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# IMPACT OF CORPORATE CREDIT RATING ANNOUNCEMENTS ON STOCK RETURNS: EVIDENCE FROM THE BANKING SECTOR

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**Abstract**

Credit ratings announced by international credit rating agencies are taken into account by domestic and foreign investors. Earlier research has thoroughly examined the impact of sovereign credit rating announcements on stock prices. However, the specific impact of credit rating announcements for firms-especially for banks - has received limited attention in financial literature, particularly in the context of developing economies. This study aims to assess the semi-strong form efficiency of the banking firms in Türkiye in reaction to corporate credit rating announcements released by Moody's Investor Service (Moody's), Capital Intelligence Ratings (CI), JCR Eurasia, and Fitch Ratings (Fitch) from 2023 to 2024 using an event study. It is found that the Turkish banking sector showed semi-strong form market efficiency in response to these announcements in 2023 and 2024. This suggests that it may enhance the confidence of both domestic and international investors in the country's stock markets, especially the banking sector.

**JEL classification**: G10, G14, G24
**Keywords**: Corporate Credit Rating, Event Study, Market Efficiency, Turkish Banking Sector

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## Introduction

Credit ratings can be released both for countries and corporations. Sovereign credit ratings are widely recognized indicators of a country's government's creditworthiness (Klimavičiena, 2011). On the other hand, corporate credit ratings can be seen as indicators of the creditworthiness of corporations.

Credit rating agencies regularly assign credit ratings to both countries and companies at specific intervals. The most well-known institutions that conduct credit rating activities for both companies and governments are Moody's Investor Service (Moody's), Capital Intelligence Ratings (CI), Standard & Poor's (S&P), JCR Eurasia, and Fitch Ratings (Fitch). Although these agencies have faced considerable criticism, especially during times of crisis, they still play a significant role in financial markets.

The connection between banking regulations and credit ratings primarily arises from the ways banks assess and manage credit risk. Following several financial crises worldwide, there is a need for standardized banking regulations.

The Basel III, established by the Basel Committee on Banking Supervision and defined by the Bank for International Settlements, is a set of reforms aimed at strengthening banking regulation and risk management. Its key objectives are to improve banks' resilience to financial shocks, enhance risk management and governance, increase transparency, and ensure both individual bank and overall system stability. (Karacal et. al., 2013)

There is a lack of agreement in the existing literature on whether credit rating changes impact stock prices. Some research finds no meaningful effect, whereas other studies report that credit rating changes have an impact. There is extensive research concerning developed countries; however, relatively few studies address it in developing countries like Türkiye.

The motivation for this study is twofold. First, the nature and implications of credit ratings continue to be debated in academic and policy circles, while the extant literature on corporate credit ratings remains relatively scarce. Accordingly, an empirical examination of corporate credit ratings may offer meaningful contributions to the existing body of research. Second, employing a distinct methodological approach-namely, an event study-within the context of a developing economy may yield novel insights and enhance our understanding of rating effects.

The structure of the paper is as follows, section 2 offers a concise overview of the theoretical framework. Section 3 outlines the data and methodology and explores the stock market's response to credit rating announcements. Section 4 presents an analysis of the empirical results. Lastly, Section 5 presents the conclusion.

## Literature review

Most studies analyzing the price effect of announcements for credit ratings concentrate on stock and bond markets and primarily utilize sovereign credit ratings. Existing literature can be categorized under two main headings: studies focusing on corporate credit ratings and those focusing on sovereign credit ratings.

### Literature on credit ratings for banks/ firms

Murcia et al. (2013) investigates the impact of credit rating actions (including initial ratings, downgrades, and upgrades) on stock prices of publicly listed companies in the Brazilian market. Employing an event study methodology, the analysis is based on 242 observations from 1997 to 2011. Statistically significant abnormal returns are observed for all types of rating announcements on day -1 and day 0.

In a study, Miyamoto (2016) investigated how credit rating actions by the Japanese agency Rating and Investment Information, Inc. (R&I) influence the Japanese stock market. Employing an event study approach, the research analyzes 383 credit rating changes for 221 companies listed on Tokyo Stock Exchange during the period from 2001 to 2007. The results indicate that rating upgrades tend to lead to negative stock market reactions across various industries, while downgrades are surprisingly followed by positive market responses.

In their study, Xie et al. (2019) explored the influence of credit rating announcements for stock performance of 32 Pakistani firms. They examine a total of 101 such announcements issued between 2014 and 2016. Using their analysis, the authors find that credit rating disclosures have a significant effect on stock market behavior, as both investors and other market actors tend to realize abnormal returns within the two days following an announcement. The study further indicates that upgrades in credit ratings generally lead to positive abnormal stock returns, while downgrades are linked to negative abnormal returns for investors.

Süleymanoğlu and Genç (2020) examined the impact of credit rating announcements made by Fitch during the period 2010-2019 on stock prices of four major privately-owned banks in Türkiye by using an event study. The results indicated that credit rating announcements had only a limited impact on stock prices. Of the 22 rating events analyzed, statistically significant effects at the 10% level were observed in just 4 instances, suggesting a generally weak relationship between the announcements and subsequent stock price movements.

### Literature for sovereign credit ratings

Klimavičiena (2011) explored how sovereign credit rating announcements affect stock prices in the Estoni-

an, Latvian, and Lithuanian markets. Using the data from 2000 to 2009 and employing the event study, it showed that negative events generally have a greater impact on stock prices than positive ones. Among the three countries, upgrades had the most significant effect on Latvia's stock market, while downgrades had the most substantial impact in Estonia. In Lithuania, negative outlook revisions produced the most significant price reaction.

Freitas and Minardi (2013) studied how stock prices in the Latin American market (Argentina, Brazil, Chile, and Mexico) react to announcements of credit rating upgrades or downgrades. Their findings confirmed that downgrades tend to have a more negative effect, whereas it was less pronounced for rating upgrades and credit watches.

