A STUDY ON BANK CREDIT VOLUMES OF FRAGILE FIVE COUNTRIES

Levent SEZAL[1]

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Abstract: Fragility can be defined in different ways depending on the economic unit studied, the risk factor and the perspective of the researcher. The common points of economic units, which are considered as fragile, are that they are mostly fragile due to events that develop against their will (for example, economic crises, internal and external shocks). In this study, it was aimed to investigate the relationship between each other by examining the "Credit/GDP" ratios of "Brazil, India, Indonesia, South Africa and Turkey" grouped as the "Fragile Five" between 1996Q1-2022Q2. The series used in the study, Extended Dickey Fuller (ADF), Philips Perron (PP) unit root tests were used to investigate the degree of stationarity of the series. Whether there is a causal relationship between the series, and if there is causality, it was analyzed with the Toda-Yamamoto method to determine its directions. According to the results of the Toda-Yamamoto causality test, at the 5% significance level, a causality relationship was found between Brazil and India among the fragile five countries, while no causality relationship was found between the other countries in the reciprocal tests.

Keywords: *Fragile Five Countries, Loans, Extended Dickey-Fuller (ADF), Philips-Perron (PP), Toda-Yamamoto Causality Test*

Kırılgan Beşli Ülkelerinin Banka Kredi Hacimleri Üzerine Bir İnceleme

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Özet: Kırılganlık, incelenen ekonomik birime, risk unsuruna ve araştırmacının bakış açısına göre farklı şekillerde tanımlanabilmektedir. Kırılgan olarak sayılan ekonomik birimlerin ortak noktaları, çoğunlukla kendi iradesi dışında gelişen olaylar (örneğin ekonomik krizler, iç ve dış şoklar gibi) nedeniyle kırılgan olmalarıdır. Bu çalışmada, "Kırılgan Beşli" olarak gruplandırılan "Brezilya, Hindistan, Endonezya, Güney Afrika ve Türkiye'nin" 1996Q1-2022Q2 dönemleri arasında "Kredi/GSYİH" oranları incelenerek birbirleri arasındaki ilişkinin araştırılması amaçlanmıştır. Çalışmada kullanılan seriler, Genişletilmiş Dickey Fuller (ADF), Philips Perron (PP) birim kök testleri ile serilerin durağanlık dereceleri araştırılmıştır. Seriler arasında bir nedensellik ilişkisi olup olmadığı, nedensellik varsa yönlerinin tespit edilmesi için karşılıklı olarak Toda-Yamamoto yöntemiyle analiz edilmiştir. Toda-Yamamoto nedensellik testi sonuçlarına göre ise, %5 anlamlılık seviyesinde, kırılgan beşli ülkeleri arasında Brezilya ve Hindistan arasında nedensellik ilişkisi tespit edilirken diğer ülkeler arasında karşılıklı olarak yapılan testlerde herhangi bir nedensellik ilişkisine rastlanmamıştır.

Anahtar Kelimeler: Kırılgan Beşli Ülkeleri, Krediler, Genişletilmiş Dickey Fuller (ADF), Philips Perron (PP) Toda-Yamamoto Nedensellik Testi.

Araştırma Makalesi / Research Article
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1. INTRODUCTION

In a 2013 study by James K. Lord, who works as a mid-level currency analyst at Morgan Stanley, an investment bank, he called Brazil, India, South Africa, Indonesia, and Turkey the "Fragile Five" and these countries' bond purchases by the FED. emphasized that they are the countries most affected by the changes in the policy. The common features of economic units, which are considered as fragile, are that they are fragile mostly due to events that develop against their will. In other words, fragility is the risk of being damaged or negatively affected by unforeseen events in general and economic terms (Karakurt et. al., 2015, p.285). Financial liberalization, which is an important factor that increases fragility, makes the economy fragile due to reasons such as macroeconomic instabilities and weaknesses in the financial structure in this process. The fact that fragility becomes unsustainable causes crises. The fragility stems from the structure of the financial system; crisis emerges as a result of the interaction between fragility and external shocks. Therefore, crisis is the name given to a certain moment of capitalist development in which the market mechanism is dominant (Eroğlu and Albeni, 2002, p.97). Financial crisis, on the other hand, is defined as serious economic problems experienced due to severe price fluctuations in financial markets such as foreign exchange and stock markets or excessive increase in non-returnable loans in the banking system.

Many countries are now implementing policy that frees up interest by controlling the exchange rate. This allows for the implementation of a hot monetary policy. As a result of countries' solving the financing problem with short-term capital movements, foreign capital entering uncontrollably causes financial crises. Because capital inflows create a “bubble effect” in the economy, increasing the national money supply, and the national currency is overvalued, resulting in an increase in imports and a decline in exports.

