Dollarization's Effects In Turkey Economy

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Abstract

In order to preserve the value of assets in high-inflation countries, investors turn to currencies of economically stable and secure countries. Once liberalization measures were taken in the 1980s in Turkey, the volume of foreign exchange entering its economy also increased. However, high inflation, low domestic investment, increased volume of imports and weak financial base left the Turkish economy with the reality of dollarization. In this study, the definition of dollarization and currency substitution is explained in details. The aim of this study is to describe the difficulties Turkey faced with dollarization from the very beginning up to a certain period in chronological order. This study involves that by means of considering of time-series comparative analysis data method and investigating the facts that constitute the reasons for dollarization were associated to the by causality method. The expected result in this study is that high inflation and uncertainties in both the political and economic environment can lead to a high dollarization of the economy.

Keywords: Dollarization, Currency Substitution, Dollarization,Turkey
JEL Codes: B21 E31 E42 E50

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Dolarizasyonun Türkiye Ekonomisine Etkileri

Özet

Yüksek enflasyonlu ülkelerde varlıkların değerini korumak için yatırımcılar ekonomik olarak istikrarlı ve güvenli ülkelerin para birimlerine yönelmektedir. Türkiye'de 1980'li yıllarda uygulamaya konulan liberalleşme adımlarının ardından ekonomisine giren döviz hacmi de artmıştır. Ancak yüksek enflasyon, düşük yurtiçi yatırımlar, artan ithalat hacmi ve zayıf mali taban, Türkiye ekonomisini dolarizasyon gerçeğiyle baş başa bıraktı. Bu çalışmada dolarizasyon ve para ikamesinin tanımı detaylı olarak anlatılmıştır. Bu çalışmanın amacı, başlangıçtan belli bir döneme kadar Türkiye'nin dolarizasyonla karşılaştığı zorlukları kronolojik bir sıra içinde anlatmaktır. Bu çalışma, zaman serileri karşılaştırmalı analiz veri yöntemi dikkate alınarak dolarizasyonun nedenlerini oluşturan olguların nedensellik yöntemiyle ilişkilendirilmesini içermektedir. Bu çalışmada beklenen sonuç, yüksek enflasyon ve hem politik ortamdaki hem de ekonomideki belirsizliklerin ekonomide yüksek dolarizasyona yol açabileceğidir.

Anahtar Kelimeler: Dolarizasyon, Para İkamesi, Dolarizasyon ve Türkiye
JELKodu: B21 E31 E42 E50

Introduction

With the process of globalization, many countries have had to experience the struggle with economic crises. The harsh criticism of the policies implemented in this process led to the emergence of new searches. Various suggestions have been put forward in order to regulate the financial structure and to alleviate the effects of the experienced global or regional crises. The most interesting of these is the fact that countries legally adopt the currency of the developing country by partially or totally giving up their national currencies. Intensive debates began on the implementation of this recommendation, known as currency substitution or dollarization, as a policy in many countries. Although dollarization is generally thought to occur as a result of high and unstable inflation, it is also affected by macroeconomic variables such as exchange rate changes, real Gross Domestic Products (GDP), money supplies and interest rates. In the 1990s, Turkey experienced periodic inflation exceeding 100%, and the income balance and macroeconomic stability in the country were severely damaged. For this reason, there were frequent changes of government and coalitions in the country in the 1990s. Later came the economic crisis of 2001. With the Strong Economy Transition Program announced on April 15, 2001, the Central Bank of the Republic of Turkey (CBRT) gained full autonomy to reduce inflation in the country and the CBRT was assigned as its primary area of responsibility. The task of "maintaining price stability" was given. Afterwards, Central Bank of the Republic of Turkey (CBRT) aimed to the inflation targeting regime from 2002 and carry out the implicit inflation targeting framework in the period of 2002-2005, and the explicit inflation targeting framework was aimed in the period of 2006 and on looking years. In 2018, inflation increased rapidly in Turkey due to internal and external reasons, and the inflation targeted by the CBRT as 7% in January 2018 was in the Government Program but at the end of the year inflation rate was 20.30% in terms of Consumer Prices (CPI) and in Producer Prices Index (PPI) at the end of 2018 was declared as 33.64%. This situation shows that inflation is on the way to become an important macroeconomic problem again in Turkey and has increased the need for academic studies and policy recomme9ndations on the causes and prevention of inflation. It can be stated that there is a close interaction between inflation and interest rates in Turkey; the direction of the interaction is not from interest to inflation, but from inflation to interest [48]. For example, dollarization is a problem observed in Latin American countries such as Peru, Argentina and Venezuela, which are experiencing severe inflation (See Table A.1); Nigeria, Tunisia, Kenya in Africa (See Table A.2);

In Asia, Cambodia, Pakistan, Malaysia See Table A.3). It is a phenomenon that can be seen in countries such as Romania, Estonia and Russia in Europe (See Table A.4). Flexible exchange rate system and financial freedom increase the demand for foreign currency as well as the official currency of the countries. This increase in the demand for foreign currency is seen as an increase in foreign currency financial assets and foreign currency deposits. Increase in financial assets increase in the tax base is both positive and negative the size of the currency substitution. In short, dollarization is the unit of account of the national currency, exchange functions and substitution of savings by foreign currencies. It can come from demand and time deposits in foreign currency and in terms of various financial assets [51].

Table A. 1 Selected Latin American Countries' Inflation Rates[3]

Years	Argentina	Peru	Venezuela
2015	No Data	4,4	180,9
2016	No Data	3,2	274,4
2017	24,8	1,4	862,6
2018	47,6	2,2	130060,2
2019	53,8	1,9	9585,5
2020	36,1	2	2959,8
2021	No Data	3,2	2700

[3] [19]

Table A. 2 Selected African Countries' Inflation Rates[4]

Years	Kenya	Nigeria	Tunisia
2015	6,6	9	4,4
2016	6,3	15,7	3,6
2017	8	16,5	5,3
2018	4,7	12,1	7,3
2019	5,2	11,4	6,7
2020	5,2	13,2	5,6
2021	6	16,9	5,7

Table A. 3 Selected Asian Countries' Inflation Rates[5]

Years	Cambodia	Malaysia	Pakistan
2015	1,2	2,1	4,5
2016	3	2,1	2,9
2017	2,9	3,8	4,1
2018	2,4	1	3,9
2019	2	0,7	6,7
2020	2,9	-1,1	10,7
2021	2,5	2,5	8,9

Table A. 4 Selected European Countries' Inflation Rates[6]

Years	Estonia	Romania	Russian Federation
2015	0,1	-0,6	15,5
2016	0,8	-1,6	7
2017	3,7	1,3	3,7
2018	3,4	4,6	2,9
2019	2,3	3,8	4,5
2020	-0,6	2,6	3,4

[4] [20]
[5] [21]
[6] [22]

2021	3,8	4,3	5,9

In the most basic sense, dollarization is the ability of a foreign currency to fulfill all the functions of money in a country, instead of the national official currency. Dollarization is also defined as currency substitution, as a foreign currency is preferred more in functions of being a unit of account, storing value and intermediating transactions, compared to the official currency. However, even though currency substitution and dollarization are two concepts that are generally used in the same sense, dollarization occurs as a result of the loss of the functions of domestic currency as a value storage and unit of account, while currency substitution is the fulfillment of all functions of money by foreign currency [6].

The aim of this study is to describe the difficulties Turkey faced with dollarization from the very beginning up to a certain period in chronological order. Also, when Turkey economy is faced seriously a dollarization effect is the another aim of this study.

This study is organized as follows: Section 1 represent theoretical framework of dollarization and currency substitutions words' definitions. Section 2 demonstrates the literature reviews which of related studies about dollarization in the Turkey economy. Section 3 gives information under chronological order about dollarization and Turkish economic structure by using tables and figures to develop comprehension. Last part in section 4 concludes in a detailed and coherent way to have better view on readers' minds.

