RESEARCH ARTICLE

THE EFFECTS of CREDIT RATING ANNOUNCEMENTS ON SHARE PRICES LISTED ON THE BIST BANK INDEX

*Öğr. Gör. Fatih Konak, Ph. D.

Hitit Universitesi İktisadi ve İdari Bilimler Fakültesi İşletme Bölümü, Akkent-Çorum, Turkey

ARTICLE INFO	ABSTRACT
	It is crucial to determine whether the world's leading credit rating agencies' (Moody's, S & P's and Fitch's) credit notes affect the stock prices or not, for market participants. At this point, the main purpose of this research is to detect the effect of mentioned agencies' Credit Rating Announcements, occoured last five years (2009-2014),on share prices of companies listed on the BIST Bank Index by employing event study methodology. In that context, the effects of upgrade and downgrade notes are taken into account separately. In the basic logic of the event study, while "Event Window" is determined by announcement date basis '-15, +15', the "Estimation Period" is shaped on -15, -135' days before announcement. According to analysis, statistically significant effects are figured, which means that an anomaly is present under the impact of credit rating announcements. Therefore, it can be expressed that the market participants have the opportunity of generating abnormal return by benefiting from the public announcements.

INTRODUCTION

The impact of assessments of credit rating agencies on states and enterprises is an issue still being discussed and not having a final conclusion. The impact and potential impact direction of rating announcements made by companies in different type and others are located at the focal point of these discussions. When the subject is discussed within the scope of the "efficient-market hypothesis" developed by Fama (1970), it will result in the use of the significant impact on the market of rating announcements as an information advantageously by the market participants (in manner of an opportunity to generate a return above average) and will not be referred to the activity of relevant market.

Credit rating, by the most basic definition, is the views created by the credit rating agencies on the borrower's credit risk, in other words, the views of the organization on the capacity and willingness of repayment on time of all of the borrower's financial obligation (Seval, 2014). A state, financial institution, company or issued financial asset may be subject to a rating to express an independent opinion. Results of the rating activities are published in order that all market participants could be informed on this information and could determine their position in this context.

*Corresponding author: Öğr. Gör. Fatih KONAK
Hitit Universitesi İktisadi ve İdari Bilimler Fakültesi İşletme Bölümü, Akkent-Çorum, Turkey.

While the financial history, current assets and current debts of relevant party are taken in consideration in credit rating, it is underlined that the issued degrees of borrowers compared to others refer to the relatively credit worthiness. A downgrade rating, non-payment of the borrower's debt (delinquency) figures a high risk and this situation results in high interest rates or objection of the debt demand (Haan and Antenbrink, 2011).

Regarding to the history of rating conception, it is seen that it was appeared when traders failed to pay their debts after the financial crisis in the US in 1837. While the relationship between the borrowers and the investors providing funds had evolved with the financial crisis, as a natural consequence of this process, the ratings have become widespread and increasingly used. The developed ratings in 19th century have firstly switched to a different extent by the fact that the publishers provided information to the investors about the situation of commercial companies (Gülmez, 2015). Having focused on the ability of the borrower companies to repay their debts by following the situation of more companies in last century, the rating agencies has begun to give credit notes to the institutions trying to borrow from international markets in the new period when the international financial markets have gained a significant volume and depth and to the countries trying to attract directly/indirectly the foreign investment. In this period where the rating activities won a global extent and

the controlled portfolio improved considerably in means of quantity and quality, the economic effects as well as the political effects of reports prepared and the notes given by credit rating agencies have been discussed (Demir and Eminer, 2014). Although there are many credit rating agencies today, there are six international credit rating agencies giving direction to world economy in measuring if the validity of rating agencies has national or international level. International Credit Rating Agencies are: are; Moody's (1909), Fitch (1913), Standard & Poor's (1923) and Duff & Phelp's'(1932), Japan Credit Rating Agency (JCR) (1985) and Dagong Global Credit Rating (1994). It is seen that the first three of these six credit rating agencies have led credit rating industry in terms of reputation, impact and capacity (Gülmez, 2015).

