Does the Market Trust Credit Rating Agencies After the Subprime Crisis? A Comparison Between Major and Minor Agencies

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Abstract As a consequence of the subprime crisis the credit rating agencies suffered a reputation damage. In this chapter we gauge the extension of this reputation damage by looking at the market's reaction to rating actions. Through a standard event-study methodology, we measure the abnormal return of stock prices in the 3-day window centered on the announcement day during the decade 2003–2013. Our thesis is that the market reaction to rating actions should be lower—after the crisis—than it used to be, due to a lack of trust in the reliability of the rating agencies. The evidence strongly supports the thesis. In line with previous literature, we find that—as a consequence of the "certification" role that many regulations recognize to rating agencies—the abnormal return is stronger when the valuation is near to the border between investment and speculative grade. On the contrary the cumulative abnormal return is significantly lower after the crisis when there is no "regulation-induced" trading. The reputation damage is stronger for the major rating agencies who were directly involved in the subprime scandal. However a lower reaction to rating actions emerges also for minor rating agencies due to a general decrease in the trust over private creditworthiness assessment.

Keywords Credit rating • Event-study • Reputation damage

1 Introduction

After the so-called subprime crisis, whose climax was reached with the default of Lehman Brothers, one of the main scapegoats identified by academicians and supervising authorities were the rating agencies. In fact, during the turmoil, their valuations of the collateralized debt obligations (CDOs) and similar securities proved to be extremely poor and unreliable. In the space of a few months, thousands

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of bonds were rapidly downgraded from AAA to junk level. The same happened to many banks deeply involved in the securitization market, both as originators and investors. In the aftermaths of the crisis, various critical analysis and a few trials focused on ascertaining the responsibilities of credit rating agencies (CRAs) and the roots of a disastrous performance that did not have equals in their history. A mixture of conflicts of interest and excessive workload emerged as the most probable factors underlying the widespread overvaluation of structured finance products. As a consequence, an international debate developed over the role of rating agency, the need to put a limitation to their regulation-related power and the drawbacks of the issuer-pay business model.

Undoubtedly the events linked to the subprime crisis damaged the reputation of the rating agencies, at least in the short and medium term. The conclusions drawn by the Us National Commission on the causes of the financial and economic crisis are extremely heavy on the point and mirror similar opinions expressed by other important observers: "We conclude the failure of credit rating agencies we essential cogs in the wheel of financial destruction. The three credit rating agencies were key enablers of the financial meltdown. The mortgage-related securities at the heart of the crisis could not have been marketed and sold without their seal of approval. Investors relied on them, often blindly. In some cases, they were obligated to use them, or regulatory capital standards were hinged on them. This crisis could not have happened without rating agencies" (Financial Crisis Inquiry Commission 2011, p. 25).

In this chapter we want to gauge the extension of the reputation damage suffered by CRAs by looking at the market's reaction to their rating actions. Through a standard event-study methodology, we measure the abnormal return of stock prices in the 3-day window centered on the announcement day during the period November 2003–November 2013. Since the poor performance of rating agencies during the subprime crisis primarily concerned the financial sector, we focus the attention on a sample of major international banks belonging to the Stoxx 1800 Index. Furthermore, we distinguish the rating actions announced by the three main CRAs—Moody's, Standard & Poor's and Fitch, who were more directly involved in the scandal and in the following inquiries—from those emanated by other minor agencies.

We expect to find a lower market impact of rating actions after the crisis, due to a loss of trust in the neutrality and reliability of the rating valuations. In other words, we expect the market to believe less blindly and, consequently, react less strongly to rating agencies' credit opinions. In particular, we expect the phenomenon to be stronger when the certification role is less relevant and, thus, the regulation-induced trading is thinner. For what concern the type of agency, we expect to find a lower market reaction and, thus, a lower trust in the rating actions announced by the three majors. For other agencies, the effect of the crisis is less clear. On one side, they may have suffered an indirect reputation damage, due to the lower perceived reliability of credit valuations issued by private issuer-paid raters. On the other side, they could have benefited from a weaker oligopolistic power of the three majors and from their cleaner track record.

