

The Impact of Sovereign Rating Changes on Turkish Stock Market Returns

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Abstract

This paper investigates the impact of sovereign rating changes on aggregate market returns in Turkish stock exchange. We use event study methodology to explore the market reaction to rating and outlook changes between 2007 and 2016. In our analysis, we examine rating actions of three credit rating agencies, namely Moodys, Fitch and Standard & Poors (S&P). As a result of our study, we could not find overall any significant market impact on the event day, meaning that the market presumably price in the rating or outlook changes either before or after the event day. The impact of a downgrade on the market is more severe the day after the event day which results in a negative abnormal return. In contrast, the market does not seem very enthusiastic about an upgrade; that is, the returns are not significantly different from that of other days in our event period.

Keywords: Sovereign rating changes, Turkey, Event study, Abnormal returns, Stock market

JEL Classification: G12, G14, G24

I. Introduction

There are many credit rating agencies in the world and they have been very important for investors and lenders in their decision making. It is undeniable that after 2007–2010 financial crisis, the rating agencies have been criticized by several parties including investors, economists, governments and public as a whole. However, as the financial markets assumed to be highly sensitive to the rating announcements, these rating agencies are still playing a vital role in financial market decision making process.

The rating announcement conveys new information to the market; as a result, any change in rating or outlook should have an effect on asset prices across the board in a country. Thus, a change in ratings or outlook (generally rating announcements) most probably have an impact on the risk premium, cost of capital, profitability, and hence, value of most companies in a country. Of course, a change in rating can influence the growth rate of a country, firms' prospective cash flows and value in the long run.

The Turkish capital market presents a good opportunity to evaluate the effects of rating agencies' decisions on the stock market. The market reaction to rating agency announcements were investigated by measuring index abnormal returns. This study covers rating announcements of three rating agencies namely Moodys, Standard and Poor's and Fitch for the period covering January 2007 to end of December 2016. The event study methodology was utilized to test abnormal returns before and after the announcement date.

This paper is organized as follows: after the introduction, the second part includes a brief literature review, which focuses on previous research on the impact of sovereign rating changes on stock markets. Third part discusses the research methodology. Forth part presents the results of the research. Finally, fifth part summarizes the findings and concludes with some recommendations and comments for further research.

II. Literature Review

Especially for the last two decades, the credit rating agencies have been under spotlight in terms of their rating timing, accuracy and effects. Although several studies have been

published on these areas, the literature given here is limited to the ones, which explored the effects of rating announcements on stock market performance.

The literature about the impact of rating announcement on stock markets can generally be classified under two headings. One line of the literature examined the effects of bond rating changes on issuers' stock performance (corporate level rating effects), while other line of literature deals with the impact of sovereign rating on performance of individual stocks or market as a whole (sovereign level rating effects).

Among the first line of the studies, which reveal evidences on the effects of bond rating changes on stocks, generally documented that rating downgrades (or negative announcements) have negative significant impact on stock market while upgrades (or positive announcements) had no significant impact (Hand, et.al., 1992; Goh and Ederington, 1993; Dichev and Piotroski, 2001; Daadaa, 2016). However, in a recent study, Afik, et.al. (2014) asserted that after controlling for other information, stock market did not react to rating announcements except crisis period of 2008-2009.

Second line of the studies, which is also the focus of this study, concentrated on effects of sovereign rating announcements on stock performance. The sovereign rating announcements may affect the stock markets from several grounds. Rating announcements serves to reduce asymmetric information, which indeed attracts lenders and investment funds (Alsakka and Gwilym, 2012). From international portfolio management point of view, as several fundamental information has been utilized for asset allocations, any rating announcements may cause a change in country risk and lead a change in portfolio composition (Brooks, et.al., 2002; Hooper, et.al., 2008). In addition, institutional investors mostly follow investment-grade rates such that, rating changes directly affect their decisions and hence security prices (Ferrira and Gama, 2007).

