Why Does a Credit Rating Withdrawal Matter?

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Abstract

This paper tests whether and how ratings influence the market price. To do so I look at stock price reactions to two types of rating withdrawals. The first type of withdrawals occurs when the firm stops being rated. In this case, investors react negatively to the loss of rating. The second type of withdrawals occurs, instead, because Moody's implements a policy to consolidate the issuers' outstanding ratings. Prior to that policy Moody's released both the issuer and its family ratings. The policy change allows issuers to withdraw their own issuer rating and keep only the one of the family, which takes into account the ownership structure of the business group and is usually higher. The effect is a positive market reaction. It should be noticed that issuers' fundamentals do not change. I conclude that ratings play a key role in the market. First, they add information about the credit quality of the issuers. Second, ratings, even without new informational content, influence the lenders' supply with the final effect to modify the original firm's creditworthiness.

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1 Introduction

Ratings can impact the shareholders' value. For example, rating may influence the number of investors that are willing or allowed to invest in the company, they can change the company's cost of debt and their disclosure requirements[1]. The main role of rating agencies in the financial system is to provide an independent opinion about the borrowers' credit quality. However, the role of information provider may not be the only reasons why ratings influence the market. Precisely, ratings may influence issuers' market price through three channels: (i) the information channel, (ii) the regulation channel and (iii) the coordination channel (Jeon and Lovo, 2013). First, ratings may provide new information to investors about the exogenous credit quality of the firms. For example, a negative rating change may signal the worsening issuers' credit quality and negatively influence the price (information channel). Second, the market reaction to a rating change may be induced by the implication required by financial regulations. For example, institutional investors are restricted with respect to the amount of high yield (HY) bonds they can hold. Thus, the lower demand for HY debt can significantly increase the cost of borrowing of their issuers (regulation channel). Third, ratings may influence the market price by coordinating the investor's beliefs and the issuer's choice of the default risk (coordination channel). This mechanism makes possible that ratings, even without superior informational content, influence the investor demand of bonds with the final results to modify the issuer's credit risk. Thus, credit ratings may have a feedback effect (Manso, 2013).

Prior works examine price reaction to rating changes (i.e. downgrades, placements, outlook and inscriptions on watch list) and mainly, they overlooked potential feedback effects of ratings. In this study, I employ a new approach by exploiting the market reactions to rating withdrawals. This study shows that the coordination effect of credit ratings may play a role. In fact, investors rely on credit rating changes even when the rating action is not trigger by issuer' fundamentals change.

To the best of my knowledge, this paper is the first one to analyze the market reaction to rating withdrawals. Financial crisis have heightened the need to consider these rating events. Indeed, the recent criticisms toward rating agencies may incentivize firms to choose not to pay any more for a

[1] Kliger (2007) describes the channels through which ratings may influence the companies

rating. One example is the announcement of Danske Bank:

"The mortgage unit of Denmark's biggest bank will stop paying Moody's to rate its securities after learning it would lose its AAA credit grade unless it found an extra $6.2 billion in capital"[2].

In the paper, I analyze two types of rating withdrawals by Moody's.

In the first case withdrawals take place in order to stop the firm from being rated. This setting allows me to test how investors react to a reduction of rating information. The findings suggest that firms experience a decrease in share price after the rating withdrawals.

The second type of withdrawals happens because Moodys' implements a policy to consolidate the rating information. Prior to that policy Moody's released for each entity both the issuer and its family ratings. The latter is assigned to each entity as if the corporate group has a single consolidated legal structure whereas the issuer rating reflects the legal structure of the issuer. The policy implemented by Moody's on 16th August 2005 in Europe and 7th July 2005 in the United States, allows the firm to cancel the issuer rating and keep only the one of the family which is usually higher. This consolidation of outstanding ratings is not triggered by fundamental change in issuers' risk. Moreover, the policy's change does not add information to the market but exclusively reflects a change in the outstanding rating information. Thus, the policy is perfectly suited to understand whether and how ratings influence the prices. My findings show that as the lowest issuer rating is cancelled the market positively reacts. These rating changes are not triggered by new information neither by regulatory use of ratings. Therefore, I conclude that the coordination channel plays a role: ratings, without new informaational content, can influence the cost of capital and therefore the issuer credit quality.

Findings of the paper, emphasizing the value of credit rating agencies for the markets, should encourage regulators to strongly guarantee the highest quality of all outstanding credit ratings. Moreover, rating agencies should set the rating that reflects the issuer credit quality taking into account also the effect of the rating itself on the issuers credit quality.

The rest of this paper is organized as follows. Section 2 presents the literature review. Section 3 provides a first look at the events of ratings withdrawals. Section 4 presents the theoretical framework and develops testable hypotheses. Section 5 describes the sample. Section 6 explains the methodology.

[2]Bloomberg, 27th June 2011

Section 7 contains empirical evidence. Section 8 presents robustness tests. In section 9 I draw my conclusion.

