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The Experience of Exchange Rate Regimes in Southeastern Europe in a Historical and Comparative Perspective

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The Evolution of Exchange Rate Regime Choices in Turkey

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1. Introduction

Choosing a foreign exchange (FX) rate regime is a challenging task for the conduct of monetary policy under fiat money standards. Monetary authorities, – generally central banks – try their best to analyze advantages and disadvantages of different alternative regimes, and to find out which one fits best to their policy targets. Unfortunately, there are no straightforward rules or criteria for the selection procedures. A particular regime may be appropriate for a given macroeconomic structure in a certain period of time but no regime choice may be the best option forever because of external and internal shocks. The FX regime choice is also influenced by global financial order. Small-open economies are more reluctant to re-adjust their regimes compatible to main players' choice in the global arena.

From a historical point of view, the world has never had so many different currencies and so many FX rates. Fiat monies –especially after the collapse of fixed exchange rate agreements – and fractional reserve banking may be given as the main sources of this complexity. Inflationary turmoil after the collapse of the Bretton-Woods Agreement gave rise to unbearable volatility of FX rates, threatening the economic stability, not only in developing but also in developed countries, as well. Until the emergence of the European Currency Unit euro, one might argue that the number of fiat monies around the world has peaked. It may be expected that this peak level may not be reached again in the following years. Assuming that an internationally accepted Gold – or the like – standard is not on the agenda at least for the foreseeable future and fiat money would keep its presence, it may be argued that FX rate regime choice will be on the table whenever there is a discussion on monetary policy and economic stability.

In this context, this paper explores why money is an inevitable part of economic and social life in the first section. Then, it briefly describes alternative FX rate regimes. Next section will chronologically overview the evolution of FX regimes

in Turkey. After overviewing the electronic money developments and its impact on the topic, the paper will summarize recent pillars of FX rate developments in Turkey in the final section and make recommendations for the future prospects.

2. Why Do We Need Money?

In the literature, money is defined as the generally and immediately accepted payment instrument. The short answer to ‘the question of what money is’ might better be that it is anything that is widely acceptable and regarded as money.

In a world without transactions costs there would be no money. Primitive way of life with limited social interaction and simple and standard forms of food, shelter and clothing decreases the contribution of money. Clearly, the opposite with banking and financial services, money and capital markets, national and international trade increases the need for a value measurement. This is the answer of the question of why we need money in the first place. As Meltzer (1999) explains: “If there are n commodities, there are at least $(n(n-1))/2$ separate values. The number of bilateral exchange ratios (prices) rises quickly. With $n = 100$ commodities, there are at least 4950 prices to know. At $n = 500$, the number is 124,750, and with 1000 commodities there are at least 499,500 prices. Without a unit of account, trade would be very limited by costs of information. Use of a unit of account to express value reduces the number of prices from $(n(n-1))/2$ to n .”

The alternative of money is barter, and it is extremely costly in societal terms as it limits division of labor and productivity increases are paused. Barter needs a coincidence of wants. The fact that money has continued to be used even in inflationary and hyper-inflationary countries shows how useful it is in reducing the costs of transacting. This proves why we need money even under fragile and unstable economic conditions.

It may be worth noting that private companies printed paper money both in China and Sweden in the emergence period. Nationalization of money started in the nineteenth century after many failures of private monies mainly due to over-issue and financial crises leading to systemic risks, arguably arising from overspending of governments in financing wars. Private monies was generally backed by bullion, mainly gold. Backing paper money with gold lasted until the 1970s despite the short or long-term disturbances from time to time. Governmental money became almost a fashion parallel to national pride motives, even the value has fluctuated greatly.

3. Foreign Exchange Rate Regimes

The FX rate is the price of a particular currency in terms of another or in terms of a certain basket composed of different currencies. Under normal circumstances, closed single money (no bi-metalism or dollarization) economy with no trade with

abroad has no FX rate and face no related problems. The importance of FX rate regimes arises from its potential to serve as a policy target or anchor. Most of the times, it may fulfil leading indicator properties for the perception of economic entities and can also be used as an intervention tool.

In one way or another, generally agreed market fundamentals that affect exchange rates in a free market economy are so many: Current and capital account balances, real income, real interest rates, inflation differentials, consumer preferences, productivity changes, technology, innovations, profitability and risk of investments, product availability, monetary and fiscal policy, trade policy, expectations and speculative opinions about future exchange rates, cyclical fluctuations in economic activity. In the long run, FX transactions originated by flows of goods, service and investment capital, which respond to forces such as inflation rates, investment profitability, consumer tastes, real income, and trade policy are some from the list to play as a role as main determinants of the FX rate.

It is important to underline the fact that the medium of payment function of a currency has determined the FX rate under the gold standard and differences arising from debasement were reflected in rates. Recently, globalization has allowed both store of value and unit of account functions of money to play their roles in FX rate determination, given that no capital controls are imposed.

Table 1: Chronology of Exchange Rate Regimes: 1880–2000

1880–1914	Specie: Gold Standard (bimetallism, silver); currency unions, currency boards, floats.
1919–1945	Gold Exchange Standard; floats, managed floats; currency unions (arrangements); pure floats; managed floats.
1946–1971	Bretton Woods adjustable peg, floats (Canada), Dual/Multiple exchange rates.
1973–2000	Free float, managed float, adjustable pegs, crawling pegs, basket pegs, target zones or bands, fixed exchange rates, currency unions, currency boards.

Source: Bordo (2002).

The above table summarizes a brief history of FX rate regime choices from an historical point of view. In the following sections, details of alternatives for the selection of FX rate regimes will briefly be summarized starting with intermediate arrangements.

3.1 Intermediate Arrangements

Four different types are explored below:

3.1.1 Adjustable Pegs

Fixed exchange rate with central bank support – when necessary – is used. Rates are adjusted whenever it is perceived that they are in disequilibria. The most popular application period was 1945–1972 under the Bretton-Woods Agreement.

3.1.2 Crawling Pegs

Monetary authorities intervene to achieve specific FX rate level, often on a continuous basis. It is possible to declare official daily rates.

3.1.3 Basket Pegs

FX rate under basket pegs are declared in terms of a basket of currencies, opposite to crawling pegs, where the rates are determined separately for every single currency.

3.1.4 Target Zone or Bands

There is a clear commitment that the monetary authority is ready to sell or buy whenever the rates fluctuate beyond the announced or implied zones or bands. Snake-in-the-tunnel is the general structure of FX rate charts.

Table 2: Intermediate Arrangements

Advantages	Disadvantages
<ul style="list-style-type: none"> • Elimination of excessive FX rate risk and so decline in uncertainty • Certain flexibilities with “some credibility” • Alternative nominal aggregates may play a role as a complementary anchor • Excessive fluctuations may be dampened • Control of real appreciation or depreciation • Eases absorption of shocks to economic fundamentals • Exit is not as costly as currency boards and ‘option clauses’ are helpful. 	<ul style="list-style-type: none"> • It may be very costly in terms of intervention if necessary adjustment is delayed. • Short-term capital flows may enforce adjustments. • Encourage risk taking and devaluation may harm economy with open FX positions • Asset and liability dollarization may increase • Demands a consistent level of international reserves • Determination of the ‘allowed’ fluctuations or ‘bands-zones’ level is not an easy task. • Exit may be costly in the short and medium terms. • Increases both the interest and FX rate volatilities • Backward looking provokes inflationary inertia • Lack of capital controls may lead to currency attacks • Needs acceptable fiscal and income policies • Financial system’s strength is a must • Real FX rate fluctuations is costly to accommodate • Devaluations may be large and disruptive, leading to inflationary pressures by pass-through effect

3.2 Float Arrangements

Within the two main subsections, – managed and free float – central bank interventions are rare in the first case but almost abandoned in the second.

3.2.1 Managed Floats

Central banks' intervention is originated to stop speculative attacks and short-term supply and demand imbalances without a clear target level for FX rates.

3.2.2 Free Floats

Under this regime, central banks are completely flexible on their FX operations. Ideally, exchange rate is not taken into consideration in the implementation of monetary policy.

