



## Credit rating agencies and idiosyncratic risk: Is there a linkage? Evidence from the Spanish Market<sup>☆</sup>



Pilar Abad <sup>a,b,\*</sup>, M. Dolores Robles <sup>c</sup>

<sup>a</sup> Universidad Rey Juan Carlos, Paseo Artilleros s/n, 28032 Madrid, Spain

<sup>b</sup> RFA-IREA, Spain

<sup>c</sup> Universidad Complutense de Madrid and ICAE, Campus de Somosaguas, 28223 Pozuelo de Alarcón, Madrid, Spain

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### ABSTRACT

This study analyzes the effects of six different credit rating announcements on systematic and idiosyncratic risks in Spanish stocks from 1988 to 2010. We used an extension of the event study dummy approach that includes direct effects on beta risk and volatility. We identified effects on both kinds of risk, indicating that rating agencies provide new information to the market. All types of rating announcements (upgrades/downgrades, reviews and outlook reports), whether positive or negative, have a significant impact on risks. Rating actions that indicate improvements in credit quality cause lower idiosyncratic risk. Positive outlook reports also cause lower systematic risk. Conversely, ratings announcements that indicate deteriorations in credit quality are linked to a rebalance of both types of risks, with a higher beta risk together with a lower diversifiable risk. The relevant factors that determine how the two kinds of risks react to rating changes are mainly characteristics of the effective rating changes. The 2007 global financial crisis increased the market's sensitivity to these characteristics.

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## 1. Introduction

This article focuses on the impact of credit rating changes on the risk of re-rated firms. We examine how these affect both components of total risk (systematic and idiosyncratic risk) using data from firms listed on the Spanish stock exchange. We inquire how the market reacts to the information that may be contained in the re-rating provided by the three largest international agencies: Moody's, Standard & Poors and Fitch IBCA.

The role of rating agencies as providers of information is key for market participants and regulators hence the crucial importance of the analysis of the effects of rating changes on financial markets, even more so now that these agencies are under scrutiny after they failed to predict the crises of such firms as WorldCom in 2002 and Lehman Brothers in 2008 and the central role that they played in the sub-prime mortgage crisis.

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\* Corresponding author at: Universidad Rey Juan Carlos, Paseo Artilleros s/n, 28032 Madrid, Spain.

E-mail addresses: [pilar.abad@urjc.es](mailto:pilar.abad@urjc.es) (P. Abad), [mdrobes@ccee.ucm.es](mailto:mdrobes@ccee.ucm.es) (M.D. Robles).

All substantive financial, operational or business variations can alter the views of rating agencies on the creditworthiness of a firm. This may lead to agencies to change the rating to assess the new level of credit risk. These variations may also alter the investors' views on the valuation and risks of the firm. On the one hand, under the assumption that the CAPM is the suitable model for asset pricing, the systematic (or beta) risk can be viewed as a measure of a firm's "operating quality". In this sense, both beta risk and rating provide information about the performance of an organization and thus they should be highly related. Studies such as [Impson, Karafiath, and Glascock \(1992\)](#) and [Abad and Robles \(2006\)](#) find rating change announcements affect beta risk.

There is also a relationship between the credit risk of a firm and its idiosyncratic risk or volatility. [Campbell and Taksler \(2003\)](#) and [Hibbert, Pavlova, Barber, and Dandapani \(2011\)](#) find that equity volatility is strongly linked to changes of credit spreads. Equity volatility seems to depress corporate bond prices, resulting in an increase in yields. [Collin-Dufresne, Goldstein, and Martin \(2001\)](#) state that changes in the credit spread should be determined, among other factors, by changes in equity volatility. [Zhang, Zhao, and Zhu \(2009\)](#) find strong effects of volatility risk and jump risk on CDS spread level. In view of these results, one may expect to find a connection between credit risk (measured by credit ratings) and volatility.

