COMPETITION BETWEEN EURO AND US DOLLAR IN INTERNATIONAL MARKETS AND IN TURKEY

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ABSTRACT

COMPETITION BETWEEN EURO AND US DOLLAR IN INTERNATIONAL MARKETS AND IN TURKEY

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The aim of this thesis is to examine the extent of euro's challenge to the US dollar as an international currency, focusing on comparisons between these two major currencies' international roles and their private and official uses as a store of value, a medium of exchange and a unit of account throughout the world, and specifically in Turkey. The thesis evaluates the roles of the euro and US dollar as financing and investment, invocing, vehicle, reserve, anchor and intervention currencies basically in financial markets, foreign trade, foreign exchange markets, foreign exchange reserves and exchange rate regimes globally and in Turkey. The evaluations highlight the fact that the euro has been successfull as an international currency since its introduction in 1999 and is the second most widely used international currency in all the main international currency roles, after the US dollar. The findings of the thesis indicate that the use of the euro shows an increasing trend and the euro is likely to play an increasingly prominent role in the world, and specifically in Turkey.

Keywords: Euro, US Dollar, Euro-US Dollar Rivalry, Currency Competition, European Union, Turkey

ÖZ

ULUSLARARASI PİYASALARDA VE TÜRKİYE'DE AVRO VE ABD DOLARI REKABETİ

Köse, Hasan
Yüksek Lisans, Avrupa Çalışmaları
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Bu tezin amacı, hesap birimi, değişim aracı ve değer biriktirme aracı olarak Avro ve ABD Dolarının özel ve resmi kullanımları ile bu iki ana para biriminin uluslararası rolleri arasındaki karşılaştırmalara dünya genelinde ve özellikle Türkiye'de odaklanarak uluslararası bir para birimi olarak Avronun ABD Dolarına meydan okumasını incelemektir. Bu tez temel olarak mali piyasalarda, dış ticarette, döviz piyasalarında, döviz rezervleri ve döviz kuru rejimlerinde, finansman ve yatırım, faturalama, araç, rezerv, çapa ve müdahale para birimleri olarak Avro ve ABD dolarının rollerini dünyada ve Türkiye'de değerlendirmektedir. Değerlendirmeler, Avronun 1999 yılında kullanıma girmesinden itibaren uluslararası bir para birimi olarak başarılı olduğunu ve Avronun belli başlı uluslararası para birimi rollerinin hepsinde ABD Dolarından sonra ikinci en yaygın kullanılan uluslararası para birimi olduğunu vurgulamaktadır. Bu tezin bulguları Avro kullanımının yükselen bir trend izlediğini ve Avronun dünyada ve özellikle Türkiye'de gittikçe artan belirgin bir rol oynadığını göstermektedir.

Anahtar Kelimeler: Avro, ABD Doları, Avro ve ABD Doları Rekabeti, Para Birimleri Rekabeti, Avrupa Birliği, Türkiye

To my son Osman Semih

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS

BIS	Bank for International Settlements
BRSA	Banking Regulation and Supervision Agency of Turkey
CBRT	Central Bank of the Republic of Turkey
CEECs	Central and Eastern European Countries
CFA	Franc of the African Financial Community
CIS	Commonwealth of Independent States
ECB	European Central Bank
ECU	European Currency Unit
EIU	Economist Intelligence Unit
EMS	European Monetary System
EMU	Economic and Monetary Union
EP	European Parliament
ERM	European Exchange Rate Mechanism
EU	European Union
FDI	Foreign Direct Investment
G7	Group of Seven
GAO	Government Accountability Office of United States
GDP	Gross Domestic Product
HS	Harmonised System
IMF	International Monetary Fund
ITC	International Trade Center
NBG	National Bank of Greece
OECD	Organisation for Economic Co-operation and Development
OPEC	Organization of Petroleum Exporting Countries
PPP	Purchasing Power Parity
SDR	Special Drawing Rights
UFT	Undersecretariat of Foreign Trade

UK	United Kingdom
US	United States
USA	United States of America
USITC	United States International Trade Commission
UT	Undersecretariat of Treasury
WTO	World Trade Organization

CHAPTER 1

INTRODUCTION

The introduction of the single European currency, the euro, is one of the most important economic developments in the international monetary system at the end of the twentieth century. The euro started to become the first important rival for the US dollar since the latter challenged and replaced the pound sterling as the world's leading international currency in the interwar period (1918–1939).

The aim of this thesis is to determine the extent to which the euro is challenging the US dollar as the leading global currency by making comparisons between these two major currencies' international roles and their use throughout the world. This thesis aims, then to analyse the Turkish case by taking into consideration the roles of the euro and the US dollar in Turkey's economy.

The pound sterling was the prevailing international currency during the nineteenth and the first half of the twentieth centuries. With the fall of the economic power of the British Empire in the twentieth century, the US dollar replaced the pound sterling as a leading international currency.[1] Since the 1930s, US dollar has

[1] See Salvatore (2002) for the reasons of decline of the pound sterling and the rise of the US dollar as an international currency after World War II. For example, one reason of the changed international role of the US dollar and the pound sterling after World War II was the decision by Organization of Petroleum Exporting Countries (OPEC) in the mid-1970s to settle the price of petroleum in US dollars instead of pound sterling.

been the leading international currency as a medium of exchange, store of value, and unit of account for private and official purposes (Bergsten, 2002). Basically, the prices of the commodities in the international financial markets and in international trade are shown in US dollars, the central banks calculate and keep their foreign currency reserves in US dollars (Neaime and Paschakis, 2002; Shams, 2005).

The world's exchange rate system of the 1960s and early 1970s - the Bretton Woods system - made the US dollar the key international currency. The Bretton Woods system was thrown into turmoil and abandoned in 1973. Thereafter, all currencies fixed to the US dollar began to float.[2] Before and after the breakdown of the Bretton Woods system, however, the US dollar was the dominant currency in the international system (Frisch, 2003; Tamamas, 2004).

With the collapse of the Bretton Woods system, the share of the US dollar in the world market eroded significantly in the late 1970s and early 1980s. Moreover, its weakness and instability led to the first effective efforts to create a European alternative. The efforts focused on the creation of an area in Europe that would offer more exchange rate stability than the US dollar, resulting initially in the European Monetary System (EMS) in 1979 (Bergsten, 2002; Gadea *et al.* 2004).[3]

[2] In the Bretton Woods system, exchange rates were fixed to the US dollar, but were adjustable based on political decisions, if necessary. The breakdown of the Bretton Woods system shifted the international monetary system from fixed exchange rates to a system of floating exchange rates, as many countries have shifted away from fixed to more flexible exchange rate regimes after the breakdown of the Bretton Woods system (Akiyama and Kawai, 1998).

[3] See Europa (2006) for more information on the efforts and developments in forming an economic and monetary union (EMU) in Europe.

The 1992 Maastricht Treaty set a detailed timetable for the adoption of a single European currency, and the conditions for its introduction. The so-called *Maastricht Convergence Criteria* aimed to ensure monetary and fiscal stability in the common currency area. The criteria force the countries, which want to become the economic and monetary union members, to converge in the fiscal and monetary sphere.

On 1 January 1999, the new currency, *Euro*, was introduced as a major step in achieving an economic and monetary union in Europe. The euro initially replaced the currencies of 11 countries: Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain. Greece became the twelfth member of the euro area[4] in 2001. Although the euro was formally established to be used in non-cash transactions on 1 January 1999, euro banknotes and coins entered into circulation on 1 January 2002. From this date on, the euro is fully used in circulation and the currencies of the 12 countries have been gradually withdrawn from circulation. Thus, only the euro started to be used in the goods, foreign exchange and financial markets. More than 300 million people in these countries are using the euro as a domestic currency. The euro area constitutes the second most powerful economic market in the world and the euro has been the second most widely used international currency since the start of EMU in 1999.

In the decades prior to the introduction of the euro, US dollar, Deutsche mark and Japanese yen were the only currencies which were used extensively outside their respective borders. Although the Japanese yen and particularly the Deutsche mark have been

[4] It is the area in which the euro operates as the official single currency. It is also called the euro zone or euro land.

largely used in international transactions in the past several decades, they have not even closely reached the level of international usage that the US dollar had (Granell, 2006:4). With the arrival of the single European currency, for the first time the US dollar has started to face an important rival for the status as the key international currency. Despite predictions by most American economists in 1998[5], the euro was expected to be a major international currency and a potential rival to US dollar with its usage by the governments and residents of other countries as a medium of exchange, a unit of account and a store of value (Salvatore, 2000). Mundell (1998) argued that with the introduction of the euro, the US dollar had a potential rival for its status of prevailing international currency and stated that:

> "The introduction of the euro … will challenge the status of US dollar in the international monetary system and change the power configuration. For this reason the introduction of the euro may be the most important development since US dollar replaced the pound sterling as the dominant international currency in World War I." (Mundell, 1998: 118)

In fact, the major question was: how great a rival would the euro become, and how soon? The answer in some of the early interpretations was that the euro would be an important rival in a short period of time. Portes and Rey (1998) declared that US dollar would immediately lose its importance as a vehicle currency. On the other hand, interpretations of McCauley (1997) and Neaime and Paschakis (2002) were cautious about the international role of the euro.

[5] Salvatore (2005) says that when the introduction of euro became clear in 1998, most American economists predicted that it would fail because the EMU was not an optimum currency area so that an EMU-wide monetary policy would lead to serious problems for the member nations.

Since its introduction, the euro is firmly and successfully established as one of the world's most important monies and the euro is now fulfilling all traditional functions of money - as a unit of account, a medium of exchange and a store of value - throughout the euro area and beyond. Given the euro area's large economic potential, financial markets, its active trade links with other areas (Salvatore, 2005) and the desire of the European monetary authorities not to restrain the internationalisation process of the new currency[6] (Miotti *et al.* 2002), a major question arises regarding the international role that the euro has been playing in markets throughout the world. In this framework, this thesis aims to give assessments regarding the role of the euro with respect to the US dollar on the international scene.

Introduction of euro meant to enhance euro area's role on the world stage by creating a potential rival to the US dollar (Cohen, 2006). So, what changes in the international use of the US dollar have occurred since the euro's existence? How well has the euro actually performed since its introduction in 1999? Can the euro truly challenge the global dominance of the US dollar as leading international currency? This study tries to address the preceding questions, assessing the euro's global role vis-à-vis its principal rival, US dollar and exploring prospects for the euro as an international currency.

[6] Although the European authorities have the desire not to restrain the internationalisation process of the euro, Miotti *et al.* (2002) argue that the European authorities are not actively seeking to promote the internationalisation of the euro. Unlike Japan, however, which has resisted internationalising the use of the Japanese yen (because the Japanese consider that it might disrupt the behaviour of their monetary policy) (Eichengreen, 2006:7), the European authorities do not oppose a growing internationalisation of the euro. Their position is that the euro area's strategy in terms of monetary policy is sufficiently strong to face the implications of an increasing internationalisation of the euro.

The introduction of euro has important consequences (in international monetary and financial relationships) not only for participating countries who have officially adopted the euro currency but also for all those countries, in Europe and outside,[7] with strong trade and financial links with EMU participants namely, countries of the Mediterranean Area, Central and Eastern European Countries (CEECs), countries of the French CFA zone,[8] as well as United Kingdom (UK), Denmark, Sweden, Norway, Switzerland and Turkey. Similarly, because the euro and the US dollar now share the role of the world's major international currencies, without any close rivals, the relationship between the euro and the US dollar is particularly important, not only for these two large economic areas, but also for the world economy as a whole (Mussa, 2005).

Even though Turkey is not yet a member of the European Union (EU), it has close ties with the EU member states. Besides having a large volume of foreign trade with the EU members, Turkey has completed a customs union with the EU, and is a candidate country for full membership of the EU. Given the depth of Turkey's relationship with the EU and the widespread use of US dollars in Turkey's trade and financial transactions, it is obvious that the euro and the US dollar rivalry has significant consequences on the Turkish economy in many ways. For these reasons one other

[7] It is worth noting that any country that previously used one or more of the EU countries' currencies as its domestic currency has now also adopted the euro. This applies to the Principality of Andorra, the Principality of Monaco, Vatican City, and the Republic of San Marino. This also applies automatically to any territories, possessions of euro area countries (the Azores, Balearic Islands, the Canary Islands, Europa Island, French Guiana, Guadeloupe, Juan de Nova, the Madeira Islands, Martinique, Mayotte, Reunion, Saint-Martin, Saint Pierre and Miquelon, to name just a few) that do not have their own currency (Europa, 2006) (26.07.2006).

[8] French CFA (Franc of the African Financial Community) zone countries; Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Republic of Congo, Côte d'Ivoire, Equatorial Guinea, Gabon, Guinea-Bissau, Mali, Niger, Senegal, and Togo (Irving, 1999).

objective of this thesis is to focus on the Turkish case by examining the roles of the euro and the US dollar in Turkey's economy.

In this respect, Chapter 2 seeks to find out the major determinants of an international currency. In addition to determinants, functions and uses of international currencies are also discussed in that chapter. In order to understand the answer of what makes an international currency, this study tries to gather and analyse all information on definitions, functions, uses and determinants of an international currency as they are identified in the economic literature. Then these definitions, functions, uses and determining factors and their interrelationship are introduced to provide a comprehensive picture with all its dimensions.

Chapter 3 investigates the competition between US dollar and the euro by taking into consideration the available data and information on private and official uses of these two major international currencies. Moreover, it discusses whether or not the euro has challenged the global dominance of US dollar since its introduction by identifying the main developments and underlying trends in trade invoicing, international debt securities issuance, bank assets and liabilities, exchange rate pegs and official reserves.

In light of the findings of Chapter 2 and Chapter 3, Chapter 4 investigates the Turkish case regarding the roles of the euro and US dollar in Turkish economy by examining the current situation with respect to currency composition of trade flows, debt, deposits, foreign direct investment (FDI), exchange rate regime and reserves in Turkey.

Lastly, the major findings of this thesis are summarized in the conclusion.

CHAPTER 2

FUNCTIONS, USES AND DETERMINANTS OF AN INTERNATIONAL CURRENCY

Money is defined as anything that serves the following three functions: a unit of account, a store of value, and a medium of exchange. To operate as a unit of account, money is used as the common benchmark to denominate the prices of goods throughout the economy. To function as a store of value, money is used as a means of postponing the satisfaction obtained from using or consuming goods until a later time.[9] To function as a medium of exchange, money must be used for purchasing goods and services.

Aforementioned functions of a currency also have applicability in the international economy. In order for a currency to be considered international, it should fulfil traditional money functions at an international level. Hartmann and Issing (2002) define an international currency as a currency which is not only used by residents of the country or group of countries issuing this currency but also by non-residents. They argue that usage of a currency as compared to other currencies determines currency's international role. In a similar vein, Salvatore (2002) defines an international currency as the currency of a nation (such as US dollar) that fulfills

[9] This is the most difficult role for currency to achieve. Inflation reduces the purchasing power of money. As long as inflation is moderate, the ability of money to operate as a unit of account, medium of exchange and store of value ensure its continued use. Hyperinflation causes money to lose its store of value function (Pollard, 2001: 17).

in the world economy the same basic functions that it performs in the nation's economy.

This chapter provides information on functions and uses of an international currency. Besides functions and uses, the major determinants of an international currency are also analysed in this chapter.

2.1 Functions and Uses of an International Currency

The private and public uses of an international currency are defined in literature by using the three traditional functions of money (Eijffinger and Haan, 2000:223-225; Miotti *et al.* 2002:2-4; Pollard, 2001:18). Table 2.1 shows this definition and distinguishes the three traditional money functions.

Table 2.1
Principal Functions and Uses of an International Currency

	Sector	
Functions	Private Use	Official Use
Unit of account	Invoicing currency	Anchor *or* Pegging currency for exchange rate regimes
Medium of exchange *or* Means of payment	Vehicle currency	Intervention currency
Store of value	Investment *and* Financing currency	Reserve currency

Source: Eijffinger and Haan, (2000), p. 224; Miotti *et al.* (2002), p. 3

As seen from Table 2.1 the way a currency fulfils such functions differs depending on whether it is used by the private or public sector. However, it should be admitted that the private sector plays a decisive role in internationalising a currency (Frisch, 2002).

A currency serves as a unit of account for private international transactions if it is used as an *invoice currency* in international trade contracts. As a unit of account, an international currency is used to invoice, that is, to set the prices of goods.

Studies on the invoicing of world trade reveals that trade in manufactured goods among the industrial economies is most often invoiced in the currency of the exporter (Pollard, 2001; Goldberg and Tille, 2005). If the exporter's currency is not used, then the importer's currency is the most frequent choice. Only rarely is a third country's currency used. Trade between industrial and developing countries is generally invoiced in the currency of the industrial country. Trade between developing countries is often invoiced in the currency of a third country (Padoan, 2000; Fukuda and Ono, 2004:1-3).

