



## Do Managers Target Their Credit Ratings?

Afef FEKI KRICHENE<sup>1</sup>, Faculty of Economic Sciences and Management, Tunisia  
Walid KHOUFI, High Commercial Studies Institute, Tunisia

### Abstract

*In this paper, we examine the role of managerial discretion in setting credit ratings for S&P 500 firms. Managers choose credit rating targets by trading off the benefits associated with a high rating against the costs of capital. We find that firms with high growth opportunities, high asset tangibility and high liquid assets tend to target higher ratings, whereas risky firms tend to target lower ratings. While, firms with higher interest coverage and higher debt coverage tend to target high ratings. In addition, firms with small boards and large blockholders tend to target lower ratings. We also find that firms tend to make choices that offset the deviations from their target rating levels. The hope of reaching a target rating leads managers to lower their debt when their current rating is below the target and to increase their debts when their current rating is above the target.*

*Keywords: managerial discretion, current rating, target rating, debt.*

*JEL Classification: G24; G32*

### Introduction

The creditworthiness of most large U.S. firms are evaluated by agencies like S&P, Moody's, and Fitch, which assign credit ratings based on their perceptions of the firm's credit quality. Of course, most credit rating changes occur as a result of exogenous events that have nothing to do with management choices. Nevertheless, a firm's credit rating is a management choice. Anecdotal evidence suggests that managers generally describe their capital structure policy in terms of target ratings and tend to make a variety of financing, hedging, and investment choices that allow them achieve their desired rating. Graham and Harvey's (2001) show on their survey that managers focus on their credit ratings when they make their capital structure choices. For example, a firm with an S&P 'BB' rating but a target rating of 'BBB' may choose to issue equity and/or retire debt in order to achieve its target.

---

<sup>1</sup> Corresponding author.

This paper extends previous research that explores the reactions of capital structure decisions to probable and real credit rating changes by examining how managers target their credit ratings. Kisgen (2006) provides the first examination of capital structure reaction to probable credit rating changes. Arguing that higher credit rating levels provide benefits to a firm, he shows that firms at both the lower and upper range of ratings boundaries (for example A1 and A3) reduce leverage relative to firms in the middle of ratings categories (for example A2) to avoid downgrades and achieve upgrades, respectively. If managers care about maintaining better ratings, they will not only alter capital structure to avoid downgrades and obtain upgrades, but they will also reduce leverage after downgrades to regain their target rating (but not necessarily increase leverage after upgrades). Next, in 2009, Kisgen extends his research to capital structure reactions following real credit rating changes. He shows that firms downgraded issue less net debt relative to net equity in the following year. In addition, the effect of a downgrade is larger at downgrades to a speculative grade rating than downgrades to a broad rating. However, rating upgrades do not affect capital structure activity, suggesting that firms target minimum rating levels. Following Kisgen (2009), we have found in our study of the reaction of capital structure to probable and real credit rating changes (Feki et al., 2015b) that firms close to an upgrade/downgrade will issue less debt relative to equity to either avoid a downgrade or to increase the chances of an upgrade. Firms receiving a downgrade will reduce their debt issuance in the following year in order to reach again the investment grade. However, once the investment grade reached, firms will increase again their debt issues. We concluded that managers who are concerned by reaching a target rating will use their managerial discretion that translates into capital structure decisions. Our model was insufficient to test whether managers really target credit rating and if they use their managerial discretion to adjust current rating in order to reach the target one.

In this paper, we will develop a model that predict target rating first. Second, we will test if managers make choices of capital structure to adjust their current rating when it is above or below the target one. We start our empirical analysis by estimating an ordered probit regression that describe how the characteristics of a firm as well as the degree of its managers discretion determine its rating choice. This regression explain observed credit ratings as a function of firm characteristics that proxy for the costs and benefits of achieving a higher rating, along with governance variables that measure the extent to which the manager controls the capital structure choice. We find that firms with high market to-book ratios tend to choose higher credit ratings, which is consistent with the hypothesis that firms with significant growth opportunities target high ratings to protect the value of these opportunities from the negative effects of lower ratings. In addition, our findings suggest that managers of more weakly governed firms, who enjoy more discretion, tend to choose higher ratings. Specifically, firms with large boards tend to have higher ratings and firms with large outside blockholdings tend to have lower ratings.

