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# Loans, Inflation, and Economic Growth in Türkiye and the European Union: A Comparative Analysis of Macroeconomic Dynamics

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**Abstract**

In recent years, policies implemented to ensure economic stability have undergone significant changes in response to global and regional developments. In particular, the effects of the COVID-19 pandemic and the economic uncertainties caused by the ongoing Russia-Ukraine war have led to the widespread adoption of expansionary monetary policies. Accordingly, the European Central Bank (ECB) and the Central Bank of the Republic of Turkey (CBRT) tried to maintain economic stability by providing liquidity to the markets, but these policies, combined with increases in energy and commodity prices, led to a significant rise in inflation rates in Europe and Turkey. This study aims to analyze the impact of bank lending to the private sector and inflation on economic growth in Turkey and the European Union over the period 2001-2023 using the ARDL bounds test method. Adopting a comparative approach, GDP per capita employment, net exports and foreign direct investment are included in the model as control variables in order to evaluate the effects of financial intermediation and price stability on growth under different economic conditions more comprehensively. The findings show that credit volume, inflation and GDP per capita employment have a positive effect on economic growth in Turkey, whereas net exports have a negative effect on growth and FDI has no statistically significant effect. In the analysis for the European Union economy, it is found that GDP per capita employment and foreign direct investments contribute positively to economic growth, whereas credit volume and net exports affect growth negatively. Moreover, inflation has no statistically significant effect on economic growth in the European Union.

**Anahtar Kelimeler**
Economic Growth,
Inflation,
Credit,
ARDL Boundray Test

**JEL Kodu**
E44, G21, O47, E31, C32

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# Türkiye ve Avrupa Birliği'nde Banka Kredileri, Enflasyon ve Ekonomik Büyüme: Makroekonomik Dinamiklerin Karşılaştırmalı Analizi

**Öz**

Son yıllarda ekonomik istikrarı sağlamak amacıyla uygulanan politikalar, küresel ve bölgesel gelişmelere bağlı olarak önemli değişimler geçirmiştir. Özellikle COVID-19 pandemisinin etkileri ve devam eden Rusya-Ukrayna savaşının yol açtığı ekonomik belirsizlikler, genişleyici para politikalarının yaygınlaşmasına neden olmuştur. Bu doğrultuda, Avrupa Merkez Bankası (ECB) ve Türkiye Cumhuriyet Merkez Bankası (TCMB), piyasalara likidite sağlayarak ekonomik istikrarı korumaya çalışmış, ancak bu politikalar enerji ve emtia fiyatlarındaki artışlarla birleşerek Avrupa ve Türkiye'de enflasyon oranlarının önemli ölçüde yükselmesine yol açmıştır. Bu çalışma, 2001-2023 döneminde Türkiye ve Avrupa Birliği'nde özel sektöre verilen banka kredileri ile enflasyonun ekonomik büyüme üzerindeki etkisini ARDL sınır testi yöntemiyle incelemeyi amaçlamaktadır. Karşılaştırmalı bir yaklaşım benimsenerek, finansal aracılığın ve fiyat istikrarının farklı ekonomik koşullarda büyüme üzerindeki etkilerini daha kapsamlı değerlendirebilmek adına modele kişi başına düşen GSYİH istihdamı, net ihracat ve doğrudan yabancı yatırımlar kontrol değişkenleri olarak dahil edilmiştir. Elde edilen bulgular, Türkiye'de kredi hacmi, enflasyon ve kişi başına GSYİH istihdamının ekonomik büyümeyi pozitif yönde etkilediğini; buna karşın net ihracatın büyümeyi olumsuz yönde etkilediğini ve doğrudan yabancı yatırımların istatistiksel olarak anlamlı bir etkisinin bulunmadığını göstermektedir. Avrupa Birliği ekonomisi için yapılan analizde ise kişi başına GSYİH istihdamı ve doğrudan yabancı yatırımların ekonomik büyümeye pozitif katkı sağladığı, buna karşılık kredi hacmi ve net ihracatın büyümeyi olumsuz yönde etkilediği tespit edilmiştir. Ayrıca, Avrupa Birliği'nde enflasyonun ekonomik büyüme üzerinde istatistiksel olarak anlamlı bir etkisinin bulunmadığı belirlenmiştir.

**Keywords**
Ekonomik Büyüme, Enflasyon, Kredi, ARDL Sınır Testi
**JEL Classification**
E44, G21, O47, E31, C32

## 1. Introduction

Global economic and political developments throughout history have led to significant transformations in the economic structures of societies. In particular, crisis periods such as the global financial crises, fluctuations in energy markets and, most recently, the COVID-19 pandemic have brought the effectiveness of economic policy instruments into question and debate. In this context, the structural dynamics of inflation and the effects of credit markets on economic growth have become a fundamental element of economic analysis in both developed and developing countries. Although Türkiye and the European Union (EU) countries are engaged in intensive economic cooperation with each other due to their economic and geographical proximity, they exhibit significant differences in economic policies and macroeconomic indicators. Türkiye, as an emerging economy, often faces high inflation and financial volatility, while EU countries are characterized by lower inflation rates and relatively stable financial systems. Nevertheless, both regions have implemented expansionary monetary policies in the face of global crises, but the outcomes and effects of these policies have differed according to regional dynamics.

This study aims to analyze the effects of bank lending to the private sector and inflation on economic growth in Türkiye and the European Union. In the literature, the inflation-growth relationship or the credit-growth relationship has generally been analyzed. While time series analysis is generally used in studies on Türkiye, panel data method is preferred for multi-country analyses. However, since the panel data method covers many countries, the fact that the unique dynamics of each country are different has led to limitations in policy recommendations. On the other hand, studies conducted only for Türkiye could not provide sufficient information on how the economic structure of the country differs from other countries. In addition, in order to increase the reliability of the relationship between the dependent and independent variables in this study, the addition of GDP per capita, net exports and foreign direct investments as control variables allows the study to provide an in-depth approach. The study aims to better understand the economic dynamics of both Türkiye and the European Union and to provide meaningful implications for policymakers. In this context, the study follows a theoretical framework, empirical literature analysis and a comparative methodological approach. Finally, the fifth section provides general considerations and conclusions. The study aims to provide both academics and policymakers with an in-depth understanding of the economic dynamics of the two regions and thereby contribute to the literature.

