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The Impact of Impending Credit Rating Changes on Management Earnings Forecasts

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The Impact of Impending Credit Rating Changes on Management Earnings Forecasts

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Abstract- This study investigates whether impending credit rating changes affect managers' voluntary financial disclosure behaviors. I find that firms near a credit rating change do not opportunistically alter their financial disclosure practices to manipulate rating agencies' perceptions about corporate credit risk. In particular, firms close to a credit rating change do not selectively release good news or withhold bad news in their earnings forecasts. Nor do the firms likely issue an optimistically biased forecast or a more precise forecast for good news than for bad news. Overall, there is no evidence suggesting that credit ratings are manipulated via management earnings forecasts.

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I. Introduction

Credit ratings are important to a firm due to their substantive impact on stock and bond valuations and to the regulatory costs and benefits associated with credit rating changes (Kisgen, 2006). So, managers have an incentive to maintain or achieve a desired credit rating through influencing rating agencies' perceptions about a firm's creditworthiness (He, 2018a). Given managers' desire for a higher credit rating, whether they tend to influence rating agencies' decisions in a credible or opportunistic manner is an important issue. This is because the quality of credit rating has been a big concern for widespread practitioners in the financial marketplace especially after the 2007-2008 financial crisis; a couple of firms (e.g., Enron, California utilities) that got a decent credit rating suddenly went into bankruptcy. The existing literature shows that managers' incentives to improve credit ratings affect their capital structure decisions (e.g., Kisgen, 2006; Kisgen, 2007; Kisgen, 2009) and corporate financing choices (Hovakimian et al., 2010), and suggests that managers tend to adjust financial leverage to manage credit ratings. However, leverage is not the only concern for rating agencies in determining a firm's credit rating. The rating process also entails analyses of publicly disclosed financial information that relates to a firm's creditworthiness (Standard & Poor's, 2009). A vast body of literature (e.g., Callen et al., 2009; Easton et al., 2009; De Fond and Zhang, 2014; Shivakumar et al., 2011) documents the relevance of earnings and of management earnings forecast for evaluating a firm's credit risk. Shivakumar et al. (2011) provide evidence that credit markets react more strongly to management forecast news than to earnings news, suggesting that management forecasts are more informative than earnings announcements for credit pricing.

The objective of this study is to investigate whether managers use voluntary financial disclosures, in particular, management earnings forecasts, to influence rating agencies' perceptions about a firm's credit-worthiness. I address this issue by looking at managers' ex post voluntary financial disclosure behaviors in response to an impending credit rating change, that is, whether managers change their financial disclosure practices during an impending rating change to manage rating agencies' perceptions about corporate credit risk.[1] I focus on management earnings forecast for two reasons. First, it represents the typical form of voluntary financial disclosures. To the extent that management forecasts of earnings have implications to outsiders for a firm's future earnings (Beyer et al., 2010), such forecasts could substantially influence rating decisions (Shivakumar et al., 2011). Second, it facilitates a large sample analysis of managerial voluntary disclosures to influence credit ratings.

Credit rating agencies have been criticized widely for failures to correct for opportunistic corporate reporting (e.g., SEC, 2003). The reasons for low rating quality are two-fold. First, rating agencies generally do not conduct audits or due diligence review over issuer-provided information (He, 2018a). Second, rating agencies' incentives to discourage opportunistic corporate behaviors could be compromised by conflict of interests arising from their dependence on rating fees paid by their clients (e.g., SEC, 2008). Thus, managers with an incentive to pursue a desired credit rating might engage in opportunistic disclosures in the belief that rating agencies might not undo and adjust for the opportunistic disclosures. However, credit rating is maintained regularly with a firm for long and widely used by outsiders for valuation, investment, regulatory, and contractual purposes. Not only rating agencies but also other outside stakeholders oversee a firm's rating information all along. As such, credit rating constitutes a

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[1] An impending credit rating change refers to the case when a firm economically or financially approaches a rating upgrade or a downgrade per the standard rating criteria with respect to a firm's credit quality (Kisgen, 2006). If a specific rating of a firm is close to an upgrade or a downgrade, credit rating agencies would communicate the potential rating change to the firm ahead of time.

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repeated game between managers and outside stakeholders (He, 2018a). Managers might use opportunistic financial disclosures to deceive outsiders of interest in the short term, but would be penalized for the cheating once it is detected. Therefore, whether managers tend to manipulate their earnings forecasts to maintain or achieve a desired credit rating becomes an empirical question. Accordingly, I investigate it as an exploratory analysis.

There are three ways for managers to manipulate market expectations through earnings forecasts. First, managers can selectively release good news or withhold bad news in their earnings forecasts. I measure the nature of forecast news using the mean consensus analyst earnings forecast as the benchmark since the consensus forecast is a widely used proxy for market earnings expectation (e.g., Bartov et al., 2002). Second, given the issuance of an earnings forecast, managers can issue an optimistically biased forecast. The forecast bias is measured by the difference between management forecast of EPS and actual EPS. Third, even if managers do not withhold bad news or bias their forecasts, managers can manipulate the precision of their forecasts in a way that a good news forecast is more precise than a bad news forecast.

I find that managers do not opportunistically alter their earnings forecasts in response to an impending credit rating change. In particular, firms close to a rating change do not selectively release good news or suppress bad news on their earnings information. Nor are the firms prone to issue an optimistically biased forecast or a more precise forecast for good news than for bad news. These results hold (1) for firms near a credit rating upgrade and firms near a rating downgrade, respectively; (2) after controlling for firm-fixed effects using fixed-effects regression model; (3) after adopting multinomial logistic specification or Heckman Inverse-Mills-ratio method to correct for potential sample selection bias; (4) after including lagged dependent variable to control for the stickiness of management earnings forecasts; (5) after eliminating the confounding effect of other major concurrent disclosures; (6) after mitigating bias caused by incomplete coverage of management earnings forecast data on the First Call's Company Issued Guidance database; (7) when limiting the sample to firms that have a track record of issuing management earnings forecasts; (8) after using credit watch data to measure a firm's impending rating change statuses. Overall, there is no evidence to suggest that credit ratings are manipulated via management earnings forecasts.

This study contributes to the literature in three ways. First, prior disclosure literature examines the effect of managerial opportunistic incentives on corporate disclosures in the setting of equity offerings (Frankel et al., 1995; Marquardt and Wiedman, 1998; Lang and Lundholm, 2000), stock repurchases (Brockman et al., 2008), management buyout offers (Hafzalla, 2009), stock-forstock mergers (Ge and Lennox, 2011), stock and stock option grants (Aboody and Kasznik, 2000; Nagar et al., 2003), and insider trading (Bushman and Indjejikian, 1995; Rogers and Stocken, 2005; Cheng and Lo, 2006; Rogers, 2008; Cheng et al., 2013; He, 2018b). Nonetheless, despite the importance of credit ratings to firms, little research attention has been paid to whether and how managers use voluntary disclosures to influence credit ratings. This study fills this gap by being the first to provide evidence on how credit rating affects a firm's voluntary financial disclosures, and should thereby have implications for rating agencies and other market participants, who need to evaluate a firm's creditworthiness and viability by means of its financial disclosure.

Second, credit rating constitutes a repeated game between managers and rating agencies. Hence, this study also contributes to the disclosure literature by shedding light on managerial voluntary disclosure behaviors in a repeated game setting, which have received little research attention to date. I find no evidence of managerial opportunistic disclosures to manipulate credit ratings in the setting of impending credit rating changes.