Abdeldayem and Nekhili (2016) investigated the effect of credit rating changes on prices of stocks in Bahrain over the period from 02.01.2014 to 22.03.2016. The analysis focused on three sectors from Bahrain All Share Index: banking, services, and industrial. The findings suggest that downgrades and negative outlook announcements negatively affect long-term equity returns, while short-term performance impact is minimal.

Hu (2017) examinds how sovereign credit rating announcements influence stock prices of domestic banks, based on a sample of 150 publicly traded banks across 15 Eurozone member countries. Findings indicate that favorable sovereign rating announcements do not trigger notable movements in bank stock prices. In contrast, unfavorable announcements tended to result in declines in the share prices of domestic banks.

Çağlak et al. (2018) examined the impact of the credit ratings assigned to Türkiye by three major credit rating agencies on 14 different indices on Borsa İstanbul between 1992 and 2018. The findings indicate that the announcements affected half of the 14 indices. Additionally, it was observed that the magnitude of this impact did not vary across the different rating agencies.

Yıldırım et al. (2018) examined the effects of credit rating announcements made by Fitch, Moody's and S&P between 2012 and 2016 for Türkiye on six Turkish sector indices on Borsa İstanbul which were analyzed using the event study method. The findings reveal that the announced ratings were only partially effective on the six indices, indicating that the ratings did not have a full (100%) impact on the indices.

Pirgaip (2017) analyzed the effects of positive and negative changes in Türkiye's sovereign credit ratings assigned by the three major agencies (Moody's, S&P, and Fitch) on the Borsa İstanbul (BIST) Equity Market between 1993 and 2016. They concluded that both positive and negative rating changes significantly affect BIST 100 index returns, both before and after the changes occur. When comparing all positive changes with all negative ones, it was found that the market impact of negative rating changes was statistically more pronounced.

Poyraz and Kaya (2020) investigated the effects of credit ratings assigned to Türkiye between 2014 and 2018 on the BIST 100 index using the event study method. Based on the results, significant impacts were identified, and the most substantial effect was caused by S&P announcements, followed by those of Moody's and Fitch.

Akçayır (2022) examined the effects of credit ratings and Credit Default Swap (CDS) premiums on bond yields, stock indices, and exchange rates for Türkiye during the period from January 2010 to February 2021. The analyses conclude that the sovereign credit ratings assigned to Türkiye by international credit rating agencies affected exchange rates in the short term and bond yields and the BIST 100 index in the long term.

## Methodology

The main objective of this study is to analyze semi-strong form market efficiency of Turkish banking sector in response to the corporate credit ratings announcements in 2023 and 2024. The analysis utilizes an event study methodology, focusing on the corporate credit ratings announcements related to the Turkish banks. The idea that financial asset prices incorporate all publicly available information, which is equally accessible to all market participants, was formalized by Eugene Fama as the Efficient Market Hypothesis (EMH). Under this framework, a market is deemed efficient when asset prices consistently and fully reflect all obtainable information (Fama, 1970). Publicly available information may encompass a wide range of disclosures, including earnings announcements, dividend adjustments, news on mergers and acquisitions, stock splits, and macroeconomic developments.

The semi-strong form of market efficiency assumes that the information set includes all publicly available information, encompassing all disclosed data and news accessible to market participants. The corporate credit ratings announcements are examples of publicly available information which is why the event study methodology is used. Since the main objective of this study is to analyze the semi-strong form market efficiency of the Turkish banking sector in response to the corporate credit ratings announcements in 2023 and 2024, the use of the event study methodology has been deemed appropriate.

Within the framework of EMH, these corporate credit ratings announcements are treated as new information entering the market. The specific dates of these announcements are regarded as event dates, and both

the event window and estimation window are defined based on these dates.

In event study analyses, researchers often prefer the market model approach (Erkılıç & Karacaer, 2022; Torun & Karan, 2023). Therefore, this study applies the market model for forecasting purposes, using the BIST 100 index (representing the market) and individual bank shares to determine the semi-strong form market efficiency of the Turkish banking sector in response to the corporate credit ratings announcements in 2023 and 2024. The figures in the appendinx represent the daily stock prices of nine banks (Akbank, AlbarakaTürk Bank, Garanti Bank, Halkbank, İş Bank, Şekerbank, TSKB (Industrial Development Bank of Türkiye), Vakıfbank and Yapı Kredi Bank) analyzed for the period of 2023-2024.

Consistent with the study's objective, effects of corporate credit ratings announcements for Turkish banks were analyzed. Over a two-year period, a total of 66 corporate credit ratings announcements (21 of them in 2023 and 45 of them in 2024) were made for Turkish banks by international credit rating agencies, and these announcements are used in this study. The corporate credit ratings announcements were retrieved from the website of Public Disclosure Platform (https://www.kap.org.tr/en) and listed in Table 1.