Although firms choose what rating to target, exogenous shocks to their profitability, risk, and other factors may result in deviations from their target ratings. Because of debt overhang issues and transaction costs, firms may be rather slow about making capital structure choices that offset these deviations. Nevertheless, if managers take these target ratings seriously, the

deviation between their current ratings and their targets are likely to influence future investment and financing choices. To explore this, we examine the adjustment to target ratings. Specifically, we examine whether the estimated deviations from the target ratings predict future changes in ratings. The idea is that if firms have target ratings, then we would expect their credit ratings to change over time to reflect the firms' tendency to move towards their targets. The results are significant. We find that when the firm's current rating is below its target (rating deficit), then the firm will react by reducing its debt ratio, which would in turn produce an improvement in its rating over time. Similarly, if the firm's observed credit rating is above its target (rating surplus), then the firm will make financing and other choices that tend to cause the rating to decline over time. The remainder of this paper is as follows. Section 2 reviews the literature in this field. Section 3 details the research design: sample data, summary statistics and models. The main results are discussed in section 4 and the conclusion in section 5.

## **2. The rating process**

In this section, we provide a brief overview of the rating process, which explains the information content of credit ratings.

Earlier, we have studied the determinants of issuers' long term credit ratings in Feki et al. (2015a). We examined the impact that various financial and business profile variables have on credit ratings issued for the S&P 500 index firms by Moody. The results indicate that firms' size, liquidity, interest coverage and debt coverage have the most pronounced effect on credit ratings. While, debt coverage ratio greater than one doesn't reflect greater capacity to cover debts, interest coverage ratio greater than twenty becomes insignificant.

Consistent with earlier regressions in Hwang et al. (2010), Cheng et al. (2009), Gray et al. (2006), Lee (2007), we find that the firm size, profitability, cash flows, liquidity, interest coverage and debt coverage are the set of independent variables used as determinants of issuer credit ratings. On the other hand, earlier studies of credit ratings and capital structure (Rajan and Zingales, 1995; Titman and Wessels, 1988) include the leverage ratio and other financial characteristics that proxy for the probability of bankruptcy such as firm size, asset tangibility, market-to-book, research and development expenses, selling expenses and profitability.

Similarly, we have found in our study of the reaction of capital structure to probable and real credit rating changes (2015b) that the market-to-book ratio, tangibility, profitability, firm size, depreciation cost and leverage are significant. As a conclusion, we show also that the managerial discretion should be included as part of the credit rating framework.

It should also be noted that, in addition to using information from a firm's accounting statements, the ratings agencies consider financial projections that are not available to the financial economists who study ratings assignments. Standard and Poor's states that "Management's financial projections are a valuable tool in the rating process, because they indicate management's plans, how management assesses the company's challenges, and how it intends to deal with problems" (S&P Corporate Ratings Criteria, 2006, p.33).

As a result, as part of their task of assessing these financial projections, the ratings agencies must assess the credibility and the quality of management, so that corporate governance

issues are likely to influence the ratings that are assigned. For example, managers may prefer their firms to have low default probabilities to protect their jobs and, as a consequence, make choices that lead to higher ratings. Managers may also prefer to alleviate the pressure that comes with interest payment commitments, or may benefit from opportunities associated with managing a more highly rated firm that can more easily raise investment capital. In contrast, if there is a possibility of a hostile takeover, managers may prefer a lower rating if it reduces the potential acquirer's gain and makes a takeover less likely.

In his study of firms targeting credit ratings or leverage levels, Kisgen (2009) show that financial managers undertake capital structure behavior to target minimum credit rating levels over time. This behavior is due to specific concern for the benefits of higher ratings after considering target leverage behavior.

Hovakimian et al. (2008) confirm the managerial discretion effect. They find that firms with small boards and large blockholders tend to target lower ratings. Using regression-based proxies for target ratings and debt ratios, they also found that deviations from rating targets as well as debt ratio targets influence subsequent corporate finance choices. When observed ratings are below (above) the target, firms tend to make security issuance and repurchase decisions that reduce (increase) leverage. Next in 2009, they also found that firms are more likely to decrease (increase) dividend payouts when they have below (above) target ratings and make more (fewer) acquisitions when they have above (below) target ratings.

### 3. The research design

Our initial sample consists of American companies that belong to the S&P500 index. Historical long-term issuer credit ratings are obtained through the Moody's Ratings website. Firm characteristics and managerial discretion variables for the period 2008 to 2010 are collected from Thomson Reuters Datastream of the Worldscope Base.

Financial firms are excluded from the sample due to special regulations. Also, companies that are not rated by Moody and whose the first rating occur after 2010 are excluded. The number of firms that meet the above criteria is 292. The total resulting sample consists of 880 firm-year observations.