Table 3: Float Arrangements

Advantages	Disadvantages
<ul style="list-style-type: none"> • Existence of discretion in monetary and FX rate policy. • FX interventions frequency falls • Seigniorage opportunities • Market determined nominal exchange rate. • High transaction costs • Decrease the fragility against shocks • Leading indicator role for early warning against fiscal imbalances and mismanagement • May decrease price and wage stickiness • May decrease liability and asset dollarization • Increase the awareness of risk management • Places more emphasis on global integration through increased productivity and competition • Less speculative behaviors in FX markets • Promotes transparency and good governance • Lack of exit strategy and related costs • High international reserves is not a prerequisite • Support financial deepening through increased demand for options and future instruments 	<ul style="list-style-type: none"> • Uncertainties may exist especially in first period of free float arrangements: Adjustment cost. • Lack of an anchor role of FX rate • Increased FX rate volatility and over and undershooting risk • May discourage trade and investments • De jure and de facto contradictions may confuse economic entities • Distortions in resource allocations • May lead to nominal interest rates volatility • Higher inflation bias • Increase the cost of financial hedging • May negatively influence borrowing opportunities • Eliminates FX rate promotions for selective credits • More dependence on central bank competence • As markets are not always efficient, the market-led FX rate may be in disequilibria

Source: Authors' notes.

3.3 Fixed Arrangements

There are two big advantages of the fixed FX rate regime. The first one is that, fixing rates reduces transaction costs and FX rate risk. Secondly, fixing provides a credible nominal anchor for monetary policy.

3.3.1 Currency Board Arrangements

A currency board arrangement (CBA) is a monetary authority that only issues money that is fully backed and convertible into a foreign anchor currency or commodity at a fixed rate when it is demanded.

Table 4: The Some Currency Board Arrangements

Country	Date	Exchange rate / Remarks
Bermuda	1915	Bermuda dollar 1 = US dollar 1 / Loose capital controls
Brunei	1952	Brunei dollar 1 = Singapore dollar 1/Currency board-like
Bosnia	1997	1 convertible mark = German mark 1/ Currency board-like
Estonia	1992	8 Kroons = German mark 1/Currency board-like
Hong Kong	1983	Hong Kong dollar 7.80 = US dollar/ more orthodox since 1998

Source: Hanke and Schuler (1994).

The anchor is chosen for its expected stability and international acceptability with the total elimination of discretion in monetary policy. The only function of the currency board is to exchange its notes and coins for the anchor currency at a fixed rate:

Table 5: Typical Currency Board vs. Typical Central Bank

Typical Currency Board Arrangement	Typical Central Bank
• Usually supplies notes and coins only	• Supplies notes, coins, and deposits
• Fixed exchange rate with reserve currency	• Pegged or floating exchange rate
• Foreign reserves of 100 per cent	• Variable foreign reserves
• Full convertibility	• Limited convertibility
• Rule-bound monetary policy	• Discretionary monetary policy
• Not a lender of last resort	• Lender of last resort
• Does not regulate commercial banks	• Often regulates commercial banks
• Transparent-Protected from political pressure	• Opaque, Politicised
• High credibility	• Low credibility
• Earns seigniorage only from interest	• Earns seigniorage from interest and inflation
• Cannot create inflation	• Can create inflation
• Cannot finance government spending	• Can finance government spending
• No "preconditions" for monetary reform	• "Preconditions" for monetary reform
• Rapid monetary reform	• Slow monetary reform
• Small staff	• Large staff

Source: Hanke and Schuler (1994).

The highly cited studies as stated in Frankel (1999) tend to set some criteria for a successful adoption of a Currency Board Arrangement: If the economy (1) needs to

import monetary stability due to lack of credibility of public institutions and a history of high inflation, (2) desires for further integration with a particular neighbor or trading partner with the political concerns, (3) has high currency substitution, (4) has access to an adequate level of reserves, (5) has a strong, well-supervised financial system, then currency board can be implemented successfully.

Table 6: Currency Board Arrangements

Advantages	Disadvantages
<ul style="list-style-type: none"> • Publicly understandable and observable. Enhanced credibility. • Drawbacks of bad reputation that stems from poor monetary history of country disappears, • It removes uncertainty on FX rates and encourages trade, foreign direct investment. • It enhances international confidence leading to lower borrowing costs. • The seigniorage from the difference between returns on reserves and the cost of liabilities. • Very simple procedures for rule-based monetary policy. • Reduced cost of debt management in early stages • Promotes fiscal good governance • Decrease in nominal interest rates • Eliminates the monetization of budget deficits • Reduced problem of time inconsistency 	<ul style="list-style-type: none"> • Elimination of discretion in monetary and exchange rate policy, • The possibility of negative real interest rates in the currency board country, • Existence of the high transaction costs and credit risks may cause monetary imbalances. • May be deflationary in a growing economy with productivity differentials • Existence of asymmetric shocks among countries may be harmful, • May not eliminate fiscal mismanagement • May lead to unjustified income distribution • Risks of unawareness on structural problems • Exit strategy is unbearably costly • Fragility for external shocks • Needs a strong reserve base induced by reserve accumulation capacity • Nominal FX rate stickiness • May amplify financial sector problems • May increase the systemic risk • Open to speculative attacks • No lender of last resort facilities • Shortage of flexibility

Source: Authors' notes.

3.3.2 Dollarization

Dollarization refers to any foreign currency used alongside or instead of the domestic currency. The main types in the literature are cited as unofficial when domestic residents hold some financial wealth in the form of FX, semi-official

when foreign currency is a legal tender and may even dominate bank deposits, but play a secondary role to domestic currency in paying wages, taxes, and everyday expenses (Schuler, 2000), official when foreign currency is accepted as legal tender and liability dollarization when the domestic banking system has high levels of FX debt obligations.

Table 7: The Selected Dollarized Countries

Unofficially Dollarized	Semiofficially Dollarized	Officially Dollarized
Mexico (USD)	Bahamas (USD)	Panama (USD)
Peru (USD)	Cambodia (USD)	Puerto Rico (USD)
Romania (USD)	Liberia (USD)	East Timor (USD)
Belarus (Russian Ruble)	Luxembourg (Belgian Franc)	Liechtenstein (Swiss Franc)

Source: Schuler (2000).

Official dollarization may present more benefits relative to the costs for any country, when these conditions are satisfied: existence of poor history of monetary performance, the smaller the advantage of keeping a national currency, existence of unofficial dollarization (small seigniorage revenue), substance of price stickiness in terms of foreign currency, and devaluation is destructive because of open positions.

Table 8: Dollarization

Advantages	Disadvantages
<ul style="list-style-type: none"> • Decrease in nominal interest rates • Removes the probability of currency crises since it eliminates devaluation risk • Decrease in transaction costs • No surprises for the economic entities • A firm basis for a sound financial sector • Strong credibility • Eliminates nationalistic motives on economic management and places more attention on productivity and profitability 	<ul style="list-style-type: none"> • Exit strategy may extremely be costly • Existence of price and wages stickiness may harm the domestic economic activity • Existence of possible asymmetric shocks • External shocks can only be absorbed by the real economic activity • No lender of last resort facilities • Lack of flexibility • Loss of independence of monetary policy and seigniorage revenue

Source: Authors' notes.

3.3.3 Optimum Currency Areas and Monetary Unions

An optimum currency area (OCA) is an optimal geographic domain of a single currency, or several currencies, whose exchange rates are irrevocably pegged and might be unified (Mongelli, 2002). On the OCA literature, basic prerequisites are generally cited as; flexibility in prices and wages, mobility of factors of production, financial market integration, the degree of economic openness, the diversification in production and consumption, the similarities of inflation rates and political and fiscal integration:

Table 9: Monetary Unions

Advantages	Disadvantages
<ul style="list-style-type: none"> • Elimination of FX rate risk and decrease in nominal interest rates • Enhances the usefulness of money in all functions. • Reduces the costs related to FX reserves, and eliminates the speculative capital flows • Improved price stability • Greater price transparency that will discourage price discrimination, and foster competition • Decreases transaction costs • Access to broader and more transparent financial markets, increasing external financing • Reputation gains for countries with the history of high level of inflation • Reduced macroeconomic fluctuations such as output and employment across the area • Professional management of monetary policy • Elimination of populist motives on the conduct of macroeconomic management 	<ul style="list-style-type: none"> • The loss of monetary policy independence • Some common fiscal restraints reduce the ability of national governments to conduct unsustainable national fiscal policies • The changeover costs from switching to new currency • Serious constraint for countries with high public debt and budget deficits • Inevitability of central bank and bankers competence in order to avoid financial disorder

Source: Authors' notes.

