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There are two superpowers in the world today in my opinion. There's the United States and there's Moody's Bond Rating Service. The United States can destroy you by dropping bombs, and Moody's can destroy you by downgrading your bonds. And believe me; it's not clear sometimes who's more powerful.

Thomas L. Friedman, New York Times Columnist, February 13th 1996

Abstract

This paper examines the impact of rating actions by Moody's Investor Service on European long-term government bonds. First, it introduces credit rating agencies with special emphasize on their development and history. To understand their role in modern financial markets it is necessary to highlight the current market situation, especially peculiarities concerning market competition. Thereafter, a theoretical approach to evaluate a potential impact of rating changes is given. This part builds on efficient market hypothesis and the aspect of reputational capital, to identify potential sources of power. The following section then provides detailed empirical analysis by conducting an event study over a sample period from 2001 to 2012 for the current 27 member states of the European Union. The structure of the tests allowed for identifying abnormal reactions in interest rates caused by the change of the sovereign credit rating. Furthermore, Granger causality tests were used to analyze the role of credit default swaps. Finally, the last section analyzes possible countermeasures presented by European officials in order to overcome the powerful impact of credit rating agencies. Observations revealed a significant impact, at least for negative announcements. Finally, results showed that especially the foundation of a European credit rating agency is not able to overcome this impact.

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Introduction

The role of credit rating agencies seems to become increasingly important nowadays. Modern financial markets are more open today, while at the same time also showing higher volatility and complexity than ever before. Accordingly, the demand for sophisticated analysis about default risk of offered securities caused an impressive growth in the credit rating market. And this continuous growth, combined with interesting peculiarities concerning the rating market, led to an actually questionable level of power.

The current sovereign debt crises in European member states brought this debate to a new dimension. While at least European sovereigns have been rated rather stable for years, a series of considerable downgrades started with the beginning of the financial crisis in 2008. From that time on, even governments became under severe pressure from mainly two dominant rating agencies. Finally, credit rating agencies recently were at the center of attraction, dominating headlines throughout European press. However, while their power in modern financial markets was undisputed, the actual consequences of a rating change still were indistinct. Opinions about rating actions ranged from being a threat to complete irrelevance, as markets already adjusted before ratings have been announced. In other words, it was unclear whether a rating announcement was good, bad or no news at all.

To examine the impact of sovereign credit ratings, an event study was conducted over a period from January 2001 to February 2012. This procedure allowed for identifying the informational value of rating announcements by spotting movements in security prices caused by the event. Before empirical tests are carried out, the paper provides a theoretical approach as well.

The first section therefore contains detailed information about credit rating agencies. This includes their impressive history, development of the market and some peculiarities of the industry, mainly concerning competition. Thereafter, functions and determinants of credit ratings are discussed in detail.

Section two develops a theoretical framework to identify the informational value of credit ratings. The main theory here is of course the efficient market hypothesis, which builds the background of empirical testing. The aim is to give a first hint why one should expect credit ratings to influence security prices at all.

The following section then provides empirical testing of the informational value of sovereign credit ratings. Using an event study analysis, the impact of Moody's rating announcements on European long-term government bonds is investigated. Granger causality tests then try to identify the role of credit default swaps. Besides detailed information about the used model and data, this section also includes results, interpretations and comparison to other studies. Although several studies already conducted the same type of investigation, only few included data after the beginning of 2008, when financial markets were characterized by general nervousness and series of downgrades.

Finally, the last section introduces possibilities to overcome the power of credit rating agencies. The two dominant arguments in press and political debates on this behalf were more regulation and the foundation of a European rating agency. Based on obtained results and recent literature, this study will assess the chances of these approaches.

Credit Rating Agencies

History and Development

The following chapters of this study will emphasize the role of CRAs in modern financial markets. To understand why their role seems to become increasingly important it is necessary to highlight the outstanding history and development of rating agencies. While the actual impact seems controversial today, there is absolutely no doubt that CRAs have been growing successfully over the past decades. The history of credit rating agencies started back in 1900, when John Moody (1868 – 1958) published Moody's Manual of Industrial and Miscellaneous Securities, at the same time founding John Moody & Company.¹ Just like the early work of Henry Varnum Poor (1812 – 1905) the manual contained detailed statistics on public and private securities. However, none of them did actually conclude anything about default risk of the issuer. The aim of such manuals only was to provide details about past performance of the issuing company or public institution.² The issuer's future solvency was not part of the service and securities have not been categorized from the beginning.

The most important driver for the demand for sophisticated financial analysis clearly was the railroad industry in the United States. The rapid expansion of the railroad system in the early 20th century forced building companies to offer securities to private investors to raise the necessary funds for their operations.³ Investors, on the other hand, had literally no information on the financial and operational details of the issuing companies. However, the railroad industry was by far the largest, most capital-intensive and fastest growing one at that time, which left investors in an adverse situation. The two companies recognized this shortfall and started to expand their services from statistical analyses to rating services as we know it today. From that time on, the focus was not on past performance exclusively anymore. Instead,

¹ Moody's Investor Services: History on www.moody.com

² Standard and Poor's: History on www.standardandpoors.com

³ cf. Dittrich (2007, p. 18)

issuers were classified according to their future default risk. Furthermore, rating categories have been introduced that already were very similar to the ones that are used today.

Moody's Investor Service started this service in 1913, when Standard Statistics still published pure statistical analysis. However, in 1922, Poor's Publishing and Standard Statistics, at that time two separate companies, began to rate corporate bonds. One year later, the first stock market index was developed. From that point on, the business had not dramatically changed over time. One remarkable change has occurred in the 1960's, when both companies started to charge issuers for rating services, instead of investors. Before, investors had to pay for information.⁴ The most impressive fact in the history of credit rating agencies is their fast growth in the first third of the 20th century. Just ten years after the development of credit ratings in 1924, Moody's Investor Service already covered nearly 100 % of the US bond market. However, credit rating agencies did, of course, face weaker periods as well. Especially the 1940's, 50's and 60's showed low demand due to low volatility in financial markets. In the 1970's, demand started to grow further and this trend has continued until today.⁵

The development of credit rating agencies already shows an intense concentration on the US market. The reason for this was the strong need for private financing of investment opportunities as mentioned above. Other, more recent factors have been the increasing complexity and openness of financial markets. More corporate and public issuers entered more volatile markets; the financial market became larger and larger.⁶ The number of defaults has increased as well, which also sustained the need for credit ratings. And still, this concentration is apparent today, which gave rise to criticism especially in the past years of financial crises. Basically, the two companies described earlier are still predominant in the global market. Moody's Investor Service and Standard and Poor's (S&P) held a market share of 39 percent and 40 percent, respectively, in 2007. The third agency, Fitch Ratings, had only 16 percent of global

⁴ Moody's Investor Services: History on www.moody.com, Standard and Poor's: History on www.standardandpoors.com

⁵ cf. Dittrich (2007, p. 18)

⁶ cf. Rom (2009, p. 640)

credit ratings and is, therefore, significantly smaller.⁷ Some studies even state that Moody's and S&P are actually in a duopoly.⁸

Today, S&P as well as Moody's, cover 100 percent of US corporate and government bonds, and the vast majority of global securities. Starting from stocks and bonds, today's rating activities include sovereigns, mutual funds, insurance and structured finance products as well. A further source for criticism is the ownership structure of the two dominant CRAs. Both are private in terms of ownership, meaning that although they are regulated by government, they are not public organizations. However, published ratings in some cases restrict the securities that can be held by other regulated organizations, which gives them a public purpose at the same time.⁹

Of course, the development of CRAs raises one question: Why did no other rating agency enter the market if it has been growing over decades and, therefore, provided such promising opportunities? The answer to this question can be found if one considers the regulation of credit rating agencies. In 1975, the US Securities and Exchange Commission (SEC) relied on nationally recognized statistical rating organizations (NRSROs¹⁰). According to this regulation, only ratings of certain rating agencies were used for other regulated entities.¹¹ This made the credit rating market unattractive for new entries, as it was unclear how a new agency could have been approved by the SEC as a NRSRO, there were no common standards. Furthermore, reputational capital and the immense coverage rates of existing agencies are important entry barriers as well. However, the industry shows considerable operating margins and exceptional profitability.¹²

Indeed, the regulation of CRAs is an important aspect and has been the basis for extensive criticism, especially in times of financial crisis or the sovereign debt crisis in Europe, more recently. This aspect will therefore be highlighted in the following chapter.

⁷ cf. Rom (2009, p. 641)

⁸ cf. Dittrich (2007, p. 95)

⁹ cf. Dittrich (2007, p. 641)

¹⁰ Other studies also use „NRSOs“

¹¹ cf. Rom (2009, p. 642)

¹² cf. Katz et al. (2009, p. 3)

Functions of Credit Ratings

Rom (2009) defines a rating agency as "...a company that assesses the debt instruments (bond or other securities) issued by firms or governments and assigns 'credit ratings' to these instruments based on the likelihood that the debt will be repaid." This definition already shows the clear distinction between the early stages of Moody's and S&P and their function today. While they published pure financial information about past performance at the beginning, they started to assess the credit quality of the issuers thereafter. In this sense, past performance is just one of the factors influencing the credit rating of an issuer. Instead, CRAs today assess default risk which basically means that the future ability to pay back the debt is valued in advance. But default risk is not meant to be a certain percentage or an absolute value but rather the relative risk compared to other securities. In this sense, CRAs would serve as information intermediaries and add value by reducing information costs for market participants.¹³ It is therefore important to state that the quality of a credit rating is highly dependent on the quality of the raters and the information they are using to estimate default risk.¹⁴

However, the function of CRAs is not limited to the simple assignment of credit ratings. Already back in 1930, credit ratings had a regulatory purpose as well. US regulators used the assigned ratings to limit the riskiness of assets held by other regulated entities.¹⁵ This basically restricted the selection of assets for those organizations. They were only allowed to invest in securities that are currently rated above a certain benchmark, and this practice was even more applied in the 1970's. Today this approach is used throughout developed countries.¹⁶ Rating agencies are therefore often referred to as "de facto capital market gate keepers", while they have no legal responsibility for their publications.¹⁷ In this sense one can observe two main functions of credit ratings. In the first one, the CRA takes the role of an information

¹³ cf. Dittrich (2007, p. 9)

¹⁴ cf. Rom (2009, p. 642)

¹⁵ cf. Katz et al. (2009, p. 2)

¹⁶ cf. Kerwer (2005, p. 463)

¹⁷ cf. Katz et al. (2009, p. 3)

intermediary. It collects all available information about the issuer and evaluates the creditworthiness of the issuing company or government. In a way, CRAs can contribute to limit the principal agent problem inherent in every credit granting process. This is due to the fact, that the issuer typically has superior information about his own creditworthiness, which is not available for the investor. CRAs now take the role of an independent third party and provide a screening instrument for investors.¹⁸

This aspect of asymmetric information between the issuer and the investor can be found in several studies throughout literature. However, the role of CRAs is often described as easing the problem.¹⁹ In contrast, other, more recent papers do not support this aspect at all. Instead, they highlight the ambiguous role of rating agencies. Especially authors who focus on misperceptions of CRAs highlight the fact that the quality of credit ratings is highly dependent on the raters.²⁰ Furthermore, there is still a possibility of asymmetric information between the issuer and the credit rating agency. If one considers a standard process of credit granting, the issuer has more information about his own credit risk compared to an investor, as mentioned above. If the issuer provides good information, the investor would not believe it at all, as both parties know that the issuer benefits from publishing wrong information.²¹

However, the same problem arises when CRAs are collecting information about an issuer. Some articles therefore highlight the fact, that credit ratings are just as good as the underlying information.²² On the other hand, even in real life it is observable that investors seem to ignore that fact and rely on the assigned ratings. In practice, credit ratings serve as a kind of monitoring instrument, which basically means that, for example, fund managers take action if the rating changes to a lower level. Especially when structured finance products found increasing demand, this procedure became dangerous. Financial products became more complex and difficult to value. But, fortunately, rating agencies covered those products as well, which led to institutional investors and even banks selling any product, as long as it was rated

¹⁸ cf. Dittrich (2007, p. 9)

¹⁹ cf. Kerwer (2005, pp. 459)

²⁰ cf. Rom (2009, p. 641)

²¹ cf. Dittrich (2007, p. 9)

²² cf. Rom (2009, p. 641)

as “investment grade”.²³ This aspect shows a further function of credit ratings, as the coverage of products can easily fuel demand for them, especially if products are very complex and ratings are relatively high (investment grade). On the other hand, if investors fully rely on the assessment of CRAs, a series of downgrades can lead to a complete collapse of a market.²⁴ If it comes out later that ratings were unjustified, investors tend to lose trust in ratings for other securities of a certain product category as well.²⁵ It is therefore important to state that the information intermediation function of CRAs is not unquestioned. The analysis part of this paper will investigate this aspect in detail.

The regulatory function of CRAs is even more disputed today. As mentioned before, credit ratings have been used to restrict investment of regulated entities over decades. However, this practice has some serious deficiencies. It turned out that institutional investors tended to evaluate securities with the same rating as equally risky. On the other hand, CRAs never claimed to publish any recommendation to buy, sell, or hold an asset. Furthermore, other important figures like market liquidity or price volatility are not even part of a credit rating.²⁶ This situation highlights the controversial application of credit ratings. CRAs see their own ratings as opinions on the credit worthiness of an issuer. This is the reason why they claim a status similar to financial journalists, which protects them against litigation and direct regulation. On the other hand, ratings have been used in real life as financial advice, in contrast. Governments restricted trading for regulated entities based on the credit rating of a security, while rating methodologies have not been regulated at all. Some studies refer to this as certification function, therefore.²⁷ In a way, CRAs provided a license to trade these securities, although they only had voluntary guidelines or best-practice standards instead of legal frameworks. In this sense, the rapid growth and the increasing importance of credit ratings has been fuelled by governments that have effectively outsourced the monitoring of financial instruments. Over time, credit ratings even became a prerequisite to offer debt instruments.²⁸

²³ cf. Katz et al. (2009, p. 3)

²⁴ cf. Katz et al. (2009, p. 3)

²⁵ cf. Rom (2009, p. 644)

²⁶ cf. Katz et al. (2009, p. 1)

²⁷ cf. Dittrich (2007, p. 9)

²⁸ cf. Katz et al. (2009, p. 3)

The Role of Sovereign Credit Ratings

Sovereign credit ratings are of great importance for several reasons. First of all, the increasing size, complexity and openness of financial markets forces not only corporate, but also government issuers to rely on the services of CRAs. However, there are some peculiarities about sovereign ratings which will be part of the following chapter. An important factor, and quite obvious, is that governments typically issue securities of immense amounts. It is therefore necessary to attract as much investors as possible, which is considerably easier if the security is already rated. Especially international investors are much more likely to invest, if one of the major CRAs has assigned a rating symbol.²⁹

Furthermore, the rating symbol assigned to a sovereign often limits the ratings for other issuers of the same nationality. This means that a company would typically not achieve a higher rating than the government of its country of origin. In literature, this fact is often referred to as sovereign or country ceiling.³⁰ Of course, as governments try to establish stable and promising economies, they would therefore be interested in getting the best possible credit rating for their own securities. Recently, the foreign currency long-term rating was not the only rating of interest. As investors increasingly hold securities denominated in other currencies than the traditional global ones, the domestic credit rating becomes more and more important.³¹ Nonetheless, the foreign long-term rating is still dominant when dealing with sovereign credit ratings.

All in all, this shows that even governments cannot ignore the role of CRAs. As sovereigns are heavily dependent on financial markets to raise the required financial funds they are interested in achieving a high rating. The current debt crisis in Europe is perfectly supporting this theory. Especially when public finance is already heavily restricted, a downgrade of the credit rating can bring even governments in severe difficulties.