Regarding to the literature, in general, efficient market hypothesis is tested by applying the event study in context of the impact of credit rating announcements on performance of companies (price changes in market in pre-announcement, announcement day and post-announcement). The credit rating studies and announcements lead to a reaction on prices in case they provide a new information package to the market. On the other hand, if the information occurred in credit rating process is estimated or known by the market, the price mechanism would have already been worked and the new information would have been reflected to prices. Therefore, it becomes difficult to talk about the impact of the credit rating announcement results on share prices. Most of studies carried out in this context have investigated the impact on both the share price and bond prices. In some of studies, it was observed that the credit rating upgrade announcements had no effect on the market price (Barron *et al*., 1997; Ederington and Goh, 1998; Liu *et al.,* 1999; Pinches and Singleton, 1978; Subaşı, 2008) but the assessments resulted in downgrade credit ratings have negative effect on the market performance (Hsueh and Liu, 1992; Poon and Chan, 2008; Wansley *et al.,* 1992; Matolcsy and Lianto, 1995; Weinstein, 1977; Subaşı,2008; Kaplan and Urwitz, 1979; Wakeman, 1981; Hooper and Kim, 2008; Brooks *et al*., 2004). On the other hand, there are also studies which identified the positive significant effect of credit rating announcements on market (Danos *et al.,* 1984; Cornell *et al.,* 1989, Hooper and Kim, 2008).

This paper takes aim to measure the effect of the rating announcements (upgrades and downgrades separately) made by international credit rating agencies active in Turkey (Standard & Poor's, Moody's and Fitch) about the banks listed in BIST Bank Index in last five years by using the event study method. In other words, it was analysed how a perception the actual announcements caused in regard of market participants.

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DATA SET and MODEL

The banks listed in BIST Bank Index were investigated in order to reveal the impact of assessments of credit rating agencies on share prices. In our study, it has been studied to analyse how an impact has the announcements of credit rating agencies on the share prices of banks listed in this index. In this context, it was intended to determine the impact and the impact direction of 53 credit upgrade ratings and 14 credit rating downgrade set by S&P, Moody's and Fitch in last 5 years (2009-2014).

Sampling

In our study, the market data for the 5-year period from 2009 to 2014 were used to investigate the credit rating announcements and reactions to this situation. Having become stronger and of which profitability ratios rose in each passing year especially after 2001 economic crisis, 11 banks of BIST Bank Index have taken place in our study. It was determined 67 credit rating announcements concerning banks listed in the index in working period were done. As content of analysis, the actual data of the announcements and the market was obtained through Datastream & Eikon database.

Model

The standard event study methodology was used in order to determine the direction of reaction shown by market via prices against the credit rating announcements in last 5 years in BIST Bank Index. The event study has essentially three investigation windows; estimationperiod, event window and period after examination (Benninga, 2008). The event windowof our study was determined as 15 days prior to the announcement day (-15,0) and 15 days after the announcement day (0,+15) for each credit rating announcements. For estimationperiod, 120-days period (-15- 135) was taken into account parallel to the literature. In addition, the estimated returns which would be found by using the market model were included to the analysis as market portfolio of BIST 100 Index. The event study methodology was applied as shown below (Tong, 2010):

- The first step of event study is formed by the calculation of formula shown below of relevant period of the bank to which the announcement was done and BIST 100 Index.

$$R_{it} = (P_{it} - P_{it-1}) / P_{it-1} \qquad (1)$$

R_{it} = renders to the returns of any share certificate (i) or market index within "t" day(s),
P_{it} = refers to the price of any share certificate (i) or market index within "t" day(s),
P_{it-1} = represents the price of any share certificate (i) or market index within "t-1" day(s).

- In accordance with the market model, the regression model shown below was used in order to estimated α and βs required to calculate the estimated return for share certificates, and this was repeated for each share certificate and event;

$$R_{it} = \alpha_i + \beta_i * Rm_t + \varepsilon_t \qquad (2)$$

α_i =figures the unexplainable average returns of any share certificate within (i) period,
β_i =calculates the sensitivity of any share certificate towards (i) market movements/ fluctuations,
Rm_t = signifies the return of market index within "t" day(s),
ε_t = means the error term.