Third, prior research (e.g., Shivakumar et al., 2011) contends the relevance of management earnings forecast for evaluating a firm's default risk, and provides evidence that credit markets respond significantly to news in management earnings forecasts. My study extends this literature by investigating whether the relevance of management earnings forecasts for credit pricing induces managers to use the forecasts to manage credit ratings. I do not find evidence that managers strategically issue earnings forecasts to manage credit ratings, which is consistent with their concern that credit rating issuers/users are likely able to undo the strategic behaviors.

The remainder of the paper proceeds as follows. Section 2 develops the hypotheses. Section 3 describes the data. Section 4 presents the research methodologies. Section 5 discusses the results. Section 6 conducts the supplemental analyses, and Section 7 concludes.

II. Hypothesis Development

The massive accounting irregularities and corporate scandals during 2000-2002, particularly Enron and WorldCom, have triggered intense criticisms on credit rating agencies with regards to their competence in probing negative information and to their ability to adjust for opportunistic corporate reporting (SEC 2003; SEC 2005). Rating agencies generally do not audit the accuracy or integrity of issuer-provided information in the rating process (SEC, 2003). What's more, they might be compromised by conflict of interests resulting from their dependence on rating fees paid by their clients and

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from ancillary consulting services offered to the clients (Economist, 2005; SEC, 2005). As such, managers might engage in opportunistic disclosures to manage ratings in the belief that rating agencies might not detect and adjust for the opportunistic disclosures. Therefore, one way of managing credit ratings is to strategically disclose corporate information that is viewed as important by rating agencies in the evaluation of a firm's creditworthiness.

However, Cheng and Neamtiu (2009) find that a recent increase in regulatory pressures and investor criticisms on credit rating quality induces rating agencies to increase the timeliness and accuracy of credit ratings. Rating agencies deal with their clients repeated and frequently in the long run and have superior access to the clients' private information (Jorion et al., 2005; SEC, 2000). They are familiar with a firm's financial, economic, and operational statuses (He, 2018a), and are supposed to be sophisticated and specialized in acquiring and processing corporate information (Kisgen, 2006). Hence, rating agencies are likely able to undo managerial opportunistic disclosures. Furthermore, aside from rating agencies, other parties such as regulators, investors, creditors, suppliers, customers, and employees also monitor firm credit ratings all along, since such ratings are widely used for investment, valuation, regulatory, and contractual purposes. In this scenario, using opportunistic earnings forecasts, a firm might succeed in cheating outside stakeholders occasionally, but cannot manage to do so each time when the firm is near a rating change. Also, the firm would be penalized for the opportunistic disclosure once it is discovered. Therefore, *ex ante*, it is ambiguous whether managers tend to engage in opportunistic disclosures to manage credit ratings. I explore this empirical issue along three dimensions.

First, managers could withhold bad news up to a certain threshold where it becomes too costly or difficult for managers to further withhold the bad news, but quickly reveal good news to the public (e.g., Kothari et al., 2009; He, 2015; He and Ren, 2018). The market might fail to unravel the withheld information as "*uncertainty exists about whether the manager is informed or, equivalently, whether the information in question has yet to arrive* …" (Verrecchia, 2001). In view of this, managers might withhold bad news.

However, as insiders, managers are supposed to be well acquainted with future earnings trend of a firm and to know about the earnings news when it comes up. So, it is part of fiduciary duty for managers to update or correct preexisting disclosures on earnings information (Cheng et al., 2013). Without the earnings forecasts, negative earnings surprises at earnings announcements could necessarily imply that managers have withheld bad news. Outsiders dislike such negative earnings surprises, and would discount a firm that has no bad news warning (Skinner, 1997; Hutton, 2007). Withholding bad news on earnings performance not only leads to reputational loss for a firm but also exposes the firm to high litigation risk (e.g., Skinner, 1994; Skinner, 1997; Field et al., 2005). Conversely, earlier revelation of bad news in earnings forecasts reduces the threats of litigation as the bad news warning diminishes the perception that firm management deliberately "conceals the truth" (Skinner, 1994; Field et al., 2005). Consistent with this notion, Donelson et al. (2012) find evidence that earlier releases of bad earnings news lower the likelihood of litigation; Billings and Cedergren (2015) also provide evidence that bad news warning reduces litigation risk. If managers withhold bad news, their firm would risk being discounted by not only the bad news *per se* but also the opportunistic withholding behaviors discovered by the market. Therefore, it is likely that managers abstain from selectively releasing good news or withholding bad news on earnings information albeit facing an impending credit rating change. The above discussion leads to the first hypothesis formulated in a null form as follows.

H1: Conditional on firms making an earnings forecast, the likelihood of an earnings forecast being good news (versus bad news) does not differ between firms that are close to a credit rating change and firms that are not.

The null hypothesis, H1, implies that firms close to a credit rating change do not selectively release good news or withhold bad news. However, if firms near a rating change tend to do so, the likelihood of an earnings forecast being good news (versus bad news) should be significantly higher for firms that are close to a credit rating change than for firms that are not.

Second, even if managers do not withhold bad news, they could issue an optimistic earnings forecast in a biased manner (measured by whether a management forecast of EPS exceeds the actual EPS) to manage market expectations about earnings performance and thereby affect rating agencies' perceptions about corporate credit risk. If outside stakeholders are perceived not to be sophisticated enough to process financial information, firms near a rating change would have an incentive to bias their earnings forecasts.

Nevertheless, outside stakeholders can use subsequent audited earnings reports as well as information from other resources to assess the credibility of management forecasts (He, 2018b). Thus, the issuance of biased optimistic forecasts would expose a firm to high litigation risk and to potential great reputational losses. Due to the disciplinary role of subsequent audited earnings reports in management earnings forecasts, it is likely that a firm wishing for a desired credit rating refrains from issuing an optimistic forecast. This leads to the second hypothesis formulated in a null form as follows.

H2: Conditional on firms making an earnings forecast, the likelihood of an optimistic earnings forecast does not

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differ between firms that are close to a credit rating change and firms that are not.

The null hypothesis, H2, implies that firms close to a rating change do not issue an optimistically biased earnings forecast. But if firms near a rating change tend to do so, the likelihood of an optimistic earnings forecast should be significantly higher for firms that are close to a credit rating change than for firms that are not.

Third, managers have great discretion on earnings forecast precision. They can issue a point earnings forecast or a range forecast, with the width of the range (i.e., the difference between the upper and lower bounds) up to managerial discretion. Individuals tend to have limited attention and information processing power. Hence, information presented in a salient, explicit, and easily processed form is absorbed more easily and rapidly than information that is vague and less salient (Hirshleifer and Teoh, 2003). A couple of theoretical and empirical papers (e.g., Baginski et al., 1993; Kim and Verrecchia, 1991; Subramanyam, 1996) document that the magnitude of the market's response to a disclosure is positively related to the disclosure precision, suggesting that a more precise earnings forecast has a larger impact on outsiders' perceptions about firm value. Thus, strategically choosing a desirable forecast precision across varied forecast news, specifically, releasing good news in a more precise manner than bad news, is yet another way of boosting market expectations about a firm's creditworthiness.

However, as documented by Choi et al. (2010), high earnings forecast precision is associated with a higher likelihood of earnings forecasts being proven wrong *ex post*, thereby resulting in high disclosure risk for a firm (i.e., the situation when the actual earnings likely fall outside the earnings forecast range). Such disclosure risk also restrains managerial discretion on earning forecast precision. Due to the *ex post* discipline of audited earnings reports and to reputational concerns, it is likely that firms which wish for a desired credit rating do not resort to releasing a more precise earnings forecast for good news than for bad news. This leads to the third hypothesis formulated in a null form as follows.