Conceptual Framework

Dollarization

Dollarization is a term used to describe activities performed by households or organizations in response to economic uncertainty and excessive changes in prices. It pertains to the acts carried out by people or organizations to find appropriate means to achieve money and asset substitution. Money substitution makes reference to the usage of a foreign exchange to protect one's own money against highly inflationary depreciation. The United State's currency is the most widely used currency all around the world. To be deemed an elevated dollarized economy, the percentage of global money oriented funds in the economic system must be at minimum 20 percent of gross funds accordance with the World Bank [41].

Economic officials in nations fronting elevated inflation which is associated with increases outgrowth purchase dollars to defend their backs from declines in the valuation of their domestic properties. Dollarization is the term for this operation. Many studies have shown clear reciprocal causal relationships between inflation and foreign currency price [23] [31]. The exchange rate pass through is the jointly enduring impact of that rising price level changes drives up currency's value level deflation, that then contributes to rising inflation. This is especially valid in comparatively small or emerging open markets where deterioration of the national exchange raises the cost of manufactured commodities and worsens the rising inflation phase. Dollarization refers to the practice of venture capitalists and families keeping and purchasing dollars in order to keep the worth of their investments stable throughout the presence of greater rising prices. The rising request for dollars among agencies puts uphill stress on currency values, causing strong domestic currency downturns. We must understand additional possible issues in dollarized markets, including the effect of major fluctuations in global exchange prices on funding costs and financial institution's currency inequalities. Financial institutions commonly fund both dollars and national currency in dollarized markets. If households had dollar-denominated debt and their income is in domestic currency, and the domestic currency suddenly depreciated, household dollar-denominated monthly bills would increase significantly. Throughout most circumstances, these large changes, along with the fact that the country's money denominated income has not increased at the equivalent rate, indicate that there will be late in bills, effectively putting one in default. In a dollarized financial industry there is a strong link among inflation and the ratio of global money lending to domestic money lending, as [34] and [30] draw attention to. They state in their studies that the banking industry prefers to lend in international currency during

inflationary periods, but debtors want to get into debt in national currency (that means lack of credit validity). Even banking institutions that extend dollar loans in the hope of offsetting the risks of their cash holdings should incur an additional type of risk (unrealized credit stress) as described above. i.e., banking institutions just turn one degree of stress (currency rate stress) into the other (non-performed loans stress) without reducing their risks or offsetting their stances. As a result, heavily dollarized countries' economies are more exposed to sharp currency price changes than non- or mildly dollarized countries' economies. Furthermore, the use (purchase) of sound (stable) international money, including the US dollar, is the only financial tool available to buffer international currency value stresses at this time. In countries with chronic high inflation problems, the foreign currency first functions as a value storage or unit of account, then it is used as a medium of exchange. However, as the amount of foreign currency in circulation is not known exactly, dollarization rates are accepted as an indicator of currency substitution. For this reason, it is common to use dollarization and currency substitution as concepts interchangeably. Dollarization is classified differently according to the dimensions in which it is experienced. In addition to the foreign currency, the national currency is still in force, partially or unofficially (de facto) dollarization. The main reason for this is a rational indicator of economic agents' loss of confidence in the national currency. Officially, with the removal of the domestic currency from circulation, the situation where a foreign currency fulfills all the functions of the national currency is called full or official dollarization. Panama and Ecuador official dollarization, Argentina, Mexico and Peru are among the countries experiencing partial dollarization. Private sector and public borrowing in foreign currency in developing countries is expressed as liability dollarization. This situation both makes the country market fragile and makes the management of macro variables difficult [33].

The realization of the return and production costs of firms that export final goods or use imported intermediate goods in the production of final goods in foreign currency is known as official dollarization [26]. Currency substitution also varies according to its size. The situation in which residents and nonresidents demand national and foreign currency at the same time is symmetric currency substitution. Asymmetric currency substitution, on the other hand, is the situation where the foreign currency units demand low demand for the currency of the other country, despite the intense foreign currency demand of the residents [32]. Money substitution is also defined with narrow and broad meanings. According to the narrow definition, currency substitution means the

substitution of foreign currency with national currency; in broad definition, it means the substitution of all external financial assets with the national currency. According to another approach, currency substitution is explained directly and indirectly. Direct currency substitution is defined as the competition of two or more currencies that can be used as a payment instrument in the same market, while indirect currency substitution is defined as investors turning to foreign financial instruments instead of domestic financial instruments [27]. In Turkey, where the demand for dollars increases day by day while saving owners create portfolios or invest, it also causes an increase in dollarization. While the economic and political instability initially undermines confidence in TL, it makes the cost of holding dollar assets and financial instruments advantageous. Because the rational individual wants to use channels in which he feels safe to obtain benefits and save for the future [51]. Countries experiencing dollarization process have to use external resources since they do not create sufficient resources for their financial development [35]. Individuals want to protect the economic value of savings and take advantage of the opportunities created by the volatility of macro variables by resorting to foreign resources. In this respect, dollarization is observed to be reflected in the balance sheets of economic units in two ways. First is the asset dollarization, which includes foreign currency and foreign currency assets included in the assets of economic agents' balance sheets, and secondly; liability dollarization, which refers to foreign currency liabilities in the liabilities part of their balance sheets. Financial dollarization includes both asset and liability dollarization [51].

Currency Substitution

A certain proportion of use the terms Currency Substitution (CS) or dollarization to characterize the capital exit in a national economy [1], another authorities that illustrate the parallel (black) business exchange rate's dynamics [11]. Majority of authorities want to draw alertness to the common use of foreign exchange as a store of cash, unit of account, and medium of trade in the economy that occurs in domestic market [32] [28] [36]. While the word "dollarization" was being used to identify the CS operation in previous paragraphs, particularly it is most often used to point out that a foreign exchange operates as a unit of account or a store of value rather than a medium of exchange. An individual has to know that foreign currency is initially considered as a store of value or a means of payment in inflation elevated countries - just as these are the first two issues that the national currency loses in the context of elevated inflation , and then as a medium

of trade. Consequently, currency substitution is always the last step in the dollarization cycle [25].

Due to the uncontrolled nature of foreign currency holdings the dollarization cycle generally begins with foreign exchange operating as a store of value in place of the national currency. Since domestic currency is the most unpredictable of the three principal suppliers of revenue. Except for a few expenditures on housing, cars and other "big ticket" products, all expenditures by the individual are priced in foreign currency depending on the inputs in the production process, which continues to increase inflation. With the result that for this to occur inflation must not be excessively high or unstable. From the other hand, country's currency prefers to be used as a unit of account and a means of trade for almost all not long lasting commodities [10]. In the empirical literature, evaluating CS or dollarization is difficult since measuring the phenomenon requires a clear description of what is destined to exist to dollarization and conclusive data that nearly match that definition. Unless dollarization is described as a mechanism for that a foreign exchange takes over any or all of the processes of a national currency, the optimal remedy will entail all foreign exchange accounts kept by national citizens, along with foreign exchange bills, foreign exchange reserves in the national banking mechanism and foreign exchange reserves held beyond the bounds of a country [25].

If dollarization is narrowly explained as the method in which the national exchange is moved from its usual place as a medium of trade by a foreign exchange (as described in the concept of CS), the optimal approach will eliminate from consideration of all interest conveyor holdings and foreign exchange assets. As a consequent, the most prevalent approach in methodological studies is to use variables of dollarization as currency replacement variables, the most common of that is the portion of FEDs (Federal Reserve Bank) in the national banking mechanism in the wide extend of the total amount of money including of FEDs [25].