²⁹ cf. Cantor et al. (1996, p. 38)

³⁰ cf. Dittrich (2007, p. 118)

³¹ cf. Cantor et al. (1996, p. 38)

Rating Definitions

Although CRAs assess the relative default risk of issuers of numerous securities, the symbols used are exactly the same. The two biggest and most important agencies, Moody's and S&P do actually not use the same symbols. However, they are comparable, as every rating symbol of Moody's finds its counterpart in the S&P list and vice versa. Typically, the list starts with the best rating achievable, the so-called triple A. Securities with this rating accordingly show the lowest relative default risk when compared with other products of the same category. Thereafter, the list goes on with each step meaning an increase in default risk of the issuer.

To give an even more fine-tuned evaluation, ratings within a group have additional symbols. Moody's uses the numbers 1, 2 and 3 to represent whether the security of interest is at the top, in the middle or at the bottom among other issuers of the same rating symbol. S&P also uses this procedure but adds a "+" or "-" to a given rating symbol. Furthermore, rating symbols are typically divided in two groups, namely investment grade and speculative grade. Investment grade includes ratings from Aaa (AAA) to Baa3 (BBB-).³² Accordingly, speculative grade ratings range from Ba1 (BB+) to B3 (B-). As the name already tells, investment grade securities do, of course, show higher creditworthiness compared to speculative grade ones. In fact, speculative grade already means considerable uncertainty about future payback or even high-risk obligations.³³ If the rated entity is already in default, it holds a C (D) rating.

³² Symbols in brackets are the equivalent of S&P

³³ cf. Cantor et al. (1996, p. 38)

Graph 1: General Rating Symbols of Moody's Investor Service

Aaa	Obligations rated Aaa are judged to be of the highest quality, with minimal credit risk.
Aa	Obligations rated Aa are judged to be of high quality and are subject to very low credit risk.
A	Obligations rated A are considered upper-medium grade and are subject to low credit risk.
Baa	Obligations rated Baa are subject to moderate credit risk. They are considered medium grade and as such may possess certain speculative characteristics.
Ba	Obligations rated Ba are judged to have speculative elements and are subject to substantial credit risk.
B	Obligations rated B are considered speculative and are subject to high credit risk.
Caa	Obligations rated Caa are judged to be of poor standing and are subject to very high credit risk.
Ca	Obligations rated Ca are highly speculative and are likely in, or very near, default, with some prospect of recovery of principal and interest.
C	Obligations rated C are the lowest rated class and are typically in default, with little prospect for recovery of principal or interest.
Note: Moody's appends numerical modifiers 1, 2, and 3 to each generic rating classification from Aa through Caa. The modifier 1 indicates that the obligation ranks in the higher end of its generic rating category; the modifier 2 indicates a mid-range ranking; and the modifier 3 indicates a ranking in the lower end of that generic rating category.	

Source: www.moody.com

However, CRAs do not only directly change credit ratings. Often, sovereigns are investigated in advance, which is published as well. Moody's uses the term "On Watch" if the current rating is in review.³⁴ S&P again has a very similar procedure and puts sovereigns on a so-called "Watch List" if a change is likely. In addition, both CRAs also release the direction of the change, or, in few cases, that the direction is unclear at the moment. The following graph shows the general rating symbols for Moody's and the corresponding explanations.

³⁴ cf. Cantor et al. (1996, p. 45)

This general list is then modified according to the type of security issued. For this purpose, the rating definitions for sovereign ratings are given as well. It is important to note the differences when dealing with sovereign credit ratings. While corporate ratings typically refer to the ability to pay back obligations, sovereign ratings include the willingness to pay. History shows, that governments sometimes refused payments although they actually had the required financial resources. The decision not to fulfill its debt obligations is therefore not only dependent on financial resources but also on political arbitrariness.

Graph 2: Rating Definitions for Sovereign Bond Ratings

Aaa – Exceptional economic, financial and institutional strengths resulting in unquestioned access to finance. No shock can conceivably disrupt payment capacity.

Aa – Very high economic, institutional or government financial strength and no material medium-term repayment concern.

A – High economic, financial or institutional strength and no material medium-term repayment concern.

Baa – At Baa, a government would have the capacity to sustain a coherent economic policy framework and avoid any near-term debt repayment problems if confronted with a severe shock to public finances.

Ba – No clear and present repayment concern and tangible adjustment capacity in a context of potentially severe economic, financial or political shocks.

B – One shock away from default, and/or material concerns about willingness to pay.

Source: www.moodys.com

The characteristics mentioned in the explanations refer to the determinants of sovereign credit ratings and will be analyzed in detail in the next chapter of this paper. However, the symbols are of course the same again, and, although not mentioned explicitly here, numbers are used as modifiers to show the relative position within one rating symbol.

Rating Determinants

The determinants of sovereign credit ratings are manifold and very complex. The model used by Moody's to assess a government's relative default risk contains quantitative as well as qualitative factors. For transparency purposes, this methodology is published and available for free. However, the relative weights that are assigned to each of those factors are not given, which makes it almost impossible to retrace the way to a current credit rating.³⁵ It is obvious that especially qualitative factors depend heavily on the subjective assessment of the responsible analyst. The rating determinants of Moody's Investor Service are given here in detail. Unless stated otherwise, the upcoming chapter follows the official rating methodologies for sovereigns.³⁶

Moody's describes the process of assigning a certain credit rating in three stages. First, the country's economic resiliency is estimated. The important factors are spread in two groups. The first one contains evaluations about the economic strength of a country, whereas the second one deals with the institutional strength. The primary figure for the first group is, of course, GDP per capita. To avoid cyclical effects, Moody's is working with 3 to 5 year averages, which is one reason why sovereign ratings do not respond to short-term movements in economies. Other indicators include volatility of output, level of innovation, investment into human capital, integration into economic or trade zones and finally the simple size of a country. All these factors are crucial when economic shocks have to be absorbed, which means that they are directly influencing the country's ability to survive downturns. What these factors have in common is that they are quantifiable and, therefore, easily comparable among different sovereigns.

The second group, evaluating the institutional strength of a country, introduces more qualitative criteria. Basically, a well working institutional framework is essential to provide a relative safe and predictable environment required for continuous growth. Factors here are respect of property rights, efficiency and predictability of

³⁵ cf. Cantor et al. (1996, p. 38)

³⁶ Moody's Investor Service: Rating Methodology for Sovereign Bond Ratings (2008)

government action, transparency and consensus among political parties for main goals. The term “institutions” here is equivalent to the set of formal rules in a country. Basically, this group deals with the political stability, especially in times of unrest.

The second process to assign a credit rating introduces the financial strength of the country. The task is to analyze the financial situation not only at the point in time when the relative risk is evaluated but rather in a dynamic environment. Basically, the first indicator is, like with corporate ratings, the balance sheet of the country. The question is whether the financial resources necessary to repay sovereign debt are heavily restricting government action or not. This factor is again quantitative and measures the risk that a country is simply not able to raise the required amount of money to repay its obligations stemming from debt securities.

Especially for developing countries, this factor is crucial. Often, international investors were not willing to accept the currency risk inherent when buying debt securities from such issuers. Accordingly, governments had to issue instruments in foreign currency to attract international or institutional investors. As a consequence, it became of interest whether resources of foreign currency were sufficient to repay debt obligations. Credit ratings of those countries have therefore often been influenced by difficulties to raise funds in hard currency (mostly Dollar denominated). The key figure is the percentage rate of revenues, that is spend on repaying debt obligations. This procedure takes into account, that equal absolute amounts of debt can have different impact, as interest rates are different.

However, it is not enough to assess the financial strength exclusively at one specific moment. The second important question is how vulnerable public finance is. Analysts try to evaluate the financial robustness over time, and especially the reaction to adverse political, financial or economic developments. This process allows for dynamic stress tests that are necessary to provide a dynamic rating methodology. Whereas the static measurement is quite straightforward, the dynamic approach is a lot more complex. Especially for countries, it is hard to quantify future liabilities that might arise. As we have seen during the financial crisis of 2008, bail-out payments can easily end up in severe troubles for whole governments. The same is true for currently unfunded pension liabilities. The task for analysts is not only to quantify

those liabilities but also to assign adequate weights according to the probability of materialization.

Last but not least, the structure of debt is a further source of difficulties. This factor contains liquidity and exchange rate matters, primarily, but also accounts for disadvantageous repayment schedules. If public finance is already highly restricted, adverse indexed debt securities, with respect to interest and exchange rates, can end up in financial distress quite fast.

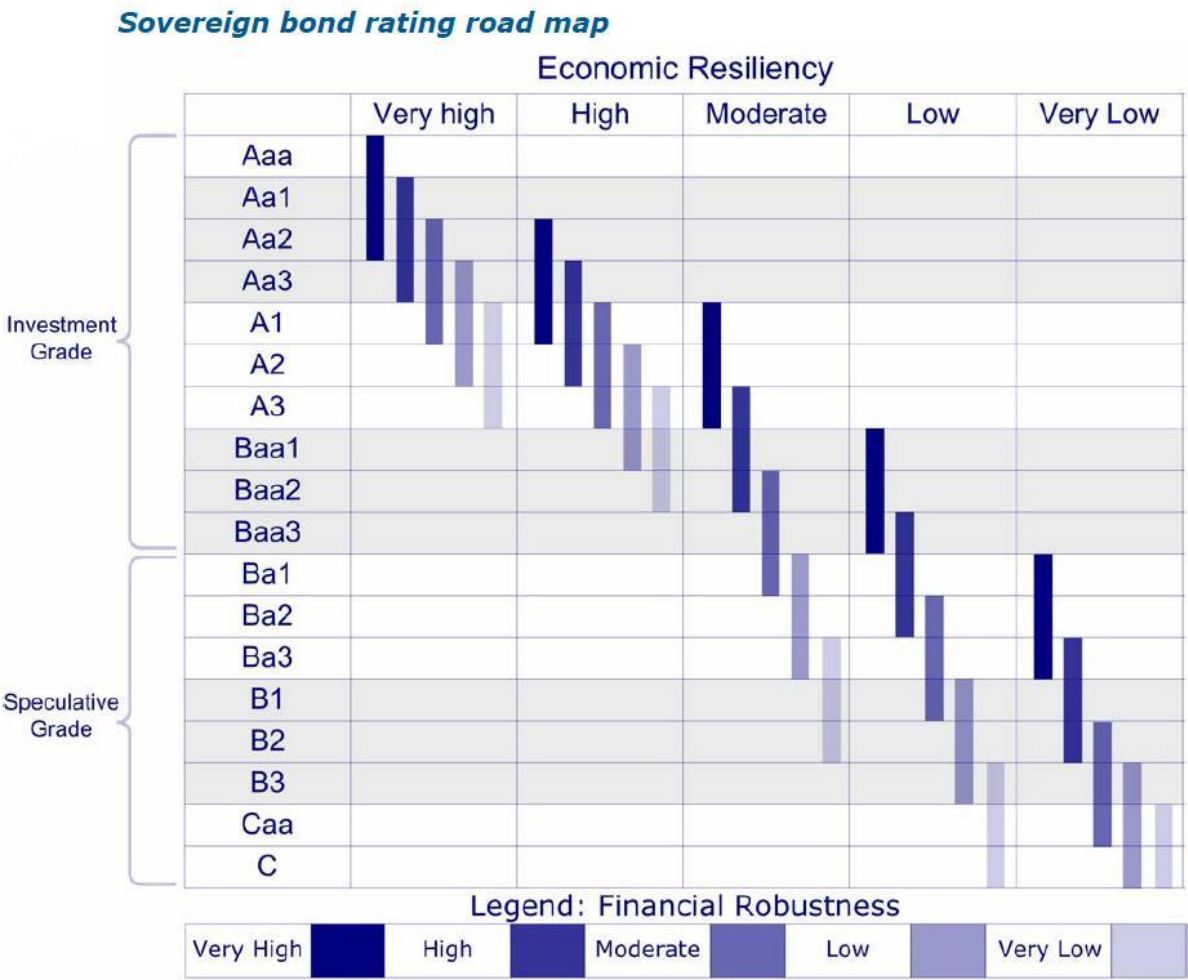
The last factor for the second process is the ability to react to disadvantageous developments. Basically, the question is how much space a government has to move. This typically includes the revenues as well as the expenditures side. There are several political actions to set up financial funds to repay debt obligations. In this sense, governments could increase tax levels or introduce new tax burdens on the one hand, or reduce public expenditures, on the other. However, both methods have their limits in terms of acceptance of society. But, like companies, governments can of course also sell assets or simply issue new debt to repay existing obligations. Both methods do make sense, of course. Although they do not change the government's solvency, they can make a difference in liquidity.

All these factors show how difficult it is to evaluate a country's relative default risk. Even for analysts of CRA with decades of experience in sovereign ratings it is still challenging, especially if one considers the dynamic approach. Furthermore, there is one crucial difference between corporate and sovereign issuers. While companies can be forced to repay its obligations by insolvency proceedings, governments might simply not be willing to repay their debt. This is a situation that could be observed in real life several times. Sovereigns actually were able to repay but they simply did not. Even this strategic default factor is reflected in sovereign ratings.

Furthermore, it shows that investors face a challenging task if they attempt to evaluate the default risk of sovereign debt instruments on their own. The increasing complexity and number of factors might be a reason to simply rely on the sophisticated analysis of CRAs.

The last step for CRA is the assignment of the actual credit rating. All the above mentioned indicators are summed up in one symbol. The relationship between the first two steps and the final rating is shown in the following graph:

Graph 3: Final Rating Assignment



source: MIS: Sovereign Bond Rating Methodologies

Although factors are quantitative, they are summed up in qualitative categories ranging from “Very high” to “Very Low” for both feature categories. Economic resiliency specifies a certain rating range for the country. Accordingly, the different stripes within one category account for different levels of financial robustness. As we can see, even after applying both factors, there is still a range open for the actual rating, which basically means that even this complex model does not smash out only

one possibility. After all, it is the subjective opinion of the responsible analyst that ultimately sets the final rating symbol.

This is in short what happens when Moody's assigns a rating for any sovereign in the world. Although the model seems reasonable, there have been numerous attempts to validate given ratings to the rating determinants. Cantor and Packer (1996) used a standard regression model and introduced eight of the determinants. The categories included income per capita, GDP growth, inflation, fiscal balance, external balance, external debt and indicators for economic development and default history. Using this model, they tried to find the relationship of those variables and the assigned rating by Moody's and S&P. As with every regression model, the major question was how strong the explanatory power of the variables would be. All in all they included 49 sovereigns which made up a representative group as all rating categories but the ones for default were represented by these countries.

The result of this study was quite impressive, as the model was able to explain about 90 % of sample variation. Furthermore, they found that not all of the variables had strong explanatory power regarding the assigned rating symbol. In detail, the three factors showing no clear relationship were GDP growth, fiscal balance and external balance. However, the statistical power to explain larger differences in ratings is undoubtedly remarkable. The limitations of the model, which are by the way mentioned in the study, are that it is not very strong to predict smaller differences. Another limitation stems from the fact that quantitative models will never be able to explain literally all of the sample variation, as CRAs already stated that qualitative factors are included as well. Those factors, mostly influencing the social and political environment, cannot be taken into account adequately. Furthermore, to explain an actual assigned rating symbol, it would be necessary to use the same weights as CRAs. As mentioned above, CRAs do not publish any information about the relative importance of each factor.

The Informational Value of Credit Ratings

The following part will introduce a theoretical approach on the informational value of credit ratings, before the empirical part will investigate this matter in detail. The ultimate question when dealing with informational value of CRAs is whether they are able to add anything to publicly available information in the market or not. If so, prices for securities, in this case interest rates for long-term government bonds, should always fully reflect all available information. In this sense, the actual change of a sovereign credit rating would immediately reveal new information and prices should react accordingly.

Efficient Market Model

The theoretical basis of this mechanism is the efficient market model by Fama (1970). In this model, the future expected return for a given security depends on investors' expectations based on a certain set of information. If this set of information, usually noted as Φ , changes, prices should react immediately. If this is the case, prices always convey all available information.³⁷ However, there are several requirements for efficient markets to provide proper application of this mechanism.³⁸ First, the perfectly efficient market has no transaction costs when dealing with securities. Furthermore, information would be free of charge and available to all investors in the market. Finally, the implications of new information would never be controversial. The last point basically means, that investors fully agree on the consequences stemming from new information.

