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Impact of credit rating agencies on European Banking stock prices: Is the recognition of credit rating agency important?

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Keywords: credit rating agency, credit rating, stock price, rates of return.

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Abstract

The basic goal of the article was to analyse the reaction of rates of return of banks' shares to the changes of their credit ratings. There first hypothesis is as follows: Rating events convey new information and lead to statistically significant abnormal reactions. The second one is: The rate of return reaction is stronger on the decrease than increase of banks' credit ratings. The last hypothesis that has been taken into considerations is: The changes of credit ratings proposed by smaller CRAs influence is ineffective on the rate of returns of banks' shares. For verification of these hypothesis daily rates of return and differences between the logarithmized rates of returns are used. As dependent variables long term issuer credit ratings proposed European banks by the recognizable and smaller CRAs form 1980 to 2015 period of time are used. The analysis has been prepared in the subsamples according to: the type of credit rating, the recognizable credit rating agency and political division. The information about the upgrade and downgrade of credit ratings published by the smaller CRAs has insignificant influence on the abnormal returns. Banks in the developing economies reaction is stronger on the positive changes, but rates of return of banks' shares in the developed countries are more sensitive to the downgrade of credit ratings. The moment of the reaction in particular countries is differentiated.

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Introduction

During the recent financial crisis a lot of attention has been put to the information provided by credit ratings. It is obvious that credit rating agencies (CRAs) play an important role in the financial system. Notes given by them determinate the cost of capital. Their changes directly impact on the CDS premiums, bonds, rate on return of shares, exchanges rates and interest rates. The effect mentioned strictly depends on the type of credit ratings.

The informational value of credit rating agency is a controversial and inconclusive issue. Many researches are presented that confirm the mentioned situation. But in contrast the impact of credit rating changes proposed by agencies other than The Big Three (Standard and Poor's, Moody's and Fitch) have not been analyzed. As a result, do the credit rating changes have any impact on the stock market? If they do, how does the security market react to the different types of credit rating changes? Is the important determinant the financial significance of the credit rating agency? This paper aims to shed light on the above research questions. In earlier researches different methods of analysis were used. They were only analyzing the decisions taken by particular credit rating agencies. These mentioned situations give different results. In some of the earlier studies, significant returns as a result of changes credit ratings have not been observed (Weinstein, 1977; Pinches and Singleton, 1978). Kaplan and Urwitz (1979) and Wakeman (1981) suggested that bond rating agencies only had access to public information and their ratings have no added value to the investors. On the other hand, some other researches, like Ederington and Yawitz (1991) or Danos, Holt, and Imhoff (1984), indicated that the rating agencies provide important information not available for investors.

The basic goal of this paper is to analyze the role of credit rating changes for the rate of return of share prices, taking into account the recognition of a credit rating agency. We use a very large and comprehensive sample of the rate of return on bank shares over 25 years. Our data allows us

to abstract from the most recent rating actions in the markets, which recently enjoyed increased attention, and test systematically whether there is a pattern following rating downgrades and upgrades. Taking into account all types of credit ratings received by banks, will help us to study if the recognition of a credit rating agency has a significant impact on abnormal changes of the rate of return of banks. The research presented will verify the legitimacy of the obligation of using notes proposed by smaller credit rating agencies in current European regulations. The European Union Regulation No 462/2013 gave attention to introduce legislation the goal of which is to reduce oligopoly. As a result, it has become practice to seek credit ratings from two or more credit rating agencies, One or more of which agencies should have less than 10% of the total market share. The rate of return of shares do not react with similarly strength on credit ratings proposed by small CRAs.

The paper is organized as follows. Section 2 presents the broader literature researches. Section 3 describes the hypothesis, methodology, data. Next are presented the results of exploring the relation between rating changes and changes in rate of return of shares. The differences between the impact of downgrades and upgrades are also tested. Section 4 concludes.

Literature review

There exists a great many researches about the impact of credit ratings on the shares, bonds² and CDSs market³. The most important of which are presented in the below.

The importance of using credit ratings to predict the risk, was taken into consideration by Wakeman (1981). He suggested that rating agencies only act as the outside auditors and

² Iankova et al (2006), Dichev & Piotroski (2001), Steiner & Heinke (2001), Gropp & Richards (2001), Kliger & Sarig (2000), Ederington & Goh (1998), Hite & Warga (1997), Kaserer (1995), Goh & Ederington (1993), Wansely et al. (1992), Hand et al (1992), Ederington et al. (1987), Wansley & Clauretje (1985), Pinches & Singleton (1978), Weinstein (1977), Grier & Katz (1976)

³ Hull et al. (2004), Norden & Weber (2004), Norden (2004).

performed no economic functions with their rating services. The opposite view was presented by Hsueh and Kidwell (1988); they argued that the bond issuers would like to buy rating services because of the information asymmetry. They pay for the analysis of the quality of their securities, that investors use to assess the credit quality of a bond. As a result, the ratings can reduce the moral hazard of direct information transfer between the issuer and the investor. They also suggested that if issuers use two credit ratings, it could significantly reduce the borrowing costs. It could be an effect of the additional information value provided by the second credit rating agency. Danos et al (1984) argued that credit rating agencies provide valuable information because of their knowledge and experience in risk assessment. As a result, they reduce the information asymmetry.

Table 1. Literature review previous studies.

