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## Araştırma Makalesi • Research Article

# Macroeconomic Determinants of Dollarization: 2010:01-2024:03 The Case of Türkiye

*Dolarizasyonun Makroekonomik Belirleyicileri: 2010:01-2024:03 Türkiye Örneği*

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### ÖZ

Ulusal para birimine yönelik güven kaybı neticesinde ortaya çıkan dolarizasyon, özellikle gelişmekte olan ülke ekonomileri için dikkate alınması gereken bir olgudur. Dolarizasyon sürecinin derinleşmesi ulusal para biriminin ilgili ülke ekonomisindeki ağırlığının azalmasına dolayısıyla senyoraaj gelirinde kayıplara ve ulusal para birimine dayalı olarak tasarlanan ekonomi politikalarının etkinliğinin azalmasına neden olabilir. Dolarizasyonun yol açtığı olumsuzlukların ortadan kaldırılabilmesi için makroekonomik nedenlerinin tespit edilmesi oldukça önemlidir. Buradan hareketle çalışmada Türkiye’de 2010:01-2024:03 periyodu için reel efektif döviz kuru, enflasyon oranı ve CDS priminin mevduat dolarizasyonu üzerindeki etkileri Gecikmesi Dağıtılmış Otoregresif sınır testi kullanılarak değişkenler arasındaki nedensellik ilişkisi ise Toda-Yamamoto nedensellik testi ile analiz edilmiştir. Sınır testi sonuçlarına göre değişkenlerin uzun dönemde eşbütünleşik oldukları, enflasyon oranı ile döviz kurunun dolarizasyon oranı üzerinde negatif yönlü ve CDS priminin dolarizasyon oranı üzerinde pozitif yönlü etkili olduğu tespit edilmiştir. Nedensellik testi sonuçlarına göre hem enflasyon oranı hem de döviz kurunun dolarizasyon ile nedensellik ilişkisinin çift yönlü olduğuna ulaşılmıştır.

### ABSTRACT

Dollarization, which occurs as a result of the loss of confidence in the national currency, is a phenomenon that should be taken into consideration especially for developing country economies. The deepening of the dollarization process may cause the weight of the national currency in the relevant country's economy to decrease, thus leading to losses in seigniorage revenues and a decrease in the effectiveness of economic policies designed based on the national currency. It is very important to determine the macroeconomic reasons in order to eliminate the negativities caused by dollarization. Based on this, the effects of the real effective exchange rate, inflation rate and CDS premium on deposit dollarization for the period 2010:01-2024:03 in Türkiye were analyzed using the Distributed Autoregressive bounds test and the causality relationship between the variables was analyzed with the Toda-Yamamoto causality test. According to the bounds test results, it was determined that the variables were cointegrated in the long term, the inflation rate and the exchange rate had a negative effect on the dollarization rate, and the CDS premium had a positive effect on the dollarization rate. According to the causality test results, it was concluded that the causality relationship between both inflation rate and exchange rate and dollarization is bidirectional.

## 1. Introduction

Economic disruptions that occur with the increase in the inflation rate and future risks in an economy can lead to the depreciation of the national currency. This situation may cause economic decision-making units to turn to foreign

currencies instead of national currency. The preference of economic decision-makers as a unit of account and means of payment instead of national currency is called dollarization or currency substitution (Gale and Vives, 2002:467). The fact that the classical functions of money such as being a unit of account, a medium of exchange and a store of value are performed with a foreign currency rather than a national

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currency may cause a decrease in the effectiveness of policies based on the national currency. For this reason, it is important to determine the causes of dollarization and its effects on the economy in determining the policies to be implemented. Although currency substitution and dollarization are used with the same meaning, Dollarization occurs when all the functions of the national currency are fulfilled by foreign currency, while dollarization occurs when the national currency loses its functions as a measure of value and stores of value (Calvo and Vegh, 1992: 3).

In the literature, there are classifications of dollarization such as full or official dollarization, semi-official dollarization and unofficial dollarization (Schuler, 1999). Informal dollarization occurs when economic decision-makers hold a significant part of their monetary wealth in foreign assets, despite the fact that the foreign currency is not an official means of payment. Semi-formal dollarization occurs when the foreign currency is legal tender but plays a secondary role alongside the national currency in everyday economic transactions, and the monetary authority can freely conduct its own monetary policy. Formal or full dollarization, on the other hand, occurs when the foreign currency is a fully legal tender and therefore has a dominant status. In the case of full dollarization, where the national currency already exists, the national currency has a secondary role (Schuler, 1999). Countries that implement official dollarization; Bosnia, Luxembourg, Brunei, Tajikistan and Namibia are the Bahamas, Laos, Haiti and Cambodia are the examples of countries that implement semi-official dollarization, and countries such as Mexico, Peru, Vietnam, Türkiye, Ukraine, Russia, and Mozambique can be given as examples of countries with informal dollarization (Özen, 2018: 108). Since there is informal dollarization in the Turkish economy, informal dollarization will be referred to as dollarization in the paper.

Calvo (1999), on the other hand, classified dollarization as full and partial dollarization. According to this classification, partial dollarization is valid if a foreign currency is used in a country to fulfill one of the classical functions of money as a means of payment, as a unit of account and as a means of storing value. However, if the use of the national currency in a country's economy, except for the coin, is completely abandoned, full dollarization occurs. According to this classification, partial dollarization is valid in the Turkish economy.

It varies according to the levels of Dollarization. Symmetrical currency substitution is the situation in which residents and non-residents of an economy claim national and foreign currencies simultaneously. Asymmetric currency substitution is the situation where the demand of residents for foreign currency is intense, but the demand of decision-making units abroad for the currency of the country where dollarization is experienced is low (Yılmaz and Uysal, 2019: 288).

In the first stage of dollarization, decision-makers turn to foreign currency-denominated assets as a means of

accumulating wealth. This happens in the form of asset substitution. With the chronicity of high inflation in the economy, this situation turns into Dollarization (Webb, 2003). Banking crises, especially in the economies of developing countries, have introduced the concept of liability dollarization, which is expressed as the fact that all decision-making units in the economy have a large amount of foreign currency liabilities, to the literature (Serdengeçti, 2005: 3). Financial dollarization is when residents in a country's economy tend to keep their liabilities and assets in foreign currency. Financial dollarization has remained high despite stable macroeconomic policies, especially in some emerging market economies with a history of high inflation, such as Argentina, Peru, and Bolivia (Ize and Yeyati, 2003: 324).

Dollarization occurs especially intensely in economies where the inflation rate is high and financial markets are not deep enough. Transactions carried out in national currency are carried out in foreign currency, depending on the severity of currency substitution. At this point, since the value of the foreign currency is stable compared to the national currency, economic decision units turn to the foreign currency. In the process of currency substitution in the Turkish economy, this process is called dollarization because the US Dollar is mainly used instead of the Turkish Lira (TL) in economic transactions (Akalan 2001:197-198).

Webb (2003) explained dollarization in terms of the relative magnitude between the volatility in the exchange rate and inflation. According to the view, also known as the portfolio approach in the literature, the relative relationship between inflation and the expected volatility in the real exchange rate is effective in increasing dollarization. While inflation is volatile and the exchange rate is unstable, when the exchange rate regime is fixed or predictable, decision-making units turn to foreign currency. According to the portfolio approach, they stated that fixed or predictable exchange rate practices increase dollarization with high inflation, while inflation targeting together with a flexible exchange rate system decreases dollarization. Ize and Yeyati (2003) associated dollarization with the real exchange rate and inflation rate. They stated that even after price stability is achieved, financial dollarization may exhibit a high level of persistence if the expected volatility in inflation remains at a high level compared to the real exchange rate.