2 Literature Review

The literature on rating agencies and their role in financial markets is rich and diversified. The majority of papers focused on the informative content of rating and aimed at measuring abnormal returns in market prices following various types of announcements made by agencies. In many empirical works the researchers took into consideration the abnormal returns preceding rating actions as well, so as to determine if and to what extent the market anticipates the judgments made by the agencies. In most recent works, alongside the informative content of rating, their certification role is explored. Since many laws and regulations—the most prominent example being Basel 2 Agreement—have recognized an official role to rating agencies' valuations, the crossing of certain thresholds affects the behavior of numerous restricted investors who may be forced to sell a downgraded security or may regain the right to buy an upgraded one (Steiner and Heinke 2001; Micu et al. 2006; Kiff et al. 2012). In these cases, not only—or, even, not mainly—are the abnormal returns a consequence of the information content conveyed by the agency, but they are also a by-product of the gatekeeper status granted by the regulatory framework (Partnoy 2006).

Many papers also aimed at distinguishing the market impact of rating announcements on the basis of the motivation given by the agency (Goh and Ederington 1993), the concurrent diffusion of important information by the issuing company (Hand et al. 1992), the presence of a review/outlook anticipating the rating action by the same agency or any preceding announcement by another agency. Studies also differentiate on the basis of the type of the market analyzed, the extension of the event windows taken into consideration and the technicalities in the measurement of abnormal returns.

Just a few empirical works specifically focused on banks. From a theoretical point of view, some researchers maintain that rating actions should be able to convey less information to the market when concerning banks, since these financial intermediaries have to comply to enhanced transparency requirements and operate within the framework of strict prudential supervision (Richards and Deddouche 1999). The opposite view is expressed by other researchers who highlight that authorities in charge of monitoring banks tend to withdraw bad news, in fear of creating panic among retail investors. If this is the case, rating agencies could disclose information that—even if known by the supervisory authorities—have not been adequately diffused to the market. In a way, the authorities' reluctance to pass on bad news could even amplify the effect of a downgrade on market prices (Gropp and Richards 2001; Steiner and Heinke 2001).

3 Sample Description

The sample used in our empirical analysis consists of 1821 rating revisions issued by the three major CRAs (Standard & Poor's, Moody's and Fitch) and by four minor CRAs in terms of market share (EJR, R&I, DBRS and JCR), during the period November 1st 2003–November 1st 2013. The assessed issuers are 108 financial intermediaries—43 % from Europe, 34 % from Asia, 23 % from America—extrapolated from the STOXX 1800 Index. The analyzed events, all concerning the issuer rating, include downgrading and upgrading, confirmations on earlier ratings, insertions in the surveillance list with positive or negative directions or in evolution and outlooks. All data have been extracted from the Bloomberg database.

The distribution of the 1821 rating actions by year (Fig. 1) and its subdivision into groups according to the type of CRAs (Big vs. Non-Big), suggests two conclusions: the first one concerns the dynamics which affected the rating actions, the second one concerns their composition. The constant increase of rating activities, with a slowdown just in the year 2009, indicates an intense information activity carried out by the CRAs. A significant role is also played by minor agencies, especially in the last 3 years. During the period under investigation, each issuer has been monitored by an average of 2.28 agencies; 21 % of the analyzed financial intermediaries exclusively addressed to at least one of the Big Three; 31.5 % were followed only by one or more minor agencies, while 47 % of issuers got their ratings from both. It can be pointed out that more than half of the issuers was evaluated by the two types of CRAs starting from 2011, possibly under the influence of the ESMA guidelines.