Literature Review

Dollarization and Inflation

The effect of dollarization in Turkey's inflation dynamics is investigated in this paper. According to descriptive research, structural factors played a significant role in the evolution of dollarization in Turkey, in addition to high inflation and economic uncertainty. The empirical results back up the duty of dollarization in inflation framework. The findings indicate that initial concussion to

dollarization result in decrease in the unit of currency as people shift their capital holdings from domestic to international. For a given budget deficit, the unit of currency from the other hand, increases sooner to generate the necessary inflation tax. The findings also show that the fiscal governing body is seeking to make up for some of the lost inflation tax income by boosting ruled rates. The rate of exchange reacts positively to dollarization shocks due to the large elasticity of replacement between internal and external exchange, as expected by Bahmani-Oskooee and Domaç (2003). The Vector Autoregressive Model (VAR) was applied as an empirical structure in Yilmaz and Uysal (2019)'s paper that looked at the link among dollarization and inflation in Turkey. The dollarization rate explains 0.63 percent of a 1 percent change in the consumer price index in the tenth period, according to the results of the disintegration of the variation . Inflation accounts for 5.32 percent of the 1 percent rise in the dollarization rate in that corresponding time frame. The Johansen Cointegration Test was used to analyze the connection among the parameters however no long time period link was discovered. Dollarization percentage is a determinant of consumer price index at a meaningful threshold of 10 percent in accordance with the Granger Causality studies. In the post-liberalization stage, this thesis aims to quantify the impact of dollarization on consumer price index, internal output, and private funding in Turkey. Karacal (2005) analyzed the short time and long time period connections among those parameters, as well as their durability, utilizing data for the monthly time period from 1987 to 2004 and an autoregressive distributed lags (ARDL) methodology. Dollarization had a significant influence on consumer price index however mainly a short-term effect on internal production and little influence on private funding, according to the findings. As a result, it suggests that, in the face of dollarization, monetary easing fiscal measures that are matched by monetary regulation might only raise internal output in the short time period of time, and merely at the cost of extended inflation, which might stifle economic growth.

Sever (2012)'s research used the Granger causality method to analyze the association among currency level volatility and dollarization level in Turkey for the time frame 1989:12–2010:12 and the sub- time period 2001:02–2010:12. The connection between dollarization and fluctuations in exchange rates is greater. Dollarization causes exchange rate volatility just after sixth lag. Besides that, also for time duration starting from 2001:02 to 2010:12, when a stable exchange rate regime was introduced, just one causative association between dollarization and exchange rate volatility was discovered. Meng Sui, Erick W. Rengifo and Eduardo Court

(2021)’s paper provides a thorough analytical investigation into gold's arbitrage power toward unfavorable consumer prices and changes in exchange rates in three nations: Turkey, Peru , and the United States as a standard. They observe that gold can provide security toward currency fluctuations and consumer price index fluctuations for Turkey and the United States at any and all time periods using quantile-on-quantile regression (QQR) method and quantile-on-quantile correlation (QQCOR) models, but not throughout Turkey's highly inflationary era.

Dollarization is calculated by the proportional levels of returning of internal and international monetary unit transacted reserves, projected adjustment in the currency rate, exchange rate endanger and the legitimacy of existing government reforms about economy, according to Civcir (2003)’s paper advanced portfolio framework. The findings which are related with the econometrics are consistent with the model's insightful forecasts. The rate of interest difference and predicted currency values are the most important factors in assessing dollarization, according to author’s findings. In addition, the article illustrates the unwillingness of taking action in Turkey's dollarization phase. Kıvılcım Metin-Özcan and Vuslat Us (2009)’s study examines the origins of dollarization in Turkey ensuring by building metrics for wealth, responsibility, and overseas dollarization. The analysis is looking for the condition of two or more series are themselves non-stationary, but a linear relationship between these values. The findings indicate that wealth dollarization increased mostly as a consequence of increased appetite for international wealth prior to the 2001 financial collapse.

The aim of Uslu (2019) is to empirically analyze the interaction between inflation and interest rates in the 2002:M01-2019:M01 period, when the inflation targeting regime was implemented by the CBRT (Central Bank of the Republic of Turkey). Long-term analyzes were made using the ARDL method and it was determined that the inflation rate in Turkey increased by 0.25% with a 1% increase in commercial loan rates and by 0.05% with a 1% increase in deposit rates. On the other hand, it was observed that the 1% point increase in the inflation rate increased the commercial loan rates by 0.23% and the time deposit interest rates by 0.59%. Lastly, it was found that a 1% point increase in deposit interest rates increased commercial loan rates by 1.04%. In the short-term analysis, it has been determined that commercial loan rates increase inflation in the short term, and commercial loan rates are increased by inflation and time deposit rates.

Uslu (2018)'s work researched that the effects of interest rate and exchange rate on foreign trade in Turkey were investigated by time series analysis with structural break for the period 1989:M01-2018:M06. It has been observed that the increase in the interest rate decreases the exchange rate. In the short-term analysis; It has been determined that the increases in the exchange rate do not immediately affect the exports, but decrease the imports. It has been observed that increases in interest rates have a reducing effect on exchange rates in the short run. The causality relations between the series were examined with the Granger test and one-way causality relations from interest to exchange rate, from exchange rate to import, and two-way causality relations between interest and imports and between exports and imports were determined. This situation; It shows that the monetary policies implemented in Turkey can affect the exchange rate, and the exchange rate policies can affect imports.

Dollarization and Turkey

We can say that the dollarization process in Turkey started with the applications of Foreign Exchange Deposit Account with Convertible to Foreign Currency and Credit Letter in order to solve the foreign exchange problem that occurred after the oil crises in the 1970s. In accordance with the stabilization program implemented later, at the end of 1983, the barriers to commercial banks' transactions in foreign currency were removed and the way for residents to have foreign currency deposits was opened. We can say that since this period, foreign exchange deposit accounts have become an important part of the broadly defined money supply [39].

Within the framework of liberalization tendencies in exchange rate policies, especially after the partial exchange liberalization in 1984, with the increasing inflationary tendency in the domestic currency, the escapes from the national currency started to gain momentum and the foreign currency needed by the public became more attractive than the Turkish Lira (TL)-denominated return rates, indicates that interest policies are not independent from foreign exchange policies. While a parallelism was observed between domestic interest rates and exchange rates from 1985 to 1987, the direction of movement of exchange rates after 1987 was the opening of the interest rate shear. Following the speculative movements of the exchange rate-interest spread opened in February 1988, decisions were taken to impose some restrictions on foreign exchange movements, but these restrictions were short-term. It can be said that the annulment of the Law No. 32, which was enacted in order to ensure that domestic borrowing and foreign savings are

included in the national economy in the financing of public deficits that support the increase of instability in the economy, is one of the important factors contributing to the opening of the exchange rate-interest spread [31]. With the decision number 32 taken in August 1989, the infrastructure of liberalization in Turkey has been largely completed. It is observed that some arrangements were made in the period of a few months following this decision. With these regulations, all restrictions on capital movements have been lifted [40].

With this practice, the purpose of positive interest application is to make foreign capital inflows attractive on the one hand, and to reduce the currency substitution event on the other hand. However, under the inflationary environment and economic conditions with public imbalance, Turkey has become dependent on short term hot money flows. The continuation of such capitals in the country is possible by keeping the real interest rates high. While this situation causes an increase in the share of foreign savings in the public imbalance, it creates problems in the current account balance as a result of the overvalued national currency causing a decrease in exports and an increase in imports [31]. As a result, capital outflows, which started after the negative developments in the expectations in the economy, which became dependent on speculative capital movements due to the low exchange rate-high interest pincer, created crises. In this context, after the financial liberalization practices, the inflation difference between the developed economies and the developing economies as well as the economic and political uncertainties and the expectations that the national currency will depreciate also triggered the dollarization trend [2]. Liberal economic policies also support national and international firms to develop their domestic and foreign economic relations. In this context, while improvement occurs in the purchasing and commercial relations of national companies abroad, at the same time, the commercial relations of international companies with domestic companies increase in various ways. The fact that the development of international integration requires more money from countries accepted in international trade in the portfolios of both national and international companies encourages dollarization [40].