Market	Authors	Results
stock	Pinches, Singleton (1978)	1959-72, Moody's, 207 firms, monthly abnormal stock returns, event window (-30;12), anticipation before rating changes, no abnormal reaction afterwards
stock	Griffin, Sanvicente (1982)	1960 – 75, Moody's, S&P, 180 rating changes, monthly abnormal stock returns, event window (-11;1), no anticipation but negative reaction after downgrades
stock	Holthausen, Leftwich (1986)	1977 – 82, Moody's, S&P, 1014 rating changes, 256 Credit Watch S&P, daily abnormal stock returns, event window (-300; 60), significantly negative reaction after downgrades, no significant abnormal performance for upgrades
stock	Glascok, Davidson, Henderson (1987)	1977 – 81, Moody's, 162 rating changes, daily abnormal stock returns, event window (-90;90), significantly negative abnormal stock returns before and around downgrades, reversal after day zero (publication date)
stock and bonds	Hand, Holthausen, Leftwich (1992)	1977 – 82/1981- 83, Moody's, S&P, 1100 rating changes and 250 Credit Watch S&P, window spanning stock and bond returns, significantly negative abnormal stock and bond returns for downgrades and unexpected additions to S&P Credit Watch, no significant abnormal returns for upgrades
stock	Goh, Ederington (1993)	1984 – 86, Moody's, daily abnormal stock returns, event window (-30;30), significantly negative returns for downgrades due to earnings deterioration, positive abnormal returns for downgrades due to increased leverage
stock	Followill, Martell (1997)	1985 – 86, Moody's, 66 reviews and actual rating changes, daily abnormal stock returns, event window (-5;5), significantly negative returns at reviews for downgrades, negligible abnormal performance around actual downgrades
stock	Dichev, Piotroski (2001)	1970 – 97, Moody's, 4727 rating changes, daily abnormal stock returns, significantly negative returns during the first month after downgrade, no significant reaction for upgrades
stock	Vassalou, Xing (2003)	1971 – 99, Moody's, 5034 rating changes, monthly abnormal stock returns, event window (-36;36), stock returns in rating event studies should be adjusted by size, book – to market and default risk, increase of default loss indicator before and decrease after downgrades

stock	Brooks, Faff, Hillier, Hillie (2004)	S & P, Moody's, Fitch, Thompson Event, 1973 - 2001, window (-10; +10), only rating downgrades have a wealth impact on market returns; decreases in local currency ratings appear to impart no information to the market whereas foreign currency rating downgrades are associated with significant wealth effects; only S& P and Fitch rating downgrades result in significant market falls; no evidence that emerging markets are particularly sensitive to rating changes or that markets react more severely to multiple rating changes.
stock	Ferreira, Gama (2007)	1989–2003, negative reaction of 51 basis points to a credit ratings downgrade of one notch in a common information spillover around the world; upgrades, however, have no significant impact on return spreads of countries abroad; closeness and emerging market status amplify the effect of a spillover; downgrade spillover effects at the industry level are more pronounced in traded goods and small industries.
bonds	Katz (1974)	1966 – 72, S&P, 115 bonds from 66 utilities, monthly yield changes, event window (-12;5), no anticipation, abnormal performance during 6-10 weeks after downgrades
bonds	Grier, Katz (1976)	1966 – 72, S&P, 96 bonds from utilities and industrials, monthly yield changes, event window (-4;3), anticipation only for industrials, price changes after downgrades stronger
bonds	Hettenhouse, Sartoris (1976)	1963 – 73, S&P, Moody's, 46 bonds from 66 utilities, monthly yield changes, event window (-6;6), small anticipation before downgrades, no reaction to upgrades
bonds	Weinstein (1977)	1962 – 74, Moody's, 412 bonds from utilities and industrials, monthly abnormal bond returns, event window (-6;7), early anticipation but no abnormal performance during 6 months before the event and no reaction afterwards
bonds	Kapland, Urwitz (1979)	simple linear model using subordination dummy, total asset, leverage, common stock systematic risk to measure and classify a sample of newly issued bonds. They argue that model may be predicting the actual risk of a bond better than the rating agency, raising the question whether rating agencies outperform the statistical model.
bonds	Cantor, Parker (1996)	Significant only the positive change of country's credit rating
bonds	Wansley, Glascock, Clauretje (1992)	1982 – 84, S&P, 351 bonds, weekly abnormal bond returns, event window (-12;12), significantly negative returns in the week of downgrades, no significant response to upgrades
bonds	Hite, Warga (1997)	1985 – 95, S&P, Moody's, 1200 rating changes, monthly abnormal bond returns, event window (-12;12), significantly negative abnormal returns during 6 months before downgrades

bonds	Reisen, von Maltzan (1999),	1989 – 97, 29 countries, 152 credit rating changes, changes in country ratings on sovereign risk as measured by the yield spreads of domestic financial instruments relative to mature market benchmarks, significant only the possible downgrade, especially for ratings below investment – grade
bonds	Kraussl (2000)	1990, VAR model, impact of credit rating on the bond yield spreads, unexpected sovereign credit rating change does not necessarily have an immediate impact on emerging market bond yield spreads
bonds	Steiner, Heinke (2001)	1985 – 96, S&P, Moody’s, 546 rating changes, 182 watch listings, daily abnormal bond returns, event window (-180; 180), significantly negative abnormal returns starting 90 days before downgrades and negative watch listings, evidence for overreaction directly after the event
bonds, stock prices, interest rates	Kaminsky, Schmukler (2002)	January 1990-June 2000, 16 countries emerging countries, panel regressions, event study, event window (-10; 10), changes of credit ratings not only directly impact stock and bond markets of the countries being rated, but also they contribute to cross-country contagion, particularly during crisis times and among neighbor countries; financial markets in countries with lower ratings are more affected by fluctuations in international markets.
bonds, CDS	Afonso, Furceri Gomes (2012)	1995 – 2010, S&P, Moody’s, Fitch, 24 EU countries, daily data to carry out an event study analysis on the reaction of government yield spreads before and after announcements from rating agencies, significant responses of government bond yield spreads to changes in rating notations and outlook, particularly in the case of negative announcements; announcements are not anticipated at 1-2 months horizon but there is bi-directional causality between ratings and spreads within 1-2 weeks; spillover effects especially from lower rated countries to higher rated countries; and persistence effects for recently downgraded countries.
CDS	Hull, Predescu, White (2003)	1998 – 02, Moody’s, rating changes, reviews and outlooks, adjusted CDS spread changes, event window (-90;10); significantly positive adjusted CDS spread changes before negative rating events
CDS stocks	Norden, Weber (2004)	2000 – 02, Moody’s, S&P, Fitch, 25 institutions, 567090 quotes, event window (-90;90), both markets not only anticipate rating downgrades but also reviews for downgrade by all three agencies, reviews for downgrade by S&P and Moody’s exhibit the largest impact on the both markets, the magnitude of abnormal performance in the both markets is influenced by the level of the old rating, previous rating events and, only in the CDS market by the pre-event average rating level by all agencies.
CDS, stocks	Arezki et al. (2011)	2007 – 2010; European countries, examine the spillover effects of sovereign rating news on CDS spreads and stock market; downgrades lead to significant spillovers across countries.