In line with corporate level evidences, sovereign level studies generally reveal the negative informative effects of downgrades and negative announcements. In one of the earlier studies, Brooks, et.al. (2002) analyzed the effect of sovereign rating changes in several stock exchanges. The results indicate that regardless of rating type (domestic vs US currency), downgrades have negative significant impact on stock market while upgrades had no significant impact. Moreover, market reaction is subject to differentiate with respect to rating agency. In addition to rating changes, Kaminsky and Schmukler (2002) revealed that outlook announcements do have an effect as rating changes. They examined the information content and spillover effect of rating announcement for 16 emerging markets from 1990 to 2000. Finding presented that outlook and rating changes both have significant effect on stock and bond markets, and added that rating change in one market spillover the others. Moreover, such effects were stronger in crisis periods and for non-transparent economies and in neighboring countries. Similarly, Pukthuanthong-Le, et. al. (2007) analyzed 34 countries for 1990-2000 period and found that downgrades and negative outlook changes have significant negative effect on stock returns, however upgrades and positive outlook changes do not have any effect. Spill-over effect of rating announcements was also examined by Ferreira & Gama (2007) for the period of 1 January 2006 to 31 December 2016. They reached the conclusion that a change in sovereign debt rating or credit outlook for a country have an effect on the market returns of other countries, and such effect is asymmetric and significant. They stated that upgrades have no significant impact. Hooper, et.al. (2008) analyzed the impact of sovereign rating changes on international financial markets using a comprehensive database of 42 countries over the period 1995–2003. They found that rating upgrades (downgrades) significantly increased (decreased) USD denominated stock market returns and decreased

(increased) volatility. Moreover, they reveal that rating events had stronger impact on emerging countries, although their impact on developed one was insignificant.

In a recent study, although Hill and Faff (2010) documented similar asymmetric reaction of stock market to positive and negative announcements, however they mentioned that findings regarding to negative announcement were not robust when crisis periods were excluded from analysis. Similar study was carried out by Klimavièienè, (2011), who analyzed 3 Baltic countries Latvia, Estonia and Lithuania and found that negative announcements have larger impact on stock market. However, asymmetric market reaction was not valid for all countries. While upgrades have the largest impact on Latvia's stock market, downgrades were more effective in Estonia's stock market. On the other hand, negative reviews made the strongest impact in Lithuania's stock market. Effects of sovereign rating announcements on Latin American stock markets (Argentina, Brazil, Mexico and Chile) analyzed by Freitas and Minardi (2013). On aggregate, downgrades have significant negative effect but upgrades not. On country basis, while all countries except Argentina present significant negative reaction to downgrades; Argentina and Chile presents significant positive reaction to upgrades. When credit watch analyzed no clear trend can be detected. While, negative watch announcements have significant and negative effect, it is not the case for positive announcements for both short and longer term event windows.

III. Research Design and Methodology

Rating agencies assess the creditworthiness of sovereign countries by examining their capacity and willingness to fulfil their obligations as they are due. At the end of their credit assessment, they assign ratings to the examined countries so that investors can have more insight about the financial strength of countries and their creditworthiness. Ratings are opinions of rating agencies; however, they are taken seriously by most investors and impact both the cost of borrowing and the invested amount.

Rating agencies utilize different rating scales to describe their opinions on the creditworthiness of examined countries. Although, different scales are being used, the ratings resemble each other to a large extent. For all three rating agencies, included in this study, the highest of ratings is denoted by A, and such rating is further categorized in seven sub-categories (notches). In this categorization, Moodys use Aaa, Aa1, ..., A3 classification, while Standard and Poors (S&P) and Fitch follow AAA, AA, ..., A classification. Following the highest rating of A, next rating is denoted by B, which is also categorized further but this time in nine sub-categories. While Moodys follows a categorization starting from Baa1, Baa2, to B3; S&P and Fitch use BBB, BB, to B type characterization. Rating B is followed by rating C, and this category has three sub-categories, which are Caa, Caa3, Ca for Moodys and CCC, CC, C for S&P and Fitch. Finally, the lowest rating is denoted by D, which is the same for all three. Ratings below BBB or Baa are classified as non-investment grade or junk by agencies.

For the last decade, economic and political volatilities in Turkey, effected the sovereign ratings and ratings were subject to change from junk grade to investment grade and junk grade again; moreover, several rating announcements (outlook and watches) were declared during this period. At the meantime, while Turkey is rated as junk according to S&P and Moodys, it has an investment grade from Fitch. Table I presents the rating announcements by three rating agencies through 2007-2016.

