (0.35)*
Dposi, t-4	+	*1.0638 (0.93)*	*2.4827 (0.86)*	*0.1313 (0.40)*	*0.2597 (0.40)*	*0.4281 (0.29)*	*0.0546 (0.22)*
Dposi, t-5	+	*-0.4736 (-0.42)*	*-2.6962 (-0.90)*	*0.2001 (0.63)*	*0.3135 (0.46)*	*0.6178 (0.38)*	*0.0308 (0.11)*
Dnegi, t-1	–	*-0.3551 (-0.41)*	*-1.1760 (-0.62)*	*-0.4274* (-1.72)*	*-1.4713** (-2.30)*	*-2.3824* (-1.95)*	*-0.3666 (-1.25)*
Dnegi, t-2	–	*0.0682 (0.08)*	*0.1635 (0.09)*	*-1.4273*** (-5.72)*	*0.3613 (0.56)*	*0.4988 (0.41)*	*0.6791** (2.29)*
Dnegi, t-3	–	*0.3451 (0.41)*	*2.6600 (1.38)*	*-0.5427** (-2.15)*	*-2.6088*** (-3.85)*	*-6.0504*** (-4.51)*	*0.0486 (0.16)*
Dnegi, t-4	–	*0.9503 (1.14)*	*0.1456 (0.08)*	*-0.0235 (-0.10)*	*-4.6924*** (-6.78)*	*-6.7364*** (-4.71)*	*0.8037*** (2.68)*
Dnegi, t-5	–	*-1.4398* (-1.71)*	*-1.0484 (-0.54)*	*0.3906* (1.67)*	*-3.5291*** (-5.27)*	*-6.5959*** (-4.82)*	*-0.2474 (-0.83)*
Adj. R2		0.1220	0.1399	0.1348	0.1219	0.1481	0.1951

Note: We use value-weighted market model to estimate R squared and consider R-squared as high (ie high opacity) if it is higher than the annual median level of R-squared obtained on our sample of banks. $FR_{i,t}$ is the revision in month t of the median analyst forecast of bank i's earnings for the current fiscal year, $Dneg_{i,s}$ = 1 if a negative watch/outlook (in case 1) or a downgrade (in case 2) is announced in month s and zero otherwise, and $Dpos_{i,s}$ = 1 if a positive watch/outlook (in case 1) or an upgrade (in case 2) is announced in month s and zero otherwise. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively, in two-tailed tests.

Table 5: Regression Tests of whether rating events granger cause earnings forecast revisions – Sub-samples defined according to bank opacity measured by bank size

		Case 1			Case 2		
	Exp. sign	Full sample	small banks = high pacity	large banks = low opacity	Full sample	small banks = high opacity	large banks = low opacity
Intercept		*-0.3919***	*-0.7942**	*-0.2661*	*-0.1818*	*-0.3449*	*-0.1806**
		(-2.18)	*(-1.88)*	*(-1.44)*	*(-1.45)*	*(-0.83)*	*(-1.71)*
FRi, t-1	+	*0.1380****	*0.4711****	*0.0615****	*0.2236****	*-0.0427*	*0.2623****
		(8.31)	*(9.42)*	*(3.40)*	*(8.86)*	*(-0.41)*	*(9.58)*
FRi, t-2	+	*0.2406****	*-0.1403***	*0.4583****	*0.2293****	*0.0590*	*0.2760****
		(11.51)	*(-2.22)*	*(19.70)*	*(8.47)*	*(0.54)*	*(9.30)*
Dposi, t-1	+	*-0.7181*	*-1.3534*	*0.0883*	*0.4402*	*-0.1466*	*0.2974*
		(-0.67)	*(-0.38)*	*(0.07)*	*(0.68)*	*(-0.06)*	*(0.56)*
Dposi, t-2	+	*-1.5886*	*0.3546*	*0.3207*	*0.1140*	*0.0766*	*0.1257*
		(-1.49)	*(0.06)*	*(0.29)*	*(0.18)*	*(0.03)*	*(0.23)*
Dposi, t-3	+	*-0.5604*	*4.3909*	*0.3756*	*0.3159*	*0.3995*	*0.2466*
		(-0.50)	*(0.71)*	*(0.32)*	*(0.48)*	*(0.12)*	*(0.45)*
Dposi, t-4	+	*1.0638*	*0.9925*	*0.1849*	*0.2597*	*0.2937*	*0.1587*
		(0.93)	*(0.23)*	*(0.15)*	*(0.40)*	*(0.14)*	*(0.30)*
Dposi, t-5	+	*-0.4736*	*1.1823*	*0.2509*	*0.3135*	*0.1701*	*0.2401*
		(-0.42)	*(0.27)*	*(0.20)*	*(0.46)*	*(0.07)*	*(0.44)*
Dnegi, t-1	–	*-0.3551*	*0.3459*	*0.0408*	*-1.4713***	*-2.4638*	*-0.0010*
		(-0.41)	*(0.11)*	*(0.05)*	*(-2.30)*	*(-0.97)*	*(-0.00)*
Dnegi, t-2	–	*0.0682*	*-0.4891*	*1.3260*	*0.3613*	*-1.3460*	*-0.3058*
		(0.08)	*(-0.19)*	*(1.50)*	*(0.56)*	*(-0.62)*	*(-0.49)*
Dnegi, t-3	–	*0.3451*	*1.9745*	*-0.8988*	*-2.6088****	*-4.4006***	*-1.1408**
		(0.41)	*(0.71)*	*(-1.05)*	*(-3.85)*	*(-2.09)*	*(-1.77)*
Dnegi, t-4	–	*0.9503*	*1.8464*	*1.0263*	*-4.6924****	*-14.4823****	*0.1666*
		(1.14)	*(0.66)*	*(1.25)*	*(-6.78)*	*(-4.32)*	*(0.25)*
Dnegi, t-5	–	*-1.4398**	*1.0647*	*-1.9676***	*-3.5291****	*-15.6935****	*-0.1553*
		(-1.71)	*(0.38)*	*(-2.30)*	*(-5.27)*	*(-4.92)*	*(-0.26)*
Adj. R2		*0.1220*	*0.2598*	*0.2373*	*0.1219*	*0.1594*	*0.1122*