## 2. Theoretical Framework

In the historical process, global developments in the fields of military, politics and health have led to radical changes in the economic structures of societies. One of the most important reflections of these transformation processes has been observed in the evolution of the inflation phenomenon. Until the 1970s, inflation was mostly recognized as a demand-driven phenomenon. The background of this situation was characterized by important turning points such as World Wars I and II, the Great Depression and the collapse of the international monetary system. The financing of increased military expenditures and public investments by central banks during wartime, as well as the low interest rate policies pursued at the same time, led to a demand-driven inflationary process. In this period, government policies shaped in line with Keynesian economic views were formed within an approach that supported the relationship between high growth and high inflation (low unemployment) suggested by the Phillips curve (Smith & Timmermann, 2024). According to Keynesian economic theory, inflationary pressures do not arise as long as an economy is underemployed. However, if the level of aggregate demand increases after the economy reaches

full employment, this increase in demand creates an upward pressure on prices and leads to inflation. Following the oil crisis in the 1970s, many countries faced macroeconomic problems such as high inflation, high unemployment and low growth. During this period, the Monetarist approach to economics, led by Milton Friedman, came to the fore and according to this approach, the view that governments should assume the responsibility of limiting the money supply and independent central banks should play a critical role in ensuring price stability became widespread. Friedman argued that in the long run, changes in the money supply have an impact only on nominal variables, but not on real variables, and put forward the principle of "Money Neutrality" (Ambler, 2024). In other words, he argued that the main cause of inflation is the increase in money supply and that "inflation is always and everywhere a monetary phenomenon" (Hein, 2024). The neo-Keynesian approach considers inflation as a consequence of demand and cost shocks in the short run and argues that price and wage rigidities affect economic equilibrium (Mankiw, 1992). The structuralist approach, on the other hand, argues that inflation is caused by supply-side structural problems and imbalances arising from the economic structure of developing countries (Prebisch, 1950; Furtado, 1963). The Rational Expectations School, on the other hand, argues that economic agents can make accurate predictions about the future and that inflation can only be caused by unexpected monetary policy changes (Lucas, 1972).

The impact of inflation on economic growth is discussed in two main frameworks, positive and negative, in the context of economic approaches and studies in the literature. In this context, studies based on the Keynesian economic doctrine approach the inflation-growth relationship from a positive perspective, while studies based on the Classical and Monetarist view of economics generally view this relationship from a negative perspective. Keynesian economic doctrine suggests that up to a certain level, inflation can stimulate economic growth by increasing the level of demand and investment. The increased level of demand in the economy can contribute to an increase in the size of the economy by increasing the level of production and employment. However, Classical and Monetarist economic doctrine states that if inflation increases uncontrollably, it will distort prices in the market and lead to a decline in the level of investment. Accordingly, it is argued that high inflation rates may increase the cost of capital, adversely affecting investment and damaging sustainable growth in the long run. Table 1 summarizes the factors affecting the perspectives on the relationship between economic growth and inflation.

Table 1

*Relationship Between Economic Growth and Inflation*

| The Relationship between Economic Growth and Inflation Positive Outlook | The Relationship between Economic Growth and Inflation Negative Outlook |
|---|---|
| **Saving and Wealth Effect** Inflation may lead individuals to perceive a loss of wealth, which may lead to an increase in saving rates to compensate for this loss. Higher savings rates may contribute to encourage investments by increasing capital accumulation and thus support economic growth. | **Uncertainty and Investment Decisions**: Inflation may adversely affect investors' decision-making processes by increasing economic uncertainty, which may have a slowing effect on economic growth. |
| **Capital Allocation:** Inflation may encourage individuals and institutions to reallocate their investment portfolios from financial assets to the real sector. This shift may lead to an increase in capital intensity and thus increase the rate of economic growth. | **Distortion of the Price Mechanism:** Inflation can lead to imbalances between sectoral prices and hinder the optimal allocation of resources, which can adversely affect economic growth. |
| **Seigniorage Revenue and Public Expenditures**: Inflation can create an additional source of financing by increasing the seigniorage revenues of the government. The government can support economic growth by channeling increased seigniorage revenues into investments. | **Export Competitiveness:** Inflation may increase the real value of the national currency, raising the cost of exports, which in turn may adversely affect the balance of trade. |
| **Income Distribution:** Inflation can raise the level of investment by increasing the real incomes of those with a high propensity to save, thereby stimulating economic growth. | **Financial Depth and Investments:** Inflation may cause individuals to invest in real estate or precious metals instead of financial assets, leading to a decline in financial depth. |
| | **Taxes and Capital Costs:** Inflation can interact with nominal tax systems to raise the cost of capital, which can constrain investment and adversely affect economic growth |

*Source.* Lucas (1972); Dornbusch (1980); Feldstein (1982); Modigliani (1986); Grimes (1991); Cukierman et al. (1992); Fischer (1993); Kaldor (1995); Boyd et al. (2001); Chowdhury (2002); Akbulut (2021); Avcı & Süslü (2023).

A similar view of the relationship between economic growth and inflation is also seen in the relationship between economic growth and credit. In this context, studies that positively address this relationship are of the view that the main banking activities such as banks' ability to reduce transaction and information costs, purifying the economy from the adverse selection problem, having an intermediary function between those who supply funds and those who demand funds, and playing a role in transferring idle funds to the real sector support economic growth. Schumpeter (1911) argued that the banking sector plays a critical role in the efficient allocation of resources to

innovative and productive investments, and that this process leads to an increase in the rate of economic growth. Gurley and Shaw, on the other hand, argued that the improvement in the quality and functions of the financial system would have a positive impact on economic growth. In this context, they considered the acceleration of financial development as a factor contributing to the increase in economic growth (Ceylan & Durkaya, 2010). The relationship between economic growth and credit is shaped by monetary policy, interest rates, money supply, aggregate demand and production-employment dynamics. Expansionary monetary policies increase the money supply, lower interest rates and facilitate access to credit. Increased credit utilization supports consumption and investment, leading to an increase in aggregate demand. This increase in demand contributes to economic growth by raising production and employment levels. Thus, credit emerges as an important factor in the economic growth process.

Neo-classical growth theory argues that financial development promotes economic growth in the short run through increased productivity and higher savings and investment rates. On the other hand, endogenous growth theory states that financial development supports a sustainable economic growth process in the long run through its effect on savings (Şentürk, 2005). On the other hand, *Minsky's Financial Instability Hypothesis*, which takes a negative perspective on the relationship between economic growth and credit, argues that excessive borrowing may trigger financial crises by creating fragility in the markets and this may lead to negative consequences on economic growth. Reinhart & Rogoff (2010) also support this approach by presenting findings confirming the negative effects of excessive borrowing on growth. Table 2 summarizes the factors affecting the perspectives on the relationship between economic growth and credit.

Table 2

*Relationship Between Economic Growth and Credit*

| **The Relationship between Economic Growth and Credit Positive Outlook** | **The Relationship between Economic Growth and Credit Negative Outlook** |
|---|---|
| **Increased Investment:** Access to credit stimulates economic growth by allowing businesses to meet their capital requirements and finance investment projects | **Debt Burden and Crisis Risk:** Excessive use of credit can lead to financial fragility and debt crises, slowing growth**.** |
| **Increase in Consumption Expenditures:** Households' access to credit boosts consumption | **Inefficient Allocation of Resources:** Directing credits to the wrong sectors may lead to inefficient use of resources. |

| | |
|---|---|
| expenditures, supporting aggregate demand and accelerating economic growth. | |
| **Technological Development and Productivity:** By making it possible to invest in new technologies, loans help businesses increase their productivity and accelerate economic growth**.** | **Inflationary pressures:** Credit growth may create excess demand and inflationary pressures, which may adversely affect growth**.** |
| **SME Supports:** Loans to small and medium-sized enterprises (SMEs) increase employment, promote regional development and support economic growth**.** | **External Debt Dependence:** The fact that a large share of credit is external can increase economic dependence and make growth unsustainable. |
| **Infrastructure and Public Investment:** Government lending supports long-term economic growth by contributing to the financing of infrastructure projects | **Systemic Risks:** Credit expansion in the banking sector could increase systemic risks and have a negative impact on growth. |

*Source.* Stiglitz & Weiss (1981); Mishkin (1996); Rajan (1998); Kaminsky & Reinhart (1999); Berber & Artan (2004); Calderón & Servén (2004); Beck & Levine (2004); Levine (2005); Ayyagari et al. (2007); Borensztein & Panizza (2008).