According to Bekx (1998) and Hauner (2002), the lower the cost of buying and selling a currency in the foreign exchange market,[10] the more likely is its use for invoicing trade. The more accepted a currency is for other transactions, the more likely it is to be used as an invoice currency. Clearly these two factors are mutually supportive. The more accepted a currency is, the lower would be its transaction costs; the lower its transaction costs, the more likely it is to be accepted.

A currency serves as a medium of exchange for private international transactions if it is used as a *vehicle currency* through which two other currencies are traded. A vehicle currency emerges whenever the indirect exchange costs through the vehicle are less than direct exchange costs between two non-vehicle currencies

[10] Transactions in foreign exchange include those in the spot, forward, swap, options, and futures markets.

(Portes and Rey, 1998; ECB, 2002: 29). For example, given the depth and liquidity of the exchange market for US dollars, it may be less costly to exchange Swiss francs for US dollars and then exchange US dollars for Turkish lira rather than exchanging Swiss francs directly for Turkish liras.

The lower the exchange rate volatility of a certain currency against other currencies and the larger the volume of transactions in that currency, the lower the transaction costs are likely to be. If a currency is a vehicle currency, its use increases and the transaction costs of that currency relative to other currencies decrease (Hau *et al.* 2002).

A currency serves as a store of value for private international transactions if international financial assets are denominated in this currency. *Investment and financing currency* is used to denominate loans, deposits and bonds.

A currency serves as a unit of account for official international purposes if it is used as an *anchor (pegging currency)* for exchange rate regimes. Anchor currency is used in expressing exchange rate relationships. Countries peg their exchange rates by tying the value of their currency to the currency of another country. The value of the pegged currency rises or falls simultaneously with the value of the currency to which it is tied (GAO, 2000:28-29).

Central banks can use international currencies as a nominal anchor when they peg their currency to it. Frisch (2003) argues that the main reason countries choose to peg their currency to another currency is to reduce exchange rate risk and/or to control inflation. Keeping the currency stable against the peg, or setting limits on

exchange rate changes, minimizes the risk to those borrowing or lending in foreign currencies or engaged in international trade (Kalcheva, 2003:42-43). The unexpected failure of a currency peg, however, can produce sharp changes in the exchange value of the local currency and lead to losses on contracts priced in foreign currencies. For those countries which do peg, trade and financial links usually determine the currency choice.

Choosing the appropriate exchange rate regime is one of the key policy choices for monetary authorities, with implications also for the size and composition of foreign reserves and interventions. The anchor function boosts the official store of value and means of payments functions. Due to increased turnover, transaction costs decline, which increases the incentive of both the official and the private sectors to use the same currency for its various international functions (Bénassy-Quéré and Lahrèche-Révil, 2000).

Whereas financial crises in developing market economies since the mid-1990s have often been seen as a reason to move towards more flexible exchange rates, many countries continue pegging their domestic currencies, often without resorting to hard institutional commitments like currency boards[11] or euroisation/dollarisation regimes. This applies primarily to small, open economies with strong trade or financial links with one larger trading partner or to countries in need of an external anchor currency for their domestic stabilisation policies (ECB, 2002). However, this is not the case for big economies such as the USA. In other words, Mexico or Turkey can fix their currencies to the US

[11] A monetary regime based on an explicit legislative commitment to exchange domestic currency for a specified foreign currency at a fixed exchange rate. (see for more information Spiegel and Valderrama, 2003; Grimm and Feuerstein, 2004).

dollar, but the USA cannot fix the US dollar to the peso or Turkish liras. With the largest transactions domain of US dollar, the USA cannot expect to achieve stability by fixing its currency to a smaller currency area (Mundell, 2002).

A currency serves as a store of value for official international purposes if monetary authorities hold foreign exchange reserves in this currency. That is to say, *reserve currency* is used as international reserves by governments and/or central banks.

Governments and central banks hold reserves for three main purposes: *(i)* to finance imports; *(ii)* to finance foreign debt; and *(iii)* to intervene in currency markets to manage the exchange rate (ECB, 2006). In advanced economies, private markets generally fulfill the role of financing trade and debt. Hence, reserves are held primarily for intervention purposes. In developing countries all three purposes are important (Hauner, 2002). The currencies in which imports are invoiced in developing countries are a key determinant of the composition of reserves. Similarly, because reserves are also important for financing foreign debt, the currency composition of this debt affects the currency composition of reserves.

The currency choice of reserves for intervention purposes depends in part on a country's exchange rate regime. If a country pegs its exchange rate to a particular currency, that currency's share in its reserves rises. The importance of the exchange rate arrangement in determining the currency composition of a country's reserves is linked to the use of these reserves for intervening in the currency markets.

The risk and return on currencies is another factor in determining the currency composition of reserves. Most reserves are held in the form of government securities. Hence, changes in the relative return on these securities in conjunction with the depreciation risk of domestic currency, particularly if sustained over a long period, may cause shifts in a country's composition of reserves (Mundell, 2002). In addition, the liquidity of government securities markets is also a factor in determining the choice of reserve currency because reserves may need to be quickly sold for intervention purposes.

A currency serves as a medium of exchange for official international purposes if it is used for intervening in currency markets. *Intervention currency* is used in foreign exchange markets (Brissimis and Chionis, 2004). Foreign exchange market intervention involves trying to change the value of a particular currency in that market (Archer, 2005).

Liquidity and acceptability are the most important determinants of the choice of intervention currency. In countries that peg their exchange rate, the currency peg determines the intervention currency. Since countries prefer to hold their reserves in the form of interest-earning assets, the liquidity of these assets is extremely important (Pollard, 2001:33). The acceptability of an international currency is related to its role as a medium of exchange for private transactions. The more frequently a currency is used for private transactions, the larger is the exchange market for that currency, which increases the ease with which a country can use the currency for intervention purposes (Giovannetti, 1998:6).

It is important to conclude that the three functions of an international currency are separable and yet they reinforce each

other. For example, the use of a currency for invoicing trade and holding financial assets increases the use of that the currency as a vehicle currency. In the public sector, if a country pegs its exchange rate to another currency, it is likely to hold its foreign exchange reserves in that currency and manage its interventions in exchange markets in that currency. Also, the use of an international currency by one sector reinforces its use by the other sector. For example, using a currency as an exchange rate peg makes easier the use of that currency in foreign trade and debt contracts (Miotti *et al.* 2002, Sterieva, 2001; McCauley, 1997).

2.2 Determinants of an International Currency

The literature on international currencies has identified a number of determining factors. Pollard (2001) lists five key determinants of a currency that is used in the international exchange of goods, services, and assets as follows; size of the economy, importance in international trade, size, liquidity, openness and depth of domestic financial markets, convertibility of the currency and macroeconomic policies. Chinn and Frankel (2005) identify four key factors by giving more importance to economic size of the country or region. These are country's output and trade, country's financial markets, confidence in the value of the currency and network externalities. However, Hartmann and Issing (2002) assign a lower relevance to the real size of the economy and give more importance to trade, macroeconomic policies and inertia. Sakkoulidis (2003) concentrates on the size of the economy and monetary stability in examining the determinants of an international currency. Hauner (2002) sketches the most commonly used determinants of a currency that comes to play an international role as relative size of the domestic economy, share in world trade, international political

stance, monetary stability, inertia, network externalities and depth of domestic financial markets. Neamie (2003) takes into account the size of the economy, volume of international trade and transactions costs in discussing the determinants of an international currency. Mundell (1998) identifies confidence in currency's stability as the key characteristic which makes a currency important internationally.

In this section, size of the economy and importance in international trade, size, openness, liquidity and depth of domestic financial markets, confidence in the value of the currency, network externalities, convertibility of the currency, macroeconomic policies and monetary stability, inertia and transaction costs will be analysed in a detailed way as main determinants of an international currency.

2.2.1 Size of the Economy and Importance in International Trade

The currency of a country that has a large share in international output and trade has a big natural advantage. The size of an economy provides an important indication of the role that its currency can play in the world economy (Wijnolds, 2006:5). Mundell (2002) argues that a large currency area has greater monetary power to insulate itself from shocks than a small currency area. Thus a big country with a large economic size is more likely to have a more stable currency and be much less subject to volatility than a small country.

Besides country's economic size, country's trading volume is another indication of its relative weight in the world economy. The

country issuing the international currency should have a major weight in international trade, thus reinforcing the use of this currency by the other countries. In other words, the share of a country in international trade is one of the determinants of the demand for that country's currency in world markets.

Economic size of a country is also related with the importance of a country in international trade and the size of its financial markets (Pollard, 2001). For example, exports account for a much greater share of the output of the South Korean economy than for the US economy.[12] Nevertheless, because the US economy is nearly 17 times larger than the South Korean economy, US exports comprise a much larger share of world exports than South Korea does (EIU, 2005a; EIU, 2005b).

Hence the dominance of the US economy and the decline of the United Kingdom's economy in the twentieth century led to the rise of US dollar's importance and the decline of the pound sterling's importance as international currencies. In a similar vein, the growth of the German and Japanese economies in the last several decades of the twentieth century gave rise to the use of Deutsche mark and Japanese yen in international markets (Pollard, 2001).

Econometric evidence verifies the central importance of size of an economy for international currency purposes. Bergsten (2002) estimated that a rise of 1 percentage point in a key currency country's share of world product (measured at purchasing power parities) accounts for a rise of 1.33 percentage points in that currency's share of central bank reserves.

[12] Exports of goods were 254.4 billion US dollars in South Korea in 2004 while 807 billion US dollars in USA. GDP in South Korea was 666 billion US dollars in 2004 while 11,5 trillion in USA (EIU, 2005a; EIU, 2005b).

2.2.2 Size, Openness, Liquidity and Depth of Domestic Financial Markets

The size, openness, liquidity and depth of a country's financial markets are determinants of the demand and volume of trade for that country's currency in world markets. The size of country's financial markets are measured mainly by the sum of bank assets and domestic debt securities (Pollard, 2001:18) where the international currencies are in a competition as investment and financing currencies. Therefore, size of country's financial markets should be large for its currency to play a leading international role. In a similar vein, open financial markets of a country are also important because such markets enable trading agents to act voluntarily and therefore free from the interference of force and fraud. In other words, supply, demand, and price are set directly by the trading agents in the open financial markets.

Chinn and Frankel (2005) and Tavlas (1998) argue that financial markets in the home country must not only be open, but also large in order to attain international currency status. For example, US dollar and euro clearly benefited from large financial markets of New York and Frankfurt, respectively.

Liquidity of the country's financial markets is also important as the determining factor of an international currency, because there should be ready and willing buyers and sellers at all times in the financial markets. Depth of financial markets of a country is another important determining factor of an international currency, because it is possible to trade large amounts of securities without significantly affecting the price in deep financial markets. This in

turn makes easier to find a trading partner for a given (large) order in such financial markets.

Padoan (2000) says that the country issuing the international currency should have free and deep financial markets, thus guaranteeing the liquidity of the currency and making it possible for the currency to play a store of value role for private and public participants.

2.2.3 Confidence in the Value of the Currency

If a currency is to be used internationally, it is a required qualification that its value does not fluctuate inconsistently. International currency is used by firms to invoice their foreign trade, by investors to hold bonds issued internationally, and by central banks to hold (currency) reserves. Therefore the currency's stability is important since it creates confidence in the value of the currency (Chinn and Frankel, 2005).

2.2.4 Network Externalities

An international currency, like domestic one, derives its value from the fact that others use it. In other words, each country is more likely to use whatever currency is used by others. Network externalities occur when the benefits for a given agent of holding a certain currency increase with the use of this currency by other agents. For instance, when the use of currency in a given trade network grows, this increases the value of holding currency for each member of the network (Dorbec, 2005).

A currency must promise a broad transactional network, since nothing enhances a currency's acceptability more than the prospect of acceptability by others. This factor means an economy that is large in absolute size and well integrated into world markets. The greater the volume of transactions conducted in or with an economy, the greater will be the network externalities to be derived from use of its currency (Cohen, 2006). An exporter or importer is more likely to use a given currency in his transactions if everyone else is doing so. If a currency is widely used to invoice trade, it is more likely to be used to invoice financial transactions as well. If it is more widely used in financial transactions, it is more likely to be a vehicle currency in foreign exchange trading. If it is used as a vehicle currency, it is more likely to be used as an anchor currency (Chinn and Frankel, 2005). Meissner and Oomes (2006) state that trade network externalities are a key determinant of anchor currency choice.

2.2.5 Convertibility of the Currency

The convertibility of a country's currency is another important determinant of its use in international markets. Restrictions on the ability to exchange a currency for other currencies limit its global use. Since many countries' currencies are not convertible, it is difficult and/or expensive to do international business in their currencies. Mussa (2002) states the fact that most international trade and financial transactions for many of these countries are conducted in one of the world's major convertible currencies.

At the end of World War II almost every country, with the exception of the USA restricted the convertibility of its currency. This inconvertibility persisted for the first decade after the war.

Eichengreen (2005) points that the convertibility of the US dollar prompted its use as the currency in which international trade was conducted and as the currency of reserve assets.

2.2.6 Macroeconomic Policies and Monetary Stability

Macroeconomic policies and monetary stability also play an important role in determining whether a country's currency is used internationally. Macroeconomic policies affect a country's economic growth, stability and its openness to the world economy (Hauner, 2002; Wijnolds, 2006).

For the store of value function, the exchange rate of a currency must remain stable and inflation must be low and predictable. Firms seek to invoice in a currency that has relatively low inflation and real exchange rate risk. Therefore, macroeconomic policies supporting a low inflation environment are especially important. Countries having hyperinflation and/or political and economic crises experience a decline in the use of their currencies not only internationally but also within the domestic economy, as residents turn to a substitute currency (Pollard, 2001:19; Bekx, 1998:9). From an international perspective inflation also deters international trade and foreign direct investment of countries (Schnabl, 2005).

For the medium of exchange function of an international currency, the main issue is the confidence in the value and the strength of that currency. The strength and confidence in the value of an international currency ultimately depend on the conduct of monetary policies.

2.2.7 Inertia

Inertia means whatever currency has been used in the past will continue to be used in the future. An already widely used currency accumulates the characteristics that make it even more attractive internationally. Pre-existence of already well established transactional networks generate stickiness in user preferences (Cohen, 2003). Once a currency is at the center of the system it is very difficult for other currencies to compete with the incumbent since no economic agent finds it desirable to use a currency different from the one that everybody else is using. For example, it took a long time before pound sterling lost dominance as an international currency and was replaced by the US dollar, which became an alternative over the years as the USA became the biggest economy in the world. The change from the pound sterling to the US dollar occurred after two world wars, after the significant weakness in stability of the pound sterling, after the decline of the importance of the UK in the world economy and after the establishment of the Bretton Woods System (Cohen, 2000; Mundell, 2003; Rey, 2005).

In fact, prior use confers certain natural advantages to users. For example, switching from one currency to another is costly for users, involving an expensive process of financial adaptation. This also explains why users are often reluctant to switch currencies (Dorbec, 2005).

2.2.8 Transaction Costs

Transaction cost is a cost incurred when buying or selling a currency. One factor determining the use of a vehicle currency is

transaction costs. Transaction costs are also an important factor concerning invoice currency. The lower the cost of buying and selling a currency in the foreign exchange market, the more likely is its use for invoicing trade (Bekx, 1998). In addition, low transaction costs make the currency attractive to new entrants and enhance the benefits to existing traders.

Neamie (2003) argues that low transaction costs are a key characteristic of an international currency and the main determinant of the use of a currency. In discussing transaction costs, Portes and Rey (1998) suggest that the key determinant of the extent and speed of internationalisation of a currency would be transaction costs in foreign exchange and securities markets. Fukuda and Ono (2004) indicate that transaction costs might make vehicle currency a dominant medium of exchange in international trade.

CHAPTER 3

COMPETITION BETWEEN THE EURO AND THE US DOLLAR AS INTERNATIONAL CURRENCIES

This chapter examines competition between the euro and the US dollar as international currencies by exploring the data and information available on the international uses of the euro and the US dollar, the extent to which *private* and *official* agents and institutions in the world use these two major currencies as a *store of value*, a *medium of exchange* and a *unit of account.*

Accordingly, section 3.1 provides the main economic indicators of the euro area and USA economies in the world. Section 3.2 focuses on the international private uses of the euro and the US dollar as a store of value (i.e. as financing and investment currencies). Section 3.3 deals with the international private uses of the euro and the US dollar both as a unit of account (i.e. invoicing currencies in the real economy) and as a medium of exchange (i.e. vehicle currencies in the foreign exchange market). Finally, Section 3.4 analyses the international official uses of the euro and the US dollar as a store of value (reserve currencies), a unit of account (anchor currencies) and a medium of exchange (intervention currencies).

3.1 Euro Area and USA Economies in the World

The US dollar and the euro are the world's two major currencies as determined by their domains of domestic use. As Mussa (2002) states the main use and usefulness of the US dollar is and will remain within the USA, symmetrically the use and usefulness of the euro is and will remain within the euro area. Moreover, these currencies' large domains of domestic use are highly open to international trade and financial transactions. This helps the US dollar and the euro play important roles as international currencies—that is, currencies used by non-residents.

