THE IMPACT OF SOVEREIGN CREDIT RATINGS ON INTEREST RATES IN EMERGING ECONOMIES – CASE FROM GEORGIA

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Abstract:

This study examines the impact of sovereign credit ratings on corporate loan interest rates in Georgia, focusing on the relationship between credit rating announcements and economic variables. Utilizing event study methodology and multiple linear regression with dummy variables, the research analyzes 32 Fitch credit rating announcements from July 2007 to January 2024. The study uses abnormal return analysis by Constant return and Market-adjusted models based on data of corporate loan interest rates and incorporates market rates based on U.S. Treasury bond yields. Key findings reveal a strong correlation (0.82) between Fitch's credit rating scores and corporate loan interest rates, with regression models demonstrating statistically significant results when incorporating two-month anticipation and three-month adjustment periods. Research is unique for Georgian context and provides noteworthy information for financial market participants, policy makers and academics.

Keywords: *country risk, sovereign credit ratings, event study, corporate loan interest rates, abnormal return analysis*

JEL classification: *E37; E43; G14*

Introduction

During the past decades, globalization has been the dominant theme for investors and businesses, prompting a move from local markets to exploring growth potential in foreign ones (Damodaran, 2023). Since the mid-1980s, the recent wave of financial globalization has been marked by a significant increase in capital flows, particularly between industrial and developing countries (Prasad, Rogoff, Wei, & Kose, 2003). Estimating the risks associated with globalization has become more difficult, because investing in other countries may offer higher returns, but sometimes it also comes with higher risks (Damodaran, 2023).

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All business transactions inherently involve some level of risk. However, when transactions extend across international borders, they introduce additional risks unique to the cross-border context, known as country risks. These risks arise from differences in national economic structures, government policies, socio-political institutions, geographical conditions, and currency systems. Country risk analysis (CRA) seeks to evaluate these factors to determine their potential to reduce the expected returns on international investments. By identifying and assessing these risks, CRA aids businesses and investors in making informed decisions about cross-border transactions (Meldrum, 2000).

The concept of country risk encompasses a wide range of potential challenges, including political instability, economic uncertainty, changes in government policies, and external factors that could negatively affect the countries overall economic health and investors' confidence (Bouchet, Clark,, & Groslambert, 2003). To be more specific, our research focuses on exploring whether a rise in country risk leads to higher interest rate as investors and financial institutions demand greater returns to compensate for higher risk, which implies greater uncertainty.

In today globalization era, where flow of capital across borders is very frequent, investments and especially foreign direct investment (FDI) playing a crucial role in the growth of developing countries over fifty years (Abduvaliev, 2023). Therefore, it is important to determine whether, when an investor deciding to invest in a country, they should pay attention to the country risk index, or not.

To understand correctly country risk, it must be measured and be defined in numbers. The best way to measure country risk, at least in financial markets, is through sovereign default risk (Damodaran, 2023). Sovereign risk refers to the possibility that a government may fail to meet its debt obligations, and it can be measured by sovereign credit ratings, with benchmarks provided by credit rating agencies such as Standard & Poor`s (S&P), Moody`s and Fitch (Bayar, Kılıç, & Kılınç Savrul, 2013). Credit Rating Agencies (CRAs) were created to address the problem of asymmetric information in debt securities market by offering investors an independent and reliable assessment of the default risks associated with debt issuers, thereby helping them avoid excessive risks that they might not have been able to assess on their own. However, many authors have criticized the role that CRAs have played, particularly in the lead-up to financial crises (Eijffinger, et al., 2011).

Understanding the relationship between Sovereign credit ratings, which are provided by credit rating agencies and interest rate is one of the most important measuring for investors, policymakers, financial and economic institutions for every county, but mostly for developing countries like the Georgia. To clarify the research problem, the main objectives are to analyze the impact of sovereign risk on interest rates in the Georgia; to examine how changes in sovereign credit ratings affects one of the key economic and financial variables - interest rate, and to determine whether announcement of credit rating (changed or not) have any impact on interest rates.

In its overview, the World Bank classifies the Georgia as an upper middle-income country and acknowledges that Georgia has been growing fast (The World Bank, 2023).