The different alphanumeric characters used by all CRAs have been unified into a single numerical scale, with the lowest value attributed to the highest grade of creditworthiness (AAA = 1, AA with positive watch = 1.75) and the highest value to the worst assessment (CC = 20, CC with negative watch = 20.25). This operation enables to verify how credit agencies have rated issuers over the years. Considering the average value of the 1595 ratings issued (outlooks excluded) and divided

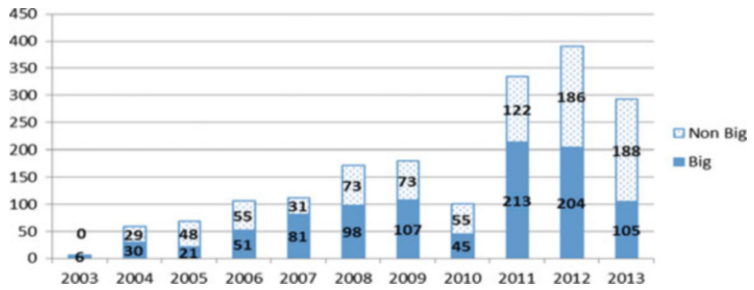

Fig. 1 Distribution of ratings revisions (November 1st 2003–November 1st 2013). Note: The number of revisions of the year 2003 is abnormal because the survey takes into consideration only 2 months, as well as in the year 2013 when the events of the last 2 months are not taken into consideration

Table 1 Average ratings value

	# obs.	Average rating	Maximum value	Minimum value	Standard deviation
Big	801	5.94	1	15.25	2.53
Non Big	794	6.56	2	20	2.79
Total observations	1595				
Ratings reviews by period					
Pre-crisis Big	222	4.38	1	10	1.73
Pre-crisis Non Big	181	4.71	2	10	1.61
Crisis Big	142	4.99	2	11	1.49
Crisis Non Big	88	5.36	2.75	9	1.47
Post-crisis Big	437	7.05	1.25	15.25	2.60
Post-crisis Non Big	525	7.40	2	20	2.90
Rating revisions by agency					
DBRS	180	4.98	2	13	2.11
Moody's	230	5.21	1	14	2.59
R&I	249	5.36	3	10	1.37
JCR	32	5.59	2	9	2.10
Fitch	217	5.74	2	11	1.98
S&P	354	6.54	2	15.25	2.65
EJR	333	8.40	3	20	2.92

according to the nature of the agency they refer to, it seems that minor CRAs have been more severe in their judgments, with an average rating value higher than the one recorded by major CRAs (Table 1). Minor CRAs' greater rigor is clear even if the indicator is considered by dividing the period under investigation into three sub-periods: the pre-crisis, crisis and post-crisis period. In all the three periods, the average value of the ratings assigned by the major agencies is lower than the one issued by minor competitors. Furthermore, if the average rating value is disaggregated, it is clear that the greater rigor attributed to minor CRAs is mainly due to the EJR credit agency which, as well known, differs from its competitors for having adopted the "subscriber-pay" model. Standard & Poor's is the rating agency among the Big Three that issues the strictest ratings. By restricting the analysis to the issuers judged both by major and minor CRAs during the crisis and post-crisis period, the greater rigor by EJR and Standard & Poor's is confirmed.

4 Methodology

In order to evaluate the reputational damage suffered by credit rating agencies we adopt a standard event study methodology. We measure the abnormal return for each rating change included in our sample in a 3-day event window centered on the announcement day [−1; 1] using a market model with 500 days as estimation window. Such a short event window is in line with our research question, focused on the reputation of rating agencies and the information value of their actions. The price drift in the following days and weeks may be the result of autonomous analysis performed by investors, even if stimulated by the rating change, whereas the immediate return is more strictly dependent on the level of faith put in the agency's competence.

Since we are specifically interested in the magnitude of the price reactions to agencies' announcement, independently from its sign, we mostly focus on the absolute value of cumulative abnormal return:

$$ABS\_CAR_{i;t} = \left|CAR_{i;t}\right| \tag{1}$$

We perform a multivariate econometric analysis of the 3-day cumulative abnormal returns associated to rating actions using the OLS method. In this analysis we focus on the absolute value of cumulative abnormal returns, adopting an approach similar to Grothe (2013).

As independent variables we consider a set of standard factors which proved to be relevant in past empirical work. Table 2 summarizes the definition and the expected signs of these regressors, in line with the main findings of specific literature on the topic.