The introduction of the euro created an area very similar to the USA with respect to the size of its economy. Table 3.1 compares the relative size of the USA and euro area economies in terms of population, output, and export of goods and services. The euro area countries have a population slightly larger than the population of the USA and economies with a combined gross domestic product (GDP) corresponding to about 75 percent of the size of the GDP of the USA. The US economy is one of the largest in the world, accounting for about 20.9 percent of world output in 2004. The establishment of economic and monetary union in Europe, linked through the euro, has created the world's another largest economy with a share of 15.3 percent in world output. The USA accounts for a lower share (10.4 percent) of world exports than does the current euro area (31.1 percent), as shown in Table 3.1.

Table 3.1
Shares of Countries / Country Groups in World GDP, Exports, and Population (2004)

	Share in World GDP* (%)	Share in World Export of Goods and Services (%)	Share in World Population (%)
USA	20.9	10.4	4.7
Euro area	15.3	31.1	4.9
Germany	4.3	9.5	1.3
France	3.1	4.8	1.0
Italy	2.9	3.8	0.9
Spain	1.7	2.4	0.7
United Kingdom	3.1	4.7	1.0
Canada	1.9	3.4	0.5
Japan	6.9	5.7	2.0

** The GDP shares are based on the purchasing-power-parity (PPP) valuation of country GDPs.*

Source: IMF, 2005b, p.198

The USA and the EU are the world's biggest economies and trading entities and it is natural that their currencies - the US dollar and the euro - should be seen as rivals (Dutta, 2005:355). If the UK, Denmark and Sweden were to join EMU,[13] EU-15[14] would equal the USA in economic size, as Table 3.2 shows. Although EMU membership is neither a necessary nor a sufficient condition for EU membership, many new member states and candidates expressed their intention to join the EMU (Ravenna, 2005). If the 10 countries

[13] When ratifying the Maastricht Treaty, the UK and Denmark were granted "opt-outs" (retaining control of these two countries' own monetary policies and keeping their own currencies) from replacing their national currencies with the euro while leaving the option open for the future. However, Sweden (unlike the UK and Denmark) does not have a formal opt-out from the monetary union. On September 14, 2003, a Swedish referendum was held on the euro, the result of which was a rejection of the common currency.

[14] EU-15 countries; Euro area countries plus United Kingdom, Sweden and Denmark

that acceded to the EU in May 2004 were also to join EMU, the EU–25[15] would be larger than the US economy.

Table 3.2
United States and European Union GDPs*
(2003-2005) (trillion US dollars)

	2003	2004	2005
USA	10.8	11.5	12.3
Euro area	8.3	8.7	9.0
EU-15	10.4	10.9	11.3
EU-25	11.3	11.9	12.4

** The GDP shares are based on the purchasing-power-parity (PPP) valuation of country GDPs.*

Source: IMF, 2006a, (01.09.2006)

The introduction of the euro has created a rival for the US dollar as an international money that has a domestic base of roughly the same size and general attractiveness as indicated by given statistics. Moreover, the weight of the euro area relative to the USA and the other economies is an important determinant to consider for the future role of the European currency in the international monetary system.

3.2 International Private Uses of the Euro and the US Dollar as a Store of Value: Euro and US Dollar as Financing and Investment Currencies

Section 3.2 below present comprehensive evidence of the euro's and US dollar's international financing and investment roles. In the meanwhile, euro and the US dollar use in international debt

[15] EU-25 countries; EU-15 countries plus countries which acceded to the EU on 1 May 2004. Bulgaria and Romania did not qualify for the first wave of eastward enlargement of the EU, but are expected to join by 2007.

securities, bank liabilities and bank assets will be highlighted in a detailed way.

This section firstly discusses the roles of the euro and the US dollar as international currencies in international debt securities[16] markets, which comprise both bonds and notes and money market instruments.[17] Table 3.3 shows the stock of international debt securities between the years 1998 and 2004. Total international debt securities was 4,280 billion US dollars in 1998 and increased to 14,664 billion US dollars in 2005 while bonds and notes comprises the lion's share compared to the money market instruments in international debt securities.

Table 3.3
International Debt Securities
(1998-2005) (billion US dollars) (end of year)

	1998	1999	2000	2001	2002	2003	2004	2005*
Bonds and notes	4,047.1	5,112.3	5,999.7	7,200.0	8,836.1	11,146.8	13,300.0	13,995.4
Money market instruments	233.0	359.2	493.8	397.7	437.8	569.3	663.8	648.9
TOTAL	4,280.1	5,471.5	6,493.5	7,597.7	9,273.9	11,716.1	13,963.8	14,644.3

** as of September*

Source: BIS, 2006b, (03.05.2006)

The bulk of international debt securities issuance is concentrated in a small number of currencies, particularly the US dollar, euro and Japanese yen. The currency shares are even more concentrated

[16] International debt securities issuance in a given country comprises non-residents' issuance in domestic and foreign currencies, residents' issuance in foreign currencies and residents' issuance in domestic currencies that target external investors (Detken and Hartmann, 2000:33–35).

[17] Bonds and notes have maturity at issuance of more than one year, while money market instruments (i.e., commercial papers, treasury bills) have maturity at issuance of up to one year.

than economic activity in the respective issuing countries (Cohen, 2005:6).[18] Table 3.4 shows US dollar, euro and Japanese yen currency shares in stock of international debt securities between the years 1994 and 2005. In 2005, the euro (and euro legacy currencies[19]) accounted for a share of around 44 percent of international debt securities market, compared with a share of 38 percent for the US dollar and 3 percent for the Japanese yen as seen in the table. The relatively low share of the Japanese yen confirms the limited use of this currency outside Japan. It can be said that international debt securities are somewhat more evenly distributed between the US dollar and the euro. This statistics also confirm Cohen (2005) who estimates aggregate issuance of international bonds and notes is significantly higher in strong currencies than in weak ones.

Table 3.4
Shares of Major Currencies in International Debt Securities* (1994-2005) (%) (end of year)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005 **
Euro ***	24	26	26	23	26	28	29	31	37	43	46	44
US Dollar	38	37	41	45	47	46	49	50	45	40	36	38
Japanese Yen	10	15	14	12	11	9	8	6	5	4	4	3

** Bonds and notes and money market instruments as a share of the total international debt securities at 1994 exchange rates*
*** as of September*
**** Between 1994 and 1999, euro legacy currencies are taken together as a group.*

Source: own calculations based on BIS, 2006a, pp. A90-91 and BIS, 2006b, (03.05.2006)

[18] For example, in 2004 the USA accounted for 20.9 percent of world GDP, but the US dollar was used in 36 percent of international debt securities issuance (see Tables 3.1 and 3.4). This reflects the status of the US dollar as a store of value outside the USA.

[19] The pre-euro currencies of monetary union member states of the EU (i.e., Deutsche mark, French franc, and Netherlands guilder)

Compared with end of 1998, which corresponds to the start of economic and monetary union, the euro's share of 26 percent has risen by 18 percentage points and reached to 44 percent in 2005, while the share of the US dollar declined to 38 percent from 47 percent between the years 1998 and 2005 in international debt securities as it is apparent from Table 3.4. International debt market issuance in euro has exceeded that in US dollars since the end of 2003. In international debt securities market, the euro has already moved to effective competition with the US dollar as an international currency and now is a clear alternative to the use of the US dollar.

The noticeable increase in euro's share and its performance against US dollar in international debt securities market since euro's introduction can be partly explained by an expected and actual increase in liquidity owing to the creation of an integrated financial market as a result of the EMU (De Larosière, 2005). As of January 1, 1999 the financial markets of euro area countries started operating in euros. Also, the new issuances of public debt have been denominated in euros since 1999. But more importantly, these countries have decided to denominate their public debt in terms of euro as well. For the first time, European investors who were used to investing in domestic government bonds could invest across borders without bearing any exchange rate risk. Due to lower transaction costs and wider investment opportunities, the adoption of the euro produced one large and liquid European bond market. These developments led to a significant increase in the liquidity of the European securities market. Moreover, the establishment of a single money market and the progress made towards further financial integration within the euro area bring

benefits both to euro area and non-euro area residents (Neamie, 2003).

According to the ECB (2005) data, European countries remain as one of the largest issuers and have increased their share in the stock of international debt securities. The other largest issuers of international debt securities are the international organizations and USA. Overall, issuers from developed economies account for most of the stock of international debt securities issued (ECB, 2005:20-23).

Table 3.5 provides an overview of the currency breakdown of the stock of international debt securities issued in different regions in early 2004, and a comparison with the situation in early 1999. International debt securities issuance in euro is most prominent in European countries and developed market economies (i.e, the USA and Japan). Despite euro's prominence in Japan (Geis *et al*. 2004:8), the US dollar plays a dominant role in Japan's international debt securities issuance as seen in Table 3.5. The largest issuance of international debt securities in euro is accounted for by Denmark, Sweden and the UK (ECB, 2005:22). Concerning international debt securities issuances in those three countries, around 53 percent are denominated in euro while the share of the US dollar is 37 percent in the first quarter of 2004. Moreover, for these countries, the share of the euro has increased by around 20 percentage points since the introduction of the euro.

Table 3.5
Shares of Euro and US Dollar in International Debt Securities Issuance in Selected Regions* (1999-2004)

	US dollar		Euro		Japanese yen		Other currencies	
	Share (%) 2004 Q2	Percentage point Change vis-à-vis 1999 Q1 (%)	Share (%) 2004 Q2	Percentage point Change vis-à-vis 1999 Q1 (%)	Share (%) 2004 Q2	Percentage point Change vis-à-vis 1999 Q1 (%)	Share (%) 2004 Q2	Percentage point Change vis-à-vis 1999 Q1 (%)
Africa	53.3	-10.1	27.7	17.4	10.7	-12.3	8.2	4.9
Asia and Pacific	68.9	2.0	16.8	8.0	5.5	-7.4	8.8	-2.5
Japan	59.0	-1.1	32.0	14.7	--	--	9.0	-13.6
Europe	44.0	-4.2	28.7	14.3	9.1	-11.4	18.3	1.3
Euro area	52.9	1.3	--	--	13.5	-10.6	33.6	9.3
Denmark, Sweden and UK	37.1	-4.5	52.6	19.9	5.2	-12.0	5.1	-3.3
New Member States	13.2	-15.5	75.4	34.8	7.1	-19.7	4.3	0.4
EU-25	44.0	-3.1	28.1	14.2	9.2	-12.3	18.6	1.1
*Non-EU developed Europe***	31.2	-23.4	41.5	20.0	9.1	-0.3	18.2	3.6
Non-EU developing Europe	68.0	-7.0	28.4	6.9	3.6	0.3	0.0	-0.2
International organisations	37.3	8.6	27.6	-11.0	7.7	-3.8	27.4	6.2
Latin America	76.0	3.0	19.8	-0.1	3.2	-2.1	0.9	-0.8
Middle East	74.5	30.5	22.6	-10.3	2.6	-19.6	0.3	-0.6
North America	22.5	-10.9	50.4	19.9	10.6	-5.6	16.5	-3.3
Canada	72.2	1.7	12.5	0.7	5.6	-4.5	9.7	2.1
USA	--	--	67.6	20.1	12.8	-8.9	19.6	-11.2
Offshore centers	41.0		32.2	17.4	17.9	-10.5	8.9	11.7
Total	43.8	-2.1	30.6	9.5	9.7	-8.2	16.0	0.8

**excluding home currency issuance and at constant 1994 Q1 exchange rates*
*** Iceland, Norway, Switzerland and European microstates (Andorra, Liechtenstein, Monaco, San Marino and Vatican City)*

Source: ECB, 2005, p. 22

In terms of changes in the relative shares of currencies, the euro's role as an international financing and investment currency has advanced most significantly in the new member states of the EU.

Indeed, the share of the euro in the stock of international debt securities issued in those countries has risen by around 35 percentage points. The euro's share has increased by 20 percentage points and now accounts for around two-thirds of the total stock of international securities issued by US residents. The share of US dollar denominated debt securities in the total international debt securities issued by euro area residents accounted for around 53 percent in the first quarter of 2004.

By contrast, borrowers from non-EU developing market economies have made comparatively little use of the euro. International debt securities issuance in euro is relatively small in those regions where the issuance is dominated towards the US dollar. In the Asia-Pacific region, the euro's share in international debt securities stands at 17 percent, even though it has increased 8 percentage points between the years 1999 and 2004. There is no change in the share of the euro in Latin America, while the share of the euro has actually declined in the Middle East. In these regions the dominance of US dollar can easily be seen from Table 3.5.

As a result, the aforementioned regional breakdown information on international debt securities provides that the internationalisation of the single currency (euro) is strongly focused on the euro area's neighbouring regions, in particular non-euro area EU member States, and developed market economies while the US dollar is issued more globally.

Another indicator concerning the use of the euro and US dollar as international financing and investment currencies is international bank liabilities. Table 3.6 shows the total international bank liabilities and Table 3.7 depicts the shares of US dollar and euro in

banks' liabilities between the years 1994 and 2005. Total international bank liabilities was 7,150 billion US dollars in 1994, 9,720 billion US dollars in 1998 and increased to 19,606 billion US dollars in 2005.

Table 3.6
International Banks' Liabilities
(1994-2005) (billion US dollars) (end of year)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005*
Liabilities	7,150	7,831	8,100	9,118	9,720	9,618	10,420	11,187	12,851	15,359	18,111	19,606

** as of September*

Source: BIS, 2006, p. A16 and BIS, 2006b, (09.05.2006)

Table 3.7
Shares of Euro and US Dollar in International Banks' Liabilities (1994-2005) (%) (end of year)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005*
US dollar	43,0	40,6	41,5	44,6	43,3	45,8	48,4	49,9	46,2	44,1	42,9	44,6
Euro	23,6	24,5	24,1	21,2	23,5	23,9	23,1	24,4	28,7	32,0	33,6	32,2

** as of September*

Source: own calculations based on BIS, 2006a, p. A16 and BIS, 2006b, (09.05.2006)

Between the end of 1998 and 2005, a rise of 8,6 percentage points can be observed in the share of the euro in international bank liabilities, bringing it to 32,2 percent against 44,6 percent for the US dollar in 2005. As seen from the Table 3.7, despite its increasing share, euro is still the second currency after US dollar in the currency distribution of international bank liabilities.

Quantitative evidence on the roles of the euro and US dollar as financing and investment currencies can also be assessed on the basis of comprehensive statistics based on international bank assets data. Table 3.8 shows the total international bank assets

and Table 3.9 indicates the shares of US dollar and euro in banks' assets between the years 1994 and 2005. Total international bank assets was 6,520 billion US dollars in 1994, 9,733 billion US dollars in 1998 and increased to 20,701 billion US dollars in 2005.

Table 3.8
International Banks' Assets
(1994-2005) (billion US dollars) (end of year)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005*
Assets	6,520	7,116	8,166	8,784	9,733	9,964	10,173	11,273	12,611	14,993	17,700	20,701

** as of September*

Source: BIS, 2006a, p. A16 and BIS, 2006b, (21.04.2006)

Table 3.9
Shares of Euro and US Dollar in International Banks' Assets
(1994-2005) (%) (end of year)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005*
US Dollar	42,5	41,9	39,7	40,5	40,5	41,4	46,3	47,0	44,9	42,4	41,6	40,7
Euro	23,6	25,8	23,5	21,4	22,6	27,8	29,0	29,5	32,7	40,2	42,7	37,7

** as of September*

Source: own calculations based on BIS, 2006a, p. A16 and BIS, 2006b, (21.04.2006)

Developments in the share of the euro in international bank assets are slightly more dynamic than that in bank liabilities, nevertheless less so than that in international debt securities. As seen from Table 3.9, the share of the US dollar was decreasing while the share of the euro increasing from the end of 2001 to September 2005. The share of the euro exceeded the share of the US dollar in the end of 2004 for the first time. The share of the euro increased by 15,1 percentage points between the end of 1998 and September 2005. The euro's share in international bank assets was

equal to 37,7 percent while the US dollar's share was 40,7 percent in September 2005. However, the euro is the second most widely used international currency after the US dollar in 2005. Thus, international bank assets are somehow equally distributed between these two major currencies.

3.3 International Private Uses of the Euro and the US Dollar as a Unit of Account and a Medium of Exchange

By contrast with the uses of the euro and the US dollar as a store of value, which involves the international financial markets, the uses of the euro and the US dollar as a unit of account and a medium of exchange are relevant both to the real economy (Section 3.3.1) and to the financial markets (Section 3.3.2).

This section gives an overview of the international roles of the euro and the US dollar in international trade and foreign exchange markets by considering the roles of the euro and the US dollar as invoicing and vehicle currencies.

3.3.1 Euro and US Dollar as Invoice Currencies (Unit of Account)

This section analyses the role of the euro and the US dollar as invoicing currencies in international trade in goods and services, with a particular emphasis on the EU countries' external trade. This is the dimension where details on the currency invoicing of international trade transactions are very limited.