short term interest rates	Eichengreen, Mody (1998), Calvo, Mendoza (2000).	The potential impact of changes in the US short-term interest rate on financial markets in emerging market economies
interest rates	Kraussl (2003)	1997 – 00, Moody's, S&P, 302 credit rating changes, 28 countries, event window (-10; 11), significantly stronger in the case of government's downgrades and negative imminent sovereign credit rating actions such as credit watches and rating outlooks than positive adjustments by the credit rating agencies while by the market participants anticipated sovereign credit rating changes have a smaller impact on financial markets in emerging economies
exchange rates	Alsakka, ap Gwilym (2013)	2000 – 2010; the effects of European sovereign rating signals on exchange rates; strong spillover effects in the foreign exchange market during the financial crisis period.

Source: own elaboration.

The research about the influence of the reputation of the credit rating agency prepared by Ellis (1998). The findings showed that the investors preferred those agencies with the strongest reputation. They paid most attention to credit ratings that are more accurate and consistent. Issuers fear inaccuracies in credit ratings, and therefore they are interested in using the services of three or four CRAs.

Partnoy (1999) observed the “regulatory license” effect, according to which security regulations substantially depended on the credit ratings. He suggested the regulators should reduce the dependences on the credit ratings. His opinion has been taken into consideration, during recent years, because current trends in European regulations seek to reduce the role of credit ratings. But on the other hand credit ratings can assess the risk of default globally, and are used by all types of investors.

Previous literature demonstrated that sovereign rating news does affect financial markets. Markets react to credit rating changes if CRAs possess private information, not previously priced. The important impact is from negative credit rating changes, but the upgrades have weaker or insignificant influence (e.g. Kaminsky, Schmukler, 2002; Brooks et al., 2004; Sy, 2004; Gande, Parsley, 2005; Ferreira, Gama, 2007; Hill, Faff, 2010; Afonso et al., 2012). Negative credit changes are usually more informative than positive ones. This may be a result of the strong negative effect of reputational costs).

These results are connected for two reasons. Initially, there is no evidence why equity returns should react to upgrades and downgrades in an asymmetric fashion. However, if credit ratings are downgraded, it should be connected with the higher risk. As a result, investors would expect higher profits; in this case higher the rate of return of shares. These results are even more

puzzling when one considers that the negative abnormal equity returns persist for about three years following a downgrade (see, Dichev and Piotroski (2001)).

Conceptual framework

The basic goal of credit rating agencies is to contain new information and reduce the asymmetry of information between the knowledge of investors and issuers. CRAs analyse the external factors (like macroeconomic and political environment) and internal determinants connected with particular issuers. On the other hand, rating agencies have been heavily criticised for not being able to correctly predict the current situations and bankruptcies (Delko (2002)). They are accused of credit rating inflation. This criticism has grown even more in the financial crisis after 2007. Between 70 and 90 per cent of credit ratings can be explained by models using only publicly available accounting information (Cantor and Packer (1996), Chodnicka (2013, 2014, 2015)).

Hypothesis 1: Rating events convey new information and lead to statistically significant abnormal reactions.

According to the efficient market hypothesis, a market is said to be efficient if prices in that market reflect all available information. A market has semi-strong efficiency if prices fully reflect all readily-available public information—past prices, economic news, earnings reports, etc. Tests of semi-strong efficiency are those that study stock price movements following announcements, such as stock splits or earnings announcements. As a result, the rate of stock return should react to banks financial conditions. The previous analysis may suggest that share prices are not equally sensitive to the negative and positive changes of credit ratings. More important for the potential investor can be the decision about a decrease rather than an increase of credit ratings, resulting in the second hypothesis:

Hypothesis 2: The rate of return reacts more strongly on a decrease rather than an increase of banks credit ratings.

The most recognizable credit ratings agencies are these referred to as The Big Three; consequently, investors can pay attention to the type of credit rating agency and the changes of credit ratings proposed by smaller CRAs may not be taken into consideration by investors. An empirical analysis suggests that issuers are more interested on the assessment process prepared by the Big Three. They usually prefer to use the services of a renowned rating agency than a smaller one.

Hypothesis 3: The changes of credit ratings proposed by smaller CRAs influence are ineffective on the rate of returns of banks shares.

Data description and methodology

To analyse the determinants of banks credit ratings, all long term issuer credit ratings given to European banks are used. To the end of December 2015 only 10 different credit ratings were proposed by particular credit rating agencies for banks⁴. These credit ratings were collected from Thomson Reuters database. For better understanding the banks credit ratings for 1980 – 2015 are taken. Because of the existing strong differentiation on the period of beginning the activity of credit rating agencies, the prepared analysis is split into subsamples: political classification, the type of credit rating agencies. Credit ratings of 116 banks from 24 countries⁵ are analyzed.