In our study, we focus on FC sovereign ratings of Turkey as local currency ratings are not as important as foreign currency ratings in the eyes of foreign lenders. As a matter of fact, countries of emerging economies with constantly fluctuating local currencies against US dollars, such as Turkey, usually issue foreign currency denominated debt securities (Eurobonds) in order to attract more investors. Therefore, FC sovereign ratings are key benchmark for lending decisions of foreign investors.

Table I: Summary of FC sovereign rating activity by agency between 2007 and 2016

Moody's			S&P			Fitch		
Previous	New		Previous	New		Previous	New	
23.09.2016	Baa3 (negative watch)	Ba1 (stable)	20.07.2016	BB+ (stable)	BB (negative)	19.08.2016	BBB- (stable)	BBB- (negative)
18.07.2016	Baa3 (negative)	Baa3 (negative watch)	06.05.2016	BB+ (negative)	BB+ (stable)	05.11.2012	BB+ (stable)	BBB- (stable)
11.04.2014	Baa3 (stable)	Baa3 (negative)	07.02.2014	BB+ (stable)	BB+ (negative)	23.11.2011	BB+ (positive)	BB+ (stable)
16.05.2013	Ba1 (positive)	Baa3 (stable)	27.03.2013	BB (stable)	BB+ (stable)	24.11.2010	BB+ (stable)	BB+ (positive)
20.06.2012	Ba2 (positive)	Ba1 (positive)	01.05.2012	BB (positive)	BB (stable)	03.12.2009	BB- (positive watch)	BB+ (stable)
15.10.2010	Ba2 (stable)	Ba2 (positive)	19.02.2010	BB- (stable)	BB (positive)	27.10.2009	BB- (stable)	BB- (positive watch)
08.01.2010	Ba3 (positive)	Ba2 (stable)	17.09.2009	BB- (negative)	BB- (stable)	09.05.2007	BB- (positive)	BB- (stable)
18.09.2009	Ba3 (stable)	Ba3 (positive)	03.04.2008	BB- (stable)	BB- (negative)			

In categorizing rating announcements (both rating changes, outlook and watched), a downgrade in note and negative outlook revision are both considered as negative rating announcements. For example, if the rating changes one or two notches below the current note, this change is considered as a downgrade action. If outlook changes from positive to stable or from stable to negative, these changes are also considered as downgrade actions. Similar to negative rating announcements, an upgrade in note and positive outlook revision are both considered as positive rating announcement. For example, if the rating changes one or two notches above the current note, this change is considered as an upgrade action. If outlook changes from negative to stable or from stable to positive, these changes are also considered as upgrade actions.

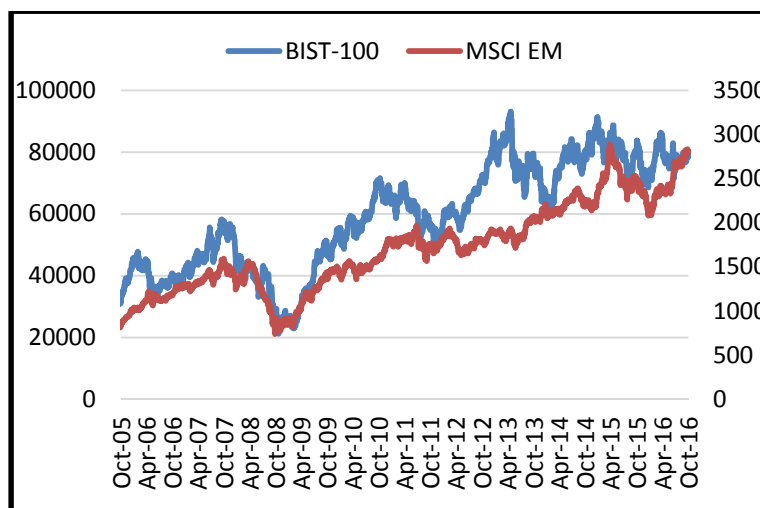
Our sample includes 23 foreign currency (FC) sovereign rating announcements of three rating agencies, namely S&P, Moodys and Fitch for the period between 2007 and 2016, classified as 10 negative ratings and 13 positive ratings. The dates of ratings announcements and ratings information for all three rating agencies were sourced from Bloomberg.