When analyzing these ideal conditions, it becomes obvious that real-life markets do not fulfill these assumptions. We actually do have transaction costs when dealing with securities. Information is only to a certain degree free of charge, and the

³⁷ cf. Fama (1970, p. 388)

³⁸ cf. Fama (1970, pp. 387)

implications are often debatable. On the other hand, we should note here that these conditions would provide efficient markets, but they are not indispensable.

Going back from general theory, the efficient market conditions will now be analyzed for sovereign debt instruments to identify whether this mechanism can actually work. Starting with transaction costs, even large ones would not directly lead to inefficient markets. Although large transaction costs could reduce the flow of transactions, this would not be proof for market inefficiency.³⁹ The second condition is more complex to investigate. To fulfill the above mentioned conditions, all investors should have access to relevant information.

However, whether this condition is fulfilled or not is difficult to answer, and not within the scope of this paper. The relevant question here is whether CRAs can help to provide more information to all investors. In this sense, CRAs would contribute to making markets more efficient in terms of information. Basically, at least quantitative data is published by independent organizations providing investors with free and unbiased information. However, the opposite is true when dealing with political factors. Of course, information about future political actions is published by government officials. But one should not forget that governments want to attract investors in international capital markets. Furthermore, they have to convince citizens, always keeping in mind the next elections.

CRAs typically have representatives for each sovereign. These senior analysts are responsible for only one country and often entrusted with this task for many years. As a consequence, they built strong networks with leaders of governmental institutions. Furthermore, this network includes representatives of national research institutes as well. The reason behind this procedure is to gain first-hand information from several sources. If we think about ministries of finance or high-level employees of research institutes it becomes obvious that these sources are not available for other investors in the market. Finally, all information gathered in this process is then used to define the final credit rating. In this sense, a credit rating should reveal new information, which was not available for other investors before.

³⁹ cf. Fama (1970, p. 388)

Keeping in mind the conditions from the efficient market model, we can now state that CRAs do have a positive impact in making markets more efficient. Of course, perfect capital markets where all information is publicly available is still not met in reality, but CRAs are able to reduce information asymmetries. Furthermore, in the 1960's, CRAs started to charge the issuer for credit ratings, instead of investors. Today, we can therefore state that current sovereign credit ratings are available to all investors free of charge.

As a summary for the second condition one should note that CRAs can actively contribute to higher market efficiency. In their role as information intermediaries they gather information that would usually not be part of the publicly available set of information for other investors in the market. Finally, they publish current credit ratings, which include all information, free of charge for all investors. However, this does not ultimately prove that prices react to rating announcements immediately. The final and most crucial condition for CRAs is the last requirement of the efficient market model. According to the theoretical approach, investors should agree on the impact of new information. If we put this general condition into practice for CRAs, the question arises whether investors rely on the assessments of rating agencies. Before this factor is analyzed on the level of individual investors, a more general approach is necessary. What is the incentive for CRAs to publish correct evaluations?

Rating Quality and Reputational Capital

If one considers information from government officials, we should not forget that they have an incentive to obtain a high credit rating for the above mentioned reasons. Furthermore, it is the issuer that pays for the credit rating. In fact, these conditions have fuelled criticism on CRAs recently, especially when dealing with sovereigns. Basically, the idea is that it would be very easy for CRAs to gain profits from publishing biased information about the issuer.⁴⁰ And governments would well be willing to pay for an unjustified rating as it would reduce financing costs of government debt by lower interest rates based on wrong information. In the short-run, CRAs and governments would gain while investors would clearly suffer from this procedure. However, this changes in the long-run. Especially the two dominant rating agencies, Moody's and S&P, look back on a very successful history.⁴¹ While governments discuss regulation, CRAs do actively and regularly examine their past rating success. For this purpose, they check whether a significant number of well rated entities unexpectedly went bankrupt. And history clearly supports the evaluations of CRAs. Within investment grade rated entities, both by Moody's and S&P, only few have defaulted, showing an immense quality in credit ratings.⁴²

And this track of success is the main source for investors' trust that CRAs have. One should not forget that this is the only way to assess the quality of credit ratings. Investors are not able to evaluate the quality of a current rating assigned to a certain sovereign. Instead, they investigate correlations between past ratings and defaults. If this correlation is high enough, an investor would believe that the current rating is justified as well. This aspect is well accepted in literature and often referred to as the "reputational capital" of a CRA.⁴³ If one examines the role of reputational capital in detail, it becomes clear that it is crucial for success and market power. Basically, what this means is that investors would prefer ratings from reliable CRAs with high reputation. This drives demand for ratings from that agency on the issuer side,

⁴⁰ cf. Dittrich (2007, p. 21)

⁴¹ cf. Schwarz (2002, p. 13)

⁴² cf. Schwarcz (2002, p. 13)

⁴³ cf. Dittrich (2007, p. 21)

because they want to attract as much investors as possible and keep borrowing costs low at the same time.

As a consequence, especially new securities would therefore tend to seek ratings from well established rating agencies. On the one hand, this acts as an entry barrier in the credit rating market, as new agencies cannot provide such a successful history. On the other hand, this enables CRAs to gain higher margins for their rating activities.⁴⁴ As high quality agencies are preferred, on the investor and issuer side, they have the power to gain higher prices compared to low quality agencies. Ultimately, there is literally no space in this industry for low quality providers. Finally, this aspect also provides an answer for the question why CRAs do not publish favorable ratings. The short-term profit from publishing wrong credit ratings is simply not high enough to exceed the future losses stemming from reductions in reputational capital. CRAs therefore have a clear incentive to keep quality as high as possible to keep the trust of investors and issuers. And the same goes for short-term cost reductions if ratings are assigned with poor analytics in advance.

It is therefore necessary to state, that, even in the absence of government regulation, CRAs are highly dependent on the quality of their rating announcements. It is the rating quality that provides market power, profitability and growth in the long-run. In fact, low quality is not an option, as it would lead to considerable losses in market share. This would result in a strong decrease in demand of ratings from this agency and, as a consequence, it would leave the market. The current market situation clearly supports this idea, as we observe two dominant rating agencies, both with an outstanding history of success and similar market share. The key to success therefore is expertise and independence.⁴⁵

Now it is possible to analyze the last condition of the efficient market model. Again, according to this condition, investors should agree on the impact and significance of new information. In fact, Fama (1970) already notes that not all investors have to evaluate the consequences literally the same. It is sufficient, if deviations are stemming from differences in the ability to assess the value of new information. Up to

⁴⁴ cf. Dittrich (2007, p. 21)

⁴⁵ cf. Dittrich (2007, p. 22)

now, there is no evidence to claim that financial markets are inefficient. The question now is whether we observe reactions in prices because of rating announcements, and can only be answered by conducting empirical tests.

Summing up the important facts from the theoretical approach one can state that CRAs can have an impact on market prices. Given that markets are efficient, prices should react immediately if a credit rating reveals new information. Furthermore, they should react as well if investors believe that CRAs are able to better evaluate a given set of information. In this case, there would be no new information at all, but investors rely on CRAs and value their estimations more than their own assessments.

However, a final statement can only be given after testing the impact of past rating announcements. These investigations are conducted in the following chapter of this paper.

Empirical Study

Model Definition

To analyze the impact of rating actions it is necessary to apply a model that is capable of showing reactions in a certain time period following the announcement. A simple regression model is therefore not appropriate. This model would show clear interactions, but, at the same time, would be unable to predict their direction. This basically means that it would remain unclear whether the rating causes a change in interest rates or just follows them, as both are dependent on changes in economic fundamentals or creditworthiness of a sovereign, more general. To overcome this problem, an event study was conducted to investigate the impact of rating announcements on interest rates. An event study has the important advantage to add a time factor to the model. As mentioned before, it is absolutely clear that there will be an adjustment in interest rates if the underlying factors are changing.

This becomes obvious if one considers the example of severe difficulties in public financing of a certain sovereign. When bad information is revealed, and given that it is significant, interest rates will adjust immediately. However, it takes some time before rating actions are actually done. CRAs first analyze the new situation and estimate the consequences. Only after a certain time of investigation, a rating change is finally published, if necessary. Without taking the time factor into account we would easily find a significant relationship which would lead to the rash conclusion that rating actions have a strong impact on interest rates. However, it is the time factor that indicates whether interest rates react to information already available, or on rating announcements.

The structure of the event study basically follows MacKinlay (1997). However, there have been some adjustments in order to adjust it to debt instruments rather than for common equity, which makes it necessary to explain it in detail here. The first step was to define the event that should be investigated, which are in this case rating

announcements of Moody's Investor Service. The securities of interest are long-term government bonds of the current 27 member states of the European Union.⁴⁶ The event window, in which interest rates have been investigated, has been set to 14 days around the event. This is basically due to the fact that government bonds are not traded as frequently as stocks, which made it necessary to extend the window in order not to miss the adjustment in interest rates. The event window starts three days before the announcement and then goes on until ten days after the event. This period is still short enough to avoid reactions to other factors while infrequent trading is taken into account.

To assess the impact of the event it is necessary to estimate interest rates as if no event has taken place. This procedure is commonly accepted for event studies and requires computing "normal" interest rates first. These normal rates are then compared with actual ex-post ones, which allows observing the difference as "abnormal" returns. In this model, interest rates were supposed to depend on two factors. First of all, interest rates of government bonds do heavily depend on the general level of interest rates. Precisely, it consists of a risk free interest rate and premiums for credit risk and maturity. However, government bonds of this sample all have a remaining maturity of ten years, which allows for simplification of the model. Accordingly, the interest rates depend on the risk free rate and a premium for credit risk as assessed with currently available information. This relationship can be shown by the following term:

$$r_{i,t} = r_{f,t} + (p_{i,t} | \Phi_{i,t})$$

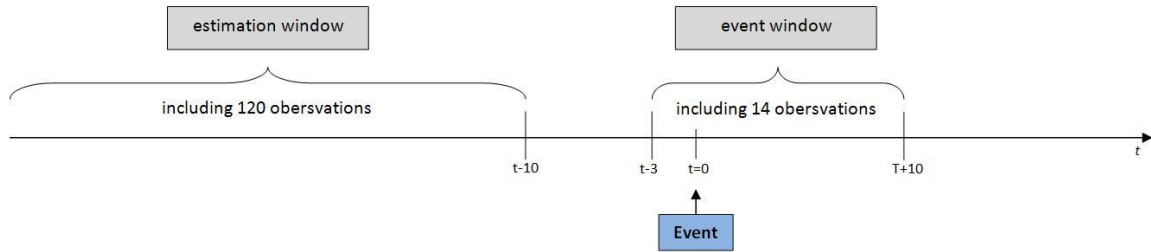
Where r is the interest rate for sovereign i at time t , which is the sum of the riskfree rate (r_f) at time t and a premium for credit risk (p), assessed on a currently available set of information (Φ). This simple approach already shows an important problem when dealing with changes in interest rates of government bonds. A change in the event period can be caused by a change in the underlying risk free rate and would

⁴⁶ detailed information about data and sample are given in a separate chapter of this paper

not tell anything about the premium for credit risk. In fact, this premium could remain the same although interest rates are changing over time. This made it necessary to implement an approximation for the risk free rate to avoid misinterpretations.

Based on this approach, estimations were made for the event window as if there has been no event at all. The estimation window was set to 120 observations for each security. The window stops ten days before the event and goes back until 120 values are available for estimation purposes. After all, all relevant information about estimation and event window is shown in the following graph.

Graph 4: Estimation and Event Window



For estimation of normal rates, a simple regression model has been applied. This model assumes a linear relationship between interest rates of government bonds and the risk free rate. For this purpose, neither a constant mean nor a market model would have led to sound results. Therefore, a single factor model was developed, including the risk-free rate instead of a market or portfolio return. The basic regression term is given as

$$r_{i,t} = \alpha + \beta * r_{f,t} + \varepsilon_{i,t}$$

where ε represents an error term with zero mean.

This implies that the current interest rate of the security depends on the risk free rate. Furthermore, the constant term allows for a continuous difference to model the influence of credit risk. The idea behind this approach is that α should be greater if credit risk is relatively high for a given sovereign. As mentioned before, the implementation of the risk free rate allows eliminating misestimating due to movements of the general interest rate level. An OLS calculation was used to derive unbiased and efficient estimators for α and β for each security as⁴⁷:

$$\hat{\beta}_i = \frac{\sum_{t=1}^{120} (r_{i,t} - \hat{\mu}_i) * (r_{f,t} - \hat{\mu}_f)}{\sum_{t=1}^{120} (r_{f,t} - \hat{\mu}_f)^2}$$

and

$$\hat{\alpha}_i = \hat{\mu}_i - \hat{\beta}_i \hat{\mu}_f$$

where

$$\hat{\mu}_i = \frac{1}{N} \sum_{t=1}^{120} r_{i,t}$$

and

$$\hat{\mu}_f = \frac{1}{N} \sum_{t=1}^{120} r_{f,t}$$

Having the estimators, it was possible to calculate normal interest rates over the event window. The obtained rates served as approximations for the case of no event taking place. Normal rates were calculated by

⁴⁷ based on more general formula in MacKinley (1997, p. 20)

$$NR_{i,t} = \alpha + \beta * r_{f,t}$$

for each of the 14 days around the event. In order to investigate the impact of a rating announcement, the estimated normal rates were then compared to the actual observed rates.

The difference of these two values are abnormal rates caused by the event and given as

$$AR_{i,t} = r_{i,t} - NR_{i,t}$$

Again, abnormal rates have been calculated for every day of the event window. The structure of the calculations has been the same regardless whether a downgrade or upgrade was investigated, which leaves the following possibilities for the obtained abnormal rates. If we observe negative AR, the event has a positive impact from the perspective of the country of interest, as interest rates have decreased after the event. On the other hand, positive AR would indicate a negative impact as interest rates increased after the event. Thus, if AR is 0, the event of a rating announcement has had absolutely no effect on the interest rates of the government bond.

This procedure was repeated for each and every rating announcement in the sample period. As a last step, the obtained ARs had to be aggregated through time and across sovereigns. First, aggregation through time was done by summing up the ARs for every day of the event window and dividing the sum by the number of days. These mean ARs over time are given as

$$\overline{AR}_i = \frac{\sum_{t=1}^D AR_{i,t}}{d}$$

where d is the number of days in the event window, in this case 14. With this procedure, the average impact over the event window is estimated for each security. As interest rates were observed as returns per annum, an accumulation would have been without any significance, as it is not possible to realize these cumulated returns in real life. This approach is often used for stock price analysis but does not lead to sound results for debt instruments. The obtained average abnormal rates now were still on the security level, so far. To estimate the average impact of a certain rating announcement, aggregation now had to be done across securities as well. Indeed, the calculations were now done for different groups of rating announcements in order to get significant results. There has been no change of sign according to the direction of the rating action. If calculations would not have been spread now, equal reactions for positive and negative announcements would have caused a zero mean impact and misinterpretations, therefore.

Finally, the average impact of each of the rating actions was derived as

$$\overline{AR} = \frac{\sum_{i=1}^I \overline{AR}_i}{N}$$

The aggregation is basically done by dividing the sum of security-level abnormal rates by the number of securities in a certain group of rating actions. This procedure was repeated for all rating actions, including downgrades, upgrades and positive and negative “ON WATCH” announcements. The obtained average abnormal rates are now independent from time and security.

At the end of the empirical work, a two-sided t-test was applied to investigate whether abnormal rates for each group of rating actions were significantly different from zero.

Data and Sample

Rating Actions

For the events, the sample contains all credit rating announcements of Moody's Investor Service between January 1st 2001 and February 13th 2012. These announcements include actual downgrades and upgrades as well as "On Watch" announcements. In these cases, the rating was not directly changed but a possible rating action and its direction have been published in advance. All in all, Moody's published 108 rating announcements in the sample period. Detailed information about rating actions is given in the following table.