2 Literature Review

Numerous studies investigate whether ratings influence the market by looking at the reaction of bond and stock prices to rating changes. Most of the previous findings for the United States market show that the stock prices react negatively to downgrades whereas upgrades rarely influence the price (Holtausen and Leftwich, 1986; Dichev and Piotrosky, 2001; Elayan, Hsu and Meyer, 2001; Choy, Gray and Ragunathan, 2006; Purda, 2007). Kliger (2000) looks at a refinement of rating information that is not triggered by firms' fundamental changes. The results show that the refinement influences bond and stock prices but there is no impact on the firm-value. Studies for the European market produce mixed results. The reaction of investors to negative credit rating announcements seems to be less frequent in Europe than US. Gropp and Richards (2001) show market reactions both for upgrades and downgrades. Abad-Romero and Robles-Fernandez (2006) find no reaction for downgrades. Dallocchio et al. (2006) and J.N. Ory et al., 2011 show evidence that rarely downgrading are followed by market reactions in the European debt market. In summary, a large stream of studies focus on changes in the rating level (i.e. downgrades, upgrades) to test the value of rating information. However, no attention of the empirical literature appears to be devoted to the withdrawal of the rating and small attention to the channel through which the ratings influence the price. In fact, many of the empirical papers listed focus on the information channel and test whether ratings contain superior information about the issuer credit quality. Some papers, also, show that the regulation channel plays a role in the pricing mechanism. For example, Bongaerts et al. 2006 tests three hypotheses that may influence the demand of multiple ratings: the information production, rating shopping and regulatory certification. They show that additional credit ratings do not add information. In fact, firms buy a third credit rating for regulatory purpose: firms search a good rating that allows them to be classified investment grade. Similarly, Kisgen et al. (2010) show that the influence of rating on the cost of debt is particular

high for the bond rated near the investment-grade cut off and conclude that this is due to regulatory constrain. Ellul et al. (2011) confirms the influence of regulation on price: bonds with high probability of regulatory-induced selling, experience higher decline after downgrades. At my knowledge, there is no evidence that show that rating, disentangled by its informational content, have a feedback effect on the issuer credit quality. The theoretical studies offer a more exhaustive discussions about the channels through which ratings influence the price; a complete summary of these theoretical models is in Jeon and Lovo (2013). The work of Boot et al. (2006) provides the rational for the coordination function of rating. Manso (2013) shows the importance to focus on the effect of ratings on the probability of default of the issuers. These theoretical models are related to the findings of this paper.

Also, this study contributes to the broader literature on the economic functions of credit rating agencies. Indeed, by looking at firms which stop to be rated, I am able to assess both the certification and monitoring functions of rating agencies. Bannier and Hirsch (2010), who use the firms' inscription on the watchlist, prove that credit rating agencies have both information certification and an active monitoring function. Several studies show that both the certification and monitoring activity of rating agencies reduce asymmetric information and allow to improve the access to capital for rated firms (Bosch and Steffen, 2011; Sufi, 2009; Faulkender and Petersen, 2006; Tang, 2009). In my related paper (Salvadè, 2014) I show the firms' features that increase the probability to be involved in a rating withdrawal. Then, I prove that the withdrawals affect the firms' financing policy.

Minor findings of this paper are related to the literature on split ratings. I show that investors react to any change in the average rating outstanding and I conclude that the market gives a weight to both the conservative and superior rating anchored to the same entity. This is partly consistent with previous findings. Cantor et al. (1997) suggest that in the investment grade sector the market prices split rated bonds between the yield implied by the lower rating and the yield implied by the average rating. For speculative grades, the market prices at average ratings. Liu and Moore (1997) prove that market gives a higher weight to the more conservative rating. Lugo (2012) studies how rating influenced prices at issuance when discordant evaluations are present. He finds that, for home equity tranches, the more benign rating drives prices.

3 The Credit Rating Withdrawals

Analysis and statistics about rating withdrawals are not available although the relevance of the event. Figure 1 and figure 2 report the number of rating anchored to financial and industrial issuers withdrawn from 2001 to 2011. The high number of withdrawals happened in 2005 is related to the Moody's policy change which is described below.

FIGURE 1. CREDIT RATING WITHDRAWALS IN EUROPE. The figure shows the number of Moody's issuer credit rating withdrawals over the period 2001-2011 . The data are made available by Moody's Investor Service (MIS).

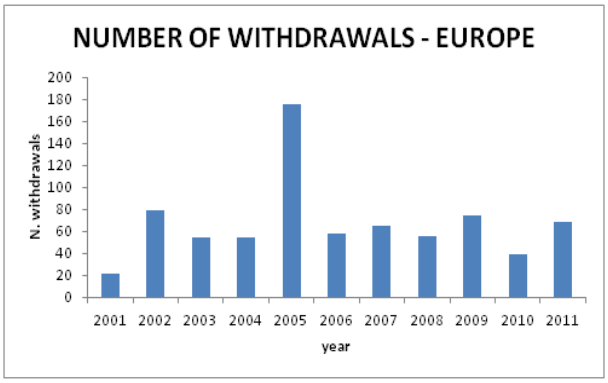
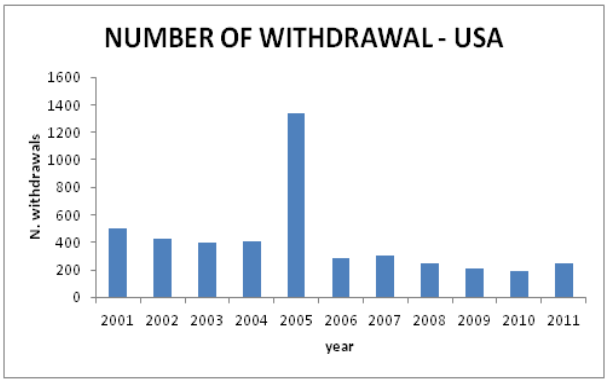


FIGURE 2. CREDIT RATING WITHDRAWALS IN USA. The figure shows the number of Moody's issuer credit rating withdrawals in USA over the period 2001-2011 . The data are made available by Moody's Investor Service.



I divide the dataset in two types of Moody's credit ratings withdrawals. Both the types are announced by Moody's as "rating withdrawals" nevertheless the reason behind them is very different.