The Table II below summarizes the sovereign rating activity between 2006 and 2016 across three international credit rating agencies, which are Moodys, Standard and Poors (S&P) and Fitch.

Table II: Sovereign rating activity between 2007 and 2016

	Number of upgrades	Number of downgrades
Moodys	5	3
S&P	4	3
Fitch	4	4

Borsa Istanbul daily index returns in percentages are collected from Bloomberg International. The MSCI EM Index was used to proxy for a benchmark return. Figure I presents the historical price patterns for MSCI EM and representative index of Borsa Istanbul (BST-100).
 Figure I: Turkey (BIST-100) vs. MSCI EM Index



In order to find out the impact of FC sovereign rating changes on Turkish stock index, an event study methodology is used and abnormal returns emanated from an up- or downgrade announcements are calculated. Daily abnormal market returns are obtained through the capital asset pricing model (CAPM):

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt}),$$

$$R_{it} = \alpha_i + \beta_i R_{mt},$$

where R_{it} is the return on Borsa Istanbul BIST 100 index at day t, R_{mt} is the benchmark return on the MSCI EM Index at day t, and finally, α_i and β_i are the CAPM parameters to be estimated.

The CAPM parameters are estimated approximately six months of daily observations, which are calculated by the use of data from 120 days to 21 days following the sovereign rating announcement, which indicates a 100-day estimation period. The event periods cover total of 20 days, starting from 10 days before the rating announcement and 10 days after the rating announcement. The average of daily abnormal returns is calculated for Average abnormal returns (AAR). Following Brooks, et.al. (2004), the test statistics are calculated by the use of standardized abnormal return (SAR):

$$SAR_{it} = AR_{it} / \sigma_i \sqrt{1 + \frac{1}{T_i} + (AR_{it} - \overline{R_m})^2 / \sum_{E=-120}^{-21} (AR_{it} - \overline{R_m})^2},$$

where σ_i is standard deviation of calculated abnormal market returns of Borsa Istanbul representative index (BIST 100) for the estimation period; T_i denotes the trading days during the estimation period; and finally, $\overline{R_m}$ represents the average MSCI EM return for the estimation period.

The standard deviation of the SARs is then calculated on daily basis for the event period by the use of following formula:

$$\sigma_{SAR_i} = \sqrt{((\sum_{i=1}^N (SAR_{it} - \sum_{i=1}^N SAR_{it}/N)^2 / N(N-1))$$

Hence, standardized test statistic can be calculated as:

$$Z = (\sum_{i=1}^N SAR_{it}/N) / \sigma_{SAR_i}$$

IV. Empirical Findings

We applied our methodology on each of rating agencies ratings' actions and presented both combined and separate results in Tables from IV to VII. Above all, when all rating announcements from all rating agencies were analyzed as a whole, there is a positive return (negative) on the announcement day for upgrade announcements (downgrade announcement), however, we could not find any significant market impact on the event day (Table IV), meaning that the market presumably price in the rating or outlook changes either before or after the event day. When the market reaction for upgrade announcements is analyzed, there are two significant positive returns on 8 and 5 days prior to announcement. Such significant returns are not valid post announcement days. This finding can be interpreted as the market has already priced the upgrade expectation.

The impact of a negative announcements on the market seems to be more severe the day after the event day which results in a significant negative abnormal return; where one day following the announcement AAR is significantly negative at -1.96%. On the other hand, prior to a rating announcement, returns are not significantly different (better or worse) than other periods under analysis, which can be interpreted as the downgrades are not priced by the market before the announcement.