H3: Conditional on firms making an earnings forecast, the precision of a good-news forecast relative to that of a bad-news forecast does not differ between firms that are close to a credit rating change and firms that are not.

The null hypothesis, H3, implies that firms close to a rating change do not manipulate earnings forecast precision across varied forecast news. However, if firms near a rating change tend to issue a more precise forecast for good news than for bad news, the precision of a good-news forecast relative to that of a bad-news forecast should be significantly greater for firms that are close to a credit rating change than for firms that are not.

III. Data

The main empirical analysis is based on data collected primarily from four sources: I/B/E/S, First Call, Compustat, and CRSP. For firm credit ratings, I use the Standard & Poor's long-term domestic issuer credit ratings reported by Compustat from the second quarter of 1985. Unlike bond-level credit ratings, firm-level credit ratings are maintained with a firm on a regular basis in a long run (He, 2018a). Hence, the credit ratings in my sample are all "regular" ratings, not "*ad hoc*" ratings.[2] The sample period ranges from 1989 to 2009. I focus on quarterly forecast data for two reasons. First, credit rating change statuses (i.e., whether a rating is close to a change or not) could vary from time to time within a year, thus it is more efficient to use quarterly data for the hypothesis tests. Second, prior research finds that quarterly forecasts are more informative and have a larger influence on the market (e.g., Pownall et al., 1993; Baginski et al., 1993). Table 1 shows the full sample distribution of credit ratings at the firm-quarter level from 1989 to 2009. Consistent with He (2018c), the majority of sample observations are rated between BB- and BBB+, with BBB level observations accounting for the highest percentage (10.71%).

[2] I obtain similar results when using the annual forecast data for all the major analyses involved in this study.

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Table 1: Distribution of credit ratings

S&P Ratings	Frequency	Percentage (%)	Cumulative Percentage (%)
AAA	2570	1.67	1.67
AA+	1139	0.74	2.41
AA	4112	2.68	5.09
AA-	5694	3.71	8.80
A+	9206	5.99	14.79
A	13322	8.67	23.46
A-	11757	7.65	31.12
BBB+	13486	8.78	39.90
BBB	16458	10.71	50.61
BBB-	12444	8.10	58.71
BB+	7674	5.00	63.70
BB	10047	6.54	70.25
BB-	12969	8.44	78.69
B+	15296	9.96	88.64
B	8269	5.38	94.03
B-	4181	2.72	96.75
CCC+	1817	1.18	97.93
CCC	1023	0.67	98.60
CCC-	406	0.26	98.86
CC	434	0.28	99.14
C	10	0.01	99.15
D or SD	1304	0.85	100
Total	153618	100	100

Notes: This table shows the full sample distribution of credit ratings at the firm-quarter level from 1989 to 2009. The firm credit ratings are the long-term issuer credit ratings complied by Standard & Poor's and reported on Compustat. The credit ratings range from AAA (the highest rating) to D (the lowest rating --- debt in payment default). The sample period ranges from 1989 to 2009 with a sample of 153,618 firm-quarter observations.

I restrict my sample to management forecasts of next quarter's earnings since the one-quarter-ahead forecasts account for the majority (approximately 75%) of all quarterly forecasts that occur over a fiscal quarter.[3] To focus on voluntary earnings forecasts rather than earnings-pre-announcements, I follow prior literature to exclude forecasts issued on or after the fiscal quarter end dates (e.g., Frankel et al., 1995; Rogers and Stocken, 2005). I further require that firms have necessary data from I/B/E/S, First Call, Compustat, and CRSP to construct the variables of interest for the empirical analysis. For instance, in the tests of H1 and H2, I need to control for future earnings news (measured by the difference between actual EPS and analyst consensus forecast of EPS), since managers also have an incentive to manipulate analyst expectations to avoid negative earnings surprises (Matsumoto, 2002). To this end, I eliminate management forecasts with either no preceding analyst forecasts for the corresponding fiscal quarter or no actual EPS reported in the First Call database. The final sample ends up with 21,530, 17,776, and 5,300 firm-quarter observations for testing the impact of impending credit rating changes on management forecast news, forecast bias, and forecast precision, respectively.

[3] Alternative use of two-quarter-ahead, three-quarter-ahead, or one-year-ahead earnings forecasts, or of all the earnings forecasts over a fiscal quarter, yields qualitatively the same results.

IV. Research Design

a) Measures of a firm's impending credit rating change statuses

Credit rating scale consists of ten broad rating categories (i.e., AAA, AA, A, BBB, BB, B, CCC, CC, C, D) which represent ten different indicators for a firm's credit risk (Standard and Poor's, 2009). Each broad rating category from AA to CCC is divided into three subcategories with a distinction of minus, middle, and plus notches (e.g., BB+, BB, and BB-). Following Kisgen (2006) and He (2018a), I use two constructs to capture whether a firm is close to a credit rating change.

Firstly, I consider three rating statuses for each specific notch rating level of a firm (e.g., BBB+), that is, whether a firm is close to a change to an adjacent higher or lower specific notch rating (e.g., BBB+ to A- or BBB+ to BBB), or not near any notch rating change. Firms, which are ranked in the top (bottom) quintile within each notch rating based on credit quality determinants at the beginning of a fiscal quarter, are classified as firms near a notch rating upgrade (downgrade).[4] The credit quality determinants include firm size, the ratio of debt to total capitalization, the ratio

[4] I also check the robustness of this definition by specifying firms near a notch rating change as the top and bottom thirds (or as the top and bottom quartiles) within each notch rating. The results remain qualitatively the same under the alternative specifications.

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of EBIT to total assets, and the ratio of total liabilities to total assets. I first estimate a pooled regression of credit rating on the credit quality determinants. Credit ratings are transformed into numerical scores using an ordinal scale ranging from 1 for the lowest rated firms (D) to 22 for the highest rated firms (AAA). The regression results (not tabulated) reveal that the coefficients on each of the explanatory variables are in the predicted sign and statistically significant at the 1% level, and that the adjusted R^2 equals 49.07%. I then sort firms into quintiles within each notch credit rating based on the magnitude of the fitted value from the regression.[5] Observations in the top (bottom) quintile are classified as near a notch rating upgrade (downgrade), while observations in the middle three quintiles are classified as the benchmark group, which is regarded as not being close to any notch rating change.

Secondly, there are discrete costs (benefits) associated with not only a notch rating change but also a broad rating change (Kisgen, 2006).[6] The discrete costs (benefits) are greater for a broad rating change (e.g., BBB- to BB+) than for a notch rating change within the same broad rating category (e.g., BB- to BB or BB+ to BB). The likelihood of being upgraded (downgraded) to an adjacent higher (lower) broad rating category is, on average, higher for firms in the outer notches (e.g., B+ or B-) than for firms in the middle notch (e.g., B). Hence, firms whose credit ratings are designated with a plus (minus) notch are classified as being near a broad rating upgrade (downgrade).