**Table 1: List of Corporate Credit Ratings Announcements for Turkish Banks**

| No | Announcement Date and Time | Bank Name | Agency Name | Announcement Type |
|---|---|---|---|---|
| 1 | 27.02.2023 08:09 | Garanti Bank | Fitch | Stable |
| 2 | 27.02.2023 12:22 | İş Bank | Fitch | Stable |
| 3 | 27.02.2023 12:49 | Yapı Kredi Bank | Fitch | Stable |
| 4 | 27.02.2023 16:08 | Akbank | Fitch | Stable |
| 5 | 27.03.2023 18:29 | Vakıfbank | Fitch | Stable |
| 6 | 25.04.2023 20:50 | TSKB | Fitch | Stable |
| 7 | 09.05.2023 18:38 | Şekerbank | Fitch | Upgrade |
| 8 | 23.05.2023 19:27 | AlbarakaTürk Bank | Fitch | Stable |
| 9 | 23.06.2023 18:16 | Vakıfbank | JCR Eurasia | Stable |
| 10 | 25.09.2023 09:13 | Yapı Kredi Bank | Fitch | Stable |
| 11 | 25.09.2023 09:31 | Garanti Bank | Fitch | Stable |
| 12 | 25.09.2023 09:47 | Vakıfbank | Fitch | Upgrade |
| 13 | 25.09.2023 11:39 | Akbank | Fitch | Stable |
| 14 | 25.09.2023 12:06 | İş Bank | Fitch | Upgrade |
| 15 | 25.09.2023 13:50 | TSKB | Fitch | Stable |
| 16 | 25.09.2023 18:10 | Halkbank | Fitch | Stable |
| 17 | 28.09.2023 18:16 | Garanti Bank | JCR Eurasia | Stable |
| 18 | 31.10.2023 18:15 | Şekerbank | JCR Eurasia | Upgrade |
| 19 | 29.11.2023 18:17 | Halkbank | JCR Eurasia | Stable |
| 20 | 07.12.2023 20:00 | Şekerbank | Fitch | Upgrade |
| 21 | 21.12.2023 19:30 | Şekerbank | CI | Stable |
| 22 | 17.01.2024 19:33 | Garanti Bank | Moody's | Upgrade |
| 23 | 17.01.2024 21:07 | Şekerbank | Moody's | Stable |
| 24 | 18.01.2024 08:52 | Vakıfbank | Moody's | Stable |
| 25 | 18.01.2024 11:21 | İş Bank | Moody's | Stable |
| 26 | 18.01.2024 13:43 | Akbank | Moody's | Upgrade |
| 27 | 18.01.2024 17:15 | Yapı Kredi Bank | Moody's | Upgrade |
| 28 | 18.01.2024 21:16 | TSKB | Moody's | Stable |
| 29 | 27.02.2024 09:16 | AlbarakaTürk Bank | Fitch | Stable |
| 30 | 18.03.2024 09:05 | Garanti Bank | Fitch | Upgrade |
| 31 | 18.03.2024 09:10 | Vakıfbank | Fitch | Upgrade |
| 32 | 18.03.2024 09:17 | Yapı Kredi Bank | Fitch | Upgrade |
| 33 | 18.03.2024 09:37 | AlbarakaTürk Bank | Fitch | Stable |
| 34 | 18.03.2024 11:09 | Şekerbank | Fitch | Stable |
| 35 | 18.03.2024 11:25 | İş Bank | Fitch | Stable |
| 36 | 18.03.2024 12:06 | Akbank | Fitch | Upgrade |
| 37 | 18.03.2024 12:48 | Halkbank | Fitch | Upgrade |

| No | Announcement Date and Time | Bank Name | Agency Name | Announcement Type |
|---|---|---|---|---|
| 38 | 19.03.2024 11:20 | TSKB | Fitch | Upgrade |
| 39 | 17.04.2024 15:56 | TSKB | Fitch | Upgrade |
| 40 | 14.06.2024 08:41 | Garanti Bank | Fitch | Upgrade |
| 41 | 14.06.2024 15:49 | Yapı Kredi Bank | Fitch | Upgrade |
| 42 | 14.06.2024 16:03 | Akbank | Fitch | Upgrade |
| 43 | 14.06.2024 13:01 | İş Bank | Fitch | Upgrade |
| 44 | 24.06.2024 18:15 | Vakıfbank | JCR Eurasia | Stable |
| 45 | 26.06.2024 18:28 | Vakıfbank | Fitch | Stable |
| 46 | 27.06.2024 18:03 | Halkbank | Fitch | Upgrade |
| 47 | 23.07.2024 20:27 | Şekerbank | Moody's | Upgrade |
| 48 | 24.07.2024 09:26 | Vakıfbank | Moody's | Upgrade |
| 49 | 24.07.2024 10:46 | İş Bank | Moody's | Upgrade |
| 50 | 24.07.2024 11:18 | Garanti Bank | Moody's | Upgrade |
| 51 | 24.07.2024 12:51 | Yapı Kredi Bank | Moody's | Upgrade |
| 52 | 24.07.2024 16:02 | Akbank | Moody's | Upgrade |
| 53 | 24.07.2024 16:16 | TSKB | Moody's | Upgrade |
| 54 | 17.09.2024 17:38 | TSKB | Fitch | Upgrade |
| 55 | 17.09.2024 17:39 | AlbarakaTürk Bank | Fitch | Upgrade |
| 56 | 17.09.2024 18:18 | Vakıfbank | Fitch | Upgrade |
| 57 | 17.09.2024 18:19 | İş Bank | Fitch | Upgrade |
| 58 | 17.09.2024 18:45 | Garanti Bank | Fitch | Upgrade |
| 59 | 17.09.2024 18:58 | Yapı Kredi Bank | Fitch | Upgrade |
| 60 | 17.09.2024 19:00 | Şekerbank | Fitch | Upgrade |
| 61 | 18.09.2024 13:58 | Akbank | Fitch | Upgrade |
| 62 | 18.09.2024 18:03 | Halkbank | Fitch | Upgrade |
| 63 | 30.09.2024 18:16 | Garanti Bank | JCR Eurasia | Stable |
| 64 | 21.11.2024 18:15 | Şekerbank | Fitch | Upgrade |
| 65 | 29.11.2024 18:15 | Halkbank | JCR Eurasia | Stable |
| 66 | 05.12.2024 18:22 | Şekerbank | CI | Upgrade |

*Source: Author's own work.*

The event window is selected as covering between ten working days before and after the event date (t-10, t+10) for a better isolating impact of the relevant announcements and to minimize the potential influence of other events. The event window (t-10, t+10) is used by other analyses like Murcia et al. (2013) and Xie et al. (2019). The estimation window starts seven months before the event date and ends just before the event window as (t-110, t-11) due to the fact that the corporate credit ratings announcements are repeated and made publicly available at a seven-month frequency in general. The announcements made after the closing of the Turkish stock market are taken into consideration as being made on the following working day.