There are differences between “currency union” and “dollarization” arrangements. In a currency union, all countries included in the union have a vote in shaping of monetary policy for the currency union area. In the case of dollarization, however, only the country whose currency is adopted makes the decisions about the monetary policy. Another issue is related to seigniorage income. In the case of dollarization, the country that has dollarized loses seigniorage income that stems from the difference between cost of printing money and purchasing power of issued money. But if a country joins a currency union, it may retain a share of seigniorage income according to criteria such as the relative size of its economy.

After discussing the pros and cons of alternative FX rate regimes, the next section will investigate Turkish preferences among these options.

4. The Evolution of the Exchange Rate Regimes in Turkey

The Turkish Republic has opened the Grand National Assembly in 1920 and declared independence in 1923. The main heritage from the Ottoman Empire was a huge external debt stock without any help for capital formation or an average level of infrastructure. Capital shortage was not the only problem: Human resources were scarce as well. Because of endless wars kept going for many decades through the end of the Empire, basic skills and craftsmanship were missing to trigger growth for welfare enhancement.

Initial conditions were under terrible situation. Serving the basic needs of the society such as bread and butter were prioritized. Industrial revolution was missed and agriculture dominated production structure. Foreign trade and hard currency inflows were quite limited even though the trade balance was in surplus with very low level of import. Institutional building was a dominant preference in order to support law and order. Public sector tried to lead the industrial development. Infrastructure delivered from the Empire was almost nil, as the priority of the Sultan's was to enrich Istanbul, ignoring the welfare in the rest of the country, especially in the mainland Anatolia.

From the exchange rate regimes point of view, the catastrophe after the collapse of the Ottoman Empire was not at its height because money in many surrounding countries at that time including the base money for global trade were backed with gold. The Money Authority of the Ottoman Empire was not dissolved and allowed to circulate a gold-backed currency within the Young Turkish Republic. The managers of the Ottoman Bank have negotiated the right to circulate banknotes within the new national borders and the financial authorities of the Republic have accepted it at least partially. This decision was not a surprise as there was neither a national bank not a financial system after all. The know-how for the design of a national financial architecture was simply missing.

The Ottoman Empire has never had a national central bank. Due to increasing debt burden, the banknote issuing licence has been given to French entities in 1863. Bank-ı Osman-i Şahane was the monetary authority of the Ottoman Empire, which emerged from Bank-ı Osman-i that was founded by British and French joint ventures. The bank kept the licence legally not until the collapse of the Empire and even beyond the declaration of the New Republic. It was a success for the Bank's management team to transfer the financial service monopoly from a collapsing Empire to an emerging Young Republic.

It was obviously a smart move for the financial authorities of the republic as well, because early years of the Republic did not have a monetary disorder or a financial crises as the old banknotes were allowed to circulate and as the Ottoman Bank was kept responsible to keep the money un-inflated. At the same time, the Bank has opened credit lines to the new Republic in order to secure banknote licences. The mutual agreement has reached to extending the licence from 1925 to

1935. Interestingly, the circulation of Ottoman Bank banknotes in Turkey has lasted until 1948 and all the redemption was in gold all through the years.

Preparations for a new Central Bank began in 1926, just one year after the extension of banknote circulation rights of the Ottoman Bank for another 10 years. This duration was used incompletely through mutual agreements and The Central Bank of Turkey (TCMB) Law was enacted in 1930 and banknote issue right has been transferred to the new central bank. In 1932, the TCMB became fully operational and the new national currency has been circulated after all.

Under these circumstances, one might expect a huge volatility on the FX rates. Actually, that was not the case. Pre-emptive judgements for the new financial architect were totally correct and the new order did not fall into the trap of a huge hyper-inflationary period for the sake of a new money issuance. The choice for a smooth pass-through from an imperial monetary system to a national financial architecture prevented a financial chaos that might have erased already scarce resources that are desperately needed for welfare enhancement.

During this pre-Republic transitory period, FX rate regime choice might be called as free floating with some cautions. As there was no identified monetary authority responsible for monetary policy to prevent inflation, money creation was limited through agreements with the Ottoman Bank: The backing of issuance was pre-determined and it was mostly gold (not less than a third!) or first tier government bonds. Semi-bullion standard limited the floating nature of FX rate regime for that period as well. After the First World War, backing the base currencies with gold was a common practise and global FX rate volatility was quite low. As a result, the transitory period has faced a quite FX rate volatility level. The reference currency for this period was Pound Sterling (which has kept its position until 1950 to be replaced by the US dollars) with a rate of GBP 1 = lira 0.888.

The honeymoon of low FX rate volatility ended from a global turmoil: the Great Depression of 1929. The FX rate jumped to GBP 1 = lira 1.125. Having no central bank, the financial authorities reacted to feed up the backing of the banknote circulation and they came up an idea of creating a “banks consortium” to defend the value of the lira after declaring a law on defending the value of the national currency in 1930. The FX buying and selling was strictly regulated with this law, which has shaped the future of financial structure in Turkey for more than 60 years. The Bank’s consortium managed to calm the heightened volatility in already fragile financial system. Capital controls imposed in 1930 had a long-lasting effect until liberalization was given a priority in 1980’s. Those were the years that liberal policies were not being seen as a policy option.

1930 was clearly the end of partial floating of FX rates and it was the first regime shift from floating to fixed FX rate regimes under strict capital controls. Within the following two years, the TCMB law was been enacted. As an interesting anecdote, a certain proportion of the capital of the TCMB was taken from the American-Turkish Investment Corporation against a monopolistic licence

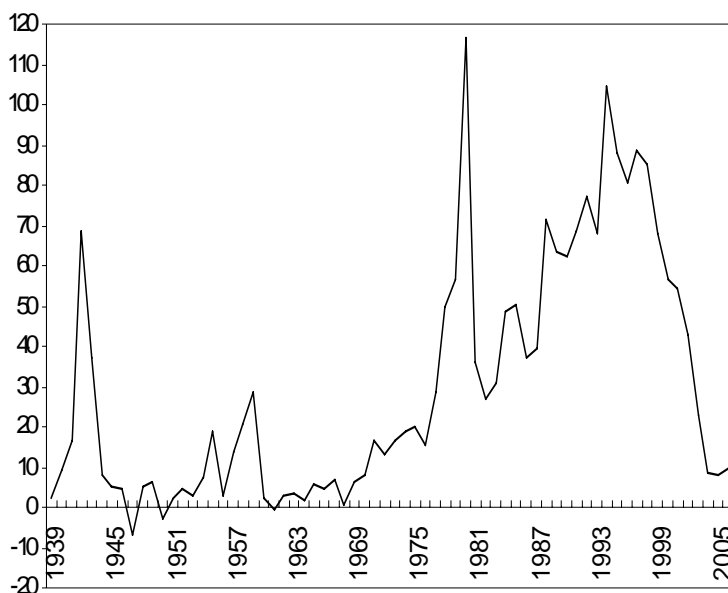
for matches and lighter production, import and distribution. In the first day of 1932, banks consortium's mission to defend the value of Turkish lira against other currencies was transferred to the TCMB, which was held responsible to sustain long-term value of the national currency. In 1933, convertibility of the Turkish lira has been cancelled totally and capital controls became a part of economic policy preferences.

From 1932 to 1938, exchange rate stability has been at its peak even the capital accumulation and financial service existences were at its lowest levels. In fact, this success was intentional. Because, by not over-throwing the Ottoman Bank shaped financial stability and reforming the financial system instead of destructing the old one to create a new system have prevented extra costs that might have used already scarce capital base. It may be argued that the successful timing of a national central bank was the main strategy that has prevented multiple financial chaos and crises in the early years of the Young Republic.