Large-scale economic changes in the historical process have significantly shaped the nature of recent economic interventions. Especially in the aftermath of the global financial crisis in 2008, expansionary policies have emerged as a key tool to contain economic instability. Similarly, during the COVID-19 pandemic, central banks tried to support economic activity through low interest rates and expansionary monetary policies, while the public sector took various measures to prevent economic contraction through fiscal policies. In this context, the European Central Bank (ECB) and the Central Bank of the Republic of Türkiye (CBRT) adopted similar policies to support their economies and stabilize markets to cope with global economic challenges during the pandemic. The ECB provided liquidity to the market through programs such as the "Pandemic Emergency Asset Purchase Program (PEPP)" and "Targeted Long-Term Refinancing Operations (TLTRO)" to mitigate the effects of the pandemic (ECB, 2024). Türkiye, on the other hand, adopted an expansionary monetary policy and low interest rate strategy (CBRT, 2024). These policies led to a significant increase in inflation rates both in Europe and Türkiye. In this context, inflation in Europe, which was 0.47% in 2020, started to increase due to the increase in energy and commodity prices caused by the Russia-Ukraine war and the ongoing effects of the pandemic, reaching 2.55% in 2021 and 8.83% in 2022, the highest level in the last 25 years. In Türkiye, inflation rose from 14% in 2020 to 36% in 2021, 64% in 2022 and 64.6% in 2023 due to a combination of domestic dynamics and global effects. In this context, the variables used in this study are summarized in Table 3 for Türkiye and the European Union separately.

Table 3

*Türkiye and the European Union: Comparison of Selected Indicators*

| | Türkiye | | | European Union | | |
|---|---|---|---|---|---|---|
| | GDP ((Billion USD) | INFLATION (%) | CREDIT (GDP %) | GDP (Billion USD) | INFLATION (%) | CREDIT (GDP %) |
| 2000 | 413.8 | 54.92 | 17.25 | 11.31 | 3.15 | - |
| 2005 | 525.4 | 8.18 | 21.22 | 12.34 | 2.49 | 92.42 |
| 2010 | 614.1 | 8.57 | 41.60 | 12.97 | 1.53 | 101.6 |
| 2015 | 864.3 | 7.67 | 62.60 | 13.65 | -0.06 | 88.9 |
| 2020 | 1.105 | 14 | 70.90 | 14.04 | 0.47 | 91.24 |
| 2023 | 1.255 | 64,6 | 43.34 | 15.52 | 6.30 | 77.59 |

*Source.* CBRT, 2024; World Bank, 2024.

Table 3 shows that over the 2000-2023 period, Türkiye recorded rapid economic growth, tripling its Gross Domestic Product (GDP), but faced significant economic challenges such as high inflation (peaking at 53.86% in 2023) and volatile private sector lending rates. In particular, the rise in private sector lending rates to 70.90% in 2020 and a decline to 43.34% in 2023 can be seen as an indicator of instability in the financial system. The European Union, on the other hand, realized a more moderate GDP growth in the same period and displayed a more stable economic structure with low inflation rates and generally high credit ratios. However, the inflation rate, which rose to 6.30% in 2023, reveals the sensitivity of the EU economy to global economic shocks.

## 3. Empirical Literature Review

When the literature is reviewed, it is generally observed that the relationship between credit and economic growth and the relationship between inflation and economic growth are examined independently of each other. In this study, these variables were analyzed simultaneously; however, the literature summary is presented within the framework of the two groups mentioned above.

Ceylan & Durkaya (2010) focused on the effect of domestic credit on Türkiye's economic growth in the period 1998-2008 using the Granger causality test. They found a one-way causality relationship from economic growth to credit. Similarly, Özen & Vurur (2013) analyzed the data between 1998-2012 with the same method and found a one-way causality relationship from economic growth to credit. Taşseven &Yılmaz (2022) found that the effect of credit and money supply on Türkiye's economic growth was less significant compared to the role of capital markets by covering the period 2005-2020 on a quarterly basis. Özçelik & Süsay (2022) used the Toda-

Yamamoto causality method to evaluate the relationship between loans received from commercial banks and growth in the period 2005-2021 and found an indirect causality. For the European Union, Sassi & Gasmi (2014) analyzed the effects of credit on the economic growth of 27 member states between 1995 and 2012 and concluded that commercial credit positively affected growth while retail credit had a negative effect. In another study, Asteriou et al. (2023) evaluated the impact of financial market instruments such as stocks and bonds on economic growth in 26 EU countries between 1990 and 2020 Their results showed that financial development positively contributed to economic growth.

Berber & Artan (2004) analyzed the relationship between inflation and economic growth in Türkiye for the period 1987-2003 using the Granger causality method. They found a unidirectional causality from inflation to economic growth and determined a negative relationship between inflation and economic growth. Çetin & Yeşiloğlu (2018) examined the relationship between inflation and economic growth in Türkiye for the period 1961-2016 using the ARDL method and found a negative relationship between inflation and economic growth in both the short and long term. Börü & Çelik (2019) analyzed the relationship between inflation and economic growth in Türkiye for the period 2002-2018 using quarterly data within the framework of the VAR model. Their analysis concluded that economic growth increased the level of inflation. Dinçsoy & Dinçsoy (2020) examined the relationship between inflation and economic growth in Türkiye for the period 2004-2017 using the VECM Granger causality test. They found a unidirectional causality from economic growth to inflation. Ünvan & Demirel (2020) analyzed the relationship between inflation and economic growth in Türkiye for the period 2010-2019 using time series methods and found a negative relationship between these variables. Dussoyea et al. (2017) analyzed the relationship between inflation and economic growth for eight countries in the European region across three different time periods. Their analysis found an inverse relationship between economic growth and inflation during the crisis period, while no relationship was observed between the variables in other periods. Kryeziu & Durguti (2019) found that inflation positively contributed to economic growth in the European region for the period 1997-2017. Lubeniqi et al. (2023) examined the relationship between inflation and economic growth in the European region for the period 1955-2022 using panel data analysis. Their study found that a 1% increase in the inflation rate reduced the economic growth rate by 0.017%.

When the literature is analyzed, it is evident that in the relationship between credit and economic growth, there is a unidirectional causality relationship from economic growth to credit, and credits positively affect economic growth. Regarding the relationship between inflation and economic growth, all studies except Kryeziu & Durguti (2019) identified a negative relationship. Within the scope of causality relationships, the research findings exhibit a heterogeneous structure.