Apart from domestic macroeconomic conditions, external factors are also of great importance in crises that occur in emerging markets. The most important external factors are; major changes in world interest rates and terms of trade. Sudden price drops in export goods cause domestic firms to have difficulties in paying their debts and the quality of banks' loan portfolios to decline. In addition, the decrease in interest rates causes funds to flow to emerging markets and benefit from capital flows. The rise in interest rates causes a decrease in the flow of funds to emerging markets. Thus, it increases the costs of banks and companies in these countries and creates many problems such as adverse selection and moral hazard, making the financial system fragile (Özer, 1999, p.46).

Since the beginning of the 2000s, with the global spread of foreign capital transfers and the economic reforms carried out by developing countries, the financing deficits of the countries have been provided abundantly and cheaply from the global financial markets. This situation was recorded as a positive development in terms of economic growth of underdeveloped and developing countries. While the Global Financial Crisis, which started in the USA in 2008 and then spread rapidly to Europe, deeply shook the markets of developed countries, it was stated by many financial authorities that it affected developing countries less than other countries. After the financial crisis, the monetary expansion policy implemented by the US Federal Reserve, through bond purchases, in order to make the markets more functional, provided money flow to developing countries that offer higher interest rates to investors compared to other countries (Gür, 2014, p.1).

Domestic credit volume has an important place on the financial development of countries. The development of the financial structure is very important for economic growth. In other words,

financial development factors are effective in realizing and sustaining economic growth. It is important for the development of the financial structure, for the savings to be turned into investments and for economic growth. Especially the loans given by the banking sector play an important role in the production and investment process of the country. In this context, increases in the credit volume of banks increase production, employment and economic growth by increasing the money supply.

Changes in the credit volume in developing countries such as the fragile five affect these countries more economically than developed countries. This effect can be positive, negative or neutral. In other words, changes in the amount of credit that occur in these countries depending on the use of funding sources can have more economic impact than developed countries. Therefore, the importance of this issue in developing countries comes to the fore even more.

In this study, it is aimed to investigate the relationship between the fragile five countries by examining the loan/GDP ratios between 1996Q1-2022Q2. In the literature review study conducted by us, no empirical study was found in which the relationship between each other by examining the credit/GDP ratios of the fragile five countries. For this reason, it is expected that the study will contribute to the literature in terms of both the subject and the econometric method applied. In the study, after the introductory part in which the general summary of the subject is made, in the second part, the summary of the domestic and foreign literature on the fragile five countries is presented. In the third part, information about the data set and statistical models used in the analysis and the results of the analysis are given. Finally, it was concluded with the conclusion part, in which a general evaluation of the study was made.

2. LITERATURE REVIEW

In recent years, more and more studies in the academic literature point to the effects of rapid credit growth, which destabilizes financial stability and increases the likelihood of crisis. Mendoza and Terrones (2008) identify periods of excessive credit expansion for developed and developing countries, and examine indicators related to banks and companies in these periods, as well as basic macroeconomic indicators. Accordingly, it is found that excessive credit expansion increases the vulnerability of the banking sector and is associated with financial crises, especially in developing countries. Schularick and Taylor (2012), on the other hand, in their analysis using a 140-year data set for developed countries, show that historically rapid credit growth has preceded financial crises. On the other hand, using the same data set, Jorda et al. (2011) show that the relationship between credit growth and external imbalances has strengthened especially recently, and also emphasizes the importance of the interaction between these two variables in terms of financial stability. Dell'Ariccia et al. (2012) also mentions that the balance sheet correction process at the end of rapid credit expansion periods has long-lasting negative effects on the real economy, and within this framework, they evaluate policy alternatives that can be used to control credit growth**.**

Since the early 1980s, the concept of Emerging Market Economy has become widely used in the economics literature. Economies that have significantly increased their per capita income levels by succeeding in integrating their economies with the global economy in order to ensure justice in income distribution, improve industrial and social infrastructure, and eliminate demographic problems through a series of structural reforms are included in this group. According to Eğilmez (2013), countries such as Turkey, South Africa, Mexico and Indonesia have joined these countries from time to time as the brightest examples of emerging markets, which were once called BRIC countries (Brazil, Russia, India and China). Now, countries other than China, Russia and Mexico

have met in the Fragile Five group. On the other hand, there are also new literatures that quintet is octal. Other countries added to the five are expressed as Argentina, Russia and Chile. In the literature, both domestic and foreign studies on fragile five countries have handled the issue in different ways. Some of the studies on this subject are summarized in Table 1.

