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Working Paper

The reaction of the stock market on credit rating agencies' decisions

Institute of Economic Research Working Papers, No. 18/2017

Provided in Cooperation with:

Institute of Economic Research (IER), Toruń (Poland)

Suggested Citation: Chodnicka-Jaworska, Patrycja (2017) : The reaction of the stock market on credit rating agencies' decisions, Institute of Economic Research Working Papers, No. 18/2017, Institute of Economic Research (IER), Toruń

This Version is available at:

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Institute of Economic Research Working Papers

No. 18/2017

**The reaction of the stock market on credit rating
agencies' decisions**

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Article prepared and submitted for:

9th International Conference on Applied Economics Contemporary Issues in Economy, Institute of Economic Research, Polish Economic Society Branch in Toruń, Faculty of Economic Sciences and Management, Nicolaus Copernicus University, Toruń, Poland, 22-23 June 2017

Toruń, Poland 2017

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The reaction of the stock market on credit rating agencies' decisions

JEL Classification: *G24; F21; G14*

Keywords: *financial institutions, nonfinancial institutions, event study, credit ratings, stock prices*

Abstract

Research background: Firms with low credit risk realize higher returns than firms with high credit risk. This credit risk effect in the cross-section of stock returns is a puzzle because investors appear to pay a premium for bearing credit risk. A higher credit risk can reduce a propensity to invest.

Purpose of the article: The basic goal of the paper is to analyse and verify the impact of the changes of financial and nonfinancial institutions' credit ratings on the rates of return of shares. The following hypotheses have been formed: first, differences in the strength and direction of the reaction of stock prices between financial and nonfinancial institutions have been observed. Secondly, downgrades of credit ratings have got a stronger impact on the rates of return of shares than upgrades thereof.

Methodology/methods: The analysis has been constructed for European companies for the period between 1995 and 2016 using the event study method. The sample has been divided according to: the direction of changes in credit ratings, countries' economic divisions, the character of the institution.

Findings & the Value added: The prepared analysis suggests that nonfinancial stock prices react to changes in credit ratings similarly to stock prices of financial institutions. The moment of reaction is differentiated by taking the level of economic development. Generally, a stronger reaction to credit rating changes in the case of companies from lower and middle economies has been observed than from high-income countries.

Introduction (Cambria, 11 pt, bold, left justified)

One of the methods of measurement of credit and default risk is by using credit rating to analyse the risk of investment, especially in the event of

banks. They are also taken into consideration to verify credit risk in the internal ratings based approach by financial institutions.

The previous researchers explore the behaviour of the stock prices on credit ratings changes in different subsamples. The mentioned phenomenon has been analysed for a group of countries or on a particular one. The most popular markets that have been researched are: the stock markets in the United Kingdom (Barron et al., 1997, p. 497-509), the United States (Avramov et al., 2009, p. 469-499), and Japan (Miyamoto, 2016, p. 138-143). The mentioned relationship is strictly connected with the size of the stock exchange. The previous analysis has also been prepared in different subsamples, according to: the size of the company and the changes of credit rating agencies (Creighton et al., 2007, p. 1-17), the level of economic development and political divisions (Chodnicka-Jaworska, 2016), the emerging countries (Mateev, 2012, p. 28-41; Flores, 2010; Hun Han, 2009, p. 141-166), the moment of a financial crisis (Kiesel, 2016, p. 20-31), the size of credit ratings agencies (Chodnicka-Jaworska, 2016; Hun Han et al., 2009, p. 141-166). Schweitzer et al (1992, p. 249-263) found that the reaction of banks' stock prices is weaker than of nonfinancial institutions, which can be connected with the level of supervision for the former.

The type of investors and their reaction to credit ratings changes has been verified by Avramov et al (2009, p. 469-499). They found that after downgrades a strong institutional selling has been observed. On the other hand, they have not found a strong differentiation of rates of returns across credit risk groups in stable or improving credit conditions. The mispricing is generated by retail investors and sustained by illiquidity and short sell constraints. Ahn et al (2014) found that negative deviations have significantly stronger associations with bid-ask spreads and investors' reaction to ratings changes than positive deviations. They suggest that only negative non-financial information in credit ratings is perceived as private, which implies that managers are more willing to provide bad news to rating agencies than they are to the general public. Rating agencies incorporate negative information in ratings, which should comfort those who are concerned that the issuer-pay model leads to inflated ratings.