In the first case Moody's stops to rate the entity. Precisely: "MIS withdraws its rating when it no longer rates an entity, debt or financial obligation, debt issuance program, preferred share or other financial instrument for which it previously assigned a rating" [3]. The reasons for the withdrawals can be classified in four main categories. First: incorrect, inadequate or insufficient information cause difficulties to assess the rated entities' creditworthiness. Second: due to bankruptcy, liquidation or debt restructuring. Third: the reorganization of issuers, such as mergers or acquisitions, can also cause a cancellation of ratings. The fourth important category is the withdrawal of ratings due to business reasons which are unrelated to the situations described above. The withdrawals for business reason involve the loss of ratings upon the request of companies that no longer want to be rated.

The second type of withdrawal is a refinement of rating information implemented by Moody's through cancellations of speculative issuers' rating. Before the withdrawal, at the same speculative legal entity two types of ratings were "anchored": an issuer level rating and a Senior Implied rating (corporate family ratings). Moody's distinguishes between the concept of Issuer Ratings ("(...) opinion on the ability of entities to honor senior unsecured financial obligations and contract") and the Senior Implied Ratings ("(...) opinion of an issuer's ability to honor its senior financial obligations and is assigned as if it had a single class of debt and a single consolidated legal entity structure")[4]. Thus, the difference relies on the fact that the issuer ratings refer to senior unsecured obligations (that they could be junior according to the position of the entity in the "corporate families") and they reflect the legal structure of the issuer. In other words, the corporate family rating takes into account the ownership structure of the borrower and the guaranties between parents and subsidiaries (Lin et al., 2011). While both ratings, issuer and senior implied ratings are "anchored" to the same legal entity, typically the highest level in the corporate family ratings makes the two ratings quite different. On 16th August in Europe and 7th July in United states, Moody's allows the cancellation of the issuer rating for speculative-grade corporate entities. Moody's justifies the policy's change stating that for speculative issuers the two levels of rating do not add information but create confusion among market

[3] Policy for withdrawal of credit rating. Moody's investor services, 2011
[4] "Moody's rating symbols and definition" in http://www.moodys.com

participants[5]. In fact, the starting point for assigning all the long-term rating for speculative-grade issuer is the corporate family rating. As a consequence, issuer ratings are less useful and maybe a source of confusion for investors. From the point of view of the empirical analysis, this policy's change is a shock of rating information: there is a change in the rating available to the market without any change in the exogenous issuer's risk. Thus, these rating announcements do not add new information in the market.

4 Theoretical Framework And Testable Hypothesis

I test whether and how the withdrawal of the rating affects the market price.

Rating can add information to the market about the exogenous default risk of the issuer. Thus the withdrawals may increase the uncertainty about the issuer's credit quality and may negatively impact its market price (information channel). I test hypothesys 1:

> H1. INFORMATION EFFECT: The announcement of a credit rating withdrawal, that is implemented in order to stop firms from being rated, is expected to be associated to a negative stock reaction.

If ratings add information to the market, when the Moody's withdrawal takes place in order to stop the firms from being rated, I expect a negative reaction. In fact, because of a future decrease in information about the issuers' credit quality, investors may ask a higher interest rate . This effect would confirm the information function of rating.

Ratings themselves may influence the credit quality of the borrower. For example if investors rely on rating for investment decisions, then the level of outstanding rating influences the issuers cost of capital and thus its credit quality (coordination or feedback effect)[6]. The intuition is the following. The firms

[5] See announcement in appendix 2

[6] I remand to Boot et al. (2006) and Manso (2013) for the technical details

can influence their credit quality by choosing project with different risk; the firms' investment choice depend on its cost of capital. The market is made by sophisticated and trusting investors; trusting investors take the rating at face value (Bolton et al., 2013) thus, they ask a repayment amount related to the ratings face value. Sophisticated investors build independently their beliefs and are aware of the presence of trusting investors. The presence of trusting investors make the issuers' debt sensitive to the rating outstanding. The higher the rating outstanding the lower the investment's repayment amount the investors will ask. Thus ratings may influence the cost of capital, the cost of capital influences the firms' investment choice and future cash flows with the final result to influences the credit quality of the issuer. This mechanism triggers the feedback effect of rating: ratings influence the lenders with the final effect to influence the issuer credit quality. I employ the second type of withdrawal, the policy change, to test whether an increase in the outstanding rating that does not add new information to the market influence the investors. Precisely, in the empirical setting I investigate the second hypothesis:

> H2. COORDINATION EFFECT: the announcement of a credit rating withdrawal implemented to consolidate the rating information is expected to be associated to a positive stock reaction.

These withdrawals do not add information about the exogenous credit quality of the issuer; in fact, this policy's change, drops the issuer rating that, as declared by Moodys[7], is worthless for investors. Precisely, the corporate family rating is the starting point for assigning all other long-term rating for speculative issuer and the presence of a lower issuer rating may create confusion in the market. What we may observe is a change in the outstanding face value of rating. This idea may be illustrated by the following example: a subsidiary has a B3 issuer rating. Its creditors benefit from the garantees of the parent company so, it has a B1 corporate family ratings. Before the withdrawal, a class of investors may look at the corporate family rating (e.g. B1 in the example mentioned). Another class of investors may give a weight also to the lower issuer rating (e.g. B3). As the lowest rating is

[7] see appendix B for the announcement

cancelled (e.g. B3) trusting investors align their beliefs at the corporate family rating (e.g. B1). The withdrawal does not add information to the market. Therefore, I exclude any price changes due to new information. Moreover, the policy has been implemented for speculative issuers; thus, there are no rating withdrawals around the boundary investment grade-high yield bond (HY-IG). Therefore, I exclude any price changes due to the regulation channel. In conclusion, what we observe is related to the third channel: ratings coordinate all the investors to infer the issuer credit quality from the corporate family rating. The final results is a decrease in the cost of debt and a positive effect on the stock price.