The TCMB was not a public company in the 1931 Law. The share of the Treasury was limited to 15% at most. This ratio increased to 25% in 1932. However, it is premature to argue that the Bank was purely a private company. Because, the public banks have taken a certain amount of shares in the following years and public shares in the TCMB increased to majority levels. In 1964, the TCMB was legally treated as a public economic enterprise and total nationalization came in 1972.

From 1939, the golden age of FX rate stability has started deteriorating because of global events such as the Second World War and local events such as unsustainable fiscal balance. The fiscal pressures were reflected with a legal change in 1938 to open discount windows to public credits up-to nine months. During the war years, even bread was licensed and it was admissible to increase capital controls to defend the value of the Turkish lira. After successfully passing over the war conditions, the first devaluation came at a time without any serious external imbalances. Before the Bretton-Woods Agreements were signed, the authorities decided to capture a competitive edge and devaluated the currency in 1946. It was a regime shift from fixed to adjustable pegs in the FX rates as well. The new rate was increased from USD 1 = 1.30 lira to USD 1 = 2.80 lira. From 1938 to 1948, prices increased more than fourfold and real effective exchange rate climbed sharply. On the other hand, devaluation did not contribute to the price stability because of pass-through, a term that was not being realized by the authorities at that time.

The War brought inflationary pressures to high levels. Turkey experienced double-digit inflation during the war and until the mid-1970s, it was partially under control. However, the CPI jumped to double-digits again and never came back until 2005:

Chart 1: CPI Annual Rate of Change (Using 12 Month Averages)

Source: Central Bank of Turkey.

The second devaluation was a result of heightened imbalances in the domestic economy. Because of excessive infrastructural investment during the 1950s, the sustainable growth balances have been broken and there appeared a parallel (black) market for FX rates. The first wave of devaluation came with a preferential rate for tourist exchanges for USD = 5.25–5.50 Turkish lira. As the spread between official and secondary market rates increased sharply (sometimes up to USD = 20 Turkish lira), devaluation was inevitable and official rates were brought to 1 USD 9 Turkish lira. One mistake of this period was to decrease discount rates from 8.5% to 7%. The impact was decreasing the propensity to save because of negative interest rates and increasing central bank funds to finance public investments.

The 1950s witnessed extreme central banking applications in many aspects. One of them was a decision to open an independent account for reserve requirements and use 20% of the balance to finance public investment from 1953. Once central bank money is taken as a sweetener for government expenditures, other extreme applications followed. In 1955, short-term advances to the Treasury were legalized for the first time with 15% of the budget spending, which turned out to be a trigger for fiscal imbalances based inflationary path to last until 2002. In 1958, the reserve requirement rate determination was transferred to the Bank Credit Regulation Committee (BKTK) and a high wall is built to block efficiency gains in monetary

policy implementations. As a small closed economy, the adjustable peg broke once again in 1958 with another deflation, which was just another signal of heightened imbalances in the economy signalling strong requirements for reforms.

The third devaluation was the result of the second boom cycle of 1961 to 1969 in Turkey, as the first one was from 1950 to 1956. Excessive independence on import for investment goods including machinery created an unsustainable level of current account deficits and official and black market FX rates exploded once again. The devaluation was an adaptive one to equalize the two rates to get rid of the shadow black market dominance of FX rates. The increasing involvement of the BTKT in monetary policy operations and undermining the importance of independent central banking has accumulated huge structural problems. An increasing trend for imports of machinery in order to sustain import substitution based growth strategies complicated the already unsustainable current account imbalances and another devaluation was inevitable in 1970 in order to bring the FX rates to a level that might have served better to close huge and still growing current account imbalances. The USD reached to 15 Turkish lira level.

The year 1970 was the time the TCMB was being fully nationalized. At the same time, the BTKT was dissolved. However, heightened global volatility because of the collapse of the Bretton-Woods system and oil price shocks washed away all the hopes for smooth process of reforming the economy to get rid of fiscal imbalances. Because of import dependence in the energy and transportation with no national oil wealth, the scarcity of hard currency was dominant and reserves diminished fast.

To get rid of the lack of hard currencies, FX risk was nationalized and convertible FX accounts are allowed to keep away savers from FX rate risks:

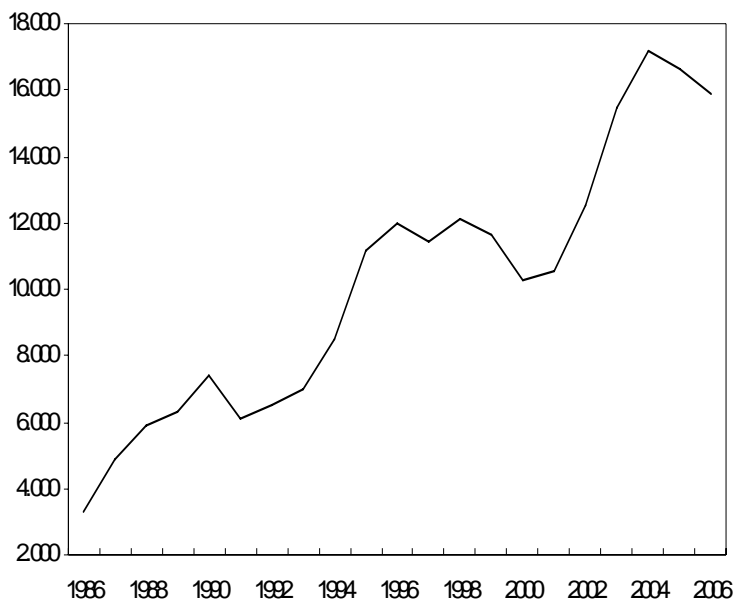
Table 10: Reserves, FX Convertible Accounts and Net Reserves (million USD)

Years	Reserves	FX Convertible Accounts	Net Reserves
1973	1893	225	1668
1974	1462	145	1317
1975	850	1016	-166
1976	844	1775	-931
1977	398	1978	-1580
1978	560	1877	-1317

Source: Feyzibeyoğlu (1979).

The surprise support from the worker's remittances¹ was not enough to finance all current account deficits. In a later stage, workers were allowed to open FX deposit accounts at the TCMB, which have been accumulated to high levels since then:

Chart 2: Foreign Exchange Deposits by Citizens Abroad (Million USD)



Source: Central Bank of Turkey.

The rest of the devaluations were all trying to re-structure the economy after the devastating impact of first and second oil price shocks. The first oil price shock was tolerated with an opportunistic injection of worker's remittances from abroad and convertible FX accounts were designed to nationalize the FX rate risk in order to defend financial stability and bolster import dependent investment expenditures. Those were the years the IMF became a part of monetary policy implementations and serial stand-by agreements have been signed in order to ease the burden of unbearable cost of current account imbalances. In 1974, the IMF has demanded an adaptive devaluation to create a spread of 2% on the bid-ask prices. In the following years were witnessed quite often devaluations with increased scarcity of

¹ The workforce deficit in West Germany led to a labor force inflow from Turkey around the end of 1960s.

hard currencies: Three times in 1976, two times in 1977, three times in 1978 and three times in 1979. The FX rated level reached to a level of USD= 26.50 Turkish lira at the end of 1979 and the 1980 reforms increased the rate to USD = 70 Turkish lira.

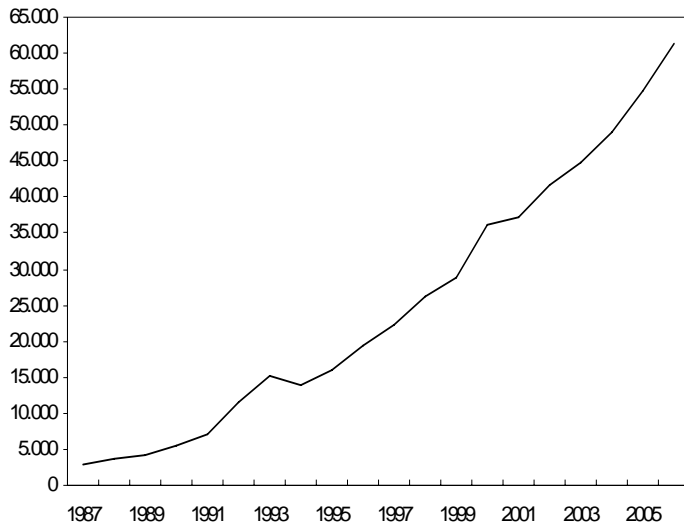
Devaluations without required reforms and paradigm shift were obviously a one-off cure and the second oil shock has killed almost all hope for an exit strategy from the fragility of the economy. Basic consumption goods disappeared from the shelves and until the reform package of 1980, black-market FX rates have gained dominance. Spreads were exceptionally high and almost all devaluations failed to fulfil the gap between official and black market rates. Even the fixed FX rate regime was not dismantled; there was a regime shift with 1980 economic reforms to exit from import substitution based growth strategies to expert-led growth. Also, financial liberalization began with these reforms.