## Results

In the study, calculations are made for each individual Turkish bank which is traded on Borsa İstanbul and for which corporate credit ratings announcements were made. In accordance with the EMH, daily returns of the main stock index (BIST 100) and relevant bank share are calculated as a first step as follows:

$$(R_m)_t = \ln\left[\frac{(T_m)_t}{(T_m)_{t-1}}\right] \quad (1)$$

where:
$(R_m)_t$ = return of BIST 100 on day (t),
$(T_m)_t$ = closing price of BIST 100 on day (t),
$(T_m)_{t-1}$ = closing price of BIST 100 on day (t-1),
ln = natural logarithm.

$$(R_i)_t = \ln\left[\frac{(T_i)_t}{(T_i)_{t-1}}\right] \quad (2)$$

where:
$(R_i)_t$ = return of each individual Turkish bank stock on day (t),
$(T_i)_t$ = closing value of each individual Turkish bank stock on day (t),
$(T_i)_{t-1}$ = closing value of each individual Turkish bank stock on day (t-1),
ln = natural logarithm.

Following this, regression analysis is conducted during the estimation window to determine expected returns of each individual Turkish bank stock based on

the return of BIST 100 with the following market model:

$$(E(R_i))_t = (\alpha_i)_t + (\beta_i)_t * (R_m)_t + (e_i)_t \quad (3)$$

where:
$(E(R_i))_t$ = expected return of each Turkish bank stock on day (t),
$(\alpha_i)_t$ = intercept of regression analysis on day (t),
$(\beta_i)_t$ = coefficient showing relationship between returns of each individual Turkish bank stock and BIST 100 on day (t),
$(R_m)_t$ = return of BIST 100 on day (t) and
$(e_i)_t$ = error term.

Then, abnormal returns (AR) are calculated for the whole event-window period as follows:

$$((AR)_i)_t = (R_i)_t - (E(R_i))_t \quad (4)$$

where:
$((AR)_i)_t$ = abnormal return of each Turkish bank stock on day (t),
$(R_i)_t$ = actual return of each Turkish bank stock on day (t),
$(E(R_i))_t$ = expected return of each Turkish bank stock on day (t).

After finding daily ARs, cumulative abnormal return (CAR) is calculated by adding all ARs for the whole event window. The results are presented in Table 2.

**Table 2: Results for Each Corporate Credit Ratings Announcement**

| No | Bank name | Intercept (α) | Beta (β) | CAR |
|---|---|---|---|---|
| 1 | Garanti Bank | -0.004033638 | 1.232040714 | 0.137437409 |
| 2 | İş Bank | -0.003424014 | 1.352767497 | 0.279751923 |
| 3 | Yapı Kredi Bank | -0.003349495 | 1.384213456 | 0.194117966 |
| 4 | Akbank | -0.001948805 | 1.270232126 | 0.085720058 |
| 5 | Vakıfbank | -0.002085544 | 1.188841622 | 0.031553871 |
| 6 | TSKB | 0.001355853 | 1.229942661 | 0.112777134 |
| 7 | Şekerbank | -0.001082271 | 1.070446242 | 0.057015236 |
| 8 | AlbarakaTürk Bank | -0.002575321 | 0.901132928 | -0.030872706 |
| 9 | Vakıfbank | -0.001078579 | 1.051232773 | 0.008709948 |
| 10 | Yapı Kredi Bank | 0.000773684 | 0.890228986 | 0.068391928 |
| 11 | Garanti Bank | 0.001893345 | 0.894318156 | -0.074442361 |
| 12 | Vakıfbank | 0.000250633 | 0.990036930 | 0.081485705 |
| 13 | Akbank | 0.001017192 | 0.970236681 | -0.006840749 |
| 14 | İş Bank | 0.002577900 | 0.916907144 | -0.062397414 |
| 15 | TSKB | 0.000487683 | 1.100532392 | 0.048353934 |
| 16 | Halkbank | -0.001469622 | 0.871038696 | 0.084588886 |
| 17 | Garanti Bank | 0.001587673 | 0.911606421 | -0.073000046 |
| 18 | Şekerbank | 0.006960184 | 0.661259433 | -0.007172754 |
| 19 | Halkbank | -0.002417318 | 0.880241103 | 0.007844239 |
| 20 | Şekerbank | 0.007259750 | 0.819957943 | -0.263598056 |
| 21 | Şekerbank | 0.007502802 | 0.795754050 | -0.562823166 |
| 22 | Garanti Bank | 0.000488276 | 0.863671710 | -0.006983328 |
| 23 | Şekerbank | 0.000173479 | 0.868849738 | 0.067367547 |
| 24 | Vakıfbank | 0.001878097 | -0.458223193 | 0.242263435 |
| 25 | İş Bank | 0.002834004 | -0.453834654 | 0.135336871 |
| 26 | Akbank | 0.001874989 | 0.235906772 | -0.133229419 |
| 27 | Yapı Kredi Bank | 0.002625913 | -0.140665392 | 0.047301084 |
| 28 | TSKB | -0.000793872 | -0.174569805 | -0.059850320 |
| 29 | AlbarakaTürk Bank | -0.003728500 | 0.446914194 | 0.176995938 |
| 30 | Garanti Bank | 0.001047326 | 1.116689010 | 0.136175109 |
| 31 | Vakıfbank | -0.003310231 | 1.008106474 | 0.066347442 |
| 32 | Yapı Kredi Bank | 0.000672107 | 0.860328371 | 0.213744566 |
| 33 | AlbarakaTürk Bank | -0.001706272 | 1.058354523 | 0.009781018 |
| 34 | Şekerbank | -0.005163332 | 1.082691680 | -0.037541803 |
| 35 | İş Bank | -0.000244906 | 1.121747392 | 0.095484311 |
| 36 | Akbank | 0.001089420 | 0.965119589 | 0.183991912 |