The prepared literature review suggests that there is a lack of research about the comparison between the reaction of stock prices on credit ratings changes for financial and nonfinancial institutions. As a result. the aim of the paper is analyse and verify the impact of the changes of financial and nonfinancial institutions' credit ratings on the rates of return of shares. The first hypothesis seems as follows: differences in the strength and direction of the reaction of stock prices between financial and nonfinancial institutions have been observed. The second one is: the downgrades of a credit ratings have a stronger impact on the rates of return of shares than upgrades

thereof. In the next section the methodology and data used in the analysis have been described.

Method of the Research

The analysis has been constructed for companies from European countries for the period between 1995 and 2016 with the use of the event study method. Data have been collected from the Thomson Reuters database. Daily rates of return are taken as dependent variables. The independent factors comprise long-term issuer credit ratings proposed by Fitch, S&P's and Moody's. To verify the direction of credit ratings changes the linear decomposition proposed by Ferri, Liu and Striglitz (1999) has been used.

The sample has been divided into subsamples according to: the direction of credit ratings changes, economic divisions, whether an institution is financial or nonfinancial. The grouping of countries has been presented in Table 1.

Table 1. Country groups singled out according to the financial development division criterion.

<i>Type of classification</i>	<i>Countries</i>
High income countries	Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Netherlands, Norway, Poland, Portugal, San Marino, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom.
Middle income	Albania, Algeria, Belarus, Bosnia and Herzegovina, Bulgaria, Georgia, Macedonia, Montenegro, Romania, Russia, Serbia, Turkey
Lower middle income	Armenia, Moldova, Ukraine

Source: own elaboration.

The analysis has been prepared by using the event study methods. Its goal is to verify the response of the rates of return of shares to credit rating changes in a short period of time. The analysis has been prepared for three periods of time. The first period is named as pre-event window, and relies on the observation of the rates of return from twenty-one to two days before the event. The event period starts from one day before the event date and ends on the third day after it. The post-event window represents twenty days after it. To verify the impact of credit ratings changes on the rates of return of shares abnormal differences in the variable within each event window are used to construct cumulative abnormal differences (CAD), with an assumption that no other factors occurred in that time. To verify the significance of the influence of credit ratings changes on stock prices the t-Student test is used.

Findings

The analysis of the reaction of stock prices to credit ratings changes has been started on to verify the impact of upgrades and downgrades of notes (Table 2). In the case of S&P's rating a significant impact has been noticed only for downgrades. The comparative results between an increase and decrease of notes suggest that stock prices react more strongly to downgrades than upgrades. The mentioned situation is consistent with the results of the previous studies. In the case of Fitch notes a significant impact has been noticed at the moment the information about an increase of notes was published. The growth of Moody's ratings causes statistically significant abnormal rates of return during the pre-event window period of time. The strongest reaction to Fitch notes has been noticed before the moment the information about a decrease of ratings was published. In the case of Moody's and S&P's notes a stronger impact has been observed during the post-event window. The described situation can be connected with the types of companies that have been analysed. As a result, the next step of the research has been to verify the influence of credit ratings changes on the rates of return by taking the sector type into consideration.

Table 2. Impact of credit ratings changes on the stock prices of European companies.

agency	Fitch		Moody		S&P	
	upgrade	downgrade	upgrade	downgrade	upgrade	downgrade
pre-event window						
coef	0,00646	-0,0112**	0,008*	-0,0011	-0,0002	-0,0048
t-Student	-1,39	(-1,92)	(-1,65)	(-0,18)	(-0,06)	(-1,20)
N	75	275	151	389	608	1165
event window						
coef	0,00689**	-0,00929*	-0,002	-0,0103**	0,00123	-0,0113***
t-Student	(-1,94)	(-1,77)	(-0,75)	(-2,05)	-0,59	(-2,86)
N	75	275	151	389	608	1165
post-event window						
coef	-0,00229	-0,00844***	-0,007	-0,0181**	-0,00392	-0,0219***
t-Student	(-0,44)	-2,24	(-1,44)	-3,24	(-1,32)	-5,43
N	75	275	151	389	608	1165

Source: own calculations.