In the period 1986-88, the share of foreign deposits in total deposits increased from 15 percent to 27 percent. At the same time, the share of time deposits in total deposits decreased from 66 percent to 42 percent. The important point that draws attention here is the presence of an acidmetric trend in the share of time deposits and the shares of foreign exchange deposits. This

may show that economic units move from time deposits to foreign currency or that the relationship between these two variables is in the opposite direction [14]. With the opening of the financial system in 1989, the cost of transactions in foreign currency decreased. Since this period, although the yields of foreign exchange deposit accounts are lower than assets linked to TL, currency dollarization has continued due to the unstable environment in the country [29]. After the capital account liberalization in August 1989, significant capital inflows occurred, which increased the real value of the national currency. While the real exchange rates decreased by 26 percent in the said period, the inflation rate decreased from 75 percent to 60 percent [14]. The 1990 is the period in which the Turkish economy was under the influence of intense capital flows accompanied by weak macroeconomic fundamentals, institutions and regulations. During this period, policies focused on different priorities rather than stability, structural reforms were not made and a loose fiscal policy was implemented. The monetary policy of the Central Bank can be summarized as adapting to this process and postponing a possible crisis as much as possible. As a result, inflation has reached the level of 80 percent, and the public borrowing requirement has increased to 15 percent of the gross national product. This structure has made the economy extremely vulnerable to external shocks in an environment where capital movements are free [39]. While the ratio of foreign exchange deposit accounts (FX deposits) to the broad money supply (M2Y) was 23 percent in 1990, this ratio increased to 42 percent in 1993 (See Table A.1).

On the other hand, evaluating the share of foreign exchange assets in total deposits as the determinant of dollarization may cause us to misinterpret the dollar rate. Because, although the yield rates of TL assets continued to be higher than those of foreign currency assets in these years, the shares of foreign currency deposits continued to increase. With the introduction of alternative investment instruments such as treasury bills and repo in the financial reform process, new investment instruments have become more preferred by households. While individuals prefer repo with more returns to time deposits, banks have tried to balance their portfolios with treasury bills [14].

If we look the Turkish economy history's overall in terms of exchange rate and interest rates, while Turkey applied a production and economic growth model based on import substitution, which was largely closed to the outside in the pre-1980 period, it adopted an export-based, open-ended economic growth model with the January 24, 1980 Decisions. Within the scope of the

foreign exchange regime applied previously, individuals are prohibited from holding and using foreign currency, while foreign currency transactions of companies are subject to the permission of the Central Bank, while the "Turkish Currency Exchange" No. 32 dated 11.08.1989. With the “Decision on Protecting Its Value”, the use of foreign currency was released and international capital movements towards the country were made free [37]. In Turkey, where the fixed exchange rate regime was dominant since the early 1930s, when the Central Bank was established, the Turkish Lira, which was first tied to currencies such as Frank and Sterling, was tied to the US Dollar in the Bretton-Woods system that started in 1944. After a short fluctuation after the Bretton-Woods implementation that ended in 1971, a managed floating exchange rate regime has been applied since the 1980s. A fastening process has been experience [4]. Exchange rates are one of the most important agenda items of the economy in every period in Turkey, which implemented a controlled floating exchange rate (floating exchange rate in the broadband) regime, following the fixed exchange rate regime (also called narrow band floating rate) tried between January 1, 2000 - February 21, 2001 [16] [24]. On the other hand, interest is the most important monetary policy instrument of the Central Bank of the Republic of Turkey (CBRT), especially after 25 April 2001, when the CBRT was made fully independent and its primary goal was to ensure price stability (preventing high inflation, reducing it). It has become more important for the Turkish economy. In periods when the need for foreign exchange in the country increases and the demand for foreign currency rises, the CBRT tries to attract more foreign financial capital to the country by increasing the funding rates of the banks. The most recent example of this happened in 2018, and the CBRT overnight lending rate, which was 9.25% in May 2018, was increased to 16.50% on 1 June 2018 and 19.25% on 8 June 2018 in order to curb the rising exchange rate. Not seeing this as enough, the CBRT increased the late liquidity window lending rates, which it used to lend to banks after 16:00, to 20.75% on 8 June 2018 [47].

On 14 September 2018, the interest rate increased to 24.00% with an increase of 6.25%. The irregularity of foreign exchange prices in the Turkish economy, which has an unstable movement in interest rates, has caused a great pressure. In the period between 2019 and May 2020, interest rates gradually decreased. The interest rate, which went down to 8.25%, decreased risk appetite together with the COVID-19 pandemic, which affected developing economies on a large scale, and the decrease in incomes, which are described as hot money coming out of the economies, prompted the policy makers of the Turkish economy to increase the interest rates again. With the

interest rate of 19.00 on March 19, 2021, the serious depreciation of the Turkish Lira, especially in the last quarter of 2021, and the outflow of foreign investors in the country's economy, an unconventional action has been taken and a trend towards lowering the interest rates has begun to be followed. As of January 2022, the interest rate is hovering around 14.00% and the signals that it will decrease further have been given decisively by the policy makers.

If we look at the Turkish economy's exchange rate policies, in the 1980-1989 period, the fixed exchange rate system with frequent devaluations, the controlled free exchange system in the 1989-1999 period, and the fixed exchange rate system in which daily increases were determined in the 2000-2001 period were applied. From the second half of 2001 to the present, a free exchange rate system, in which CBRT interventions are limited, has been implemented. It can be said that in the 1980-2001 period, when exchange rates were used as a means of gaining advantage in foreign trade, the implementation of the export-based growth model started in real terms after 2001 [7]. It can be said that the exchange rate policies implemented on the Turkish economy have significant effects and that it is also an important reason for the economic crises experienced. The fact that the Turkish economy has faced crises at more frequent intervals since the 1990s is closely associated with the exchange rate policies implemented in this period experienced a financial crisis and TL was devalued by 120% against the dollar [8]. Although a significant increase was observed in the level of exports in 1994, due to the growth and spending policies followed in 1995 and the following years, the domestic demand increased significantly and the import rate increased as a result of the real appreciation of the TL [9]. With the effect of a series of financial crises experienced by the world economy between 1998-2001, Turkey went through turbulent periods in 1998-1999, 2001 and 2008-2009. In 1999, a special monetary and exchange rate policy was determined within the framework of the stand-by agreement. This system can be defined as a crawling pag system that works on the basis of a coin board. The optimistic atmosphere, which continued until the middle of 2000, in the economy and financial markets in general, showed a sudden deterioration at the end of the year. After the financial crises in November 2000 and then February 2001, the program based on the mobile anchor was abandoned [46]. With the policy implemented after the 2001 crisis, the exchange rates were left to fluctuate and a new program aiming at a permanent and sustainable improvement in macroeconomic indicators was put into practice.

Table A. 5 Dollarization Rates and Foreign Exchange Rates of Change[7]

YEARS	FEDA/M2Y	FD/GNP	FCB/TDD	$/TL RATE OF CHANGE
1989	0,24	0,26	-	0,274
1990	0,23	0,27	-	0,266
1991	0,31	0,28	-	0,733
1992	0,34	0,29	-	0,685
1993	0,42	0,30	-	0,689
1994	0,48	0,45	-	1,657
1995	0,43	0,38	-	0,593
1996	0,45	0,37	-	0,760
1997	0,46	0,36	-	0,904
1998	0,47	0,41	0,07	0,530
1999	0,43	0,47	0,05	0,727
2000	0,47	0,50	0,08	0,243
2001	0,52	0,71	0,30	1,142
2002	0,55	0,63	0,28	0,135
2003	0,50	0,55	0,19	-0,146
2004	0,41	0,46	0,16	-0,038
2005	0,36	0,41	0,15	0,006
2006	0,33	0,44	0,12	0,052
2007	0,34	0,42	0,09	-0,175
2008	0,32	0,46	0,07	0,298
2009	0,31	0,53	0,04	-0,004
2010	0,29	0,45	0,03	0,026

[7] [40]

Figure A.1 shows that Turkey's foreign exchange has been steadily rising throughout the timeframe, with a higher upward acceleration in the previous five years. Also it's important noting that gold has had a nearly 1:1 connection with domestic money and foreign exchange over the previous five years [41].