5 Data Description

I construct the samples by identifying listed industrial companies that have lost their Moody's issuer rating in the period 2004 to 2011. The data are obtained by combining four sources: a private data set of rating withdrawals of the Moody's Investor Service, Thomson Financial DataStream for market data, Orbis data set for balance sheet data and Thomson Reuters for rating information. From the private dataset offered by Moody's Investor Service I take the listed corporate firms for which I found market and balancesheet data available. The specific reasons of withdrawals of ratings before 2010 are not available in the private data sets since they are not automatically stored before that date, thus I implemented a manual search of Moody's announcements on Moodys.com. The final samples include 78 firms that stop to be rated by Moody's and 190 firms that are involved in the refinement of rating information. Precisely, most of the withdrawals showed in graphs 1 and 2 have been dropped because the companies affected are in financial sector or they are unlisted industrial companies. The relative small number of firms available for the empirical analysis should not alter the power of the tests (Brown and Warner, 1985). Table 1 shows the sample I employ to test hypothesis 1. Table 2 splits the sample of firms according to their rating by S&P. Usually, most issuers receive ratings from two major rating agencies, Moody's and Standard and Poor's. About 50% of the time the rating of Moody's and S&P are different. The data confirms that often, the ratings by Moodys are more

conservative (Livingstone et al., 2010): table 2 shows that 38% of the issuers in my sample were rated by the two agencies and the 65% of them had a conservative Moody's rating.

Table 3 shows the sample involved in the withdrawal due to Moody's policy. This sample is employed to test hypothesis 2.

TABLE 1. NUMBER OF MOODYS' CREDIT RATINGS WITHDRAWALS IMPLEMENTED TO STOP RATING THE FIRMS. The table summarizes the reasons of Moody's withdrawals of corporate issuer rating for industrial companies between 2004 and 2010. The sample labeled as unknown refers to rating withdrawals for which I did not find the Moody's announcements on the website. This sample is reduced to the firms which data are available for the empirical analysis.

	WHOLE SAMPLE	USA	EUROPE
Unknown	28	22	6
Business Reasons	26	15	11
Insolvency / restructuring	4	3	1
Insufficient information	2	2	0
Reorganization	18	16	2
TOTAL	78	58	20

TABLE 2. NUMBER OF MOODYS' CREDIT RATINGS WITHDRAWALS IMPLEMENTED TO STOP RATING THE FIRMS. The table summarizes the Moodys' rating withdrawals according to their S&P rating level. Negative (positive) deviations means that the rating cancelled by Moodys is higher (lower) than the rating by S&P. Equal rating means that the rating cancelled and the one by S&P are equal. Unrated by S&P means that the firms involved in the Moodys' withdrawals is not rated by S&P.

	N. OF WITHDRAWALS
Negative rating deviation	7
Positive rating deviation	31
Equal rating	10
Unrated by S&P	30

TABLE 3. NUMBER OF CREDIT RATINGS WITHDRAWAL IMPLEMENTED TO REFINE THE RATING INFORMATION. The table shows the number of firms involved in the refinements of ratings information, through the Moody's policy. The withdrawal happen in Europe and USA, respectively on 16th August 2005 and 7th July 2005 in United States

	WHOLE SAMPLE	USA	EUROPE
Policy 2005	190	179	11

6 Methodology

I implement standard event study techniques (Cambell et al., 1997). First, I calculate the cumulative abnormal returns (CAR) for all companies in my samples; then, I study the determinants of the CARs in a cross section analysis.

The abnormal returns (AR_{it}) are estimated using the market model as showed in equation 1. The abnormal returns are the difference between the actual stock returns (R_{it}) and a measure of "expected" return computed with a one-factor model based on country-specific index (MR_{it}) .[8] Actual stock returns from a period of day t-205 to day t-5, where t is the withdrawals' announcements day, are employed to estimate the parameters of the model ($\hat{\alpha}_{it}$, $\hat{\beta}_{it}$).

$$AR_{it} = R_{it} - (\hat{\alpha}_{it} + \hat{\beta}_{it} MR_{it}) \tag{1}$$

I choose three event windows. The first event window checks possible information leakage in the two days before the announcements: (t-2, t-1). The second window includes 2 days before and 2 days after: (t-2, t+2). The third window tests the reaction of the market after the announcements in a 3 days-window: (t, t+2). I test the reaction in small event windows to avoid contamination announcements and problems related to long-horizon event study (Khotari and Warner, 2006). I apply the lumped returns technique that is the most frequently used method in case of low number of infrequent trading (Bartholdy et al., 2006). I follow the methodology by (MacKinlay, 1997) to assess the statistical significance of the CARs. Indeed, the variance of the abnormal returns is computed using the variance of the residuals in the estimation periods[9].

The univariate analysis is split on the basis of the type of withdrawal. The first type of withdrawal happens to stop rating the firms: I use this sample to test the hypothesis 1. Then, I further split this sample to focus separately on firms that experience the withdrawal without a positive change in the outstanding rating. The second type of withdrawal happens because Moody's implements a policy that refines the outstanding rating information. I use this sample of withdrawals to test the hypothesis 2.

I then implement a multivariate analysis to assess the determinants for the abnormal returns. In the regression models the dependent variables is the three-day (t, t+2) cumulative abnormal returns.

[8] For the European firms I also estimate a market model based on a pan-European index. Results do not change and are available upon request.

[9] I apply also non parametric Wilcoxon sign test, Wilkoxon sign rank test and the methodology of (Boehemer et al. , 1991). Results do not change and are available upon request.