While the effect of rating changes on stock prices has been largely investigated (see [Abad & Robles, 2007](#); [Dichev & Piotroski, 2001](#)), the analysis of the effect of rating changes on firm risks is almost unexplored. We can only find the studies of [Impson et al. \(1992\)](#), [Chandra and Nayar \(1998\)](#) and [Abad and Robles \(2006\)](#), which analyze the effect of rating changes on systematic risk in stock markets, and [Barron, Clare, and Thomas \(1997\)](#) which analyze new rating assignments. [Impson et al. \(1992\)](#) study US firm bond rating changes finding that downgrades are associated with increases in beta and produce no effects for upgrades. [Barron et al. \(1997\)](#) find scarce evidence of changes in beta risk after new rating assignments for UK firms. [Chandra and Nayar \(1998\)](#) find an increase in systematic risk for US firms when the Commercial Paper was severely downgraded. [Abad and Robles \(2006\)](#) also detect that rating changes are linked to changes in beta risk in the case of Spanish firms. They find lower levels of systematic risk for both downgrades and upgrades and conclude that downgrades are followed by a rebalancing of risks.

Amazingly, with the exception of [Barron et al. \(1997\)](#) for new rating assignments, the link between idiosyncratic risk and credit rating changes has been practically ignored by literature. However, investors might be concerned with the idiosyncratic risk of firms. This risk is essential in the pricing of derivatives because their value depends on the total risk of the underlying ([Campbell, Lettau, Malkiel, & Xu, 2001](#); [Hilliard & Savikas, 2002](#)).

Idiosyncratic risk is also important for under-diversified portfolio management. Several models consider investors that hold undiversified portfolios for some exogenous reason ([Levy, 1978](#), [Malkiel & Xu, 2002](#); [Merton, 1987](#)). These extensions of the CAPM show the relevance of idiosyncratic risk for asset pricing. [Merton \(1987\)](#) states that idiosyncratic risk should be positively priced when investors hold under-diversified portfolios. Findings in [Goyal and Santa-Clara \(2003\)](#), [Angelidis and Tassaromatis \(2009\)](#), [Boehme, Danielsen, Kumar, and Sorescu \(2009\)](#), [Fu \(2009\)](#) and [Miralles-Marcelo, Miralles-Quirós, and Miralles-Quirós \(2012\)](#) support the Merton hypothesis, showing a positive relationship between idiosyncratic volatility and expected stock returns.

According to [Merton \(1987\)](#), under the assumption of incomplete information, investors only invest in those stocks whose risk–return profiles they know. Consequently, they hold under-diversified portfolios. [Campbell et al. \(2001\)](#) indicate that some factors such as corporate compensation policies, transaction costs and taxes could cause that many investors hold individual stocks. [Goetzmann and Kumar \(2008\)](#) find that more than 25% of investors hold a single stock in their portfolios and less than 10% of retail investors' portfolios contain more than 10 stocks. This is a far lower figure than the number of assets required to achieve diversification (at least 20 stocks spread across industries).

In this article, we provide greater insights on the effect of credit rating changes on stock markets by studying the effects of credit rating actions on both types of risk of re-rated firms. Instead of a traditional two-step event study, we present an extension of the dummy-variable regression approach, allowing for changes in the parameters of the market model. We analyze the rating changes of Spanish companies listed on the Electronic Continuous Stock Market. The Spanish stock exchange is a medium-sized market that plays a relevant role among the different stock exchanges in Europe. According to the International Federation of Stock Exchanges (IFSE), the relative size of the Spanish Stock Exchange in terms of market capitalization, reached less than 4.5% of the size of the NYSE between 1990 and 2001, reaching approximately 10% at the end of 2010.

Few previous studies have attempted to identify the effects of different rating actions. We distinguish between six different announcements (effective rating changes, reviews and outlook reports) to analyze whether they have different informative content. We use daily stock returns of re-rated firms from June 1988 to December 2010. Our setting provides an interesting insight into the observed reaction of both kinds of risks after improvements and deteriorations in credit quality. As expected, effects are opposite and asymmetrical. More specifically, improvements mainly diminish idiosyncratic risk while deteriorations mainly increase beta risk and lead to a rebalancing of risks. In both cases we find a decrease of idiosyncratic risk following the release that point to a lower level of asymmetric information in the market.

We also explore the cross-sectional variation in the response of both types of risks to rating changes. To study these, we focus on the characteristics of the rating action, the agency, the issuer and the economic environment, while also taking into consideration the effects of the global economic and financial crisis that began in 2007. Our main findings reveal that rating change characteristics offer relevant information to determine abnormal risk responses. We also observe changes in the behavior of investors after the start of the financial turmoil.

The next section presents the evolution and characteristics of rating changes and the Spanish stock market. Modeling and testing strategies are described in [Section 3](#). The main results are presented in [Sections 4 and 5](#). Several conclusions are presented in [Section 6](#).

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