| No | Bank name | Intercept (α) | Beta (β) | CAR |
|---|---|---|---|---|
| 37 | Halkbank | -0.001895396 | 0.823471209 | -0.054950937 |
| 38 | TSKB | -0.000966835 | 1.224342908 | 0.126702215 |
| 39 | TSKB | 0.000647777 | 1.043390878 | 0.021250521 |
| 40 | Garanti Bank | 0.002377609 | 1.169881872 | 0.074467681 |
| 41 | Yapı Kredi Bank | 0.001286028 | 1.387362110 | -0.065690140 |
| 42 | Akbank | 0.001540818 | 1.467076654 | -0.051867812 |
| 43 | İş Bank | 0.001493899 | 1.291090289 | -0.022438933 |
| 44 | Vakıfbank | 0.001450749 | 1.047132124 | -0.104879884 |
| 45 | Vakıfbank | 0.001674806 | 1.056344213 | -0.092107537 |
| 46 | Halkbank | 0.000601552 | 1.224895398 | -0.077302104 |
| 47 | Şekerbank | -0.001710290 | 1.088883615 | 0.062890846 |
| 48 | Vakıfbank | 0.002576795 | 1.136887709 | -0.193175119 |
| 49 | İş Bank | 0.002216055 | 1.291967563 | -0.121744152 |
| 50 | Garanti Bank | 0.004746948 | 1.115759913 | -0.075001534 |
| 51 | Yapı Kredi Bank | 0.001487163 | 1.331848691 | -0.054423647 |
| 52 | Akbank | 0.002738919 | 1.380057094 | -0.141599406 |
| 53 | TSKB | 0.001208986 | 1.108425694 | -0.010325179 |
| 54 | TSKB | 0.001760812 | 1.257405821 | 0.016051065 |
| 55 | AlbarakaTürk Bank | 0.002692424 | 1.180258741 | 0.007390911 |
| 56 | Vakıfbank | 0.002040867 | 1.338215746 | 0.155912058 |
| 57 | İş Bank | 0.000449323 | 1.301168931 | 0.051873939 |
| 58 | Garanti Bank | 0.003674604 | 1.127883225 | 0.059084620 |
| 59 | Yapı Kredi Bank | 0.000198453 | 1.331529399 | -0.043604831 |
| 60 | Şekerbank | 0.000884792 | 1.003046359 | -0.011239122 |
| 61 | Akbank | 0.000645920 | 1.432303908 | -0.004179893 |
| 62 | Halkbank | 0.000683427 | 1.501326186 | 0.092722950 |
| 63 | Garanti Bank | 0.004042040 | 1.201687858 | 0.060163978 |
| 64 | Şekerbank | 0.002604520 | 1.013966337 | -0.001636121 |
| 65 | Halkbank | -0.000346543 | 1.094479030 | -0.031636638 |
| 66 | Şekerbank | 0.000650967 | 0.966269671 | 0.092679589 |

*Source: Author's own work.*

For analyzing the semi-strong form market efficiency of the Turkish banking sector in response to the corporate credit ratings announcements in 2023 and 2024, the following statistics were calculated and summarized in Table 3.

**Table 3: CAR Statistics for Turkish Banking Sector**

| Statistics | Value |
|---|---|
| Total | 0.917172735 |
| Average | 0.013896557 |
| Standard Deviation | 0.125056950 |

*Source: Author's own work.*

Based on these statistics, calculated t and p values are presented in Table 3. This p-value can be interpreted to be statistically insignificant, indicating that the Turkish banking sector shows semi-strong form market efficiency in response to the corporate credit ratings announcements in 2023 and 2024.

**Table 4: t and p Values for Turkish Banking Sector**

| Statistics | Turkish Banking Sector |
|---|---|
| t-value | 0.902757977 |
| p-value | 0.369968000 |

*Source: Author's own work.*

Following this, the calculations were made to determine the average abnormal returns (AAR) and related t and p values of these AARs for 21 days within the event window. The AARs computed as taking the average of all daily ARs for each announcement and are listed in Table 5.

**Table 5: AAR Values and Statistics for Every Day Within Event Window**

| Day | AAR | t value | p value |
|---|---|---|---|
| -10 | -0.0039452794 | -1.34877 | 0.182267 |
| -9 | 0.0011854811 | 0.36669 | 0.715090 |
| -8 | 0.0024927413 | 0.66676 | 0.507288 |
| -7 | -0.0009641175 | -0.33028 | 0.742445 |
| -6 | -0.0014565068 | -0.56255 | 0.576020 |
| -5 | -0.0003740347 | -0.14664 | 0.884366 |
| -4 | 0.0043547141 | 2.21438 | 0.030267** |
| -3 | 0.0018812620 | 0.67174 | 0.504119 |
| -2 | -0.0045678545 | -1.85306 | 0.068354* |
| -1 | -0.0075306913 | -3.31576 | 0.001492*** |
| 0 | 0.0054814958 | 1.86783 | 0.066231* |
| 1 | 0.0009560632 | 0.31541 | 0.753453 |
| 2 | -0.0008364078 | -0.27005 | 0.788003 |
| 3 | 0.0062558763 | 2.05272 | 0.044070** |
| 4 | -0.0036685072 | -1.00360 | 0.319524 |
| 5 | 0.0090845166 | 2.81939 | 0.006347*** |
| 6 | 0.0025955712 | 1.16702 | 0.247410 |
| 7 | 0.0046114909 | 1.17765 | 0.243185 |
| 8 | 0.0032452032 | 1.63181 | 0.107484 |
| 9 | -0.0021147576 | -0.85669 | 0.395095 |
| 10 | -0.0027897022 | -0.85949 | 0.393450 |

*, **, and *** represent significance levels of 10%, 5%, and 1%, respectively

*Source: Author's own work.*

When the p values for each day are considered, it is seen that there are statistically significant abnormal returns only on days -4, -2, -1, 0, +3, and +5 around the event date at significance level of 10%. Furthermore, only day -1 and day +5 are showing statistically significant abnormal returns at significance level of 1% and it is an expected situation due to the fact that some corporate credit ratings announcements are made publicly available just one day after the prior announcements thus providing investors the possibilities of gaining abnormal returns by making comparisons with the previous announcements.