The analysis of the reaction of stock prices to credit ratings changes according to the type of sectors has been presented in Table 3 for Fitch, Table 4 for Moody's, and Table 5 for S&P's. The study of the impact of credit ratings changes on stock prices, taking into account the sector type and the level of economic development, has been prepared for two groups. Entities

from high income countries and lower and middle income economies have been used in the studies.

In developed high income economies stock prices of non-finance entities react only to downgrades of notes. The moment of the reaction is differentiated (a reaction to Fitch credit ratings changes has been observed before the moment of publication of notes, for Moody's – during the post event window, and for S&P's – during and after the moment of publication). In the case of middle and lower income economies significant abnormal rates of return are higher than for entities from high income economies. The reaction has been noticed both in the case of downgrades (to Moody's notes – before and after the publication, for S&P's – after the publication) but also for upgrades (Fitch – during the pre-event window, S&P's – during publication and after it). The mentioned situation can suggest that investors treat investment in the companies from developing economies as a good place to allocate their capital that can generate additional profits.

The analysis of the impact of banks' credit ratings changes on stock prices taking the level of economic development into consideration can create similar results. Just as for the previous group of entities, a higher influence of credit ratings changes has been observed for banks from developing economies. In the case of Fitch notes the abnormal rates of return are observed for downgrades, but in the case of S&P's – for upgrades of notes. In the case of banks from high income countries the mentioned reaction has been observed both for upgrades and downgrades of notes presented by Fitch and Moody's, and only for a decrease of S&P's credit ratings. The presented results also suggest that the abnormal rates of return are observed during or after the moment of publishing information about credit ratings changes. The described situation can be connected with supervision over banks and the stability of credit ratings.

The received results suggest that there is a stronger reaction in the case of financial institutions than for non-financial entities. The presented situation is different from the opinion presented in the previous studies. As it has been noticed before, it can be connected with the use of credit ratings in the decision-making process of banks. Abnormal rates of return are between 1 and 2%, so the reaction of the financial market is weak. The described situation can be connected with the level of economic development. As a result, the analysis of the impact of credit ratings changes on stock prices has been prepared by taking into consideration the level of economic development.

The last part of the study, which relies on the analysis of the results for other financial institutions and insurance companies, has been prepared only for entities from high income countries. The described situation has been connected with the small number of observations for the entities from the middle and lower income countries. For the Fitch notes a statistically significant impact on stock prices has been noticed for the mentioned entities after the moment of publishing information about a decrease of notes. The strength of the impact has been higher than in the case of other institutions. Abnormal rates of return for the mentioned entities have not been observed for Moody's ratings changes. In the case of S&P's credit ratings changes a significant reaction has been observed for upgrades. Abnormal rates of return have been noticed during the event window for insurance companies, and for other entities – also after the moment of publication of notes.

Table 3. Impact of Fitch credit ratings changes on the stock prices of European companies according to the type of sectors and the economic development.

Agency	Fitch											
Direction	U	D	U	D	U	D	U	D	U	D	U	D
Sector	non-finance		banks		other finance		insurance		non-finance		banks	
Develop	High income countries						Middle and lower income countries					
pre-event window												
coef	0,0062	-0,0158*	-0,00024	0,00499	0,0172	-0,0251*	0,0102	-0,0233	0,0594*	0,00599	0,00487	-0,0465*
t-Student	-0,62	(-1,71)	(-0,03)	-0,85	-0,46	(-2,34)	-1,35	(-1,13)	-4,89	-0,16	-0,5	(-2,44)
N	19	157	33	74	2	13	14	21	3	6	4	4
event window												
coef	0,000956	-0,0139	0,0118*	-0,00263	-0,0384	-0,011	-0,00572	-0,00824	0,0141	0,0341	-0,0078	-0,0158
t-Student	-0,16	(-1,61)	(-2,04)	(-0,77)	(-0,64)	(-0,44)	(-0,89)	(-1,13)	-0,84	-1,08	(-0,75)	(-1,07)
N	19	157	33	74	2	13	14	21	3	6	4	4
post-event window												
coef	0,0113	0,00359	0,0168*	-0,0121**	-0,0141	-0,028*	0,0038	-0,0241*	0,0169	-0,0342	0,0233	0,0489
t-Student	-1,17	-0,69	(-1,87)	-1,98	(-1,29)	-1,89	-0,55	-2,59	-1,31	(-0,71)	-0,86	-1,11
N	19	157	33	74	2	13	14	21	3	6	4	4

Source: own calculations.