## 4. Methods

### 4.1. Purpose of the Study

The aim of this study is to analyze the effects of bank lending to the private sector and inflation on economic growth measured by gross domestic product (GDP) in Türkiye and the European Union. The main objective is to examine the extent to which private sector lending and inflation affect economic growth in these two regions and to identify similarities and differences in their economic structures. By adopting a comparative approach, the study aims to provide a better understanding of how financial intermediation and price stability contribute to economic performance in different economic environments. For this purpose, GDP per capita employment, net exports and FDI are included in the model as control variables to increase the reliability of the relationship between the dependent and independent variables. It also aims to investigate whether the impact of these variables varies due to structural, institutional or policy-related differences between Türkiye and the EU. Through this analysis, the study aims to provide valuable insights for policymakers, financial institutions and researchers interested in the relationship between credit, inflation and economic growth in various economic contexts.

### 4.2. Data Collection

This study utilizes annual data obtained from the World Bank database for the period 2001-2023. In the empirical analysis, Gauss 6.0 and EViews 9.0 programs are used to examine the impact of private sector loans and inflation on economic growth. In the model, GDP is defined as the dependent variable, while private sector loans and inflation are defined as independent variables. In addition, GDP per capita employment, net exports and foreign direct investments are included as control variables in the model in order to prevent the deviation of the relationship between the dependent and independent variables and to increase the reliability of the analysis results. A summary of the variables used in the analysis is presented in Table 4.

Table 4

*Variable Definitions*

| Variables | Description | Period | Source |
|---|---|---|---|
| **GDP** | Gross Domestic Product | 2001-2023 | World Bank |
| **CREDIT** | Banks' Domestic Loans to the Private Sector | 2001-2023 | World Bank |
| **INFLATION** | Inflation (Consumer Prices) | 2001-2023 | World Bank |
| **PCGDPE** | GDP per person employed | 2001-2023 | World Bank |
| **NEX** | (Export-İmport) | 2001-2023 | World Bank |
| **FDI** | Foreign Direct Investment | 2001-2023 | World Bank |

### 4.3. Analysis Method

In this study, an empirical analysis is conducted to examine the relationship between bank lending to the private sector, inflation and economic growth in the European region and Türkiye. In the first stage, the ADF (Augmented Dickey-Fuller) test developed by Dickey & Fuller (1981) and the PP (Phillips-Perron) test developed by Phillips & Perron (1989) were applied to determine whether the variables have unit roots. Then, after determining the stationarity levels of the series, the ARDL bounds test method is used to analyze whether there is cointegration between the variables. In the last stage, short and long run coefficient estimates are made within the framework of the ARDL model. This section details the definition of the variables analyzed and the methodology used to interpret the results.

### 4.4. ADF and PP Unit Root Tests Method

In econometric analyses, unit root tests are conducted to determine whether the series are stationary or not. Garanger & Newbold (1974) found that non-stationary variables have biased regressions and multidimensional variances and explained this situation as 'spurious regression'. They also found that series with unit root (non-stationary) will have high $R^2$ values (Yıldırım & Tuna, 2017). In order for the series to be considered stationary, the mean and variance of the variables should remain constant within the specified period and the covariance between two periods should depend only on the process between these periods. In this study, Extended Dickey-Fuller (ADF) was used to analyze whether the variables contain unit root. In unit root analysis, the stationarity levels of the series are examined in three stages. These stages are level, first difference and second difference. If the series are found to be non-stationary at their level values, they can be freed from unit root by taking their first differences. However, if the series continue to contain unit

roots after first differences are taken, then the series can be made stationary by taking their second differences (Çelik et al., 2020). In addition, PP unit root test was conducted to test the reliability of the ADF unit root test results.

The equation for the ADF Unit Root Test analysis is presented below.

$$\Delta Y_t = \delta Y_{t-1} + \sum_{i=1}^{m} \alpha\, Y_{t-i} + \varepsilon_t \quad (1)$$

$$\Delta Y_t = \beta_1 + \delta Y_{t-1} + \textstyle\sum_{i=1}^{m} \alpha\, \Delta Y_{t-i} + \varepsilon_t \quad (2)$$

$$\Delta Y_t = \beta_1 + \beta_{2t} + \delta Y_{t-1} + \textstyle\sum_{i=1}^{m} \alpha\, \Delta Y_{t-i} + \varepsilon_t \quad (3)$$

In the first equation presented above, the ΔY series is modeled in lagged and differenced form to eliminate the autocorrelation problem. This equation, which does not contain a deterministic component, is constructed within a random process framework. The second equation, unlike the first equation, contains a constant term, while the third equation is structured to include both a constant term and a trend component. Accordingly, the hypotheses for the series analyzed with the ADF (Augmented Dickey-Fuller) unit root test are as follows.

$H_0$: $\alpha \geq 0$ α≥0, the series contains a unit root, which indicates that the series is not stationary.

$H_1$: $\alpha < 0$ α<0, the series does not contain a unit root, which indicates that the series is stationary.

In order to test the findings and structural breaks obtained from the ADF unit root test, the PP unit root test developed by Philips-Perron (1988) was used in the research. In this context, the equation for this test is as follows:

$$Y_t = \alpha^*_0 + \alpha^*_1 y_{t-1} + \varepsilon_t \quad (4)$$

$$Y_t = \tilde{\alpha}_0 + \tilde{\alpha}_1 y_{t-1} + \tilde{\alpha}_2 \left(t - \frac{1}{2}T\right) + \varepsilon_t \quad (5)$$

In the equation, T is the number of observations and ε is the pure error term. The method is based on the assumption that the expected value of the error term is zero (E= ($\varepsilon_t$) = 0). However, according to the basic assumption of the PP data generation process developed by Phillips & Perron (1988), the coefficients $y_t = y_{t-1} + \varepsilon_t$ $\alpha^*_0$ and $\alpha^*_1$ are tested by means of test statistics.

### 4.5. ARDL Method

Cointegration is a concept that refers to the long-term equilibrium relationship between variables. In this study, the long-run cointegration relationship between GDP, credit, inflation and control variables is analyzed using the ARDL bounds test method proposed by Pesaran et al. The ARDL method is preferred because it can be applied regardless of the stationarity level (I(0) or I(1)) of the variables (Pesaran et al., 2001). Moreover, it stands out by providing reliable results even in data sets with limited observations (Tutgun, 2019; Narayan & Narayan, 2005; Narayan & Smyth, 2006). In this study, the ARDL model constructed to analyze the effect of bank loans, inflation and control variables on GDP is presented below.

$$\Delta LNGDP_t h = \beta_0 + \beta_1 GDP_t - 1 + \beta_2 CREDIT_t - 1 + \beta_3 INFLATION_t - 1 + \beta_4 PCGDPE_t - 1 + \beta_5 NEX_t - 1 + \beta_6 FDI_t - 1 + \sum_{i=1}^{P} \alpha_{1i} \Delta LNGDP_{t-i} + \sum_{i=j}^{q} \alpha_{2i} \Delta CREDIT_{t-i} + \sum_{i=j}^{q} \alpha_{3i} \Delta INFLATION_{t-i} + \sum_{i=j}^{q} \alpha_{4i} \Delta lnPCGDPE_{t-i} + \sum_{i=j}^{q} \alpha_{5i} \Delta lnNEX_{t-i} + \sum_{i=j}^{q} \alpha_{6i} \Delta lnFDI_{t-i} + \varepsilon_t \quad (6)$$

Within the framework of this equation, the long-term relationship between GDP, CREDIT, INFLATION, PCGDPE, NEX, FDI, variables is tested using the F-statistic bounds test with the following hypotheses.