⁴ AK&M Long-term Issuer Rating, Dominion Bond Rating Service (DBRS) - Long-term Issuer, ER Long-term Issuer National Scale Rating, Fitch Long-term Issuer Rating, R&I Long-term Issuer Rating, RA Expert Long-term Issuer Rating, RAM Long-term Issuer National Scale Credit Rating, RusRating Long-term Issuer National Scale Rating, S&P Long – Term Issuer Rating, Moody’s Long -Term Issuer Rating.

⁵ Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, France, Germany, Greece, Hungary, Ireland, Netherland, Norway, Poland, Portugal, Russia, Slovakia, Spain, Sweden, Switzerland, Turkey, Ukraine, Great Britain.

We studied the short-term response of bank stock rates of return and their natural logarithms to credit rating change announcements using the event study methodology. We analyzed the impact of announcements on changes in the studied variables, and captured the cumulative impact of policy announcements over three periods. The event period contains five days starting from one day before the event date and ending on third day after it. This allows us to catch better absorption of news, which may be appropriate because some credit rating changes were unprecedented. The pre event period contains thirty days before the event window and post event window contains thirty days after it. The methodology of event study requires aggregation of the abnormal differences in variable within each event window to construct cumulative abnormal differences (CAD), taking an assumption that no other factors occurred in that time.

The methodology of event study is well established in the finance literature. It generally covers the short-run response to policy announcements. It is quite simple and allows us to work with the limited number of announcements we have. To create multiple sets of similar events we pool them within each sample of event type across countries, agencies and agencies types, divided into big (S&P, Moody's, Fitch) and small (others). For each of them we test separately upgrades and downgrades of credit rating assessments.

In the event study methodology statistical tests are based on abnormal differences, which means the difference between the actual daily variable value on every day of the event window and the expected one measured as the average daily rate of return or natural logarithm value of analyzed stock over the previous 60 working days of the estimation window. In this way we obtain abnormal differences, which later we test to see whether they are statistically greater than zero using t-Student statistic in pooling samples. A small number of observations may weaken the

power of statistical tests, suggesting the need to consider both the economic and statistical significance of results.

We used three different pooling conceptions. Each one is divided into two sub samples: credit rating upgrades and downgrades. The first is focused on each country bank stock value reaction on analyzed events. The second considered the reaction of variables grouped by each agency. In the third pooling we use data grouped by two types of agencies: big and small. The first group contains Standard & Poor's, Moody's and Fitch agencies, while the second group takes into account all others. Once pooled, these abnormal returns were tested for being statistically different from zero using the t-Student test. If this is the case, we assume that the policy action taken was significant for the market values of the analyzed indicator.

Results

Credit rating agencies play an important role on the financial market. In the previous researches it was suggested that the downgrade of credit rating can significantly influence the rate of return of shares. As a result, at first the whole sample was divided on the subsamples according to the type of credit rating agencies. There are proposed analyses for all credit rating agencies that publish notes for European banks. The first analysis relies on the verification of the impact of upgrade of credit rating on the rate of return. From among all the credit rating agencies that announce the credit ratings it is observed that only the Fitch long term issuer credit ratings have significant impact. The financial market predicts the change of credit ratings, as a result in the pre event window the rates of return of shares rises on 0,11%. The mentioned relationship is also presented for the logarithm of share value, but the changes of Fitch credit ratings influence positively on it also before, during and after the publication of the information by credit rating agency. The strength of impact of the mentioned upgrade of credit rating is higher after its

publication. We can notice the rise of the rates of return on 2,086% before the date of publication, 0,787% during the moment of publication and 4.797% after the date of publication. In the case of the influence of the credit rating changes on the logarithm of shares price, the significant impact of the mentioned variable is observed before the information published by S&P's (0.0997%).

The presented research suggests that the recognisability of credit rating agencies plays an important role for the abnormal rates of return. The credit ratings proposed by smaller CRAs are unimportant for the changes of the financial market, in the case of an upgrade of the credit ratings.

The next part of the research relies on the verification of the effect of a downgrade of the credit ratings on the rates of return. In the models, where the dependent variable is the rate of return, during the pre-event window credit ratings do not influence significantly on the abnormal rates of return for all types of CRAs. The findings received for Dominion long term issuer credit rating are economically unjustified. As a result, only credit ratings given by Fitch and Moody's have significant influence on the banks rates of return. In the case of the Fitch notes, their changes are only important during the post event window. If the mentioned CRAs publish information about a credit rating decrease, the rates of return are lower by 0,164%. The banks' shares react more weakly on the downgrade of Moody's notes. The additional abnormal decrease of rates of return is observed only during the event window (by 0.0315%).

The logarithmized share prices react on the following credit ratings: Dominion long – term issuer credit rating, Fitch long term issuer credit rating, Moody's long term issuer credit rating and S&P's long term issuer credit rating. The moment of reaction of the logarithm of shares value is different for particular credit ratings. The changes of the Dominion credit ratings

influences significantly before the moment of publication of changes (-2,76%) and during the publication date (-0,51%). At the same moment rates of return react on the Fitch credit ratings. (that means -2,63% during pre-event window and -0,263 during the event window). In the case of Moody's and S&P's long term issuer credit ratings the logarithm prices react negatively also before, during and after the publication date. The strongest impact is observed before the mentioned change (1,44% for Moody's and 1,47% for S&P's), the weaker relationship for the post – estimation window (-1,1% for Moody's and 1,07% for S&P's). During the moment of publication of information about the downgrade of credit ratings the analysed impact is the weakest and for both types of credit at nearly 0,26%. This situation is an effect of the regulation. Credit rating agencies publish information about credit rating changes at the end of the weekend and after the close of the trading session. The effect of event studies for the particular credit rating agencies, both for downgrade and upgrade is presented in the tables 2 and 3.