Table 1. Literature Review

Writers	Method	Results
Çan and Dinçsoy (2016)	Theoretical Study	In the study, as a result of the fragility indicators examined, it has been revealed that the five countries have a fragile structure and their macroeconomic indicators can create a financial crisis.
Ergür and Özek (2020)	Panel Data Analysis	According to the results of the study, there is causality from gross domestic product to both exports and imports in the Indian economy, from gross domestic product to exports in Türkiye, and from gross domestic product to imports in South Africa.
Akkuş and Topuz (2019)	Fourier Unit Root Tests	According to the results obtained, it was concluded that unemployment rates did not oscillate around the natural unemployment rate and that the shocks experienced did not create temporary but permanent effects on unemployment.
Cavidar and Ekaputra (2019)	Granger Causality Test	Granger test results show that after Fed normalization, there is a difference in the relationship between floating exchange rates and stock price returns in Indonesia, India and Türkiye.
Yılmaz and Kesbiç (2020)	Panel Unit Root Test	According to the findings, it was determined that the fragile five countries did not converge. It was determined that the countries, which were selected as the leading country, showed strong convergence at the 5% significance level. For Türkiye, both individual and collective convergence has been achieved.
Özek and Ergür (2020)	ADF and Fourier KPSS Unit Root Tests	According to the results, there is divergence in Brazil, India, Indonesia, South Africa, and financial convergence in Türkiye.
Pao Wu and Che Wu (2020)	Panel Data Analysis	As a result of the study examining the relationship between global economy uncertainty and tourism activities, it was determined that the relationship was generally positive, but changed over time and showed low and high frequency cycles.
Yazar Aslan and Çelik (2021)	Panel Data Analysis	According to the study, it was concluded that 1 unit increase in inflation and economic freedom indices caused a decrease of 0.60 and 0.02 in the youth unemployment rate, respectively, and 1 unit increase in the population growth rate caused an increase of 0.66 units in the youth unemployment rate.
Atuntaş (2021)	Fourier Unit Root Tests	In line with the results of the analysis, strong evidence for the validity of the non-covered interest rate parity was obtained for Brazil, Indonesia and Türkiye.
Yıldız and Bayraktar (2021)	Panel Data Analysis	According to the results of the study, it has been determined that there is a statistically significant relationship between GDP and real effective exchange rate, gross capital investments, value added industrial production, foreign trade terms and value added agricultural production for the fragile five.
Onat and Ertürk (2022)	Toda-Yamamoto Causality Test	As a result of the study; It has been determined that there is a causal relationship between the foreign direct investment inflow data of BIITS countries and the mentioned countries.
Amaral and Breitenbach (2021)	ARDL Test	The results of the study found that there was little evidence to support the validity of the Marshall-Lerner condition in these five countries.
Hoque et all. (2022)	GARCH Analysis	As a result of the study examining the spillover effects on stock returns and volatility, it has been determined that it has heterogeneous effects in Indonesia, South Africa and Türkiye stock markets.

In the literature review study conducted by us, no empirical study was found in which the relationship between each other by examining the credit/GDP ratios of the fragile five countries. For this reason, it is expected that the study will contribute to the literature in terms of both the subject and the econometric method applied.

3. DATASET

In this study, the relationship between the Fragile Five countries was investigated by examining the loan/GDP ratios between 1996Q1-2022Q2. Since 1996 is the oldest available date of the "Credit/GDP" data used in the research regarding the Fragile Five countries, this date was taken as the beginning of the study. Quarterly data were used for the study. The data were obtained from the CBRT's Electronic Data Distribution System (EVDS). The explanations, abbreviations and data about the variables used in the study are summarized in Table 2.

Table 2. Explanations on the Data Set

Variables	Descriptions of Variables	Time Range	Data Period	Source
TRY	Türkiye	1996Q1- 2022Q2	for 3 months	EVDS
END	Indonesia			
GAF	South Africa			
HND	India			
BRZ	Brazil			

Figure 1 shows the ratios of country credit volumes to GDP of the fragile five countries over the analyzed periods. As can be seen in the figure, it is seen that the countries have progressed parallel to each other as a trend over the years. Among these countries, Indonesia saw a significant increase in the share of loans in GDP between 1997-1999, and then it showed parallelism with the increase or decrease in other five countries. It is seen that India's share of loans in GDP has been the country with the highest share among the fragile five countries since the beginning of the 2000s.