Rating agencies might formally warn the public of an impending rating change of a firm by placing the firm on the credit watch list. However, I do not use the credit watch data in this study for four reasons. First, rating agencies have the option not to place a firm on the credit watch list when the firm is close to a rating change. The option itself might be determined by some unobserved firm or CEO characteristics that also affect managerial voluntary disclosures. As such, watch list actions are most likely not exogenous to voluntary disclosures, giving rise to nontrivial endogeneity concerns. Second, other than warning the public of a firm's impending rating change, rating agencies can warn a firm privately or opt not to deliver any warning even when a firm is close to a rating change. Hence, if I use credit watch placements to measure a firm's impending rating change statuses, observations in credit watch (non-credit-watch) period would have excluded (included) observations that are subject to an impending credit rating change, thereby inducing bias to my empirical results. Third, firm-quarter observations that have watch list actions account for a small portion (around 2%) in the rated firm population, which would largely reduce the power of the tests. Fourth, prior studies (e.g., Chakravarty et al., 2009) well document that the market reaction to a credit watch placement is as economically and statistically significant as the market reaction to a credit rating change and that the announcement effect of a credit rating change is much smaller for firms that have a credit watch placement than for firms that do not. In a sense, a credit watch placement is compared to a credit rating change in terms of economic consequences for a firm. Given the substantive economic consequences, managerial voluntary disclosure in response to a credit watch placement might pertain to managers' delayed or late reactions to an impending credit rating change.

Despite these limitations of the use of credit watch data to measure impending credit rating changes, I conduct a supplemental analysis in Section 6.8 on firms that are placed on credit watch and those that are not.

b) The impact of impending credit rating changes on management earnings forecasts

To test H1, I run the following logistic regression model.

$$Goodnews_t = \alpha_0 + \alpha_1 Notchimpending_{t-1}(Notch_{t-1}) + \alpha_2 Control + \varepsilon \quad (1)$$

The dependent variable takes the value of 1 if a firm issues a good-news earnings forecast during fiscal quarter *t*, and 0 otherwise. I classify a management earnings forecast as a good news forecast if it is greater than the mean consensus analyst forecast issued within 90 days prior to the management forecast date.[7] The nature of forecast news is measured based on the consensus analyst forecast, because it is a widely used proxy for the market earnings expectation and provides a measure of all earnings news that reaches market participants (e.g., Bartov et al., 2002). The inference persists if I use an alternative proxy for good news which

[5] Following Kisgen (2006), I sort financial firms (SIC codes 6000-6499) and utilities firms (SIC codes 4000-4999) separately as these firms are subject to different rating criteria (Standard & Poor's, 2009).

[6] A notch credit rating includes a minus or plus notch, if given. Accordingly, a notch rating change refers to a change in rating of any kind, including both a rating change between two notch ratings within the same broad rating category (e.g., BB to BB+) and a rating change between two notch ratings across two broad rating categories (e.g., B+ to BB-). A broad rating change refers only to the latter (Kisgen, 2006).

[7] For multiple management forecasts made during a fiscal quarter, *Goodnews* is coded as 1 if the last management forecast of EPS is greater than the mean consensus analyst forecast of EPS, and 0 otherwise. The last forecast of EPS for a fiscal quarter represents managers' most updated expectations about a firm's earnings performance and hence is likely to be valued the most by outsiders. This accords with managers' intent to affect market expectations for a desired credit rating. So, I use the last management forecast of EPS for the *Goodnews* measure (and for the *Optimism* measure to be mentioned in footnote 8).

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is an indicator variable for whether the cumulative abnormal stock returns during the three-day window centered on the earnings forecast dates are positive. *Notchimpending*$_{t-1}$ (*Notch*$_{t-1}$) equals 1 if a firm is close to a notch (broad) credit rating change at the beginning of fiscal quarter *t* and 0 otherwise. If firms close to a rating change do not selectively release good news or withhold bad news in their earnings forecasts, H1 holds and α_1 would be statistically insignificant.

The following logistic regression model is specified to test H2.

$$Optimism_t = \alpha_0 + \alpha_1 Notchimpending_{t-1}(Notch_{t-1}) + \alpha_2 Control + \varepsilon \quad (2)$$

The dependent variable equals 1 if a management forecast of EPS is greater than the actual EPS reported in the First Call database for fiscal quarter *t*, and 0 otherwise.[8] If a firm close to a rating change is not prone to issue an optimistic earnings forecast, H2 holds and α_1 would be statistically insignificant.

In model (1) and (2), I control for the following variables that are related to forecast news (*Goodnews*) and forecast bias (*Optimism*): firm size (*Size*) (e.g., Kasznik and Lev, 1995), analyst following (*AnaCov*) (e.g., Lang and Lundholm, 1993, 1996), industry-level litigation risk (*Litigation*) (e.g., Francis et al., 1994; Kasznik and Lev, 1995), book-to-market ratio (*BM*) (e.g., Bamber and Cheon, 1998; Hui et al., 2009), operating losses(*Loss*) (e.g., Ajinkya, 2005), management forecast horizon (*Horizon*) (e.g., Baginski and Hassell, 1997), earnings volatility (*Earnings Vol*) (e.g., Waymire, 1985; Kross et al., 1994), analyst forecast errors(namely, earnings surprise, (*AnaError*)) (Kasznik and Lev, 1995; Lennox and Park, 2006; Atiase et al., 2005), and analyst forecast dispersion (*AnaDispers*) (e.g., Swaminathan, 1991). The likelihood that a firm selectively releases a good news forecast or issues an optimistically biased forecast is expected to be higher for firms that has smaller size (*Size*), lower book-to-market ratio (*BM*), lower analyst earnings forecast relative to reported earnings (*AnaError*), longer forecast horizon (*Horizon*), a loss in operating income (*Loss*), lower analyst coverage (*AnaCov*), smaller analyst forecast dispersion (*AnaDispers*), lower industry-level litigation risk (*Litigation*), or smaller earnings volatility (*Earnings Vol*). To control for the effect of potential fundamental-related events that might drive managerial disclosures, I also include two variables, abnormal trading volume (*Abtradvol*) and abnormal quarterly stock returns (*Qtrret*).[9] All the control variables are defined in the appendix.

To test H3, I conduct the following Tobit regression model.

$$\begin{aligned} \Pr ecision_t = {} & \alpha_0 + \alpha_1 Notchimpending_{t-1}(Notch_{t-1}) + \alpha_2 Goodnews_t + \\ & \alpha_3 Notchimpending_{t-1}(Notch_{t-1}) * Goodnews_t + \alpha_4 Control + \varepsilon \end{aligned} \quad (3)$$

Precision$_t$ equals the forecast width for a range forecast, calculated as (-1) times the absolute value of the difference between the high-end estimate and the low-end estimate for the fiscal quarter *t*, divided by the absolute value of the sum of the high-end estimate and the low-end estimate. *Precision*$_t$ equals 0 for a point forecast. *Goodnews* is equal to 1 if a management forecast of EPS (the point estimate or the mid-point estimate for a range forecast) is greater than the mean consensus analyst forecast of EPS which is issued within 90 days prior to the management forecast date, and 0 otherwise. Open-ended forecasts are excluded from the analysis as it is difficult to compare qualitative open-ended forecast with the quantitative consensus analyst forecast. I do not use market reactions to earnings forecasts to capture the nature of news in model (3) because the forecast precision by itself affects the magnitude of stock returns (Cheng et al. 2013). *Notchimpending*$_{t-1}$ (*Notch*$_{t-1}$) is interacted with *Goodnews* to test H3. α_2 signifies the precision of good news forecasts relative to that of bad news forecasts for firms that are not close to a rating change. α_3 denotes the incremental precision of good news forecasts relative to that of bad news forecasts for firms near a rating change compared with firms not close to a rating change. Accordingly, $\alpha_2+\alpha_3$ denotes the precision of good news forecasts relative to that of bad news forecasts conditional on an impending rating change. If a firm near a rating change strategically increases the precision of a good news forecast and decreases the precision of a bad news forecast, α_3 should be significantly positive.