Table IV: Combined market reaction to rating agencies (Moody's, Fitch and S&P) FC sovereign rating changes

Event Day	Rating Upgrades				Rating Downgrades			
	AAR	t-stat	CAR	t-stat	AAR	t-stat	CAR	t-stat
-10	-0.0068	-1.32	-0.0068	0.80	0.0009	0.77	0.0009	1.97
-9	-0.0078	-2.18	-0.0146	0.30	0.0002	-0.31	0.0011	1.62
-8	0.0035	1.36	-0.0111	0.62	0.0024	0.44	0.0035	1.78
-7	-0.0060	-1.97	-0.0172	0.31	-0.0116	-1.69	-0.0081	1.51
-6	0.0023	0.89	-0.0149	0.38	0.0030	0.32	-0.0050	0.89
-5	0.0041	1.43	-0.0108	0.80	-0.0017	-0.43	-0.0067	0.90
-4	0.0053	1.21	-0.0056	1.12	-0.0001	1.09	-0.0068	0.90
-3	-0.0029	-0.31	-0.0084	1.01	0.0007	-0.27	-0.0061	0.84
-2	-0.0020	-1.12	-0.0104	0.61	-0.0059	-0.27	-0.0120	1.53
-1	-0.0020	-1.35	-0.0124	0.18	0.0033	1.26	-0.0087	1.67
0	0.0062	1.15	-0.0062	0.40	-0.0087	-0.76	-0.0174	1.65
1	-0.0022	-0.92	-0.0084	0.25	-0.0160	-1.96	-0.0334	1.04
2	-0.0092	-1.82	-0.0176	-0.12	0.0045	-0.32	-0.0289	1.07
3	-0.0063	-0.83	-0.0239	-0.34	0.0034	-0.26	-0.0254	1.07
4	0.0017	0.74	-0.0221	-0.19	0.0015	0.54	-0.0240	0.95
5	-0.0023	-0.11	-0.0245	-0.18	0.0075	1.26	-0.0165	1.00
6	-0.0012	-0.49	-0.0257	-0.30	-0.0015	-0.43	-0.0180	1.03
7	-0.0002	-0.36	-0.0260	-0.38	0.0015	0.75	-0.0165	1.24
8	-0.0029	-0.60	-0.0289	-0.66	0.0006	0.55	-0.0159	1.17
9	-0.0036	-1.47	-0.0325	-0.83	-0.0052	-1.15	-0.0211	1.05
10	-0.0056	-1.54	-0.0381	-1.02	-0.0016	-0.52	-0.0227	1.00

*Bold: significant at alpha 10%, df=12, one-sided test, **Bold: significant at alpha 5%, df=9, one-sided test

Table V shows the impact of Moody's sovereign rating announcements on market. The finding presented in the table reveals that neither rating upgrade nor the downgrade announcement, announcement date market returns are not statistically different from other days. Although, we found a significant positive abnormal return in the fourth day following the upgrade announcement day, the direct link between such return and rating announcement is under question. On the other hand, it should also be noted that the AAR became negative for four days after downgrade announcement, but not significant.

Table V: Market Reaction to Moodys FC sovereign rating changes

Event Day	Rating Upgrades				Rating Downgrades			
	AAR	t-stat*	CAR	t-stat	AAR	t-stat	CAR	t-stat
-10	-0.0032	-0.10	-0.0032	0.10	0.0097	0.71	0.0097	1.51
-9	-0.0014	-0.59	-0.0046	0.01	0.0013	0.26	0.0110	1.42
-8	0.0049	0.96	0.0003	0.42	0.0064	0.79	0.0175	1.34
-7	-0.0028	-0.66	-0.0024	0.37	-0.0025	-0.55	0.0150	1.28
-6	0.0073	1.40	0.0049	0.49	0.0013	0.11	0.0162	1.19
-5	0.0109	1.25	0.0158	1.04	0.0035	0.47	0.0197	1.13
-4	0.0053	1.12	0.0210	1.14	0.0158	2.08	0.0355	1.36
-3	0.0004	0.24	0.0214	1.04	0.0061	0.73	0.0416	1.30
-2	0.0027	0.63	0.0241	1.11	0.0032	0.52	0.0448	1.43
-1	0.0009	0.13	0.0251	1.13	0.0125	1.79	0.0573	1.60
0	0.0019	0.50	0.0269	1.18	-0.0274	-1.05	0.0299	1.28
1	0.0016	0.42	0.0286	1.24	-0.0125	-0.95	0.0175	1.01
2	-0.0061	-1.28	0.0225	1.10	-0.0105	-1.20	0.0069	0.96
3	0.0035	0.42	0.0260	1.18	-0.0113	-0.77	-0.0043	0.85
4	0.0086	2.28	0.0346	1.42	0.0050	0.68	0.0007	0.84
5	-0.0035	-0.42	0.0311	1.28	0.0106	0.83	0.0113	0.93
6	-0.0019	-0.84	0.0292	1.21	0.0018	0.17	0.0130	0.95
7	0.0024	0.42	0.0317	1.28	0.0055	0.88	0.0186	1.01
8	-0.0115	-2.09	0.0201	0.82	0.0042	1.30	0.0228	1.07
9	-0.0047	-0.62	0.0155	0.65	-0.0012	-0.09	0.0215	1.09
10	-0.0079	-1.96	0.0076	0.41	0.0004	0.23	0.0219	1.16