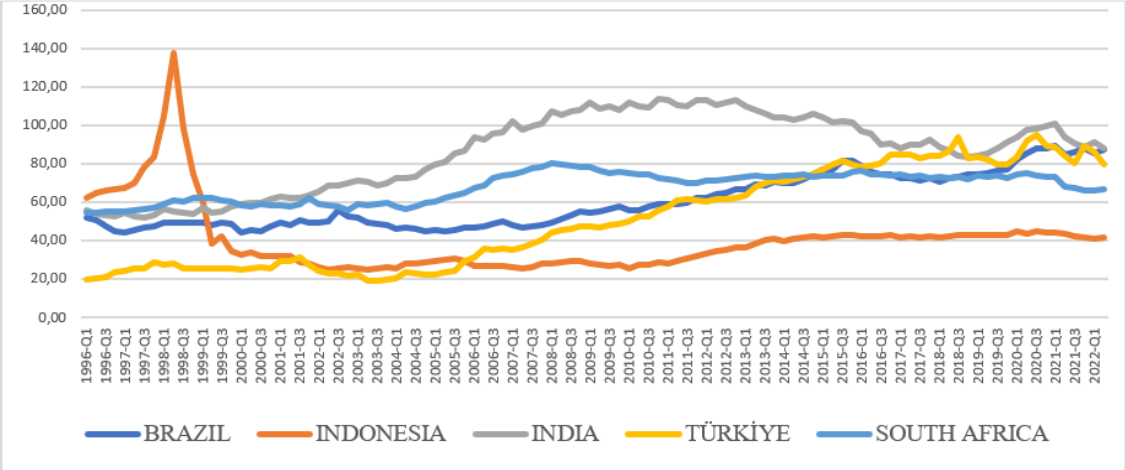

Figure 1. Fragile Five Countries Credit/GDP Ratios

Source: T.C. Central Bank, Electronic Data Distribution System

When the volume of credit increases, investments in the economy and private consumption expenditures increase. private consumption. The increase in expenditures increases the domestic demand and increases the economic growth and investments.

4. METHOD

In the study, first of all, it is necessary to determine whether the series of the variables used in the analysis are stationary. In time series analysis, it is important that the series are stationary, that is, they do not contain unit roots. Since there is a spurious regression relationship between series without a unit root, the results will not reflect the real relationship (Gujarati, 1999, p.726).

For this reason, Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests were applied to the series.

In traditional causality tests, the series must be made stationary. In Toda-Yamamoto (1995), causality analysis does not have such a requirement. In this way, the series contain more information and effective results are revealed. In order to apply this test, first of all, the lag length (p) must be determined with the help of the VAR model. Then, the highest degree of integration (d_{max}) is added to the lag length (p). The equations of the Toda-Yamamoto causality test are shown in the figure below (Toda and Yamamoto, 1995, pp.225-250).

$$Y_t = \omega + \sum_{t-1}^{m} a_{1i}\, x_{t-i} + \sum_{i=1}^{m} \beta_{1i} Y_{t-i} + \sum_{j=m+1}^{dmax} \delta_{1i} X_{t-i} + \sum_{j=m+1}^{dmax} \theta_{1i} Y_{t-i} + \varepsilon_{1t} \quad (1)$$

$$X_t = \varphi + \sum_{i=1}^{m} a_{2i}\, X_{t-i} + \sum_{i=1}^{m} \beta_{2i} Y_{t-i} + \sum_{j=m+1}^{dmax} \delta_{2i} X_{t-i} + \sum_{j=m+1}^{dmax} \theta_{2i} Y_{t-i} + \varepsilon_{2t} \quad (2)$$

The main hypotheses of the equation are as follows:

H_0: Variable Y is not the Granger cause of variable X.

H_1: Y variable is the Granger cause of X variable.

5. FINDINGS

5.1. ADF and PP Unit Root Test Results

The fact that most of the series expressing variables in studies conducted through time series are not stationary at the level increases the importance of unit root tests in determining this situation. Although there is an obligation to make the series stationary in the Toda-Yamamoto test, ADF and Phillips-Perron unit root tests were applied to the variables in this part of the study in order to demonstrate that the series became stationary.The unit root test results are given in Table 3.

Table 3. ADF and PP Unit Root Test Results

		ADF Test Statistic		Phillips-Perron Test Statistic	
Variables		**Level**	**First Difference (Δ)**	**Level**	**First Difference (Δ)**
TRY		-2,3842	-9,5681*	-2,4945	-9,5630*
END		-2,0921	-4,0597*	-2,2271	-7,8903*
GAF		-0,4713	-8,9652*	-1,0614	-9,2453*
HND		-1,1343	-3,8297**	-0,4521	-10,7630*
BRZ		-2,3842	-9,5681*	-2,4945	-9,5630*
Significance Level	1%	-4,0477	-4,0486	-4,0477	-4,0486
	5%	-3,4531	-3,4536	-3,4531	-3,4536
	10%	-3,1521	-3,1524	-3,1521	-3,1524

Note: The "Δ" sign is used to express the first difference of the variables. "***, **, *" denote 1%, 5% and 10% significance levels, respectively.