Although data on the currency of invoicing in total world trade are limited, the available data confirms the dominance of US dollar. In

Table 3.10, the situation of currency invoicing of international trade is shown in terms of major currencies in the years 1980 and 1995. As it is clear from Table 3.10, the US dollar was by far the dominant international currency in trade invoicing, although its role gradually reduced between the years 1980 and 1995. In 1995, US dollar was used as the invoice currency for more than half of world exports, down only slightly from 1980. The Deutsche mark was the next most popular invoice currency, used for approximately 13 percent of world exports, followed by the French franc and the pound sterling. The combined share of the four major European currencies[20] was less than half that of the US dollar. The US dollar was the only currency whose use in world trade far surpasses its country share in world trade, as shown by its internationalisation ratio[21] in Table 3.10. The internationalisation ratio of US dollar, which is defined as the ratio of the invoicing share of US dollar in world exports to the share of the US in world exports, and which gives an indication of the extent to which US dollar played a role as an international currency, was almost three times higher than the internationalisation ratio of the Deutsche Mark in 1995.

[20] Deutsche mark, French franc, Italian lira and the Netherlands guilder

[21] The internationalisation ratio is the ratio of the share of world exports denominated in a currency to the share of the issuing country in world exports. An internationalisation ratio greater than 1 implies that other countries use the currency to invoice their exports.

Table 3.10
Currency Use in International Trade (1980-1995)

Currency	Percent of world exports		Internationalization ratio	
	1980	1995	1980	1995
US dollar	56.4	52.0	4.5	3.9
Japanese yen	2.1	4.7	0.3	0.6
Pound sterling	6.5	5.4	1.1	1.1
Euro-4 *	24.6	24.8	NA	NA
Deutsche mark	13.6	13.2	1.4	1.4
French franc	6.2	5.5	0.9	1.0
Italian lira	2.2	3.3	0.5	0.8
Netherlands guilder	2.6	2.8	0.7	0.9

** Euro-4 is the share of the four euro legacy currencies listed in the table. No data were available for the other euro-area currencies. World exports includes intra-euro-area trade.*

Source: Bekx, 1998, p.8

The twenty-nine countries for which trade invoicing information are available; eight euro area countries (France, Germany, Italy, Belgium, Luxembourg, Italy, Spain, and Portugal), ten new European Union member states which acceded to the EU in May 2004, plus the USA, the UK, Japan, South Korea, Malaysia, Thailand, Australia, Bulgaria, Tunisia, Ukraine and Turkey.[22]

De La Maisonneuve *et al.* (2004) says that there has been an increase in use of euro as an invoicing currency within the EU because EMU has fostered deep integration via the single market by boosting trade linkages and reducing transaction costs within the EU. Available information on trade invoicing reveals that the share of euro as an invoicing currency in extra-euro area trade has

[22] Turkey's case will be analysed in a detailed way in Chapter 4

also increased for most of the euro area countries especially in the case of exports.[23]

Table 3.11 shows the US dollar and euro shares of trade invoicing in euro area countries in the years 2000 and 2002. As seen in the table approximately one third of the exports of most euro area countries to countries outside of the euro area are invoiced in US dollars. In 2000, share of the euro was higher than the US dollar in most euro-area countries' invoicing of exports while the case was vice versa in most euro-area countries' invoicing of imports as seen from Table 3.11. However, in 2002 share of the euro was higher than the US dollar in most euro-area countries' invoicing of both exports and imports (see Table 3.11). The euro's share was less than the US dollar's share only in Greece's foreign trade invoicing among the euro-area countries although the euro's share was increasing slightly for Greece between the years 2001 and 2002.

[23] ECB (2005: 36) explains this fact with Grassman's Law. According to this law, exporters are typically in a better position to enforce their currency preferences compared to importers.

Table 3.11
Shares of US Dollar and Euro in Merchandise Trade Invoicing in Euro Area Countries* (2000-2002) (%)

Invoicing Patterns in 2000				
	Exports		Imports	
	Share of Euro	Share of Dollar	Share of Euro	Share of Dollar
Belgium**	46.7	--	46.6	--
France	50.3	33.4	37.5	46.1
Greece**	15.6	76.9	25.4	65.3
Italy	66.2	24.8	59.8	34.3
Portugal	39.6	38.9	47.9	40.0
Spain	49.3	41.3	43.7	48.2
Invoicing Patterns in 2002				
	Exports		Imports	
	Share of Euro	Share of Dollar	Share of Euro	Share of Dollar
Belgium	53.9	31.9	54.4	33.5
France	55.8	34.2	48.6	43.3
Germany	49.0	31.6	48.0	34.5
Greece	21.0	71.1	31.0	62.0
Italy***	74.9	17.5	70.2	24.9
Luxembourg	44.0	35.7	31.7	38.0
Portugal	48.1	33.4	57.8	34.5
Spain	58.1	32.8	54.7	39.5

** currency shares for euro area countries are for extra-euro area trade only except for Italy. Italy's share is for both intra-euro area and extra-euro area trade*
*** data for 2001 instead of 2000 figures*
**** data for 2003 instead of 2002 figures*
(--) stands for "data not available"

Source: ECB, 2005, pp.35-37; Goldberg, 2005, p.36

It can be derived from Table 3.11 that for the euro area countries, much of the recent gains in invoicing by the euro have been due to substitution away from US dollar use between the years 2000 and 2002, except in the case of French exports.

The ten new member states' data are presented in Table 3.12, with the top panel providing details for 2000, and the lower panel providing details for 2002, the last year for which US dollar invoicing data are widely available.

Table 3.12
Shares of US Dollar and Euro in Merchandise Trade Invoicing in the New EU Member States (2000-2002) (%)

Invoicing Patterns in 2000				
	Exports		Imports	
	Share of Euro	Share of Dollar	Share of Euro	Share of Dollar
Bulgaria	37.0	60.1	47.0	50.2
Czech Republic*	65.4	14.1	63.1	19.7
Latvia	35.5	43.6	--	--
Invoicing Patterns in 2002				
	Exports		Imports	
	Share of Euro	Share of Dollar	Share of Euro	Share of Dollar
Bulgaria	52.0	44.5	60.0	37.1
Cyprus **	21.8	44.7	45.5	34.9
Czech Republic	68.8	14.7	65.0	19.5
Estonia	65.0	8.5	59.0	22.0
Hungary	83.0	12.2	73.0	18.5
Latvia	47.7	32.1	39.0	--
Lithuania	18.0	--	48.0	--
Malta	--	--	34.7	48.8
Poland	60.0	29.9	60.0	28.6
Slovakia	73.9	11.6	60.1	21.2
Slovenia	87.0	9.6	83.0	13.3

** data from 2001 instead of 2000 figures*
*** Greek Cypriot Administration of Southern Cyprus*
(--) stands for "data not available"

Source: Goldberg, 2005, p.13; ECB, 2005, pp.36-37

The ten new member states invoice their imports and exports largely in euros in 2002 as it is apparent in Table 3.12. The role of the euro in export invoicing is high, ranging from 18 percent for Lithuania to over 60 percent for the Czech Republic, Estonia, Hungary, Poland, Slovakia, and Slovenia. With exception of Cyprus[24], the data indicate a significantly smaller share of exports and imports invoiced in US dollars. For example, exports of the Czech Republic invoiced in euro was 65.4 percent in 2001 and rose

[24] Greek Cypriot Administration of Southern Cyprus

to 68.8 percent in 2002. Also, the use of the euro in the Czech Republic's imports was 63.1 percent in 2001 and rose to 65.0 percent in 2002 (see Table 3.12). The sum of euro and US dollar shares in import and export invoicing for some states (i.e., Czech Republic and Estonia) are closer to 80 percent. It is evident that some other currencies still play an important role in invoicing trade of these states.

As seen from Tables 3.11 and 3.12 there are only a few countries for which invoicing data are available both for 2000 and 2002 and which provide us with perspective on how invoicing patterns are changing over time. The euro has grown in its role as the currency used in invoicing both export and import transactions in all of these countries.

Among the new member and candidate countries, the biggest increase in euro share in invocing exports is for Bulgaria, at almost 8 percentage points from 2000 to 2002, followed by Latvia at 6 percentage points, and the Czech Republic at under 2 percentage points during the same period (see Table 3.12).

Also it is important to add that the increase in the use of euro in trade invoicing by new member states has been within a similar range with the euro area countries. Many new member states have moved sharply away from the US dollar as a currency for invoicing international trade transactions (Goldberg, 2005). Among those countries for which there is comparable data for the new EU member states, the growth of euro use is at the expense of US dollar use in invoicing for Bulgaria and Latvia, but not in the case of the Czech Republic. Even in 2002, the Czech Republic had very low shares of US dollar invoicing of foreign trade (see Table 3.12).

Table 3.13 shows the use of the euro and US dollar in the invoicing of exports and imports in USA, the UK, Japan, South Korea, Malaysia, Thailand, Australia, Tunisia and Ukraine. As it is seen in Table 3.13, more than 95 percent of US exports and 85 percent of US imports were invoiced in US dollars in 2003. The use of US dollar in US export and import transactions depends on the trading partner (USITC, 2006). According to Goldberg (2005), US exports to and imports from Latin America, China, Mexico, and most small countries, are almost exclusively invoiced in US dollars. By contrast, foreign currencies appear more prominently in the invoicing of USA imports from the EU, the UK, and Japan. About 25 percent of USA imports from Germany are invoiced in euro. USA imports from the rest of the world are overwhelmingly invoiced in US dollars.

Table 3.13
Euro and US Dollar Use in Merchandise Trade Invoicing of Some Countries (1996-2003) (%)

		Currency Share in Export Invoicing, %		Currency Share in Import Invoicing, %	
	Latest Year	US Dollar	Euro	US Dollar	Euro
USA	2003	95.0	--	85.0	--
UK	2001	40.0	23.0	61.0	19.0
Japan	2001	52.4	--	70.7	--
South Korea	2001	84.9	--	82.2	--
Malaysia	1996	66.0	--	66.0	--
Thailand	1996	83.9	--	83.9	--
Australia	2002	67.9	1.4	67.9	8.7
Tunisia	2001	--	52.0	--	56.0
Ukraine	2003	--	15.0	--	5.0

(--) stands for "data not available"

Source: Goldberg, 2005, p.42; ECB, 2005, pp.36-37

Looking across countries in Table 3.13, the US dollar is used intensively in the UK trade transactions, on 40 percent of UK total exports and 61 percent of the UK imports in 2001. The US dollar remains a dominant currency in the invoicing of both exports and imports by countries outside of Europe. Both South Korea and Thailand use US dollar in invoicing more than 80 percent of their export and import transactions. For Japan, Australia, and Malaysia, US dollar is used in more than 50 percent of trade transactions. Lim (2006) argues that a large part of Japan's trade is US dollar invoiced because of its large USA trade and large primary imports. Euro has the largest share in foreign trade invoicing of Tunisia while the case is not so for Ukraine.

Examining the role of US dollar in international trade, two country groups stand out. The above given statistics (see Tables 3.11 and 3.12) show that the countries in the euro area and new EU member states are more likely to invoice their exports in the euro. This has led to the decline of US dollar's share in EU country's foreign trade. The second group of countries is in South East Asia whose exports mainly go to the USA (ITC, 2006) and the role of US dollar as an invoicing currency is high in their foreign trade. This possibly reflects the role of the USA as a trading partner with these countries.

One of the reasons brought about in explaining the extensive use of the US dollar in international trade is that energy prices are quoted in US dollars. Oil producing countries receive their oil revenues in US dollars but use also other currencies to buy goods and services from different nations. As Wenhao (2004) and Bénassy-Quéré (1996) argue, even the small decline in the use of

US dollars since 1980 seems to be due to the decline in the share of oil trade in the world.

Examining the share of energy and raw materials (especially oil and natural gas) in countries' imports may be of interest in discussing the roles of US dollar and euro in trade invoicing. Table 3.14 shows the share of the energy and raw materials in euro area trade in goods between the years 1999 and 2002. In addition, Table 3.15 shows the USA and euro-area and other EU member countries' shares in world oil and natural gas imports and the shares of oil and natural gas imports in countries' total imports. It is important to note that 9 percent of all world imports was oil and natural gas in 2004[25] and the shares of oil and natural gas imports comprises important shares in countries' total imports as indicated in Table 3.15. The share of energy products (mainly oil and gas) in euro area imports stood between 10 percent and 15 percent during 1999-2002. Adding raw materials, the share in euro area imports of products quoted internationally in US dollars increased from 15 percent to 21 percent in the same period (see Table 3.14). With regard to exports, this share remained within a lower range of 4-5 percent. In 2004, the share of the USA in world oil and natural gas import was 22 percent, while this share was 24 percent for euro area-12, 28 percent for EU-15 and 30 percent for EU-25 as shown in Table 3.15.

[25] Total world import of all products was 9,211 trillion US dollars and world import of oil and natural gas was 848 billion US dollars in 2004 (ITC, 2006), (27.03.2006).

Table 3.14
Share of Energy and Raw Materials in Euro Area Merchandise Trade (1999-2002) (%)

	1999	2000	2001	2002
Imports				
Energy products *	10.0	14.3	13.9	15.7
Raw materials	5.0	4.8	4.6	5.4
Total	15.0	19.1	18.5	21.1
Exports				
Energy products *	1.6	2.3	2.1	2.3
Raw materials	2.0	1.9	1.8	2.3
TOTAL	3.6	4.2	3.9	4.6

** mainly oil and gas*

Source: ECB, 2002, p.42

Table 3.15
USA and the EU Shares in Oil and Natural Gas Imports in the World and Shares of Oil and Natural Gas in Countries' Total Imports[26] (2004) (%)

	Countries' Shares in World Imports of Oil and Natural Gas (%)	Shares of Oil and Natural Gas in Countries' Total Imports (%)
USA	22	12
Euro area-12	24	7
EU-15	28	7
EU-25	30	7
World Total	100	9

Source: own calculations based on ITC, 2006, (27.03.2006)

As it is clear in Table 3.15, the shares of the USA and euro area are nearly equal in world oil and natural gas import. Although the shares are nearly equal; as long as international prices of oil continue to be invoiced in US dollar, the euro area's trade in both

[26] In calculating oil and natural gas importation in the world, Harmonised System (HS) codes; 2709.00 (Petroleum oils and oils obtained from bituminous minerals, crude), 2710.00 (Petroleum oils and oils obtained from bituminous minerals, other than crude, etc.) and 2711.11 (Natural gas, liquefied) are taken into consideration.

energy and raw materials will probably continue to be invoiced and settled in US dollars.

The most important good in the world market is certainly oil and EU-25 was the largest importer of oil from the rest of the world, most of which comes from Africa, Middle East and Eastern Europe (ITC, 2006). Bearing this in mind, the expectation that the euro can challenge the US dollar as the main invoicing currency has gained some credibility. In other words, because the EU as a whole is the largest importer of certain goods than its competitors, then the euro could replace the US dollar for these goods. Given this, it can be said that Europe's oil trade with Africa, Middle East and Eastern Europe may switch from US dollar to euro some time in the future, while the rest of oil trade remains US dollar denominated.

But at present the major markets for energy products (mainly oil and gas) are in the UK and the USA, and they function mainly in US dollars as mentioned, which will even strengthen the network advantages of US dollar, in particular if UK stays outside the euro area. These arguments point to the potential inertia in commodities invoicing which may favor incumbency - the US dollar for quite a long time.

A process which would be favorable for the euro's competitiveness with US dollar is UK's joining the euro area. London is the most important financial center in foreign exchange markets in Europe. This would shift the London commodity markets (International Petroleum Exchange, London Metal Exchange, etc.,) to the euro area, also probably improving the international role of the euro to a great extent. Although a period is needed to harmonize the market if UK joins the euro area, the role of London as an international

financial center, and the depth of its markets should give a boost to the euro as an attractive invoicing currency (Steinherr, 2002 and Wenhao, 2004).

Moreover, the large economic base of the euro and the elimination of the transaction costs involved with multiple exchange rates are likely to increase gradually the use of the euro as a unit of account in the denomination of trade flows in transactions between the euro area and other economies, especially in developing ones. Therefore, a change in invoicing patterns relating to changing patterns of trade may be expected in parallel between the euro area and other economies in the medium and long terms. As a consequence of increased invoicing in euros, exporters in developing economies may find market access has been made easier because of lower transaction costs within the euro area. Before the introduction of euro, transaction costs within the EU were estimated from 13 to 50 billion euros by several institutions including European Commission (Töre, 2001:57). The euro makes trade within the EU easier by eliminating exchange rate uncertainty and allowing companies to compare costs. These benefits are particularly pronounced for many businesses within Europe and world-wide that trade with Europe, are establishing euro bank accounts for business in euros. For example, English corporations such as British Petroleum and Rover Group opened euro bank accounts for business in euros (EP, 1999). Many Swiss companies are pricing products and services in euros. Yet, neither the UK nor Switzerland has yet made the euro their national currency.