**Table 1: Ratings Sample**

Year	19 Aaa	16-18 Aa1 Aa2 Aa3	13-15 A1 A2 A3	10-12 Baa1 Baa2 Baa3	7-9 Ba1 Ba2 Ba3	4-6 B1 B2 B3	1-3 Caa1 Caa2 Caa3	Total
2008	7	15	109	168	39	13	2	353
2009	6	11	70	113	64	13	1	278
2010	3	10	60	110	50	15	1	249
Total	16	36	239	391	153	41	4	880
Percent	1,8%	4,1%	27,2%	44,4%	17,4%	4,7%	0,4%	100%

Table 1 presents the distribution of sample ratings by year. The results show that most companies are rated Baa1-Baa2-Baa3 (44,4%), A1-A2-A3 (27,2%) and Ba1-Ba2-Ba3 (17,4%). Aa1-Aa2-

Aa3 and B1-B2-B3 represent only (9%). Whereas, Aaa, Caa1, Caa2 and Caa3 represent only 2,2%. Because they represent a minority and for the purposes of calculating changes in ratings, we have exclude Aaa and Caa rated firms'. Our final simple is composed of 860 firm-year observations.

Table 2 presents the distribution of firm characteristics and managerial discretion by rating levels.

**Table 2: Sample Statistics**

Variable	Mean	Median	SD	Variable	Mean	Median	SD
<b>Int Cov</b>				<b>Tang</b>			
Aa1-Aa2-Aa3	13,09	9,18	12,700	Aa1-Aa2-Aa3	0,66	0,59	0,238
A1-A2-A3	20,19	12,35	21,550	A1-A2-A3	0,58	0,48	0,234
Baa1-Baa2-Baa3	16,89	9,39	21,018	Baa1-Baa2-Baa3	0,44	0,37	0,207
Ba1-Ba2-Ba3	20,66	10,50	24,36	Ba1-Ba2-Ba3	0,34	0,31	0,211
B1-B2-B3	20,61	7,46	32,79	B1-B2-B3	0,29	0,26	0,191
<b>Deb Cov</b>				<b>R&amp;D</b>			
Aa1-Aa2-Aa3	0,19	0,17	0,385	Aa1-Aa2-Aa3	0,133	0,128	0,087
A1-A2-A3	0,67	0,30	1,205	A1-A2-A3	0,135	0,146	0,134
Baa1-Baa2-Baa3	0,53	0,23	1,157	Baa1-Baa2-Baa3	0,144	0,148	0,086
Ba1-Ba2-Ba3	0,47	0,24	0,937	Ba1-Ba2-Ba3	0,156	0,151	0,077
B1-B2-B3	0,37	0,12	0,770	B1-B2-B3	0,161	0,149	0,082
<b>Cur Rat</b>				<b>BlocOwn</b>			
Aa1-Aa2-Aa3	1,89	1,60	0,993	Aa1-Aa2-Aa3	0,164	0,148	0,051
A1-A2-A3	1,70	1,56	0,848	A1-A2-A3	0,186	0,166	0,032
Baa1-Baa2-Baa3	1,63	1,40	0,930	Baa1-Baa2-Baa3	0,245	0,224	0,047
Ba1-Ba2-Ba3	1,62	1,37	0,797	Ba1-Ba2-Ba3	0,278	0,256	0,065
B1-B2-B3	1,40	1,29	0,626	B1-B2-B3	0,312	0,284	0,037
<b>MB</b>				<b>BoaSiz</b>			
Aa1-Aa2-Aa3	2,20	1,78	0,914	Aa1-Aa2-Aa3	9,70	9,30	0,246
A1-A2-A3	1,92	1,63	0,885	A1-A2-A3	8,60	8,10	0,389
Baa1-Baa2-Baa3	1,74	1,49	0,764	Baa1-Baa2-Baa3	7,40	7,20	0,645
Ba1-Ba2-Ba3	1,55	1,31	0,653	Ba1-Ba2-Ba3	6,50	6,30	0,412
B1-B2-B3	1,43	1,22	0,543	B1-B2-B3	6,30	5,90	0,659
<b>Prof</b>				<b>BoaInde</b>			
Aa1-Aa2-Aa3	0,161	0,148	0,078	Aa1-Aa2-Aa3	0,783	0,667	1,334
A1-A2-A3	0,181	0,153	0,086	A1-A2-A3	0,494	0,414	0,993
Baa1-Baa2-Baa3	0,156	0,151	0,134	Baa1-Baa2-Baa3	0,656	0,543	0,879
Ba1-Ba2-Ba3	0,170	0,149	0,082	Ba1-Ba2-Ba3	0,786	0,646	1,129
B1-B2-B3	0,159	0,152	0,099	B1-B2-B3	0,339	0,312	0,689
<b>Size</b>							
Aa1-Aa2-Aa3	9,526	9,317	1,076				
A1-A2-A3	9,527	9,424	1,045				
Baa1-Baa2-Baa3	9,444	9,399	1,064				
Ba1-Ba2-Ba3	9,349	9,459	1,034				
B1-B2-B3	9,642	9,424	1,054				

### 3.1 The determinants of Target Ratings

In this section, we examine how the characteristics of a firm as well as the degree of its managers discretion determine its rating choice. Because firms' target ratings are not observable, we follow the approach of the earlier studies of capital structure that estimate the target debt ratio as the fitted value from a regression of observed debt ratios. Specifically, we regress the ratings on the set of variables used to examine the determinants of observed ratings, with a few modifications.