*Ho:* $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6$

*H1:* $\beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq \beta_6$

Rejection of the null hypothesis indicates that there is a long-run cointegration relationship between the variables in the model. Once cointegration is detected, the following equation is constructed to determine the relationship between the variables in the long run.

$$LNGDP_t = \beta_0 + \sum_{i=J}^{P} \alpha_{1\dot{1}}\, \Delta LNGDP_{t-1} + \sum_{i=j}^{q} \alpha_{2i} \Delta CREDIT_{t-1} + \sum_{i=j}^{q} \alpha_{3i} INFLATION_{t-1} + \sum_{i=j}^{q} \alpha_{4i} \Delta LNPCGDPE_{t-1} + \sum_{i=j}^{q} \alpha_{5i} \Delta LNNEX_{t-1} + \sum_{i=j}^{q} \alpha_{6i} \Delta LNFDI_{t-1} + \varepsilon_t \quad (7)$$

After estimating the long-run cointegration equation between the series, the error correction model is used to analyze the short-run dynamics. This model helps to identify the short-term fluctuations between variables and how the equilibrium is achieved. In the process of estimating the short-run effects, the lagged value of the error term obtained from the long-run relationship belonging to the previous period is included in the model. In this context, the unconstrained error correction model showing short-run dynamics is expressed as follows:

$$LNGDP_t = \beta 0 + \sum_{i=J}^{P} \alpha_{1i}\, \Delta LNGDP_{t-1} + \sum_{i=j}^{q} \alpha_{2i} \Delta CREDIT_{t-1} + \sum_{i=j}^{q} \alpha_{3i} INFLATION_{t-1} + \sum_{i=j}^{q} \alpha_{4i} \Delta LNPCGDPE_{t-1} + \sum_{i=j}^{q} \alpha_{5i} \Delta LNNEX_{t-1} + \sum_{i=j}^{q} \alpha_{6i} \Delta LNFDI_{t-1} + \psi ECT_t - 1 + \varepsilon_t \quad (8)$$

## 5. Findings

This section empirically analyzes the impact of bank lending to the private sector and inflation on gross domestic product (GDP) in Türkiye and the European Union. Since a comparative approach is adopted, GDP per capita employment, net exports and foreign direct investment levels are also included in the analysis in order to assess the relationship between the variables in a more comprehensive and clearer framework. Accordingly, by analyzing the effects of private sector loans and inflation on economic growth, control variables such as GDP per capita

employment, net exports and foreign direct investment will also be taken into account and the similarities and differences between Türkiye and the European Union economies will be evaluated in light of the empirical findings.

### 5.1. Empirical Findings

In the empirical findings section of the study, ADF (Augmented Dickey-Fuller) and Phillips-Perron (PP) tests are applied to determine whether the variables contain unit roots. After determining the stationarity levels of the series, the ARDL bounds test method was used to examine the long-run relationship between the variables. In the last stage, short and long run coefficient estimates are made within the scope of the ARDL model.

#### *5.1.1. Unit Root Test Results*

Table 5 summarizes the results of ADF and PP tests. As a result of the unit root tests for Türkiye, according to the ADF test, foreign direct investment (FDI) is stationary in the fixed model, while GDP per capita (PCGDPE) and net exports (NEX) are stationary in the fixed-trend model. All other variables are found to be unit root-free and stationary in both the fixed and fixed-trend models when their first differences are taken. These findings are consistent with the results of the Phillips-Perron (PP) test for Türkiye and support the findings of the ADF test. In the unit root tests for Europe, GDP per capita (PCGDPE) was found to be stationary in the model with constant trend, while foreign direct investment (FDI) was stationary in the model with constant trend. Other variables became stationary when first differences were taken. The PP test results obtained for Europe are also in line with the findings of the ADF test. These results reveal that the variables in both regions have similar stationarity properties and the series become stationary when short-run fluctuations are removed.

Table 5

*ADF and PP Unit Root Test Results*

| | | Variables | ADF | PP | | Variables | ADF | PP |
|---|---|---|---|---|---|---|---|---|
| Level TÜRKİYE | *Fixed* | GDP | -0.78(0.80) | -0.78(0.80) | *First Differences* | GDP | -3.71(0.01) | -3.63(0.01) |
| | | INFLATION | -1.97(0.29) | ***-1***.97(0.29) | | INFLATION | -4.36(0.00) | -4.31(0.00) |
| | | CREDIT | -1.76(0.38) | -1.51(0.50) | | CREDIT | -2.93(0.05) | -2.63(0.08) |
| | | PCGDPE | -2.33(0.16) | -2.05(0.26) | | PCGDPE | -4.77(0.00) | -2.66(0.09) |
| | | NEX | -0.89(0.76) | -2.53(0.12) | | NEX | -4.94(0.00) | -5.56(0.00) |
| | | FDI | -3.64(0.01) | -2.22(0.20) | | FDI | -3.63(0.01) | -3.81(0.00) |
| | | GDP | -2.49(0.32) | -2.58(0.29) | | GDP | -3.65(0.04) | -3.54(0.06) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | ***Fixed + Trend*** | INFLATION | -2.14(0.49) | -1.99(0.57) | INFLATION | -5.57(0.00) | -5.70(0.08) |
| | | CREDIT | 0.20(0.99) | 1.22(0.99) | CREDIT | -3.73(0.04) | -3.20(0.10) |
| | | PCGDPE | -4.03(0.02) | -2.72(0.06) | PCGDPE | -4.38(0.01) | -2.29(0.06) |
| | | NEX | -3.63(0.04) | -6.16(0.00) | NEX | -5.44(0.00) | -8.29(0.00) |
| | | FDI | -5.17(0.00) | -2.42(0.35) | FDI | -3.67(0.04) | -3.98(0.02) |
| Level European Union | ***Fixed*** | GDP | -0.62(0.84) | -0.22(0.92) | GDP | -5.10(0.00) | -6.24(0.00) |
| | | INFLATION | -2.00(0.28) | -2.05(0.26) | INFLATION | -4.49(0.00) | -4.99(0.00) |
| | | CREDIT | -0.27(0.91) | -0.78(0.80) | CREDIT | -2.68(0.09) | -2.63(0.10) |
| | | PCGDPE | -0.94(0.74) | -0.69(0.82) | PCGDPE | -4.36(0.00) | -13.9(0.00) |
| | | NEX | -1.37(0.57) | -1.54(0.49) | NEX | -3.63(0.01) | -3.72(0.01) |
| | | FDI | -1.96(0.29) | -2.00(0.28) | FDI | -4.51(0.00) | -5.25(0.00) |
| | ***Fixed + Trend*** | GDP | -2.76(0.22) | -2.74(0.22) | GDP | -4.96(0.00) | -6.02(0.00) |
| | | INFLATION | -2.01(0.56) | -1.98(0.57) | INFLATION | -4.82(0.00) | -5.71(0.00) |
| | | CREDIT | -1.07(0.91) | -1.16(0.89) | CREDIT | -3.47(0.06) | -3.47(0.06) |
| | | PCGDPE | -3.94(0.02) | -6.11(0.00) | PCGDPE | -4.26(0.01) | -13.6(0.00) |
| | | NEX | -1.96(0.58) | -1.73(0.69) | NEX | -3.48(0.06) | -3.59(0.05) |
| | | FDI | -3.53(0.06) | -2.59(0.28) | FDI | -5.20(0.00) | -5.92(0.00) |

*Note.* Values in parentheses indicate probability values. ***, ** and * values indicate stationarity of the series at 1%, 5% and 10% levels of significance, respectively.