In order to save the event from the effect of normal performance and other affects, normal and abnormal returns occurred within the period excluding 120 days prior (15, -135) to interval issued above were calculated.

- In the following step, Expected Returns are calculated. The expected return of each share certificate with "t" day(s) with the data obtained by regression model shown above;

$$E(r)_{it} = \alpha_i + \beta_i * Rm_t \qquad (3)$$

Er_{it} = means expected return of any share certificate (i) within "t" time(s),

α_i = signs the estimated alpha value,

β_i = represents the estimated beta value,

Rm_t = expresses the return of market index within "t" time(s).

- After the determination of expected returns for each event and share certificate, abnormal returns (AR) are calculated. Abnormal return is expressed as the difference between the actual return and expected return of any share certificate within "t" day(s). Abnormal returns are obtained as follows;

$$AR_{it} = R_{it} - Er_{it} \qquad (4)$$

AR_{it} = shows the abnormal return of any share certificate within "t" time(s),

R_{it} = expresses the actual return of any share certificate within "t" day(s),

$E(r)_{it}$ = the expected return of any share certificate within "t" day(s).

- In the following step, the average Abnormal Returns (AAR) is calculated as follows:

$$AAR_t = AR_{1t} + AR_{2t} + \ldots + AR_{it} + \ldots AR_{nt/n} \qquad (5)$$

AAR_t = specifies the Average Abnormal Returns,

n= symbolizes the quantity of examined share certificates.

- In the latest step, in order to see the impact of different examination intervals, Cumulative Average Abnormal Returns (CAAR) is calculated with the following formula;

$$CAAR(-t, -t-1,) = AAR_t + AAR_{t-1} + \ldots AAR \qquad (6)$$

$CAAR_t$ = refers Cumulative Average Abnormal Returns.

FINDINGS AND ANALYSIS

The event study methodology was applied in order to determine the impact of the credit rating announcements in last 5 years in BIST Bank Index and direction of this impact. In the result of analysis, abnormal returns before (-15) and after credit rating announcements and Cumulative Abnormal Returns outcomes in different review periods were obtained. It is shown that the findings are statistically significant in a certain extent on credit rating announcements of market participants. The Abnormal Return outcomes with regard to the impact of upgrade announcements of international credit rating agencies (Standard and Poor's, Moody's and Fitch) in last 5 years about banks listed in BIST Bank Index on market performance have been shown on Table 1. While the abnormal returns are statistically significant 10%, 1% and 10% respectively on announcement day (0.day) and prior days (-1 and -5), a positive but not significant abnormal return was observed on first day after announcement. On the other hand, the surplus of negative and statistically significant abnormal returns attract attention after the credit rating upgrade announcement ($+2^{th}$, $+3^{th}$, $+4^{th}$, $+5^{th}$ and $+11^{th}$ days). These results show parallelism with the explications suggested by Zaima, & McCarthy (1988) in scope of the information content hypothesis and wealth redistribution hypothesis.

The cumulative abnormal return results of different examination periods by taking into consideration the upgrade announcements are given in the Table 2. While positive values has constituted cumulatively, before announcement [-15,0] and after announcement in total [0,+15], it is seen that the pre-

announcement period is positive and statistically significant at the 1% level. Regarding from this perspective, it may be considered that the credit rating upgrade announcements are perceived positively by market participants. On the other hand, the formation of negative cumulative average return during the before and after announcement period [-5, +5] attracts attention. The average abnormal returns occurred in the process of credit rating downgrade announcement (-15, +15) and their statistically significance have shown in Table 3. According to obtained findings, while a significant at 10% level and negative average abnormal return was constituted immediately before and after (-1th and $+1^{th}$) downgrade announcement, a positive return at 1% level was composed on date of announcement. In addition, regarding to the percentage distribution of the negative abnormal returns, it has been concluded that 60% of the abnormal returns developed within 15 days following the downgrade announcement became negative.