The main difference between the target rating model and the rating assignment model in previous studies (Pinches and Mingo, 1973; Ederington, 1985, Bhojraj and Sengupta, 2003) is that we do not include a debt ratio as an independent variable.

In a rating choice model, the debt ratio is an endogenous choice that allows the firm to achieve its target rating, but does not determine what rating the firm wants to target. For example, a firm that desires a higher rating can issue equity and use the proceeds to pay down debt while a firm that is willing to reduce its rating can borrow to repurchase equity.

Our goal in estimating regression equation (1) is to obtain proxies for the rating that the firm wants to target. Therefore, the set of independent variables consists of only those variables that influence this choice as utilized in Hovakimian et al. (2008) for which we add significant determinants of credit ratings as found in Feki et al. (2015a).

The following equation (1) summarizes the target rating regression model:

$$\text{Rating}_{it} = \beta_0 + \beta_1 \text{Int Cov} + \beta_2 \text{Deb Cov} + \beta_3 \text{Cur Rat} + \beta_4 \text{MB}_{it} + \beta_5 \text{TANG}_{it} + \beta_6 \text{R\&D}_{it} + \beta_7 \text{PROF}_{it} + \beta_8 \text{SIZE}_{it} + \beta_9 \text{BlocOwn}_{it} + \beta_{10} \text{BoaSiz}_{it} + \beta_{11} \text{BoaInde}_{it} + \varepsilon_{it} \quad (1)$$

We estimate the regression parameters using an ordered probit specification.

Note that, although firms choose what rating to target, exogenous shocks to their profitability, risk, and other factors may result in deviations from their target ratings.

Because of debt overhang issues and transaction costs, firms may be rather slow about making capital structure choices that offset these deviations. As a result, the observed ratings reflect not only the firm's target, but also the deviation from the target (Hovakimian et al., 2008).

Our estimation of the target is based on the assumption that the variation in observed ratings explained by firm characteristics reflects differences in rating targets, whereas the deviations from the targets are captured by the regression residual ( $\varepsilon_{it}$ ).

( $\varepsilon_{it}$ ) is a measure of the difference between the observed rating and the target rating.

The dependent variable **Rating<sub>it</sub>** is the observed rating. The letter ratings are transformed into numerical equivalents using an ordinal scale ranging from 1 for the lowest rated firms (C) to 19 for the highest rated firms (Aaa).

Dependent variables are variables reflecting firm characteristics and governance (Hovakimian et al., 2008) and significant determinants' of a firm rating as shown in Feki et al. (2015a). Firm characteristics variables are the market to book ratio (**MB<sub>i,t</sub>**), the tangibility ratio (**TANG<sub>i,t</sub>**), the research and development ratio (**R&D<sub>it</sub>**), the profitability ratio (**PROF<sub>i,t</sub>**) and firm size (**SIZE<sub>i,t</sub>**). The market to book ratio (**MB<sub>i,t</sub>**) is a proxy for the growth opportunities measured as [(year t market capitalization of equity + year t total liabilities)/(year t total assets)]. The tangibility ratio (**TANG<sub>i,t</sub>**) is measured as [(year t tangible assets + year t inventory assets)/(year t total assets)]. The research and development ratio (**R&D<sub>it</sub>**) is the research and development expense scaled by sales. The profitability ratio (**PROF<sub>i,t</sub>**) is measured as [(year t EBITDA)/(year t total assets)]. Firm size (**SIZE<sub>i,t</sub>**) is measured as (year t total assets).

We use also three governance variables that reflect managerial discretion: blockholder ownership (**BlocOwn<sub>it</sub>**), board size (**BoaSiz<sub>it</sub>**) and board independence (**BoaInde<sub>it</sub>**).

Managerial discretion is materialized by three indicators: Blockholder Ownership (**BlocOwn<sub>it</sub>**), Board Size (**BoaSiz<sub>it</sub>**) and Board Independence (**BoaInde<sub>it</sub>**).