### *5.1.2. ARDL Bounds Test*

In order to evaluate the consistency of the model in the research, it is necessary to examine the long-term relationship between variables. Cointegration analysis aims to determine the existence of a long-term and stable equilibrium relationship between variables (Ay & Çelik, 2024). Since a comparative analysis for Türkiye and the European Union was conducted, two separate ARDL models developed by Pesaran et al. (2001) were constructed for the sample group. Within the scope of these models, the long-run relationship between lnGDP, CREDIT, ENFLATION, lnFDI, lnNEX and lnPCGDPE variables is analyzed. In this context, the ARDL model for Türkiye will be discussed first and then the analysis for the European Union will be shared.

#### *5.1.2.1.ARDL bounds test results for Türkiye*

The asymptotic F-test developed by Pesaran et al. (2001) evaluates the existence of a long-run relationship between variables at 1%, 5% and 10% significance levels. When the F-statistic exceeds the lower and upper critical limits, it is concluded that there is cointegration between the variables. The F-statistic for Türkiye is 3.97, which is above the critical value at 5% significance level. The findings presented in Table 6 confirm the existence of a long-run cointegration relationship in the model.

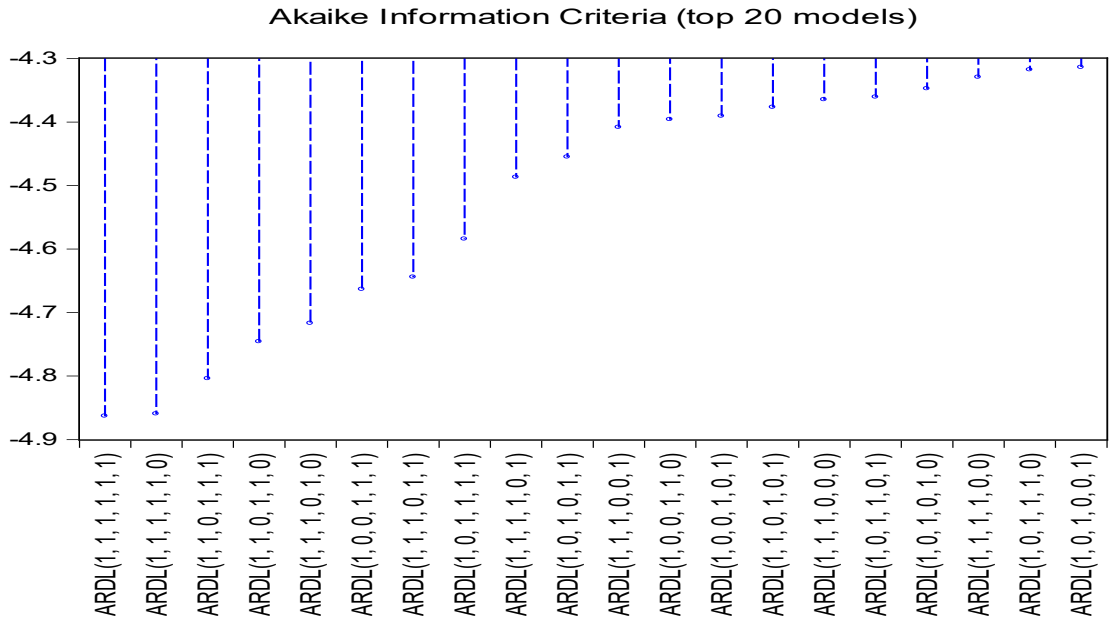
Table 6

*F Statistics and Critical Values*

| **Model (1.1)** | **TÜRKİYE** | | **F-stat** |
|---|---|---|---|
| *F(INF, CREDIT,FDI, PCGDPE, NEX)* | | | 3.97 |
| | | ***Critical Values*** | |
| Significance Level | | Lower Limit | Upper Limit |
| %1 | | 3.41 | 4.68 |
| %5 | | 2.62 | 3.79 |
| %10 | | 2.26 | 3.35 |
| R-squared:0.87 | | | F-statistic:6.61 |
| Adjusted R-squared:0.74 | | | Prob:0.00 |

*Note.* *1%, ** 5%, ***10% Indicates Significance Level.

Following the detection of cointegration relationship, it is necessary to determine an appropriate model to estimate the parameters reflecting the short and long run dynamics between the variables. In this framework, ARDL (1,1,1,1,1,1) is found to be the most appropriate model according to the Akaike Information Criterion for estimating the long-run coefficients.




*Graph 1.* Akaike Information Criterion ARDL (1,1,1,1,1,1) Model

Table 7 presents the descriptive variables corresponding to the long-run and short-run parameters. This analysis not only allows us to examine the short and long-run relationships between variables, but also shows how long it takes for short-run imbalances to disappear within the framework of the Error Correction Model (ECM).

Table 7

*ARDL Long and Short Run Coefficient Analysis for Türkiye*

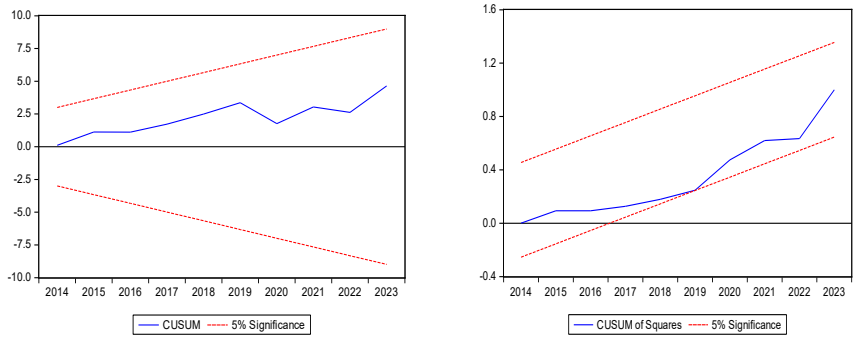
| **Long Run Coefficients** | | | | |
|---|---|---|---|---|
| **Variables** | **Coefficient** | **Standard Error** | **t-stat** | **Probability** |
| INF | 0.006 | 0.002 | 2.94 | 0.01 |
| CREDIT | 0.008 | 0.001 | 5.63 | 0.00 |
| PCGDPE | 1.075 | 0.122 | 8.77 | 0.00 |
| NEX | -0.591 | 0.249 | -2.36 | 0.03 |
| FDI | -0.034 | 0.020 | - 1.71 | 0.11 |
| C | 14.93 | 1.29 | 11.56 | 0.00 |
| **Short Run Coefficients** | | | | |
| **Variables** | **Coefficient** | **Standart Hata** | **t-stat** | **Probability** |
| D(INF) | 0.0017 | 0.000 | 1.93 | 0.08 |
| D(CREDIT) | 0.0007 | 0.002 | 0.29 | 0.77 |
| D(NEX) | -0.1307 | 0.079 | -1.63 | 0.13 |
| D(FDI) | 0.0028 | 0.009 | 0.29 | 0.77 |
| D(PCGDPE) | 0.7544 | 0.185 | 4.07 | 0.00 |
| ECM | **-0.497** | 0.163 | -3.04 | 0.01 |
| **Diagnostics Tests** | | | **t-stat** | **Probability** |
| Jarque-Bera | | | 0.10 | 0.94 |
| Breusch-Godfrey Serial Correlation LM Test | | | 2.11 | 0.18 |
| Heteroskedasticity Test: ARCH | | | 0.38 | 0.54 |
| Ramsey RESET Test | | | 1.59 | 0.07 |