Again, I run different models with respect to the type of withdrawal. The model for the withdrawals in which Moody's stop to rate the firms is given in equation 2.

$$CAR_{(t,t+2)} = \gamma + \theta(POSIT.RAT.DEVIATION)_{it} + \eta(NEG.RAT.DEVIATION)_{it} + \mu X_{it} + \varepsilon_{it} \quad (2)$$

The key independent variables are the dummy POSITIVE RATING DEVIATION and the dummy NEGATIVE RATING DEVIATION. 48 firms involved in rating withdrawal by Moody's are rated also by S&P. If the firms, at the time of the Moody's withdrawal, have a rating by S&P higher than the rating cancelled I assign value 1 at the dummy POSITIVE RATING DEVIATION. The dummy NEGATIVE RATING DEVIATION takes value 1 when the rating cancelled is higher than the rating by S&P that remains anchored to the issuer. The two dummy variables capture the effect of a positive and negative change in the rating face value. If the information function is accompanied by a feedback effect of ratings, the dummy NEGATIVE RATING DEVIATION should be negative; since the firms involved suffer both a decrease of outstanding information and a decrease of the outstanding rating level, investors should negatively react. The dummy POSITIVE RATING DEVIATION should not be statistically significant: the negative reaction is weakened by the effect of the increase in the outstanding rating level.

X_{it} is a set of explanatory variables chosen drawn upon previous research. Firm size, measured as the natural log of the total asset, is included to examine whether the market reaction is related to the firm size (Elayan 1996). Market to book value is included to control for growth opportunity; the level of rating cancelled to test the market reaction according to the credit quality. The relationship between credit quality and market impact may vary according to the level of opaqueness or for regulatory use of rating (Bongaerts et al., 2012).

I then implement a multivariate analysis for the withdrawal due to the Moody's Policy. I run equation 3 to model this second type of withdrawals.

$$CAR_{(t,t+2)} = \gamma + \theta(POSITIVERATINGDEVIATION)_{it} + \mu X_{it} + \varepsilon_{it} \quad (3)$$

The policy of Moody's is implemented to consolidate the outstanding rating. The policy does not add any information to the market and it is not triggered by fundamental changes in issuer risk. Moreover, the ratings cancelled are equal or one notch-lower than the corporate family that remains "anchored". In the case that the issuer ratings cancelled are lower than the corporate family ratings the dummy POSITIVE RATING DEVIATION takes value 1. In fact, through the cancellation of the lowest issuer rating the estimated credit quality from outstanding ratings goes up. Therefore, in the presence of a feedback effect, the coefficient of the dummy is expected to be positive.

In addition to control for the firms' size, market to book value and level of rating I also include an interaction terms between the dummy and the level of rating. The interaction term allows me to test whether the impact on the price is higher for the lowest class of speculative issuers.

7 Empirical Findings

7.1 Withdrawals Implemented To Stop Rating The Firms

I compute the mean CAR by adding the daily abnormal return over each window for each company and by calculating the mean value for the sample. Table 4 summarizes the results. I find a negative market reaction of -1.51% over the (t,t+2) window for the whole sample. The result is significant at the 5% level. Interestingly, (Elayan et al. 2003) suggest a similar CAR of 1.18% for rating assignments. Also, the market seems not to be able to anticipate the announcements since I find no abnormal returns in the window (t-2,t-1). I split the sample to focus on withdrawals that do trigger a positive change in the outstanding rating deviation (higher rating by S&P). These withdrawals cause a decrease in the available rating information but they leave the issuers in the market with higher average issuer ratings. This sample, named POSITIVE RATING DEVIATION in table 4, shows that withdrawals do not influence the market. By contrast, the sample named DECREASE OF INFORMATION contains firms that experience the cancellation of rating without a positive shift in their outstanding rating.

I find that these withdrawals have a statistical significant and negative CAR. The result, supports hypothesis 1, suggesting that investors react to a decrease of credit rating information. Moreover, I find a second effect: the cases in which the ratings withdrawn are lower than the ones by S&P the negative market reaction is less significant. These ratings cancellations create an increase in the outstanding issuer rating that are not triggered by any new positive information. However, this effect positively impacts the issuer stock price by balancing out the effect of the decrease of information. This finding supports the idea that also rating changes not triggered by issuers fundamentals news influence the market.

Table 5 shows the results of equation 2. The dependent variable is the CAR over the (t, t+2) window. If firms are worse off by the reduction of rating information and by the lower rating that remain in the market, I would expect a negative dummy NEGATIVE RATING DEVIATION. I show that firms that experience a rating withdrawal accompanied by a decrease in the face value of rating outstanding trigger the negative market reaction. By contrast, the dummy POSITIVE RATING DEVIATION is not statistically significant. This result confirms the univariate analysis. We observe two effects that are balanced out: a positive reaction triggered by the increase in the outstanding rating and a negative reaction trigger by the reduction of information.

Several conclusions emerge from these results. First, the information content of the rating impacts the market price, indeed, rating is valuable. Second, although the feedback effect of rating and the information function of rating agencies are hard to disentangle, I show that both play a role in the market. This means that change in outstanding ratings, even not triggered by changes in the issuers' credit quality, can themselves influence the issuers default risk.

TABLE 4. UNIVARIATE ANALYSIS. MARKET REACTIONS AROUND THE ANNOUNCEMENTS OF CREDIT RATING WITHDRAWAL. The table reports the number of observations and the average cumulative abnormal returns (CARs) estimated over the event windows (-2,2), (-2,1) and (0,2). The CARs and the p-values are calculated following the standard event study techniques. The p-values show the probability that the average CARs divided by the standard deviation of the estimation periods (adjusted for the length of the event window) is zero (MacKinlay, 1997). The abnormal returns are generated by a one-factor market model based on country-specific stock market indices. The sample named POSITIVE RATING DEVIATION refers to the issuer that, on the day of the MIS rating withdrawal, have a rating by S&P higher than the rating cancelled by Moodys. The sample named DECREASE OF INFORMATION refers to firms that at the time of withdrawal have no rating by S&P or their S&P's ratings are equal or lower than the ones cancelled.