If we look at the Figure A.1, Figure A.2 and Figure A.3 altogether Turkey experienced a fairly stable inflation rate, especially between 2002 and 2018. However, after the asymmetric exchange rate attacks that shocked the markets in 2018, rising inflation rates became inevitable for the Turkish economy, whose economic activity is highly dependent on the dollar exchange rate. While all these are happening, the gold price chart in the free market follows an upward trend. It is very difficult to say the correct ratio of inflation and dollar rate movements to each other for the ounce price of gold. We cannot say that the upward movement in gold prices, inflation and dollar rate levels are directly affected by this upward movement. While the price index on the consumer side was flat, and the low pricing in the dollar supporting this, of course, the downward trend in prices throughout the country must have created an opportunity for gold investors, as the high demand for gold caused gold prices to be priced upwards.

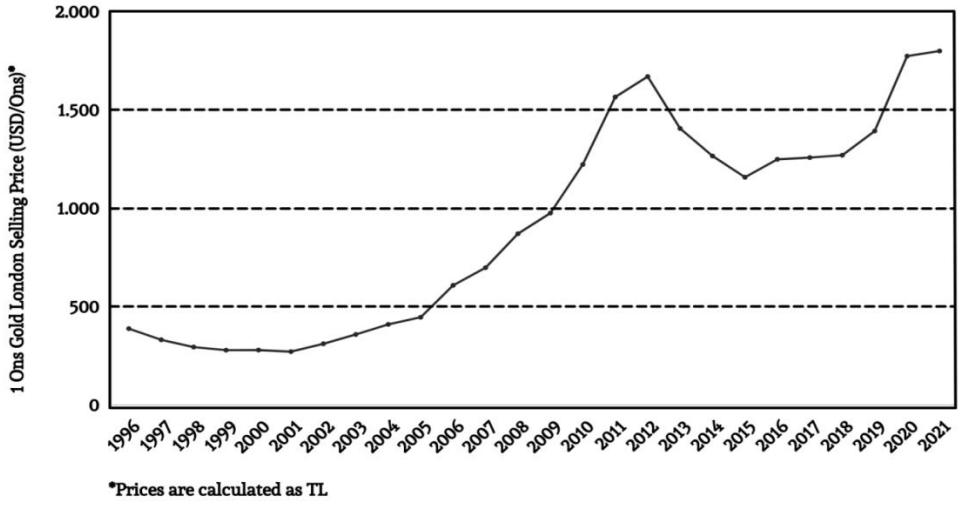

Figure A. 1 1 Ons gold London selling prices years between 1996 and 2021[8]

[8] [13]

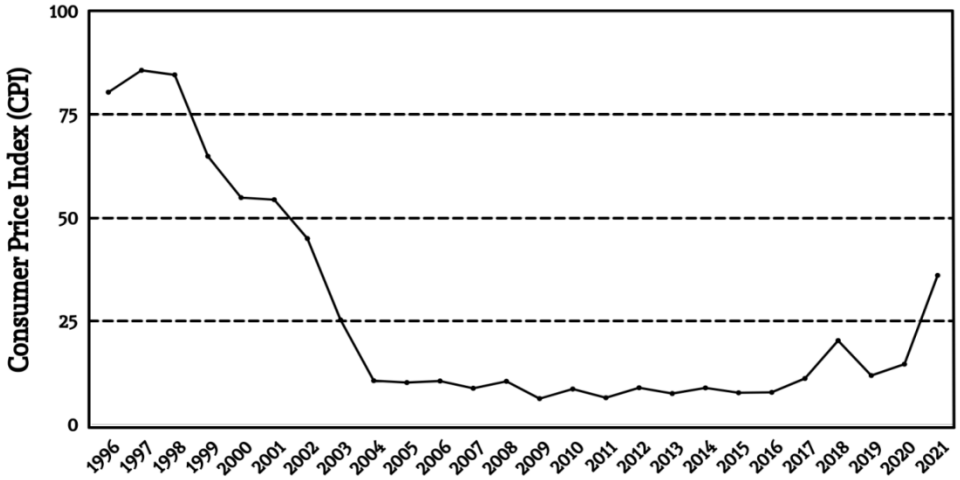

Figure A. 2 Consumer price index level in turkey years between 1996 and 2021[9]

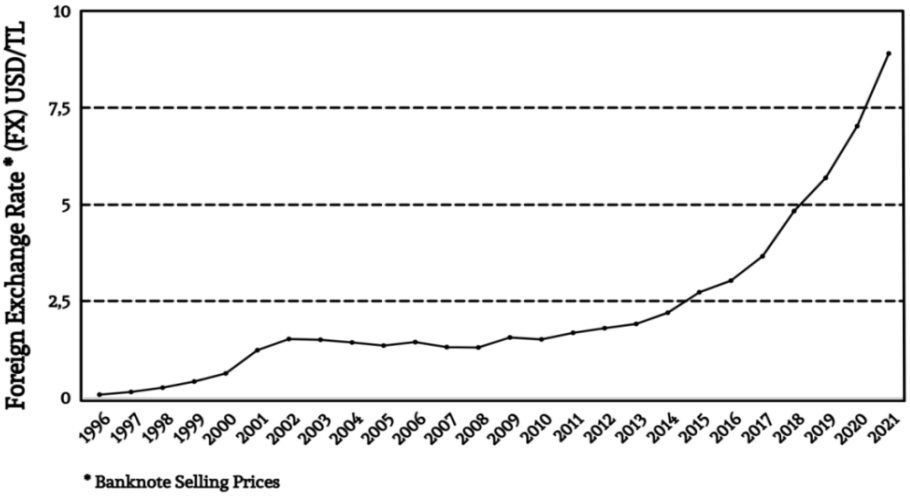

Figure A. 3 Foreign exchange rate levels in Turkey years between 1996 and 2021[10]

Domestic households were permitted to setup foreign exchange bank deposits in January 1984 as part of a stimulus policy aimed at reforming the financial market. The poorly developed financial industry and elevated consumer prices levels prompted an increase in global currency savings in

[9] [42]
[10] [12]

the banking industry when Turkey concluded its capital account globalization in 1989 by allowing absolute quality of a currency of being exchangeable for other currencies of the TL and removing caps on external capital movements (See Figure A.4) [41]. Global money units especially the Deutsch Mark (DM) have long been present in Turkish households' group of investments. The DM has become a near alternative for the TL, particularly between non-urban areas' populations with descendants who have been overseas since the late 1960 time periods, due to the growing presence of Turkish employees, primarily in Germany. This, nevertheless, cannot be considered money substitution in and of itself. While there is no accurate evidence on the amount of international money owned by the general population as a means of trade, it is fair to say that they were insignificant before international currency restrictions were abolished. Prior to the financial service's modernization, no international exchange was commonly used as a unit of account in internal trades. As a result, the trend of dollarization (or markization) in the Turkish market began in the mid-1980s [38].

If we look at the rate of foreign exchange deposits in the broad money (see Figure A.4 and Figure A.5), we can see that the upward trend has progressed aggressively after 1985 until the 1997 Asian financial crisis. The money supply, which increased with the effect of the crisis, decreased the share of foreign exchange, but with the effect of the recovery, we see a relatively flat rate in the short term until the 2001-2002 banking crisis. The 2001 Turkish crisis dealt a heavy blow to the economy by breaking the record of foreign currency demand in the last 25 years. The political and economic stability achieved with the balancing of inflation after 2002 also reduced the domestic demand for foreign currency. The stability, which was preserved until 2015, was interrupted by the manipulative movements organized by external forces and did not allow the normal functioning of the economic wheels. With the coup attempt that took place in 2016, the currency attacks in 2018 and the pandemic that broke out in 2020, the demand for foreign currency in the country increased, and this caused an inflationary atmosphere.