Blockholder ownership (**BlocOwn<sub>it</sub>**) is the percentage ownership by investors holding five percent or more of outstanding shares. Board size (**BoaSiz<sub>it</sub>**) is the number of the directors on the board. Board independence (**BoaInde<sub>it</sub>**) is the percentage of outsiders on the board.

Significant determinants

Interest coverage ratio (**Int Cov**) is measured by EBITDA relative to interests. The effect of this ratio is measured by the coefficients of three increments: from 0 to 5, from 5 to 10 and from 10 to 20 according to FEKI et al. (2015a). Debt coverage ratio (**Deb Cov**) is measured by free cash flow relative to total debts. Similarly, the effect of this ratio is measured by the coefficients of two increments: from minus (-1) to 0 and from 0 to 1. Liquidity or current ratio (**Cur Rat**) is measured by current assets relative to current liabilities.

### 3.2 The adjustments toward target ratings

This section examines whether the estimated deviations from the target ratings predict future changes in ratings. The idea is that if firms have target ratings, then we would expect their credit ratings to change over time to reflect the firms' tendency to move towards their targets. More specifically, if a firm's current credit rating is below its target (rating deficit), we would expect the firm to react by reducing its debt ratio, which should in turn produce an improvement in its rating over time. Similarly, if the firm's observed credit rating is above its target (rating surplus), then the firm is expected to make financing and other choices that tend to cause the rating to decline over time.

To test whether the changes in ratings observed over time are influenced by the deviations from target ratings, we estimate the following predictive regression:

$$\Delta \text{Rating}_{it, t+1} = \alpha_0 + \alpha_1 \text{RatDef}_{it} + \alpha_2 \text{RatSurp}_{it} + \alpha_3 \text{MinRat}_{it} + \alpha_4 \text{PluRat}_{it} + \alpha_5 \text{LevDef}_{it} + \alpha_6 \text{LevSurp}_{it} + \alpha_7 \text{BlocOwn}_{it} + \alpha_8 \text{BoaSiz}_{it} + \alpha_9 \text{BoaInde}_{it} + \varepsilon_{it} \quad (2)$$

The dependent variable in regression (2) is the change in the observed rating over the next year. It is defined as ( $\text{Rating}_{i,t+1} - \text{Rating}_{it}$ ). This regression allows us to test whether the observed ratings revert to the target over time. Because of the ordinal nature of changes in ratings, equation (2) is estimated as an order probit regression.

Our main variable of interest is the deviation of the observed rating from the target rating, which is the regression residual of equation 1. To see whether firms react differently when they are above and when they are below the target, we split the deviation from target rating into two components. Rating Deficit is defined as ( $\text{Target}_{it} - \text{Rating}_{it}$ ) with negative values set to zero. Similarly, Rating Surplus is defined as ( $\text{Rating}_{it} - \text{Target}_{it}$ ) with negative values set to zero.

Kisgen (2006) reports that firms with plus and minus ratings are more likely to issue equity and less likely to issue debt. To control for this effect, we include two indicator variables.

Minus Rating takes the value of one if the firm's credit rating has a minus (e.g., AA-, A-, etc.) and Plus Rating takes the value of one if the firm has a "plus" rating (e.g., AA+, A+, etc.).

Following Hovakimian, Opler, and Titman (2001), we estimate a target debt ratio model and include Leverage Deficit and Leverage Surplus as additional control variables in regression (2). Leverage Deficit is defined as the difference between the estimated target debt ratio and the observed debt ratio, with negative values set to zero. Leverage Surplus is defined as the difference between the observed debt ratio and the estimated target debt ratio, with negative values set to zero.

We build the target debt ratio estimation model as equation (3) according to the methodology of Heshmati (2002), De Miguel and Pindado (2001).

$$\text{Target Leverage} = \Omega_0 + \Omega_1 \text{MB}_{i,t-1} + \Omega_2 \text{TANG}_{i,t-1} + \Omega_3 \text{PROF}_{i,t-1} + \Omega_4 \text{DEPRE}_{i,t-1} + \Omega_5 \text{SIZE}_{i,t-1} + \Omega_6 \text{LEV}_{i,t-1} + \zeta_{it} \quad (3)$$

Finally, regression (2) includes three variables measuring the extent of managerial discretion. As before, our expectation is that managers with more discretion would tend to choose higher ratings.

However, the results may be biased since Aaa-rated firms can only be downgraded whereas Caa-rated firms can only be upgraded. For the purposes of calculating changes in ratings, we exclude Aaa and Caa rated firms'.

#### 4. Empirical Results

The results in Table 3 indicate that firms with high market to-book ratios tend to choose higher credit ratings, which is consistent with the hypothesis that firms with significant growth opportunities target high ratings to protect the value of these opportunities from the negative effects of lower ratings.