Table 1: Rating Actions in the Sample Period

Rating Actions of Moody's in the sample period		
	occurred	included
<i>Changes</i>	74	68
<i>Upgrades</i>	32	26
<i>Downgrades</i>	42	42
<i>ON WATCH</i>	34	33
<i>Possible Upgrade</i>	12	12
<i>Possible Downgrade</i>	22	21
Total	108	101

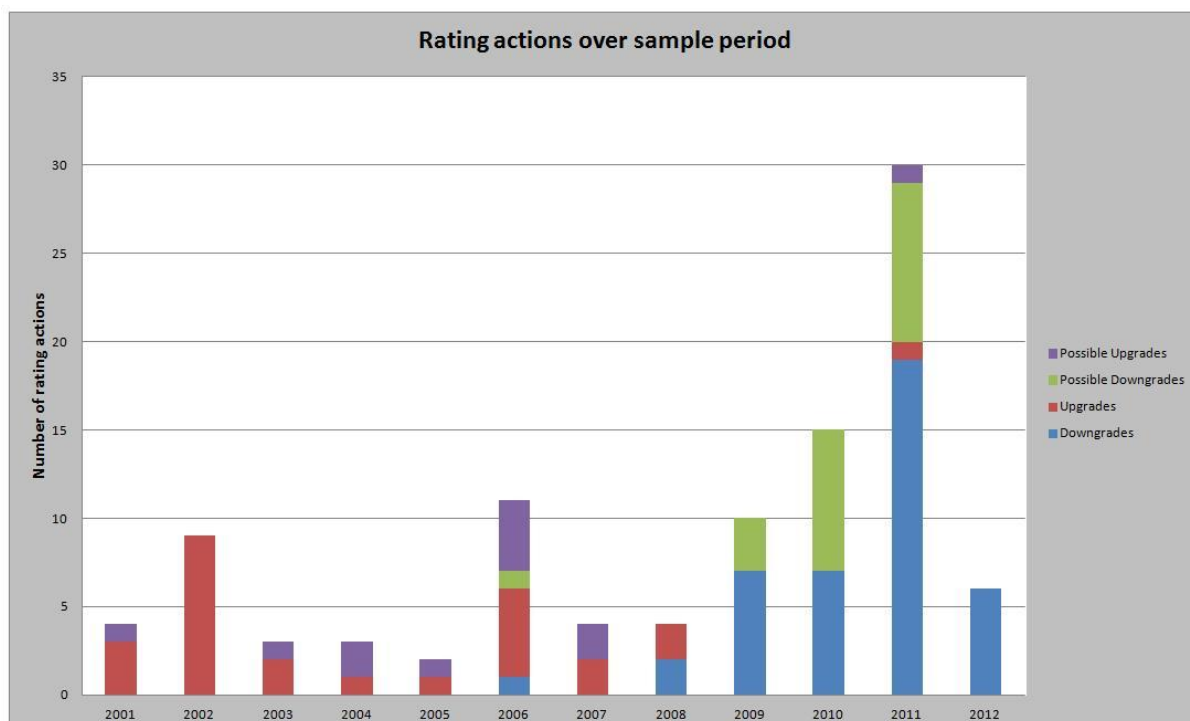
Rating actions were classified by the above mentioned rating action types. Due to data availability reasons, 7 rating actions were not included in the empirical analysis. In these cases, interest rates were not sufficiently available for empirical tests, which made it necessary to eliminate these observations. Otherwise, too short estimation

windows would have predicted insignificant estimators for the event window. Of course, a sound interpretation of results would have been impossible.

An important fact concerning rating actions is their concentration in time. The financial crisis in 2007 also heavily affected sovereigns and their financial situation. This results in clusters of rating actions over time. While there are more upgrades in the first half of the sample period, the second shows more downgrades. This is not a further problem for empirical tests; unfortunately it diminishes the meaningfulness of comparison over time, as rating actions are not distributed equally.

To make this situation obvious, the following graph shows different rating activities over the sample period. Despite the fact, that downgrades increased dramatically, the overall number of rating actions has increased as well. The last full year in the sample, 2011, shows an absolute peak of 30 rating actions for sovereigns. This reflects the turbulent situation of financial markets this year, as well as the impact on sovereigns.

Graph 5: Distribution of Rating Actions



Financial Securities

Data for securities was taken from the official Eurostat database. Eurostat, an institution of the EU for statistical surveys and analysis, publishes data on a variety of topics in an online database. For this study, long-term interest rates for government bonds have been downloaded. In contrast to other studies on this topic, data has a daily frequency, which is advantageous for the event study. Daily data allowed for keeping the event window rather short, including only 14 observations for every event. Other studies, relying on monthly data, have the problem that other factors could influence interest rates as the event window captures at least 30 days. Furthermore, monthly data often contains average values which would smooth the impact of rating announcements. Interest rates collected by Eurostat include government bonds with a remaining maturity of 10 years for all 27 member states of the EU. Unfortunately, for new member states, data is available of course only short before their entry into the EU. This fact made it necessary to eliminate 7 rating announcements.

However, the important advantage of using data from this one source is that Eurostat ensures full comparability among the member states. This means that potential sources of observation errors are reduced to a minimum. Furthermore, as included government bonds were continuously exchanged according to their remaining maturity, the influence of this factor can be ignored as well. Interest rates are given as returns per annum, for all cases. Due to this fact, the above mentioned adjustments had to be made, resulting in an aggregation of abnormal rates by calculating the mean impact, rather than the sum of abnormal rates. To capture all rating announcements, the sample period of interest rates of government bonds ranges from January 1st 2001 to February 29th 2012. This ensures that the last rating announcements of February 13th 2012 are well included with the whole event window. The following table provides some descriptive statistics for all sovereigns, facing any kind of rating action within the sample period.

Table 2: Descriptive Statistics for Long-Term Government Bond Returns (p.a.)

	BEL	BGR	CYP	CZE	ESP	GRC	HUN	IRL	ITA
Mean	4.183	5.365	5.212	4.435	4.358	6.252	7.546	4.977	4.498
Median	4.160	5.300	4.600	4.255	4.230	4.670	7.360	4.550	4.410
Maximum	5.800	8.440	7.710	7.080	6.860	34.330	12.470	14.100	7.640
Minimum	2.820	0.000	3.960	2.810	3.020	3.210	5.350	2.980	3.200
Std. Dev.	0.569	1.103	1.076	0.842	0.643	4.327	0.996	1.701	0.648
Skewness	0.317	0.326	1.191	0.948	0.488	2.911	1.344	2.225	1.099
Kurtosis	2.641	2.748	3.079	3.729	2.887	12.156	6.010	8.261	5.575
Observations	2892	2367	2855	2862	2897	2889	2890	2878	2897

	LTU	LVA	MLT	POL	ROU	SVK	SVN	SWE	PRT
Mean	6.049	6.428	4.847	6.406	7.633	5.020	4.914	3.918	5.079
Median	5.150	5.350	4.680	5.930	7.310	4.720	4.490	3.930	4.430
Maximum	14.500	13.850	6.300	12.300	12.450	8.290	9.620	5.760	16.210
Minimum	3.500	3.530	3.780	4.410	0.000	3.050	0.000	1.560	3.100
Std. Dev.	2.858	2.626	0.627	1.569	1.155	1.303	1.424	0.935	2.116
Skewness	2.082	1.419	1.016	2.021	1.989	1.280	1.767	-0.254	2.653
Kurtosis	6.463	4.125	2.949	6.669	8.477	3.711	5.628	2.587	9.656
Observations	2884	2883	2877	2891	1753	2884	2581	2894	2902

Approximation of a Risk-Free Interest rate

Finally, for estimation procedures as given above, it was necessary to introduce a sound approximation for the risk-free rate as a basis for interest rates. Following the majority of studies in the field of finance in general, the first attempt was to use the US Treasury Bill rate for a short maturity of three month. Although the sample contains only European countries, government bonds today are of interest mostly for international institutional investors. This fact would have allowed for taking the US T-Bill rate as a key interest rate. However, when comparing this rate with interest rates of government bonds within the EU, it came out that the T-Bill rate was well above other securities. Especially in the period from 2008, when markets became more volatile because of the financial crisis, the T-Bill failed in serving as a base rate. If one again considers the structure of interest rates for government bonds, this would have led to wrong estimations. A base rate above the interest rate for government bonds would have forced the premium for credit risk to be negative. However, as the base rate is per definition risk-free, this would have been strictly against the assumptions of the model.

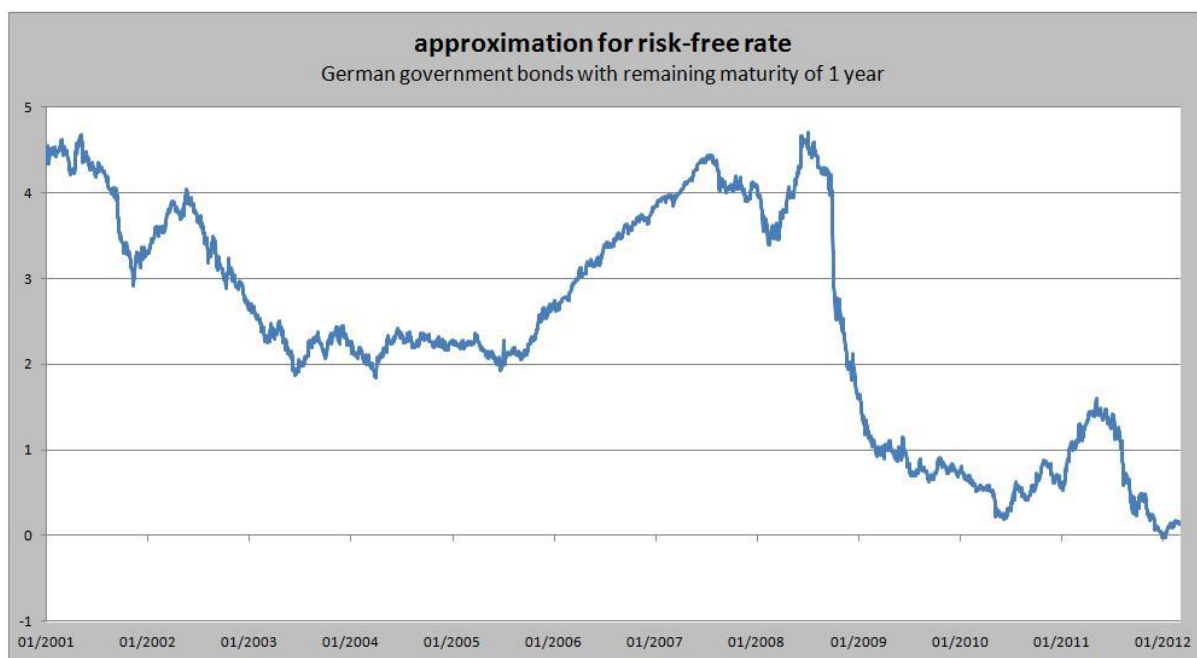
As a second attempt, the key interest rate published by the European Central Bank (ECB) was considered. However, when analyzing this rate, one can observe a rather stable development with extremely low volatility, although data is available for daily frequency. Keeping the estimation procedure in mind, it becomes obvious that especially the OLS system leads to severe problems. For some cases, this interest rate was constant over the whole estimation window, which made it impossible to calculate estimators necessary for further testing. Moreover, a constant interest rate is obviously weak in explaining volatile rates of securities at all.

Another alternative, often used for European studies, is to take the interest rate of German government bonds. The idea behind this procedure is that Germany clearly involves the smallest credit risk among EU member states. Although it is not completely risk-free, it is the best approximation and should therefore be just slightly above the risk-free rate. However, the interest rate from Eurostat was inappropriate, as a maturity of ten years would have caused a bigger difference to the risk-free rate.

Finally, daily values for German government bonds with a remaining maturity of just one year served as a base rate. The data was published by Deutsche Bundesbank, again on a daily basis and as return per annum. This method does not produce biased results, as Germany did actually not face a rating change in the sample period. For this special case, results would have been questionable as a ten year government bonds surely is dependent to some degree on the one year government bond of the same sovereign.

The development of German government bonds with a remaining maturity of one year is given in the following graph.

Graph 6: Development of the Approximation of the risk-free Interest Rate



Expectations and Hypotheses

To measure the impact of rating announcements on the interest rate level of government bonds, abnormal rates in the event window are of main interest. Due to the relative short period of the event window, significant abnormal rates can be directly connected to the rating announcement. As mentioned above, abnormal rates were calculated the same way for positive and negative announcements, to keep the intuitive sign of the absolute change in interest rates. For different values of AR, the following results can be stated:

$AR = 0$ (or insignificant): In this case, the rating announcement has absolutely no effect on securities. Of course, the AR can also be just too weak to allow for interpretation. This result would mean that CRAs add nothing to public information at all. As securities do not react, the information revealed by the announcement has already been available in the market. Even the argument that new information was not significant is obsolete here, as insignificant information would not have led to a rating change at all. However, with this result it remains unclear, whether CRAs add no new information, or investors do simply not believe in it. However, for both arguments CRAs would fail in their role as information intermediaries. In fact, they would not contribute in making financial markets more efficient in informational terms.

$AR < 0$: Negative AR are obtained when the estimated NR are bigger than the actual observed values. This means that the rating announcement has had a positive impact from the perspective of the country. Interest rates decreased significantly after the event. In case of a positive rating announcement, negative ARs would be intuitive. Investors would value the rating change and securities react immediately. This is due to the fact that the rating announcement reveals new information about the sovereign. This information is not apparent in ex-ante interest rates, which causes them to shift accordingly. Finally, this result would indicate that CRAs have a significant impact and that investors do trust in their judgments. In contrast to zero ARs, CRAs would well serve as information intermediaries and actively contribute in making markets more efficient.

$AR > 0$: Positive ARs can be interpreted as the opposite of negative ones. Again, the impact would be significant and observable. However, this is only true for negative announcements. If positive ARs are observed after positive rating announcements, this would be against theory. Good information about the sovereign would lead to an increase in interest rates, although the general interest rate level is taken into account. Indeed, this result would leave empirical tests questionable, even if ARs are technically significant.

Therefore, there are two hypotheses for every group of rating announcements:

$$H_0: \overline{AR} = 0 \text{ (rating announcements have no impact)}$$

$$H_1: \overline{AR} \neq 0 \text{ (rating announcements have significant impact)}$$

This procedure is then repeated for actual rating changes and “On Watch” announcements. Furthermore, a distinction is made upon the levels of rating changes. The sample is therefore divided in two groups. The first group suffered a rating change over just one rating symbol, whereas the second group was graded through several symbols at once. Theory suggests that worse information should lead to stronger reactions in securities. The underlying hypotheses are given as:

$$H_0: \overline{AR}_{single} = \overline{AR}_{multiple}$$

$$H_1: \overline{AR}_{single} \neq \overline{AR}_{multiple}$$

Typically, event studies on rating announcements usually test for further differences in reactions.⁴⁸ These tests include distinctions between investment grade and speculative grade issuers, for example. However, this study consists only of sovereign government bonds, which were mostly rated as investment grade. Out of

⁴⁸ e.g. Cantor et al. (1996)

101 events, only 14 were connected to speculative grade rated issuers. This would have lead to unrepresentative groups, as the number of observations per rating action decreases to a handful. Interpretations on the basis of such a small number of observations would have been rather questionable. Finally, a distinction according to the date of the announcement was also considered in the early stages of this study. Unfortunately, the majority of announcements took place after the beginning of the financial crisis. Before, sovereign ratings were rather stable with only few announcements observable. Therefore, a distinction upon date would have led to unrepresentative subsamples as well.

Results

This section now provides empirical results and interpretations. The empirical tests described before were applied for all rating groups, including downgrades, upgrades and “On Watch” announcements. Moreover, groups were built consisting of all positive announcements and all negative announcements. The following table shows test results for each group. For each group, the number of included observations is given, which results in a total of 101 rating actions. Second, the mean of each group shows the average AR for that group. The results of two-sided t-tests are given below each mean value. Furthermore, the standard deviation gives a picture of sample variation in each group.