Note: we define small banks as banks with total assets lower than the median level on our sample banks in each year.

$FR_{i,t}$ is the revision in month t of the median analyst forecast of bank i's earnings for the current fiscal year, $Dneg_{i,s}$ = 1 if a negative watch/outlook (in case 1) or a downgrade (in case 2) is announced in month s and zero otherwise, and $Dpos_{i,s}$ = 1 if a positive watch/outlook (in case 1) or an upgrade (in case 2) is announced in month s and zero otherwise. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively, in two-tailed tests.

Table 6: Regression Tests of whether rating changes Granger cause earnings forecast revisions – Sub-samples defined according to the enforcement of the Fair-Disclosure Act (FD)

	Exp. sign	Case 2		
		Full sample	before FD	after FD
Intercept		-0.1818	-0.0051	-0.2351
		(-1.45)	(-0.33)	(-1.47)
FRi, t-1	+	*0.2236***	*-0.2312***	*0.2213***
		(8.86)	*(-6.88)*	*(7.76)*
FRi, t-2	+	*0.2293***	*-0.2140***	*0.2273***
		(8.47)	*(-5.23)*	*(7.44)*
Dposi, t-1	+	*0.4402*	*-0.0281*	*0.6727*
		(0.68)	*(-0.47)*	*(0.74)*
Dposi, t-2	+	*0.1140*	*0.0363*	*0.0961*
		(0.18)	*(0.59)*	*(0.11)*
$Dpos_{i,\,t-3}$	+	0.3159	-0.0010	0.4510
		(0.48)	(-0.02)	(0.49)
Dposi, t-4	+	*0.2597*	*-0.0039*	*0.3657*
		(0.40)	*(-0.06)*	*(0.41)*
Dposi, t-5	+	*0.3135*	*-0.0264*	*0.4574*
		(0.46)	*(-0.41)*	*(0.47)*
Dnegi, t-1	–	*-1.4713***	*-0.3321***	*-1.5168***
		(-2.30)	*(-2.10)*	*(-2.04)*
Dnegi, t-2	–	*0.3613*	*-0.2199*	*0.4124*
		(0.56)	*(-1.27)*	*(0.56)*
Dnegi, t-3	–	*-2.6088****	*0.1033*	*-2.7029****
		(-3.85)	*(0.60)*	*(-3.44)*
Dnegi, t-4	–	*-4.6924****	*0.1763*	*-4.8980****
		(-6.78)	*(1.02)*	*(-6.11)*
Dnegi, t-5	–	*-3.5291****	*-0.4791****	*-3.6840****
		(-5.27)	*(-3.20)*	*(-4.72)*
Adj. R2		0.1219	0.1159	0.1200

Note: Following the literature, the sub-sample before FD is before Sept/2000 after FD is after Nov/2000.

$FR_{i,t}$ is the revision in month t of the median analyst forecast of bank i's earnings for the current fiscal year, $Dneg_{i,s}$ = 1 if a downgrade is announced in month s and zero otherwise, and $Dpos_{i,s}$ = 1 if an upgrade is announced in month s and zero otherwise. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively, in two-tailed tests.