Based on the existing literature, I select several additional independent variables that might also affect the precision of management earnings forecast: firm size (*Size*) (e.g., Kasznik and Lev, 1995), industry-level litigation risk (*Litigation*) (e.g., Francis et al., 1994; Kasznik and Lev, 1995), book-to-market ratio (*BM*) (e.g., Bamber and Cheon, 1998), operating losses (*Loss*) (e.g., Ajinkya, 2005), analyst following (*AnaCov*) (e.g., Baginski and Hassel, 1997), management forecast

[8] In case of multiple management forecasts made during a fiscal quarter, *Optimism* is coded as 1 if the last forecast of EPS is greater than the actual EPS for a fiscal quarter, and 0 otherwise.

[9] Alternatively, I exclude firm-quarter observations that have anannouncement of equity issuances, mergers, acquisitions, or stock repurchases over fiscal quarter *t*, and the results for the tests of H1-H3 remain qualitatively unchanged.

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horizon (*Horizon*) (e.g., Baginski and Hassell, 1997), earnings volatility (*Earnings Vol*) (e.g., Waymire, 1985; Kross et al., 1994), and analyst forecast dispersion (*AnaDispers*). Earnings forecasts are expected to be less precise for firms that have smaller size (*Size*), higher book-to-market ratio (*BM*), longer forecast horizon (*Horizon*), higher earnings volatility (*Earnings Vol*), higher litigation risk (*Litigation*), lower analyst coverage (*AnaCov*), higher analyst forecast dispersion (*AnaDispers*), or a loss in operating income (*Loss*). I also include two variables, abnormal trading volume (*Abtradvol*) and abnormal quarterly stock returns (*Qtrret*), as I do for models (1) and (2). All the control variables are defined in the appendix.

The sample used for the tests of H1-H3 is restricted to firms that contain at least one earnings forecast over a fiscal quarter. Note that the theme of this study is to probe the impact of impending credit rating changes on managers' *ex post* voluntary financial disclosure behaviors (i.e., the way that managers disclose corporate earnings news). So, it is important to condition the tests of H1-H3 on firms that have at least one earnings forecast over a fiscal quarter.

V. Empirical Results

a) Descriptive statistics of management earnings forecasts

Table 2 presents descriptive statistics of the management forecast variables used in the regression analyses. The variable measures are based on the sample of firms that have at least one management earnings forecasts over a fiscal quarter. From the mean values of *Goodnews* and *Optimism*, we can infer that among firm-quarter observations that have at least one management earnings forecasts, only 40.24% of the observations have good news forecasts and only 30.90% of the observations have optimistic forecasts. Untabulated results further reveal that only a small portion of management earnings forecasts are confirming forecasts (1.69%) and forecasts without bias (8.63%), respectively, while the majority of the earnings forecasts are pessimistic forecasts (58.07%) and bad news forecasts (60.47%), respectively. This reconciles with prior evidence (e.g., Matsumoto 2002) that managers tend to use quarterly earnings forecasts to guide analyst forecasts downwards to avoid disappointing expectations at earnings announcements.

Table 2: Descriptive Statistics

Variable	Mean	Std.Dev.	25th	Median	75th	N
Earnings Guidance Characteristics						
Goodnews	0.4024	0.4904	0	0	1	21530
Optimism	0.3090	0.4621	0	0	1	17776
Precision	-0.0849	0.1665	-0.0833	-0.0435	-0.0244	5300

Notes: This table presents descriptive statistics of the management earnings forecast variables used in this multivariate analysis. All the variables are defined in the appendix. The sample period ranges from 1989 to 2009. The variable measures are based on the sample of firms that have at least one management earnings forecast over a fiscal quarter.

b) Univariate Results

Panel A (Panel B) of Table 3 reports management forecast characteristics for firms near a notch (broad) credit rating change and for firms not close to a notch (broad) rating change. The likelihood of a good-news earnings forecasts for firms near a notch rating change amounts to 39.81%, which is close to the likelihood of a good-news forecast for firms not close to a notch rating change (40.49%). The mean difference in the incidence of the good-news forecast is statistically insignificant (t-stat.=0.99). Also, the average incidence of a good-news forecast for firms close to a broad rating change is insignificantly different from that for firms not near a broad rating change (40.29% vs. 40.09%, t-stat.=0.30). These results suggest that firms do not selectively release good-news forecasts to avoid a rating downgrade or achieve an upgrade, thus consistent with H1.

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Table 3: Univariate Test

Panel A: Comparison of Management Earnings Forecast Characteristics by Notchimpending					
Variable	Notchimpending=1		Notchimpending=0		Mean Difference (t-stat.)
	Mean	N1	Mean	N0	
Goodnews	0.3981	7893	0.4049	13637	-0.0069 (0.99)
Optimism	0.3005	6136	0.3134	11640	-0.0129 (1.77)*
Precision	-0.0962	1635	-0.0795	3394	-0.0167 (3.16)***
Panel B: Comparison of Management Earnings Forecast Characteristics by Notch					
Variable	Notch=1		Notch=0		Mean difference (t-stat.)
	Mean	N1	Mean	N0	
Goodnews	0.4029	13464	0.4009	7858	0.0021 (0.30)
Optimism	0.3137	10982	0.3026	6627	0.0111 (1.55)
Precision	-0.0899	3243	-0.0780	2022	-0.0119 (2.57)**

*Notes: This table reports descriptive statistics of management earnings forecast characteristics, partitioned by Notchimpending and Notch, respectively. Notchimpending equals 1 if a firm is near a notch rating change and 0 otherwise. Notch is equal to 1 if a firm's credit rating is near a broad rating change and 0 otherwise. N_1 (N_0) in Panel A refers to the number of firm-quarter observations that are (are not) near a notch rating change during the sample period of 1989-2009. N_1 (N_0) in Panel B refers to the number of firm-quarter observations that are (are not) near a broad rating change during the sample period of 2002-2009. All the variables are defined in the appendix. The variable measures are based on the sample of firms that have at least one management earnings forecasts during a fiscal quarter. ***, **, * denote the two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.*

The incidence of an optimistic forecast averages 30.05% (31.37%) for firms near a notch (broad) rating change and 31.34% (30.26%) for firms not close to a notch (broad) rating change. The mean difference amounts to -1.29% (1.11%) and is statistically insignificant at the 5% conventional level (t-stat.=1.77 (1.55)). This suggests that firms are not prone to release an optimistic earnings forecast when facing an impending notch (broad) rating change, thus consistent with H2.

Firms near a notch rating change have a mean level of forecast precision up to -0.0962, which is lower than the average precision of -0.0795 for firms not close to a notch rating change. The mean difference (-0.0167) is statistically significant at the 1% level (t-stat.=3.16). The average forecast precision of firms close to a broad rating change is also significantly lower than the average forecast precision of firms not near a broad rating change (t-stat.=2.57). These results indicate that firms that are confronted with an impending credit rating change generally issue less precise forecasts of EPS, which could be attributed to managers' fear of exposure to higher litigation risk arising from more precise forecasts.