Interest rate settlement was also liberalized so that market mechanism was empowered. The adjustable peg FX rate regime was left in 1981 and FX rates are published on a daily basis, which meant a change to crawling-peg FX rate regime. The 1980 reforms already transferred the authority to settle FX rates from the Council of Ministers to the Ministry of Finance. In 1981, the Finance Ministry transferred this authority to the TCMB and the FX rate regime changed permanently. This date was the end of multiple FX rate implementations as well. All preferential rates were cancelled. There were 164 devaluations in 1981 and from 1982 daily settlement of FX rates institutionalized, which is still being going on. Those were the years to subsidize exports with competitive FX rates to prevent another balance of payment crisis. With the help of the IMF stand-by agreements, the main target was to open the economy to global markets. To achieve this target, de jure convertibility was declared in 1984 even it was 1989 that Turkey erased all kind of capital controls. This year, banks were allowed to offer FX accounts to their customers:

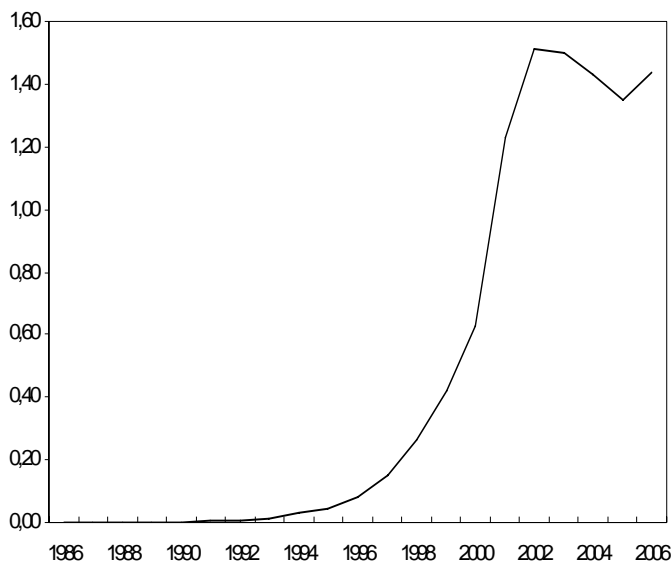
In 1983, partial capital control elimination came into force. Banks were allowed to execute payments in hard currencies, open deposit accounts, distributing FX corporate credits. It was the beginning of privatization of FX rate risk in Turkey.

In 1988, FX and banknote markets were established within the Markets Department at the TCMB and with Degree 32, all capital controls were eliminated in 1989. This period was the beginning of increasing involvement of the TCMB in the FX markets. By law, 20% of all hard currency earnings were forced to be sold to the TCMB, which kept almost a sustainable monetary expansion. Other than that direct intervention to the FX market started to become a common practice from 1988 and it was almost a daily practice from 1994. The FX rate developments since then are shown in chart 4:

Chart 3: FX Deposits (USD, Annual average)



Source: Central Bank of Turkey.

Chart 4: USD Ask (Annual average, YTL)

Source: Central Bank of Turkey.

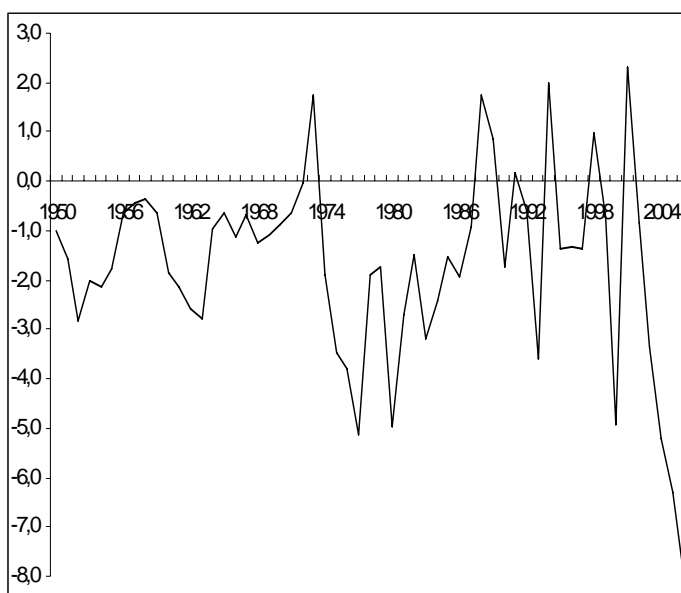
As many central banks around the World, the TCMB has also tried monetary targeting in the 1990s. Due to political instability, disinflation has never come true. In the 1970's, Turkey kept experiencing high and volatile inflation. The first Iraqi War did not help to change already persisting imbalances in the economy. In 1993, with a fiscal policy mistake, public receivables and loans were cancelled among public enterprises and the TCMB balance sheet had a public sector credit boom. Such a monetary expansion coupled with major debt mismanagement strategies by the then government led to a financial crisis in the beginning of the 1994 and Turkey became a rare example of devaluation of 13.6% under crawling peg FX rate regimes.

The impact of the 1994 crises on the monetary policy was so strong that monetary reforms were inevitable: The TCMB Law has been changed to limit advances to the Treasury and decrease the amount annually to cancel it within 5 years. Marketization that has started in 1987 by creating a Treasury borrowing mechanism based on regular auctions followed by the establishment of Interbank money and FX markets and open market operations desk has played a critical role in the 1994 crises. The systemic risk concept has been undermined and chain-reaction of expectation mismanagement has increased the price the economy has paid. After the crisis, the TCMB decided to publish indicative FX rates, which was collected from the market markers and announced without any adjustment. A

surprise in the above-mentioned involvement of the TCMB was to use forward FX intervention in 1996 with an aim to ease election uncertainties. Because of the Thai experience (during the far-east crises, it was understood that the level of cash reserves in Thailand were quite lower than the official announcements and expectations deteriorated sharply just after markets realized the reality) with forward rate contracts, the TCMB never used this instrument again.

Still, there was no political stability after the 1994 crises and the official monetary policy strategy was to maintain monetary and financial stability through means of monetary policy so that the Treasury can borrow without disrupting the economic stability. At the same time crawling-peg regime has been institutionalized with minor changes on the settlement of official rates. As a usual suspect for the currency crises, unsustainable current account deficits played a critical role for 1994 crises as well:

Chart 5: Current Account Balance/GNP



Source: Central Bank of Turkey.

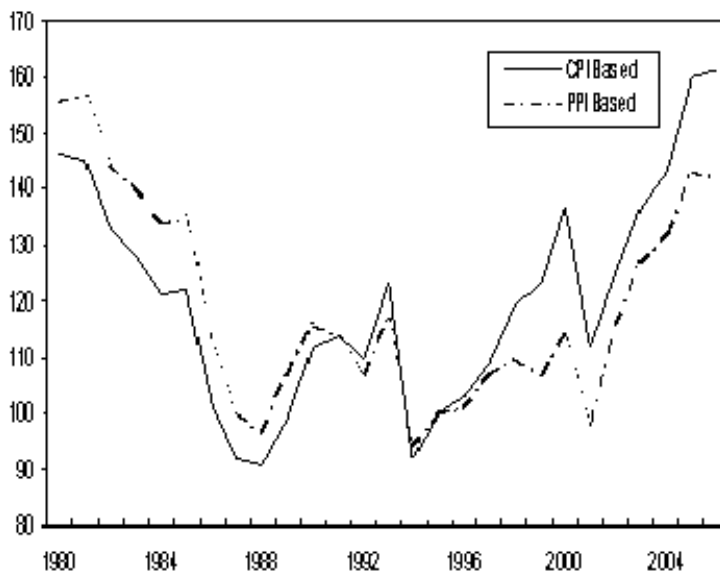
In the period of November 1995 until December 1999, the exchange rate policy conducted by the Central Bank gave emphasis to especially achieving and

sustaining stability in the financial markets². The crawling peg regime has adjusted somewhat close to a managed float with increased involvement of the TCMB in the FX markets. Within this framework, the exchange rate policy aimed at minimizing fluctuations in the real exchange rates. According to the stand-by agreement signed with the IMF at the beginning of 1995, the increase in the FX basket was targeted to increase by as much as the monthly inflation rates that were also projected in this agreement.