In light of the situation considered so far, the issue is whether or not the euro is used more than the sum of European currencies. The euro can be expected to have a major and increasing world-

wide role as an invoicing currency. At the global level, it is likely that the increase in the use of euro would be only gradual due to a strong inertial bias to the use of the US dollar since the end of the Bretton Woods system, which in turn is due to the low transaction costs of the US dollar. The mere creation of the euro as a currency should provide ample incentive for its use as an invoicing currency. Replacing the currencies of 12 countries with a single currency reduces the transaction costs involved in currency exchanges and deepens the integration and reinforces the efficiency of European product and capital markets. This integration indicates that the euro would carry more weight than the Deutsche Mark did. However, available information reveals that the US dollar is the world's dominant invoice currency at this moment despite the increasing role of the euro.

3.3.2 Euro and US Dollar as Vehicle Currencies (Medium of Exchange)

A vehicle currency (X) can be defined as a currency that is used in the foreign exchange market as a means to exchange two other currencies, so that currencies Y and Z are not exchanged directly but via X in two transactions as discussed in Chapter 2. There are no direct data available on vehicle currencies, but this information can be derived from the shares of currencies in foreign exchange transactions. In foreign exchange markets, most transactions between relatively inconvertible currencies are carried out via vehicle currencies due to the low transaction costs as discussed in Chapter 2. The use of a currency as a vehicle in the foreign exchange market can be assessed in a way by considering currency composition of trading volumes in foreign exchange markets.

While the US dollar was the main global vehicle currency during the 1960s, 1970s and early 1980s, the Deutsche mark emerged as a regional vehicle currency in the late 1980s/early 1990s, mainly as a result of the existence of the ERM.[27] In the mid-1990s, US dollar continued to serve as a global vehicle currency, while the role of the Deutsche mark was largely limited to trade between the currencies of the EU (Pollard, 2001 and ECB, 2001). No other currency in the world has been identified to play a significant vehicle role until the introduction of the euro. The introduction of the euro has given rise to partly counterbalancing effects against the US dollar as a global vehicle currency.

With regard to trading volumes in foreign exchange markets, according to BIS (2005) data,[28] average daily turnover in traditional foreign exchange markets was estimated at 1,880 billion US dollars in April 2004 compared to 1,200 billion US dollars in April 2001, a 57 percent increase in three years at current exchange rates. Turnover in foreign exchange markets rose in 2004 compared with the year 2001 but particularly in the spot market[29] (from 387 US dollars billion to 621 billion US dollars) and forward markets[30] (from 131 billion US dollars to 208 billion US

[27] The European Exchange Rate Mechanism (ERM) is based on the concept of fixed currency exchange rate margins, but with exchange rates variable within those margins. The ERM was a system introduced by the European Community in March 1979, as part of the EMS, to reduce exchange rate variability and achieve monetary stability in Europe, in preparation for EMU and the introduction of a single currency (euro).

[28] Every three years, the Bank for International Settlement (BIS) conducts a comprehensive survey to estimate foreign exchange activity. The last Triennial Survey took place in 2004, meaning that the most recent data available belongs to this year.

[29] A market in which commodities are bought and sold for cash and delivered immediately, also called cash market.

[30] A market in which there is one party to buy and another party to sell a commodity or currency at a specific future date.

dollars). Trading volumes in foreign exchange swaps[31] increased from 656 billion US dollars to 944 billion US dollars (BIS, 2005:6).

Table 3.16 shows US dollar, euro, Japanese yen and Deutsche mark shares of average daily turnover in foreign exchange markets for the years 1992, 1995, 1998, 2001 and 2004. Although there was a strong growth in global foreign exchange market turnover between 2001 and 2004, there were no important changes in the currency composition of turnover in foreign exchange markets. US dollar continued to be the most widely traded currency, with 89 percent of all transactions in 2004, compared to 90 percent in 2001. In addition, US dollar remained the dominant currency in foreign exchange markets in most emerging market countries, including the biggest trading centers in Eastern Europe (BIS, 2005:58). The euro was involved in 37 percent of all foreign exchange transactions. BIS (2005) also indicates that the euro's role in global spot trading is similar to that of the Deutsche mark prior to the EMU.

[31] An exchange of streams of payments over time according to specified terms in foreign exchange markets.

Table 3.16
Currency Distribution of Foreign Exchange Market Turnover (1992-2004) (as a percentage* of total transactions settled) (as of April)

	1992	1995	1998	2001	2004
US Dollar	82.0	83.3	87.3	90.3	88.7
Euro	--	--	--	37.6	37.2
Deutsche Mark	39.6	36.1	30.1	--	--
French Franc	3.8	7.9	5.1	--	--
Pound Sterling	13.6	9.4	11.0	13.2	16.9
Danish Krone	0.5	0.6	0.4	1.2	0.9
Swedish Krone	1.3	0.6	0.4	2.6	2.3
Norwegian Krone	0.3	0.2	0.4	1.5	1.4
Polish zloty	--	--	0.1	0.5	0.4
Czech Koruna	--	--	0.3	0.2	0.2
ECU[32] and EMS currencies	11.8	15.7	17.3	--	--
Japanese Yen	23.4	24.1	20.2	22.7	20.3
All currencies	200	200	200	200	200

** Because two currencies are involved in each transaction, the sum of the percentage shares of individual currencies totals 200 percent instead of 100 percent.*

Source: BIS, 2005, p.10

Table 3.17 shows the shares of currencies in foreign exchange transactions by focusing on spot, forward and swaps transactions in 1998 and 2004. In 1998, the US dollar was involved in 87.4 percent, the euro legacy currencies were involved in 52.2 percent of all exchanges. The Deutsche mark was the most often traded of the euro legacy currencies. In 2004, the share of the euro was 37.2 percent and its share was only 7 percent higher than the Deutsche mark's share in 1998. The US dollar's dominance was especially clear in swaps transactions both in 1998 and 2004. In 2004, US dollar was involved in 81.8 percent of all forward trades compared

[32] The European Currency Unit (ECU) was a composite basket of currencies in which each currency is weighted according to its share in intra-European trade, its share in EU gross national product, and the relative importance of each country's foreign exchange reserves. The ECU was created in 1979 by nine European nations to promote currency stability in the European Economic Community. As of January 1, 1999, the ECU was converted into the euro at a one-for-one basis.

with the euro's share of 42.4 percent. In swaps the contrast was even greater. US dollar was involved in 92.6 percent of all swaps, with the euro taking part in 31.6 percent of all swaps trades. The use of US dollar in foreign exchange transactions was well above its use in international trade and debt contracts, indicating its role as a vehicle currency.

Table 3.17
Foreign Exchange Market Transactions Involving Selected Currencies (1998-2004) (as a percentage* of total transactions settled) (as of April)

	US dollar		Euro **		Deutsche mark		Japanese yen		Pound sterling	
	1998	2004	1998	2004	1998	2004	1998	2004	1998	2004
Spot	78.8	85.1	56.8	43.9	42.7	--	24.7	21.0	11.6	13.3
Forwards	81.4	81.8	50.7	42.4	28.0	--	26.7	22.6	12.3	15.1
Swaps	95.2	92.6	48.8	31.6	20.0	--	16.7	19.3	10.2	19.6
Total	87.4	88.7	52.2	37.2	29.8	--	20.8	20.3	11.0	16.9

** Because two currencies are involved in each transaction, the sum of the percentage shares of individual currencies totals 200 percent instead of 100 percent.*
*** Euro area includes the currencies of the current member countries plus the Danish krone and the ecu.*

Source: BIS, 1999, p.50; BIS, 2005, p.48

Table 3.18 shows the shares of foreign exchange market turnover by currency pair between the years 1995 and 2004. As shown in the table, US dollar/euro continued to be by far the most widely traded currency pair in April 2004, capturing 28 percent of global turnover, slightly less than in 2001, followed by US dollar/Japanese yen with 17 percent (20 percent in 2001).

Table 3.18
Shares of Foreign Exchange Market Turnover by Currency Pair (1995-2004) (%) (as of April)

	1995	1998	2001	2004
US dollar/euro	-	-	30	28
US dollar/Deutsche mark	22	20	-	-
US dollar/French franc	4	4	-	-
US dollar/ECU	2	1	-	-
US dollar/other EMS	9	12	-	-
US dollar/Japanese yen	21	18	20	17
US dollar/Pound sterling	7	8	11	14
Euro/ Japanese yen	-	-	3	3
Euro/Pound sterling	-	-	2	2
Deutsche mark/ Japanese yen	2	2	-	-
Deutsche mark/Pound sterling	2	2	-	-
Deutsche mark/French franc	3	1	-	-
Deutsche mark/ECU	1	0	-	-
Deutsche mark/other EMS	3	2	-	-
All currency pairs	100	100	100	100

Source: BIS, 2005, p.10

Examining the specific currency pairs from Table 3.18, one can see that euro's role in foreign exchange market turnover by currency pair is also similar to that of the Deutsche mark prior to the EMU. For example, Deutsche mark/Pound sterling currency pair shares in 1995 and 1998 are both equal to euro/Pound sterling currency pair shares in 2001 and 2004. However, there was only a 1 percentage point increase in euro/Japanese yen currency pair shares in 2001 and 2004, compared to Deutsche mark/Japanese yen currency pair shares in the years 1995 and 1998. It can be said that, with the introduction of the euro, market participants might have preferred to use the more familiar US dollar as the main vehicle (inertia effect) instead of shifting from the US dollar to the euro.

The role of the euro as a vehicle currency depends mainly on the size of the transaction costs associated with exchanging the euro. The size of the euro market as compared to that of the existing

national currencies is likely to result in a lower level of transaction costs, and should therefore increase the euro's potential as a vehicle currency as compared to that of the existing national currencies. The increasing use of the euro as a vehicle also benefits from its increased use as an invoicing currency in international trade and from its growing role in international capital markets, in the world's wealth portfolio, and as a reserve currency. These developments are expected to occur only gradually. It can also be expected that the potential role of the euro as a vehicle currency will only be developed gradually. However, it is not to be expected that the euro, in the medium term, rival US dollar as a vehicle currency in foreign exchange markets. But as euro securities markets become deeper and more liquid and transaction costs fall, euro assets become more attractive. The associated rise in the relative volume of euro transactions in the foreign exchange markets then in turn reduce the relative cost of using the euro as a vehicle currency.

In conclusion, the US dollar remains the dominant international vehicle currency at present and for the foreseeable future, while the euro has inherited a vehicle currency role from the Deutsche Mark. At present, on the basis of the information available, the euro does not play a significant role as a global vehicle currency.

3.4 International Official Uses of the Euro and the US Dollar

The official use mainly refers to the euro's and the US dollar's roles in third countries' monetary and exchange rate policies, in the form of a reserve currency (Section 3.4.2), anchor currency (Section 3.4.1), and an intervention currency (Section 3.4.3).

3.4.1 Euro and US Dollar as Reserve Currencies (Store of Value)

Pollard (2001) states that in 1973 US dollar accounted for 76.1 percent of the official foreign exchange reserves held by the member countries of the IMF. On the other hand, the euro legacy currencies had an 8.7 percent share in foreign exchange reserves, and the pound sterling had a 5.6 percent share. US dollar's share in foreign exchange reserves declined in the late 1970s as some countries diversified their holdings and shifted primarily into euro legacy currencies, particularly Deutsche mark. Although US dollar's share fell again in the late 1980s, it somewhat increased in the 1990s (IMF, 2005a; Pollard, 2001).

Table 3.19 shows foreign exchange reserves[33] of all, industrial and developing countries between the years 1999 and 2005. Foreign exchange reserves nearly doubled during this time and these reserves rose to 2,538 billion SDRs[34] in March 2005.[35] Developing countries held 65 percent of all foreign exchange reserves (1.6 trillion SDRs) at the end of 2004, increasing their holdings by 102 percent in the 1999- 2004 period. Within the same period, foreign exchange holdings of industrial countries rose by 60 percent to 845 billion SDRs.

[33] Total international reserves (including gold) were 2.737 trillion SDRs at the end of 2004. Foreign exchange reserves comprised 92.7 percent in total international reserves at the end of 2004 (IMF, 2005a:107).

[34] SDR (Special Drawing Rights) is an international reserve asset, created by the IMF in 1969 to supplement the existing official reserves of member countries. SDRs are allocated to member countries in proportion to their IMF quotas. The SDR also serves as the unit of account of the IMF and some other international organizations. Its value is based on a basket of key international currencies (US dollar, euro, pound sterling, etc.,) (Mundell, 2003 and IMF, 2006b).

[35] See ECB (2006) for the reasons of this increase of global foreign exchange reserves between the years 1999 and 2005.

Table 3.19
Total Foreign Exchange Reserves
(1999-2005) (billions of SDRs) (end of year)

	1999	2000	2001	2002	2003	2004	2005*
All countries	1,299.6	1,490.2	1,633.1	1,771.0	2,037.5	2,407.2	2,538.4
Industrial Countries	528.7	602.0	626.8	661.5	752.3	845.4	860.3
Developing Countries	770.9	888.2	1,006.3	1,109.5	1,285.2	1,561.8	1,678.1

** as of March*

Source: IMF, 2005a, p. 108

Table 3.20 indicates currency composition of foreign exchange reserves for all countries, industrial and developing countries between the years 1995 and 2004. About 25 percent of foreign exchange reserves at the end of 2004 were denominated in euros, compared to 66 percent in US dollars, as shown in Table 3.20.

Table 3.20

Share of National Currencies in Total Identified Official Holdings of Foreign Exchange Reserves*
(1995-2004) (%) (end of year)

All Countries	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
US dollar	59.0	62.1	65.2	69.4	71.0	70.5	70.7	66.5	65.8	65.9
Japanese yen	6.8	6.7	5.8	6.2	6.4	6.3	5.2	4.5	4.1	3.9
Pound sterling	2.1	2.7	2.6	2.7	2.9	2.8	2.7	2.9	2.6	3.3
Swiss franc	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.4	0.2	0.2
Euro **	—	—	—	—	17.9	18.8	19.8	24.2	25.3	24.9
Deutsche mark	15.8	14.7	14.5	13.8	—	—	—	—	—	—
French franc	2.4	1.8	1.4	1.6	—	—	—	—	—	—
Netherlands guilder	0.3	0.2	0.4	0.3	—	—	—	—	—	—
ECUs	8.5	7.1	6.0	1.2	—	—	—	—	—	—
Other currencies	4.8	4.3	3.8	4.5	1.6	1.4	1.2	1.4	1.9	1.8
Industrial Countries										
US dollar	52.3	57.4	59.1	67.6	73.5	72.5	72.7	68.9	70.5	71.5
Japanese yen	6.7	5.7	5.9	6.9	6.7	6.5	5.6	4.4	3.8	3.6
Pound sterling	2.1	2.1	2.0	2.1	2.2	2.0	1.9	2.1	1.5	1.9
Swiss franc	0.1	0.1	0.1	0.2	0.1	0.2	0.3	0.6	0.2	0.1
Euro **	—	—	—	—	16.1	17.1	18.0	22.4	22.1	20.9
Deutsche mark	16.6	15.9	16.2	13.4	—	—	—	—	—	—
French franc	2.3	1.7	0.9	1.2	—	—	—	—	—	—
Netherlands guilder	0.2	0.2	0.2	0.2	—	—	—	—	—	—
ECUs	13.6	12.3	11.2	2.3	—	—	—	—	—	—
Other currencies	6.0	4.7	4.4	6.2	1.4	1.6	1.5	1.7	1.9	2.0
Developing Countries										
US dollar	70.3	68.5	72.4	71.2	68.2	68.2	68.6	64.0	60.7	59.9
Japanese yen	7.0	8.1	5.7	5.6	6.0	6.0	4.9	4.7	4.4	4.3
Pound sterling	2.2	3.5	3.3	3.3	3.7	3.6	3.6	3.8	3.9	4.8
Swiss franc	0.7	0.6	0.6	0.5	0.4	0.3	0.3	0.2	0.2	0.2
Euro **	—	—	—	—	19.9	20.6	21.8	26.1	28.9	29.2
Deutsche mark	14.4	13.0	12.5	14.3	—	—	—	—	—	—
French franc	2.4	2.0	2.1	2.1	—	—	—	—	—	—
Netherlands guilder	0.5	0.3	0.5	0.4	—	—	—	—	—	—
ECUs	0.0	0.0	0.0	0.0	—	—	—	—	—	—
Other currencies	2.6	3.0	3.0	2.7	1.7	1.3	0.9	1.2	1.9	1.6

**The currency shares are calculated for the reserves of member countries of the IMF that report the currency composition of their foreign exchange reserves.*
*** Not comparable with the combined share of euro legacy currencies in previous years because it excludes the euros received by euro area members when their previous holdings of other euro area members' legacy currencies were converted into euros on January 1, 1999.*

Source: IMF, 2005a, p. 108

The US dollar's dominance in official international reserves is greater than USA's weight in world economy, more than twice the US share of world output (see Tables 3.1 and 3.20). This information shows the extra demand for US dollar as a reserve currency. Neamie (2003) explains the US dollar's dominance in foreign exchange reserves mainly as the result of unrivalled depth and liquidity of its financial markets.