Some of the basic formulas used in calculating dollarization in the economics literature are; asset dollarization ratio, which is the ratio of foreign currency portfolio total to national currency and foreign currency portfolio total, liability-dollarization ratio, which is the ratio of foreign currency loans to total loans, deposit dollarization, which is the ratio of foreign currency deposits to total deposits, and dollarization, which is the ratio of foreign currency deposits to the broad money supply (M2) (Akıncı, Özer and Usta, 2005: 3-6).

In Türkiye, as in the 1990s, the exchange rate shocks experienced in Türkiye in 2018 and 2021 have brought the

phenomenon of dollarization back to the agenda. Recent increases in exchange rates have increased producer and consumer prices and led to the deterioration of price stability. In this context, in order to control the sharp increases in exchange rates, an exchange rate-protected deposit application was introduced at the end of 2021, and in the following periods, policy interest rates were increased, credit channels were tightened and taxes were increased.

The phenomenon of dollarization remains relevant for the Turkish economy. An increase in the dollarization rate can lead to an increase in the cost of borrowing and a decrease in the effectiveness of monetary policy. Therefore, it is important to determine the variables affecting dollarization and the variables affected by dollarization. Determining the relevant variables will contribute to the development of policies aimed at reducing dollarization. In this context, this study aims to identify the determinants of dollarization and to present policy recommendations aimed at reducing dollarization. In the study, the effects of the real effective exchange rate index, credit risk premium (Credit Default Swap (CDS)) and inflation rate on deposit dollarization were analyzed for the period 2010:01-2024:03 using the ARDL bounds test and the Toda-Yamamoto causality test. The inclusion of exchange rate protected deposits in the calculation of the dollarization rate, the inclusion of the credit risk premium in the analysis, and the consideration of deposit dollarization, which is the ratio of foreign currency deposits to total deposits, as the dollarization rate, differentiate the study from a significant portion of the literature. Another point where the study differs from the literature is that the variables were analyzed with both bounds test and causality test.

The study consists of six sections. The first section includes the causes of dollarization and its effects on the economy, the second section includes explanations on the dollarization process in the Turkish economy since the 1970s, the third section includes summaries of empirical studies in the related literature, the fourth section includes explanations on the data set and methodology used in the study, the fifth section includes the findings obtained through the analysis performed, and the conclusion section includes evaluations and recommendations regarding the findings of the analysis.

## 2. Causes of Dollarization and Its Effects on the Economy

In the emergence of dollarization in a country, it is the disruptions in the regulatory environment and deficiencies in the market structure, macroeconomic instabilities and the loss of confidence that occurs as a cause and result of these phenomena. High and volatile inflation leads to macroeconomic instability, resulting in a decrease in the purchasing power of the national currency against foreign currencies. In this case, decision-makers turn to foreign currency in order to protect their purchasing power. High budget deficits and increased debt stock increase the borrowing of the public sector and the risk premium to be

incurred during borrowing. Resorting to external resources in financing the debt leads to an increase in debt in foreign currency and therefore dollarization. High and continuous inflation can shake the confidence of decision-makers towards the applied monetary policy and lead to an increase in dollarization (Serdengeçti, 2005: 4-6).

The effects of dollarization on the economy may differ according to the type of dollarization experienced in the economy in question. In an economy with official dollarization, the central bank loses its seigniorage right and is deprived of the income obtained as a result of money printing. In this case, in addition to the loss of an important source of income, the central bank's function as the last credit authority disappears. Thus, when a problem occurs in the banking sector in the economy, the central bank cannot intervene in the liquidity crunch in the economy by printing money. An independent exchange rate and monetary policy cannot be implemented in official dollarization. The government cannot change the money supply at any time in order to reduce inflationary or deflationary pressures on the economy. In this case, the decisions of the country to which the foreign currency adopted in the country where dollarization is experienced are very effective. In addition to the costs it causes in an economy, formal dollarization can bring some benefits to that economy. Some of the benefits of formal dollarization include; prevents economic instability caused by the central bank's unnecessary interventions, eliminates the inflation risk that arises when the central bank finances the budget deficit, makes long-term borrowing possible by eliminating exchange rate risk, and increases confidence in the policies implemented by the economic stability achieved by dollarization (Özen, 2018: 105-106).

Whether the effects of dollarization on the economy are positive or negative are closely related to the structural factors of the relevant country and the level of dollarization experienced in the country. The increasing dollarization in the country may have emerged with the increase in integration into world markets. This may contribute to the development of financial markets in the country. However, dollarization may cause a decrease in control over the national currency, reducing the effectiveness of the monetary policy applied to financial markets and the foreign exchange market. A high level of dollarization may cause the country's economy to be more affected by external factors than internal factors and increase the country's vulnerability to crises (Park and Son, 2020:1).

In an economy experiencing partial dollarization, the formation of an economic instability that undermines the confidence of decision-makers in the national currency can cause various costs. Increasing demand for foreign currency may lead to devaluation of the fixed exchange rate and exchange rate increase expectations in the flexible exchange rate. This situation may lead to a pass-through effect from the exchange rate to prices, triggering an increase in inflationary pressures in the economy. Depreciation in the national currency can lead to inertia in inflation. In addition

to the benefits of dollarization to the economy, the costs it causes in the economy are quite high. Therefore, reversing the dollarization process in an economy is also very costly and difficult. De-dollarization is the process of reducing dollarization in an economy experiencing dollarization. In this case, decision-making units turn to national currency instead of foreign currency.

Ensuring macroeconomic stability, making consistent legal arrangements, and eliminating market deficiencies are important to achieving de-dollarization. In this context, the most important step is for authorities to make commitments to ensure and maintain price stability. The independence of the monetary authority is the most important factor in the reliability of these commitments. In addition, measures should be taken to increase the attractiveness of the national currency in terms of decision-making units (Serdengeçti, 2005: 12-13).

### 3. Dollarization in the Turkish Economy

It can be said that the introduction of the Turkish economy to foreign exchange transactions is based on the moves taken towards foreign exchange transactions in order to eliminate the oil crisis that emerged in the 70s. With the policies implemented in the 1980s, at the end of 1983, the obstacles to the foreign currency transactions of commercial banks were removed and residents were able to have deposits in foreign currency (Serdengeçti, 2005: 15).

The removal of all obstacles to capital movements in Türkiye and the fact that the TL is a convertible currency was made possible by the publication of Decision No. 32 in the Official Gazette in 1989 and its entry into force. With the liberalization of capital movements, capital inflows to the Turkish economy have caused the TL to be overvalued. As a result of the developments, a currency crisis occurred in 1994 and economic stability decisions were taken in the same year. In the period up to the early 2000s, inflation rates, domestic borrowing, interest rates and budget deficit were at high levels. In addition, the local crises in the world economy in the same period had negative effects on the Turkish economy. As a result of the economic disruptions, the dollarization problem has emerged (Bulut and Tokatlıoğlu, 2022: 70).