## Conclusions

Credit rating agencies regularly assign credit ratings to both countries and companies at specific intervals. Both domestic and foreign investors consider credit ratings announced by international credit rating agencies. Sovereign ratings reflect trust in the country, while corporate ratings represent trust in the specific company. Although these agencies have faced considerable criticism, especially during times of crisis, they still play a significant role in financial markets.

The existing literature shows no consensus on whether credit rating changes influence stock prices. Additionally, this topic has been relatively underexplored in developing countries such as Türkiye.

The primary aim of this study is to analyze the semi-strong form market efficiency for Turkish banking companies in response to corporate credit ratings announcements in 2023 and 2024.

In line with the study's objective, the effects of corporate credit ratings announcements for Turkish banks were analyzed using an event study. Over a two-year period, a total of 66 corporate credit ratings announcements (21 of them in 2023 and 45 of them in 2024) were made for Turkish banks by international credit rating agencies.

Based on the analysis, it was found that the Turkish banking sector shows semi-strong form market efficiency in response to the corporate credit ratings announcements in 2023 and 2024. The results concern the analyzed period of 21 days. The findings of this study suggest that the Turkish banking sector exhibits characteristics of semi-strong form market efficiency, which may enhance the confidence of both domestic and international investors in the country's stock markets and banking firms. This increased level of trust could, in turn, lead to a rise in the number of investors as well as a growth in the volume of investments.

The findings largely align with previous research, including Süleymanoğlu and Genç (2020). In contrast, they diverge from the conclusions of Klimavičiena (2011) and Xie et al. (2019), who argue that publicly available corporate and/or sovereign credit rating announcements can lead to abnormal returns, thereby suggesting that the market does not exhibit semi-strong form efficiency.

The results carry significant implications for investors, firms, and the sector. Having the characteristics of semi-strong-form market efficiency may increase the number of investors. Moreover, it may lead to outcomes such as limiting speculative gains and increasing market transparency in the sector.

Future research in this domain may examine the impact of corporate credit rating announcements in other developing countries, thereby enhancing the generalizability of the current findings. Additionally, examining sovereign credit rating effects presents valuable directions for further inquiry. Within the scope of this study, alternative approaches-such as modifying the predetermined estimation and event window intervals-may also offer new insights.

Our study has some limitations. First, it examines only short-term investor reactions, without considering long-term effects. Another limitation of the study is that it only examines credit rating announcements from the banking sector in Türkiye. Finally, it is essential to acknowledge that, in event study analyses, other global, country-specific, or sector-related events may occur within the estimation and event windows that influence stock markets and the banking sector. Such events may introduce confounding effects, potentially biasing the analysis results.

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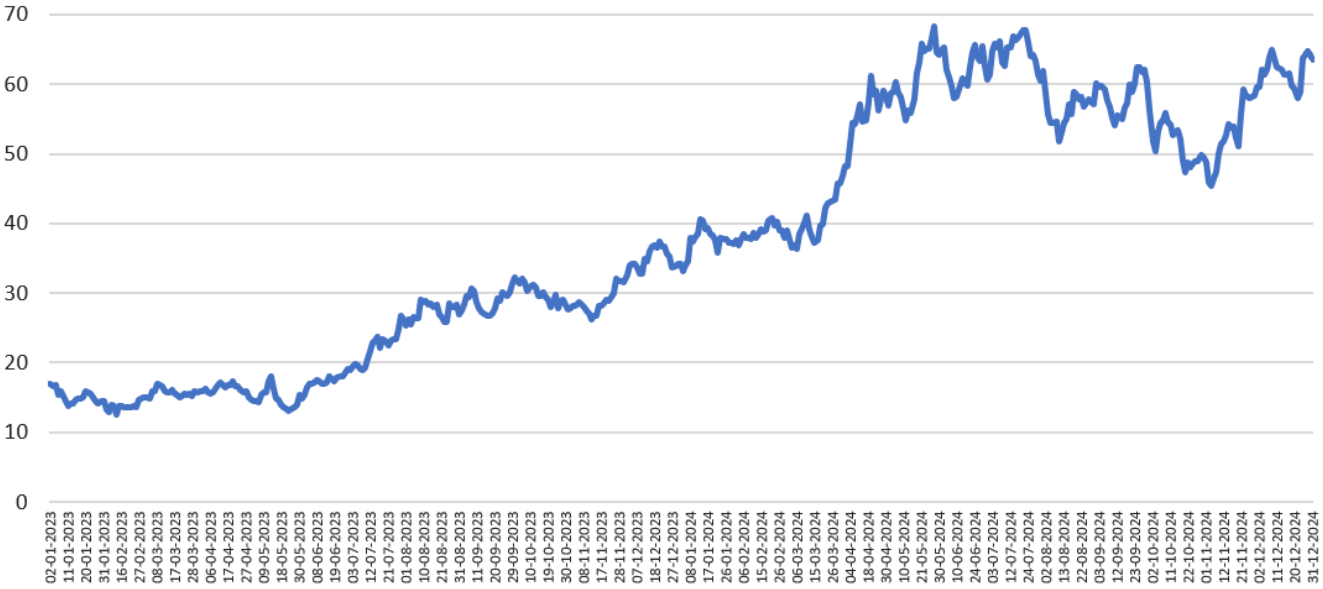
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## Appendix