	N. obs	CAR (0 ,+2)		CAR(-2,+2)		CAR(-2,-1)	
		Avg	p-val	Avg	p-val	Avg	p-val
WHOLE SAMPLE	78	-1.51%**	0.04	-1.34%	0.19	0.16%	0.65
POSITIVE RATING DEVIATION	31	-0.50%	0.37	0.90%	0.27	1.50%**	0.01
DECREASE OF INFORMATION	47	-2.10%**	0.03	-2.80%	0.27	-0.75%	0.40

***,**,*=1%,5%,10%

TABLE 5. CROSS SECTIONAL DETERMINANTS OF THE MARKET REACTION TO THE WITHDRAWAL OF MOODY'S RATING . These multivariate regressions attempt to explain the CARs showed in table 4 over the window (0,+2).The dummy negative (positive) rating deviation takes value 1 if, on the day of the MIS rating withdrawal, the firm has a rating by S&P higher(lower) than the rating cancelled by Moodys. Rating is the level of the issuer's rating before the cancellation. Size is the log value of total asset.

dependent variable	(CAR(0,+2))		(CAR(0,+2))		(CAR(0,+2))	
	coeff	p-val	coeff	p-val	coeff	p-val
NEGATIVE RATING DEVIATION	-0.046*	0.08	-0.078***	0.00	-0.075**	0.01
POSITIVE RATING DEVIATION	0.008	0.60	0.008	0.55	0.014	0.38
RATING			0.001	0.83	-0.001	0.71
MTBV					0.000	0.80
SIZE					0.009	0.12
INTERCEPT	-0.014	0.17	-0.02	0.53	-0.13*	0.07
R-squared	0.06		0.13		0.18	
N.Obs	78		78		78	

7.2 Withdrawals Implemented To Refine The Rating Information

The policy implemented by Moody's in 2005 offers a shock in rating information. The withdrawals are implemented to refine the outstanding rating: they do not add information to the market but may increase the outstanding face value of rating. Thus, if the coordination channel plays a role, the market should positively react. The univariate results are in table 6. The CAR for the 190 withdrawals equals

0.87%. The result is consistent with the hypothesis 2. Then, I split the analysis in two subsamples. The firms in the first subsample have the issuer rating cancelled lower than the corporate family ratings that remain anchored[10]. These firms experience a positive market reaction. The result is in the table 6 in row POSITIVE RATING DEVIATION. The significant CAR over the (-2,-1) window suggest an anticipation by the investors. Nevertheless the intention to implement the policy has been anticipated by Moody's[11], the names of the firms involved are released at the day of the withdrawal. Thus, the anticipation of investors may be surprising. The firms in the second subsample have the issuer rating equal to the family rating thus, we can treat them as control sample. Indeed, these withdrawals of the issuer rating does not change the face value of the outstanding rating. After these withdrawals, the market does not react. Results are in table 6 in row NO RATING DEVIATION.

The multivariate analysis of table 7 confirms the results. The dependent variables are the CAR over the (t, t+2) window. The dummy variable POSITIVE RATING DEVIATION represents firms for which the rating cancelled are lower than the ones that are kept. The dummy has the expected positive and significant coefficient. A positive market reaction is associated with a negative deviation between the rating cancelled and the one kept.

Moreover, I find a negative interaction term. The finding suggests that the positive market reaction increases for the lowest rating level (see the numerical rating scale in the appendix 1). This result is consistent with the fact that the impact of ratings on price is higher for firms with more information asymmetry (Derrien and Kecskes, 2012). Lastly, there is no relation between the market reactions and firms size or asset growth.

The finding confirms that ratings, even without any superior information, can affect the exogenous issuer's credit risk. The coordination function of rating plays a role in the market: by using the policy's change we show that ratings can trigger a feedback effect.

[10]The higher corporate family rating means that these firms may benefit (e.g. in terms of guaranties) from the other entities in the business group (see section 3)

[11]I investigate also the day of the announcement and I find positive abnormal returns over the window (t, t+2). I do not report them for brevity.

TABLE 6. UNIVARIATE ANALYSIS. MARKET REACTIONS AROUND THE ANNOUNCEMENTS OF CREDIT RATING WITHDRAWAL DUE TO THE MOODY'S POLICY. The table reports the number of observations and the average cumulative abnormal returns (CARs) estimated over the event windows (-2,2), (-2,1) and (0,2). The CARs and the p-values are calculated following the standard event study techniques. The p-values show the probability that the average CARs divided by the standard deviation of the estimation periods (adjusted for the length of the event window) is zero (MacKinlay, 1997). The abnormal returns are generated by a one-factor market model based on country-specific stock market indices. POSITIVE RATING DEVIATION represents the sample of withdrawals for which the Moody's issuer ratings cancelled are lower than the corporate family ratings that remain anchored. NO RATING DEVIATION refers to firms that at the time of withdrawal have the same level of issuer rating and corporate family rating.