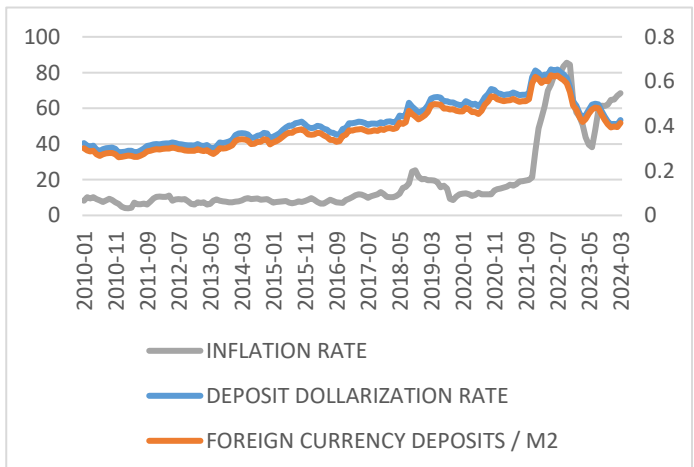
Orthodox and heterodox measures were taken with the Transition Program to a Strong Economy (TSEP) implemented after the economic crisis in 2001. In this context, tight monetary and fiscal policies as well as income policies were adopted. With the privatizations, the share of the public sector in the economy was tried to be reduced, and the budget deficit was reduced with the revenues obtained. With the amendments made to the Central Bank of the Republic of Türkiye (CBRT) law, it has been stated that the main purpose of the bank is to ensure price stability and that it has instrument independence. The exchange rate is left to the market and the inflation rate is reduced. Accordingly, implicit inflation targeting was applied in the 2002-2005 period. The inflation rate did not fall below 10% annually in

the period 1971-2003. In line with the policies adopted with the program implemented, the inflation rate fell below 10% in 2004. From this point of view, six zeros were removed from the currency in 2005 and open inflation targeting was started in 2006 (Bulut and Ulusoy, 2018: 80-82).

Excluding the interruptions experienced from time to time in the period from the beginning of the program, which started to be implemented in 2001, until 2013, the inflation rate and thus the interest rate declined. In the same period, the level of per capita income increased. With the CBRT's reassuring policy implementations, confidence in the national currency was regained and Türkiye was able to reverse the dollarization process in the period from 2002 to 2013 (Şıklar et al., 2017: 147-148). The global financial crisis that emerged in 2008 centered in the USA had an impact on the Turkish economy. These effects were limited to the financial sector thanks to the TSEP and the banking sector. However, the decreasing level of demand in European economies due to the crisis led to a decrease in Türkiye's foreign trade volume and thus an economic contraction in 2009 (Ertuğrul et al., 2010: 63).

In order to compensate for the economic losses caused by the global financial crisis, the economies of advanced economies have tended to implement expansionary monetary policies. Increasing global liquidity has increased capital flows to developing countries. As a matter of fact, the Turkish lira has appreciated rapidly with capital inflows in Türkiye (Özatay, 2011:29). In 2013, the Fed announced to the markets that it would gradually reduce its asset purchases and raise interest rates in the future, thus ending its expansionary policy practices. This situation has led to the emergence of expectations of a reversal of capital movements, thus leading to the onset of exchange rate instabilities in emerging markets.

**Graph1:** Inflation Rate and Dollarization Rates in Türkiye (2010:01-2024:03)



**Source:** Prepared by the author using the Electronic Data Distribution System database.

As can be seen from Graph 1, the ratio of foreign currency deposits to total deposits (deposit dollarization) and the ratio

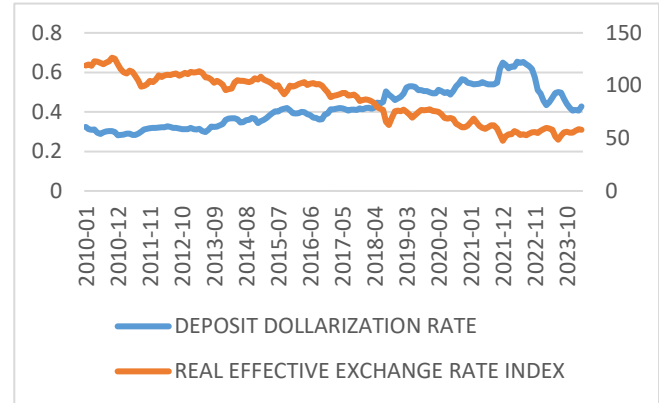
of foreign currency deposits to money supply in a broad sense follow each other closely. This situation will not constitute an obstacle to the selection of the dependent variable as deposit dollarization in the analysis of the determinants of the dollarization rate in the Turkish economy. According to Graph1, the dollarization rate did not change significantly in the period from 2010 to 2013. However, in 2013, with the effect of the Fed's announcement that it would turn to contractionary monetary policy practices in the future, frequent elections, terrorist incidents, military border operations, and coup attempts, residents' foreign currency demands increased. Especially in the summer of 2018, the dollarization rate increased with the effect of the exchange rate shock. The depreciation of the TL due to the increasing demand for foreign currency triggered the increase in inflation. The epidemic process, which started with the detection of the first Covid-19 case in Türkiye in 2020, negatively affected economic indicators. In order to compensate for the economic problems caused by the pandemic, expansionary policy implementations were carried out.

After 2013, the CBRT raised the policy interest rates until 2019 in line with the Fed's interest rate policy, and then reduced them with the Fed's interest rate reduction. As of the last quarter of 2020, with the exchange rates starting to increase, the CBRT has raised interest rates, unlike the Fed and other major central banks (Bulut and Tokatlıoğlu, 2022: 72). Expansionary policies implemented to alleviate pandemic conditions have led to increased inflationary expectations. For this reason, major central banks have tended to increase interest rates. However, the CBRT began to lower the policy interest rate in the last months of 2021. After this situation, the demand for foreign currency in Türkiye increased and exchange rates increased. The increase in exchange rates has led to an increase in production costs with the transition effect, thus increasing inflation. The high inflation rate and low interest rate have made borrowing attractive. This situation has led to an increase in demand, thus increasing demand inflation. Measures such as the exchange rate-protected deposit application to eliminate the instability in the exchange rate and the increase in the policy rate as of June 2023 supported the residents' orientation towards TL. This contributed to the decrease in exchange rate volatility and supported the decline in the dollarization rate.

Graph 2 is prepared to show the relationship between the real effective exchange rate index (REER) based on the Consumer Price Index (CPI) and deposit dollarization. As can be seen from Graph 2, while the dollarization rate was on an upward trend in the 2010-2022 period, it started to decrease in 2022. If the REER index is below 100, it indicates that the national currency has experienced excessive depreciation, and if it is above 100, it indicates that the national currency has become overvalued. According to the chart, in the 2010-2023 period, the REER index is in a downtrend. Although the REER index has fallen below 100 from time to time, it is generally above 100 in the period up

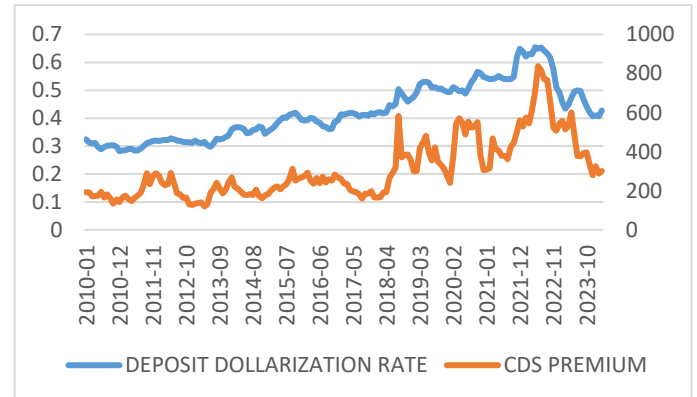
to 2016. This situation shows that while the TL was overvalued, it has become extremely worthless over time since the end of 2016.