The currency composition of foreign exchange reserves has changed gradually over the past decade, with the share of US dollar holdings in foreign exchange reserves rising from 59 percent in 1995 to 71 percent in 1999, and remaining broadly stable in 2000 and 2001. In 2002, however, the share of US dollar holdings declined to 67 percent. Over the years 2003 and 2004, share of the US dollar remained at a similar level. While the official reserves held in US dollars increased strongly over these years— accounting for more than 80 percent of the quantity increase in official reserve holdings—the weakening of the US dollar vis-à-vis other major currencies offset this (IMF, 2005a:111-112).

It is interesting to note that between the years 1999 and 2004 while the share of the US dollar decreased, the share of the euro increased in foreign exchange reserves of all countries. This means that countries shifted their holdings of foreign exchange reserves away from US dollar and towards the euro after euro's introduction. But Kumcu (2006) argues that this shift is not too significant and this proved somewhat disappointing in euro's rivalry with the US dollar as an international currency in foreign exchange reserve assets since euro's introduction.

The euro accounted for 25 percent of total foreign exchange reserves in 2003 and 2004, 6 percentage points higher than its value in 1999. Given that the euro system's reserves previously denominated in euro-legacy currencies became domestic assets of the euro area, the share of the euro in 1999–2004 is not directly comparable with the previous years' combined share of the four euro-legacy currencies identified in Table 3.20, namely Deutsche mark, French franc, the Netherlands guilder, and the ECU.

As for industrial countries, there was an increase between the years 1999 and 2002 in the share of the euro in foreign exchange reserves as shown in Table 3.20. However, the share of the euro in foreign exchange reserves of industrial countries declined from 22.1 percent at the end of 2003 to 20.9 percent at the end of 2004.[36] On the other hand, the share of US dollar holdings increased throughout the 1990s, peaking at 73.5 percent in 1999 and amounting to 71.5 percent at the end of 2004 for industrial countries.

It is important to note that, the non-euro G7 countries[37] (the USA, Japan, the UK and Canada) need euro reserve holdings so that they can stick to the G7 promise.[38] This cooperation among G7 countries includes joint interventions in the foreign exchange (euro/US dollar) market. For example, to support weak US dollar

[36] 56 percent of USA's reserves were held in euro as of June 2004 (ECB, 2005:54).

[37] G7 countries are the world's richest countries – Canada, France, Germany, Italy, Japan, the USA and the UK. Russia has also been in attendance (though not a full member) to the annual G7/G8 summits since 1994. The summits consider economic policy issues as well as political and security matters (Economist, 2006)

[38] G7 promise is to monitor foreign exchange markets closely and cooperate as appropriate in order to ensure orderly market conditions (Becker and Walter, 2005:5).

exchange rate they sell euros. This implies that the US and the UK also hold official reserves in euros although both countries are particularly reluctant to intervene in the foreign exchange market (Becker and Walter, 2005).

The importance of the transition to the euro in the composition of currency reserves worldwide since 1999 is further underlined by looking at the developing countries. The developing countries have had more diversified holdings of foreign currencies than the industrial countries have since the introduction of euro, as shown in the Table 3.20. The developing countries held a smaller share of their reserves in US dollars than the industrial countries did between the years 1999 and 2004.

The share of the US dollar in developing countries' foreign exchange reserves declined to 59.9 percent in 2004, lower than the average of the preceding years. As for developing countries, euro is the second preferred choice to US dollar in foreign exchange reserves as seen in Table 3.20. That is because the trade and debt financing needs of the developing countries remain primarily in US dollars (IMF, 2005a).

In 1998, the euro legacy currencies accounted for approximately below 20 percent of the reserves of developing countries. At the end of 1999, the euro accounted for 19.9 percent of their reserves. Holdings of the euro in those countries' foreign exchange reserves rose to 29 percent at the end of 2004, nearly 10 percentage points higher than the euro's share in its initial years (1999 and 2000). It can be said that developing countries diversified their holdings of foreign exchange reserves from US dollar to euro between the years 1999 and 2004. According to Becker and Walter (2005), the

weaker dollar is a reason for many central banks to reduce the US dollar share of their official reserve holdings. Many central banks have increased their euro holdings between the years 2002 and 2004.

As the euro's use as an international medium of exchange rises, countries are likely to increase their holdings of euro reserves. In addition, if the asset managers of non-EMU central banks, especially east Asian largest reserve accumulators (Japan, China, Hong Kong, Singapore and South Korea) make decisions in favor of diversifying and investing an increasing part of their foreign exchange assets in euros, this in turn significantly increases the role of the euro as a reserve currency in the world (ECB, 2006). However, there is as yet no firm evidence that the Asian central banks are switching from US dollars to euros (Kenen, 2005 and Ambrosi, 2006:8–12). Moreover, ECB (2006) expects these largest reserve accumulators at least for the time being, to continue to use the US dollar as a reserve currency for intervention.

As a result, the US dollar will remain the dominant international reserve currency in the coming future because the USA has some advantages which euro area does not have. The USA is a federal state while European Union will remain in a politically difficult situation since the French and Dutch voted "no" in their referenda on the EU constitutional treaty in 2005. The depth and liquidity of US financial markets compared to those of the euro area and Japan is another reason which plays a significant role in the US dollar's dominance.

3.4.2 Euro and US Dollar as Anchor Currencies (Unit of Account)

One of the roles of an international currency is to provide a nominal anchor for the price of the currencies of other countries in the world. As mentioned in Chapter 2, choosing the appropriate exchange rate regime is one of the key policy choices of monetary authorities, with additional implications for the size and composition of foreign exchange reserves and interventions. For instance, developing countries are more likely to hold their reserves in a given major currency if they are pegged to that currency (Chinn and Frankel, 2005).

Countries adopt exchange rate regimes ranging from very strict – or even full – links to the anchor currency (e.g. formal entitlement to use the currency as legal tender[39], and currency boards) to looser forms of anchoring (e.g. peg arrangements,[40] crawling fluctuation bands[41] and managed floating[42]) (Dupasquier *et al.* 2005).

[39] The currency of another country circulates as the sole legal tender (formal dollarization), or the member belongs to a monetary or currency union in which the same legal tender is shared by the members of the union. (IMF, 2005a:124).

[40] The country (formally or de facto) pegs its currency at a fixed rate to another currency or a basket of currencies, where the basket is formed from the currencies of major trading or financial partners and weights reflect the geographical distribution of trade, services, or capital flows. The currency composites can also be standardized, as in the case of the SDR (IMF, 2005a:124).

[41] The currency is maintained within certain fluctuation margins of at least ±1 percentage point around a central rate—or the margin between the maximum and minimum value of the exchange rate exceeds 2 percentage points —and the central rate or margins are adjusted periodically at a fixed rate or in response to changes in selective quantitative indicators. (IMF, 2005a:124).

[42] The monetary authority attempts to influence the exchange rate according to economic developments without having a specific exchange rate path (IMF, 2005a:124).

Under the Bretton Woods system that existed from 1946 to 1973, most currencies in the world were tied to the US dollar. With the collapse of the Bretton Woods system, many countries chose to let their currencies float while others set the value of their currency against that of another country. Most of the countries choosing the latter option continued to peg their currency to the US dollar (McKinnon, 2002). According to Pollard (2001) and Meissner and Oomes (2006), in 1975, about 51 IMF member countries pegged their currency to the US dollar while 14 IMF member countries pegged their currency to the euro legacy currencies. In Europe, most currencies were pegged to the ECU under the European Monetary System between 1979 and 1998 (Wenhao, 2004). In 1985, 1990 and 1995, 32, 28 and 22 IMF member countries pegged their currency to the US dollar, while 14, 17 and 18 IMF member countries pegged their currency to the euro legacy currencies, respectively (Meissner and Oomes, 2006). According to Neamie (2003), the tendency to move toward more flexible exchange rate regimes by countries in general and the emergence of the euro as an alternative anchor currency to the US dollar caused the decrease of the share of US dollar as an anchor currency in the world.

With its launch in January 1999, the euro became an anchor currency for other countries. It inherited this role from the euro's legacy currencies, in particular the Deutsche Mark in the case of several eastern European countries and the French franc that served as an anchor currency for French territorial entities and the CFA franc zone.

ECB (2001, 2002, 2003 and 2005) data and Schnabl (2003) indicate countries with exchange rate regimes not classified as

independently floating (and thus having an anchor currency). These data show that in 2001, around 56 countries' (outside the euro area) exchange rate regimes were linked to the euro in the world. For about 38 of these countries, the euro was the sole anchor currency, while the others used a currency basket that included the euro. The number of countries which involved the euro in their exchange rate regimes has declined to 53 in 2002, 51 in 2003 and 50 in 2004, respectively. Among these countries 35 of them in 2002, and 30 of them in 2003 uses the euro as the sole anchor currency. The US dollar is the second most popular choice for a currency peg, with around 25 countries officially tying their currencies to the US dollar in 2004.

Countries anchoring only to the euro are all located in Europe or neighbourhood of Europe. This confirms that close trade and financial links with the euro area remain the main factor behind the choice of the euro as anchor for exchange rate policy. In other words, use of the euro in third countries' exchange rate regimes has strong geographical, political[43] and institutional grounds or has historical ties to a legacy currency (Honohan and Lane, 1999; Leblang 2005). The new EU member states and most countries of the western Balkans, northern Africa and the CFA Franc Zone[44] are the main countries using the euro as their sole anchor, with many of these countries being close to the euro area and/or having special institutional arrangements with the EU.

[43] It may be politically easier to peg to an international currency (such as the euro) rather than to the currency of an individual nation. To say more clearly, those new member states of the EU and those countries hoping to join the EU are the trackers of the euro. A key reason is that all new members of the EU must join the monetary union (there will be no new opt-outs).

[44] The CFA franc was pegged to the French franc from 1948 to 1999. On January 1, 1999, member countries of the CFA franc zone and France agreed to maintain the currency peg following the euro's introduction through an arrangement with the French Treasury (Zafar, 2005).

Changes in exchange rate policies in some countries with the introduction of euro are due to the prospects of joining the EMU. Accordingly, in June 2004, Estonia, Lithuania and Slovenia joined the ERM II[45] (opted for a tight peg vis-à-vis the euro). Denmark, which is one of the three members of the EU which are not currently members of the euro area, ties its currency to the euro through the ERM II (ECB, 2005). On the other hand, Latvia pegged its currency to the SDR, while Hungary opted for an intermediate regime with a central parity vis-à-vis the euro and ± 15 percent fluctuation band. Poland, the Czech Republic, Slovenia, Slovakia and Romania use floating regimes (Markiewicz, 2005). Romania increased the weight of the euro in the currency basket to 75 percent. Turkey does not have an explicit link (loosely managed float since February 2001) to the euro.

In the western Balkans, most countries have opted for either hard pegs or managed floating regimes based on the euro. Montenegro and Kosovo have adopted the euro as their legal tender. Macedonia has pegged its currency to the euro, Croatia and Serbia have conducted tightly managed floats with the euro as the reference currency (Barisitz, 2004).

When examining Mediterranean countries, Morocco and Tunisia de facto tightly manage their respective currencies relative to the euro. Although Mediterranean countries are on the neighborhood of euro area, most of these countries are still under a US dollar peg or a basket of currencies where the US dollar is dominant. Neamie (2003) justifies the case of Mediterranean countries by looking to

[45] In 1999, ERM II replaced the original ERM. Currencies in ERM II are allowed to float within a maximum range of ±15 percent with respect to a central rate against the euro. Denmark has entered into an agreement with the ECB and the euro area member states on a narrower fluctuation band of ± 2.25 percent.

the history of exchange rate regimes (US dollar's strength in the Bretton Woods System). He also argues if developments continue in terms of trade and financial integration between the euro area and Mediterranean countries, Mediterranean countries would also shift towards a euro peg to get all the benefits of integration with an area of low inflation and significant growth potentials.

The international use of the euro as an anchor currency may be seen as a sign of confidence in the stability-oriented monetary policy of the euro area. Moreover, it should be noted that the aggregate GDP of the 50 countries anchoring to the euro in 2004 is very small (the economic weight of the currencies anchoring to the euro is around 5 percent of the world GDP and 20 percent of euro area GDP) (ECB, 2005).

Among countries with currency pegs, Latin American and Caribbean countries currencies are pegged to US dollar. While many countries located in the Western Hemisphere either de jure or de facto anchor their currency to the US dollar, such a phenomenon can also be observed in other parts of the world, including Asia[46] and Commonwealth of Independent States (CIS) countries.[47]

Likewise, as long as oil is priced in US dollars on world markets, many oil exporting countries either officially or practically limit the fluctuations of their currency against US dollar. For example, oil-producing countries that formally peg to the SDR (Qatar, Saudi

[46] The US dollar played a dominant role as a *de jure* or *de facto* anchor for emerging East Asia until the 1997–98 currency crisis. During the crisis, the US dollar's dominance declined in East Asia as a result of a general shift to more flexible exchange rate arrangements (Kawai, 2002).

[47] The CIS countries are; Azerbaijan, Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Uzbekistan and Ukraine (Wikipedia, 2006).

Arabia and the United Arab Emirates) peg their currency mainly to the US dollar. The same applies to Kuwait whose basket seems to be dominated by the US dollar.

The above mentioned information is proven by the findings of Miotti *et al.* (2002). They find that the likelihood that a country will use the euro as an anchor currency decreases when the trade of a country is conducted mainly with Japan or the USA and increases if it is conducted with the euro area countries. Likewise, the likelihood of using the euro as an anchor increases when a major part of the external debt of the country considered is denominated in euros.

Any EU country wanting to enter the euro area should first peg to the euro. Furthermore, it is likely that the share of currencies pegged to the euro will rise as more countries hoping to be admitted to the EU peg their currencies to the euro. Any effect on the euro area and the USA caused by an increase in the number of countries pegging their currencies to the euro relative to those pegging to US dollar occurs through the effects of these pegs on foreign exchange reserves.

The above mentioned facts indicate that the euro is the anchor currency in several countries and regions in the broad geographical neighbourhood of the EU. In the rest of the world, the euro plays only a very limited role as an anchor currency. Interestingly, the use of the US dollar in third countries' exchange rate regimes is spread more globally and has less of a regional dimension. The euro can be seen as an international anchor currency with a strong regional focus, whereas the US dollar is used more globally.

3.4.3 Euro and US Dollar as Intervention Currencies (Medium of Exchange)

The reserve, anchor, and intervention functions of an international currency are elaborately intertwined each other. Under a floating regime, foreign exchange market interventions are not frequent, as they are mainly conducted to calm disorderly market conditions. This description fits all industrial countries. By contrast, countries operating any form of exchange rate peg and managed float intervene regularly to achieve an exchange rate consistent with the chosen regime. In conducting interventions, they preferably use the anchor currency. Hence, foreign exchange interventions are mostly typical of developing and emerging market economies (Canales-Kriljenko, 2003).

Given that information on interventions, in particular with regard to the currency composition of interventions, little information is available at global scale on the roles of US dollar and euro as intervention currencies. Similar to reserves examined in section 3.4.1, countries do not publish the currency composition of their interventions. This makes it difficult to assess the roles of the currencies as intervention currencies. Nevertheless, given the close link between reserve, anchor and intervention currencies, it can be said that countries using the US dollar and euro as reserve and anchor currencies probably also conduct the bulk of their interventions in these currencies. For example, the above-mentioned roughly 50 small and medium-sized countries (in section 3.4.2) which peg their currencies to the euro need to hold official euro reserves in order to boost confidence in their peg and/or their exchange rate policy and to be able to intervene in the

foreign exchange market, if necessary (Becker and Walter, 2005; Wijnolds, 2006).

Focusing on those countries that use the euro as an anchor currency, publicly available statements by some national central banks indicate that several new EU member state central banks, including those of the Czech Republic, Hungary, Latvia, Slovakia and Slovenia, intervened by using the euro as the intervention currency. Moreover, authorities of countries operating a euro-based currency board (Bulgaria and Bosnia and Herzegovina) conducted interventions in euro. Finally, Romania and some western Balkan countries were again active in the foreign exchange market in managing their exchange rate vis-à-vis the euro (ECB, 2002, 2003 and 2005; Brissimis and Chionis, 2004).

Among countries in the world only the Japanese Ministry of Finance provides regular information on the date, amount and currency of Japan's foreign exchange market interventions.[48] Between mid-2002 and mid-2003 the Japanese Ministry of Finance interventions amounted to about 60 billion US dollars. The data indicate that only 2.5 percent of purchases were in euro, whereas the bulk of purchases were in US dollars. Unlike the case between 2002 and 2003 period, there were no foreign exchange purchases of euro in the Japanese Ministry of Finance interventions which amounted to 250 billion US dollars between the mid-2003 and the mid-2004 period.