In Table 3, the main hypothesis of both ADF and PP unit root tests is that the series contain unit root, that is, they are not stationary at the level for all variables. In this case, all variables were subjected to the ADF and PP unit root tests again and the first difference was taken and the series became stationary.

5.2. Toda-Yamamoto Causality Analysis Results

Since the Toda-Yamamoto causality test is based on the VAR (Vector Autoregression) model, whether the series is stationary or not is not taken into account. Therefore, the model is estimated using the level values of the series (Toda-Yamamoto, 1995, pp. 225- 250).

While determining the causality between the series, the lag length (k) of the series was found according to the "Akaike Information Criteria (AIC)", and the maximum degree of integration (d_{max}) was found according to the unit root tests. Afterwards, "Wald Statistics" was applied to the (k) lagged values of this model and it was mutually determined whether there was a causal relationship between the variables. Tables 4-5-6-7 and 8 contain the results of the Toda-Yamamoto Causality test.

The Wald Test results, where the credit/GDP data of Brazil, Indonesia, South Africa, Indonesia and India, where Türkiye's credit/GDP data is the dependent variable, are shown in Table 4.

Table 4. Wald Test Results (Dependent Variable: TRY)

Independent Variables	Dependent Variable	d_{max}	k	Chi-Square Test Statistic	Chi-Square P-Value	Relationship and Direction
BRZ	TRY	2	2	0,6369	0,4248	NONE
END		2	2	0,0743	0,7851	NONE
GAF		2	2	0,3609	0,5480	NONE
HND		2	2	0,1307	0,7176	NONE

Note: ***, **, * denote 1%, 5% and 10% significance levels, respectively.

In the Toda-Yamamoto causality analysis, information is given about the direction of causality by considering the significance level determined in the light of the probability values representing the Chi-square test statistic. According to the Toda-Yamamoto (1995) test conducted within the framework of the second-order VAR model; As seen in Table 4, no causal relationship was found between the variables.

The Wald Test results, in which the credit/GDP data of Türkiye, Indonesia, South Africa, Indonesia and India, where the credit/GDP data of Brazil is the dependent variable, are the independent variables are shown in Table 5.

Table 5. Wald Test Results (Dependent Variable: BRZ)

Independent Variables	Dependent Variable	d_{max}	k	Chi-Square Test Statistic	Chi-Square P-Value	Relationship and Direction
TRY	BRZ	2	2	0,0240	0,8767	NONE
END		2	2	0,0616	0,8040	NONE
GAF		2	2	0,3765	0,5394	NONE
HND		2	2	0,5134	0,4737	NONE

Note: ***, **, * denote 1%, 5% and 10% significance levels, respectively.

As seen in Table 5, no causality relationship was found between the variables according to the Wald test results, in which Brazil was the dependent variable.

The Wald test results, in which the credit/GDP data of Türkiye, South Africa, Brazil and India, where the credit/GDP data of Indonesia is the dependent variable, are the independent variables, are shown in Table 6.

Table 6. Wald Test Results (Dependent Variable: END)

Independent Variables	Dependent Variable	d_{max}	k	Chi-Square Test Statistic	Chi-Square P-Value	Relationship and Direction
TRY	END	2	2	0,0760	0,7827	None
BRZ		2	2	0,0163	0,8982	None
GAF		2	2	0,0271	0,8691	None
HND		2	2	0,0430	0,8356	None

Note: ***, **, * denote 1%, 5% and 10% significance levels, respectively.

As seen in Table 6, no causality relationship was found between the variables according to the Wald test results, in which Indonesia is the dependent variable.

The Wald test results, in which the credit/GDP data of Türkiye, Indonesia, Brazil and India, where the credit/GDP data of South Africa is the dependent variable, are the independent variables, are shown in Table 7.

Table 7. Wald Test Results (Dependent Variable: GAF)

Independent Variables	Dependent Variable	d_{max}	k	Chi-Square Test Statistic	Chi-Square P-Value	Relationship and Direction
TRY	GAF	2	2	0,4117	0,5182	None
BRZ		2	2	0,5176	0,4718	None
END		2	2	0,1576	0,6913	None
HND		2	2	0,2203	0,6387	None

Note: ***, **, * denote 1%, 5% and 10% significance levels, respectively.

As seen in Table 7, no causality relationship was found between the variables according to the Wald test results, in which South Africa is the dependent variable. The Wald test results, where the credit/GDP data of Türkiye, Indonesia, Brazil and South African countries, where the credit/GDP data of India is the dependent variable, are shown in Table 8.