**Graph 2:** Real Effective Exchange Rate and Deposit Dollarization Rate in Türkiye (2010:01-2024:03)



**Source:** Prepared by the author using the Electronic Data Distribution System database.

**Graph 3:** Deposit Dollarization Rate with CDS Premium in Türkiye (2010:01-2024:03)



**Source:** Prepared by the author using the Electronic Data Distribution System database.

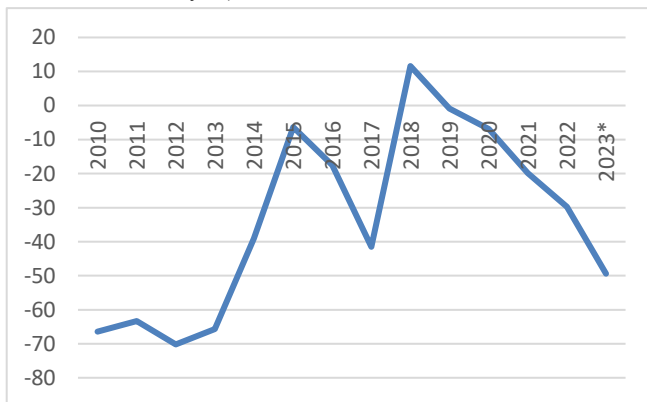
Graph 3 has been prepared to show the relationship between deposit dollarization and CDS premium. Although the CDS premium can be defined as a measure of the bankruptcy risk of a country or institution, it provides protection against the risk of non-payment of a certain debt instrument. Due to the reflection of the CDS premium on the interest, the increase (decrease) of the premium causes the borrowing cost of the relevant country or institution to increase (decrease). As can be seen from Graph 3, the CDS premium and the dollarization rate follow a similar course. In Türkiye, especially in the 2003-2009 period, as a result of the economic gains achieved through the TSEP, the political stability created by the beginning of the single-party period, and the positive relations with the European Union, the money inflows originating from the financial account of the balance of payments were realized at high levels, especially through direct investments. In the 2010-2022 period, cross-border military operations, elections, coup attempt, exchange



rate shocks, questionable credibility of the CBRT, Covid-19 pandemic, earthquake disaster and decrease in foreign capital holders' confidence in Turkish markets were effective in the decrease in the REER index and the increase in the dollarization rate and CDS premium.

This can be seen in the financial account of the balance of payments. The finance account is among the main accounts of the balance of payments kept by the Central Bank. A negative net balance in the finance account indicates that more money is entering the country than leaving, while a positive net balance in the relevant account indicates the opposite (Bulut et al., 2018, 56). According to the balance of payments, the cash inflows from financial accounts exceeded 60 billion dollars in the 2010-2013 period. Although the cash inflows from financial accounts continued in the following years (except for 2018), this amount remained below 60 billion dollars. This situation is shown in Chart 4.

**Graph 4:** Balance of Payments, Finance Account Net Balance in Türkiye (2010-2023)



**Source:** Prepared by the author using the Electronic Data Distribution System database.

#### 4. Literature Review

In the empirical studies on dollarization in the national literature, the relationships between the selected variables are often analyzed by using various causality tests and in a limited number of studies by using cointegration tests. Civcir (2005), one of the studies examining the determinants of dollarization in the Turkish economy, stated that the dollarization rate is related to exchange rate risk, interest rate differentials and changes in the exchange rate, that the most dominant variables on dollarization are expected exchange rates and interest rate differentials and that an assessment can be made that there is inertia in the dollarization process. Tufaner (2021) stated that there is a positive relationship between the returns on financial investment instruments and international reserves and dollarization, a negative relationship between the exchange rate and interest rate spread and dollarization, a unidirectional causality relationship from dollarization to exchange rate, and a unidirectional causality relationship from the returns on financial investment instruments and international reserves to dollarization.

Kaya and Kara (2022) find that increases in CPI reduce dollarization, while increases in exchange rate, current account deficit, imports, CDS risk premium and deposit interest rate cause dollarization. Özer (2022) argues that the real interest rate and exchange rate affect dollarization indirectly through inflation and that the inflation rate is the only determinant of dollarization. Akkaya (2023) found that the lagged values of foreign trade balance, banking sector loan volume, real exchange rate, manufacturing industry capacity utilization rate, USD/TL exchange rate, non-residents' equity portfolio and US 10-year bond rate are significant and affect the dollarization process. Erkan and Ertürk (2024) found that the exchange rate is the most influential variable on the dollarization ratio, there is a symmetric causality relationship between the dollarization rate and inflation, risk premium and exchange rate, and there is no causality relationship between the dollarization rate and interest rate.

In a study analyzing the relationship between dollarization and inflation, Aklan (2001) revealed that there is a causality from inflation to dollarization. Çorak and Aksoy (2022) stated in their study that no relationship from inflation to dollarization was detected, but a causality relationship from dollarization to inflation was detected. Tunay (2022) among the estimation results stated that money substitution interacting with the increasing inflationary process strengthens the possibility of hyperinflation in the country and the effects of changes in money supply on exchange rates are strong. Çamdibi and Demirci (2024) investigated the relationship between dollarization and the real exchange rate and found that the real exchange rate is not the cause of dollarization and dollarization is the cause of the real exchange rate.

Bulut and Tokatlıoğlu (2022), who analyzed the long and short-term changes of dollarization, argued that the ring gear effect is important in dollarization in the economy and that long-term effects are more important in dollarization compared to short-term effects. Sadeghzadeh Emsen (2022) examined the effects of dollarization on the stock market and found that dollarization has an impact on the stock market in the short and long term, and that the long-term effects are stronger than the short term and the effects are positive.

In a study examining the relationship between dollarization and selected macroeconomic variables, Kaya and Açıdoğuran (2017) stated that there is a causality relationship from BIST 100 index return to deposit and loan dollarization. Özkul (2021) revealed that there is a causality relationship from employment to credit dollarization, from deposit dollarization to inflation and employment, and from credit dollarization to inflation. Çelik (2023) argued that consumer confidence index and exchange rate are the causes of dollarization and the effects of exchange rate and consumer confidence index on dollarization are positive and negative, respectively. Özbek (2024) argues that the real effective exchange rate and consumer inflation have a long-run negative relationship with deposit dollarization and there is

a causality relationship from financial dollarization to industrial index. Demirel (2024) stated that the inflation rate has no significant effect on financial dollarization in regime 1 and the composite dollarization index increases during periods of high inflation in regime 2. Hazar, et al. (2024) stated that according to the causality test results, a bidirectional relationship was found between dollarization and exchange rate and inflation rate.

In the international literature on dollarization, studies conducted in African countries are concentrated. Yinusa (2008), one of the studies on dollarization in the Nigerian sample, analyzed the relationship between exchange rate volatility and dollarization. According to the causality test results, the relationship is bidirectional and the causality from dollarization to exchange rate volatility is relatively strong. Olayungbo and Ajuwon (2015) analyzed the relationship between interest rate, inflation rate and dollarization. In the study, it was stated that there is a long-run equilibrium between the variables and a unidirectional relationship was found from dollarization to inflation. Bawa, et al. (2015) examined the persistence of currency substitution and found that exchange rate spread, exchange rate risks, inflation expectations, expected exchange rate depreciation and ring gear variables are important determinants of currency substitution in the country and that currency substitution is persistent in the country. Tweneboah and Alagidede (2019) investigated the impact of currency substitution on inflation uncertainty and inflation in Ghana. In the study, it is stated that dollarization does not have a significant role on the volatility of inflation in the country and there is a bidirectional causality relationship between the inflation rate and inflation rate uncertainty after the adoption of inflation targeting. Abdi, Warsame and Sheik-Ali (2024) analyzed the asymmetric effects of exchange rates on inflation under dollarization in the Somali economy. They concluded that in the short run, dollarization has a significant contribution to alleviate inflationary considerations and that there is an asymmetric relationship between the unregulated exchange rate and the inflation rate.