The dummy variable BIG distinguishes between the major and minor rating agencies. The two dummies S&P and EJR allow to gauge if the pronouncements made by the agencies that tend to be more severe in their judgments produce a higher market impact (see Table 1). In particular, EJR is the only agency characterized by an investor-pay model, as opposed to an issuer-pay model, and, as such, should be less exposed to conflicts of interests.

In order to measure the reputational damage—and this is the core of our analysis—we consider two dummy variables: CRISIS and POST_CRISIS. The first assumes a value equal to 1 for all rating actions taking place between the 15th September 2008 and the 15th October 2009; the second has a value equal to 1 for all dates after 16th October 2009 and 0 elsewhere. These dummies are the main instrument we use to gauge to reputation impact of the subprime crisis on rating agencies. The expected sign of the coefficient for the DUMMY_CRISIS is uncertain. On one side, after Lehman's collapse and the rapid downgrading of a huge mass of structured product, the market should have put less trust in the judgments of the agencies. On the other hand, during a crisis, the investors tend to be more sensitive to any kind of news and especially to bad news. Once the worst of the crisis was over, the decrease in level of trust and the consequent lower

Table 2 Independent variables included in the econometric analysis—definition and expected sign of the coefficient

Name	Definition	Expected sign
VA_CHGNOTCHES	Absolute value of the change in rating level, computed on the basis of a numerical conversion of the alpha-numerical scale used by CRAs, where the higher rating is equal to 1 and the lowest is equal to 20. The positive and negative watches are equal to −0.25 and +0.25 respectively	+
CONTAMIN	Dummy variable which is equal to 1 if the distance between the following rating announcements on the same company is shorter than 30 days	+
ANTICIP	Dummy variable which is equal to 1 when a downgrading or upgrading are preceded by a watch in the same direction	−
RATING_BORDER	Dummy variable which is equal to 1 if the last or current ratings are between BBB+ and BB− and 0 otherwise	+
DUMMY_WATCH	Dummy variable which is equal to 1 if the announcement consists in a credit warning instead of a downgrading or upgrading	+
VIX	Value of the VIX index on the announcement day of the rating action	+
DEVST	Standard deviation of the daily returns in the 50 working days preceding the rating action for the specific stock concerned by the announcement	+
DUMMY_CRISIS	Dummy variable which is equal to 1 for all announcements between the 15th September 2008 and the 15th October 2009	?
DUMMY_POSTCRISIS	Dummy variable which is equal to 1 for all announcements after the 15th October 2009	+
NOBORDER_POST CRISIS	Dummy variable that is equal to 1 when the announcement is in the post crisis period and concerns an issuer that is not on the verge of the critical threshold between investment and junk grade	−
BORDER_POST CRISIS	Dummy variable that is equal to 1 when the announcement is in the post crisis period and concerns an issuer that is on the verge of the critical threshold between investment and junk grade	?
STABLE	Dummy variable which is equal to 1 when the announcement made by the agency is a confirmation of the former rating	−
BIG	Dummy variable which is equal to 1 when the announcement is made by Moody's, Standard and Poor's and Fitch	–
S&P	Dummy variable which is equal to 1 when the announcement is made by Standard and Poor's	+
EJR	Dummy variable which is equal to 1 when the announcement is made by EJR	+

reactivity of the market to the information conveyed by credit rating agencies should be more evident. Thus, we expect a negative coefficient for the DUMMY_POSTCRISIS. In particular, we expect the phenomenon to manifest itself in a stronger way when the regulatory and psychological threshold of the junk level is far away. To test this aspect, we introduce two variables accounting for the "borderline" and "not-borderline" status in the post-crisis period.

5 The Findings

5.1 Analysis of the CARs for the Rating Actions Announced by Moody's, S&Ps and Fitch

As already explained above, we start the analysis from the sub-sample of rating actions announced by the three most important agencies—Moody's, Standard & Poor's and Fitch—which were more directly involved in the subprime scandal and which may have suffered the greater reputational damage. Table 3 summarizes the most interesting results of the analysis performed.