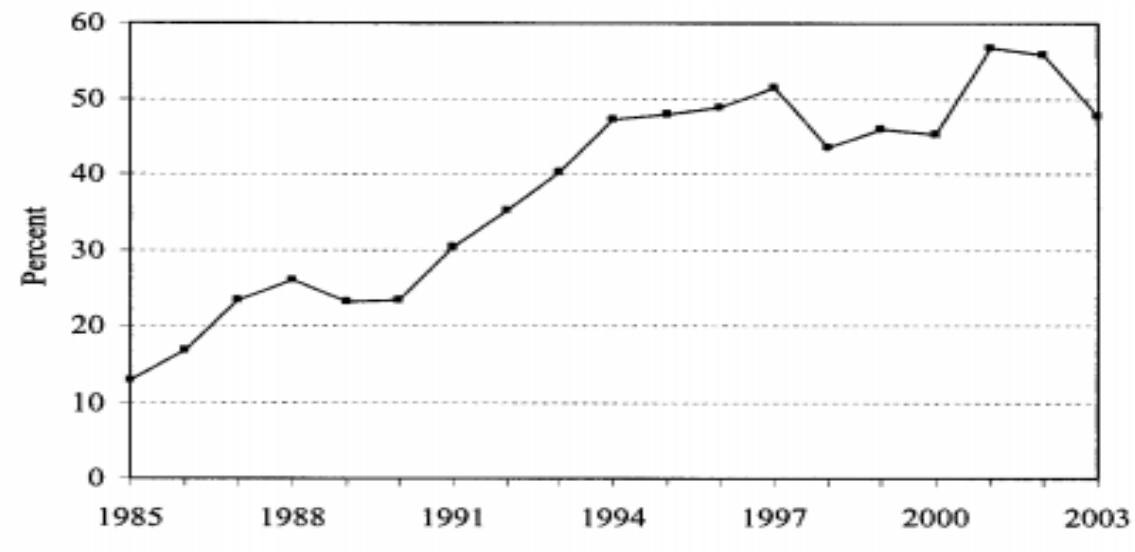

Figure A. 4 Share of foreign exchange deposits in broad money (M2Y)[11]

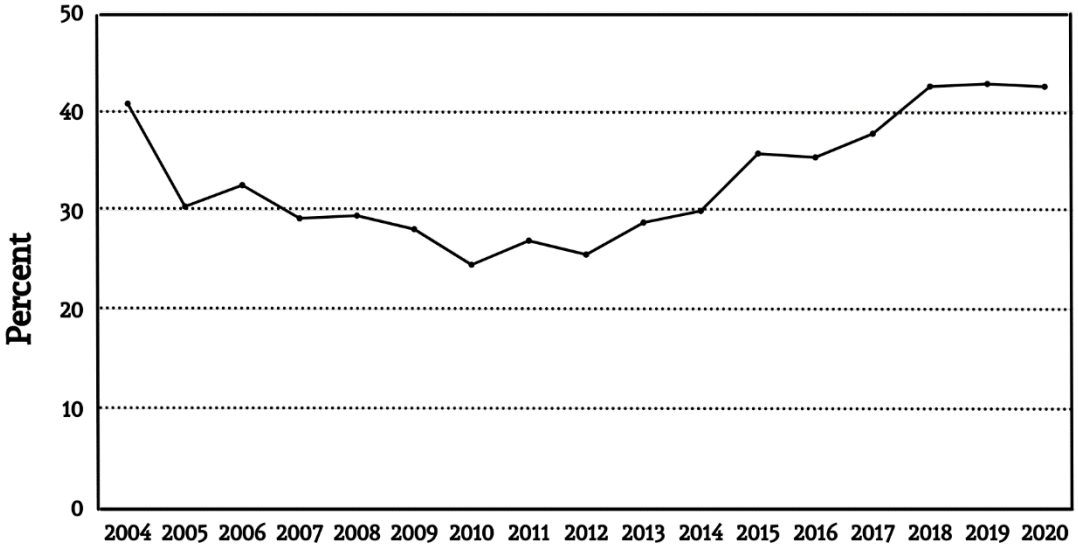

Figure A. 5 Share of foreign exchange deposits in broad money (M2Y)[12]

Another of the remarkable aspects of the 1980s is the incapacity to develop the fixed gross capital creation essential to maintain the first export expansion of the decade. The key causes for the

[11] [25]
[12] [6] [42]

incapacity to produce a large generating of funding growth may be considered to be the macroeconomic uncertainty and excessive loan prices of the period. The development of economic and social facilities structure was the primary emphasis of the public funding plan. During the period 1990-1994, the transportation and telecommunications industry accounted for 37.6 percent of all public expenditures which was 15 percent greater than the mean between 1980 and 1984. The state's engagement in the production business has steadily diminished, for example, the production business's proportion of overall total fixed expenditures in the public area has reduced from 19.4% in 1980-1984 to 7.9% in 1985-1989 and 4.3 percent in 1990-1994 (See Figure A.6) [25]. Nevertheless, private industry expenditure could not offset the reduced rates of state expenditure that might be related to excessive source activation prices and the availability of vacant productivity at the start of 1980. Starting from 32.7 percent in 1980-1984 to 21.6 percent in 1985-1989 and 24.8 percent in 1990-1994, the production business's proportion of private sector expenditures fell to 21.6 percent in 1985-1989 and 24.8 percent in 1990-1994. Private sector expenditure in the residential industry on the other hand, grew significantly from a mean of 29.6 percent in 1981-1983 to a mean of 40.2 percent in 1994-1996 (refer to Figure A.6). Nonetheless, overall private expenditure as a proportion of Gross Domestic Products (GDP) has remained stagnant throughout the previous two decades with 13.3% in 1980, 15.8 percent in 1990, 16.1% in 1999, and 17 percent in 2000 (see Figure A.4) [25]. While examining the private investments made in the sectors, the volumes of the industry and construction sectors, which are actually two of the dynamo sectors of the Turkish economy, are the main indicators that should be taken into account when examining the Turkish economy. When we look at Figure A.7, the value added volumes of the industry and construction sectors in the country from 1971 to 2002 do not even reach 100 billion Turkish Liras, and this allows us to make observations about the limited economic activity in the country. Figure A.3, Figure A.4 and Figure A.5 allow us to have an interpretation of the rate of demand for foreign currency within the country. The less the demand for foreign currency in the country, the more positively the volume of economic activity will be affected. The price stability achieved especially after 2002 and the low demand for foreign currency also positively affected the volume of investments in the country. The sector volume of 100 billion TL, which could not be reached in the 30 years from 1971 to 2002, reached 200 billion TL in a short period of 5 years between 2003 and 2008. In the history of the country, another record was broken in the economic frame.

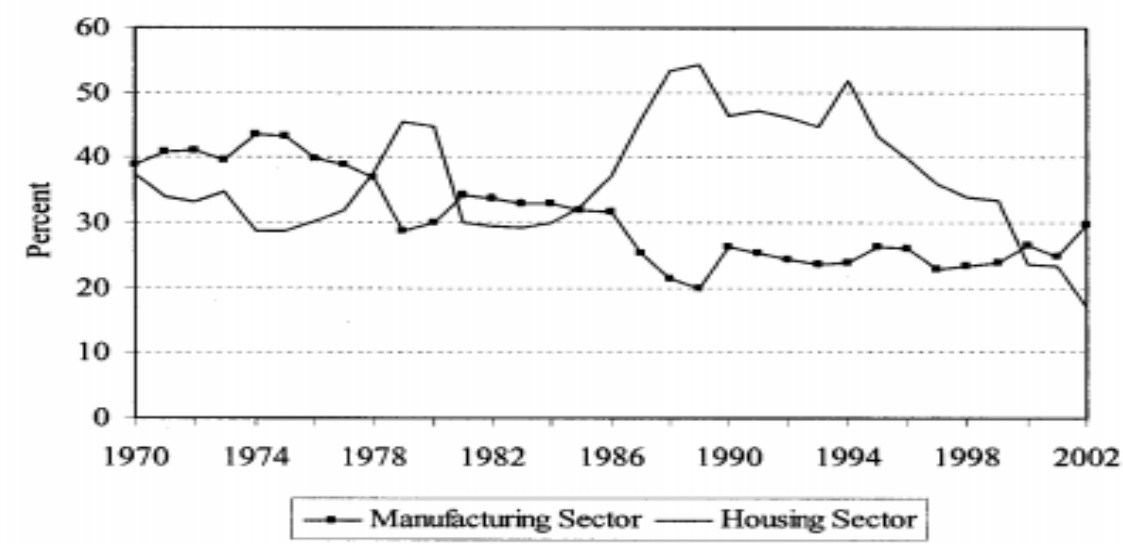

Figure A. 6 Private Investment by sectors, 1970-2002[13]