In 2008, Georgia faced two types of crises: one resulting from the invasion of Russia in August, and the other from the global financial crisis in October, which the International Monetary Fund (IMF) referred to as a "twin crisis". Impact of the "twin crisis" on previously growing economy was heavily negative, while Georgia`s economic growth averaged 10.5% per year between 2005 and 2007, it was only 2.3% in 2008 and dropped to -3.8% in 2009 (Otarashvili, 2013). This downturn also had a negative impact on country`s sovereign rating, resulting in the most significant rating drop in country`s history since it was included in the CRAs database. To illustrate the downgrade during the crisis, the credit rating of Georgia as assigned by Fitch (Fitch, 2024) ratings is presented in Table 1.

Table 1

Fitch long term issuer default rating for Georgia

Date	Rating	Action
12-Jan-24	BB Positive	Affirmed
14-Jul-23	BB Positive	Affirmed
27-Jan-23	BB Positive	Affirmed
29-Jul-22	BB Stable	Affirmed
4-Feb-22	BB Stable	Affirmed
6-Aug-21	BB Stable	Affirmed
12-Feb-21	BB Negative	Affirmed
14-Aug-20	BB Negative	Affirmed
24-Apr-20	BB Negative	Affirmed
14-Feb-20	BB Stable	Affirmed
16-Aug-19	BB Stable	Affirmed
22-Feb-19	BB Stable	Affirmed
24-Aug-18	BB- Positive	Affirmed
16-Mar-18	BB- Positive	Affirmed
22-Sep-17	BB- Stable	Affirmed
24-Mar-17	BB- Stable	Affirmed
30-Sep-16	BB- Stable	Affirmed
1-Apr-16	BB- Stable	Affirmed
2-Oct-15	BB- Stable	Affirmed
17-Apr-15	BB- Stable	Affirmed
17-Oct-14	BB- Positive	Affirmed
9-May-14	BB- Stable	Affirmed
20-Nov-13	BB- Stable	Affirmed
12-Dec-12	BB- Stable	Affirmed
15-Dec-11	BB- Stable	Upgrade
3-Mar-11	B+ Positive	Affirmed
25-May-10	B+ Stable	Affirmed
26-Aug-09	B+ Stable	Affirmed
7-Apr-09	B+ Stable	Rating Watch On
8-Aug-08	B+ Negative	Downgrade
28-Mar-08	BB- Stable	Affirmed
18-Jul-07	BB- Stable	New Rating

Source: Fitch

Georgia required more than three years to receive an upgrade in its Fitch rating. The downgrade occurred on August 8, 2008 (from BB- to B+), and the upgrade was on December 15, 2011 (from B+ to BB-).

Risk is an inherent concept that every entity has to face, as there is no organization or individual that operates without encountering risk in their activities (Alam, 2016). Investors in financial markets, corporations, and governments pay close attention to country risk for practical reasons, as in a globally interconnected economy, where growth is shared,

everyone faces varying degree of exposure to country risk, both on small and large scales (Damodaran, 2023).

Country risk refers to the factors that influence a country`s ability and willingness to meet its scheduled debt obligations. It specifically represents the credit risk of borrower within a country, assessed from a broader national perspective (Timurlenk & Kaptan, 2012). All business transactions inherently carry some risk, but when transactions occur across international borders, they involve additional (country) risks, which are not found in domestic deals. Some analysts separate country risk in different categories of risks, like economic risk, transfer risk, exchange rate risk, location or neighborhood risk, sovereign risk, and political risk. Best measurement for country risk is to measure individually each component, but the alternative is to use credit rating agencies information (Meldrum, 2000).

According to Pukthuanthong (2009), the purpose of a sovereign credit rating is to assess a nation`s overall risk or creditworthiness, which reflects the government`s capacity and willingness to fulfill its debt obligations as specified in the terms of the debt issuance. These ratings are provided by Credit Rating Agencies (CRAs), which are for-profit entities that offer specialized evaluations of credits for both corporate and sovereign debt (Chibamba, 2018).

In recent years, credit rating agencies like Standard & Poor`s, Moody`s, and Fitch have played a critical role in providing information that guides investor decisions, often holding more influence than governments. Following the 2008-09 financial crisis, several European Union (EU) countries, particularly within the euro area, have experienced significant increases in financial market volatility, particularly in sovereign debt and equity markets. Policymakers have considered rating agencies as potential contributors to this heightened volatility, though existing literature has yet to fully explore their impact on the fluctuations in financial variables. This volatility can intensify financial instability, as higher volatility levels are linked to increase risk perceptions among market participants. Additionally, this elevated volatility and risk perception may intensify macroeconomic uncertainty by amplifying fluctuation in output (Afonso, Gomes, & Taamouti, 2014).