The first analysis makes use of a restricted set of independent variables that are available for all the 961 rating events. All coefficients have the expected sign and are statistically significant, with the exception of the DUMMY_CRISIS. In particular, the abnormal return is positively related to the level of volatility, both at market and security-specific level. The DUMMY_POSTCRISIS displays the expected negative sign and the coefficient is significant at the 5 % confidence level.

The second column details the results of an analysis where the set of independent variables is enriched, at the cost of reducing the set of events to 810. In particular, we substitute the DUMMY_POSTCRISIS with two factors that allows to distinguish—in the post-crisis period—the effect of rating actions near to the borderline between the speculative and investment grade from those concerning companies in a "safe zone". The lack of trust should manifests in a stronger way when there is less regulation-induced trading. The results show that the absolute value of abnormal return is lower, in the post-crisis period, when the rating is far away from the threshold. On the contrary, there is no significant difference in the market reaction between the pre- and post-crisis periods when the current rating or the last available rating is near to the borderline. The DUMMY_CRISIS remains insignificant, whereas the VIX and DEVST coefficient display the expected sign and are strongly significant.

Column (3) increases further the set of independent variables considered, introducing various factors accounting for the type of rating action, the time passed from a previous intervention from another or the same agency, the intensity of the rating change measured in notches and the anticipation of a downgrade or upgrade by a previous credit watch. Even if all factors present the expected sign, their statistical

Table 3 Determinants of the ABS_CAR

	(1)	(2)	(3)	(4)	(5)
	Entire sample	Entire sample	Entire sample	Sub-sample CONTAMIN = 0	Sub-sample WATCH = 1
C	−0.1578 (−0.308)	−0.525 (−0.928)	−0.733 (−0.919)	−0.472 (−0.627)	0.670 (0.673)
VA_CHGNOTHCES			0.642 (1.354)	0.314 (0.813)	0.508 (0.711)
CONTAMIN			−0.332 (−0.704)		−1.652*** (−2.649)
DUMMY_ANTICIP			−0.472 (−1.05)	−0.769* (−1.865)	
RATING_BORDER					
DUMMY_CRISIS	0.601 (0.754)	−0.105 (−0.12)	0.008 (0.992)	0.009 (0.091)	−3.599*** (−2.50)
DUMMY_POSTCRISIS	−0.589** (−1.97)				
NOBORDER_POSTCRISIS		−1.306*** (−3.533)	−1.515*** (−3.647)	−1.585*** (3.24)	−2.092*** (−2.352)
BORDER_POSTCRISIS		0.341 (0.858)	0.03 (0.05)	0.521 (1.60)	−0.733 (−0.713)
VIX	0.09*** (2.709)	0.113*** (2.844)	0.113*** (2.738)	0.1068** (2.287)	0.176*** (4.604)
DEVST	0.502** (3.64)	0.549*** (3.823)	0.529*** (3.522)	0.535*** (3.051)	0.633*** (3.718)
DUMMY_WATCH			0.557 (1.44)		
Adjusted R2	0.228	0.244	0.236	0.281	0.276
No. of observations	961	810	718	515	243

Notes: *significant at 10 % level, **significant at 5 % level, ***significant at 1 % level with a two-tailed test
The t-stats are reported in brackets under each coefficient. White heteroskedasticity-consistent standard errors and covariance

significance is low and the marginal increase in the explicative power of the regression, measured by the adjusted R-squared, is not sensible.

Column (4) restricts the sample to the uncontaminated events i.e. the rating actions that are not preceded by another agency's announcement in the 30 previous days. Comparing column (3) and (4), the set of significant variables remains unvaried, but the R-squared of the regression increases to 28 %. Finally, column (5) focuses on the credit warnings that in literature are often associated to a greater informative content for market participants. The number of available observations is 243. In this case the negative coefficient of the CONTAMIN variable is significant and, thus, the credit watches that come soon after other announcements are associated to lower abnormal return. Both the DUMMY_CRISIS and NOBORDER_POSTCRISIS variables are significant and have the expected negative coefficient, signaling a reduced market impact of rating actions compared to the pre-crisis period.