The univariate results do not control for managerial incentives to use a short-term earnings forecast to guide analysts' expectations for meeting or beating their consensus forecasts. Nor do the univariate tests control for investment opportunities, demand for external financing, extent of information asymmetry, growth prospects, etc., which also affect management earnings forecasts. Therefore, I turn to multivariate analyses to account for these factors.

c) Multivariate Results

Table 4 reports the descriptive statistics and the multivariate results for model (1). The coefficients on *Notchimpending* and *Notch* are both statistically insignificant. Hence, there is no evidence indicating that firms close to a rating change selectively deliver good news or suppress bad news in earnings forecasts. This is probably because managers foresee a high likelihood that rating agencies or other outsiders would discover bad news hoarding in subsequent periods. As expected, the coefficients for *Horizon* and *Loss* are significantly positive while those for *AnaError, Qtrret*, and *AnaCov* are significantly negative. This suggests that a firm is less likely to selectively issue a good-news earnings forecast when (i) the firm has a shorter earnings-forecast horizon; (ii) the firm experiences a loss in operating income; (iii) the consensus analyst forecast of EPS is lower than the firm's actual EPS; (iv) the firm experiences high abnormal stock returns in the previous quarter; and (v) fewer analysts forecast earnings for the firm.

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Table 4: Test of H1: The impact of impending credit rating change on managerial propensity to selectively release a good news forecast

Panel A: Descriptive statistics of variables

Variable	Mean	Std. Dev.	25th	Median	75th	N
Notchimpending	0.3666	0.4819	0	0	1	21530
Notch	0.6315	0.4824	0	1	1	21322
Size	7.9087	1.5523	6.9036	7.8183	8.9119	21530
BM	0.6205	2.8004	0.3146	0.5101	0.7660	21530
AnaError	-0.9017	66.5954	-8.207E-3	-1.501E-3	2.907E-4	21530
Horizon	23.1272	20.7920	6	15	38	21530
Loss	0.1737	0.3788	0	0	0	21530
AnaCov	1.0418	0.8897	0	1.0986	1.7918	21530
AnaDispers	0.9385	58.2072	0	0.01	0.04	21530
Litigation	0.1394	0.3464	0	0	0	21530
EarningsVol	69.0131	271.8509	5.4176	14.8943	44.5309	21530
Abtradvol	6.796E+6	5.187E+7	-3.065E+6	9.144E+4	3.991E+6	21530
Qtrret	0.0178	0.2400	-0.0906	0.0031	0.1028	21530

Panel B: Regression results for the test of H1

Variables	Pred. Sign	Dependent Variable = Goodnews	
Intercept	?	0.1559 (0.230)	0.1257 (0.363)
Notchimpending	?	0.0434 (0.283)	
Notch	?		0.0053 (0.896)
Size	-	0.0148 (0.343)	0.0180 (0.261)
BM	-	0.0002 (0.965)	0.0034 (0.429)
Ana Error	-	-0.0024 (0.011)**	-0.0023 (0.011)**
Horizon	+	0.0016 (0.044)**	0.0017 (0.041)**
Loss	+	0.2509 (<0.001)***	0.2566 (<0.001)***
AnaCov	-	-0.3021 (<0.001)***	-0.2982 (<0.001)***
Ana Dispers	-	4.63E-6 (0.984)	1.40E-5 (0.950)
Abtradvol	?	2.4E-10 (0.458)	4.74E-10 (0.240)
Qtrret	?	0.6302 (<0.001)***	0.6380 (<0.001)***
Litigation	-	-0.0227 (0.722)	-0.0180 (0.781)
Earnings Vol	-	-3.00E-5 (0.684)	-4.00E-5 (0.876)
Observations		21530	21322
Pseudo R^2		0.096	0.095

*Notes: Panel A of this table reports descriptive statistics of the variables used in the regression. Panel B reports the regression results for the test of the impact of impending credit rating changes on managerial propensity to issue a good news earnings forecast (H1). The sample period ranges from 1989 to 2009. The logistic regression is used in the test. The dependent variable is Goodnews, an indicator variable for whether a firm issues a good-news earnings forecast during a fiscal quarter. All the variables are defined in the appendix. Year and quarter dummies are included in the regression but are not reported for brevity. p-values in parentheses are based on the robust standard errors clustered by firm. ***, **, * denote the two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.*

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Table 5 presents the descriptive statistics and the regression results for model (2). Neither *Notchimpending* nor *Notch* takes on a statistically significant coefficient. This suggests that firms close to a credit rating change do not issue optimistically biased forecasts due to the disciplinary role of audited earnings reports in management forecast accuracy. *Size*, *Litigation*, *Qtrret*, and *AnaCov* have a significantly negative coefficient, indicating that firms with large size, high litigation risk, high abnormal stock returns, or high analyst coverage are less inclined to optimistically bias their earnings forecasts. *Loss* is positive and significant at the 1% level, indicating that firms that experience a loss in operating income tend to issue optimistically biased earnings forecasts.

Table 5: Test of H2: The impact of impending credit rating changes on management earnings forecast optimism (bias)

Panel A: Descriptive statistics of variables

Variable	Mean	Std. Dev.	25th	Median	75th	N
Notchimpending	0.3452	0.4754	0	0	1	17776
Notch	0.6237	0.4845	0	1	1	17609
Size	7.7941	1.5189	6.8199	7.7116	8.7657	17776
BM	0.6200	3.0535	0.3155	0.5129	0.7704	17776
AnaError	-1.0619	73.2370	-7.968E-3	-1.449E-3	2.972E-4	17776
Horizon	22.5919	21.3327	5	14	38	17776
Loss	0.1737	0.3789	0	0	0	17776
AnaCov	0.9001	0.8293	0	0.6931	1.6094	17776
AnaDispers	1.0809	64.2437	0	0.01	0.04	17776
Litigation	0.1276	0.3336	0	0	0	17776
EarningsVol	62.4468	275.2879	5.0374	13.3264	39.2041	17776
Abtradvol	129811	3.149E+7	-2.620E+6	8.693E+4	3.394E+6	17776
Qtrret	0.0179	0.2400	-0.0881	0.0041	0.1016	17776

Panel B: Regression results for the test of H2

Variables	Pred. Sign	Dependent Variable = Optimism	
Intercept	?	0.4899 (0.002)***	0.4813 (0.005)***
Notchimpending	?	-0.0076 (0.883)	
Notch	?		0.0163 (0.758)
Size	?	-0.1001 (<0.001)***	-0.1005 (<0.001)***
BM	-	-0.0030 (0.410)	-0.0023 (0.562)
AnaError	-	-0.0054 (0.184)	-0.0056 (0.209)
Loss	+	0.4599 (<0.001)***	0.4563 (<0.001)***
AnaCov	-	-0.3402 (<0.001)***	-0.3380 (<0.001)***
AnaDispers	-	-0.0004 (0.609)	-0.0005 (0.617)
Abtradvol	?	1.83E-11 (0.975)	-1.33E-11 (0.983)
Qtrret	?	-0.2511 (<0.001)***	-0.2578 (<0.001)***
Horizon	+	-0.0053 (<0.001)***	-0.0054 (0.770)
Litigation	-	-0.1464 (0.019)**	-0.2225 (0.012)**
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EarningsVol	-	-0.0001 (0.122)	-0.0001 (0.065)*
Observations		17776	17609
Pseudo R^2		0.082	0.081

*Notes: Panel A of this table reports descriptive statistics of the variables used in the regression. Panel B presents the regression results for the test of the impact of impending credit rating changes on management forecast optimism (H2). The sample period ranges from 1989 to 2009. The logistic regression is used in the test. The dependent variable is Optimism, an indicator variable for whether a management forecast of EPS during a fiscal quarter is greater than actual EPS. All the variables are defined in the appendix. Year and quarter dummies are included in the regression but are not reported for brevity. p-values in parentheses are based on the robust standard errors clustered by firm. ***, **, * denote the two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.*

Table 6 shows the descriptive statistics and the regression results for model (3). Since the measure of management forecast precision is right-truncated at 0, the regression model is estimated using Tobit regression rather than OLS regression. The coefficient on neither *Notchimpending*Goodnews* nor *Notch* Goodnews* is statistically significant, suggesting that firms near a rating change do not choose to manipulate forecast precision across varied forecast news to affect the perceptions of outsiders of interest. *Goodnews* takes on a significantly positive coefficient, which is consistent with the prior evidence (Cheng et al. 2013) that firms tend to release a more precise earnings forecast for good news than for bad news. As predicted, the coefficients on *EarningsVol*, *BM*, *Loss*, and *AnaDispers* are negative and statistically significant, indicating that firms with high earnings volatility, high book-to-market ratio, a loss in operating income, or high analyst forecast dispersion tend to issue less precise earnings forecasts. *Size* also has a statistically significant coefficient with the positive predicted sign, indicating that large firms tend to have high management forecast precision.