Credit ratings significantly affect both access to and the cost of funding for entities, whether they are private enterprises or sovereign borrowers. Some disruptions in sovereign debt markets, such as Spanish`s downgrading in October 2011, underscore the critical influence of credit rating agencies and their sway over financial markets. Downgrade event, or even the potential for future downgrades, can quickly undermine austerity efforts (Eijffinger, et al., 2011).

Studying events of rating announcement may help to understand problem seriousness by understanding magnitude and swiftness of effect on economic measures. Event studies have a long history, widely adopted standard for analyzing the impact of firm-specific and broader economic events on firm value (Brockett, Chen, & Garven, 1994). Event studies are a fundamental tool in empirical corporate finance research, primarily used to assess semi-strong market efficiency, by evaluating how markets respond to the release of public information. They typically follow a standardized setup. Much of the corporate finance literature is concerned with the valuation of firms and the changes in firm value resulting from, for example, changes in capital structure. Although such events can be studied in many different ways, the empirical finance literature has taken a particular approach based on statistical tests of the significance of abnormal stock returns around event dates. This type of approach also plays an important role in investment analysis. For example, one can study the performance of stocks or portfolios after an initial public offering (De Jong & de Goeij, 2007).

In accounting and finance research, event studies have been applied to variety of firm specific and economy wide events. Some examples include mergers and acquisitions, earnings announcements, issues of new debt or macroeconomic variables such as the trade

deficit. However, applications in other fields are also abundant. For example, event studies are used in the field of law and economics to measure the impact on the value of a firm of a change in the regulatory environment and in legal liability cases event studies are used to assess damages. In the majority of applications, the focus is the effect of an event on the price of a particular class of securities of the firm, most often common equity. However, event studies can be applied using debt securities with little modification (MacKinlay, 1997).

In conducting event studies, as outlined by De Jong and De Gorij (2007), the process begins with identifying the event and determining its timing, which is crucial for accurate analysis. For example, in corporate takeovers, the announcement day often provides more significant insights than the actual takeover date, as market reactions tend to occur when the information first becomes public. The next step involves choosing a benchmark model to represent normal security return behavior, which is critical for calculating abnormal returns. Common approaches include mean-adjusted returns, which use the average return over a selected period, and market-adjusted returns, which account for market-wide price movements by using a market index as a benchmark. More sophisticated models, like the market model or Capital Asset Pricing Model (CAPM), adjust for factors such as a stock`s beta, providing a more precise measure of abnormal returns by considering both market trends and stock-specific characteristics. Once abnormal returns are calculated, the analysis typically focuses on these returns during the event window. Cumulative abnormal returns (CAR) are often used to capture the total impact of the event over a specified period, aggregating abnormal returns from the start to the end of event period. By averaging these cumulative returns across multiple firms, researchers can obtain cumulative average abnormal return (CAAR), which help to isolate the event`s effect from other market influences. This method enhances the reliability of the results by mitigating the impact of unrelated security price movements. Visual tools, such as graphs of CARs, are frequently employed to illustrate security performance trends before and after an event, offering a clear depiction of the event`s influence on market behavior.

Despite the increase importance of sovereign credit ratings in affecting the financial landscape of developing economies, there is a notable lack of comprehensive research in Georgia on this subject. While the global literature extensively covers the relationship between sovereign credit ratings and economic variables such as interest rates, only a limited numbers of studies have focused on the Georgian context. This gap in the research is significant, given Georgia`s economic growth trajectory and its increasing reliance on foreign investments and international credit markets. The lack of existing studies not only limits academic discourse but also restricts the availability of data-driven insights for country`s financial stakeholders, creating a critical need for further investigation.

In particular, the absence of detailed empirical analysis on how sovereign credit rating influence key economic factors, such as interest rates and borrowing costs, underscores a crucial area of concern for both policymakers and financial institutions in Georgia. The limited research on this topic means that many decisions related to financial risk management, investment, and economic policy are made without a solid understanding of the implications that fluctuations in credit ratings might have on the country`s financial stability.