**Figure 1: The daily share prices of Akbank in 2023 and 2024**




*Source: Author's own work.*

**Figure 2: The daily share prices of AlbarakaTürk Bank in 2023 and 2024**



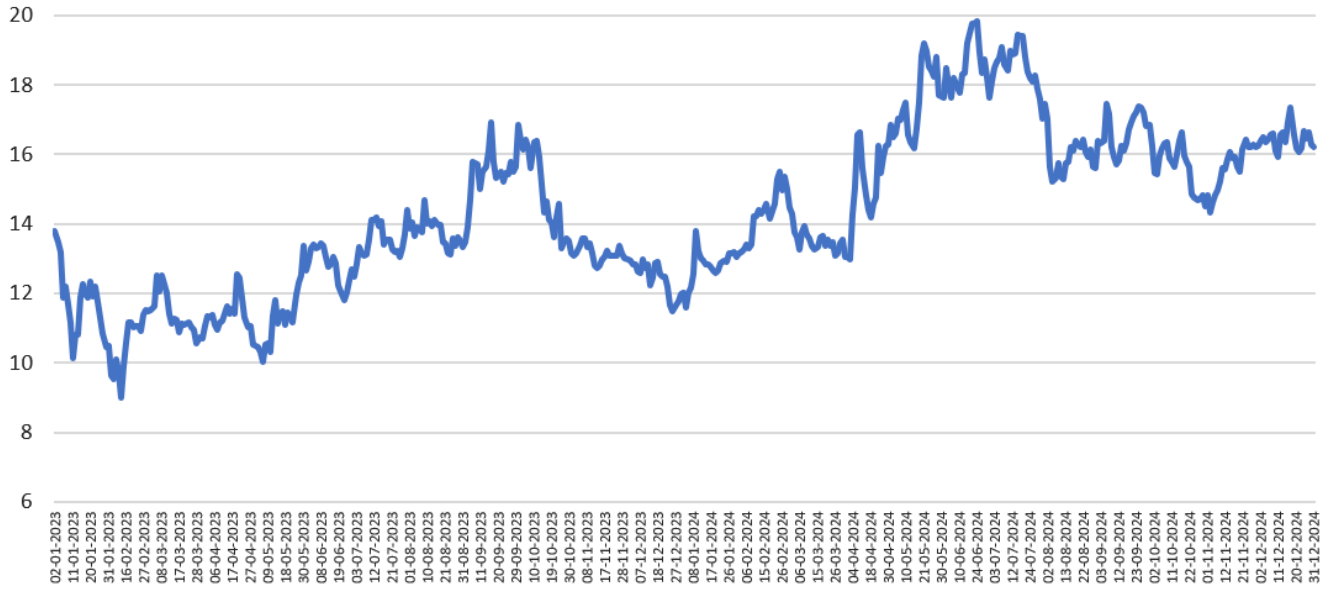

*Source: Author's own work.*

**Figure 3: The daily share prices of Garanti Bank in 2023 and 2024**



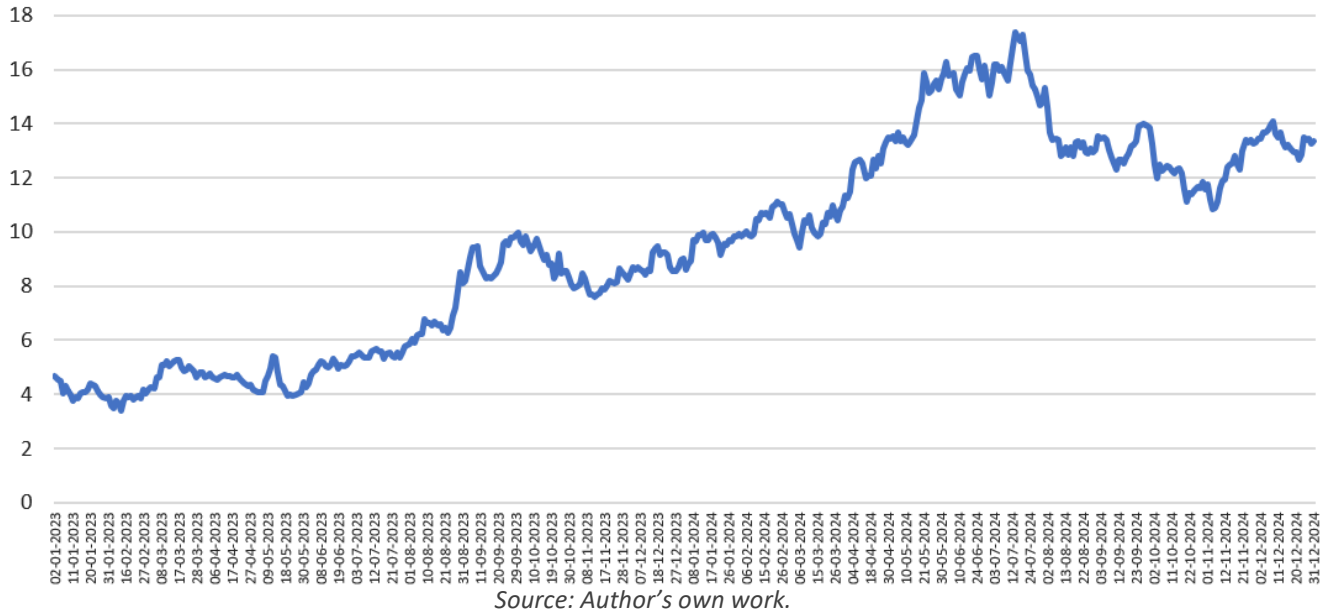

*Source: Author's own work.*

**Figure 4: The daily share prices of Halkbank in 2023 and 2024**




*Source: Author's own work.*