The results of average cumulative announcements formed in regard to the downgrade announcements related to banks listed in BIST Bank Index are given in the Table 4. According to Table 4, it is seen that the CAAR value in total examination interval (-15, +15) is not statistically significant but negative. On the other hand, it is seen that the cumulative average return regarding to first five days after downgrade announcement is positive and significant at 1% level. However, a negative and statistically insignificant CAAR value was appeared in the period of first 10 [0,+10] and 15 [0,+15] days after the announcement.

Conclusion

From the market efficiency perspective in semi-strong form, the assessment results announced by credit rating agencies has not an impact on generating returns over average. In other words, this information is reached simultaneously to all participants and reflected to prices. On the other hand, it provides opportunities to generate returns on average over the presence of anomalies in the market. In this context, the studies about the impact of credit rating announcements on market performance offer us different perspectives. While some studies have been referring to the presence of impact of upgrade (downgrade) positive (negative) announcements, other studies have concluded that such an impact does not exist and that the markets are effective in semi-strong form.

This study evaluated the relationship between the credit rating announcement and company performance for the market participants in scope of value creative information characteristic. In this respect, 53 credit upgrade rating and 14 credit downgrade rating done by S&P, Moody's and Fitch in 2009-2014 on BIST Bank Index were investigated. The event study was applied in our study and while the examination interval was considered as 15 days (-15, 0) before and 15 days (0, +15) after the announcement date, 120 days period (-15 - 135) was considered as estimated interval. According to the findings of the study, while the presence of a significant and positive impact is observed before the upgrade announcements, a significant and negative impact was determined after announcement.

Tablo 1: Average Abnormal Return Surrounding Upgrade Announcements in BIST Bank Index

Days	AAR	T-Stat	P-Value	Neagative ARs
15	0.0074	0.2713	0.2127	43%
14	0.0006	0.0344	0.027**	53%
13	0.0033	0.1562	0.1235	40%
12	-0.0050	-0.2204	0.1736	68%
11	-0.0006	-0.0301	0.0238**	51%
10	-0.0058	-0.1824	0.1440	62%
9	0.0008	0.0394	0.031**	49%
8	0.0038	0.1614	0.1276	43%
7	0.0005	0.0173	0.013**	58%
6	0.0042	0.1537	0.1216	51%
5	-0.0003	-0.0212	0.016**	55%
4	-0.0013	-0.0493	0.039**	64%
3	-0.0017	-0.0694	0.055*	57%
2	-0.0008	-0.0444	0.035**	55%
1	0.0048	0.2161	0.1702	36%
<u>0</u>	0.0031	0.1183	0.093*	53%
-1	0.0002	0.0057	0.004***	53%
-2	-0.0037	-0.1292	0.1023	62%
-3	-0.0043	-0.2427	0.1908	58%
-4	-0.0026	-0.1334	0.1056	57%
-5	0.0022	0.0876	0.069*	47%
-6	0.0013	0.0699	0.055**	47%
-7	-0.0001	-0.0060	0.004***	51%
-8	0.0010	0.0459	0.036**	47%
-9	0.0037	0.1614	0.1276	47%
-10	0.0039	0.1868	0.1475	45%
-11	0.0002	0.0057	0.004***	49%
-12	-0.0013	-0.0639	0.050**	60%
-13	-0.0021	-0.1442	0.1141	60%
-14	-0.0030	-0.2020	0.1593	49%
-15	0.0022	0.1012	0.080*	60%

*, ** and *** represent the significance level at 10% , 5% and 1% respectively.

Table 2: Cumulative Average Abnormal Return Surrounding Upgrade Announcements in BIST Bank Index

Period	CAAR	T-Stat	P-Value	Neagative CARs
[-15,15]	0.0107	0.0709	0.056*	49%
[-10,10]	0.0090	0.0737	0.058*	53%
[-5,5]	-0.0044	-0.0560	0.044**	55%
[-1,1]	0.0081	0.1406	0.1113	51%
[-15,0]	0.0007	0.0062	0.004***	47%
[-10,0]	0.0047	0.0536	0.042**	47%
[-5,0]	-0.0051	-0.0675	0.053*	51%
[0,2]	0.0072	0.1669	0.1319	38%
[0,5]	0.0038	0.0680	0.053*	57%
[0,10]	0.0074	0.0880	0.069*	57%
[0,15]	0.0132	0.1474	0.1166	49%

*, ** and *** represent the significance level at 10% , 5% and 1% respectively.