This research holds significant importance for several reasons. Firstly, as developing country, Georgia`s economic trajectory is closely tied to its ability to attract foreign direct investment (FDI) and maintain favorable borrowing condition. Sovereign credit ratings, assigned by agencies such as Fitch, Moody`s, and Standard & Poor`s, play a pivotal role in shaping investor perceptions of a country`s creditworthiness. These ratings influence the cost of borrowing, access to international capital markets, and overall economic stability. Understanding how credit rating affect interest rates is crucial for both policymakers and investors. This understanding is essential for developing effective strategies to manage financial risk, improve creditworthiness, and foster sustainable economic growth in Georgia.

The findings of this research will have significant implications for a range of stakeholders, including policymakers, who can use the insights to craft informed economic strategies; investors, who rely on understanding the risk and return associated with their investments in Georgia; financial institutions, which must navigate the impact of rating changes on borrowing cost and lending practices; and academic researchers, who can build upon these findings their future exploration of the interactions between sovereign credit ratings and economic variables in emerging markets.

Methodology and Data

The methodology leverages event study analysis, particularly utilizing multiple linear regression with dummy variables. Using event study analysis this work would test how Georgian`s loans interest rates react on the announcement of credit rating agencies.

There were treated information about Georgia`s sovereign credit ratings from major credit rating agencies, such as Moody`s, S&P, and Fitch. Based on the fact that data on Georgia from Fitch was the most accessible and consistent among the three major credit rating agencies, Fitch was chosen as the primary source. The first step is to select the time period for Georgia`s sovereign credit ratings from the rating agencies. The starting point was set as July 2007, when Fitch ratings monthly data on Georgia first became available, and extends until January 2024. Since Fitch data was the principal determinant for the data period, data from other sources also spans from July 2007 to January 2024. Data on interest rates were obtained from the National Bank of Georgia (NBG) (National Bank of Georgia, 2024), specifically the volume and interest rates of commercial bank loans granted in foreign currency to resident legal entities during the reporting period, categorized by total activity type. For market interest rate, which is needed to determine Market-adjusted data, the weighted average of United States 1, 2, 3, 5, and 10-year bond yields was used. The market-adjusted rate was calculated by subtracting the weighted average U.S. bond yields from the Georgian loan interest rate for each month of the data.

Event is identified as each credit rating announcement from Fitch regarding Georgia. In total, there were 32 announcement dates during the research period.

The next step is to determine the anticipation and adjustment periods. Various options were considered, ranging from one to five months for both periods. Ultimately, the best (considering costs and benefits) option was chosen: a two-month anticipation period and a three-month adjustment period. In detail, the anticipation period spans two months before each event month, and adjustment period - three months after event month.

The next step is to design the testing framework for abnormal returns. Dummy variables were used to code the event, anticipation, and adjustment periods. These dummy variables are helpful in identifying the specific dates of interest; thus, the event, anticipation, and adjustment periods are coded as 1, while all other dates are coded as 0. More specifically, two regression models were employed.

In the models below following variables and symbols are used:

- R_t – loan interest rate for the month t
- $event_t$, $anticipation_t$, and $adjustment_t$ are respective dummy variables for event month, anticipation and adjustment months
- Rm_t - market return for month t
- e_t - error term for month t.
- β_0 – intercept coefficient of regression
- β_n – respective slope coefficients of regression

Model 1 - The Constant Return Model. :

$$R_t = \beta_0 + \beta_1 \text{ x anticipation}_t + \beta_2 \text{ x event}_t + \beta_3 \text{ x adjustment}_t + e_t;$$

Model 2 - Market-Adjusted Model:

$$R_t - Rm_t = \beta_0 + \beta_1 \text{ x anticipation}_t + \beta_2 \text{ x event}_t + \beta_3 \text{ x adjustment}_t + e_t.$$

p-value was used to assess coefficients. p-values below 5% were considered as satisfactory to indicate that the relationship between the interest rate and event variables is statistically significant.

Best combination of anticipation and adjustment periods for models was selected based on normalized Akaike Information Criterion (AIC). AIC of models were compared among each other. Model with lower AIC was considered as better. Equation below was used for calculation, where

- n is the number of observations
- RSS is the residual sum of squares
- k is the number of estimated parameters (including the intercept)

$$AIC_{Normalized} = \frac{2k}{n} + \ln\left(\frac{RSS}{n}\right)$$

In addition, country credit ratings were assigned scores and correlation between interest rates and scores were calculated.