Among the international multi-country studies, Vieira, et al. (2012), in a sample of 79 economies with different levels of development, find that inflation risks caused by rising default probabilities cause more financial dollarization than the inflation rate itself and that financial dollarization is better explained by default risk variables and the investment grade of the country in question than by variables representing inflation risks. Lin and Ye (2013) investigated the impact of inflation targeting strategy on financial dollarization in a sample of 106 emerging market economies. The study finds that there is evidence that inflation targeting has strong and significant effects on reducing financial dollarization, and on average, the adoption of an inflation targeting strategy leads to a decrease in financial dollarization by more than 8 percentage points. Park and Son (2020) investigated the degree of dollarization and the relationship between exchange rates and dollarization in a sample of 28 countries. It is stated that the increasing effect of inflation on

dollarization is more pronounced in dollarized economies, high dollarization or high depreciation of the national currency tends to increase the inflation rate and these effects are more pronounced in dollarized economies.

In a single-country study on dollarization outside African countries, Ghalayini (2011) analyzed the impact of currency substitution on monetary policy in the Lebanese economy. In the study, it is stated that dollarization can explain the inflation in the country, the effect of dollarization on the monetary policy implemented is negative and the changes in the consumer price index are Granger-caused by currency substitution. Xaiyavong and Toyoda (2016) investigated the determinants of currency substitution in Laos economy. In the study, it was found that the interest rate spread is an important variable in determining currency substitution and the ring gear effect is present in the dollarization process. Fabris and Vujanović (2017) investigated the effects of financial dollarization on prices in Serbia. It is stated that unanticipated changes in financial dollarization affect the exchange rate and the effect of financial dollarization on prices is low. Hijazeen, and Al-Assaf (2018) investigated the main determinants of dollarization in the Jordanian economy. They argue that changes in the real effective exchange rate do not contribute to the shaping of depositors' portfolio preferences, international reserves have an inverse relationship with dollarization, the effect of reserves on asset dollarization is significant only in the short run, and interest rate differentials do not have a significant effect on financial dollarization.

## 5. Data Set and Method

In this study, the effects of real effective exchange rate, inflation rate and CDS premium on deposit dollarization in the Turkish economy for the period 2010:01-2024:03 are analyzed with the Autoregressive Distributed Lag Bound Test and the relationships between the variables are analyzed with the Toda-Yamamoto causality test. The data analyzed in the study is selected by taking into account the relevant literature. The fact that the effects of the global financial crisis began to decrease in the Turkish economy was effective in determining the starting year of the analysis period as 2010. In the paper, the exchange rate-protected deposit data, which started to be implemented at the end of 2021, is also taken into account in the formation of the dollarization rate in Türkiye. In this paper, currency-protected deposit accounts were evaluated as an indicator of dollarization, as they provide a guarantee for the losses that may arise from the exchange rate increase, as well as the interest payment to the holders on the deposits opened in TL. For this reason, in the deposit dollarization series created in the study, exchange rate-protected deposit data were included in the rate variable. With this calculation, it is aimed to contribute to the relevant literature by creating an up-to-date data set.

In this study, the annual percentage change of the CPI representing the inflation rate (INF), deposit dollarization

(D) created by taking into account exchange rate protected deposits, 5-year CDS premium (CDS) and the CPI-based real effective exchange rate index (ER) were analyzed. All of the data were obtained through the CBRT's electronic data distribution system database.

The stationary states of the series are helpful in determining which econometric method will be used to determine the relationships between the variables. From this point of view, unit root tests developed by Phillips-Perron (1988) and Dickey-Fuller (1981) is applied to determine the stationary states of the series. In the paper, the ARDL bounds test proposed by Pesaran et al. (2001) and which can be applied if the series are not stationary in the second difference was used in the analysis of the relationship between the variables.

The ARDL bounds test has advantages such as being able to be used when the series are stationary at the level or first differences, revealing unbiased estimates of the long-term model, providing healthy results in small sized samples and distinguishing between dependent and independent variables compared to classical cointegration tests. In the study, the advantages of the ARDL bounds test method were effective in the analysis of the long-term relationships between the variables. In the paper, the Unrestricted Error Correction Model for the ARDL boundary test is included in equation 1.

$$\Delta D_t = \alpha + \sum_{i=1}^k \beta_{1i} \Delta D_{t-i} + \sum_{i=0}^k \phi_{2i} \Delta(\text{INF})_{t-i} + \sum_{i=0}^k \theta_{3i} \Delta(\text{CDS})_{t-i} + \sum_{i=0}^k \omega_{4i} \Delta(\text{ER})_{t-i} + \delta_0 D_{t-1} + \delta_1 (\text{INF})_{t-1} + \delta_2 (\text{CDS})_{t-1} + \delta_3 (\text{ER})_{t-1} + u_t \quad (1)$$

$\beta$ ,  $\phi$ ,  $\theta$  and  $\omega$  in the equation represent short-term effects and  $\delta$  refers to long-term coefficients. In the ARDL bounds test, the unconstrained error correction model is predicted, followed by the Akaike or Schwarz information criteria, to determine the optimal delay lengths. In determining which of the hypotheses about the presence or absence of cointegration will be valid, the F statistic value obtained by the ARDL boundary test is compared with the upper and lower limit critical values.

If the value of the F statistic is greater than the upper limit critical value, it indicates that there is cointegration. If the value in question is between the lower and upper limit critical values, an evaluation regarding cointegration between the variables cannot be made. The evaluation that there is no cointegration relationship between the variables occurs when the F statistic value is below the lower limit critical value (Toker, 2020: 85). The error correction model obtained in the study is included in equation 2.

$$\Delta D_t = \alpha + \sum_{i=1}^k \delta_{1i} \Delta D_{t-i} + \sum_{i=0}^k \phi_{2i} \Delta(\text{INF})_{t-i} + \sum_{i=0}^k \theta_{3i} \Delta(\text{CDS})_{t-i} + \sum_{i=0}^k \omega_{4i} \Delta(\text{ER})_{t-i} + \lambda \text{ECM}_{t-1} + u_t \quad (2)$$

The  $\text{ECM}_{t-1}$  in Equation 2 represents the error correction term. Although the term error correction is statistically significant, it is negative, indicating that an imbalance that occurs in the short term is adapted for long-term equilibrium (Alam and Quazi, 2003: 97).

After analyzing the relationship between variables with the bounds test, Toda Yamamoto (1995) causality test was applied to determine the causality relationship between the relevant variables. Granger and Toda-Yamamoto causality tests are commonly used to determine the causality relationship between variables.

The causality test developed by Granger (1969) is a Vector Autoregression (VAR) model. In order to eliminate the spurious regression problem in the related test, the variables should be stationary. Making the variables stationary by taking their differences may lead to lack of information in explaining causality. In addition, when the series are stationary at the same level in the Granger causality test, the cointegration relationship between the relevant variables should also be investigated. If there is no cointegration between the variables, the model is invalid. In the causality test developed by Toda and Yamamoto (1995), causality analysis can be performed without the above conditions (Ak, et al, 2016: 156).