Tablo 3: Average Abnormal Return Surrounding Downgrade Announcements in BIST Bank Index

Days	AAR	T-Stat	P-Value	Neagative ARs
15	0.0063	0.3759	0.2869	43%
14	0.0030	0.1865	0.1451	50%
13	-0.0086	-0.5648	0.4182	79%
12	-0.0026	-0.1798	0.1399	57%
11	0.0037	0.1590	0.1239	57%
10	-0.0109	-0.4959	0.3718	57%
9	-0.0094	-0.5500	0.4083	57%
8	0.0004	0.0312	0.024**	57%
7	-0.0142	-0.8212	0.5737	64%
6	-0.0045	-0.2733	0.2111	57%
5	-0.0047	-0.2316	0.1795	71%
4	0.0003	0.0373	0.029**	50%
3	0.0001	0.0064	0.005***	57%
2	0.0056	0.3012	0.2320	43%
1	-0.0012	-0.1151	0.089*	43%
0	0.0001	0.0073	0.005***	29%
-1	-0.0014	-0.1171	0.091*	71%
-2	0.0048	0.3381	0.2593	57%
-3	0.0034	0.2293	0.1778	43%
-4	0.0004	0.0205	0.016**	36%
-5	0.0047	0.1716	0.1336	43%
-6	-0.0080	-0.3626	0.2773	64%
-7	-0.0034	-0.1962	0.1525	71%
-8	0.0077	0.5633	0.4172	43%
-9	-0.0033	-0.1952	0.1517	57%
-10	0.0024	0.2201	0.1708	29%
-11	-0.0034	-0.3007	0.2316	57%
-12	0.0027	0.2063	0.1602	57%
-13	-0.0043	-0.1903	0.1480	43%
-14	-0.0030	-0.2268	0.1759	57%
-15	0.0021	0.1599	0.1246	43%

*, ** and *** represent the significance level at 10% , 5% and 1% respectively.

Table 4: Cumulative Average Abnormal Return Surrounding Upgrade Announcements in BIST Bank Index

Period	CAAR	T-Stat	P-Value	Neagative CARs
[-15,15]	-0.0352	-0.7295	0.5214	71%
[-10,10]	-0.0310	-0.4396	0.3326	64%
[-5,5]	0.0121	0.2848	0.2197	36%
[-1,1]	-0.0024	-0.1233	0.096*	57%
[-15,0]	0.0016	0.0272	0.021**	57%
[-10,0]	0.0075	0.1326	0.1035	57%
[-5,0]	0.0120	0.3006	0.2315	50%
[0,2]	0.0045	0.2821	0.2177	50%
[0,5]	0.0002	0.0064	0.004***	57%
[0,10]	-0.0384	-0.6371	0.4649	79%
[0,15]	-0.0366	-0.5728	0.4234	71%

*, ** and *** represent the significance level at 10% , 5% and 1% respectively.

These results show significance in the framework of the information content hypothesis and wealth redistribution hypothesis. Regarding to downgrade announcements, while a negative (-1th and +1th days) and significant impact comes into question before and after downgrade announcements, a positive significant return at 1% level was arisen. In addition, it has been concluded that 60% of the abnormal returns in the 15-day period after the announcements are negative.

When we bring together all of this information, it is seen that BIST Bank Index has not yet been effective in semi-active form within the examination period and data set. In other words, it can be argued that an anomaly is present under the impact of credit rating announcements. Therefore, it can be expressed that the market participants have the opportunity of generating abnormal return by benefiting from the public announcements. As a result, it was investigated according to the data obtained from banks discussed in the study that the credit rating announcements have an effect on share prices and this situation has given information on the effectiveness of actual market.

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