It can be said that a result of US dollar's role as the primary international reserve currency leads its use as the main currency

[48] Information on foreign exchange interventions by Japanese authorities can be found on the website of the Japanese Ministry of Finance (http://www.mof.go.jp), (25.05.2006).

for intervening in foreign exchange markets. This latter role is also aided by the use of US dollar as a vehicle currency and by the liquidity of the US bond market. Although data on interventions are limited, it is believed that most of the intervention in the foreign exchange markets, with the exception of those undertaken by the USA, takes place in US dollars. As mentioned in Chapter 2, the most important determinants of the choice of intervention currency are liquidity and acceptability. The relative illiquidity of the euro area and Japanese bond markets compared to US bond markets gives US dollar an advantage over the use of these two currencies.

To summarise, the US dollar has a dominant but not exclusive position as an intervention currency at a global level. The suitability of the US dollar as an intervention currency is correlated to its liquidity in foreign exchange markets. However, the euro has been used as an intervention currency by several third countries at the regional level, mainly due to its role as an anchor currency.

CHAPTER 4

ROLES OF THE EURO AND THE US DOLLAR IN TURKISH ECONOMY

The important consequences of the introduction of the euro for the participating countries and all those countries with close economic and geographical links with the EMU participants and the competition between the euro and the US dollar in all the main international currency roles are discussed in previous chapters.

Although Turkey is not yet a participant of the EMU, it has close ties with the EMU participant countries. Besides having a large volume of foreign trade with the EMU participants, Turkey is not only a candidate country for full membership of the EU but also is in a customs union with the EU. At the December 1999 Helsinki Summit in Finland, 40 years after the beginning of bilateral relations, Turkey was granted candidacy for EU membership (Şen, 2006a).

Turkey is the only country that has entered into a full customs union with the EU without any sign of a concrete will on the EU side to accept Turkey as a formal candidate for full membership. The Customs Union between Turkey and the EU, which entered into force in 31 December 1995, has been the most important development affecting the Turkish economy since the liberalization measures of 1980 (Tigrel, 1999 and EC, 1998). The Customs Union

constitutes the most important step for Turkish economy's integration into the world trading system. At the same time, it constitutes a cornerstone in Turkey's relationship with the EU. Forming the Customs Union has intensified Turkey's trade integration with the EU (EC, 2001, 2002, 2003, 2004).

Given the depth of Turkey's relationship with the EU and the widespread use of US dollars in Turkey's trade and financial transactions, it is obvious that the euro and the US dollar competition has significant consequences on the Turkish economy in many ways as expected by Güvenen (1998), Ege Y. (1998), Erçel (1998 and 2000), Demiralp (1999), Tamer (1998) and Töre (2001).

Table 4.1 indicates that Turkey's GDP was 185 billion US dollars in 1999 and increased to 361 billion US dollars in 2005. It also shows that Turkey's exports were 26 billion US dollars in 1999 and increased to 73 billion US dollars in 2005 while its imports were slightly higher than 40 billion US dollars in 1999 and surpassed 116 billion US dollars in 2005. According to ITC (2006) statistics, in 2004 Turkey realized 0.7 percent and 1.05 percent of the world's total exports and imports, respectively, ranking 33rd in world exports and 23rd in world imports (ITC, 2006). These statistics indicate Turkey's growing importance in the world economy and its integration with the world trading system. In addition, Turkey is a member of the IMF, the World Bank, the OECD and the WTO. Therefore, developments and changes in the world economic system as a result of introduction of euro, which are mentioned in previous chapters, significantly affect Turkey's economy.

Table 4.1
Economic Indicators of Turkey (1999-2005) (million US dollars)

	1999	2000	2001	2002	2003	2004	2005
GDP	185,266	201,439	145,573	184,16	239,701	301,999	360,900
Exports	26,587	27,775	31,334	36,059	47,253	63,121	73,275
Imports	40,671	54,502	41,399	51,554	69,34	97,54	116,35

Source: EIU, 2006; UFT, 2006 (01.06.2006)

The aim of this chapter is to examine the current situation with respect to currency composition of trade flows, debt, deposits, FDI, exchange rate regime and reserves in Turkey to ascertain the consequences of the roles of the euro and US dollar in Turkish economy.

Firstly, trade flows between Turkey- USA and Turkey-EU and currency composition of Turkey's trade flows are examined in more detail. Tables 4.2 and 4.3 illustrate that the USA and the EU have always been Turkey's major trading partners.

According to UFT (2006), the USA ranked, between the years 1999 and 2005, third or fourth in Turkish imports while second (fourth only in 2005) in exports. Although the USA's share has declined from 10 percent to 5 percent in Turkish imports, the foreign trade volume between these two countries nearly doubled from 1995 to 2005, as seen from Table 4.2. The foreign trade volume between the two was 10.2 US billion dollars in 2005, among which 4.8 US billion US dollars were Turkish exports while 5.3 billion US dollars were US exports. Turkey has increased and diversified its exports to the USA during the 1999-2005 period, however, the USA's share in Turkish exports has not changed significantly (UFT, 2006).

Table 4.2
Turkish Foreign Trade with the USA (1995-2005)

Years	Turkey's Exports to USA *(billion USD)*	USA's Share in Turkish Total Exports* (%)	Turkey's Imports from USA *(billion USD)*	USA's Share in Turkish Total Imports* (%)	Turkey's Trade Balance with Respect to USA *(billion USD)*
1995	1.514	7	3.724	10	-2,210
1996	1.639	7	3.516	8	-1,877
1997	2.027	8	4.330	9	-2,303
1998	2.233	8	4.053	9	-1,820
1999	2.437	9	3.081	8	-0,644
2000	3.135	11	3.911	7	-0,776
2001	3.120	10	3.253	8	-0,133
2002	3.229	9	3.050	6	0,179
2003	3.751	8	3.495	5	0,256
2004	4.848	8	4.745	5	0,103
2005	4.877	7	5.315	5	-0,438

**own calculations*

Source: UFT, 2006 (01.06.2006)

A striking feature of Turkey is that roughly half of its trade is realized with the EU making the EU (and the euro area) its main trade partner. The volume of trade between euro area and Turkey runs at about 70 billion US dollars in 2005. Moreover, the EU share in Turkish exports has not much changed in recent decades and remains at around 50 percent as (Chevallier *et al.* 2004:1) states and seen in Table 4.2. This is mainly because the EU market has been open to Turkish industrial products except textile and clothing goods since the abolition of EU protectionism towards Turkey in 1971 (Ege, 2006: 96).

As it is clear in Table 4.3, 47 percent of Turkey's exports and 33 percent of Turkey's imports were directed to and from euro area countries in 2005, reflecting the importance of trade relations between euro area countries and Turkey.

Table 4.3
Turkish Foreign Trade with the EU (1995-2005)

Years	Export				Import			
	Euro Area *(billion USD)*	Euro Area's Share in Turkish Exports* (%)	EU-25 *(billion USD)*	EU-25's Share in Turkish Exports* (%)	Euro Area *(billion USD)*	Euro Area's Share in Turkish Imports * (%)	EU-25 *(billion USD)*	EU-25's Share in Turkish Imports * (%)
1995	9.7	45	11.7	54	14.3	40	17.3	48
1996	10.0	43	12.1	52	19.8	45	23.5	54
1997	10.4	40	12.9	49	21.0	43	25.3	52
1998	11.3	42	14.1	52	20.2	44	24.6	54
1999	12.1	46	14.9	56	17.5	43	21.8	54
2000	12.0	43	15.1	54	22.2	41	27.4	50
2001	13.5	43	16.8	54	15.6	38	18.9	46
2002	17.6	49	19.5	54	20.1	39	24.5	48
2003	23.3	49	25.9	55	27.0	39	33.5	48
2004	30.1	49	34.5	55	36.6	38	45.4	47
2005	34.0	47	38.3	52	38.7	33	48.9	42

**own calculations*

Source: UFT, 2006 (01.06.2006)

The developments in Turkey's trade with the USA and the euro area have implications for the invoicing currency of Turkish exports and imports. Table 4.4 shows invoicing patterns of Turkish exports and Table 4.5 shows invoicing patterns of Turkish imports.

Table 4.4
Shares of Currencies in Invoicing of Turkish Exports (1995-2005) (%)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Euro	--	--	--	--	4,32	7,66	18,42	46,63	49,32	49,31	48,33
US Dollar	55,68	55,96	59,22	55,62	52,46	50,83	49,46	44,91	42,55	42,96	43,65
Deutsche Mark	29,16	27,97	25,84	28,47	27,17	25,77	18,75	0,04	--	--	--
French Francs	3,70	3,55	3,61	4,26	4,28	4,04	2,91	3,70	--	--	--
Denmark Krone	0,16	0,14	0,11	0,10	0,09	0,11	0,11	0,14	--	--	---
Italian Lira	2,85	2,84	2,35	2,52	2,48	2,20	1,70	2,85	--	--	--
Austrian Schillings	0,30	0,31	0,24	0,25	0,23	0,16	0,08	--	--	--	--
Belgian Francs	0,38	0,34	0,29	0,31	0,28	0,24	0,14	--	--	--	--
Finnish Markka	0,01	0,01	0,01	0,01	0,01	0,01	0,01	--	--	--	--
Dutch Guilders	1,39	1,3	1,06	1,17	1,13	0,95	0,66	--	--	--	--
Irish Lira	0,00	0,00	0,00	0,01	0,03	0,03	0,03	--	--	--	--
Spanish Pesetas	0,17	0,18	0,24	0,29	0,26	0,24	0,18	--	--	--	--
Portuguese Escudo	0,00	0,00	0,00	0,00	--	--	--	--	--	--	--
Greek Drachma	0,00	0,00	0,00	0,00	--	--	--	--	--	--	--
Pound Sterling	4,11	4,83	4,66	4,65	5,09	5,48	5,70	6,60	6,20	5,86	5,59
Swedish Krone	0,17	0,23	0,23	0,23	0,3	0,31	0,44	0,38	0,39	0,43	0,43
Swiss Francs	0,74	0,78	0,46	0,39	0,27	0,31	0,27	0,22	0,22	0,17	0,16
Japanese Yen	0,05	0,05	0,05	0,06	0,07	0,04	0,04	0,06	0,03	0,09	0,08
Turkish Lira*	0,97	1,41	1,52	1,56	1,44	1,51	1,02	0,94	1,13	1,01	1,48

** New Turkish Lira as of January 01, 2005*

Source: own calculations based on UFT, 2006 (01.06.2006)

The introduction of euro has significantly changed the invoicing pattern of Turkish exports. Before the introduction of euro, the US dollar was the dominant invoicing currency of Turkish exports amongst other currencies as it is clear from Table 4.4. It can be derived from Table 4.4 that total share of the euro legacy

currencies were 38 percent in 1995 and 37 percent in 1998, respectively. On the other hand, the share of the US dollar was 55 percent both in 1995 and 1998. Since euro's introduction, the euro has started to play more role than its legacy currencies and increased its share while the share of the US dollar decreased in invoicing of Turkish exports. Moreover, the euro has become the dominant invoicing currency of Turkish exports since 2002. Table 4.3 and 4.4 show the correlation between the increase in the share of euro area countries in Turkish exports and the increasing share of euro in invoicing Turkish exports.

In 2005, the share of the euro area in Turkish exports was roughly equal to the share of the euro in invoicing Turkish exports. As mentioned, the euro area accounted for 47 percent of Turkish exports and 48 percent of total Turkish exports were invoiced in euro in 2005. Also, by adding the of sum of the shares (6 percent) of the Pound sterling and Swedish krone in invoicing the Turkish exports, the EU currencies surpasses the share of US dollar by approximately 10 percentage points, which had a share of 43 percent in invoicing the Turkish exports in 2005 as seen from Table 4.4.

Although the share of the euro has increased and surpassed the total share of its legacy currencies in invoicing Turkish imports since its introduction, the US dollar by far has remained the dominant invoicing currency of Turkish imports. In Turkey, 57 percent of imports are invoiced in US dollars but only 5 percent of Turkish imports came from USA in 2005 as seen from Tables 4.2 and 4.5. On the other hand, the share of the euro in invoicing Turkish imports is 38 percent in 2005 while the euro area's share comprises 33 percent of Turkish imports (Tables 4.3 and 4.5).

Table 4.5
Shares of Currencies in Invoicing of Turkish Imports (1995-2005) (%)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
US Dollar	59,03	55,40	55,62	52,15	52,96	56,98	61,24	56,71	55,14	55,03	57,35
Euro	--	--	--	--	4,85	10,35	17,09	36,97	39,67	40,29	38,54
Deutsche Mark	20,93	24,07	23,95	25,24	22,30	18,27	11,51	--	--	--	--
Denmark Krone	0,33	0,19	0,19	0,23	0,24	0,17	0,17	--	--	--	--
French Francs	3,52	3,44	3,57	4,56	3,28	2,15	1,55	--	--	--	--
Italian Lira	4,39	5,05	4,73	5,06	3,65	2,91	1,90	--	--	--	--
Austrian Schillings	0,44	0,74	0,48	0,54	0,47	0,17	0,14	--	--	--	--
Belgian Francs	0,62	0,66	0,6	0,58	0,48	0,35	0,19	--	--	--	--
Finnish Markka	0,04	0,03	0,05	0,06	0,04	0,02	0,03	--	--	--	--
Dutch Guilders	1,16	1,16	1,1	1,25	1,13	0,58	0,36	--	--	--	--
Irish Lira	0,00	0,00	0,00	0,00	0,00	0,01	0,01	--	--	--	--
Spanish Pesetas	0,17	0,37	0,35	0,4	0,57	0,62	0,26	--	--	--	--
Portuguese Escudo	0,00	0,00	0,00	0,00	--	--	--	--	--	--	--
Greek Drachma	0,00	0,00	0,00	0,00	--	--	--	--	--	--	--
Pound Sterling	4,11	4,83	4,66	4,65	5,09	5,48	5,70	6,60	6,20	5,86	5,59
Swedish Krone	0,17	0,23	0,23	0,23	0,3	0,31	0,44	0,38	0,39	0,43	0,43
Swiss Francs	0,74	0,78	0,46	0,39	0,27	0,31	0,27	0,22	0,22	0,17	0,16
Japanese Yen	0,05	0,05	0,05	0,06	0,07	0,04	0,04	0,06	0,03	0,09	0,08
Turkish Lira*	0,97	1,41	1,52	1,56	1,44	1,51	1,02	0,94	1,13	1,01	1,48

** New Turkish Lira as of January 01, 2005*

Source: own calculations based on UFT, 2006 (01.06.2006)

Hence it can be concluded that euro and the US dollar currencies account for roughly 95 percent of Turkish foreign trade invoicing. Although the share of euro area in Turkish foreign trade is higher than the USA's share, the invoicing pattern of Turkish foreign trade is more evenly distributed between the euro and the US dollar. This also shows that the euro is used as an invoicing currency by

Turkish exporters and importers in trading with the EU while the US dollar is dominantly used as an invoicing currency in trading with third countries besides being the invoicing currency in trade with the USA. However, since euro's introduction the share of euro in invoicing Turkish foreign trade has increased especially in the case of invoicing Turkish exports, because, as mentioned in Chapter 2, it is common to invoice foreign trade flows between a small country and a large country in the currency of the large country. In invoicing Turkish imports, the share of the US dollar is still higher than the euro, while the US dollar has been loosing its dominance in invoicing Turkish exports since euro's introduction. Given Turkey's current trade pattern, the use of the euro in its foreign trade transactions is likely to be greatly enhanced if and when the UK, Denmark and Sweden decide to join the euro area.

In addition to trade, foreign direct investment is another area to be analysed to see consequences of the competition of euro and the US dollar in the Turkish economy. Turkey has been attracting foreign direct investment rapidly since the 1990s. Table 4.6 shows the available information on FDI inflows to Turkey by countries. Turkey attracts more European than US direct investment because of geographical proximity and historical ties as it is clear in Table 4.6. This situation is another factor to reinforce the influence of the euro upon the Turkish economy and its foreign exchange market.

Table 4.6
Foreign Direct Investment Inflows to Turkey (2002-2005)

		2002		2003		2004*		2005*	
		FDI *(million USD)*	Share ** (%)	FDI *(million USD)*	Share ** (%)	FDI *(million USD)*	Share ** (%)	FDI *(million USD)*	Share ** (%)
Euro Area		431	69	391	52	899	70	4.760	56
	Germany	86	14	142	19	73	6	391	5
	France	22	4	120	16	34	3	2.105	25
	Netherlands	72	12	50	7	568	44	267	3
	Italy	241	39	1	0	15	1	692	8
	Belgium	5	1	54	7	25	2	1.088	13
	UK	8	1	141	19	126	10	284	3
	Other EU	21	3	47	6	184	14	178	2
USA		2	0	52	7	36	3	89	1
Other Countries		165	27	138	19	230	18	3.443	40
TOTAL		622	100	745	100	1.291	100	8.537	100

**Provisional Data*
***own calculations*

Source: CBRT, 2006a (23.08.2006)

However, customs union between Turkey and the EU and the introduction of EMU did not lead to a significant FDI inflow into Turkey despite expectations (Kahyaoğlu, 2006:308). The privatization program and an extensive liberalization of the FDI regime in Turkey have contributed much to making the country more attractive to foreign investors since 2002 (Kesenci and Lemoine, 2003; CBRT, 2004b; CBRT, 2005b). Mainly as a result of privatization,[49] FDI inflows in Turkey increased almost eight-fold in

[49] The increase in FDI in 2005 reflects a small number of large investments (as a result of privatization) in existing telecommunications companies and banks. The payment of the first 1,3 billion US dollar installment by Saudi Oger in the privatisation of 55 percent of the major telecom firm, Turk Telekom, as well as a payment by an Alfa Group (Russian group), in connection with its acquisition of shares in a mobile-phone operator, Turkcell, from the Çukurova Group took place in November 2005. The 1,8 billion US dollar purchase of a major stake in a bank, Garanti Bank, by General Electric of the USA accounted for the majority of the FDI recorded in December 2005 (EIU, 2006; 39).