Table 8. Wald Test Results (Dependent Variable: HND)

Independent Variables	Dependent Variable	d_{max}	k	Chi-Square Test Statistic	Chi-Square P-Value	Relationship and Direction
TRY	HND	2	2	0,9608	0,3270	None
BRZ		2	2	6,3128	0,0120	**Available**
END		2	2	0,1484	0,7000	None
GAF		2	2	2,3280	0,1271	None

Note: ***, **, * denote 1%, 5% and 10% significance levels, respectively.

As can be seen in Table 7, according to the Wald test results, in which South Africa is the dependent variable, a causal relationship was found between the credit/GDP data from Brazil to India.

6. CONCLUSION

The increasing emphasis on financial stability after the 2008 global crisis highlights loans as an important variable in policy design. The ongoing high current account deficit in fragile five countries and the strong relationship between current account balance and net credit use increase the importance of loans in terms of macro financial risks.

In the economic literature on loans, the ratio of loans to GDP and the growth rate of loans are frequently used indicators of financial stability. The "Credit/GDP" ratio, which shows the net credit usage in the economy compared to the national income, can be thought of as a composite index that aggregates both credit growth information and how large the credits are compared to national income. This variable may contain important information regarding financial stability, especially as an indicator of how quickly indebtedness increases in an economy compared to income.

In the case of the fragile five, the high current account deficit and the prediction that it will stay higher for a while due to structural reasons further increases the importance attributed to loans. In a country with a structural current account deficit, the additional current account deficit, which occurs due to cyclical reasons, has the potential to disrupt macroeconomic balances by increasing the risk of "sudden stop", especially in periods when capital flows are volatile. Therefore, it is of great importance to limit the fluctuations in the cyclical part of the current account deficit.

In this study, the relationship between the loan/GDP ratios of "Brazil, India, Indonesia, South Africa and Turkey", which were grouped as the "Fragile Five" by Morgan Stanley in 2013, between 1996Q1-2022Q2, was investigated. Time series analyzes were used to examine the relationship between variables in the study. In order to determine the stationarity levels of the variables, appropriate unit root and stationarity tests recommended by the literature were used. In this context, the stationarity degrees of the related series were investigated by using Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests. Whether there is causality between the variables, and if there is a causal relationship, determining their directions were tested with the "Toda-Yamamoto" analysis method.

The basic hypothesis of unit root tests is that the series contain unit root, that is, they are not stationary in level for all variables. In this case, all variables were subjected to the ADF and PP unit root tests again and the first difference was taken and the series became stationary. According to the results of the Toda-Yamamoto causality test, at the 5% significance level, a causality relationship was found between Brazil and India among the fragile five countries, while no causality relationship was found between the other countries in the reciprocal tests. In the literature study conducted by us, a study on the GDP ratio of loans of fragile five countries could not be determined, therefore it is expected that the study will contribute to the literature.

It is thought that this study, in which the experiences of other countries are aggregated, is complementary to empirical and structural techniques and contains important information about the credit policy that may be healthy to follow in the upcoming period, without forgetting the lessons learned during the crisis.

Geliş Tarihi | Kabul Tarihi | Yayım	24 Ocak 2023 | 24 Mayıs 2023 | 30 Haziran 2023
Tarihi	Levent Sezal (%100)
Yazar Katkısı	Dış bağımsız.
Hakem Değerlendirmesi	Bu makale, insan veya hayvanlar ile ilgili etik onay gerektiren herhangi bir araştırma içermemektedir.
Etik Onay	Yazar çıkar çatışması bildirmemiştir.
Çıkar Çatışması	Yazar bu çalışma için finansal destek almadığını beyan etmiştir.
Finansal Destek	Yazar dergide yayınlanan çalışmalarının telif hakkına sahiptirler ve çalışmaları CC BY-NC 4.0 lisansı altında
Telif Hakkı & Lisans	yayımlanır. https://creativecommons.org/licenses/by-nc/4.0/deed.tr
Submission | Acceptance | Publication	24 January 2023 | 24 May 2023 | 30 June 2023
Author Contribution	Levent Sezal (100%)
Peer-review	Externally peer-reviewed.
Ethical Approval	This article does not contain any studies with human participants or animals performed by the authors.
Conflicts of Interest	The author declares that there is no conflict of interest.
Grant Support	The author received no financial support for the research, authorship and/or publication of this article.
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GENİŞLETİLMİŞ ÖZET