Table 6: Test of H3: The impact of impending credit rating changes on management earnings forecast precision

Panel A: Descriptive statistics of variables

Variable	Mean	Std. Dev.	25th	Median	75th	N
Notchimpending	0.3251	0.4685	0	0	1	5029
Notch	0.6150	0.4866	0	1	1	4995
Size	8.0966	1.4219	7.1771	8.0269	9.0268	5029
BM	0.5050	0.4893	0.2787	0.4405	0.6476	5029
Goodnews	0.4039	0.4907	0	0	1	5029
Horizon	60.5735	15.4330	56	64	70	5029
Loss	0.1201	0.3251	0	0	0	5029
AnaCov	1.3672	1.0848	0	1.3863	2.3026	5029
AnaDispers	0.0098	0.0171	0	0.01	0.01	5029
Litigation	0.2155	0.4112	0	0	0	5029
EarningsVol	51.6188	166.7748	5.3216	13.1563	36.1378	5029
Abtradvol	755074	3.465E+7	3.392E+6	1.997E+5	4.510E+6	5029
Qtrret	0.0161	0.1739	-0.0796	0.0062	0.0992	5029

Panel B: Regression results for the test of H3

Variables	Pred. Sign	Dependent Variable = Precision	
Intercept	?	-0.1749 (<0.001)***	-0.1724 (<0.001)***
Notchimpending	?	-0.0115 (0.061)*	
Notchimpending*Goodnews	?	-0.0037 (0.692)	
Notch	-		0.0028 (0.631)
Notch*Goodnews	?		-0.0089 (0.317)
Goodnews	+	0.1015 (0.053)*	0.0140 (0.043)**
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Size	+	0.0184 (<0.001)***	0.0177 (<0.001)***
BM	-	-0.0211 (<0.001)***	-0.0202 (<0.001)***
Horizon	-	-0.0003 (0.033)**	-0.0003 (0.006)***
EarningsVol	-	-0.0001 (<0.001)***	-0.0001 (<0.001)***
Litigation	-	-0.0160 (0.003)***	-0.0186 (<0.001)***
Loss	-	-0.1046 (<0.001)***	-0.1057 (<0.001)***
Abtradvol	?	8.722E-11 (1.000)	9.541E-11 (1.000)
Qtrret	?	-0.0007 (0.958)	-0.0002 (0.987)
AnaCov	+	-0.0056 (0.014)**	-0.0025 (0.148)
AnaDispers	-	-0.5702 (0.008)***	-0.5753 (<0.001)***
Observations		5029	4995
Pseudo R2		0.183	0.182

*Notes: Panel A of this table reports descriptive statistics of the variables used in the regression. Panel B reports the regression results for the test of the impact of impending credit rating changes on management forecast precision (H3). The Tobit regression is used in the test. The sample period ranges from 1989 to 2009. The dependent variable is Precision, which measures the precision of management earnings forecasts for a firm during a fiscal quarter. All the variables are defined in the appendix. Year and quarter dummies are included in the regression but are not reported for brevity. p-values in parentheses are based on the robust standard errors clustered by firm. ***, **, * denote the two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.*

Overall, the multivariate results suggest that firms near a credit rating change do not opportunistically alter their disclosure strategies to manage rating agencies' perceptions about corporate credit risk. As rating agencies deal with their clients repeatedly in the long run and are specialized in acquiring and processing corporate information, rating agencies should have a fairly good sense of whether managers engage in opportunistic disclosures. This explains why firms close to a rating change do not engage in opportunistic financial disclosures to influence rating agencies' decisions.

VI. Supplemental Tests

a) Separate impending credit rating upgrades from impending rating downgrades

I separate the effect of impending notch (broad) rating upgrades on management earnings forecast from the effect of impending notch (broad) rating downgrades. To do so, I replace *Notchimpending* (*Notch*) with *Splus* and *Sminus* (*Plus* and *minus*) in models (1)-(3) for the regression analyses. *Splus* (*Sminus*) equals 1 if a firm is near a notch rating upgrade (downgrade) and 0 otherwise. *Plus* (*Minus*) equals 1 if a firm's credit rating is close to a broad rating upgrade (downgrade) and 0 otherwise. The results (not tabulated) indicate that neither *Splus* (*Sminus*) nor *Plus* (*Minus*) takes on a statistically significant coefficient, suggesting that H1-H3 hold for firms near a rating upgrade and firms near a downgrade, respectively.

b) Control for sample selection bias

The sample used for the tests of H1-H3 is restricted to the observations that have management earnings forecasts, which might give rise to sample selection bias. To address this possibility, I adopt a multinomial logistic specification for models (1)-(3) using the full sample, whereby the potential selection bias would be corrected (Bourguignon et al., 2007).[10] The inferences for H1-H3 remain unchanged for the multinomial logistic specification.

Alternatively, I employ a two-stage Heckman Inverse-Mills-ratio method to control for the potential selection bias. The probit model is used for the first-stage regression, where a binary variable for the incidence of management earnings forecast (*Occur*) is regressed on the following variables that are likely to be related to managerial decisions to issue an earnings forecast: analyst following (*AnaCov*), firm size (*Size*), analyst forecast errors in absolute term (|*AnaError*|), earnings volatility (*EarningsVol*)), analyst forecast dispersion (*AnaDispers*), book-to-market ratio (*BM*), firm age (*Firm age*), financial leverage (*Debt*), and industry-level litigation risk (*Litigation*) (Kasznik and Lev, 1995; Frankel et al., 1995; Bushee and Leuz, 2005; Lang and Lundholm, 1996; Ajinkya et al., 2005, among others). All these variables are defined in the appendix. The Inverse Mills ratio estimated from the first-stage regression is

[10] When multinomial logistic specification is applied for model (3), the dependent variable is dichotomized as equal to 1 if *Precision* of a firm-quarter observation is above the sample median and 0 otherwise.