We can conclude that the major rating agencies have indeed suffered a reputation damage as a consequence of the subprime crisis that translates in a weaker market reaction to their announcements. This is particularly evident when the crossing of a regulatory threshold is not involved and, thus, when there is less market impact from restricted investors who are obliged to react independently from their trust in the informative content conveyed by the agency.

The regressions are all conducted with the ordinary least square method. The dependent variable is ABS_CAR i.e. the absolute value of cumulative abnormal return computed as defined in Sect. 5. The independent variables are described in Table 2.

5.2 *Analysis of the CARs for the Rating Actions Announced by the Minor CRAs*

Moving to the sub-sample of rating events issued by minor rating agencies, we conduct the analysis on the dependent ABS_CAR variable by testing the same regressors used for the sample with the Big Three, in order to determine whether the independent variables exert similar effects or if there are any discrepancies (see Table 4). The first set of regressors (1) shows the sign of the coefficients in line with our expectations, except in the case of DUMMY_CRISIS, whose value, however, is not significant. The adjusted R^2 signals an explanatory power of the regression higher than the one recorded for the same case of the Big Three. By enriching the study with other variables, such as the combination of ratings in the critical area during the post-crisis period with ratings in the security area, and considering the same period, we find confirmation to our working hypothesis (2). As a result of the subprime mortgage crisis, the market proved to react less even to ratings issued by minor agencies, albeit with less intensity than for their larger competitors. However, in the No Big subsample the value is significant at 5 % only confidence level

Table 4 Determinants of the ABS_CAR—sample minor CRAs

	(1)	(2)	(3)	(4)
	Entire sample	Entire sample	Entire sample	Sub-sample Dummy stable = 0
DUMMY_CRISIS	−1.748 (−1.291)	−1.353 (−0.997)	−1.729 (−1.311)	−2.870 (−1.121)
DUMMY_POSTCRISIS	−0.649** (−1.291)			
NOBORDER_POSTCRISIS		−0.672** (−2.329)	−0.302 (−0.378)	−1.420** (−2.024)
BORDER_POSTCRISIS		−0.449 (−1.043)	−0.257 (−0.537)	−1.946*** (−2.627)
VIX	0.104*** (2.6361)	0.109*** (2.677)	0.104** (2.378)	0.226*** (2.894)
DEVST	133.35*** (3.684)	125.13*** (3.395)	125.41*** (3.040)	82.45* (1.772)
VA_CHANGE_NOTCHES			1.154 (1.525)	4.404** (2.327)
CONTAMIN			−0.334 (−0.419)	
DUMMY_WATCH			2.762** (2.375)	4.784** (2.432)
DUMMY_ANTICIP			−2.384** (−0.749)	
DUMMY_BIG				
Adjusted R-squared	0.278	0.283	0.313	0.364
No. of observations	860	859	666	277

Notes: *significant at 10 % level, **significant at 5 % level, ***significant at 1 % level with a two-tailed test

The t-stats are reported in brackets under each coefficient. White heteroskedasticity-consistent standard errors and covariance

for no-border issuers. The negative sign for the border issuers, in contrast with what observed in the ratings issued by major CRAs, might be explained by a lower use in the certification activity of ratings issued by minor agencies. Proceeding the investigation with the third scenario, in which new independent variables are added, the signs of the coefficients are in line with the expectations, but significance levels are acceptable only for the DUMMY_WATCH and DUMMY_ANTICP variables.

In the No Big sample, more than half of the issued ratings confirm the previous assessment. As they do not add new information, we decided to reiterate the analysis by restricting the sample to only those events that have led to a change in rating (4). The new combination of regressors manages to explain a higher value of extra-performance and highlights the less confidence of the market in minor CRAs in the post-crisis period. In fact, the BORDER_POSTCRISIS regressor shows a more accentuated negative coefficient than the one issued by the Big