Firms with high asset tangibility also tend to choose higher ratings. Firms with a high fraction of tangible assets are less likely to engage in risk-shifting (asset substitution) activities, allowing them to achieve a higher rating for a given amount of debt and implying that the costs of obtaining a high rating are lower for such firms (Hovakimian et al., 2008).

The effect of R&D on credit rating is negative. Consistent with the idea that high R&D firms are riskier, lower credit ratings are assigned for these firms because of their higher costs of financial distress.

**Table 3: Firm Characteristics, Managerial Discretion and Credit Ratings Targets**

Variable	Coefficient	p-value
Interest coverage		
K1 [0,5)	0,164	0,001
K2 [5,10)	0,020	0,013
K3 [10,20)	0,004	0,070
Debt coverage		



[-1,0)	0,267	0,048
[0,1)	0,198	0,096
Current Ratio	0,203	0,000
Market-to-book	0,0113	0,004
Tangibility	0,0249	0,000
R&D	-0,119	0,002
Profitability	0,0987	0,302
Size	0,0310	0,650
Blockholder Ownership	-0,063	0,032
Board size	0,140	0,005
Board independence	0,114	0,693
Observations	860	

**Table 4: Distribution of Changes in Ratings and Rate changes**

Rating	Rating Code	Rating Observations	Change in Rating Observations	Change in Rating	One-Year Change Rate
B3	1	8	4	-0,04	50%
B2	2	12	3	-0,19	25%
B1	3	21	6	-0,09	28,6%
Ba3	4	41	20	-0,11	48,7%
Ba2	5	42	15	-0,15	35,7%
Ba1	6	70	42	-0,08	60%
Baa3	7	128	58	-0,28	45,3%
Baa2	8	136	45	-0,17	33%
Baa1	9	127	39	-0,09	30,7%
A3	10	76	25	-0,24	32,9%
A2	11	120	56	-0,06	46,7%
A1	12	43	23	-0,12	53,5%
Aa3	13	17	7	-0,19	41,2%
Aa2	14	15	3	-0,20	20%
Aa1	15	4	1	-0,07	25%
All rated Firms		860	347	-0,14	40,3%

Change in rating observations represent the number of firms that rating change between two years, Change in rating is the mean of change for a category of rating (the total of changes in rating for one category divided by the number of firms changing from this category). One-Year change rate is the change in rating observations for one category divided by the number of rating observations for this category.

Our results indicate that profitability is not significantly associated with higher credit ratings. A several potential explanation for this effect is that profitable like non-profitable firms tend to have higher credit ratings to benefit from lower debt costs.

Firm size is also not significant. Small firms tend to choose lower ratings or even higher ratings. Firms require lower debt ratios to achieve a given rating, and thus the need of a higher amount of debt increases the cost of having a high rating.

Our results also indicate that managers with more discretion tend to choose higher credit ratings. Specifically, firms with large boards tend to have higher ratings and firms with large outside blockholdings tend to have lower ratings. These findings are consistent with the

hypothesis that managers have a personal preference for higher ratings and when they have the discretion, they make capital structure, investment, and/or risk choices that allow them to achieve this objective (Hovakimian et al., 2008). However, the effect of board independence is not significant.

In addition, the results for interest coverage and debt coverage variables are consistent with the results of FEKI et al. (2015a). The coefficient associated with increments of ‘Interest Coverage ratio’ from 0 to five is large, positive and significant, while the coefficients associated with increments from five to ten and from ten to twenty are also positive and significant but weaker. Thus, higher interest coverage ratios are associated with higher credit ratings but upon reaching a certain level, the effect reversed.

The coefficients associated with increments of ‘Debt coverage ratio’ between [-1,0) and [0,1) are positive and significant. Thus, higher debt coverage ratios are associated with higher credit ratings but debt coverage ratio greater than one does not reflect great capacity to cover debts and only diminishes credit ratings. Finally, the current ratio is significantly and positively associated with long-term credit rating. Firms with more liquid assets receive higher credit ratings.

The results reported in Table 5 show that firms with below-target ratings (rating deficit) are significantly more likely to improve their ratings. Whereas firms with above-target rating (rating surplus) are significantly more likely to reduce their ratings. These results confirm the hypothesis that firms have ratings targets and that they tend to make choices that offset the deviations from these targets.