Table 3: Empirical Results

Average Impact of Rating Announcements			
	observations	mean	standard deviation
<i>Negative Announcements</i>	63	0,6347 (4,7599)***	1,0585
<i>Positive Announcements</i>	38	-0,1363 (-1,9604)*	0,4286
<i>Downgrades</i>	42	0,6296 (3,7434)***	1,0900
<i>Upgrades</i>	26	-0,2004 (-2,0796)**	0,4914
<i>ON WATCH Possible Downgrade</i>	21	0,6450 (2,9022)***	1,0185
<i>ON WATCH Possible Upgrade</i>	12	0,0025 (0,0445)	0,1964
Total	101		
*** significant on a 0,01 level ** significant on a 0,05 level * significant on a 0,10 level numbers in brackets are two-sided t-test statistic			

Results show a clear impact of negative announcements. An actual negative change of a sovereign credit rating caused interest rates to rise by 0,6296 percentage points, on average. The announcement of a possible downgrade in the future, however, is even more powerful. A negative “On Watch” announcement causes an increase of 0,6450, on average. Although standard deviation is higher for downgrades than for

upgrades, the results are highly significant at a 0,01 level. In this sense, empirical results are well supporting what theory suggests. Negative announcements trigger an immediate positive reaction in interest rates. Here, H_0 of a zero mean for that group can clearly be rejected. According to the efficient market model, it can be said that CRAs do add new, significant information to public. Furthermore, this information is valued by investors, as prices for securities, or interest rates in this case, directly react. Ultimately, the published credit rating revealed some information that has not been available in the current set of information.

Compared to other studies, the results are perfectly consistent as well. Cantor and Pecker (1998) came to the same conclusions, even if their results were not as significant as these. However, given that other studies were mostly carried out before financial crisis, one can state that the influence of CRAs has not diminished. In fact, their opinion seems to be even more valued. This might find its reason in investors, believing in superior assessment capabilities. As theory already suggests, market participants do not necessarily have to agree about the consequences of new information. It is perfectly sufficient for efficient markets, if some participants, in this case CRAs, provide more sophisticated estimations, which are then used as basis for expectations of other investors.

The fact that an advance notice of a possible downgrade affects interest rates as well is no surprise at all. In approximately ten years of sample period, each and every advance notice was actually followed by an actual downgrade within less than half a year. As mentioned above, investors are using ex-post statistics to assess the quality of a current rating. In this sense, analysis of ex-post data suggests a 100 per cent probability that an “On Watch” announcement will be followed by a change in the given direction. However, not every downgrade is announced in advance. This is the reason why there is an observable reaction for both actions. The total shift in interest rates should therefore not be interpreted as the sum of both events.

Upgrades on the other hand, show somewhat different results. First of all, although standard deviation is smaller in this group, results are not as significant as for downgrades. Nevertheless, a significance level of 5 % still allows for interpretations, at least for actual upgrades. The first important difference is that the impact of

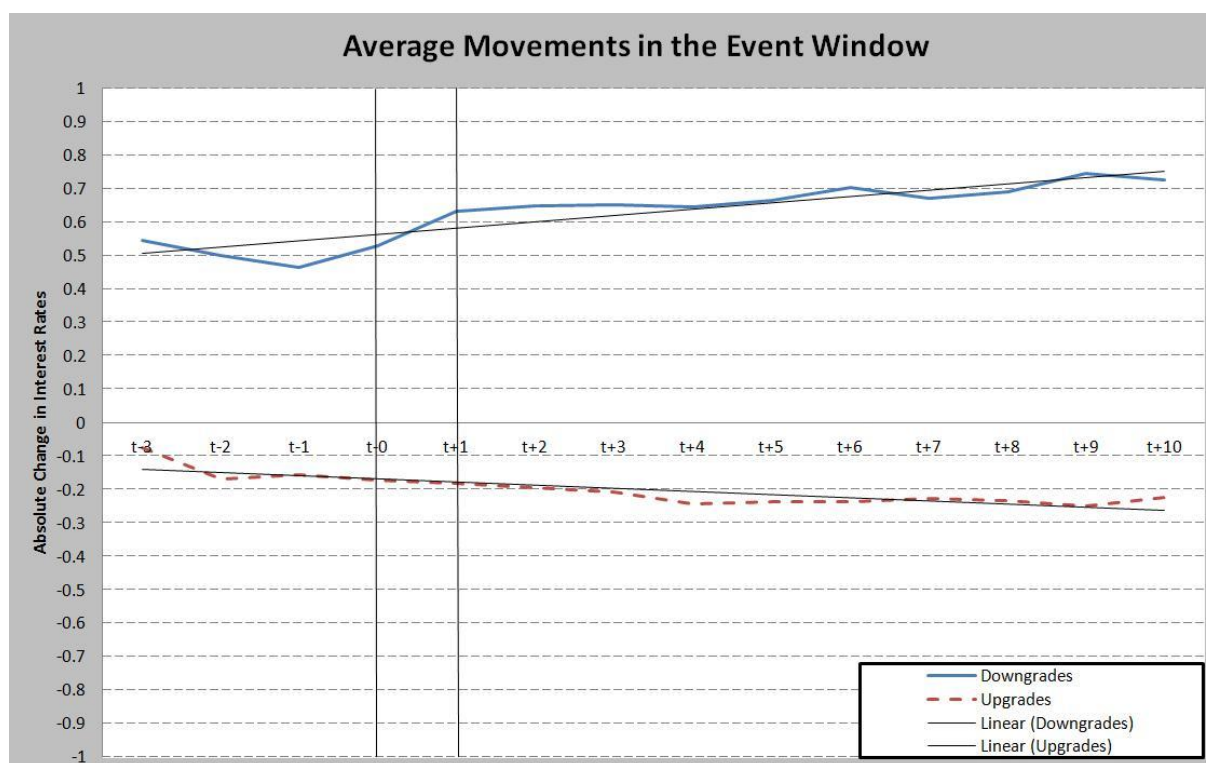
positive announcements seems to be much smaller compared to downgrades. On average, an upgrade of a sovereign credit rating causes interest rates to decrease by only 0,2004 percentage points. So, market participants do value changes in both directions. This ultimately supports the idea that CRAs contribute to higher market efficiency in financial markets. Based on these results, they successfully serve as information intermediaries. However, the reason why positive announcements have a smaller impact on interest rates remains unclear. One might state that investors are suspicious about positive news in times of crises and very volatile markets. However, a clear statement cannot be given on the basis of this study, which invites further investigation.

However, with respect to the currently increasing interest on CRAs, their role seems to be proven by this study. Downgrades by CRAs are clearly followed by higher interest rates for government bonds, which makes public financing more expensive in future. Given that a downgraded sovereign already faces restrictions in public finance for any reason, the downgrade itself further fuels these difficulties. Accordingly, a negative rating announcement at least can represent a dangerous threat.

Furthermore, it is of interest how interest rates react in time. The following graph includes average ARs for downgrades and upgrades. Due to less meaningful results for “On Watch” upgrades, these announcements were not included. This picture sums up the important characteristics of the impact of rating actions. The horizontal axis represents time in days, with $t = 0$ as the day of the event. For downgrades, the impact is most powerful on the day of the event, visible by the highest slope of the graph over the event window. Moreover, although the impact on the event day is quite impressive, it is still followed by a slight upward movement in the post event period. All in all, the change in interest rates is much higher and the development steeper compared to upgrades. Here it becomes visible, that rating actions seem to be anticipated as well. For downgrades, the impact already starts one day before the event, while for upgrades a clear decrease already happens three days before. In fact, for upgrades, the impact of anticipation is even stronger than on the event day. Next, beginning four days after the event, upgrades seem to remain stable at a certain level, whereas downgrades remain slightly increasing until the end of the event window.

For both categories, a simple linear trend line was added to show a more smooth movement through the event window. This line can be compared to the average movement on the event day. For downgrades, it shows a clear difference with respect to the slope of the lines. This represents a much higher impact on the event day compared with the whole event window. In contrast, the slope for upgrades is very similar, representing a smooth reaction in prices throughout the whole event window. In the latter case, the biggest difference can be spotted three days before the event, which again represents evidence for anticipation.

Graph 7: Impact of Rating Actions in the Event Window



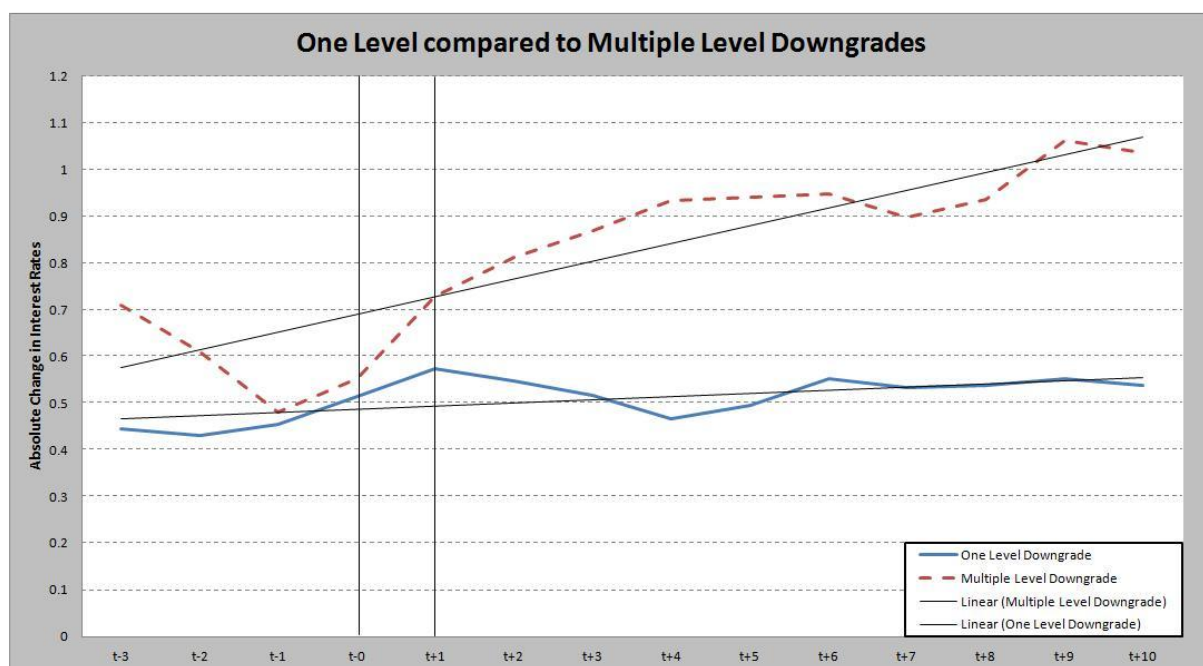
Finally, the sample was spread in downgrades over one level and those over multiple levels at once. As the latter seem to represent worse information, one would also expect a stronger impact on interest rates, therefore. And this expectation is perfectly supported by empirical results.

Table 4: Comparison of One-Level and Multilevel Downgrades

Downgrades: One Level vs Multiple			
	observations	mean	standard deviation
<i>One Level Downgrade</i>	26	0,5110 (2,5427)**	1,0247
<i>Multiple Downgrades</i>	16	0,8224 (2,7476)**	1,1973
Total	42		
*** significant on a 0,01 level ** significant on a 0,05 level * significant on a 0,10 level numbers in brackets are two-sided t-test statistic			

The following graph also deals with this idea and plots the average impact for both groups over the event window. Here, multiple level downgrades show a much higher impact, resulting in an increase in interest rates of more than one percentage point at the end of the event window. In contrast, one level downgrades show an impact of about the half magnitude. Especially on the day of the event, the slope of multiple downgrades is approximately twice as big. Moreover, the smoothed impact over the event window, represented by the linear trend line is also clearly steeper for multiple downgrades. This shows that investors clearly value this additional information. Multiple downgrades at once have an immense impact on interest rates.

Graph 8: Comparison of One-Level and Multiple Level Downgrades



As a bottom line, one can state that downgrades have a significantly higher impact on interest rates than upgrades. Especially a multiple downgrade can cause an increase in borrowing costs of nearly 1 %. Given the immense amounts of outstanding debt instruments of sovereigns, a 1 % shift means a dramatic burden for public finance. The results support the argument, that credit ratings can become a serious threat for sovereigns. As a consequence, a later section of this study will deal with possible solutions to overcome this threat.

Further Evidence from Credit Default Swaps

Although the obtained results are promising and in accordance with other studies in this field, a potential influence from other factors has not been tested yet. Therefore, the following chapter will investigate the role of credit default swaps in detail. At least for downgrades, CRAs obviously have an influence on government bonds returns. However, it is possible that both, credit ratings and bond returns are actually more determined by credit default swap spreads. If this is the case, then CRAs would not add new information but rather react to movements in CDS markets. This would mean that new information is first processed there and causes adjustments in sovereign credit ratings. However, before this aspect is tested empirically, this section of the paper contains a short introduction on the function and market of credit default swaps.

Credit Default Swaps

Credit Default Swaps are increasingly important instruments in the group of credit derivatives. While trading of these securities was quite rare in the 1990's, the market reached \$ 20 trillion in 2006, which represents an immense growth.⁴⁹ The most important contract among those securities is the single-entity CDS, making up about one third of total trading. Basically, CDS can be seen as an insurance mechanism against default risk of an entity. This entity can either be a corporate or sovereign issuer of financial securities subject to default risk. The two parties involved in such a contract are typically referred to as protection seller and protection buyer.⁵⁰ The buyer pays a regular fee to the seller for obtaining the right to sell a particular bond at its face value in case of a credit event. This allows market participants to trade the default risk inherent in government or corporate bonds separately on the market.⁵¹

⁴⁹ cf. Ericsson et al. (2009, p. 109)

⁵⁰ cf. Blanco et al. (2005, p. 2257)

⁵¹ cf. Hull et al. (2004, p. 3)

The credit event acting as a trigger is of course specified in the contract and can include some or all of the following points, as listed by Blanco et al. (2005):

- Bankruptcy
- Failure to pay
- Obligation default or acceleration
- Repudiation or moratorium (for sovereign entities)
- Restructuring

The compensation for protection against default is based on the CDS premium, or the CDS spread. As the buyer is able to sell the bond at its face value, the seller takes the risk of losing the difference between this face value and the market value of the bond after default.⁵²

The annual payment is given by CDS spreads, which are determined in basis points. One can think of an example of a \$ 10 million corporate bond issued by the reference entity. If the spread currently is at 300 basis points, the protection buyer has to pay \$ 300 000. The buyer then has the right to sell the bond exactly for \$ 10 million in case of a credit event.⁵³

Data and Sample

The sample for this investigation again includes the current 27 member states of the European Union. After eliminating those countries which did not face a negative rating action, 11 sovereigns were left. Due to data availability, it ranges from December 14th 2007 to February 29th 2012. Datastream does not provide a longer history of data. The time series contained 5-year CDS spreads as explained before, given in basis points in daily frequency.

For rating actions, on the other hand, only those within this time period were included. The number of announcements is given in the following table. As data

⁵² cf. Blanco et al. (2005, p. 2257)

⁵³ cf. Hull et al. (2004, p. 3)

availability is exactly equal for all sovereigns, all announcements have been included this time.