Table 4. Impact of Moody's credit ratings changes on the stock prices of European companies according to the type of sectors and the economic development.

Agency	Moody									
Direction	U	D	U	D	U	D	D	U	D	
Sector	non-finance		banks		other finance		insurance	non-finance		
Develop	High income countries						Middle and lower income countries			
pre-event window										
coef	-0,00661	-0,0078	-0,00303	0,00646	-0,00038	-0,0158	0,0215	-0,073	-0,0373*	
t-Student	(-1,25)	(-1,11)	(-0,54)	-0,43	(-0,02)	(-0,50)	-0,37	(-0,80)	-1,94	
N	93	252	45	83	7	15	14	5	25	

event window									
coef	-0,00543	-0,00529	-0,00096	-0,0277**	-0,00143	-0,0119	-0,0222	0,0377	0,00462
t-Student	(-1.54)	(-0.89)	(-0.19)	(-1.97)	(-0.11)	(-0.61)	(-1.07)	-1,01	-0,56
N	93	252	45	83	7	15	14	5	25
post-event window									
coef	0,00418	-0.0226***	0.0211***	-0.0258**	-0,0174	0,0189	-0,0118	-0,0548	-0,0367*
t-Student	-0,66	-3,68	(-3.71)	-2,06	(-0.59)	-0,58	(-0.19)	(-1.35)	(-1.88)
N	93	252	45	83	7	15	14	5	25

Source: own calculations.

Table 5. Impact of S&P's credit ratings changes on the stock prices of European companies according to the type of sectors and the economic development.

Agency	S&P											
	U	D	U	D	U	D	U	D	U	D	U	D
Sector	non-finance		banks		other finance		insurance		non-finance		banks	
Develop	High income countries						Middle and lower income countries					
pre-event window												
coef	-0,00022	-0,00747	0,00607	0,000255	-0,00095	0,00817	-0,0169	0,0258	-0,00103	-0,00333	-0,0231	-0,0342
t-Student	(-0.05)	(-1.50)	-1,08	-0,03	(-0.05)	-0,35	(-1.53)	-0,57	(-0.10)	(-0.21)	(-0.72)	(-0.89)
N	396	766	102	246	16	46	16	26	65	58	13	23
event window												
coef	0,00269	-0.0152**	0,000383	-0,00376	0,0148*	-0,0245	0.0254**	-0,0211	0,0114*	0,0114	0,0167	0,0163
t-Student	-1,01	(-2.88)	-0,08	(-0.52)	(-1.68)	(-1.63)	-2,27	(-0.64)	(-1.70)	-1,05	-1,32	-0,96
N	396	766	102	246	16	46	16	26	65	58	13	23
post-event window												
coef	-0,00337	-0.0232***	0,00439	-0.0265***	0.0232**	0,00165	-0,0161	-0,0827	0,0166*	-0,0315*	0,0409***	0,0647
t-Student	(-0.94)	-5,3	-0,58	-3,36	-2,43	-0,08	(-0.82)	(-1.08)	(-1.66)	-1,69	(-2.15)	-1,48
N	396	766	102	246	16	46	16	26	65	58	13	23

Source: own calculations.

Conclusions

The basic goal of the paper has been to analyse and verify the impact of the changes of financial and nonfinancial institutions' credit ratings on the rates of return of shares. The received results suggest that no significant differences between the impact of credit ratings changes on financial and non-financial entities' stock prices have been observed. A stronger reaction has been noticed for downgrades than in the case of an increase of notes, which confirms the second hypothesis. The level of economic development has a statistically significant impact on the creation of abnormal rates of return. The described situation suggests that investors try to find additional profits on these markets, and publication of information about credit ratings changes is a good measure of the default probability and creation profits. Also the moment of reaction is differentiated. In the case of developing countries abnormal rates of return are observed after the moment of publication of the information about credit ratings changes. For these stock prices both upgrades and downgrades are significant. In the case of entities from high income economies the stock market also reacts before and during the mentioned period of time. Only downgrades have a significant impact. The described situation can be connected with the fear of investors. The received results also suggest that stock prices react more weakly to credit ratings changes. The moment of the business cycle can also have a significant impact on the mentioned reaction. The mentioned determinant will be taken into analysis in the future research presented by the authors.

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