Effect of sovereign credit rating announcements on the interest rates in Georgia were studied for the period between July 2007 and January 2024. The dataset for this research is obtained from two main sources: sovereign credit ratings provided by Fitch and interest rates in Georgia from the National Bank of Georgia.

The credit ratings are categorized by rating level (e.g., AAA, AA, A, etc.) and outlook (Positive, Stable, Negative), with each combination assigned a unique numeric identifier (score). Credit rating AAA with a positive outlook is identified as 1, AAA with a stable outlook is identified as 2, and so forth, progressing until the credit rating D with a negative outlook is identified as 66.

The sovereign credit rating data focuses on the announcements from Fitch ratings for Georgia, from July 2007 till January 2024, which includes upgrades, downgrades and unchanged ratings. There are a total of 32 Fitch credit rating announcements within the research period. In this study, each announcement is treated as an event.

To define of the principal variable for the study – interest rate, a comprehensive analysis of datasets from the National Bank of Georgia was conducted. The NBG offers an extensive array of financial and economic indicators, including data on loans, deposits, and various financial market metrics.

There are three main datasets regarding loans available from the NBG:

- IR_LE_FC – "Interest Rates on Loans to Legal Entities in Foreign Currency"
- TIR_LE_FC – "Total Interest Rates on Loans to Legal Entities in Foreign Currency"
- AMIR_LE_FC – "Annual Market Interest Rates on Loans to Legal Entities in Foreign Currency"
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The interest rates of all three sets are very highly correlated (Table 2).

Table 2

Correlation Matrix of Loan datasets from NBG

	IR_LE_FC	TIR_LE_FC	AMIR_LE_FC
IR_LE_FC	1.0000	0.9941	0.9993
TIR_LE_FC	0.9993	1.0000	0.9934
AMIR_LE_FC	0.9993	0.9934	1.0000

Source: authors' findings

After simulating different variations, and observing the high correlation among the interest rates, the final choice was made to use the total interest rates on loans to legal entities in foreign currency (TIR_LE_FC). Since the Fitch credit rating dataset begins in July 2007, corresponding interest rate data period was used.

To adjust the interest rate percentage, a reference variable of market rate is required. For this purpose, the weighted average of several U.S. Treasury bond yields was used: Market Yield on U.S. Treasury Securities at 1-Year Constant Maturity, United States 2-Year Bond Yield Historical Data, Market Yield on U.S. Treasury Securities at 3-Year Constant Maturity, United States 5-Year Bond Yield Historical Data, and United States 10-Year Bond Yield Historical Data. The same period was used for these yields as for the NBG and Fitch datasets.

Results

Relationship between Fitch credit rating numeric scores and loan interest rate was tested by correlation analysis. Georgia's rating scores fluctuate between B+ (negative), identified as 42, and BB (positive), identified as 34, over various periods. Percentage values of interest rates were used for calculations. Correlation appeared to be significantly high at 0.8228.

Effect of credit rating announcement on interest rates was assessed using event study analysis, particularly through multiple linear regression with dummy variables, various regression variations were tested to determine the best model for this research. First, the constant return model was applied in various combinations, including: anticipation periods from one to two and adjustment periods from one to three. Same periods were tested for the market-adjusted model.

P-values for one anticipation and one adjustment, one anticipation and two adjustment, two anticipation and one adjustment periods for both models appear to be higher than 5% for all or the most of the coefficients (Table 3), and therefore coefficients of regression are not statistically significant, and models cannot be considered acceptable.

Table 3

p-values of coefficients of some insignificant regression models

	Coefficient p-values			
Model	Constant	Anticipation	Event	Adjustment
Constant Return Model				
1 anticipation and 1 adjustment periods	0.00%	16.56%	14.90%	16.67%
1 anticipation and 2 adjustment periods	0.00%	6.83%	6.51%	2.18%
2 anticipation and 1 adjustment periods	0.00%	3.27%	7.32%	7.71%
Market-adjusted Model				
1 anticipation and 1 adjustment periods	0.00%	24.46%	21.21%	21.02%
1 anticipation and 2 adjustment periods	0.00%	11.57%	10.46%	2.18%
2 anticipation and 1 adjustment periods	0.00%	6.51%	12.01%	11.23%

Source: authors' findings

The introduction of combinations such as two anticipation periods with two adjustment periods yielded more promising results as well as one anticipation and three adjustment periods. The regression outputs from this phase indicated significant results (Table 4). This was a notable improvement compared to earlier models, where statistical significance was weak or absent.