Bir yatırım bankası olan Morgan Stanley'de orta düzey kur analisti olarak çalışan James K. Lord'un 2013 yılındaki bir araştırmasında, Brezilya, Hindistan, Güney Afrika, Endonezya ve Türkiye'yi "Kırılgan Beşli" olarak adlandırarak bu ülkelerin FED'in tahvil alımı politikasındaki değişikliklerden en çok etkilenen ülkeler olduklarını vurgulamıştır. Kırılgan olarak sayılan ekonomik birimlerin ortak özellikleri, çoğunlukla kendi iradesi dışında gelişen olaylar nedeniyle kırılgan olmalarıdır. Yani kırılganlık, genel ve ekonomik anlamda öngörülemeyen olaylar tarafından zarar görme veya negatif yönde etkilenme riskidir. Kırılganlığı arttıran önemli bir faktör olarak finansal liberalizasyon, bu süreçte makroekonomik istikrarsızlıklar ve finansal yapıdaki zayıflıklar gibi nedenlerden dolayı ekonomiyi kırılgan hale getirmektedir. Kırılganlığın sürdürülemez duruma gelmesi ise krizlere neden olmaktadır. Kırılganlık, finansal sistemin yapısından kaynaklanmakta; kriz ise, kırılganlık ve dışsal şoklar arasındaki etkileşimin sonucu olarak ortaya çıkmaktadır. Bu nedenle kriz, piyasa mekanizmasının hâkim olduğu kapitalist gelişmenin belli bir anına verilen isimdir. Finansal kriz ise, döviz ve hisse senedi piyasaları gibi finans piyasalarındaki şiddetli fiyat dalgalanmaları veya bankacılık sisteminde bankalara geri dönmeyen kredilerin aşırı derecede artması nedeniyle yaşanan ciddi ekonomik sorunlar olarak tanımlanmaktadır.

Finansal krizlere ve ekonomik istikrarsızlıklara yol açan birçok faktör bulunmaktadır. Ülkelerin makroekonomik istikrarını bozan etkilere karşı, uyarıcı ve önleyici yapıda farklı politikalar uygulanmaktadır. Krizlerin nedenlerini; sürdürülemeyen makroekonomik yapı, asimetrik bilgi, ahlaki yapının yozlaşması, finansal serbestleşme ve sürü psikolojisi olarak sıralamak mümkündür.

Birçok ülke artık döviz kurunu kontrol ederek, faizi serbest bırakan politika uygulamaktadır. Bu da sıcak para politikası uygulanmasına imkân tanımaktadır. Ülkelerin finansman sorununu kısa vadeli sermaye hareketleriyle çözmeleri sonucunda kontrolsüzce giren yabancı sermaye finansal krizlere neden olmaktadır. Çünkü sermaye girişleri ekonomide "balon etkisi" yaratarak ulusal para arzını artırmakta ve ulusal para aşırı değerlenmekte sonuçta ise ithalat artmakta, ihracat ise gerilemektedir.

Gelişmekte olan piyasalarda ortaya çıkan krizlerde yurtiçi makroekonomik koşulların dışında dış etkenlerin önemi de büyüktür. En önemli dış etkenler ise; dünya faiz oranları ve ticaret hadlerindeki büyük değişmelerdir. İhraç mallarındaki ani fiyat düşüşleri, yerli firmaların borç ödeme konusunda sıkıntı yaşamasına ve bankaların kredi portföylerinin kalitesinin düşmesine neden olmaktadır. Ayrıca faiz oranlarının düşmesi de gelişmekte olan piyasalara fonların akmasına ve sermaye akımlarından yararlanmasına neden olmaktadır. Faiz oranlarının yükselmesi ise gelişmekte olan piyasalara fon akışının azalmasına neden olmaktadır. Böylece bu ülkelerdeki bankaların ve firmaların maliyetlerini artırıp, tersine seçim ve ahlaki tehlike gibi birçok sorun yaratarak, finansal sistemi kırılganlaştırmaktadır.

2000'li yılların başından itibaren yabancı sermaye aktarımlarının küresel çapta yaygınlaşması ve gelişmekte olan ülkelerin gerçekleştirdiği ekonomik reformlarla birlikte ülkelerin sahip oldukları finansman açıkları küresel finans piyasalarından bol ve ucuz şekilde sağlanmıştır. Bu durum az gelişmiş ve gelişmekte olan ülkelerin ekonomik büyümeleri anlamında olumlu bir gelişme olarak kaydedildi. 2008 yılında ABD'de başlayan ve sonrasında hızla Avrupa'ya yayılan Küresel Finans Krizi gelişmiş ülke piyasalarını derinden sarsarken gelişmekte olan ülkeleri diğer ülkeleri nazaran daha az etkilediği birçok finansal otorite tarafından ifade edilmiştir. Yaşanan finansal kriz sonrası ABD Merkez Bankası FED'in piyasaları daha işlevsel hale getirebilmek adına tahvil alımları aracılığıyla uyguladığı parasal genişleme politikası, diğer ülkelere göre yatırımcılara daha yüksek faiz oranı sunan gelişmekte olan ülkelere para akışını sağlamıştır.