WITHDRAWAL	N. obs	CAR (0 ,+2)		CAR(-2,+2)		CAR(-2,-1)	
		Avg	p-val	Avg	p-val	Avg	p-val
WHOLE SAMPLE	190	0.87%***	0.01	1.67%***	0.00	0.81%***	0
POSITIVE RATING DEVIATION	154	1.01%***	0.00	1.82%***	0.00	0.82%**	0.01
NO RATING DEVIATION	36	0.32%	0.75	1.01%	0.23	0.68%	0.20

***,**,*=1%,5%,10%

TABLE 7. DETERMINANTS OF THE MARKET REACTION TO THE WITHDRAWALS DUE TO THE MOODY'S POLICY. These multivariate regressions attempts to explain the CARs showed in table 6 over the window (0+2). POSITIVE RATING DEVIATION is a dummy variable that equals one if the issuer rating cancelled is lower than the corporate family rating that remains anchored to the issuer. The variable RATING is the issuer level of rating before the cancellation. Interaction is the product between RATING and the dummy POSITIVE RATING DEVIATION. Size is the log value of total asset.

dependent variable	(CAR(0,+2))		(CAR(0,+2))		(CAR(0,+2))	
	coeff	p-val	coeff	p-val	coeff	p-val
POSITIVE RATING DEVIATION	0.013*	0.07	0.173***	0.00	0.176***	0.00
RATING	0.003**	0.05	0.011***	0.00	0.011***	0.00
INTERACTION			-0.010***	0.00	-0.010***	0.00
MTBV					0.001	0.87
SIZE					0.001	0.79
INTERCEPT	-0.045*	0.07	-0.171***	0.00	-0.176***	0.00
R-squared		0.07		0.08		0.08
N.Obs		190		190		190

***,**,*=1%,5%,10%

8 Robustness Check

8.1 Withdrawals Implemented To Stop Rating The Firms

I remove any concern about the regulations effect and the influence of rating "shopping" behaviors on the market reactions also in the first type of withdrawals. Moreover, I reduce the concerns that there is a relationship between the reason behind the withdrawal and the investors' belief. The rating shopping in my setting may arise when CRAs do not agree on the issuer credit quality and issuers seek to maximize their average rating by cancelling the lower one. In my sample this behavior may happen

in case of voluntary cancellation of the rating. In the multivariate analysis I control for the withdrawal happen upon request of the company (dummy business reasons, BR). Table 9 shows that the dummy BR is not significant. The motivation behind the withdrawal does not influence the market reaction and the voluntary rating withdrawals in my sample should not be motivated to achieve a desired rating level.

The second reason that may contrast with the conclusion of information or coordination function of rating is related to the regulatory certification. Regulators use credit rating to establish securities disclosure regulations, legal investment standards, or bank capital requirements. For example institutional investors such as mutual fund and life insurers are constrained to minimum rating for the securities in which they invest. Thus, the market reaction at the change in the average ratings may be induced by the implication required by financial regulations other than understanding credit risk. The most significant distinction made by regulators is whether a issuer is rated investment grade (IG) or high yield (HY). For example if a issue has two ratings, only the worse rating is considered; in case of three ratings the average is considered (see e.g., Basel II accord and Bongaerts, 2012). In this setting, a withdrawal of investment grade ratings that leaves the issuer rated as high yield becomes relevant for possible discontinuity in institutional demand. These cases are captured by the dummy IG-HY in table 9. If the market reacts because of the certification effect we expect a negative reaction around this boundary. Results in table 9 reject this hypothesis and strengthen the conclusion that ratings influence the market price through the information and coordination function.

TABLE 9. CROSS SECTIONAL DETERMINANTS OF THE MARKET REACTION TO THE WITHDRAWAL OF MOODY'S RATING . These multivariate regressions attempt to explain the CARs showed in table 4 over the window (0,+2). Monitoring is a dummy variable that equals one if, on the day of the MIS rating withdrawal, the firm has a rating of S&P. The dummy POSITIVE RATING DEVIATION takes value 1 if the Moody's rating cancelled is higher than the rating of S&P (if any) in the event-day. The dummy Business reason takes value 1 if the withdrawal is upon the request of firms (see section 3). The dummy HG-SP takes value 1 if the rating cancelled by Moody's is investment grade and the Rating by S&P is High yield. Rating is the level of the issuer's rating before the cancellation. Size is the log value of total asset.

dependent variable	(CAR(0,+2))		(CAR(0,+2))		(CAR(0,+2))	
	coeff	p-val	coeff	p-val	coeff	p-val
BUSINESS REASON	0.02	0.23	0.20	0.20	0.03	0.13
IG-HY			0.30	0.31	0.03	0.34
RATING					0.00	0.84
SIZE					0.01	0.15
MTBV					0.00	0.96
INTERCEPT	-0.021*	0.02	-0.02**	0.01	-0.164**	0.03
R-squared	0.02		0.03		0.10	
N.Obs	69		69		69	

***,**,*=1%,5%,10%

8.2 United States And European Market

I test separately the effect of withdrawals in the United States and European market. In table 10 I split the sample of rating withdrawal implemented to stop the firm to be rated. Table 11 shows the results of withdrawal due to the policy change by Moodys.

TABLE 10. UNIVARIATE ANALYSIS. MARKET REACTIONS AROUND THE ANNOUNCEMENTS OF CREDIT RATING WITHDRAWAL. The table reports the number of observations and the average cumulative abnormal returns (CARs) estimated over the event windows (-2,2), (-2,1) and (0,2). The CARs and the p-values are calculated following the standard event study techniques. The p-values show the probability that the average CARs divided by the standard deviation of the estimation periods (adjusted for the length of the event window) is zero (MacKinlay, 1997). The abnormal returns are generated by a one-factor market model based on country-specific stock market indices.