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included in the second-stage regression model, which is modeled by model (1), (2), and (3), respectively, to control for potential selectivity bias. The results for the coefficients on *Notchimpending* and *Notch* under the Heckman Inverse-Mills-ratio method are qualitatively the same as those reported in Tables 4-6.

c) *Control for firm-fixed effects*

Whether to issue earnings forecasts could be a firm's long-term financial policy. As a firm periodically has an earnings number, there might be a firm-specific and time-invariant aspect to a firm's earnings forecasts which are likely driven by some unobserved firm characteristics. Therefore, I run firm-fixed-effects logistic regression for models (1)-(3). The regression results are qualitatively the same as those reported in Tables 4-6. This indicates that the impact of impending rating changes on the incidence of management earnings forecast is robust to including firm-fixed effects.

d) *Control for the stickiness of management earnings forecast*

Hirst et al. (2008) pinpoint the dynamic and iterative nature of management earnings forecasts. To control for the potential stickiness of management earnings forecasts, I augment models (1)-(3) by their lagged dependent variables, namely, *LagGoodnews*, *LagOptimism*, and *LagPrecision*, respectively, which are defined in the appendix. The results for the augmented models (1)-(3) are qualitatively identical to those reported in Tables 4-6.

e) *Eliminate the confounding effects of other concurrent disclosures*

My measures of earnings forecast news might be subject to noise or systematic bias when the forecasts are released concurrently with other disclosures. In addressing this issue, I consider two major types of concurrent disclosures: earnings announcements and voluntary disclosures of product or business expansion plans, which are commonly seen and investigated in practice. I exclude earnings forecasts that are issued concurrently with earnings announcements or with the disclosures of product or business expansion plans. Because the product and business expansion disclosure data are not available in Capital IQ database until after 2001, I narrow the robustness test to the sample period of 2002-2009, for which I exclude the observations that contain the concurrent disclosures of product and business expansions plans. All my inferences for H1-H3 remain the same after I eliminate the confounding effects of these concurrent disclosures.

f) *Correct for bias from the CIG's incomplete coverage of earnings forecast data*

Chuk et al. (2013) find that there exists substantive bias caused by the incomplete coverage of management earnings forecasts data on the First Call's Company Issued Guidance database. Chuk et al. (2013) suggest that researchers should examine the sensitivity of their results by (i) omitting sample periods prior to 1998 and (ii) conducting analyses on a subsample where coverage of management earnings forecast data is known to be better (i.e., observations with high analyst following). My results are robust to the above two tests recommended by Chuk et al. (2013).

g) *Limit the sample to firms that have a track record of issuing earnings forecasts*

Managers' decisions to strategically issue earnings forecasts to influence credit ratings might be affected by whether their firm has already had a track record of issuing earnings forecasts in the past. It would be an easier decision for managers to make good news forecasts, optimistic forecasts, and more precise forecasts for good news than for bad news if a firm has consecutively issued earnings forecasts in the recent past than if they had not. I thus limit my sample to observations that have at least one earnings forecasts for each fiscal quarter of the past three fiscal years. I re-run regressions for models (1)-(3) based on this subsample, and obtain qualitatively the same results as those reported in Tables 4-6.

h) *Use credit watch data to measure a firm's impending credit rating change status*

I identify a sample of 434 firms that are subject to S&P credit watch reviews over the sample period of 1989-2009. The data are obtained from Mergent Fixed Investment Securities database (FISD). Firm-quarter observations that are involved in credit watch actions over the sample period amount to 2,748 and are classified as the treatment sample. A credit watch is a public warning of a firm's impending credit rating change status. It is possible that a firm is close to a rating change but is not warned publicly by rating agencies. Hence, the non-credit-watch firm-quarter observations are used as the control sample only if they are classified as not near a credit rating change under the Kisgen (2006)'s classification approach. The control sample amounts to 23,237 firm-quarter observations.

To compare the characteristics of management earnings forecasts between the treatment sample and the control sample, I conduct the regression analyses for models (1)-(3) where *Notchimpending and Notch are replaced with Watchimpending. Watchimpending is an indicator variable equal to 1 (0) for the treatment (control) sample. The regression results indicate that the coefficients for Watchimpending are* all statistically insignificant, suggesting that firms do not pursue opportunistic disclosures in response to a credit watch action taken by their rating agencies.

VII. Conclusion

This study examines whether managerial incentives for a desired credit rating affect voluntary

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financial disclosure behaviors. Credit rating agencies claim to have incorporated the quality of public disclosures into credit ratings. Opportunistic disclosures worsen information environment of a firm, and once detected, would lower rating agencies' expectations about a firm's creditworthiness. Consistent with this rationale, my results suggest that firms refrain from making opportunistic earnings forecasts during impending credit rating changes. In particular, firms do not selectively release good news or withhold bad news in their earnings forecasts when facing an impending rating change. Nor do the firms tend to issue an optimistic earnings forecast or a more precise forecast for good news than for bad news. Overall, there is no evidence to suggest that credit ratings are manipulated via management earnings forecasts.

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Appendix

Summary of Variable Definitions

Variables	Definitions
Optimism	1 if the last management forecast of EPS is greater than actual EPS for a fiscal quarter and 0 otherwise.
Goodnews	1 if the last management earnings forecast is greater than the mean consensus analyst earnings forecast issued within 90 days prior to the management forecast date for a fiscal quarter and 0 otherwise.
Precision	The absolute value of the difference between the highest estimate and the lowest estimate of earnings fora fiscal quarter times (-1), divided by the absolute value of the sum of the highest estimate and the lowest estimate of earnings forthe fiscal quarter.
Notchimpending	1 if a firm is near a notch rating upgrade or downgrade and 0 if the firm is not near any notch rating change.
Notch	1 if a firm's credit rating is at the top or bottom of a broad rating category and 0 otherwise.
Splus	1 if a firm is near a notch rating upgrade and 0 otherwise.
Sminus	1 if a firm is near a notch rating downgrade and 0 otherwise.
Plus	1 if a firm's credit rating is at the top of a broad rating category and 0 otherwise.
Minus	1 if a firm's credit rating is at the bottom of a broad rating category and 0 otherwise.
AnaCov	The natural logarithm of 1 plus the number of analysts following a firm during a fiscal quarter.
Size	The natural logarithm of 1 plus the market value of a firm's common equity at the beginning of a fiscal quarter.
Litigation	1 forfirms in the biotechnology (2833-2836 and 8731-8734), computers (3570-3577 and 7370-7374), electronics (3600-3674), and retail (5200-5961) industries and 0 otherwise.
AnaError	A firm's reported EPS minusthe meanconsensus analyst forecast of EPS during a fiscal quarter, divided by thestock price at the beginning of a fiscal quarter.
EarningsVol	The standard deviation of quarterly earnings over 12 quarters ending at the beginning of a fiscal quarter.
BM	The book value of common equity divided by the market value of common equity at the beginning of a fiscal quarter.
AnaDispers	The standard deviation of analyst earnings forecasts during a fiscal quarter.
Horizon	The number of days between the management earnings forecast date and the fiscal quarterend date.
Abtradvol	The difference between dollar trading volume of the current fiscal quarter and that of the previous fiscal quarter.
Qtrret	The size-adjusted buy-and-hold returns over a fiscal quarter, which equal the compounded raw returns minus the compounded equally-weighted returns of the same CRSP size decile and the same CRSP exchange index (NYSE/AMEX/NASDAQ) that a firm belongs to.
Loss	1 if a firm reports an operating loss during a fiscal quarter and 0 otherwise.
Debt	Long-term debt divided by the market value of equity at the end of a fiscal quarter.
Firmage	The natural logarithm of the number of years since a firm got listed.
LagOptimism	1 if the last management forecast of EPS is greater than actual EPS for the previous fiscal quarter and 0 otherwise.
LagGoodnews	1 if the last management earnings forecast is greater than the mean consensus analyst earnings forecast issued within 90 days prior to the management forecast date for the previous quarter and 0 otherwise.
LagPrecision	The absolute value of the difference between the highest estimate and the lowest estimate of earnings for the previous fiscal quarter times (-1), divided by the absolute value of the sum of the highest estimate and the lowest estimate of earnings forthe previous fiscal quarter.

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