Table 5: Negative Announcements of MIS in Sample Period

Negative Rating Actions of Moody's in the Sample Period		
	occurred	included
<i>Changes</i>	41	41
<i>Downgrades</i>	41	41
<i>ON WATCH</i>	20	20
<i>Possible Downgrade</i>	20	20
Total	61	61

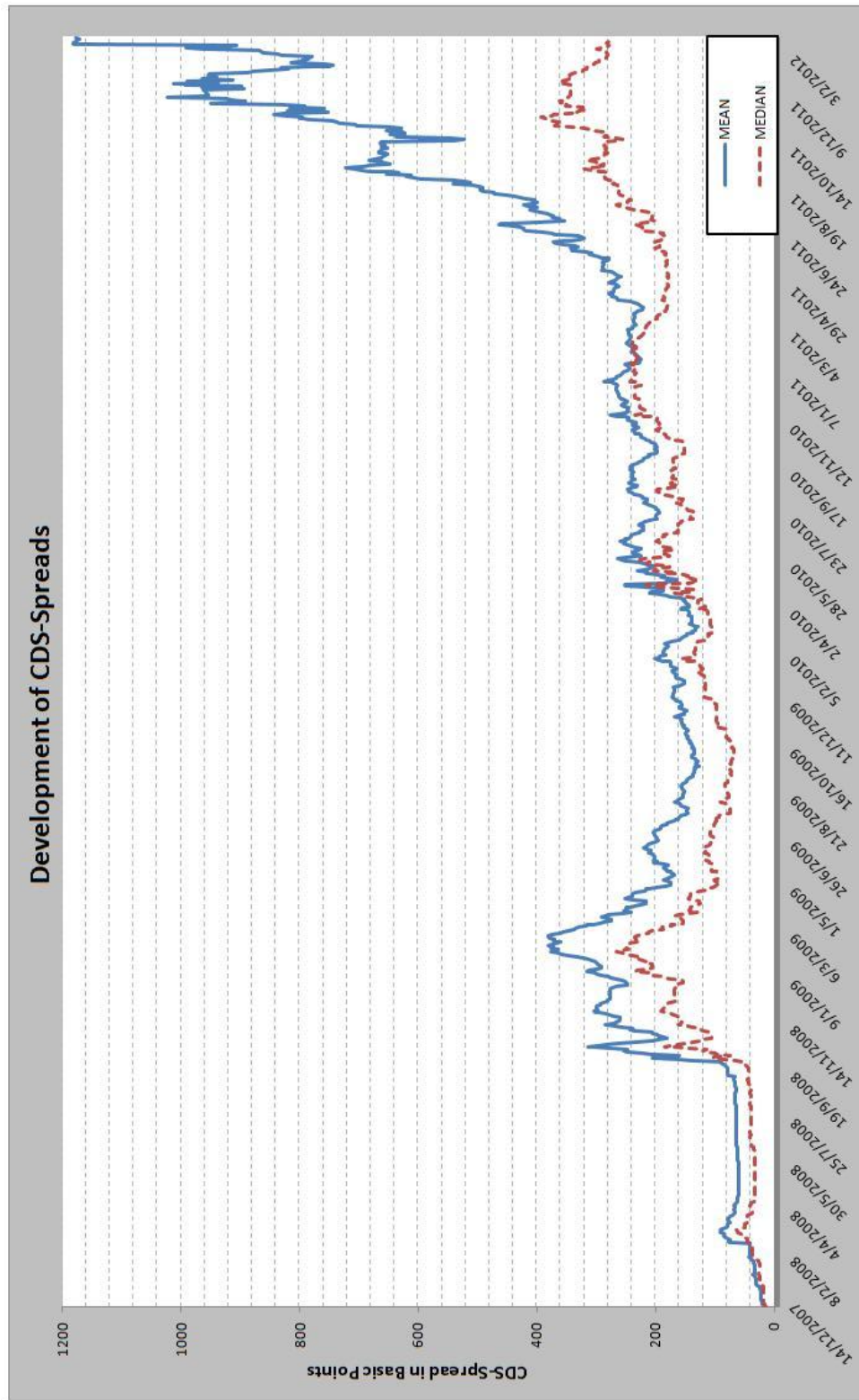
Descriptive statistics for CDS-spreads is given in the following table. Interesting is that mean values are well above median values for all countries within the sample. This already shows that there must be considerable peaks, even without any graphical analysis. However, what really stands out is the incredible maximum of CDS-Spreads of Greece, with a value of nearly 15 000 basis points. This perfectly illustrates the dramatic development of the Hellenic economy. But, although Greece is the absolute leader here, all others show relatively high values as well. On the other hand, this should not be surprising, as the sample only includes sovereigns facing negative rating actions.

The graph then shows the development of CDS-spreads over time. The two lines represent the mean and the median of the whole group of sovereigns included. The first interesting shift happens in September 2008. This was caused by the financial crisis, which also heavily affected sovereigns. After that, spreads recovered on average until October 2009. From that point on, they steadily increased before they explode in April 2011. This dramatic shift can be interpreted as the beginning of the impact of the sovereign debt crisis. Although most of the spreads increased from that point on, Greece is heavily affecting the mean value, which explains the huge difference between mean and median.

Table 6: Descriptive Statistics for CDS-Spreads

	BEL	CYP	ESP	GRC	HUN	ITA	IRL	MLT	PRT	SLO	SVK
Mean	94.7624	270.991	142.893	1297.51	287.772	141.016	369.887	141.57	391.162	102.408	116.619
Median	79.7089	135	121.038	295.827	272.677	115	250	131.743	254.94	75	85
Maximum	341.98	1290.24	399.56	14911.7	661.24	498.66	1191.16	276.021	1521.45	397.97	285.15
Minimum	11.25	13	16.5	16.9	45	16.375	66	13	37	8	50
Std. Dev.	69.2662	359.234	95.5636	2435.97	143.97	108.872	240.847	86.0497	377.925	88.841	64.3917
Skewness	1.03889	1.91663	0.65304	2.92577	0.19465	1.49756	0.66943	0.21259	1.05055	1.88535	1.35039
Kurtosis	3.45413	5.13123	2.39121	11.7907	2.34482	4.58814	2.34209	1.79449	2.73515	5.78615	3.53077
Jarque-Bera Probability	207.136	880.849	95.0847	5106.55	26.5966	526.281	82.1549	74.8253	162.387	1006.54	279.677
	0	0	0	0	2E-06	0	0	0	0	0	0
Sum	104144	297819	157039	1425962	316261	154976	327720	155586	339920	112547	103324
Sum Sq. Dev.	5267994	1.42E+08	1E+07	6.52E+09	2.3E+07	1.3E+07	5.1E+07	8130202	1.24E+08	8666204	3669469
Observations	1099	1099	1099	1099	1099	1099	886	1099	869	1099	886

Graph 9: Development of CDS-Spreads



The bottom line here is that countries which suffered negative rating actions clearly show increased CDS spreads. However, until now it is unclear which one causes the other variable, or if there is at least any interdependence.

Empirical Testing and Results

The empirical methodology used for further investigation is a standard Granger causality test (Granger, 1969). Generally, the model investigates two time series X_t , Y_t , in the form of:

$$X_t + b_0 Y_t = \sum_{j=1}^m a_j X_{t-j} + \sum_{j=1}^m b_j Y_{t-j} + \varepsilon_t$$

and

$$Y_t + c_0 X_t = \sum_{j=1}^m c_j X_{t-j} + \sum_{j=1}^m d_j Y_{t-j} + \varepsilon_t$$

In economic terms, the model tests whether past values of Y can help to predict current values of X better than past values of X exclusively, and vice versa. Coming back to the model, a causal relationship is proven if b (or d , respectively) is not zero.⁵⁴ However, an important requirement for the application of this test is stationary time series.⁵⁵ This requirement is not fulfilled yet. For this study, X will represent rating actions whereas Y represents values for sovereign CDS-spreads. The problem for rating actions is that they have to be transformed into a quantitative scale. Rating actions were therefore introduced as a dummy variable. It takes the value of 1, if a rating action occurs at time t , and remains zero elsewhere. By conducting two Granger causality test it was possible to distinguish actual downgrades and negative ON WATCH announcements.

⁵⁴ Granger (1969, p. 431)

⁵⁵ Granger (1969, p. 431)

CDS-spreads for sovereigns already were metric. However, as one can see in the prior graph, they are far away from being stationary. To overcome this problem and meet the requirements of the empirical tests, the values for Y are given as:

$$Y_t = \log(s_t) - \log(s_{t-1})$$

where s represents the CDS-spread in basis points. The first differences were used to generate a stationary series whereas a logarithmic function reduced variations in scale of the two time series. The problem before was that the dummy variable shifted from zero to one while fluctuations in CDS-spreads were much higher.

After generating the necessary time series, a vector auto-regression (VAR) model was applied. This was done to obtain more information about the lag structure in the model. Then, the Likelihood Ratio (LR) test statistic at a 5 % level was used as an indicator for the optimal lag length for the following Granger causality tests. This method identified the optimal lag length from a maximum of 30, as the study uses daily data. Finally, Granger tests have been conducted for this number of lags included.

However, the results are not as clear as before. The following table provides values for F-test statistics of pairwise Granger causality tests for each sovereign. The total number of 41 downgrades is spread over 13 countries, whereas 20 ON WATCH announcements correspond to 10 sovereigns. This is simply due to the fact that not every downgrade is announced in advance. The columns represent results for each direction and the corresponding lags included.

Table 7: Granger Causality Test Results

Granger Causality Test Results						
	Downgrades			Possible Downgrades		
	$X \rightarrow Y$	$Y \rightarrow X$	Lag	$X \rightarrow Y$	$Y \rightarrow X$	Lag
<i>Belgium</i>	0,09996	2,09512*	12	1,79578*	1,61428	17
<i>Cyprus</i>	2,08243*	1,59374*	27	1,00939	0,42048	27
<i>Spain</i>	0,22138	0,34207	4	0,85763	1,49007	23
<i>Greece</i>	2,28515*	1,82466*	16	1,98683*	0,5445	28
<i>Hungary</i>	0,45245	3,91328*	21	0,33025	1,04907	20
<i>Ireland</i>	1,28898	1,17534	29	1,12338	1,01131	21
<i>Italy</i>	1,41656	1,15399	20	2,99503*	0,94814	16
<i>Lithuania</i>	1,42104	2,41778*	17	0,73276	0,15087	5
<i>Latvia</i>	1,17677	4,0655*	25	-	-	-
<i>Malta</i>	0,01034	0,01249	1	-	-	-
<i>Portugal</i>	0,80395	0,28065	15	5,68225*	2,64903*	11
<i>Slovenia</i>	0,06746	0,29183	16	0,19707	0,97614	16
<i>Slovakia</i>	0,01969	0,02176	12	-	-	-
Total	13			10		
* significant on a 0,05 level						

The following graph provides a better overview for both groups. It first shows that it was not possible to identify a causal relationship between credit ratings and CDS spreads for the majority of included countries. The reason for this remains unclear, but one should not forget that credit default swaps are driven by numerous factors that are not part of the model. It is therefore not surprising, that sovereign credit ratings are relatively weak in explaining spreads. However, what is interesting is the distribution between the two groups. For announcements of downgrades, it seems that, if at all, credit ratings help predicting CDS spreads. This causal relationship has not been proven for even one country in case of actual downgrades. Those, on the other hand, show significant results in the other direction or feedback relations.

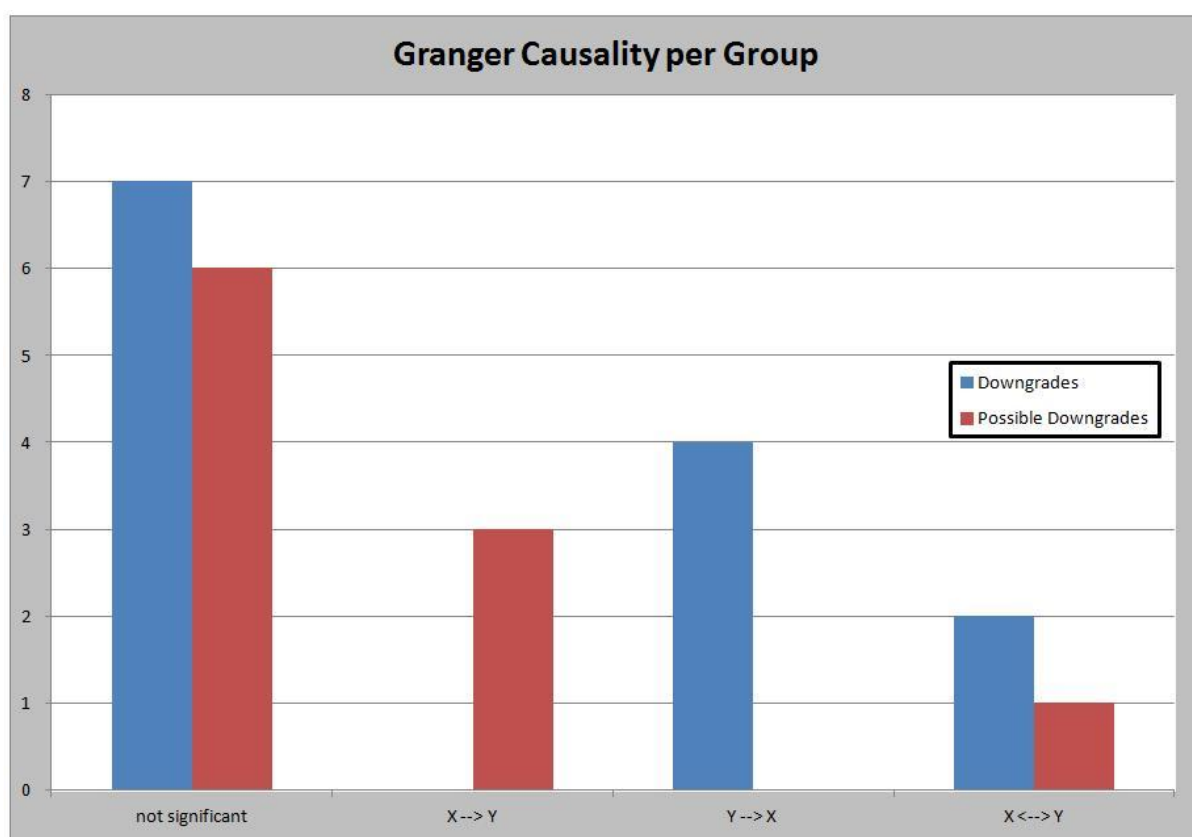
The remaining question is now what this tells in economic terms. Starting with ON WATCH announcements, there is weak significance of results. Due to this fact, it is not possible to state that those announcements have a direct influence on CDS spreads. However, if there is a significant relation, credit ratings lead CDS spreads. Anticipation can therefore be neglected. In this sense, CDS spreads might follow or not, but never the other way round.

The picture is completely different for actual downgrades. Here, one can only spot CDS spreads leading credit ratings, or even a feedback situation. And this result is not surprising at all. As mentioned before, not every downgrade is announced in advance. However, each and every announcement is followed by a downgrade within the following 6 month. What happens here is that CDS spreads react to the announcement, and, by doing so, “predict” the actual downgrade. But, the fact that not every downgrade is announced before explains the larger share of feedback relations. This simply represents sovereigns where both, unexpected and expected downgrades, occurred.

As a bottom line, results are relatively weak, and do not allow for interpreting clear lead-lag patterns. However, full anticipation of credit rating actions in the CDS market can be rejected. Especially negative announcements lead CDS spreads, although numerous other factors would be necessary to predict them successfully. Downgrades, on the other hand, are anticipated by the market. But this finds its reason in the ex-post probability of a downgrade following a negative announcement,

which is, of course, observed by the market. The empirical study of CDS spreads therefore further strengthens the previous results. As credit ratings and CDS spreads depend in a way on the same thing, full anticipation would have ruined the role of CRAs. In this case, they would again only collect information which is already reflected in financial markets. These results now further prove that they really add new information, for the same reasons as before.

Graph 10: Granger Causality per Group



Reducing the Impact of Credit Rating Agencies

As seen in empirical tests of this and other studies, CRA do have a significant impact on borrowing costs of sovereigns. In a way, they might actually start a downward spiral for shattered economies. As a result of a negative situation of public finance, rating agencies set the rating symbol to a lower level, revealing higher default risk. As a consequence, borrowing costs increase, as investors expect higher interest rates for holding more risky securities. Ultimately, increased borrowing costs mean a further burden on the budget, resulting in a downgrade once again. This effect explains some of the downgrade series for weak economies like Spain, Portugal, Ireland or Greece. However, as other member states are meant to help out, they also have an incentive to limit the power of rating agencies, especially on sovereigns. The recent introduction of EFSF (European Financial Stability Facility) and ESM (European Stability Mechanism) perfectly shows the problems arising when individual members need help by joint rescue packages.