The FX rate policy of the period was to devalue the Turkish lira daily in line with the inflation against a currency basket consisting of 1.00 USD and 1.50 DEM³. We may assume that the period was highly shaped by the local events such as the Bolu Earthquake in 1999 and global events such as Far East and Russian financial crises in 1997 and 1998. With political deficiencies to target the local and global fragilities of the economy, monetary policy has no option other than trying to calm sudden rises in the financial stress to help the Treasury to maintain debt management operations. During the period, the cash balance of the Treasury was lacking a month's redemptions and the TCMB open position was in negative territory because of worker's accounts. Decreasing deviation in reel effective exchange rate was also a priority:

² In addition to the financial stability concern, the Central Bank also aimed at both controlling inflation to some extent and curbing negative effects on the foreign trade balance.

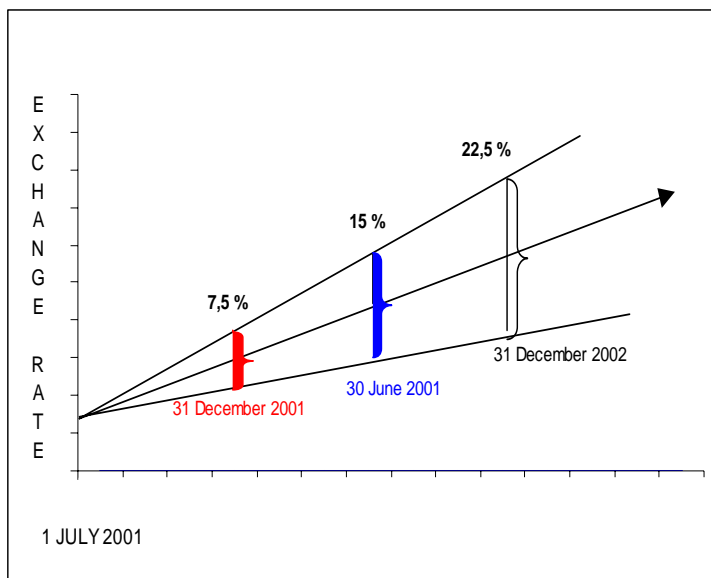
³ In 1999, the Central Bank replaced the Deutsche mark with the euro in the basket, so that the basket consisted of USD 1.00 and EUR 0.77.

Chart 6: Real Effective Exchange Rate Indices (1995=100)

Source: Central Bank of Turkey.

In 2000, along with the execution of a Stand-by-Agreement with IMF, the exchange rate basket for the following 12 months was announced on a daily basis as a precondition of Exchange Rate Based Stabilization (EBRS) Program. The managed float regime was replaced with tablita regime. With the daily announcement of exchange rate basket, provision of an anchor for inflation expectations has been aimed. A gradual shift toward a more flexible exchange rate regime was intended to begin on July 1, 2001, with the introduction of a progressively widening band around a central exchange rate path. The width of the band was expected to gradually expand from 7.5% in July/December 2001 to 15% in January/June 2002, to 22.5% in July-December 2002. The exchange rate was expected to become freely floating beginning from 2003. Chart 7 exhibits the exit strategy of 2000 EBRS program:

Chart 7: 2000 Exchange Rate Based Stabilization Program



Source: Central Bank of Turkey.

However, the financial crisis in February 2001 increased the cost of continuing the pre-announced exchange rate regime and free floating became effective just after the crisis, almost a year earlier than programmed.

The post mortem analysis of the reasons of the collapse of ERBS demonstrates some deficiencies regarding the design of the stabilization program, some execution failures of structural reforms, the strength of the dollar against the euro and the jump in the oil prices as the main culprits. When the design of the program is evaluated, 4 billion dollars financial support of the IMF in 2000 could be easily observed as inadequate compared to Treasury's operation for restructuring state and intervened banks⁴. Additionally the inexistence of a contingent funding facility in the beginning of the program was a concern when the structure of ERBS programs considered. In other words, those programs are also called quasi-currency board arrangement and designing a contingent funding facility could easily reduce the likelihood of a liquidity crisis.

Those aforementioned problems, delays and unwillingness in the reform process opened the door the questionings of Government's will to implement the

⁴ The operation amounted to 17.4% of GNP in 2000.

reforms in its agenda. Along with those inquiries, the deterioration of some macroeconomic variables such as appreciation of domestic currency rooted surge in imports⁵, harmed the credibility of the peg's sustainability. All those deficiencies regarding the design of the program, implementation failures of structural reforms and exogenous factors caused failure of stabilization efforts in 2001 and the exchange rate was allowed to be determined freely in the FX market after February 2001 and afterwards.

After the crisis, the TCMB started to implement floating exchange rate regime. Although the year 2002 was the first year of floating exchange rate regime and it was completely new and unknown for all market participants, the intervention was quite rare and it was limited to extremely volatile movements that were not justifiable through fundamentals including market sentiment. The TCMB announced that it would intervene in the markets only in cases of excess volatility, without affecting the long-run equilibrium level of the exchange rates. The three limited FX interventions of the TCMB in 2002 indicated that the Central Bank did not target any exchange rate level. The TCMB started FX purchase auctions at the beginning of April 2002, taking into consideration the stability in FX markets in the first quarter of 2002, strong signals about reverse currency substitution and the fact that strong FX reserves would lead to strengthened confidence in the Central Bank policies and the economic program. The TCMB has been sharing with the public the general framework of the current exchange rate policy and FX buying auctions in the press releases since the start of 2002. As also stated in these press releases;

(i) In the current floating exchange rate regime, exchange rates are determined by supply and demand conditions in the market and the Central Bank does not have any exchange rate target.

(ii) Since there is no exchange rate level to maintain in countries with floating exchange rate regimes, the level of foreign currency reserves is much less significant compared to countries with fixed or flexible exchange rate regimes. However, especially in emerging economies such as Turkey, a strong FX reserves position is significant in removing the unfavorable effects of potential internal and external shocks and boosting confidence in the country's economy. In addition, taking into account the foreign debt payments of the Treasury and the need to gradually reduce the number of high-cost remittance accounts in the long-term, which are peculiar to Turkey and make up a significant part of the liabilities side of the TCMB's balance sheet, the TCMB holds FX buying auctions to build up reserves at times where FX supply constantly increases compared to FX demand.

⁵ The rise in imports had its roots in the unpredicted oil price hike and terms of trade deterioration.

(iii) The economic transformation process experienced after the 2001 crisis has enabled significant achievements in macroeconomic stabilization and helped reduce the “dollarization” effect created by unstable macroeconomic policies and high inflation in the past. Despite some deviations from this main tendency due to exogenous shocks and changes in risk perceptions, decisive implementation of economic program has always enabled a return to the main tendency. This process, combined with favorable developments in the balance of payments, has supported the increase in FX supply in the economy.

(iv) In this framework, in order to minimize the impact on supply and demand conditions in the FX market, the TCMB, which follows a moderate reserve-raising policy, has conducted its FX buying via auctions, whose terms and conditions are announced with due notice, since 1 April 2002.

(v) Meanwhile, the Central Bank will continue to closely monitor the volatility in exchange rates and may directly intervene in the markets in the event of excessive volatility that might occur. These volatility interventions are not only carried out by considering past data with a mechanical rule, but by evaluating all aspects of realized and potential volatilities.