After the analysis of the impact of credit rating changes, the influence of recognizable of credit rating agency on the abnormal rates of return was analysed. The results of estimation of the event study method for “small” and “big” CRAs has been presented in table 4. The impact of the changes of the mentioned variable is insignificant for the rates of return of shares. In the case of the logarithm of the rates of return the significant impact includes the recognizable CRAs. The bigger credit rating agency has the positive impact in the case of upgrade of notes. Before the moment of the publication of the information about credit rating upgrade, the difference between logarithmized share prices is changed positively on 49,6% during 30 days. Just as in the previous case, the abnormal difference between logarithms reacted more weakly, because on 11,7%. The strongest mentioned relationship is observed after the upgrade of the credit ratings. If CRAs publish the mentioned news, the abnormal differences between the logarithm of share

prices rises on 54%. The part of the analysis was to verify the significance of downgrades of credit ratings. The mentioned change is more important for the big, recognizable credit rating agencies. The effect of credit rating changes is decomposed before, during and after the publication of the information about credit ratings changes. The most significant moment is during the post-event window. Before the publication of the information, the abnormal logarithmized difference of prices are declined on 131,1%. Because the publication of the downgrade of credit ratings is given as public information at the end of the trading session, usually on Friday, the abnormal differences on rates of returns are decreased on 22,7%. The stronger changes are observed during 30 days after the publication. The mentioned abnormal rates of returns are decreased on 105,5%. Because the financial market does not pay attention to the credit rating changes proposed by smaller credit rating agencies, the reaction of the abnormal differences rates of return are observed during the post event period of time. To sum up all received applications, the financial markets react more strongly to the credit rating changes proposed by recognizable credit rating agencies, also connected with the upgrade and downgrade of the banks' notes. The stronger relationship is observed for the decrease of the credit ratings. Because the investors usually observe the information about the "credit watch" of the Big Three, they predict the credit rating changes; as a result, the mentioned correlation is high before the moment of publication. On the other hand, the information published by smaller credit rating agencies does not enjoy great success with investors, their abnormal rates of return react during 30 days after the downgrade of banks' notes.

The last parts of the analysis verify how the rates of return of banks shares react on the credit rating changes in particular countries. The mentioned analysis has been prepared also on the sample of the downgrade and upgrade of credit ratings. The first analysis has been prepared on

rates of return of banks shares from 18 European countries⁶, where CRAs upgrade the credit ratings. Results of the estimation have been presented in the tables 5, 6 and 7. The impact of the upgrade of the credit ratings on the rate of return of banks' shares has been economically ambiguous. As a result, an analysis of the mentioned changes on the differences between the logarithmized rates of returns has been prepared. The high impact on the abnormal rates of returns is related to the country's factors. The upgrade of the credit ratings increases the additional profits of banks' shares in Denmark, France, Greece, Poland, Sweden and Turkey. For the other banks the country's status is insignificant. The shares of banks from Denmark and France react positively on the mentioned changes during the pre – event period of time. The abnormal rates of return rises on 87 and 92 %, during 30 days before the notes changes. The capital market has a stronger reaction to information published for Greek banks. The rates of returns increases on 137,6% before and 52,5% during the moment of publication. The shares of Polish and Swedish banks has growth respectively of 43% and 10% during the event window and of 230% and 80% after the moment of credit ratings publication. In the case of Turkish banks, the rates of return of banks shares increase strongly before, during and after the moment of publication. The mentioned relationships are respectively: 206%, 46% and 343%.

As a result, we can observe the strong impact of the political division on the abnormal rates of return of banks shares. This relationship is stronger for the developing countries, because investors making investments in those markets expect further, higher gains.

⁶ Belgium, Czech Republic, Denmark, Germany, France, Greece, Hungary, Ireland, Norway, Poland, Portugal, Russia, Slovakia, Sweden, Switzerland, Turkey, Ukraine, Great Britain.

The last part of the analysis relies on the verification of the downgrade of credit ratings on the rates of return of banks' shares. The research has been prepared on data for 24 countries⁷. The received results have been presented in the tables 8, 9, 10. The rate of return of banks' shares do not react economically significantly on credit rating changes. The second dependent variables are the differences between the logarithmized prices of shares. The significant relationship has been observed for banks from Bulgaria, Denmark, Germany, Greece, Ireland, Great Britain, Turkey and Spain. The impact of credit rating changes in these countries is strictly differentiated. In the case of Danish, Spanish, Irish and British banks the strongest reaction of the share prices is observed after the moment of publication of the credit rating changes. The mentioned impact is 251% for Denmark, 585,4% for Ireland, 150,7% for Spain and 237,6% for Great Britain. Before the moment of credit rating changes publication, the mentioned relationship is weaker (174,5% for Denmark, 544,8% for Ireland, 122,3% for Spain and 154% for Great Britain). The same as in previous cases, the weaker impact during the event moment (47,2% - Denmark, 120,4% for Ireland, 27,4% for Spain and 44,3% for Great Britain). During the moment of publication react the Bulgarian banks. If the credit ratings are decreased, the rates of return fall down on 67,2%. In the case of Greek banks the strongest important reaction of the shares market is observed during the post event window. After the publication of the credit rating changes, the mentioned shares prices falls down on 338,4%. In Germany, rates of return react strongly before, during and after the publication, as follows: 231%, 27%, 156,9%. The least economically significant is the reaction of Turkish banks, because their share prices are higher after the publication the mentioned information. It is an effect of the international investments. The

⁷ Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, France, Germany, Greece, Hungary, Ireland, Netherlands, Norway, Poland, Portugal, Russia, Slovakia, Spain, Sweden, Switzerland, Turkey, Ukraine, Great Britain.

second cause is connected with the renown of the credit rating agency. The financial market reaction is weaker on the credit rating changes proposed by smaller CRAs.