**Figure 5: The daily share prices of İş Bank in 2023 and 2024**



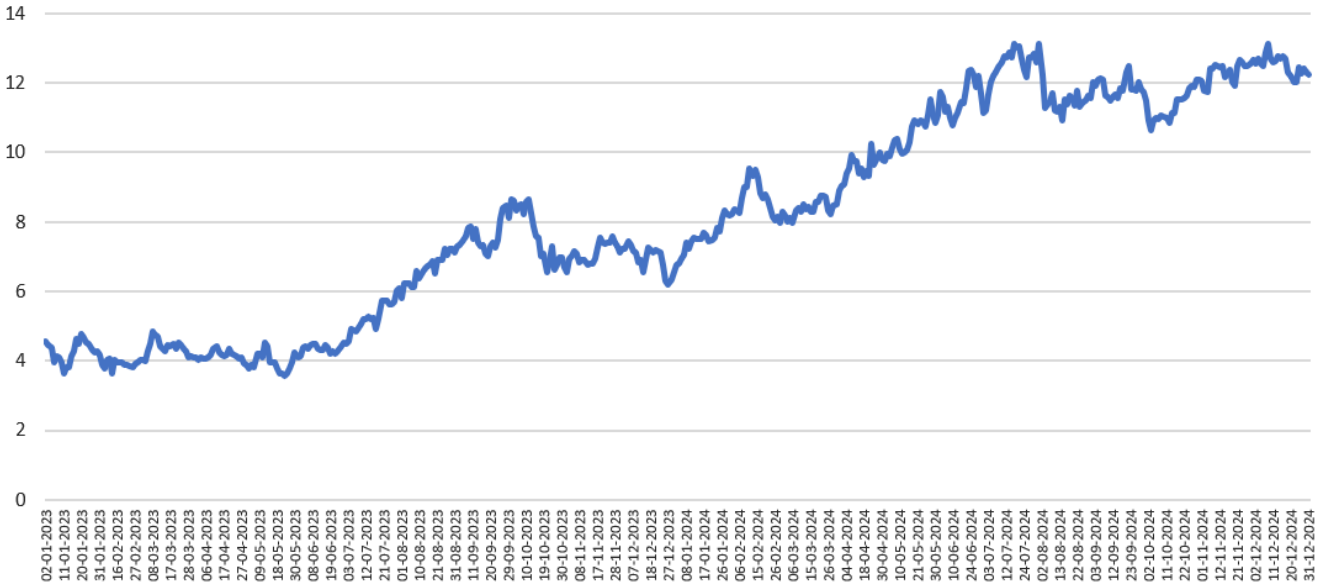

*Source: Author's own work.*

**Figure 6: The daily share prices of Şekerbank in 2023 and 2024**



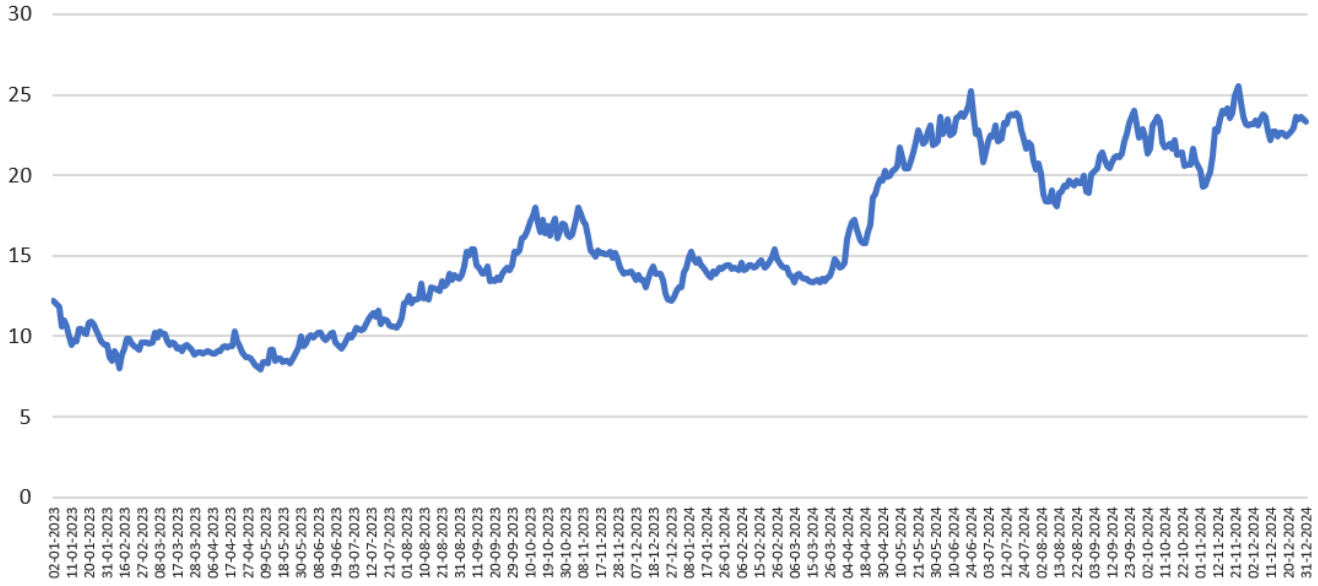

*Source: Author's own work.*

**Figure 7: The daily share prices of TSKB in 2023 and 2024**




*Source: Author's own work.*

**Figure 8: The daily share prices of Vakıfbank in 2023 and 2024**




*Source: Author's own work.*

**Figure 9: The daily share prices of Yapı Kredi Bank in 2023 and 2024**




*Source: Author's own work.*