The Toda-Yamamoto causality test based on the VAR model can be applied regardless of whether the series are stationary or not. In order to apply the test, the optimal lag length of the VAR model ( $k$ ) and the maximum degree of integration of the variables ( $d_{\max}$ ) should be determined. The VAR model is estimated by summing the determined values ( $d_{\max}+k$ ) (Gazel, 2017: 291-292). In an equation where  $Y$  is the dependent variable and  $X$  is the independent variable, VAR models are as follows (Göksu and Balkı, 2023: 99).

$$Y_t = \alpha_0 + \sum_{i=1}^{k+d_{\max}} \beta_{1i} Y_{t-i} + \sum_{i=1}^{k+d_{\max}} \beta_{2i} X_{t-i} + \varepsilon_{1t} \quad (3)$$

$H_0$ :  $X \nRightarrow Y$  (There is no causality from  $X$  to  $Y$ ).

$H_1$ :  $X \Rightarrow Y$  (There is causality from  $X$  to  $Y$ ).

$$X_t = \alpha_1 + \sum_{i=1}^{k+d_{\max}} \beta_{3i} X_{t-i} + \sum_{i=1}^{k+d_{\max}} \beta_{4i} Y_{t-i} + \varepsilon_{2t} \quad (4)$$

$H_0$ :  $Y \nRightarrow X$  (There is no causality from  $Y$  to  $X$ ).

$H_1$ :  $Y \Rightarrow X$  (There is causality from  $Y$  to  $X$ ).

The  $k$  in the equations denotes the optimal lag length determined according to the information criteria, and  $d_{\max}$  denotes the largest degree of integration determined by the stationarity tests performed on the variables. The robustness of the model is examined by applying diagnostic tests to the estimated VAR model. Then, causality test is performed with the Wald test. Thus, the causality relationship between variables is determined.

## 6. Empirical Analysis

The effect of inflation rate (INF), exchange rate (ER) and credit risk premium (CDS) on deposit dollarization (D) are analyzed by the Autoregressive Distributed Lag Bound Test (ARDL) method for the period 2010:01-2024:03 with monthly data. The analysis and findings of the study are explained in this section. From this point of view, Phillips Perron and Augmented Dickey Fuller unit root tests were applied to determine the unit root states of the series. The statistics and probe values obtained as a result of the relevant



tests are given in Table 1.

**Table 1.** PP and ADF Unit Root Tests

PP		
Variables	Constant	Constant/Trend
$D_t$	-1.313 (0.623)	-1.402 (0.857)
$\Delta D_t$	-8.104 (0.0)***	-8.037 (0.0)***
$ER_t$	-0.621 (0.862)	-2.774 (0.209)
$\Delta ER_t$	-10.894 (0.0)***	-10.871 (0.0)***
$INF_t$	-0.678 (0.849)	-1.787 (0.708)
$\Delta INF_t$	-7.940 (0.0)***	-8.013 (0.0)***
$CDS_t$	-2.261 (0.186)	-3.341 (0.063)
$\Delta CDS_t$	-13.085 (0.0)***	-13.056 (0.0)***
ADF		
Variables	Constant	Constant/Trend
$D_t$	-1.654 (0.453)	-2.392 (0.382)
$\Delta D_t$	-8.451 (0.0)***	-8.456 (0.0)***
$ER_t$	-0.632 (0.860)	-2.745 (0.220)
$\Delta ER_t$	-11.856 (0.0)***	-11.839 (0.0)***
$INF_t$	0.674 (0.991)	-1.134 (0.920)
$\Delta INF_t$	-4.413 (0.0)***	-5.289 (0.0)***
$CDS_t$	-2.306 (0.171)	-3.197 (0.088)
$\Delta CDS_t$	-12.857 (0.0)***	-12.826 (0.0)***

**Note:** The symbols \*\*\*, \*\*, and \* denote significance levels at 1%, 5%, and 10%, respectively. Probability values are given in parentheses.  $\Delta$  represents the first-degree difference processor.

As a result of the analysis, it is determined in Table 1 that the series are not stationary at the level according to the results of both unit root tests, but are stationary only in the first difference. In the case where the first differences of the series are taken, the coefficients obtained are statistically significant at the 1% significance level. Considering that the series are not stationary in the second differences, the analysis was carried out by the boundary test method. In the application of the bounds test, the Akaike information criterion is used to determine the optimal delay length for the model. According to the Akaike information criterion, the optimal lag length is determined as ARDL (7, 1, 8, 2). Table 2 shows the F-statistic value, lower and upper limit critical values and diagnostic test results.

**Table 2.** Bounds and Diagnostic Test Results

Model	Optimal Length	Lagged	F-statistic
$F(D_t / ER_t, INF_t, CDS_t)$	(7, 1, 8, 2)		7.7900**
Critical Values			
Significance Level	I (0)		I (1)
%10	2.823		3.885
%5	3.363		4.515
%1	4.568		5.96
Diagnostic Tests			
BG Serial Correlation LM Test			1.350 (0.263)
BPG Heteroscedasticity Test			1.102 (0.353)
Ramsey RESET test			0.020 (0.889)
Cusum Test (S) Cusum Q Test (U)			

**Note:** Probability values are given in parentheses.

U: Unstable S: Stable

The F-statistic value (7.790) in Table 2 is above the lower limit I (0) and upper limit I (1) critical values at the 1% significance level. This shows that there is a long-term relationship between the variables. Therefore, the variables are cointegrated. In addition, since the probe values are higher than 5% in the diagnostic test results performed to test autocorrelation, model construction and changing variance problems in the model, these problems are not included in the model. The Cusum test result shows that the model is stable.

**Table 3.** Long Run Analysis

Variables	Coefficient	Std. Error	t-stat
$ER_t$	-0.004***	0.001	-4.020
$INF_t$	-0.005***	0.002	-2.992
$CDS_t$	0.115**	0.048	2.364

**Note:** \*, \*\* and \*\*\* represent the significance levels at %10, %5 and %1, respectively.

According to Table 3, which includes the results of the long term analysis, the effect of the exchange rate and inflation rate on deposit dollarization is negative. Since the probability values of the coefficients for these independent variables are 0.0, the coefficients are statistically significant at the 1% significance level. A change of 1% in the inflation rate causes an inverse effect of 0.005% on the dollarization rate. A change of 1% in the exchange rate leads to a change of 0.004% in the dollarization rate. The effect of credit risk premium on the dollarization rate is positive, but statistically significant at the 5% significance level. A 1% increase in the credit risk premium increases the dollarization rate by 0.115%. When the coefficients are taken into account, it has been determined that the effects of the inflation rate and the exchange rate on dollarization are weak. It can be seen from the table that the most effective variable on dollarization is the credit risk premium. The equation showing the degree and direction of the relationship between the analyzed variables is given below.

$$EC = D - (-0.004*ER - 0.005*INF + 0.115*CDS) \quad (5)$$

After the long-term analysis, short-term analyzes are included in table 4. Table 4 presents the short-term analyses of the variables that were found to be cointegrated with each other in the long run. As can be seen from the table, the error correction parameter coefficient (-0.093) is negative but statistically significant at the 1% significance level. This situation supports the long-term relationship between the variables. Although the short-run coefficients of the variables are generally positive, they are negative only at the first lag level for the credit risk premium, at the level value for the exchange rate, and at the third and fourth lag levels for the dependent variable.