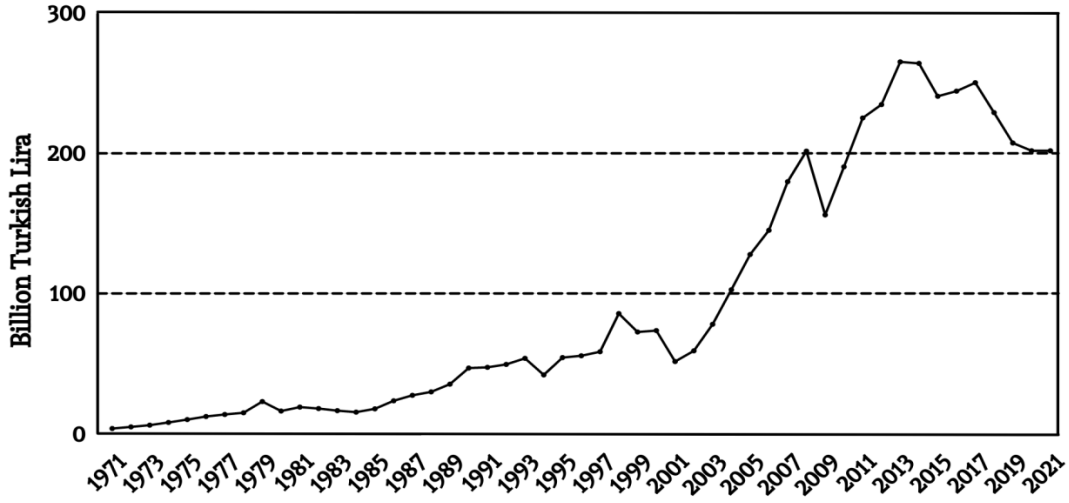

Figure A. 7 Industry (including construction), value added [14]

As seen in Figure A.8, after the economic crisis in 1994, there was a significant increase in the ratio of foreign borrowing from foreign currency to gross domestic product and the ratio of foreign exchange (FX) deposit account to large money supply (M2Y). It has not lived and has become permanent. It is possible to express that the foreign exchange deposit account rates did

[13] [25]
[14] [42]

not decrease in the 1990s as a reflection of the measures taken by the economic units against the exchange rate risk in an environment of instability. While foreign currency borrowings were negligible until the end of the 1990s, there has been a significant increase in the level of foreign exchange or foreign exchange indexed domestic borrowing since 2000 [18]. Turkey, which was exposed to many global and national economic fluctuations until 2002, became one of the countries that experienced the rapid transition to a stable economic structure. When we look at Figure A.8, the frequent fluctuations experienced between 1986 and 2000 indicate that it is difficult to achieve economic stability. Especially when we look at the framework from the point of view of depositors, the tendency towards foreign currency has increased during the economic crises and the bottleneck processes and this tendency has become an irresistible reflex. In order to reverse the tendency towards the demand for foreign currency, a solid financial structure should be established and the country's economy should catch the positive trend in terms of macroeconomics. When we consider all these, the period when all the conditions listed were met after 2002. First of all, extreme fluctuations were replaced by a stable trend, which increased the confidence felt in the economy for depositors. We see that the tendency towards foreign currency deposits has decreased with the establishment of increasing confidence in the economy. Balanced inflation data, together with the positive pricing on the consumer and producer side, and the effect of the low exchange rate, FX deposits became the decreasing side when we compare them with the money supply and M2. However, especially after 2018, increasing inflation and speculative exchange rate attacks once again increased the tendency towards foreign currency. Since an increase was achieved in the M2 wing with the increasing inflation, there was no significant increase in the Foreign currency deposits (FCD)/M2 ratio, but the primary reason for the increase in the FCD/Total TL Deposits ratio is the increasing exchange rate and the increase in domestic demand for foreign currency (See Figure A.9).

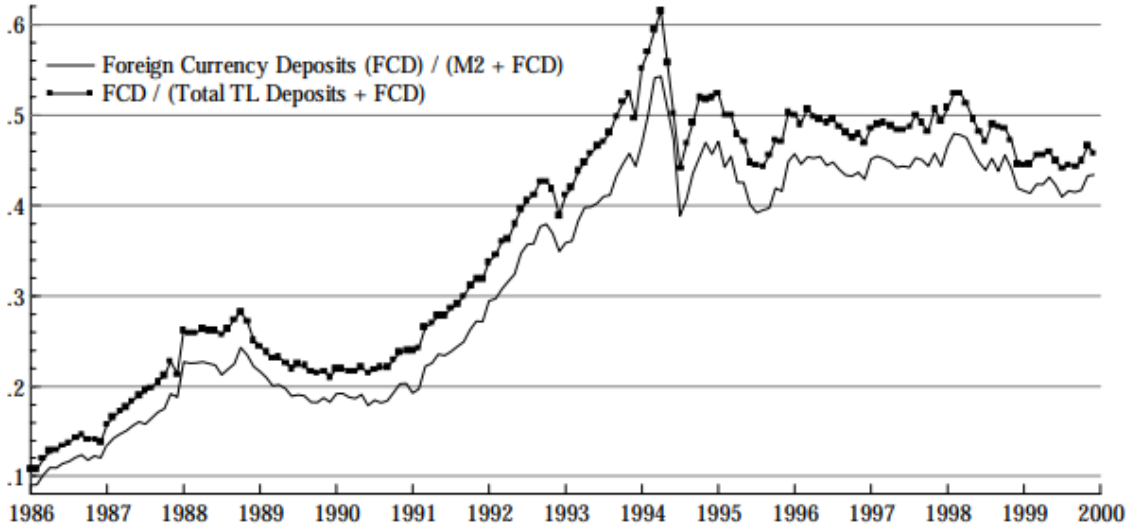

Figure A. 8 Proportion of Foreign Currency Deposits and Money Supply Proportion of Foreign Currency Deposits and Total TL Deposits[15]

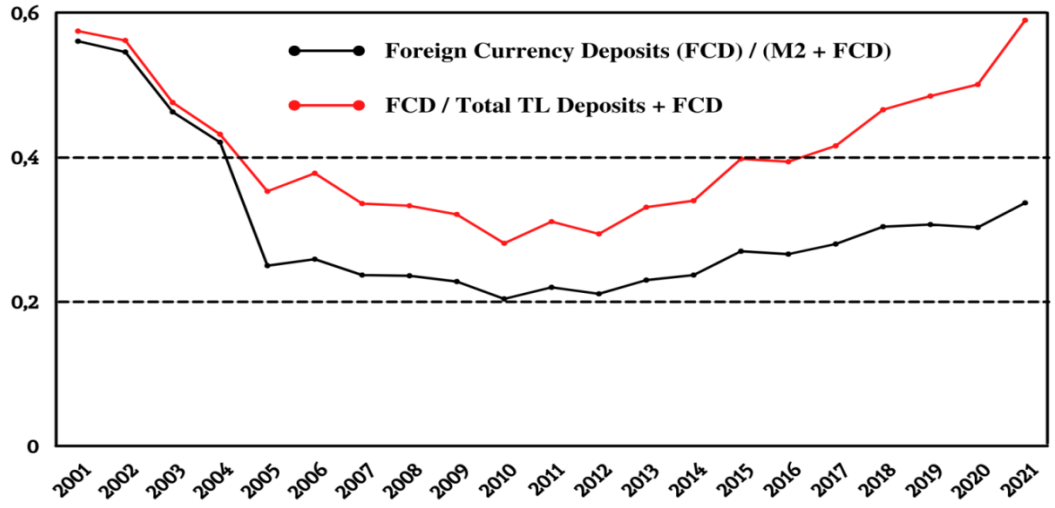

Figure A. 9 Proportion of Foreign Currency Deposits and Money Supply Proportion of Foreign Currency Deposits and Total TL Deposit[16]

[15] [18]

[16] [6] [42]

In Figure A.10, as dollarization indicators, the ratio of FX deposit accounts to the broad money supply Foreign Exchange Deposit Account (FEDA) / M2Y, the ratio of FX domestic borrowing to the total domestic borrowing amount (FCB / TDD) and the ratio of external borrowing to gross domestic product Foreign Debt (FD) / Gross National Products (GNP) offered. Besides, the percent change values in the United States Dollar (USD) / TL exchange rate are also shown on Figure A.10 [18].