**Table 5 : Regression of Adjustments toward Target Ratings**

	Coeff.	P-value
RatDef	0,082	0,002
RatSurp	-0,56	0,01
Rating	-0,06	0,05
PluRat	0,0009	0,234
MinRat	0,0004	0,923
LevDef	0,823	0,087
LevSurp	-0,65	0,065
BlocOwn	-0,147	0,098
BoaSiz	0,003	0,743
BoaInde	-0,247	0,003
Observations	347	
Pseudo-R <sup>2</sup>	0,098	

However, the effects of plus and minus ratings on changes in ratings are insignificant. This result is consistent with the results of FEKI et al. (2015b) and Kisgen (2009). The proximity to a broad rating change defined as ratings levels including a plus or minus notch within a broad rating (for example, BBB- or BBB+; according to S&P and Baa1 or Baa3; according to Moody)

is not significant. Only the proximity to a grade rating change (investment or speculative grades) defined as ratings located on the border of the investment grade (BBB- or BBB~BBB; according to S&P and Baa3 or Baa2~Baa3; according to Moody) is significant.

Firms with leverage deficit experience improvements in ratings over the next year which is consistent with the hypothesis of Kisgen (2006). A decrease in leverage level will improve the firm rating (Shin et al., 2012). In contrast, firms with leverage surplus experience declines in ratings over the next year. Our results seem logic: leverage is a significant determinant of credit rating who once increases only reports default risk.

The comparison of the effects of the rating deficit and rating surplus indicates that firms move less toward their target rating when their current rating is above the target than when their current rating is below the target. This observation is consistent with the hypothesis that managers of firms with above target ratings enjoy private benefits from the high ratings. To confirm this hypothesis, we examine the effects of the three proxies of managerial discretion. The results indicate that firms with higher blockholder ownership and boards that are more independent, experience less managerial discretion, tend to see their ratings decline over time.

To summarize, deviations from target ratings predict the changes in ratings observed over the next year. Firms with observed ratings below their target experience improvements in their ratings, whereas firms with ratings above their target experience declines in their ratings. These results are consistent with the hypothesis that firms tend to make choices that offset the deviations from their target rating levels. Results also confirm the managerial discretion hypothesis as supported in FEKI et al. (2015b). The hope of reaching a target rating leads managers to lower their debt when their current rating is below the target and to increase their debts when their current rating is above the target.

## **5. Conclusion**

Most firms and managers agree that having a higher credit rating is primary. Yet very few firms have either a “AAA” or a “AA” rating. The reason is that achieving a high rating requires a firm to include a substantial amount of equity in its capital structure, and this can be very costly. Hence, higher credit ratings are observed only for firms for which the benefits of a higher rating exceed its cost.

In addition to these costs and benefits, managerial preferences are also likely to affect the choice of the target rating. Therefore, it is likely that managers enjoy having a high rating along with the job security that is associated with low default probabilities. As a consequence, managers may make choices that lead to higher ratings when their ownership structure and board structure provides them the discretion to do so.

Our analysis of the determinants of target rating and the adjustments toward target ratings provides further support for these hypotheses.

Like all choices, the credit rating choice is determined by a tradeoff of costs and benefits that are likely to affect firms differently. We find that the observed credit ratings is a function of firm characteristics that proxy for the costs and benefits of achieving a higher rating, along with

governance variables that measure the extent to which the manager controls the capital structure choice. For example, we find that firms with high market to-book ratios tend to choose high ratings, which is consistent with the hypothesis that firms with significant growth opportunities target high ratings to protect the value of these opportunities from the negative effects of lower ratings. We also find that managers of more weakly governed firms, who enjoy more discretion, tend to choose higher ratings. Specifically, firms with large boards tend to have higher ratings and firms with large outside blockholdings tend to have lower ratings.

In addition to these costs and benefits, managerial preferences are also likely to affect the adjustment toward target rating. Specifically, we find that the initial deviation from the rating target is a strong predictor of subsequent changes in ratings, implying that firms tend to make financing and investment decisions that allow them to reach their target rating.

Furthermore, we find that below-target firms tend to decrease their leverage whereas above-target firms tend to increase their leverage. These reactions are somewhat asymmetric with firms reacting stronger when their rating is below the target than when their rating is above the target. The hope of reaching a target rating leads managers to lower their debt when their current rating is below the target and to increase their debts when their current rating is above the target.