*Note.* *, **, ***represent 1%, 5%, 10% significance levels, probability values in parentheses and ECM represents the error correction term.

When the long-run coefficients in Table 7 are analyzed, it is found that the effect of INF, CREDIT and PCGDPE variables on GDP is statistically significant and positive at 1% significance level, while NEX variable is statistically significant and negative at 5% significance level. On the other hand, the FDI variable is not statistically significant. In the short-run analysis, INF and PCGDPE variables have a positive and statistically significant effect on GDP, while other variables do not have a significant effect. Within the scope of the Error Correction Model (ECM), the error correction coefficient is expected to be negative, statistically significant and between 0 and -1. Table 7 shows that the error correction coefficient is -0.49. This result indicates that short-term imbalances are rebalanced in approximately |1/-0.49| = 2.04 periods.

CUSUM and CUSUM SQ tests developed by Brown et al. (1975) are applied to detect structural breaks in the ARDL model. These tests are used to assess the equilibrium of the model over time and to determine whether the coefficients have changed. While the CUSUM test detects possible structural changes by examining the cumulative movements of the error terms, the CUSUM SQ test tests whether the model is stable within a certain confidence interval based on the sum of squares of the error terms. Chart 2 shows that the variables do not exceed the critical

thresholds at the 5% significance level. This indicates that the coefficients of the variables used in the model remain consistent over time and the model yields reliable results.




*Graph 2.* Cusum ve Cusum SQ

*5.1.2.2. ARDL bounds test results for the European Union*

The F-statistic of the ARDL model for the European Union is 21.6 and is above the critical threshold at the 1% significance level. The findings presented in Table 8 confirm the existence of a long-run cointegration relationship in the model.

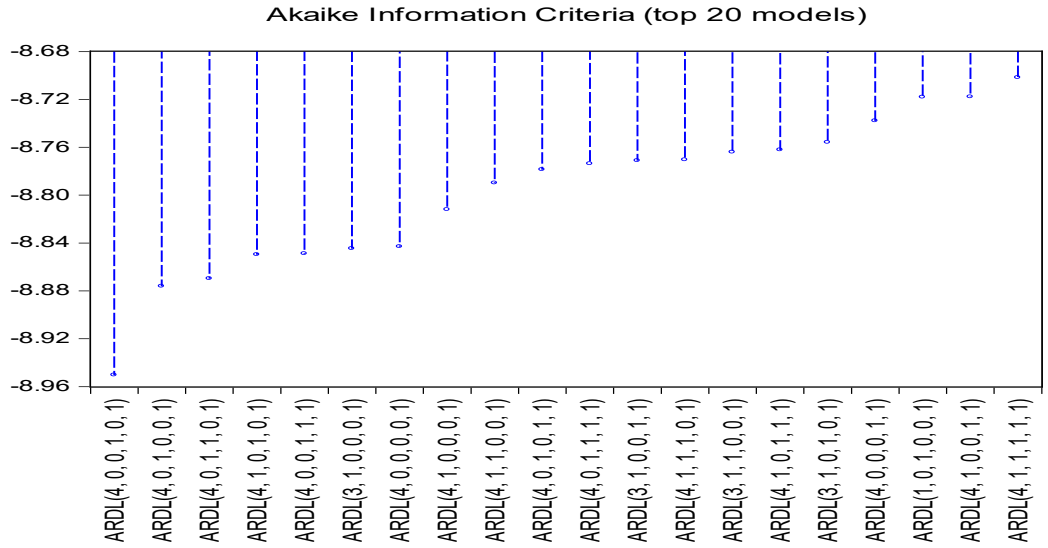
Table 8

*F Statistics and Critical Values (European Union)*

| **Model (4.0)** | **EU** | | **F-stat** |
|---|---|---|---|
| *F(INF, CREDIT, NEX, PCGDPE, FDI)* | | | 21.6 |
| | | ***Critical Values*** | |
| Significance Level | | Lower Limit | Upper Limit |
| %1 | | 3.41 | 4.68 |
| %5 | | 2.62 | 3.79 |
| %10 | | 2.26 | 3.35 |
| R-squared:0.97 | | | F-statistic:21.3 |
| Adjusted R-squared:0.92 | | | Prob:0.00 |

*Note.* *1%, ** 5%, ***10% Indicates Significance Level.

Following the determination of the cointegration relationship for the European Union, ARDL (4,0,0,1,0,1) was found to be the most appropriate model based on the Akaike Information Criterion for the estimation of the parameters reflecting the short and long term dynamics between the variables.




*Graph 3.* Akaike Information Criterion ARDL (4,0,0,1,0,1) Model

Table 9 presents the descriptive variables corresponding to the long-run and short-run parameters of the ARDL model for the European Union, allowing for an analysis of the short and long-run relationships between the variables, as well as the time it takes for short-term imbalances to be eliminated within the framework of the Error Correction Model (ECM).

*Table 9*

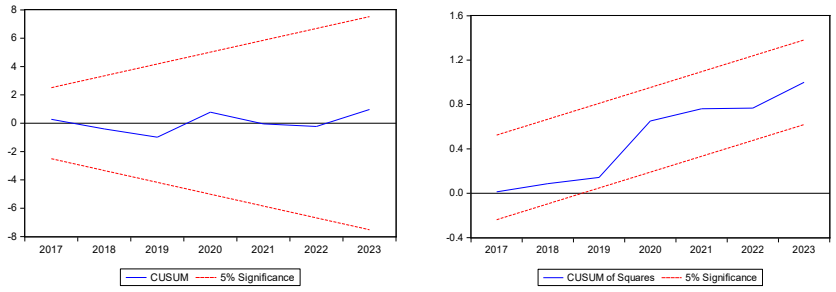
*ARDL Long and Short Run Coefficient Analysis for the European Union*