*Bold: significant at alpha 10%, df=4, one-sided test

Effects of Fitch sovereign rating announcements on market are presented in Table VI. There is a positive return (negative) on the announcement day for upgrade announcements (downgrade announcement). However, there is no statistically significant returns on the announcement date return. It is seen that AARs show a significant increase in the sixth day prior to a rating upgrade and a decrease in the third day before a ratings downgrade.

Table VI: Market Reaction to Fitch FC sovereign rating changes

Event Day	Rating Upgrades				Rating Downgrades			
	AAR	t-stat*	CAR	t-stat	AAR	t-stat**	CAR	t-stat
-10	-0.0097	-1.45	-0.0097	0.55	0.0068	0.71	0.0068	1.11
-9	-0.0073	-0.55	-0.0170	0.37	0.0060	-0.21	0.0128	0.93
-8	-0.0016	-0.80	-0.0186	0.25	0.0000	-0.14	0.0129	0.90
-7	-0.0079	-1.07	-0.0266	-0.06	-0.0237	-1.36	-0.0108	0.42
-6	0.0017	2.07	-0.0248	0.09	-0.0039	-0.44	-0.0147	0.24
-5	0.0021	1.52	-0.0227	0.50	0.0015	-0.45	-0.0132	0.23
-4	0.0056	0.47	-0.0171	0.53	-0.0004	3.58	-0.0137	0.33
-3	-0.0026	0.45	-0.0197	0.57	-0.0079	-5.62	-0.0216	0.14
-2	-0.0055	-1.48	-0.0251	-0.18	-0.0067	1.72	-0.0283	0.24
-1	-0.0051	-3.08	-0.0302	-0.73	-0.0028	1.11	-0.0310	0.46
0	0.0132	0.60	-0.0170	-0.55	-0.0007	1.34	-0.0317	0.76
1	-0.0076	-3.63	-0.0245	-1.00	-0.0125	-0.15	-0.0442	0.72
2	-0.0149	-0.89	-0.0394	-1.27	0.0093	-0.62	-0.0349	0.73
3	-0.0176	-0.74	-0.0571	-1.16	0.0023	-1.32	-0.0326	0.67
4	0.0010	0.35	-0.0560	-1.30	0.0035	0.49	-0.0291	0.69
5	-0.0048	0.15	-0.0608	-1.28	0.0162	1.99	-0.0130	0.77
6	0.0029	0.29	-0.0580	-1.26	-0.0107	-0.82	-0.0236	0.72
7	-0.0009	-0.46	-0.0589	-1.33	0.0021	0.15	-0.0215	0.86

8	-0.0001	0.58	-0.0590	-1.24	0.0012	-1.42	-0.0203	0.82
9	0.0010	-0.65	-0.0580	-1.41	-0.0028	0.34	-0.0232	0.85
10	-0.0057	-0.48	-0.0638	-1.46	0.0080	0.05	-0.0152	0.75

*Bold: significant at alpha 10%, df=3, one-sided test, **Bold: significant at alpha 5%, df=2, one-sided test

Table VII shows the market reaction to S&P foreign currency sovereign rating changes. Again, as the prior findings for two other rating agencies, S&P rating announcements do not have statistical significant effect on market returns at the announcement date. From this Table, it is observed that AARs show significant increase in the eighth day prior to and eighth day after a rating upgrade, and a decrease in the fifth day before a ratings downgrade and in the first and ninth day after the downgrade. Such finding can be interpreted as the higher sensitivity of the market for S&P rating announcements compared to other two rating agencies.