**Table 4.** Error Correction Model

Variables	Coefficient	Std. Error	Prob
Constant	0.021	0.004	0.000
$\Delta D_t$	0.134	0.086	0.119
$\Delta D_{t-1}$	0.019	0.080	0.816
$\Delta D_{t-2}$	0.007	0.078	0.932
$\Delta D_{t-3}$	-0.217	0.078	0.006
$\Delta D_{t-4}$	-0.093	0.081	0.251
$\Delta D_{t-5}$	0.145	0.083	0.082
$\Delta ER_t$	-0.002	0.000	0.000
$\Delta INF_t$	0.001	0.000	0.001
$\Delta INF_{t-1}$	0.000	0.000	0.455
$\Delta INF_{t-2}$	0.000	0.000	0.409
$\Delta INF_{t-3}$	0.001	0.000	0.078
$\Delta INF_{t-4}$	0.000	0.000	0.789
$\Delta NF_{t-5}$	0.000	0.000	0.929
$\Delta INF_{t-6}$	0.000	0.000	0.703
$\Delta INF_{t-7}$	0.001	0.000	0.002
$\Delta CDS_t$	0.024	0.006	0.000
$\Delta CDS_{t-1}$	-0.015	0.007	0.028
$ECT_{t-1}$	-0.093	0.017	0.000

**Note:**  $\Delta$  represents the first-degree difference processor.

In the study, after determining the long-run relationships between the variables with the bounds test, Toda-Yamamoto causality test was applied to determine the causality relationship between the relevant variables. In order to conduct the Toda-Yamamoto causality test, the value of  $dmax+k$  should be determined. According to the unit root test results of the series, it was determined in Table 1 that the highest degree of integration ( $dmax$ ) is 1. Table 5 and Table 6 was prepared to determine the optimal lag length.

**Table 5.** Optimal Lag Lengths for VAR Model

Lag	Logl	LR	FPE
0	76.91596	NA	4.80e-06
1	905.6408	1606.608	2.24e-10
2	958.5445	99.96528	1.43e-10*
3	974.2021	28.81764	1.43e-10
4	982.0598	14.07629	1.59e-10
5	998.4911	28.62878	1.58e-10
6	1008.518	16.97872	1.71e-10
7	1030.451	36.06142*	1.60e-10
8	1037.967	11.98817	1.79e-10

\* indicates lag order selected by the criterion. **FPE:** Final prediction error and **LR:** sequential modified LR test statistic (each test at 5% level).

**Table 6.** Optimal Lag Lengths for VAR Model

Lag	AIC	SC	HQ
0	-0.894674	-0.818754	-0.863852
1	-10.86676	-10.48716	-10.71264
2	-11.31956*	-10.63628*	-11.04216*
3	-11.31536	-10.32840	-10.91467
4	-11.21546	-9.924813	-10.69147
5	-11.22075	-9.626424	-10.57347
6	-11.14746	-9.249458	-10.37689
7	-11.22026	-9.018573	-10.32640
8	-11.11616	-8.610790	-10.09901

\* indicates lag order selected by the criterion.

**Note:** AIC, SC and HQ are the Akaike, Schwarz and Hannan-Quinn information criteria respectively.

In Table 6, it is observed that the lag length is 2 according to AIC, SC and HQ information criteria. In this case, the sum of the optimal lag length and the maximum degree of integration ( $k+dmax$ ) is 3. Thus, the VAR model is estimated with 3 lag lengths. It is necessary to test the stability of the model and whether the error terms have autocorrelation problems. The results of the tests conducted for this purpose are presented in Table 7.

**Table 7.** AR Roots Table and Autocorrelation LM test Results

Root		Modulus
0.995203 - 0.013719i		0.9953
0.995203 + 0.013719i		0.9953
0.825853		0.8258
0.730266		0.7303
0.166204 - 0.579458i		0.6028
0.166204 + 0.579458i		0.6028
0.550777		0.5508
0.126661 - 0.279590i		0.3069
0.126661 + 0.279590i		0.3069
-0.153612 - 0.141964i		0.2092
-0.153612 + 0.141964i		0.2092
0.194311		0.1943
Lag	LM-Stat	Prob
1	16.52903	0.4167
2	19.08166	0.2645
3	13.34310	0.6475

According to the data in Table 7, since no root is outside the unit circle, the stability condition of the VAR model is provided. According to the autocorrelation test results conducted to determine whether the model, which was found to be stable, has an autocorrelation problem, there is no autocorrelation problem in the model since the probability value is greater than 10%. Based on this, the causality test was carried out in order to determine the causality relationship between the variables.

**Table 8.** Causality test results

Causality	Test Statistics	Prob V.	Results
INF → D	7.3253	0.0256	CE
ER → D	7.3476	0.0254	CE
CDS → D	4.9671	0.0834	NC
D → CDS	3.7388	0.1542	NC
INF → CDS	1.6381	0.4408	NC
ER → CDS	2.1735	0.3373	NC
D → INF	17.969	0.0001	CE
CDS → INF	1.5783	0.4542	NC
ER → INF	17.285	0.0002	CE
D → ER	10.247	0.0059	CE
CDS → ER	14.186	0.0008	CE
INF → ER	5.8918	0.0525	NC

**Note:** Causality Exists (CE), No Causality (NC).

Table 8 includes the causality results. The probability value is used to understand whether there is a causality relationship between variables. Accordingly, if the relevant value is less than 0.05, there is causality. According to the causality results, the relationship between the inflation rate and dollarization of the exchange rate is significant. In this respect, the causality test results obtained support the results of the ARDL bounds test. While the inflation rate and exchange rate are the causes of dollarization, the credit risk premium is not the cause of dollarization. Dollarization is the cause of both the inflation rate and the exchange rate. Therefore, the causality relationship between dollarization and inflation and between dollarization and the exchange rate is bidirectional. In addition, the credit risk premium of the exchange rate inflation is the cause of the exchange rate.

## 6. Conclusion

The liberalization process of capital movements, which started in the 1970s, led to an increase in the vulnerability of developing countries' economies to foreign currency movements. Dollarization, which emerged in Latin American countries in the 1980s, is generally the situation where transactions made by the national currency are carried out by the foreign currency. Although there are various definitions in the literature on dollarization, it can be evaluated that the dollarization in the Turkish economy is unofficial or partial dollarization. The basis of partial dollarization is based on the fact that economic decision-making units lose their confidence in the national currency and turn to foreign currency. The high level of dollarization negatively affects the effectiveness of the policies to be created based on the national currency in the relevant economy. For this reason, policymakers tend to implement policies aimed at preventing the deepening of dollarization processes.

After the high inflation experienced in Türkiye in the 1971-2003 period, the inflation rate was finally realized in single digits in 2004. In this way, confidence in the national currency began to increase. With the removal of six zeros

from the TL on January 1, 2005 and the transition to the open inflation targeting strategy in 2006, the dollarization rate of deposits showed a downward trend in the 2003-2012 period. However, developments and exchange rate shocks in recent years have caused the inflation rate to rise. With the rising exchange rate and inflation, confidence in the national currency has decreased. In this context, the dollarization rate has increased.

In this study, the effects of real effective exchange rate, inflation rate and credit risk premium on deposit dollarization were analyzed by bounds test for the period 2010:01-2024:03. Since the dollarization that emerged in Türkiye is in the form of economic decision-making units evaluating their savings in foreign currency rather than national currency, the deposit dollarization rate was determined as the dependent variable in the study. The inclusion of foreign exchange protected deposits in the calculation of the dollarization rate, the inclusion of the credit risk premium in the analysis, and the consideration of deposit dollarization, which is the ratio of foreign currency deposits to total deposits, as the dollarization rate, distinguish the study from a significant portion of the literature. In addition, another point where the study differs from the literature along with its contribution to the literature is that the relationships between the variables are analyzed with both bounds testing and causality testing. As a result of the ARDL bounds test, it was determined that the variables were cointegrated in the long run. The finding that inflation and exchange rate are related to dollarization is consistent with the studies conducted by Terzi and Kurt (2007), Hekim (2008), Dumrul (2010), Gündüz (2021), Aktaş and Aydınlik (2022) and Özbek (2024). In addition, the finding that inflation has a negative effect on dollarization is similar to the studies conducted by Kaya and Kara (2022) and Özbek (2024) in the relevant literature.