	N. obs	CAR (0 ,+2)		CAR(-2,+2)		CAR(-2,-1)	
		Avg	p-val	Avg	p-val	Avg	p-val
WHOLE SAMPLE	78	-1.51%**	0.04	-1.34%	0.19	0.16%	0.65
USA	58	-1.64%**	0.04	-1.34%	0.19	0.23%	0.65
EU	20	-1.10%	0.42	-1.30%	0.46	-0.21%	0.85

***,**,*=1%,5%,10%

TABLE 11. UNIVARIATE ANALYSIS. MARKET REACTIONS AROUND THE ANNOUNCEMENTS OF CREDIT RATING WITHDRAWAL DUE TO THE MOODY'S POLICY. The table reports the number of observations and the average cumulative abnormal returns (CARs) estimated over the event windows (-2,2), (-2,1) and (0,2). The CARs and the p-values are calculated following the standard event study techniques. The p-values show the probability that the average CARs divided by the standard deviation of the estimation periods (adjusted for the length of the event window) is zero (MacKinlay, 1997). The abnormal returns are generated by a one-factor market model based on country-specific stock market indices.

WITHDRAWAL	N. obs	CAR (0 ,+2)		CAR(-2,+2)		CAR(-2,-1)	
		Avg	p-val	Avg	p-val	Avg	p-val
WHOLE SAMPLE	190	0.87%***	0.01	1.67%***	0.00	0.81%***	0.00
USA	179	0.90%***	0.01	1.70%***	0.00	0.80%***	0.00
EU	11	0.27%	0.4	0.61%	0.33	0.34%	0.35

***,**,*=1%,5%,10%

9 Conclusion

Rating agencies should inform the investors about the creditworthiness of the issuers. However, through a feedback effect, ratings themselves may also affect the lenders' supply with the final result to modify the original creditworthiness of the issuer. This paper tests whether and through which channel rating agencies influence the market price. Prior works in the literature mainly address the question by studying the market reaction to rating changes (downgrades, upgrades and reviews). Moreover, previous empirical studies overlook the feedback effect of ratings. In this study, I employ a new approach by exploiting the market reactions to two types of rating withdrawals. The first type of withdrawals occurs when the firm stops being rated. In this case, investors react negatively to the loss of rating. The second type of withdrawals occurs, instead, because Moody's implements a policy to consolidate the issuers' outstanding ratings. Prior to that policy Moody's released both the issuer and its family ratings. The policy's change allows issuers to withdraw their own issuer rating and keep only the one of the family, which takes into account the ownership of the business group and it is usually higher. The effect is a positive market reaction. It should be noticed that the policy's change does not add information to the market and the issuers' fundamentals do not change. I conclude that ratings play a key role in the pricing mechanism. First, they add information about the credit quality of the issuers. Second, ratings, even without new informational content, influence the lenders' supply with the final effect to modify the original firm's creditworthiness.

APPENDIX 1

TABLE 13. THE NUMERICAL RATING SCALE

Moody's	S&P	NUMERICAL RATING
Aaa	AAA	28
Aa1	AA+	27
Aa2	AA	26
Aa3	AA-	25
A1	A+	24
A2	A	23
A3	A-	22
Baa1	BBB+	21
Baa2	BBB	20
Baa3	BBB-	19
Ba1	BB+	18
Ba2	BB	17
Ba3	BB-	16
B1	B+	15
B2	B	14
B3	B-	13
Caa1	CCC+	12
Caa2	CCC	11
Caa3	CCC-	10
Ca	CC	9
Ca	C	9
C	D	6

APPENDIX 2

MOODY'S ANNOUNCES INTENT TO WITHDRAW ISSUER RATINGS FOR SPECULATIVE-GRADE CORPORATE ISSUERS

Moodys' made available on the website an announcements in which briefly explains to the market the motivation and the implementation of the policy:

"Moody's Investors Service intends to implement several changes to its use of Issuer Ratings (...). These changes include: 1) No longer requiring that Issuer Ratings (also known as Senior Unsecured Issuer Ratings) be assigned to speculative-grade-rated corporate issuers. 2) Withdrawing existing speculative-grade Issuer Ratings except when the issuer specifically requests that Moody's maintain the rating (...). The responses to the request of comments published on March 8, 2005 indicated strong support for the proposals, and as a result Moody's intends to implement both measures. Moody's believes these changes will simplify its issuer-level ratings and improve investor understanding of the benchmark family-level rating, the Senior Implied Rating. Moody's began assigning Senior Implied and Issuer Ratings to speculative-grade corporate issuers in October 1999. While both ratings are "anchored" to the same legal entity, typically the highest level in the corporate family that has rated debt, the two ratings are quite different. The Senior Implied Rating is an opinion of a corporate family's ability to honor all financial obligations assuming it had a single class of debt and a single consolidated legal entity structure. Because issuers often have financial obligations at various legal entities, the analytical construct of the Senior Implied Rating is a valuable tool for analyzing and comparing these entities on a family basis. For speculative-grade companies, the Senior Implied Rating is the starting point for assigning all other long-term ratings within a corporate family, and security-specific ratings are often discussed in the context of the Senior Implied (i.e., in terms of rating "notches" above or below the Senior Implied). We are not proposing any changes to the Senior Implied Rating. In contrast to the Senior Implied Rating, which considers all financial obligations, the Issuer Rating is an opinion of the rated entity's ability to honor senior unsecured financial obligations and contracts. For speculative-grade issuers it is assigned at the same legal entity as the Senior Implied Rating. The Issuer Rating as it has been used for speculative-grade issuers has several limitations that have made it less useful to investors. Based on feedback from market participants Moody's has concluded that the Issuer Rating is a source of confusion and misunderstanding for many users of these ratings. Accordingly, we will eliminate its further use within the speculative grade ratings range, except at the specific request of the company to which the rating was assigned"

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