| **Long Run Coefficients** | | | | |
|---|---|---|---|---|
| **Variables** | **Coefficient** | **Standart Hata** | **t-stat** | **Probability** |
| INF | 0.0005 | 0.007 | 0.72 | 0.49 |
| CREDIT | -0.0009 | 0.004 | -2.05 | 0.07 |
| PCGDPE | 1.7269 | 0.053 | 32.1 | 0.00 |
| NEX | -0.5772 | 0.076 | -7.59 | 0.00 |
| FDI | 0.0025 | 0.001 | 2.25 | 0.05 |
| C | 10.3 | 0.654 | 15.7 | 0.00 |
| **Short Run Coefficients** | | | | |
| **Variables** | **Coefficient** | **Standart Hata** | **t-stat** | **Probability** |
| D (GDP (-1) | 0.014 | 0.049 | 0.28 | 0.78 |
| D (GDP (-2) | 0.110 | 0.041 | 2.65 | 0.03 |
| D(GDP(-3) | 0.072 | 0.040 | 1.77 | 0.11 |
| D(NEX) | -0.461 | 0.054 | -8.49 | 0.00 |
| D(INF) | 0.004 | 0.005 | 0.73 | 0.48 |
| D(CREDIT) | -0.001 | 0.007 | -1.89 | 0.10 |
| D(PCGDPE) | 1.38 | 0.120 | 11.2 | 0.00 |
| D(EFDI) | 0.003 | 0.006 | 0.54 | 0.60 |
| ECM | **-0.80** | 0.005 | -14.3 | 0.00 |
| **Diagnostics Tests** | | | **t-stat** | **Probability** |
| Jarque-Bera | | | 1.31 | 0.51 |
| Breusch-Godfrey Serial Correlation LM Test | | | 1.04 | 0.34 |
| Heteroskedasticity Test: ARCH | | | 0.39 | 0.53 |
| Ramsey RESET Test | | | 0.99 | 0.39 |

*Note.* *, **, ***represent 1%, 5%, 10% significance levels, probability values in parentheses and ECM represents the error correction term.

When the long-run coefficients in Table 9 are analyzed, it is seen that the effect of PCGDPE variable on GDP is statistically significant and positive at 1% significance level, while FDI variable is statistically significant and positive at 5% significance level. NEX and CREDIT variables have statistically significant and negative effects at 1% and 10% significance levels, respectively, while INF variable is not statistically significant. According to the short-run analysis, PCGDPE variable has a positive and statistically significant effect on GDP, while NEX and CREDIT variables have a negative effect; other variables have no significant effect. The error correction coefficient obtained within the framework of the Error Correction Model (ECM) is-0.80, indicating that short-term imbalances are eliminated in approximately 1.25 periods.

Structural breaks in the ARDL model for the European Union are analyzed using CUSUM and CUSUM SQ tests and the related findings are presented in Chart 4. The results show that the variables remain within the critical thresholds at the 5% significance level. This indicates that the coefficients of the variables in the model remain constant over time and the model yields reliable results.




*Graph 4.* Cusum ve Cusum SQ

## 6. Conclusion

As a reflection of the transformation in the world economy caused by the oil crisis in the 1970s, neoliberal economic policies began to be implemented in many parts of the world in the 1980s. These policies accelerated the economic integration processes of countries and enabled capital movements to move faster. Within the scope of these policies, while the market opportunities of economically developed countries increased, developing countries' access to both capital and technology-intensive goods required for industrial production became easier. However, these policies have also led to the emergence of many structural problems. While developed

economies have become more vulnerable to financial crises within the scope of these policies, developing countries have become vulnerable to problems such as high interest rates, high inflation, balance of payments deficit, etc., which adversely affect many macroeconomic indicators in order to access the financing resources necessary for development. Despite all these difficulties, while the primary objective of governments is to establish sustainable economic growth through the efficient use of scarce resources, ensuring price stability in this process is the most fundamental task of central banks.

For the purpose of this study, firstly, the stationarity levels of the series used are analyzed with ADF and PP unit root tests. As a result of the tests, it is determined that the series become stationary in both fixed and fixed-trend models when first differences are taken. Subsequently, ARDL bounds test was applied in two different sample groups for Turkey and the European Union in order to examine the cointegration relationship and long-run coefficients between the variables. The fact that F statistics are above the critical values in both samples indicates the existence of a long-run cointegration relationship between the variables. According to the long-run analysis results, inflation (INF), credit volume (CREDIT) and GDP per employed person (PCGDPE) variables have positive and statistically significant effects on economic growth (GDP) in the Turkey sample. On the other hand, net exports (NEX) have a negative effect on growth, while foreign direct investment (FDI) has no statistically significant effect. The findings for the European Union sample show that PCGDPE and FDI variables have a positive effect on economic growth in the long run, while NEX and CREDIT variables have a negative effect on growth. The inflation (INF) variable is not statistically significant in this sample.

The differences and similarities between the economies of Türkiye and the European Union stem from structural, institutional and economic dynamics. While credit expansion supports economic growth in Türkiye, the impact of bank loans on growth is relatively limited in the EU as financing is mainly provided from capital markets (Asteriou et al., 2023). The high level of inflation observed in Türkiye in recent years, when evaluated within the framework of the Mundell-Tobin theory, causes individuals to channel their liquid assets into capital goods, which in turn increases the level of investment and supports economic growth. On the other hand, from the perspective of the European Union, Stockman (1981) & Fischer (1983) argue that increases in inflation have a negative impact on growth in economic structures where money is complementary to capital. In this framework, it is stated that high inflation may adversely affect capital accumulation by

increasing investment costs and thus limit economic growth (Toker & Gürel, 2019). In the European Union economies, where financial stability is at the forefront, keeping inflation under control is seen as a supportive factor for growth. However, while FDI has no significant impact on growth in Türkiye, its contribution to growth is more significant in the EU. One of the main reasons for this difference may be the heterodox economic policies implemented in Türkiye in recent years and the negative impact of regional risks on investor confidence. While the findings of the study are in line with the studies by Lubeniqi et al. (2023), Dussoyea et al. (2017), Ünvan & Demirel (2020), the study by Kryeziu & Durguti (2019) reached different results.

In this context, the comparative results obtained from the research have made it possible to develop some policy recommendations for the Turkish and EU economies. Consistent and stable monetary policies should be implemented in Türkiye to reduce the negative effects of inflation on economic growth. In this context, priority should be given to ensuring economic stability while developing strategies to reduce inflationary pressures. In addition, projects that support sustainable growth and contribute to maintaining economic balance should be given priority in the allocation of bank loans to the real sector. Instead of relying heavily on money markets for financing, expanding the role of capital markets as a source of financing can increase the durability of the economic growth process by diversifying funding mechanisms. On the other hand, the recent increase in inflation, especially in the European Union, requires the resolute continuation of tight monetary policies in order to achieve price stability and protect economic balances. In this context, the results obtained provide important guidance to policy makers in terms of sustainable growth and financial stability for both Türkiye and the EU.

## Declaration of Research and Publication Ethics

This study which does not require ethics committee approval and/or legal/specific permission complies with the research and publication ethics.

## Researcher's Contribution Rate Statement

Since the author is the sole author of the article, his contribution rate is 100%.

## Declaration of Researcher's Conflict of Interest

There are no potential conflicts of interest in this study.

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