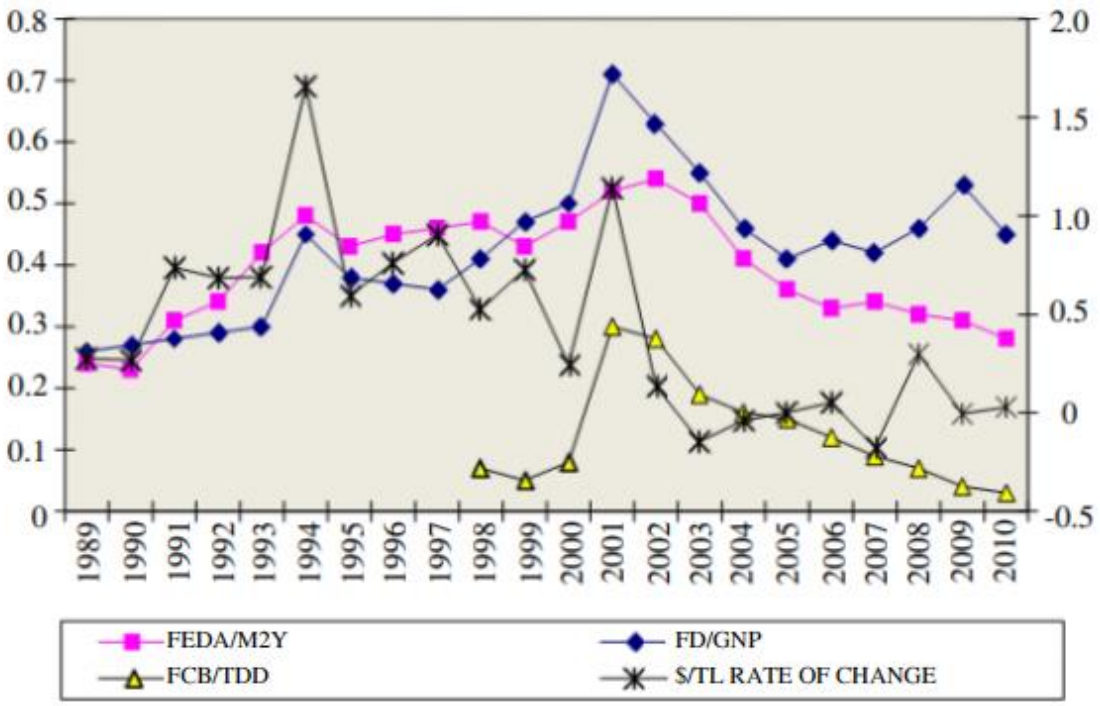

Figure A. 10 Dollarization Rates and Foreign Exchange Rates of Change[17]

Following the confidence environment created by the economic program implemented after the 2001 crisis in Turkey, significant decreases are observed in both asset and liability dollarization. Foreign currency borrowing rate at the end of 2010 dropped to the level of 15 percent. While the ratio of foreign exchange deposits to the broad-based money supply was 55 percent in 2002, this ratio decreased to 29 percent in 2010. On the other hand, the fact that the ratio of the average

[17] [40]

foreign exchange deposit account to the money supply for the last four years is above 30 percent can be interpreted as an indication of the economic agents' belief that the economy will exhibit vulnerability in the face of shocks [40].

To summarize, while the dollarization process in Turkey displayed an upward trend between 1989 and 2001, it was observed that there was a decrease in the rate of dollarization after 2001. In the uncertainty environment caused by the crisis environment in 1994 and 2001 caused the increase in the level of dollarization. With the decrease in inflationary pressure within the framework of the economic program implemented successfully after 2001, there was a significant decrease in the rate of dollarization. However, one of the most important factors of the lower than expected reversal rate in the dollarization process after the crisis is the free exchange rate policy implementation and the tendency of economic agents to protect themselves against various risks [40]. On the other hand, an increase and a decrease occur in the rate of change of the exchange rate depending on internal and external factors in the economy. In line with the program announced in 1980, exchange rate policies were aimed to liberalize the balance of payments and exchange rate system, together with the creation of a realistic real exchange rate. In this respect, as in other pricing, the value of exchange rates is generally shaped as the reflection of prices formed in market conditions. Although it is widely accepted that the applied exchange rate policies are governed by passive or relative purchasing power parity rule, it would be more appropriate to say that they are actually in the form of a policy of continuous real effective value losses. From the end of 1979 until the end of 1988, TL depreciated by 55 percent in real effective terms and there was an erosion in real effective exchange rates at an annual average rate of 6.11 percent [3]. The exchange rate policies implemented from 1994 to 1999 are in the form of a free exchange rate system managed to prevent uncertainty in the markets. In lieu of this, efforts were made to move the exchange rates according to inflation expectations and to adopt interbank interest rates as reference interest rates in the markets [25].

Findings

While the total foreign currency deposits of real and legal persons in Turkey approached 190 billion dollars, the lower limit of dollarization (FEDA / M2) reached critical levels such as 0.47%. It is undeniable that variables such as Central Bank independence, speculative exchange rate, interest rates, country risk premium (CDS), credit rating grades, as well as price stability,

play a role in the loss of confidence in the national currency. In this sense, the first thing to do is reallocate trust in the national currency. Otherwise, it is almost impossible to prevent foreign currency demand without meeting the expectations of the economic agents and without providing legal security [51].

In times of high inflation, economic agents can increase their demand for foreign currency and financial assets in order to maintain their purchasing power. However, the devaluation of the national currency in countries where this situation is intense brings the problem of dollarization. Political tensions and election processes, deterioration in international relations, financial fragility and macroeconomic cause instability in Turkey, which has been a problem of inflation for years, lead to an increase in volatility in exchange rates. Ultimately, this situation increases the exchange rate, that is, it decreases the value of the TL against foreign country currencies. Individuals with reduced purchasing power rationally protect themselves by keeping their money in foreign currency, causing an increase in dollarization. As the foreign exchange deposits in hand increase, the success of the policies implemented is interrupted, eventually the monetary policy loses its effective functioning [51]. Taking all things into account, in order to fix the Turkish economy, it must first maintain its political stability and at the same time take steps to reduce inflation. The first step in reducing inflation is to ensure that FX deposit accounts are converted into TL deposits. While performing this step, new systems should be established to enable depositors to convert their money into TL, protecting them from heavy taxes and speculative currency attacks. Thus, depositors who feel safe from the exchange rate volatility and imposed taxes will have no reason to keep their money in FX deposits. These policies should be expanded step by step, and all institutions from legal entities to companies, which have foreign exchange affiliates, should be encouraged to keep their money in TL under state guarantee. In this way, increasing inflation will be prevented and the amount of dollarization will decrease to a large extent.

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1 Ons Gold London Selling Price (USD/Ons)
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ABBREVIATION LIST

ARDL: Autoregressive Distributed Lags

CBRT: Central Bank of the Republic of Turkey

CDS: Credit Default Swap

CPI: Consumer Price Index

DM: Deutsch Mark

FCB: Foreign Currency Borrowing

FCD: Foreign Currency Debt

FED: Federal Reserve Bank

FEDA: Foreign Exchange Deposit Account

FX: Foreign Exchange

GNP: Gross National Product

M2: Money Supply

PPI: Producer Prices Index

QQCOR: Quantile-on-Quantile Correlation

QQR: Quantile-On-Quantile Regression

TTD: Total Domestic Debt

TL: Turkish Lira

USD: United States Dollar

VAR: Vector Autoregressive Model