Table VII: Market Reaction to S&P FC sovereign rating changes

Event Day	Rating Upgrades				Rating Downgrades			
	AAR	t-stat*	CAR	t-stat	AAR	t-stat**	CAR	t-stat***
-10	-0.0086	-1.26	-0.0086	0.65	-0.0046	-0.41	-0.0046	0.50
-9	-0.0163	-2.50	-0.0249	0.13	-0.0025	-0.67	-0.0070	-0.17
-8	0.0069	1.72	-0.0180	0.30	0.0018	0.12	-0.0053	0.55
-7	-0.0082	-2.02	-0.0262	0.10	-0.0105	-0.83	-0.0157	0.66
-6	-0.0035	-0.72	-0.0297	-0.02	0.0063	0.92	-0.0094	-2.69
-5	-0.0026	-1.12	-0.0323	-0.07	-0.0048	-1.68	-0.0142	-1.29
-4	0.0050	0.43	-0.0273	0.07	-0.0059	-0.27	-0.0201	-2.04
-3	-0.0072	-0.83	-0.0345	-0.13	0.0020	0.32	-0.0181	-1.19
-2	-0.0045	-0.41	-0.0390	-0.26	-0.0091	-0.56	-0.0272	0.73
-1	-0.0025	-0.33	-0.0414	-0.27	0.0021	-0.09	-0.0251	0.57
0	0.0046	0.77	-0.0368	-0.18	-0.0047	-0.83	-0.0298	0.59
1	-0.0016	-0.11	-0.0385	-0.16	-0.0186	-1.77	-0.0484	-1.01
2	-0.0074	-1.04	-0.0459	-0.26	0.0083	2.59	-0.0400	-0.85
3	-0.0070	-0.86	-0.0529	-0.34	0.0094	1.02	-0.0307	0.01
4	-0.0062	-1.36	-0.0592	-0.44	-0.0006	-0.23	-0.0313	-0.96
5	0.0016	0.05	-0.0576	-0.51	0.0030	0.47	-0.0283	-1.24
6	-0.0045	-0.58	-0.0621	-0.73	0.0008	0.13	-0.0275	-0.69
7	-0.0029	-1.45	-0.0650	-0.88	-0.0003	0.16	-0.0278	0.10
8	0.0051	2.07	-0.0599	-0.68	-0.0010	0.16	-0.0288	-0.34
9	-0.0069	-1.99	-0.0669	-0.85	-0.0075	-1.86	-0.0363	-1.04
10	-0.0025	-0.40	-0.0694	-0.97	-0.0060	-1.44	-0.0422	-1.67

*Bold: significant at alpha 10%, df=3, one-sided test, **Bold: significant at alpha 10%, df=3, one-sided test,

***Bold: significant at alpha 5%, df=3, one-sided test

V. Conclusion

This paper investigates the impact of sovereign rating changes on aggregate market returns in Turkish stock exchange. We use event study methodology to explore the market reaction to rating and outlook changes between 2007 and 2016. In our analysis, we examine rating actions of only three credit rating agencies, namely Moodys, Fitch and S&P. As a result of our study, we could not find overall any significant market impact on the event day, meaning that the market presumably price in the rating or outlook changes either before or after the event day. The impact of a downgrade on the market is more severe the day after the event day which results in a negative abnormal return. In contrast, the market does not seem very enthusiastic about an upgrade; that is, the returns are not significantly different from that of other days in our event period. Moreover, market seems to reach more on the S&P rating announcements.

In this paper, our focus was only on one country, namely Turkey, and we examined the sovereign rating activity of three credit rating agencies between 2007 and 2016. For further research, Turkey credit rating activities in periods before 2007 could be analyzed and maybe more rating agencies could be included in the dataset. Moreover, the price effects some events other than rating announcements should be considered.

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