The received result suggests a strong diversification between the particular countries. The share prices of banks from developing countries rise higher in the case of the upgrade of credit ratings. The capital market reaction is stronger, in the case of the banks from developed economies, on the downgrade of the banks' notes.

Conclusions

The credit rating changes significantly influence the abnormal rates of return, but the mentioned reaction strictly depends on the type of credit ratings, the recognizability of the CRA's and the political division. In all cases the strongest reaction is observed for the downgrade of the credit ratings.

In the case of the upgraded credit ratings prepared for the particular CRAs, the strongest impact is observed after the publication of the information for ratings proposed by Fitch and S&P's. The information about the upgrade from the mentioned notes published by the small CRAs is unimportant for the shares market. The analysis prepared in two groups on the small and "big" CRAs. The bigger credit rating agency has a more positive impact in the case of an upgrade of notes. The strongest reaction is observed after the moment of publication of information about the credit rating changes. The weaker reaction is observed in the pre-event window. It is observed as the strongest reaction in the case of the developing markets, while the same change is unimportant for the developed economies.

The next part of the analysis has been prepared for the downgrading of credit ratings. The mentioned change is more important for the particular big, recognizable credit rating agencies. It is stronger than in the case of an upgrade of credit ratings. The capital market reaction is

stronger, in the case of the banks from developed economies, on the downgrade of the banks' notes.

The prepared analysis suggests that changes proposed in European regulations may be ineffective. The prediction of the financial situation proposed by smaller CRAs is not taken into consideration by investors. The mentioned estimation are as threatening as those that are less accurate. The implementation of the regulations, according to which the issuer and their securities should use at least one credit rating proposed by the small credit rating agency, will help to reduce the oligopoly of the CRAs, but notes proposed by them will not be taken into consideration as much as those that have a significant impact on the shares market. Perhaps smaller CRAs should be integrated under one associated institution. In the current regulation it is proposed that the internal rating based methods are those that should be taken to predict the possibility of default. The standardized method may be used as an additional. The second problem is connected with the recognisability and confidence to smaller credit rating agencies in other countries. In most cases, the local CRAs only have a reputation in a given area, while globally they are treated as irrelevant to the financial market. The large financial institutions are only evaluated through the prism of credit ratings from an agency belonging to the Big Three. To increase the relevance of small credit rating agencies, a global obligation to use the notes given by them should be introduced.

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Table 2. The results of estimation of the event study of the impact of the upgrade and downgrade of credit ratings on the rates of return of banks' shares in European countries.

Credit rating	ER	Fitch	Moody's	RusRating International	RusRating National	S&P	Dominion	Fitch	Moody's	RusRating International	RusRating National	S&P
upgrade							downgrade					
Obs	4	9	45	3	4	128	5	10	84	6	6	268
Event Window							Event Window					
_cons	0,0292	0,0327	0,00721	0,0007	0,00053	-0,0024	0.0206*	0,00339	-0.0315*	0,00306	-0,0164	-0,0011
t	-0,51	-0,94	-1,59	-1	-1	(-0.56)	-4,01	-0,17	(-2.39)	-0,22	(-0.67)	(-0.13)
Pre Event Window							Pre Event Window					
_cons	0,178	0.110**	-0,0036	0,378	0,284	0,00391	-0,0609	-0,0454	0,024	0,306	0,338	0,00179
t	-0,52	-3,56	(-0.34)	-0,98	-0,98	-0,43	(-2.52)	(-2.25)	-1,32	-1,61	-1,81	-0,14
Post Event Window							Post Event Window					
_cons	-0,958	-0,0005	-0,0115	-0,198	-0,149	-0,0003	0,0738	-0.164***	0.0545*	-0,248	-0,271	0,0222
t	(-1.09)	(-0.01)	(-1.15)	(-0.97)	(-0.97)	(-0.03)	-2,09	(-7.97)	-2,34	(-2.08)	(-2.37)	-1,31

Source: own calculations.

Table 3. The results of estimation of the event study of the impact of the upgrade and downgrade of credit ratings on the differences between rates of return of banks' shares in European countries.

Credit rating	ER	Fitch	Moody's	RusRating International	RusRating National	S&P	Dominion	Fitch	Moody's	RusRating International	RusRating National	S&P
	upgrade						downgrade					
Obs	4	9	45	3	4	128	5	10	84	6	6	268
	Event Window						Event Window					
_cons	-0,161	0.787**	0,0309	-0,0246	-0,0185	0.0997*	-0.561*	-0.571***	-0.263**	0,116	0,367	-0.245***
t	(-0.22)	-3,72	-0,88	(-1.00)	(-1.00)	-2,27	(-4.24)	-8,5	(-2.72)	-0,46	-1,21	(-3.92)
	Pre Event Window						Pre Event Window					
_cons	-4,09	2.086*	0,285	-5,723	-4,292	0,459	-2.760**	-4.217***	-1.441**	-4,397	-3,019	-1.476***
t	(-0.40)	-3,26	-1,47	(-1.04)	(-1.04)	-1,87	(-7.16)	-7	(-3.11)	(-1.38)	(-0.82)	(-4.46)
	Post Event Window						Post Event Window					
_cons	-10,46	4.797**	0,148	-1,5	-1,125	0,379	-1,457	-0,0487	-1.101*	-2,97	-2,109	-1.078***
t	(-0.93)	-3,58	-0,82	(-1.08)	(-1.07)	-1,87	(-1.72)	(-0.10)	(-2.36)	(-1.77)	(-1.08)	(-3.34)

Source: own calculations.