Table 4

p-values of coefficients of some significant regression models

Model	Coefficient p-values			
	Constant	Anticipation	Event	Adjustment
Constant Return Model				
2 anticipation and 2 adjustment periods	0.00%	0.43%	1.54%	0.32%
1 anticipation and 3 adjustment periods	0.00%	1.59%	1.11%	0.10%
2 anticipation and 3 adjustment period	0.00%	0.03%	0.08%	0.00%
Market-adjusted Model				
2 anticipation and 2 adjustment periods	0.00%	1.19%	3.26%	0.71%
1 anticipation and 3 adjustment periods	0.00%	3.23%	2.18%	0.19%
2 anticipation and 3 adjustment period	0.00%	0.11%	0.26%	0.01%

Source: authors' findings

Ultimately, the strongest impact was observed in the both models incorporating two anticipation and three adjustment periods. This combination produced statistically significant results across all phases, highlighting a clear relationship between credit rating announcements and interest rates.

According to p-values of regression coefficients, models with anticipation and adjustment periods with 1 and 1, 1 and 2, 2 and 1, are not statistically significant. Models that have more than 6 periods of any type, including event period itself (like, 2 anticipations, 1 event period and 4 adjustment periods) have substantial flow. Rating is announced every six months on average. If number of periods is more than 6, we have overlaps of adjustment periods of previous event and anticipation periods of following event, decreasing reliability of obtained data.

To choose the best model out of three acceptable variations of number of periods in both models Akike Information Criterion was employed. Lowest AIC has model 2-3 for both Constant return and Market Adjusted approach. Number of observations (n) is 203 for all models, number of parameters (k) is 4 – intercept and three dummy variables. Calculated AIC values are given in the Table 5.

Table 5

Akaike Information Criterion for various regression models

Number of periods in model (anticipation – adjustment)	Constant Return Model	Market Adjusted Model
2-2	-6.64	-6.52
1-3	-6.64	-6.53
2-3	-6.68	-6.56

Source: authors' findings

Regression results for the models showing the most profound results are given in the Table 6.

Table 6

Regression Results for 2 anticipation and 3 adjustment periods for constant return and market-adjusted models

	Constant	Anticipation	Event	Adjustment
Constant Return Model				
β_n coefficient	13.41%	-2.42%	-2.80%	-2.63%
Std Error	0.56%	0.65%	0.83%	0.63%
t-stat	2382%	-3.71	-3	-4.21
p-value	0.00%	0.03%	0.08%	0.00%
Market-adjusted Model				
β_n coefficient	11.69%	-2.30%	-2.67%	-2.59%
Std Error	0.60%	0.69%	0.87%	0.66%
t-stat	1960%	-3.32	-3.0	-3.9
p-value	0.00%	0.11%	0.26%	0.01%

Source: authors' findings

Negative sign in β_n coefficient may be explained by the fact, that credit rating for Georgia continuously increases since August 2008.

Conclusions

This study has explored the relationship between sovereign credit ratings and corporate loan interest rates in Georgia.

Firstly, a strong correlation was identified between Fitch's credit rating identifiers and corporate loan interest rates in Georgia. In addition, clear connection between sovereign credit rating announcements by Fitch and corporate loan interest rates was identified by using an event study methodology, particularly linear regression with dummy variables.

Several variations of two models - the Constant Return Model and the Market-Adjusted Model - across different anticipation and adjustment periods were tested. The models incorporating two anticipation periods and three adjustment periods yielded the most statistically significant p-values and Akaike information criteria.

The findings suggest that Fitch's credit rating announcements may influence loan interest rates in Georgia. However, given the extended anticipation and adjustment periods, it is reasonable to assume that credit rating announcements as such do not have a direct impact on loan interest rates, but rather fundamental economic events drive both indicators.

Future research could expand on this by looking at other financial or macroeconomic effects of sovereign ratings. This would provide a more complete picture of how sovereign creditworthiness affects emerging economies.

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