It must be noted here that CRAs are of course not exclusively responsible for the economic situation of some sovereigns here. The effect of interest is that they seem to further fuel an adverse development. Especially downgrades have an undesirable signal effect on financial markets while politicians try to blandish.

Accordingly, opinions became louder paying attention to overcoming the powerful impact of CRAs. The last chapter of this study will therefore analyze measures of the EU on this behalf, again with special emphasize on sovereign credit ratings and on the basis of obtained results on informational value. The measures against adverse power of credit rating agencies can basically be divided in two groups. The first one aims at regulating CRAs in order to eliminate the amplifying effect of sovereign credit ratings as mentioned before. In contrast, the second proposes the foundation of a European rating agency which mainly refers to questionable market conditions in the credit rating industry. The following chapter will follow this structure.

Regulation of Sovereign Credit Ratings

Improve Accountability

A prevalent criticism of CRAs is their lack of accountability for published credit ratings.⁵⁶ This criticism seems to be shared by EU institutions, insisting on legal responsibility of CRAs for wrong ratings. This basically means that investors, relying on the opinion of CRAs would be able to sue agencies, if they suffer losses caused by defaults of well rated entities. However, this approach does not seem to be realistic. As noted in a legal disclaimer in literally all publications of CRAs, credit ratings are meant to be opinions about the future probability of the issuer to repay debt obligations.

They insist on clarifying that ratings are no suggestions to buy, sell or hold any financial security.⁵⁷ In this sense, rating agencies see themselves more in a role similar to financial journalists. Especially in court, their publications are protected by the constitution of free speech. CRAs have therefore not lost one single court case.⁵⁸ Furthermore, credit ratings are not produced for single investors. As mentioned above, rating activities are typically, if at all, paid by sovereigns, leading to an absence of any contractual agreement between an individual investors and the CRA.

All these facts have in past successfully protected CRAs from litigation. Furthermore, the need for governmental regulation in this case seems more than questionable. A common argument by officials of CRAs proposes to rely on market mechanisms instead. If agencies repeatedly publish inappropriate ratings, market participants would take notice fast.⁵⁹ If a significant number of well rated issuers were not able to repay their debt obligations, the quality of current credit ratings will be questioned by investors. If rating quality does not convince investors, issuers, as a consequence, will not be willing to pay for rating activities anymore. The result of low quality would

⁵⁶ cf. Kerwer (2005, p. 460)

⁵⁷ cf. Katz et al. (2009, p. 1)

⁵⁸ cf. Kerwer (2005, p. 469)

⁵⁹ cf. Kerwer (2005, p. 460)

be no reaction of rating announcements, as investors no longer rely on the opinions of CRAs. As rating activities represent the bulk of profits, their business model would simply break down. In the eyes of CRAs, the market mechanism is therefore much more efficient than any government body. Furthermore, for litigation, the required common legal basis is still missing. As long as CRAs classify their ratings as opinion rather than financial advice, investors must take full responsibility for their investment decisions.

Ban Sovereign Ratings

Another proposed countermeasure against the increasing power of CRAs is to ban their ratings for sovereigns from European financial markets.⁶⁰ For this purpose, two ways are possible in theory. First, credit ratings could be regulated based on their time of publication. In this sense, European institutions would prohibit rating changes for certain periods. The second and even more radical attempt would be a complete prohibition of sovereign credit ratings in the EU. Although these approaches do not seem feasible at all, they were presented in debates of the EP and are therefore discussed here for the sake of completeness. However, these actions do not have realistic chances at all, as even other MEPs had serious doubts about that.⁶¹

Again, it is the issuer that pays for rating actions, while assigned ratings are available free of charge. To think that European investors can successfully be discouraged to check these ratings is strict nonsense. Furthermore, a timely regulation of rating changes would in fact ruin the *raison d'être* of CRAs. If they are not allowed to provide timely information about financial securities, their role as information intermediaries would be senseless. This approach is therefore not only impossible, but also dangerous. The goal of any regulation of CRAs should be to increase information efficiency in financial markets. On this behalf it is necessary to use credit ratings carefully, which is only possible if a sound balance of control and market efficiency can be found.⁶² As CRAs are currently contributing in making financial markets more efficient by reducing principal-agent problems inherent in every credit relation, too much regulation or even a ban would only make markets more opaque. As a result, financial markets would be even more nervous and volatile, which can in neither case be the goal of any European body.

⁶⁰ EP Press Release, February 27th 2012

⁶¹ European Commission, February 29th 2012, Comment from MEP Jean-Paul Gauzès

⁶² cf. Kerwer (2005, p. 453)

Reduce Dependence

Another, more promising action to reduce the impact of CRAs is to reduce dependence on credit ratings of market participants.⁶³ In contrast to other arguments, this approach would in fact mean to reduce regulation instead of increasing it. The idea behind this is that current regulation with respect to credit ratings is itself intensifying the impact of rating changes. As mentioned before, several governments use credit ratings as a way to regulate investments of public funds, e.g. pension funds.⁶⁴ Those funds are only allowed to invest in securities currently holding a certain minimum credit rating. The aim of this regulation is that these funds should not invest in high risk securities. However, this ultimately means that in case of a downgrade, they are forced to sell those securities. In case of a downgrade of a sovereign credit rating, the amplifying effect of this legal framework becomes obvious.⁶⁵

As mentioned before, the downgrade directly increases borrowing costs, which further stresses the budget. Moreover, especially institutional, regulated investors are not allowed to invest anymore, resulting in immense sales. In fact, this procedure further boosts the negative effect of a downgrade. Second, it generates over-reliance on external ratings. If legal frameworks are strictly based on external ratings, there is absolutely no incentive to rely on internal evaluations of the underlying credit risk. Consequently, the downgrade provokes a “mechanic” reaction, even if investors do not agree with CRA’s opinions.

Indeed, this is just another case where market efficiency is reduced in favor of control. In contrast, a pure market mechanism could prevent this by leaving the decision to investors. In this sense, investors could hold securities if they are downgraded, if their assessment produces contradicting results. Although it is unclear, whether investors would prefer their own evaluations, this provides at least a chance to prevent the amplifying effect.

⁶³ EP Press Release, February 27th 2012

⁶⁴ cf. Katz et al. (2009, p. 3)

⁶⁵ cf. Kerwer (2005, p. 464)

Another important aspect with respect to regulation is the Basel framework published by the Basel Committee for Banking Supervision.⁶⁶ This framework introduced capital requirements according to the underlying credit risk. To assess this risk, the use of external credit ratings was supposed to make most sense. The framework introduced so-called ECAs. These institutions are subject to certain criteria explained later in this chapter. Indeed, this situation is very similar to the first example. Of course, banks hold considerable amounts in sovereign debt securities like government bonds. If these securities are downgraded, the capital requirements increase accordingly.

Again, the additional capital requirements bare the incentive to reduce investments in those bonds, as additional capital cannot be raised easily. Legal frameworks for banks therefore act the same way as regulation for mutual funds before. If capital requirements are solely bound on external credit ratings, there is again a “mechanic” reaction.⁶⁷ In this case, the Basel Committee has already reacted. For the next phase of the framework, Basel III, several articles have been changed in order to overcome over-reliance on external ratings.⁶⁸ Instead of picking the best available credit ratings from all CRAs, banks must consistently use one CRA for each group of securities.

Furthermore, banks have to increase their internal capabilities for credit risk assessment. Of course, the idea is to prevent automatic reactions based on opinions of ECAs (External Credit Assessment Institutions). Moreover, the requirements to become such an ECAI have been revised as well. CRAs have to meet certain criteria concerning independence, transparency, objectivity, credibility and disclosure requirements.⁶⁹ Only if these requirements are fulfilled, credit ratings of this entity can be used for risk assessment. In comparison with other countermeasures, this aspect seems to have the most promising chances in reducing the impact of credit ratings on sovereign bonds. This approach considers the usage of credit ratings rather than their creation. The important difference is the absence of direct regulation. As mentioned before, an elaboration of rules for CRAs seems unrealistic. European institutions will not be able to dictate US rating agencies.

⁶⁶ Basel Committee on Banking Supervision

⁶⁷ cf. Kerwer (2005, p. 464)

⁶⁸ Basel III framework (rV 2011, pp. 51)

⁶⁹ Basel III framework (rV 2011, pp. 51)

However, how these credit ratings are used within the EU is of course part of European legislation and frameworks. In this sense, this approach has much more chances for application. Furthermore it shows that regulation can easily result in contrary effects. While reliance for regulated entities was meant to decrease risk, it created an opposite effect for borrowers. In fact, more regulation seems to strengthen the problem even more. Again, a market mechanism seems to be preferable.

Increase Transparency

However, strict reliance on markets should not be the bottom line here. Especially the weak performance of CRAs with respect to mortgage-backed securities showed that there are some problems inherent.⁷⁰ While earlier misestimation of rating agencies mainly concerned single entities, like Enron, as the most prominent case, failures for whole types of securities followed later.⁷¹ A series of harsh downgrades in structured finance products and mortgage-backed securities clearly showed initial estimation problems. However, as especially structured finance products were increasingly complex while at the same time in high demand, investors completely relied on opinions of CRAs. In fact, neither investors nor regulators had sufficient overview on rating methodologies for these products.⁷² Finally, before the breakdown of the market it seemed that investors had practically lost understanding of the structure of those securities. However, they were still actively traded as long as they held an investment grade credit rating.⁷³ The breakdown then caused not only heavy losses fully bared by investors but also a collapse of the market. Moreover, regulators have done nothing to prevent this during the growth of this segment.⁷⁴ The answer of regulators then was to increase transparency in the credit rating industry.

Basically, the need for higher transparency affects CRAs at different levels. First, rating methodologies should be published in detail.⁷⁵ This means that rating agencies have to present all evaluations conducted to assign a current credit rating. In case of sovereign ratings, results for all factors explained above should be available to investors. Although rating agencies do publish the methodologies, this goal is not yet reached. Only the specific weights that are assigned to each factor would allow for traceability of credit ratings. This information is not published at the moment. Furthermore, it is of interest whether the issuer has participated in assigning the rating or not, to identify conflicts of interest.

⁷⁰ cf. Rom (2009, p. 644)

⁷¹ cf. Rom (2009, pp. 643)

⁷² cf. Katz et al. (2009, p. 3)

⁷³ cf. Katz et al. (2009, p. 3)

⁷⁴ cf. Rom (2009, p. 649)

⁷⁵ Basel III framework (rV 2011, pp. 52)

Another concern on this behalf is the availability of compensation models.⁷⁶ In this sense, CRAs should publish who has paid how much and when for a current credit rating. Again, this aspect aims at reducing problems arising from conflicts of interest. However, it is of less interest in case of sovereign credit ratings. As those ratings are used for numerous internal purposes, sovereign ratings are typically assigned free of charge, at least for industrial countries. This aspect can therefore be neglected here.

The last point for increasing transparency in the rating industry deals with past performance of assigned ratings. According to this, CRAs should publish past ratings in combination with default series. Based on this data, ESMA shall be able to assess rating quality more easily.⁷⁷ Rating errors should furthermore be available to all investors free of charge. The idea behind is that investors should not take credit ratings as infallible. If market participants realize that errors occur, the reaction to rating changes would be limited as well. In a way, this point also supports the aspect of reducing over-reliance. Furthermore, the actual observed number of defaults in every rating category should be published as well.⁷⁸ This would allow assigning absolute default probabilities for each category, instead of relative expressions available now.

All these requirements basically aim at providing more information to regulators and investors. As a consequence, investors would be able to do more sophisticated analysis of past rating performance, which results in better evaluation of current rating quality. At the same time, regulators would have more insight in rating methodologies and procedures. Especially if external credit ratings are used for other regulated entities, this is essential. Only if these methodologies are known in detail, the adequacy for other purposes can be determined correctly. As mentioned above, transparency requirements can easily be introduced by regulation frameworks. If CRAs do not fulfill them, they will not be accepted as providers of external credit ratings with respect to these frameworks, such as Basel III. By doing so, even European institutions can successfully introduce new guidelines for CRAs, as they would lose a considerable number of customers otherwise.

⁷⁶ Basel III framework (rV 2011, p. 52)

⁷⁷ EP Press Release, February 27th 2012

⁷⁸ Basel III framework (rV 2011, p. 53)

Foundation of a European Credit Rating Agency

The fact that several regulation approaches cannot be realized due to a missing legal basis proposed the idea of founding a European CRA.⁷⁹ The following chapter will therefore analyze the chances of a new European agency in international financial markets. Basically, the motivations are very similar to the above mentioned points. First, a European agency could be regulated more effectively, compared to US CRAs. This includes transparency and over-reliance, but also conflicts of interest. Ownership structure and interest held by the agency could be dictated by European institutions. Furthermore, a new CRA would mean a new player in the industry. A prevalent argument for the foundation of a European opponent has therefore been a permanent elimination of the lack of competition in this industry. The last point of this study will now analyze whether a European agency would have significant chances to meet these expectations.

First, a common view is that a European agency would overcome the adverse ownership structure of the US agencies. This aspect basically deals with conflicts of interest if rated entities are part of the board of the CRA. And for corporate issuers this argument might be meaningful. However, it is obvious that a European agency would bare the same risk in case of sovereign ratings. In this case, the EU would have a strong incentive to keep credit ratings high, although economic circumstances would not allow doing so. In a sense, a European body would be able to directly influence borrowing costs of a sovereign. For the special case of sovereign credit ratings this aspect is not really meaningful at all.

Another potential advantage is higher transparency of rating procedures. Indeed, as European institutions could set legal requirements on this behalf, transparency could be increased easily. However, it is likely that US CRAs would follow, once the European agency has been developed. As quality and transparency are important factors regarding competition in this industry, US opponents would not be willing to lose customers to this new entrant.

⁷⁹ EP Press Release, February 27th 2012

However, before analyzing potential advantages of a European agency, it is necessary to assess its chances on the market. What will it offer to investors to overcome the immense market power of the two currently dominating agencies?

First of all, the credit rating industry is characterized by considerable entry barriers. As mentioned in the first section of this paper, existing CRAs look back on a very successful history. The fact, that investors rely heavily on their opinion is based on past performance. Indeed, a new entrant could not provide such a track of success, which makes it impossible for investors to assess the quality of currently assigned credit ratings. The next shortcoming concerns the coverage of financial securities. As the dominant CRAs were founded over 100 years ago, their coverage ratios are quite impressive today. Overall, they serve well over 90 % of bonds and stocks in developed countries, and the vast majority in emerging markets. It is simply impossible for a new entrant to keep up with this. All these arguments lead to the conclusion that investors would not rely on the opinions of a European CRA. Even if transparency requirements are higher, the experience of S&P and Moody's will still convince them. Furthermore, in the special case of sovereign credit ratings, the conflict of interest is inherent if a European institution controls the CRA, and this would definitely be the case. In presentations of the EP, the European CRA is repeatedly mentioned as public institution.⁸⁰ According to this, the market chances for a European rating agency diminish considerably.

Finally, going one step back, even a successful market entry seems more than venture. Although there are basically three relevant CRAs worldwide, this does of course not mean that there are no other players in the market. In fact, there are numerous smaller rating agencies, highly specialized in securities' or geographical terms.⁸¹ A common answer of regulators is that the European agency would directly be accepted as external credit assessment institution (ECAI) within the Basel III framework. However, several authors already found out, that this is not of interest. New entrants do typically not fail due to a lack of governmental acceptance. Instead, it is market acceptance that prevents new entrants from growing considerably.⁸²

⁸⁰ EP Press Release, February 27th 2012

⁸¹ cf. Katz et al. (2009, p. 6)

⁸² cf. Katz et al. (2009, p. 6)

As a bottom line, it seems that European officials seem to overvalue the opportunities of a European CRA dramatically. Although the dominant rating agencies do have some problems, it is just presumptuous to think that a European body could outperform them from the beginning. Taking all factors into consideration, it seems rather senseless to found a new rating agency. Nevertheless, even if it would find the necessary market acceptance over time, this can only be done by providing high quality credit ratings. It would take years to keep up with the reputational capital of S&P or Moody's, developed over decades. Finally, as rating quality has to stay high for business success, sovereign ratings would be at least very similar if not identical to the US ones. Ultimately, a European CRA could not publish favorable credit ratings for the same reasons why US CRAs cannot. Otherwise it would risk its reputational capital and ruin its business model. Finally, the fact that one CRA has a European origin would add no advantage in case of severe difficulties in public finance of a member state. Rating actions in favor of this sovereign would happen only once before investors lose confidence.