Table 4. The results of estimation of the event study of the impact of the upgrade and downgrade of credit ratings proposed by smaller and bigger credit ratings agencies on the rates of return of banks' shares and differences between them in European countries.

credit rating	Rate of return				Logarithm of rate of return			
	big	small	big	small	big	small	big	small
	upgrade		downgrade		upgrade		downgrade	
Obs	182	11	362	17	182	11	362	17
<i>Event Window</i>		<i>Event Window</i>		<i>Event Window</i>		<i>Event Window</i>		
<i>_cons</i>	0,00172	0,011	-0,008	0,00136	0.117**	-0,0721	-0.227***	0,0056
<i>t</i>	-0,47	-0,57	(-1.21)	-0,13	-3,29	(-0.30)	(-4.36)	-0,03
<i>Pre Event Window</i>		<i>Pre Event Window</i>		<i>Pre Event Window</i>		<i>Pre Event Window</i>		
<i>_cons</i>	0,00728	0,271	0,00563	0,21	0.496**	-4,609	-1.311***	-3,429
<i>t</i>	-1	-1,55	-0,56	-2,12	-2,71	(-1.18)	(-4.82)	(-2.10)
<i>Post Event Window</i>		<i>Post Event Window</i>		<i>Post Event Window</i>		<i>Post Event Window</i>		
<i>_cons</i>	-0,0031	-0,456	0,0246	-0.162*	0.540**	-4,623	-1.055***	-2.221*
<i>t</i>	(-0.40)	(-1.42)	-1,78	(-2.40)	-3,06	(-1.16)	(-4.02)	(-2.48)

Source: own calculations.

Table 5. The results of estimation of the event study of the impact of the upgrade of credit ratings on the rates of return of banks' shares in particular countries.

Country	BE	CZ	DK	FR	DE	GR	HU	IE	NO	PL	PT	RU	SK	ES	SE	CH	TR	UA	GB
upgrade																			
Obs	2	8	9	10	7	10	2	9	3	4	4	13	9	23	26	9	21	6	13
Event Window																			
_cons	-0,025	0,0109	0,00106	-0,0081	0,00571	-0,0483	0,0158	0,00778	-0,0013	-0,0045	-0,0332	0,00697	0,00485	0.0258**	0.0172*	-0,0024	-0,0149	0,0207	0,00366
t	(-1.14)	-0,56	-0,14	(-0.74)	-0,53	(-2.10)	-7,59	-0,59	(-0.11)	(-0.83)	(-0.77)	-0,63	-0,85	-2,99	-2,44	(-0.26)	(-0.81)	-0,57	-0,45
Pre Event Window																			
_cons	0,0152	0,021	0,00759	0,0134	0,0173	-0.104*	-0,0251	0,0216	-0,0834	0,0516	0,0175	0,228	0,02	-0,0206	0,0125	0,0307	0,0438	0,109	-0,0053
t	-0,22	-0,54	-0,33	-0,52	-0,52	(-2.90)	(-0.32)	-0,67	(-1.95)	-1,97	-0,26	-1,82	-0,53	(-1.66)	-1,92	-1,62	-1,7	-0,5	(-0.54)
Post Event Window																			
_cons	0,00655	0,0169	-0,0165	-0,032	-0,03	0.120*	0,0109	-0,0408	0,00932	-0.0558**	0,0148	-0,125	-0,026	-0.0377*	-0,0039	-0,0097	0.0634*	-0,648	0,0145
t	-1,78	-0,66	(-0.87)	(-1.54)	(-0.93)	-2,83	-0,14	(-1.82)	-0,19	(-6.29)	-0,26	(-1.96)	(-1.14)	(-2.28)	(-0.40)	(-0.55)	-2,21	(-1.10)	-0,98

Source: own calculations.

Table 6. The results of estimation of the event study of the impact of the upgrade of credit ratings on the differences between the rates of return of banks' shares in particular countries.

Country	AT	BE	BG	HR	CZ	DK	FR	DE	GR	HU	IE
downgrade											
Obs	9	4	4	3	4	10	46	24	33	4	17
Event Window											
_cons	-0,205	-1,189	-0.672*	0,0992	-0,213	-0.472**	-0,069	-0.270*	-0,334	-0,723	-1.204**
t	(-1.67)	(-1.61)	(-3.21)	-0,63	(-0.67)	(-4.01)	(-0.74)	(-2.10)	(-1.84)	(-1.03)	(-3.53)
Pre Event Window											
_cons	-0,362	-11,09	-0,913	0,479	-3,176	-1.748*	-1.256*	-2.131**	-1,198	-6,835	-5.448*
t	(-0.45)	(-2.85)	(-0.59)	-0,99	(-1.17)	(-3.16)	(-2.46)	(-3.14)	(-1.53)	(-1.68)	(-2.71)
Post Event Window											
_cons	-0,546	-0,568	-1,873	0,988	1,591	-2.513*	0,251	-1.569*	-3.384***	1,539	-5.854**
t	(-1.53)	(-0.17)	(-1.25)	-0,7	-1,28	(-2.87)	-0,62	(-2.66)	(-4.15)	-0,52	(-3.18)

Source: own calculations.

Table 7. The results of estimation of the event study of the impact of the upgrade of credit ratings on the differences between the rates of return of banks' shares in particular countries.