According to the results of the long-term analysis, the effect of the exchange rate and the inflation rate on the dollarization rate is inverse, while the effect of the risk premium is positive. A 1% change in the inflation rate causes an inverse effect of 0.005% on the dollarization rate, while a 1% change in the exchange rate leads to a 0.004% change in the dollarization rate. A 1% increase in the credit risk premium increases the dollarization rate by 0.115%. The results show that the most effective variable on the dollarization rate is the credit risk premium.

After determining that the variables are cointegrated in the long run with the bounds test, the causality relationship between the variables was investigated with the Toda-Yamamoto causality test. According to the causality test results, the relationship between the inflation rate and the exchange rate with dollarization is significant. In this respect, the causality test results obtained support the ARDL bounds test results. While the inflation rate and exchange rate are the causes of dollarization, the credit risk premium is not the cause of dollarization. According to the causality test results, dollarization is the cause of both the inflation rate and

the exchange rate. In addition, the credit risk premium of the exchange rate inflation is the cause of the exchange rate. The determination that the causality relationship between dollarization and the inflation rate is bidirectional is consistent with the studies of Demirgil and Birol (2020) and Hazar et al. (2024) in the relevant literature. The bidirectional causality relationship between the dollarization rate and the exchange rate is similar to the studies of Kofoğlu (2013), Yılmaz (2022) and Hazar, et al. (2024) in the relevant literature.

The basis of dollarization in an economy is the distrust of the national currency. The disruptions caused by the economic crises that arise due to the faulty economic policies applied are effective in shaking the confidence of economic decision-makers in the national currency (Özen, 2018: 105). Therefore, the increase in risks in the economy may adversely affect confidence in the national currency. Since the increase in the risk premium may adversely affect investments in the national currency in the relevant economy, it may be in line with economic expectations for decision-makers to turn to foreign currencies for wealth storage. An increase in the real effective exchange rate index above 100 indicates that the national currency has become overvalued, contributing to the increase in the confidence of decision-makers in the national currency. This situation supports the preference of the national currency instead of the foreign currency as a means of storing wealth. Therefore, the determination that the risk premium has a positive effect on the dollarization rate and the real effective exchange rate has a negative effect is in line with economic expectations.

High and volatile inflation is an important determinant in the dollarization process in the economy of the relevant country. High inflation leads to a decrease in the purchasing power of the national currency compared to foreign currencies. In order to protect against the decline in purchasing power, economic decision units turn to foreign currencies (Serdengeçti, 2005: 4-5). In the study, the determination that the effect of the inflation rate on the dollarization rate is negative does not seem to be compatible with economic expectations in general. It can be thought that the underlying reason for the result obtained in the study is the increasing exchange rate and inflation, especially as a result of the policy interest rate cuts that started in the autumn of 2021. As a matter of fact, Kotil (2020), Turgut and Uçan (2021), U. Kaytancı and B. Kaytancı (2021), Altiner and Sungur (2021), Umut (2022) and Yalçın (2023) found that the changes in the exchange rate and the inflation rate in the Turkish economy are related to each other.

According to the literature, in general, the increase in inflation and the decrease in trust in the domestic currency direct decision-makers to foreign currencies. This situation causes dollarization. In the study, it was determined that the effect of the inflation rate on the dollarization rate was negative. It is important to evaluate this finding. In addition to the rising exchange rate and inflation with the policy rate cuts that started in the autumn of 2021, the negative real

interest rates made it possible for decision-makers to borrow at low interest rates in a high inflation environment. This situation caused households to develop an expectation that prices would increase even more in the future. In the same period, the low real cost of borrowing in TL triggered individuals to increase their consumption expenditures by borrowing. In addition made it attractive for decision-makers to turn to low-interest borrowing in TL rather than saving in foreign currency by pulling forward their consumption expenditures. As a matter of fact, according to the data of the Turkish Statistical Institute, the final consumption expenditures of households residing in Türkiye increased by 19.7% in 2022 compared to the chained volume index of the previous year. The negative effect of inflation on the dollarization rate can be attributed to the fact that decision-makers increase their expenditures by borrowing in TL with low interest rates instead of bringing consumption expenditures forward and saving in foreign currency.

Dollarization is a very important phenomenon in the Turkish economy. The rise of dollarization can lead to increased fragility in the country. Increasing fragility can cause uncertainties, increasing risks in the economy and causing a crisis risk in the country's economy. This situation can make the central bank's job difficult. With the CBRT's reduction of the policy interest rate in the fall of 2021, the increasing exchange rate and inflation caused a decrease in confidence in the domestic currency. The shock increases in the exchange rate led the CBRT to intervene in the foreign exchange market. In this context, the exchange rate protected deposit application was launched at the end of 2021. Although the TL gained value for a short time with this application, the exchange rate increased over time. As a result of the developments, the exchange rate protected deposit application has become a burden on the treasury, confidence in the domestic currency has decreased and the country's credit risk premium has increased.

The intervention of the Central Bank in the foreign exchange market due to dollarization may cause a decrease in foreign exchange reserves and a decrease in trust in the free market economy. In order to ensure price stability, contractionary monetary and fiscal policies should be implemented in inflationary periods. The Central Bank has been implementing the inflation targeting strategy since January 1, 2006. According to this strategy, when inflation increases, the central bank should reduce inflation by implementing a strict and uncompromising contractionary monetary policy. The central bank's reduction of inflation rate by implementing a contractionary policy may contribute to the increase in the credibility of the central bank and increase the trust in the domestic currency in the markets. Thus, the dollarization rate can be reduced and the effectiveness of monetary policy can be increased.

In addition, adopting policies that are appropriate for the conditions of the economy is important in reducing the credit risk premium and thus increasing confidence in the markets. In this context, making investment instruments in local

currency attractive, avoiding policy implementations that may pave the way for exchange rate shocks, increasing and maintaining the credibility of the Central Bank, whose primary goal is to ensure price stability, implementing fiscal and monetary policies in harmony with each other, and ensuring the permanence of an environment of trust for domestic and foreign investors are very important. Inconsistencies between monetary and fiscal policies should be minimized and both policies should be coordinated to ensure price stability. Central banks may find it easier to achieve their goals if they determine interest rates, which are among their basic policy tools, by taking into account the current period and expected inflation rates.

The dependency on imports in the Turkish economy creates pressure on the foreign exchange market through the foreign trade deficit. Therefore, increasing support for activities such as tourism and exports that earn foreign exchange for the country can contribute to increasing foreign exchange inflow, decreasing the exchange rate and reducing dollarization. Supports aimed at reducing the dependency on imported inputs in production in the export sector can reduce the demand for foreign exchange and increase the supply of foreign exchange. Diversifying investment instruments related to sectors that produce for export rather than investment instruments in foreign currency can support the provision of financing required for production. Reducing risks to the national currency and increasing the attractiveness of investments in national currency can greatly contribute to reversing the dollarization process. In addition, making regulations regarding the use of foreign currency as a payment instrument in the country and encouraging the use of domestic currency can be effective in reducing dollarization.

In future studies in the relevant field, the universe of the research can be expanded by analyzing the relationship between the dollarization rate and different macroeconomic variables. By analyzing Türkiye together with countries with similar economic structures to the Turkish economy, comparative results regarding dollarization can be obtained and policy recommendations can be developed. In addition, empirical evidence obtained by using different analysis methods in the relevant field can guide the determination of policies aimed at reducing the dollarization rate.

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