The TCMB announced in January 2002 that it would gradually abandon its intermediary role in the FX and foreign currency markets. Through this policy, it was intended that the undertaking of transactions risks by the market participants would lead to a price formation mechanism that fully reflected the risk perceptions. Accordingly, the TCMB abandoned its intermediary role in FX deposits against the Turkish lira deposits market and the forward FX purchase-sale market on March 1, 2002, and the foreign banknotes purchase-sale against the Turkish lira market on July 1, 2002 and the FX purchase-sale for the Turkish lira market on September 2, 2002. This was the end of an era of marketization under the TCMB supervision initiative that has begun in 1987.

Some of the late events affecting the FX rates in Turkey may be counted as follows: 2003 was shaped by the Operation Iraqi Freedom. The TCMB announced that FX deposits in terms of USD were supplied to eliminate the shortage in FX markets and interest rates on FX deposits were decreased from 12% to 8%. On the other hand, it was announced that foreign currency banknote demand in the banking sector would be satisfied via FX and banknote markets. On March 24, 2003, interest rates on FX deposits were further decreased from 8% to 6% as additional support for the banking sector. The measures prevented a potential market turmoil that could have endangered price stability.

Volatility increased in April 2004 due to the expectations of a possible rise in interest rates in the United States and uncertainty about Turkey’s accession into the EU and the Cyprus talks. On May 11, 2004, the Central Bank directly intervened into the FX market after observing excessive volatility caused by reduced FX liquidity arising from the currency substitution process and anxiety created in the market as a result of unfavorable domestic and external developments.

The Central Bank resumed FX buying auctions on December 22, 2004. Unlike previous buying programs, however, the Central Bank announced an annual auction program in order to minimize the effects of buying auctions on the FX market, hoping to only slightly affect FX supply and demand and to preserve the basic principles of the floating exchange rate regime.

The floating exchange rate regime continued to be operative in the year 2005. The total daily amount of FX buying auctions for the year 2005 was determined as USD 15 million and an additional selling option up to the 200% of the total amount sold in the auction was granted to the winner institutions. On the other hand, in addition to the FX auctions, as a reaction to the excess volatility of the FX rates, the Central Bank intervened in the FX markets six times in 2005. Starting from October 21, 2005, the data on direct FX purchase or sale interventions have started to be published on the website of the Central Bank for the purpose of transparency.

The annual auction program for 2006 was announced in consistence with the aforementioned general framework. The maximum daily amount that can be bought was determined as USD 60 million, with USD 20 million of auction amount and USD 40 million of optional selling amount (200 % of the total amount sold), to be effective as of the 2nd of January 2006. However, in line with the decline in FX supply due to global liquidity conditions, the depth of the FX market was lost and volatilities were observed in exchange rates. Therefore, the Bank decided to suspend daily FX buying auctions for a certain period of time, starting from the 16th of May 2006. Moreover, as a response to the excessive volatility in exchange rates observed in 2006, the TCMB directly intervened in the market via one FX buying intervention and three FX selling interventions.

Following the measures taken by the TCMB against the volatility in financial markets in May and June 2006 and improved global liquidity conditions, the FX market has become relatively stable. For this reason, the TCMB has decided to resume the FX buying auctions, which were suspended on the 16th of May 2006, as of the 10th of November 2006. Accordingly, the maximum daily amount to be purchased in the auctions has been set at USD 45 million, with USD 15 million for auction amount, and USD 30 million for optional selling amount (200% of the total amount sold).

In the period of 2002–2006, the total amount of foreign currency purchased via auctions and interventions is USD 9,7 billion, while the total amount sold is USD 3,1 billion for the whole of 2006. The total amounts of foreign currency purchased and sold by the Central Bank are shown year by year in the table11:

Table 11: The TCMB's Net FX Purchases and Sales (2002–2006; million USD)

Year	FX Buying Auctions	FX Selling Auctions	FX Buying Interventions	FX Selling Interventions	Total Net FX Buying
2002	795	-	16	12	799
2003	5,652	-	4,229	-	9,881
2004	4,104	-	1,283	9	5,378
2005	7,442	-	14,565	-	22,007
2006	4,296	1,000	5,441	2,105	6,632
TOTAL	22,289	1,000	25,534	2,126	44,697

Source: The Central Bank of Turkey.

The TCMB continues to implement floating exchange rates regime in 2007. According to the moderate reserve accumulation policy under the floating exchange rate regime, the TCMB will continue the FX purchase auctions in 2007, as well, in a way to ensure that the fundamental principles and operation of the floating exchange rates regime are adhered to.

In the next section, a potential paradigm shift for the selection of FX rate regimes that might fit best at a particular period will be investigated. Global conjuncture may have a greater impact on peripheral currencies in the not-far future.

5. Electronic Money and the Future of FX Rate Regime Choices

The evolution of money has reached a new phase in the last decade with the developments in payment systems innovations and electronic purse technology. The main motives of these changes are being supported by two basic themes. The first one is the ever lasting increases in power of computing, which is theorized as Moore's Law of self-doubling of computer-power in less than every two years. The second one is the ever-lasting decreases of telecommunication and networking cost.

The central banking definition of electronic money (e-money) was given by the European Central Bank (ECB) as "an electronic store of monetary value on a technical device that may be widely used for making payments to undertakings other than the issuer without necessarily involving bank accounts in the transaction, but acting as a prepaid bearer instrument." (ECB 1998) This definition underlines certain aspects of e-money:

1. It stores monetary value on a *technical device* with a capacity to be used widely for making payments to undertakings other than the issuer. Then, it excludes Local Exchange Transaction Systems and service vouchers.
2. It has a role as a prepaid bearer instrument, excluding account-based electronic payment instruments such as credit and debit cards.
3. It is used to cover payments to undertakings other than the issuer, which is essential to differentiate e-money products from single purpose prepaid cards.
4. Its ability to by-pass bank accounts or any other financial service providers' authorization. By doing so, it covers non-accountable e-money proposals as well by allowing "finality of payment" on e-money transactions.

Credit Cards, large value Interbank funds transfer systems, giros, automated clearing house services, direct debit and credit systems, new means to access credit card payments and home banking systems, debit cards, pos terminals, ATM and ATM cards, phone cards, transit cards, club cards, electronic fund transfers and Swift facilities, electronic banking products, computer chips embedded in a smart card including university cards are all excluded from the definition of e-money and can only be classified as background technologies for a full scale issue of e-money.

On the other hand, this definition is unsatisfactory because, it overemphasizes the technical distinction between account-based and token-based systems. It also does not distinguish clearly enough two quite distinct kinds of e-money issuance strategies "representative" such as e-dollar and e-euro and "independent" e-money, such as e-gold and basket or index-based schemes.

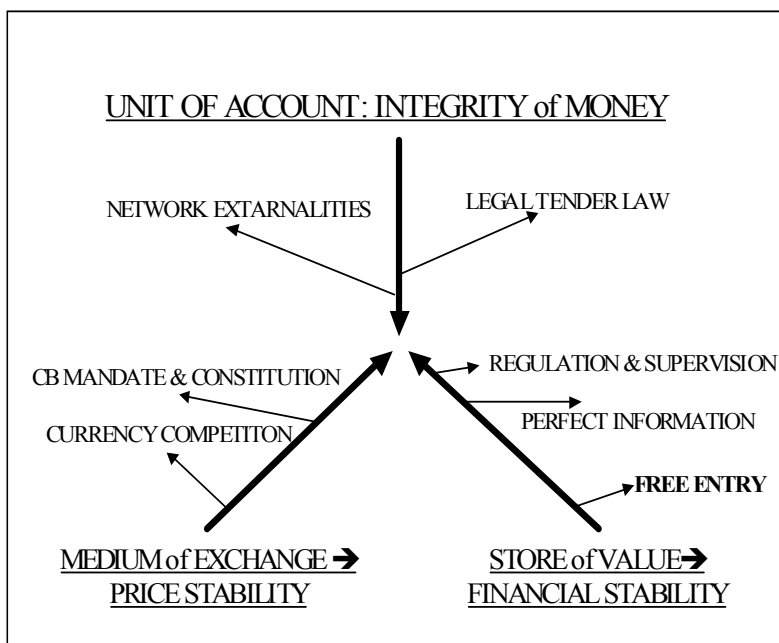
The impact of e-money might be the most challenging when it is as non-bank money, that is, money issued without reference to banking reserves. If e-money is introduced as independent money, not a representation of any conventional currency, it leads to revolutionize the competition among monetary policy frameworks and as a result it leads to extra FX rates other than rates among conventional currencies.