Country	NE	NO	PL	PT	RU	SK	ES	SE	CH	TU	UA	GB
downgrade												
Obs	6	3	10	16	25	4	59	23	10	13	3	49
Event Window												
_cons	0,0669	-0,333	-0,141	-0,319	0,333	0,144	-0.274*	-0,0513	-0,256	0.468***	3,466	-0.443**
t	-0,24	(-1.34)	(-1.30)	(-1.90)	-1,79	-1,16	(-2.24)	(-0.23)	(-1.01)	-5,19	-2,75	(-3.31)
Pre Event Window												
_cons	-3,002	-1,306	-2,094	-1,571	-1,016	-1,392	-1.223*	-1,477	-0,882	2.943**	22,24	-1.540**
t	(-1.02)	(-1.40)	(-1.53)	(-1.73)	(-0.73)	(-1.42)	(-2.37)	(-1.49)	(-1.34)	-3,21	-2,64	(-2.70)
Post Event Window												
_cons	2,628	0,64	0,852	-1,497	0,219	-3,576	-1.507**	0,649	-1,21	0,64	14,28	-2.376**
t	-1,34	-1,02	-0,82	(-1.69)	-0,21	(-1.17)	(-2.76)	-0,61	(-0.82)	-1,16	-1,84	(-3.01)

Source: own calculations.

Table 8. The results of estimation of the event study of the impact of the upgrade of credit ratings on the differences between the rates of return of banks' shares in particular countries.

Country	BE	CZ	DK	FR	DE	GR	HU	IE	NO	PL	PT	RU	SK	ES	SE	CH	TR	UA	GB
upgrade																			
Obs	2	8	9	10	7	10	2	9	3	4	4	13	9	23	26	9	21	6	13
Event Window																			
_cons	0,206	0,109	0,15	0,132	0,283	-0.525*	0,112	0,185	-0,0257	0.431**	0,0688	0,286	0,174	-0,0025	0.104*	0,112	0.459**	-0,193	-0,077
t	-1,93	-0,78	-2,08	-1,38	-1,58	(-2.36)	-0,97	-1,65	(-0,11)	-11,72	-0,71	-1,16	-1,1	(-0,04)	-2,22	-1,04	-3,56	(-0,41)	(-1,33)
Pre Event Window																			
_cons	1,161	-0,229	0.871*	0.920*	0,862	-1.376*	-0,587	0,241	1,378	1,284	0,492	-0,91	0,807	-0,528	0,529	-0,274	2.061***	-2,859	-0,334
t	-1,94	(-0,32)	-2,87	-2,78	-1,65	(-2.39)	(-0,52)	-0,42	-1,41	-3,03	-0,6	(-0,35)	-1,35	(-1,29)	-1,61	(-0,34)	-4,85	(-0,43)	(-1,28)
Post Event Window																			
_cons	0,9	0,733	0,441	0,106	0,984	-1,015	1,81	0,721	-0,243	2.302*	-0,366	-0,385	0,625	-0,632	0.803***	0,359	3.434***	-7,978	-0,2
t	-0,78	-1,25	-1,28	-0,19	-1,16	(-1,53)	-4,08	-1,35	(-0,23)	-5,02	(-0,71)	(-0,51)	-0,91	(-1,73)	-4,16	-0,84	-5,11	(-1,09)	(-1,16)

Source: own calculations.

Table 9. The results of estimation of the event study of the impact of the downgrade of credit ratings on the rates of return of banks' shares in particular countries.

Country	AT	BE	BG	HR	CZ	DK	FR	DE	GR	HU	IE
downgrade											
Obs	9	4	4	3	4	10	46	24	33	4	17
Event Window											
_cons	-0,0056	0,203	0,00018	0,00362	0,0406	-0,0493	-0,0084	0,0111	-0,0222	0,0108	-0,0681
t	(-0.66)	-1,86	-0,01	-0,24	-1,1	(-2.25)	(-0.81)	-0,77	(-1.01)	-0,43	(-1.07)
Pre Event Window											
_cons	-0,0587	-0,11	-0,219	0,0478	-0,0305	0,03	0,0217	0,00082	-0,0173	-0,0954	0,00752
t	(-2.26)	(-1.00)	(-2.69)	-1,41	(-0.76)	-0,61	-1,45	-0,03	(-0.31)	(-0.59)	-0,09
Post Event Window											
_cons	0,0196	0,344	0,132	0,00769	0,101	0.134**	0.0444*	-0,0044	-0,109	0,27	0,171
t	-2,05	-3,18	-2,12	-1,31	-1,01	-3,65	-2,31	(-0.14)	(-1.94)	-2,27	-1,88

Source: own calculations.

Table 10. The results of estimation of the event study of the impact of the downgrade of credit ratings on the rates of return of banks' shares in particular countries.

Country	NE	NO	PL	PT	RU	SK	ES	SE	CH	TU	UA	GB
downgrade												
Obs	6	3	10	16	25	4	59	23	10	13	3	49
Event Window												
_cons	0,0233	0,0119	0,0501	-0,0043	0,00547	0,0577	-0,019	0,00572	-0,0164	0,017	-0,0097	-0,0279
t	-0,49	-0,94	-1,1	(-0.28)	-0,44	-1,8	(-1.47)	-0,22	(-0.75)	-0,79	(-0.07)	(-1.05)
Pre Event Window												
_cons	0,104	-0,0562	-0,0388	0,00309	0.222**	0,0288	-0,0018	0,049	-0,0059	-0,0444	0,301	-0,003
t	-1,75	(-4.23)	(-1.16)	-0,09	-3,09	-0,81	(-0.09)	-0,96	(-0.19)	(-2.04)	-1	(-0.16)
Post Event Window												
_cons	0,0519	0,0971	0,0496	0,0179	-0,135	-0,141	0,0492	0.0854*	0,0186	-0.131***	-0,851	0,0353
t	-0,79	-2,32	-0,99	-0,45	(-1.97)	(-1.57)	-1,31	-2,17	-0,47	(-5.01)	(-1.41)	-1,17

Source: own calculations.