Table 5 Determinants of the ABS_CAR—major and minor CRAs

	(1)	(2)	(3)
	Sub_sample DUMMY_STABLE = 0	Entire sample	Entire sample
DUMMY_CRISIS	1.43 (1.28)	1.741* (1.84)	1.332 (1.44)
NOBORDER POSTCRISIS	−1.30*** (−3.167)	−0.79*** (−3.313)	−1.223*** (−3.742)
BORDERPOSTCRISIS	−0.376 (−0.766)	0.403 (1.152)	0.068 (0.154)
VIX	0.186*** (4.866)	0.177*** (5.799)	0.191*** (6.09)
DEVST	18.47 (1.025)	1.71 (0.107)	2.78 (0.192)
VA CHANGENOTCHES	2.462** (2.525)	1.317** (2.30)	
DUMMYWATCH	2.231*** (2.847)	1.375** (2.29)	1.476** (2.446)
DUMMY_ANTICIP	−0.043 (−0.085)	−0.258 (−0.503)	0.241 (0.496)
DUMMY_BIG	−1.576*** (−3.132)		
DUMMY S&P		−1.31*** (−2.842)	
DUMMY EJR			1.129*** (2.799)
Adjusted R-squared	0.248	0.214	0.201
No. of observations	828	1220	1220

Notes: *significant at 10 % level, **significant at 5 % level, ***significant at 1 % level with a two-tailed test

The t-stats are reported in brackets under each coefficient. White heteroskedasticity-consistent standard errors and covariance

Three and with the same margin of error. The presence of a watch causes more accentuated changes in the extra-yield, as well as the absolute value of the notch.

Finally, by combining the two subsamples of major and minor rating agencies and analyzing the ABS_CAR in light of the independent variables already considered, to which we have added the DUMMY_BIG variable, we can strengthen our conclusions that as a consequence of the subprime mortgages crisis, the market has less confidence in the ratings issued by CRAs (Table 5). The stock prices show lower variations especially where operators are not "forced" to act according to supervisory standards and regulations. In fact, the dummy NOBORDER_-POSTCRISIS variable appears with a high negative coefficient and with a margin of error inferior to 1 %. Moreover, it seems that the reputational damage has a greater impact on major CRAs, as shown by the negative coefficient and higher level of the DUMMY_BIG variable. We have also analyzed the extra-performance of the entire sample by comparing the two agencies that were identified as more

severe in their descriptive analysis of the sample (see Table 1). The sign of the coefficient for the S&P variable is negative, notwithstanding its higher severity. On the contrary the sign of the EJR dummy is positive and highly significant.

6 Conclusions

The results of the analysis seem to confirm our hypothesis that the credibility of CRAs is diminished after the subprime mortgage crisis. The impact of ratings actions on the prices of equity securities of financial intermediaries is lower in the post-crisis period, especially for those issuers with a high creditworthiness. Evidently, the informative role of CRAs is considered unimportant, that is, the activity of rating agencies has a low informative value for this type of financial intermediaries. On the other hand, the prices of securities whose issuers have ratings previously defined as border, react to ratings actions even in the post-crisis period, probably due to the certification value of the rating. In fact, the sub-division of the sample depending on whether the rating action comes from one of the three major agencies or to minor agencies, showed a different impact on the prices of securities called border. In the first sample, the extra-yield cumulated in the post-crisis period reacts more because of regulatory obligations, which generally refer to the evaluations expressed by larger agencies, although the effect is not significant. On the other hand, in the sample of ratings issued by minor CRAs, price variation is always limited in the post-crisis period. Even when rating confirmations have been excluded, the negative sign of the border shows a modest informative value, not being counterbalanced by the regulatory role of minor CRAs. The present analysis also confirms what has already been reported in the literature about the role of watches: price variations are greater when the issuer is put under scrutiny, rather than when a real change in assessment occurs.

The overall analysis of the 1595 ratings actions confirms the loss of credibility of the agencies and, in particular, to those most involved in the financial crisis after the Lehman bankruptcy. Finally, by the comparison between two agencies adopting very different organizational models, Standard & Poor's and EJR, the survey has identified equal opposite reactions in the market: negative in the first case and positive in the second agency.

Considering that in the future the regulatory role of CRAs will become increasingly limited, it will be necessary to verify if the loss of credibility found in post-crisis period will be recovered, thanks also to new security measures and to the increased competition which is always encouraged.

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