This impact may well be different for developed and developing countries: For developed countries, it may provoke 'currency competition' among core currencies like the US dollar and the euro, or perhaps between these traditional currencies and new, privately issued monies (if the performance of the central banks is seen as unsatisfactory by money users). For developing countries, it may facilitate and speed up currency substitution to dollarization and/or euroization.

The most striking dimension of the e-money technology is its potential for a "once and for all" demise of conventional money because once e-money replaces conventional monies, the technology will be able to sustain a full scale circulation of electronic monetary value issue for all end-users in a global scale.

The implications of e-money on conventional money may be analyzed with the help of a chart:

Chart 8: Money and E-Money



Source: Görmez (2000).

On the unit of account function, e-money decreases the network externalities as information gathering cheapens and as the construction and operating cost of networks decreases. Even the legal tender laws are not influenced by the technology, the cost of defending bad money will increase eventually, which has been sharpened by currency attacks as well. As a result, only strong currencies with a quantified spectrum of cover –the quality of backing- will survive while others will be under direct threat of good monies through asset and liability dollarization in the first stage and monetary unions in the final stage.

On the medium of exchange function, e-money will impose the central banks a clear mandate by the constitution to fight inflation in the first place and conditionally support growth policies unless there are contradictory to price stability. Otherwise, currency substitution will narrow the number of transactions conducted on a particular currency, which can lead to the demise through full dollarization or monetary unions in the following phases. E-money extends the reach of currency substitution even for micropayments through conventional and mobile networks and unless capital controls are imposed on the networks it is inevitable that “the good money will drive out the bad”.

In terms of store of value, e-money applications will enhance free entry by lowering the cost of financial service provision. Obviously, the comparative

advantages of certain institution's expertise will not be hampered in the very short run, especially in terms of wealth management and portfolio advice. But, examples such as Paypal –an e-mail based internet payment solution and Egg –an internet bank in the UK – proves that the cost of gaining a critical mass of customers has been eased seriously in financial services. Brick and mortar cost of traditional financial service providers are replaced with bits and bytes cost, which is relatively cheaper. Networking and online customer relations would lead to better quality of information management and this is advantageous for both customers and service providers.

These implications arise the problem of the spectrum of a particular currency's cover. What the cover means may best be described as the backing of a currency. It should better be kept in mind that when there comes a time for a global financial order where different kinds of contestable monies compete each other; the winner will be the one with the best spectrum of cover both in the medium and long run. The better the cover in the short run supports the medium of exchange function of money but for the medium and long run, store of value function could be sustained with relatively stable backing and cover.

Chart 9: Spectrum of Cover



Source: Görmez (2000).

What backs a currency in the present time is its purchasing power, its ability to get a product, a service and/or an asset in a given period with a guarantee of irrevocable payment, because fiat money has no intrinsic value. Imposing taxation could decrease the nominal amount of money and that's why, backing of money is mainly shaped by tax (law) enforcement. Taxation is a kind of revenue that has no economic activity that the collector is involved. However, in the long-run, any money can only and only be backed by profit based productivity that will support a tax base to be enough for basic cost of societal services and promises. The public sector is the biggest spender in almost all developed and developing countries and private sector is not mature enough to fully provide services such as defence and health, which are main unprofitable activities in terms of mass-production.

With regards spectrum of cover –or backing of a currency-, it may be argued in lights of above-mentioned argument that any currency is backed with what it can buy in the very short-run, whereas the cover is most influenced by the level of

taxation on an annual base. On the other hand, profit originating economic activity can provide the best cover for a currency in the long run. Hence, under competing currencies – whether polarized or not – framework with no capital controls imposed, the critical indicator for the value of a currency is the long-run economic performance that will support the cost of unavoidable societal services through generating profits without hampering capital base for production. As a step forward, it may be argued that the current value of a currency may also be judged as the discounted value of future profits that a given economy seems to provide in the long run. Attacks that came under light especially in the far-east currency crises and during the convergence of the euro area currencies shed some light on the favor of this argument.

Once the value of a currency becomes quantifiable, it is easier to analyze what the price of it will be in terms of another currency. Free market players would best decide on the level of FX rates in a given time. Any movement of the rates would arise when there are judgemental differences among market players and unless information asymmetries leads to huge discrepancies; then, FX rates will fluctuate narrowly without hurting the economic activity.

This phase is where e-money applications will play their role in terms of FX rate regime choices and exchange rate determination. Clearly, it would be imaginary to expect a perfect digital barter technology in the foreseeable future. Hence, competing currencies with no capital controls could serve the societies as information economising denominators. Their price in terms of each other would be decided according to their future-profit generating power. Speculative and manipulative motives would not be expected to disappear in the near future. However; as the depth of certain currencies increases through unofficial and official dollarization and/or currency unions, polarization would be inevitable. Because of liquidity effect through money and capital markets operations in terms of store of value and availability and convertibility effect through e-money solutions would allow good money to drive out bad. Personal computers, palms, mobile phones, personal digital assistances, automated teller machines, credit and debit card infrastructures, international micro payment technologies, interoperability of national and international wholesale and retail payment systems would all help to widen the on-line real-time circulation of any good money to end users anywhere and anytime in the world.

The impact of e-money on the FX rate regimes, then, seems to decrease the number of alternatives in favor of free floats. Fixed rate regimes other than the monetary unions would be unbearably costly. Probably, this danger would be the main source of fiscal rules imposed in the euro area, namely Maastricht Criteria to eliminate potential mismanagement of individual fiscal policies, which could, in the end, endanger the integrity of the euro.

Then, FX rate regime selection becomes a “life and death” issue in economic management under a matured and well-designed globally competing e-money

environment. Free market players would heavily punish unsustainable preferences and any potential currency attack would end with the demise of the national (international) currency. As the cost of defending against an attack needs to cover not only the store of value but also the medium of exchange function, currently declared unit of account would lose its effectiveness. Even capital controls are imposed; financial innovation could always find alternative solutions to supply sound money to funny money areas as long as the economy is not closed to international trade with virtual and conventional border surveillance.

4. Conclusions and Recommendations

Since the declaration of Independence from the Ottoman Empire, Turkey has tried all kinds of exchange rate regimes from strictly fixed to free float. Interestingly, during the emergence of the new Republic, it was free float that has allowed sustaining financial stability and after more than 70 years of trying all alternatives, free floating has become the favorite once again.

The first change of the regime came in 1932 when the TCMB became operative. Free float regime is replaced with fixed rates. The second regime shift occurred in 1948 when Turkey joined to the Bretton-Woods and applied adjustable pegs until 1981. Crawling peg came into affect to last until the 1994 crises. Managed float was the later choice as the FX rate regime. 2000 was the year the ERBS program was activated, which failed with 2001 crises and since then free float is back on the stage. Table 11 summarizes the evolution of the FX rate regime choice in Turkey:

Table 11: Evolution of the FX Rate Regime Choice in Turkey

Period	Exchange Rate Regime
1923–1930	Free Float
1931–1948	Fixed
1949–1980	Adjustable Peg
1980–1994	Crawling Peg
1994–1999	Managed Float
1999–2000	Tablita
2001Up-to-Date	Free Float

Source: Authors' notes.

Recently, Turkey is a candidate for the European Union (EU) membership and if the membership is realized YTL will be dissolved in favor of the euro. Until then, free float is expected to continue.

On the other hand, money is a societal need such as weight and length standards. As the existence of especially hard currencies such as the US dollar, Japanese Yen and the euro seems to be certain for the near future, FX rate regime choices might still be a discussion topic in the following years among central bankers, academicians and practitioners. As it is generally agreed, no single FX rate regime might serve an economy best forever. E-money technologies seem to have a potential to influence these discussions. A closed economy should have no problem of FX rate regime choice. Once a particular economy gets open to international trade, then, FX rates would inevitably become an issue and the discussion of FX rate regime choice is expected to continue.

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