Based on these specifications, it seems much more promising to rethink the usage of credit ratings, instead of creating a competitor. Especially with respect to sovereign credit ratings, the shortcomings definitely exceed the potential advantages.

Conclusions

This paper aimed at investigating the impact of sovereign rating announcements on the level of interest rates of government bonds. After summing up the important aspects of existing literature, an empirical study was conducted in the form of an event study. Theory already suggested an important role of CRAs, basically triggered by two important facts. First, the efficient market model suggests that relevant new information is immediately incorporated in security prices. According to this idea, the opinion of CRAs should have a significant impact on interest rates. In this sense, CRAs would act as information intermediaries, providing new information to other market participants. By doing so, they would actively contribute in making markets more efficient. However, the question remained whether they really add new information, or just sum up macroeconomic fundamentals, that were already contained in the currently available information set.

Secondly, investors would have to value the opinion of CRAs. Otherwise, CRAs would publish rating announcements, but prices would not react as investors do simply not believe in their assessments. However, especially the aspect of reputational capital strictly contradicts this idea. According to this theory, CRAs are reluctant to save costs by insufficient analysis. Furthermore, a favorable credit rating would not generate enough additional profit in order to exceed the upcoming losses caused by a loss in confidence. As investors estimate the quality of a current rating on basis of ex-post analysis, only CRAs with outstanding past performance are able to generate higher margins for their services. Furthermore, these high quality agencies are more attractive for new issuers, willing to win as much international investors as possible. Ultimately, low quality service is not an option and would lead to market exit, sooner or later.

To investigate the impact of rating actions, an event study was conducted. The results clearly support the introducing theoretical approach. Except of possible upgrades, all rating actions show significant impact on interest rates of government bonds. Negative announcements overall have a much higher impact as well. Over time, the average movement is highest on the event day for downgrades. In contrast,

a dominant change can be spotted three days before the event in case of an upgrade, which shows anticipation of the rating action. Furthermore, although all negative “On Watch” movements led to a real downgrade later, the impact indicates two steps of similar magnitude. This is due to the reason that not every downgrade is announced in advance. And, although the same is true for advance notices of possible upgrades, there is no significant impact for those announcements. And even further analysis of credit default swap spreads supports the results. Granger causality tests could not identify any evidence of anticipation of negative announcements. Finally, empirical tests clearly support the important role of CRAs nowadays. They are highly valued information intermediaries with superior assessment capabilities. This somehow justifies the increased notice of those agencies in academic literature as well as politics and press. Especially for sovereigns already facing severe difficulties, a negative rating announcement can further heat up the situation. It is therefore of central interest, to keep sovereign credit ratings as high as possible, in order to prevent dramatic increases in costs for debt financing.

Finally, overcoming this impact is a challenging task for global regulators. While CRAs have a position as de facto gatekeepers of financial markets, they still refuse to take responsibility for unjustified ratings. Furthermore, a common legal basis to set strict frameworks is missing as well. At the moment, regulation can only be based on voluntary guidelines. However, the most promising opportunity seems to be a reduction of regulation, instead. Only if legal requirements prevent an automatic reliance on external ratings, the impact of credit ratings can be weakened. Moreover, these requirements concerning the usage of external ratings can easily be introduced throughout the EU. And it seems that the Basel III framework will already eliminate this “mechanic” reaction provoked by its previous version.

Finally, less regulation leaves the opportunity for better market mechanisms, although supported by higher transparency of rating methodologies. The foundation of a European CRA on the other hand does not provide serious chances at all. The existence of numerous new entrants, all together irrelevant on the global market, clearly shows that the most important barrier is market, instead of regulatory acceptance.

Appendix

List of Rating Actions

Downgrades

22.12.2006	Hungary	05.04.2011	Portugal
07.11.2008	Hungary	15.04.2011	Ireland
07.11.2008	Latvia	01.06.2011	Greece
07.01.2009	Latvia	05.07.2011	Portugal
31.03.2009	Hungary	12.07.2011	Ireland
23.04.2009	Latvia	25.07.2011	Greece
23.04.2009	Lithuania	27.07.2011	Cyprus
02.07.2009	Ireland	06.09.2011	Malta
28.09.2009	Lithuania	23.09.2011	Slovenia
22.12.2009	Greece	04.10.2011	Italy
22.04.2010	Greece	18.10.2011	Spain
14.06.2010	Greece	04.11.2011	Cyprus
13.07.2010	Portugal	24.11.2011	Hungary
19.07.2010	Ireland	16.12.2011	Belgium
30.09.2010	Spain	22.12.2011	Slovenia
06.12.2010	Hungary	13.02.2012	Italy
17.12.2010	Ireland	13.02.2012	Malta
24.02.2011	Cyprus	13.02.2012	Portugal
07.03.2011	Greece	13.02.2012	Slovakia
10.03.2011	Spain	13.02.2012	Slovenia
15.03.2011	Portugal	13.02.2012	Spain

On Watch: Possible Downgrade

22.09.2006	Hungary	16.12.2010	Greece
10.02.2009	Estonia*	21.12.2010	Portugal
10.02.2009	Lithuania	13.01.2011	Cyprus
17.04.2009	Ireland	05.04.2011	Portugal
29.10.2009	Greece	09.05.2011	Greece
22.04.2010	Greece	16.05.2011	Cyprus
05.05.2010	Portugal	17.06.2011	Italy
30.06.2010	Spain	29.07.2011	Spain
23.07.2010	Hungary	23.09.2011	Slovenia
05.10.2010	Ireland	07.10.2011	Belgium
15.12.2010	Spain	04.11.2011	Cyprus

* not included due to data availability reasons

Upgrades

13.11.2001	Slovakia	05.06.2003	Bulgaria
29.11.2001	Hungary	11.12.2003	Lithuania
13.12.2001	Spain	11.12.2003	Romania*
19.12.2001	Bulgaria*	17.11.2004	Bulgaria
19.12.2001	Romania*	12.01.2005	Slovakia
04.04.2002	Sweden	02.03.2005	Romania*
15.05.2002	Italy	01.03.2006	Bulgaria
04.11.2002	Greece	26.07.2006	Slovenia
12.11.2002	Czech Republic	12.09.2006	Lithuania
12.11.2002	Estonia*	06.10.2006	Romania
12.11.2002	Latvia	17.10.2006	Slovakia
12.11.2002	Lithuania	10.07.2007	Cyprus
12.11.2002	Poland	10.07.2007	Malta
12.11.2002	Slovakia	03.01.2008	Cyprus
12.11.2002	Slovenia	03.01.2008	Malta
16.12.2002	Romania*	22.07.2011	Bulgaria

* not included due to data availability reasons

On Watch: Possible Upgrade

19.09.2001	Spain	09.03.2006	Slovakia
19.08.2003	Lithuania	07.06.2006	Romania
25.08.2004	Bulgaria	07.06.2006	Slovenia
06.10.2004	Slovakia	17.05.2007	Cyprus
21.12.2005	Bulgaria	17.05.2007	Malta
09.03.2006	Lithuania	05.04.2011	Bulgaria

German Summary

In dieser Studie werden die Auswirkungen von Änderungen im Kreditrating auf Zinssätze von Anleihen europäischer Staaten untersucht. Zuerst wurde ein möglicher Einfluss auf der Basis von aktueller wissenschaftlicher Literatur zu diesem Thema erörtert. Anschließend wurde dieser Einfluss empirisch mit einer Eventanalyse überprüft. Die dafür verwendete Literatur ließ schon vor der Durchführung auf einen wesentlichen Einfluss der Rating Agenturen schließen. Dabei werden in mehreren Studien im Wesentlichen zwei Theorien hervorgehoben. Einerseits wird bei der Beurteilung des Marktes von Informationseffizienz ausgegangen. Dieser Ansatz geht davon aus, dass neue und wesentliche Information über den Emittenten sofort in den Preisen von Finanzprodukten abgebildet wird. Rating Agenturen übernehmen daher die Rolle von Informationsintermediären, die diese Information anderen Marktteilnehmern zur Verfügung stellen. Dadurch tragen sie zu einer erhöhten Informationseffizienz bei. Trotzdem bleibt die Frage offen, ob sie dabei wirklich neue Information anbieten, oder sämtliche Informationen bereits vor Veröffentlichung des Kreditratings schon bekannt waren.

Außerdem müsste gewährleistet sein, dass Investoren auf die Meinung von Ratingagenturen vertrauen. Andernfalls würden die Zinssätze von Staatsanleihen nicht auf Veränderungen der Ratings reagieren, weil Investoren die Einschätzungen der Agenturen nicht teilen. Dem widerspricht jedoch der Aspekt des Reputationskapitals. Nach diesem Ansatz lehnen die Agenturen Kosteneinsparungen durch unzureichende Analyse strikt ab. Dasselbe gilt demnach für vom Emittenten beeinflusste Ratings, die nicht der Wahrheit entsprechen. Investoren können die Qualität von aktuellen Kreditratings nur anhand von historischen Daten überprüfen. Daher sind Agenturen, die überdurchschnittliche Qualität in der Vergangenheit vorweisen, in der Lage, zusätzliche Profite zu generieren. Da diese dann von Investoren bevorzugt werden, kann davon ausgegangen werden, dass auch Emittenten neuer Produkte ihre Dienste in Anspruch nehmen wollen, was wiederum zu neuen Aufträgen führt. Daraus ergibt sich, dass eine schlechte Qualität der veröffentlichten Ratings dauerhaft der Glaubwürdigkeit der Agentur schadet und somit den Fortbestand gefährden würde. Die zusätzlichen Profite durch beeinflusste

Ratings wären daher genauso wie Kosteneinsparungen durch unzureichende Analysen nicht ausreichend, um die erwarteten Verluste durch Einbußen in der Glaubwürdigkeit auszugleichen. Dieser Ansatz geht also davon aus, dass nur hochqualitative Kreditratings angeboten werden, um den langfristigen Erfolg der Agentur zu gewährleisten.

Um diesen Einfluss nun entsprechend zu testen wurde eine Eventanalyse durchgeführt. Die Ergebnisse belegen dabei die erwähnten, theoretischen Ableitungen basierend auf aktueller wissenschaftlicher Literatur. Mit Ausnahme der Ankündigungen von Aufstufungen des Kreditratings zeigten sämtliche Ratingmaßnahmen einen signifikanten Einfluss auf die Zinssätze der Staatsanleihen. Negative Veröffentlichungen verursachten dabei eine weitaus höhere Reaktion als positive. Über das gesamte Eventfenster ist der Einfluss von Abstufungen zudem am Tag der Veröffentlichung am stärksten ausgeprägt. Interessanterweise liegt dieses Maximum bei Aufstufungen bereits drei Tage vor der eigentlichen Veröffentlichung, was auf Erwartung der Investoren schließen lässt. Obwohl auf die Ankündigung einer Abstufung, sogenannte „On Watch“ Meldungen, in jedem Fall tatsächliche Änderungen folgen, verläuft der Einfluss trotzdem in zwei Stufen. Diese Reaktion ist im Durchschnitt auch von der absoluten Änderung ähnlich. Auch bei Aufstufungen wurden mögliche Änderungen ausnahmslos von tatsächlichen Änderungen in der angegebenen Richtung bestätigt, ein signifikanter Einfluss konnte dennoch nicht nachgewiesen werden. Die anschließende Analyse der CDS Spreads festigte diese Ergebnisse weiter. Granger-Kausalitätstests konnten hierbei keinen Hinweis auf bereits erwartete Ratingänderungen liefern. Die Informationen der Ratingagenturen sind also vor der Veröffentlichung auch in CDS Spreads noch nicht abgebildet.

Insgesamt unterstützen die empirischen Ergebnisse aber die wichtige Rolle, die Ratingagenturen in modernen Finanzmärkten spielen. Sie stellen dabei wertvolle Informationsintermediäre dar, die über überlegene Analysefähigkeiten verfügen. In gewisser Weise rechtfertigt diese Rolle die erhöhte Aufmerksamkeit in Wissenschaft, Politik und Presse. Gerade wenn sich Staaten bereits in einer wirtschaftlich schwierigen Situation befinden, kann eine negative Veröffentlichung der Ratingagenturen zu einer weiteren Verschärfung der Situation beitragen. Es sollte

daher konsequent versucht werden, das Kreditrating so hoch wie möglich zu halten, um wesentliche Erhöhungen der Finanzierungskosten zu vermeiden.

Letztlich stellt die Machtposition von Ratingagenturen auch Regulatoren vor eine neue und schwierige Aufgabe. Während diese nämlich den Zugang zu Finanzmärkten erheblich beeinflussen, lehnen sie weiterhin jede Form der rechtlichen Verantwortung ab. Außerdem fehlt für die weltweite Regulierung eine einheitliche Rechtsgrundlage, was dazu führt, dass neue Richtlinien nur auf freiwilliger Basis erfolgen können. Daher bietet eine Verringerung der Regulation die meisten Chancen, den Einfluss von Ratingagenturen zu mildern. In der Vergangenheit hat gerade übermäßige Regulation dazu geführt, dass sich vornehmlich institutionelle Investoren blind auf Kreditratings verlassen haben. Damit haben Ratingänderungen eine automatische Reaktion hervorgerufen. Diese Situation bestärkt den Ansatz, bei der Regulierung mehr auf die Verwendung dieser Ratings einzugehen, statt auf ihr Zustandekommen. Dies bietet zusätzlich den Vorteil, dass die Verwendung und Einbindung rechtlich leicht durchsetzbar ist, zumindest innerhalb der EU. Die aktuelle Fassung der Basel III Richtlinie scheint dabei bereits auf diesen Aspekt einzugehen, da die Nutzung von externen Ratings eingeschränkt wird.

Dazu führt eine Verringerung der Regulation zu einem verstärkten Marktmechanismus, der allerdings durch erhöhte Transparenz bezüglich der angewandten Methoden unterstützt werden sollte. Die Errichtung einer europäischen Ratingagentur kann dagegen als wenig aussichtsreich eingestuft werden. Da in der Ratingindustrie bereits jetzt zahlreiche Agenturen ihre Dienste anbieten, die aber am globalen Markt keine relevante Rolle spielen, kann davon ausgegangen werden, dass Marktakzeptanz weitaus wichtiger ist als die regulatorische Anerkennung.

List of Abbreviations

AR	Abnormal Rates
CDS	Credit Default Swap
CRA	Credit Rating Agency
ECAI	External Credit Assessment Institution
ECB	European Central Bank
EFSF	European Financial Stability Facility
EP	European Parliament
ESM	European Stability Mechanism
ESMA	European Security and Market Authority
LR	Likelihood Ratio Test Statistic
MEP	Member of the European Parliament
MIS	Moody's Investor Service
NR	Normal Rates
NRSRO	Nationally Recognized Statistical Rating Organizations
OLS	Ordinary Least Squares
rV	revised Version
SEC	US Securities and Exchange Commission
S&P	Standard and Poor's
T-Bill	US Treasury Bill
VAR	Vector-Autoregression

Sovereigns

BEL	Belgium
BGR	Bulgaria
CYP	Cyprus
CZE	Czech Republic
ESP	Spain
GRC	Greece
HUN	Hungary
IRL	Ireland
ITA	Italy
LTU	Lithuania
LVA	Latvia
MLT	Malta
POL	Poland
ROU	Romania
SVK	Slovakia
SVN	Slovenia
SWE	Sweden
PRT	Portugal

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Ausbildung

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