Yurtiçi kredi hacmi, ülkelerin finansal gelişmişliği üzerinde önemli bir yere sahiptir. Finansal yapının gelişmesi ise ekonomik büyümenin sağlanmasına oldukça önemlidir. Diğer bir ifadeyle, ekonomik büyümenin gerçekleşmesinde ve sürdürülebilmesinde finansal gelişme faktörleri etkili olmaktadır. Finansal yapının gelişmesi, yapılan tasarrufların yatırıma dönüşmesi ve ekonomik büyümenin yaşanması için önemlidir. Özellikle bankacılık sektörünün vermiş olduğu krediler

ülkenin üretim ve yatırım sürecinde önemli rol oynamaktadır. Bu kapsamda, bankaların kredi hacmindeki artışlar, para arzını artırarak üretimi, istihdamı ve ekonomik büyümeyi arttırmaktadır.

Kırılgan beşli gibi gelişmekte olan ülkelerindeki kredi hacminde yaşanan değişiklikler, ekonomik anlamda bu ülkeleri, gelişmiş ülkelere nazaran daha fazla etkilemektedir. Bu etki, pozitif, negatif veya nötr olabilmektedir. Yani, fon kaynaklarının kullanımına bağlı olarak bu ülkelerde meydana gelen kredi miktarındaki değişiklikler, gelişmiş ülkelere nazaran ekonomik olarak daha fazla etki yaratabilmektedir. Dolayısıyla bu konunun gelişmekte olan ülkelerdeki önemi, daha çok ön plana çıkmaktadır.

Bu çalışmada, Morgan Stanley tarafından 2013 yılında "Kırılgan Beşli" olarak gruplandırılan "Brezilya, Hindistan, Endonezya, Güney Afrika ve Türkiye'nin" 1996Q1-2022Q2 dönemleri arasında kredi/GSYİH oranları incelenerek birbirleri arasındaki ilişkinin araştırılması amaçlanmıştır. Çalışmada değişkenler arasındaki ilişkiyi incelemek için zaman serisi analizlerinden yararlanılmıştır. Değişkenlerin durağanlık seviyelerinin belirlenmesi için literatür tarafından tavsiye edilen uygun birim kök ve durağanlık testleri üzerinden ilerletilmiştir. Bu bağlamda, Augmented Dickey-Fuller (ADF) ve PhillipsPerron (PP) birim kök testleri vasıtasıyla ilgili serilerin durağanlık dereceleri araştırılmıştır. Değişkenler arasında nedenselliğin olup olmadığı, nedensellik ilişkisi mevcutsa yönlerinin tespit edilmesi karşılıklı olarak "Toda-Yamamoto" analizi yöntemiyle test edilmiştir.

Birim kök testlerinin temel hipotezi serilerin birim kök içerdiği yani tüm değişkenler için düzeyde durağan olmadıkları şeklindedir. Bu durumda tüm değişkenler ADF ve PP birim kök testlerine yeniden tabi tutularak birinci farklı alınmış ve seriler durağan hale getirilmiştir. Toda-Yamamoto nedensellik testi sonuçlarına göre ise, %5 anlamlılık seviyesinde, kırılgan beşli ülkeleri arasında Brezilya ve Hindistan arasında nedensellik ilişkisi tespit edilirken diğer ülkeler arasında karşılıklı olarak yapılan testlerde herhangi bir nedensellik ilişkisine rastlanmamıştır. Tarafımızca yapılan literatür çalışmasında kırılgan beşli ülkelerinin kredilerinin GSYİH oranına ilişkin yapılmış bir çalışma tespit edilememiş olup, bu nedenle çalışmanın literatüre katkı sağlaması beklenmektedir.

Son olarak, bu çalışmada yer alan bulguların modele dayalı tekniklerle zenginleştirilmesinin faydalı olacağı belirtilmelidir. Diğer ülke deneyimlerinin toplulaştırıldığı bu çalışmanın ampirik ve yapısal teknikleri tamamlayıcı nitelik taşıdığı ve kriz dönemlerinde alınan dersleri unutmamak kaydıyla önümüzdeki dönemde izlenmesi sağlıklı olabilecek kredi politikasına dair önemli bilgiler içerdiği düşünülmektedir.