## 6. References

- Ashbaugh-Skaife, H., D.W., Collins and LaFond, R.. (2006), “The effects of corporate governance on firms’ credit ratings”, *Journal of Accounting and Economics*, Vol.42, pp. 203-243.
- Bhojraj, S. and Sengupta, P. (2003), “Effect of corporate governance on bond ratings and yields: The role of institutional investors and outside directors”, *Journal of Business*, Vol. 76, pp. 455-476.
- Cantor, R. and Packer, F. (1994), “The credit rating industry”, *Federal Reserve Bank of New York Quarterly Review*, Vol. 19 No. 2, pp. 1-26.
- Cheng, K.F., Hwang, R.C. and Lee, C.F. (2009), “On multiple-class prediction of issuer credit ratings”, *Applied Stochastic Models in Business and Industry*, Vol. 25, pp. 535-550.
- De Miguel, A. and Pindado, J. (2001). “Determinants of capital structure: new evidence from Spanish panel data”, *Journal of Corporate Finance*, Vol. 7, pp. 77-99.
- Ederington, L. H. (1985), “Classification models and bond ratings”, *Financial Review*, Vol. 20, pp. 237-262.
- Faulkender, M. and Peterson, M.A.. (2006), “Does the source of capital affect capital structure”, *Review of Financial Studies*, Vol. 19, pp. 45-79.

- Feki, A. and Khoufi, W. (2015a), "The determinants of issuers' long term credit ratings: American S&P 500 index", *International Journal of Accounting and Economics Studies*, Vol. 3 No.1, pp. 78-85.
- Feki, A. and Khoufi, W. (2015b), "Does capital structure react similarly to probable and real credit rating changes?", *Research Journal of Applied Sciences*, Vol. 10 No. 10, pp. 536-542.
- Feki, A. and Khoufi, W. (2016), "The effects of credit rating grades' changes on capital structure: S&P 500", *The International Journal of Engineering and Sciences*, Vol. 5 No. 2, pp. 48-57.
- Flannery, M.J. and Rangan, K.P. (2006), "Partial adjustment toward target capital structure", *Journal of Financial Economics*, Vol. 79, pp. 469-506.
- Fons, J.S., R., Cantor and Mahoney, C. (2002), "Understanding Moody's corporate bond ratings and rating process: Special comment", Moody's Investor Services.
- Graham, J.R. and Harvey, C. (2001), "The theory and practice of corporate finance: Evidence from the field", *Journal of Financial Economics*, Vol. 60, pp. 187-243.
- Gray, S., Mirkovic, A. and Rangunathan, V. (2006), "The determinants of credit ratings: Australian evidence", *Australian Journal of Management*, Vol. 31 No. 2, pp. 333-354.
- Guttler, A. and Wahrenburg, M. (2007), "The adjustment of credit ratings in advance of defaults", *Journal of Banking and Finance*, Vol. 31, pp. 751-767.
- Heshmati, A. (2002), "The dynamics of capital structure: Evidence from Swedish micro and small firms", *Research in Banking and Finance*, Vol.2 No. 2, pp. 199-241.
- Hovakimian, A., T., Opler and Titman, S. (2001), "The debt-equity choice", *Journal of Financial and Quantitative Analysis*, Vol. 36, pp. 1-24.
- Hovakimian, A., Kayhan, A. and Titman, S. (2008), "How do managers target their credit ratings? A study of credit ratings and managerial discretion", FDIC Center for Financial Research Working Paper, <http://ssrn.com/abstract=1396726>
- Hovakimian, A., Kayhan, A. and Titman, S. (2009), "Credit rating targets", working paper series, [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1098351](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1098351).
- Hwang, R.C., Chung, H. and Chu, C.K. (2010), "Predicting issuer credit ratings using a semi parametric method", *Journal of Empirical Finance*, Vol. 17, pp. 120-137.
- Kisgen, D.J. (2006), "Credit ratings and capital structure", *Journal of Finance*, Vol.1 No. 3, pp. 1035-1072.
- Kisgen, D. J. (2009), "Do firms target credit ratings or leverage levels?", *Journal of Financial and Quantitative Analysis*, Vol. 44 No. 6, pp. 1323-1344.

- Lee, Y.C. (2007), "Application of support vector machines to corporate credit rating prediction". *Expert Systems with Applications*, Vol. 33, pp. 67-74.
- Moody's Special Comment. (2006), "Moody's Credit Rating Prediction Model".
- Moody's Special Comment. (2004), "A user's guide to Moody's default predictor model: An accounting ratio approach".
- Pinches, G.E. and Mingo, K.A. (1973), "A multivariate analysis of industrial bond ratings", *Journal of Finance*, Vol. 28, pp. 1-19.
- Rajan, R.G. and Zingales, L. (1995), "What do we know about capital structure? Some evidence from international data", *Journal of Finance*, Vol. 50, pp. 1421-1460.
- Standard and Poor's. (2006), "Corporate Ratings Criteria".
- Titman, S. and Wessels, R. (1988), "The determinants of capital structure". *Journal of Finance*, Vol. 43, pp.1-19.
- Zwiebel, J. (1996), "Dynamic capital structure under managerial entrenchment". *American Economic Review*, Vol. 86, pp. 1197-1215.