2005 compared to 2002–2004 period and reached to 8.5 billion US dollars in 2005.

Although the share of the euro area countries declined sharply in FDI in Turkey in 2005 compared to 2004, the euro area countries with a share of 56 percent was the main source of FDI inflows to Turkey in 2005 (see Table 4.6). The share of the USA in FDI inflows to Turkey was 1 percent in 2005 and has decreased 6 percentage points between the years 2003 and 2005. The important share of the euro area countries in FDI inflows in Turkey has led to the increasing use of the euro in Turkey's economy.

Regional economic integration may also induce foreign direct investment by expanding markets. The single currency in a monetary union eliminates the exchange rate risks and this gives advantages to both traders and investors in the single currency area. The examples of substantial FDI inlow to Spain and Portugal just before their entry into EMU (Giovannetti, 1998) indicate that same may be true for Turkey in case of further integration with the EU. In other words, if Turkey increases its trade links with the EU and if Turkey becomes a full member of the EU, then Turkey is likely to attract even more FDI especially from the EU countries in the future. In case of euro area membership, because Turkey's adoption of euro will eliminate the exchange rate risks in Turkey, this will provide advantages to both traders and foreign investors.

As expected by Tamer (1998), increased acceptance of euros in Turkish trade and financial transactions combined with a disappearance of foreign exchange risks also encouraged Turkish and European banks to increase their merger and acquisition activities in 2005. Accordingly, foreign holders increased their

share in domestic banks. In addition, foreign banks increased their share in Turkish banking system from 3.4 percent to 5.2 percent in 2005 (BRSA, 2006: 21-23; CBRT, 2006b: 103-105). These activities in banking system have also continued in 2006.[50]

The currency composition of debt is also important in analysing the euro and US dollar roles in the Turkish economy. Table 4.7 shows Turkey's total debt, external debt by borrowers and domestic debt. In 2005, total debt of Turkey was 352 billion US dollars, 48 percent of which was external debt and 52 percent was domestic debt, respectively. The share of external debt in Turkey's GDP is 47 percent (derived from Tables 4.1 and 4.7). The external debt of Turkey is fairly high and Turkey is amongst the world's major debtor countries in the world (IMF, 2005b: 9).

Table 4.7
Debt of Turkey (1996-2005) (billion US dollars)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Domestic Debt	29	31	37	42	54	85	92	139	167	182
External Debt	79	84	96	103	118	114	130	145	162	170
Public Sector (Central Government)	*40*	*39*	*40*	*42*	*48*	*46*	*64*	*70*	*74*	*68*
Central Bank	*12*	*12*	*13*	*11*	*14*	*25*	*22*	*24*	*21*	*15*
Private Sector	*27*	*33*	*43*	*50*	*56*	*43*	*44*	*51*	*67*	*87*
Total Debt	108	115	133	145	172	199	222	284	329	352

Source: UT, 2006 (20.06.2006)

The currency composition of Turkey's domestic debt is not available in terms of foreign currencies. The only available information on the currency composition of domestic debt is the shares of the debt in Turkish liras, foreign exchange and foreign exchange indexed

[50] For example, National Bank of Greece (NBG) purchased 46 percent Turkish Finansbank's share in April 2006 (Hürriyet, 2006).

debt are given in Table 4.8. This available information shows that Turkey's domestic debt is mainly denominated in Turkish lira.

Table 4.8
Currency Composition of Domestic Debt of Turkey
(1998-2005) (%)

	1998	1999	2000	2001	2002	2003	2004	2005
Turkish Lira	93,0	95,0	92,0	64,0	68,0	78,1	82,4	84,5
Foreign Exchange	7,0	5,0	8,0	16,0	19,0	12,7	13,4	13,2
Foreign Exchange Indexed	0,0	0,0	0,0	20,0	13,0	9,2	4,2	2,3

Source: UT, 2006 (20.06.2006)

Table 4.9 shows the currency composition of Turkey's external debt. Introduction of a single currency (euro) has helped Turkish authorities in managing, monitoring and accounting operations of Turkey's foreign debt compared to using several European currencies in these operations. However, there has been no significant change in the currency composition of Turkey's external debt since euro's introduction as Table 4.9 shows. While foreign trade invoicing of Turkey is somehow equally distributed between euro and the US dollar, most of the Turkish external debt is denominated in US dollars. In 2005, the US dollar was used to denominate more than 50 percent of Turkey's external debt while the euro was used to denominate 32 percent of this debt. The currency denomination of Turkey's external debt illustrates that Turkey pays its debt in US dollars but is likely to invoice its exports in euro and increase its trade links with the EU countries.

Table 4.9
Currency Composition of External Debt of Turkey (1996-2005) (%)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
US Dollar	37,7	46,4	48,4	52,8	54,3	50,4	46,9	45,7	48,8	54,6
Euro/ECU	2,0	1,6	1,5	7,1	12,5	30,1	30,6	33,2	33,8	32,0
Deutsche Mark	32,7	34	35,2	26,7	19,5	0,7	--	--	--	--
SDR	0,8	0,7	0,4	0,9	3,5	12,4	16,9	16,6	13,2	8,6
French Francs	1,7	1,4	1,4	1,1	0,9	--	--	--	--	--
Dutch Guilders	1,1	1,0	1,0	0,7	0,5	--	--	--	--	--
Pound sterling	1,1	1,0	0,9	0,8	0,7	0,6	0,6	0,5	0,4	0,4
Japanese Yen	14,1	10,7	8,3	7,8	6,3	4,6	4,1	3,1	2,1	1,6
Swiss Francs	1,8	1,5	1,3	0,9	0,7	0,6	0,5	0,6	0,6	0,5
Other currencies	6,9	1,7	1,6	1,3	1,1	0,5	0,4	0,4	1,0	2,3

Source: UT, 2006 (20.06.2006)

In discussing the borrowing of Turkish treasury via bond issuance in the international capital markets, Table 4.10 shows currency shares in bond issuance of Turkish Treasury between the years 1998 and March 2006. Currency shares in total bond issuance of Turkish Treasury in the international capital markets between 1988 and August 1999 were; Deutsche mark (35 percent), Japanese yen (29 percent), US dollar (27 percent) and other currencies (9 percent) (Demiralp, 1999:22). Turkish Treasury issued bonds in terms of euro currency for the first time in 29th of February in 1999 with an amount of 500 million euros and this issuance was the biggest amount among emerging market economies throughout the world (Demiralp, 1999). It is important to note that between February 1998 and March 2006 the Turkish Treasury via bond issues in the international capital markets borrowed a total of approximately 40 billion US dollars, 41,6 percent of which was

denominated in euros and Deutsche marks and 55,2 percent in US dollars, as seen in Table 4.10. Since the introduction of euro, US dollar and euro have been the only currencies in Turkish Treasury's bond issuance, except the year 2000 as Table 4.10 indicates.

Table 4.10
Currency Shares in Bond Issuance of Turkish Treasury (1998-2006) (%)

	1998	1999	2000	2001	2002	2003	2004	2005	2006*	*1998-2006*
US Dollar	22,7	33,0	46,7	34,8	79,1	73,0	34,8	61,5	62,7	*55,2*
Euro	--	57,3	36,1	65,2	20,9	27,0	65,2	38,5	37,3	*36,1*
Deutsche mark	77,3	9,7	--	--	--	--	--	--	--	*5,5*
Japanese yen	--	--	17,2	--	--	--	--	--	--	*3,2*
Total (billion USD)	*2.203*	*5.003*	*7.000*	*2.155*	*3.287*	*5.271*	*5.749*	*6.492*	*2.390*	*39.550*

** as of March 01, 2006*

Source: own calculations based on UT, 2006 (11.07.2006)

When examining currency composition of foreign exchange deposits in Turkey, foreign exchange deposits of commercial banks was 37.5 billion US dollars in 1998 and reached to 65.3 billion US dollars in 2005 (CBRT, 1999 and 2006b). Foreign exchange deposits have been high and growing since 1998 and representing 34.5 percent of total deposits in Turkey in 2005 (see UT, 2006). Concerning the currency composition of foreign exchange deposits, Table 4.11 indicates the dominance of the US dollar.

When analysing the trend between 1998 and 2005, there was an important change in US dollar and euro shares in distribution of foreign exchange deposit accounts. Table 4.11 indicates that while US dollar denominated accounts decreased, euro denominated

accounts increased significantly in 2004. Hence, share of US dollar denominated accounts decreased by 13 percentage points from 73 percent in 2003 to about 60 percent in 2004. Within the same period, share of euro denominated accounts increased by 8 percentage points and reached to 34 percent from 26 percent. This was mainly driven by the change in Euro/US dollar parity in favor of euro as explained by Banking Regulation and Supervision Agency of Turkey (BRSA, 2005:34).[51] Although euro's share has increased since its introduction, euro is still the second currency in foreign exchange deposit accounts in Turkey.

Table 4.11
Currency Distribution of Foreign Exchange Deposits of Commercial Banks in Turkey (1998-2005) (%)

	1998	1999	2000	2001	2002	2003	2004	2005*
US dollar	58,9	65,6	71,3	72,0	70,6	73,5	59,7	59,0
Euro	--	2,8	4,9	25,0	24,9	26,5	34,4	39,5
Deutsche mark	33,8	29,7	20,5	2,5	--	--	--	--
French francs	2,9	2,1	1,8	0,0	--	--	--	--
Dutch guilders	0,4	0,3	0,8	0,1	--	--	--	--
Pound sterling	1,1	1,0	1,0	1,1	1,2	1,5	1,7	1,9
Swiss francs	0,8	0,6	0,5	0,5	0,4	0,4	0,4	0,4
Japanese yen	0,5	0,0	0,0	0,0	0,0	0,1	0,1	0,0

** Provisional*

Source: own calculations based on CBRT (1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006b)

[51] The Euro/US dollar parity has progress in favor of euro during 2004 and the parity increased to 1,34 in December 2004 from 1,22 in December 2003. When the development of foreign exchanges throughout 2004 is evaluated by monthly average; it is observed that euro exchange rate increased by 6,4 percent and US dollar exchange rate decreased by 2,5 percent when compared to end-2003 (BRSA, 2005:19).

On the other hand, the euro and its legacy currencies have by far dominated currency composition of foreign exchange deposits of the Central Bank in Turkey as it is clear in Table 4.12. This is because of the fact that most of Turkish workers are in European countries[52] and open Foreign Currency Deposit accounts with Credit Letter and Super Foreign Exchange accounts[53] in the Central Bank. It is important to note that euro has not played a bigger role than its legacy currencies in currency composition of foreign exchange deposits with the Central Bank since its introduction and its share was 92,1 percent in 2005. Interestingly, the share of the US dollar has increased from 1,5 percent to 7,0 percent between the years 1998 and 2005.

Table 4.12
Foreign Currency Distribution of Foreign Exchange Deposits with CBRT in Turkey (1998-2005) (%)

	1998	1999	2000	2001	2002	2003	2004	2005*
US dollar	1,5	2,2	4,5	7,8	8,5	7,6	6,8	7,0
Euro	--	0,3	1,3	92,3	82,5	83,8	84,6	92,1
Deutsche mark	88,8	94,0	88,6	--	--	--	--	--
French francs	0,6	0,7	0,7	--	--	--	--	--
Dutch guilders	3,4	3,9	3,6	--	--	--	--	--
Pound sterling	0,0	0,0	0,0	0,1	0,1	0,1	0,1	0,1
Swiss francs	0,6	0,7	0,6	0,7	0,6	0,5	0,4	0,5

** Provisional*

Source: own calculations based on CBRT (1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006b)

[52] 3.9 million Turks are living in Europe, particularly in Germany (Şen, 2006b).

[53] See CBRT web site (www.tcmb.gov.tr) for the definition and details of Foreign Currency Deposit Accounts with Credit Letter and Super Foreign Exchange Accounts. In short, these accounts are for savings of Turkish workers abroad.

With respect to the exchange rate regime, different exchange rate regimes were implemented in different periods in Turkey (Önder, 2005; 303). Turkey adopted a managed float as of early 1998. In December 1999, Turkey adopted a disinflation program relying on a crawling peg exchange rate anchor with a reference basket consisting of the US dollar (56 percent) and the euro (44 percent) (Çepni and Köse, 2006). By pegging Turkish lira to a basket of currencies, the objectives of exchange rate policy were to maintain exchange rate stability and achieve low inflation, which has been a major concern for Turkish policy makers for over three decades (Pamukçu and Yeldan, 2005). The program contributed to a recovery in Turkish economy in 2000 with a decrease in inflation and increase in capital inflows. However the vulnerability of the banking sector, widening current account deficit caused by high increase in imports and the economic crisises in November 2000 and in February 2001 led to the collapse of the exchange rate based program (Berument and Dincer, 2005).

The crawling exchange rate regime was abandoned and a new program based on freely floating exchange rate regime was adopted in May 2001. According to the recent public statements of Turkish authorities, floating exchange rate regime will be implemented at least until Turkey's entry to the EMU (Milliyet, 2006). The main principle of this program is that the Central Bank will not interfere in foreign exchange market except in case of excess volatility (CBRT, 2006b: 74–78 and Özatay, 2004).

Although the exchange rate regime is one of free float, Özatay (2004) argues that the level of foreign exchange reserves are important for three reasons. First, Turkey has debt repayments to the IMF in terms of US dollars. Second, international investors give

importance to the level of reserves. Third, the Central Bank wants to clear its balance sheet of some types of foreign exchange liabilities, such as deposits (mainly denominated by euro) of Turkish workers abroad.

As for reserves, international reserves consisting of gold, foreign currencies, overdrafts at the commercial banks and Central Bank of Turkey were 29 billion US dollars in 1998 and reached to 76 billion US dollars in 2005 (CBRT, 2006a and UT, 2006).

Table 4.13 shows the total foreign exchange reserves of both the Central Bank and commercial banks. Total foreign exchange reserves of Turkey comprise the largest share of international reserves of Turkey and increased to 74 billion US dollars in 2005. However, currency compositon of foreign exchange reserves of Turkey is not available due to policy of the Central Bank in Turkey. The only available information was that about 55 percent of Turkey's official reserves consists of euro legacy currencies[54] and the euro itself in 2000 (Erçel, 2000).

[54] excluding Greek drachma

Table 4.13
Foreign Exchange Reserves of Turkey
(1998-2006) (million US dollars)

	1998	1999	2000	2001	2002	2003	2004	2005	2006*
Central Bank's Foreign Exchange Reserves	19.815	23.177	19.635	18.741	26.725	33.639	36.006	50.518	59.753
Commercial Banks' Foreign Exchange Reserves	8.683	9.960	11.007	10.392	9.996	9.795	16.145	16.318	14.397
Total Foreign Exchange Reserves	28.498	33.137	30.642	29.133	36.721	43.434	52.151	66.836	74.150

** as of April*

Source: CBRT, 2006a and UT, 2006 (23.06.2006)

In Turkey, the lion's share of the reserves are held and managed independently by the Central Bank as seen in Table 4.13. As mentioned in Chapter 2, reserve management strategy of central banks is influenced by different factors. One factor is the liability structure of the central banks. In Turkey, the liability structure of the Central Bank is somewhat different from most central banks in the world. The Central Bank carries a relatively large amount of its liabilities in foreign exchange in the form of saving deposits held by Turkish citizens living abroad. Turkish workers' saving deposits was 12.8 billion US dollars in 1998 and increased to 15.5 billion US dollars in 2005 (CBRT, 1999 and 2006b). These deposits constitute one quarter of total foreign exchange reserves of the Central Bank.

Another factor in reserve management strategy of the Central Bank is the foreign debt payments of the Turkish Treasury. In Turkey, the Treasury manages the government's foreign debt and the Central Bank is responsible for the management of foreign reserves

by taking into account the foreign debt payments of forthcoming years.

To control or at least to defend the floating exchange rate system is another reason for the Central Bank to keep enough foreign currencies in order to intervene to money markets when necessary (Korap, 2006 and Mihaljek, 2006). The Central Bank has intervened in the foreign exchange market[55] in order to prevent excessive fluctuations either by selling or buying foreign exchange[56] since the implementation of May 2001 program (Ağcaer, 2003; Akıncı *et al.*2005 and CBRT, 2006b: 92–93).

Due to its trade position with the EU, Turkey needs to shift and rebalance its foreign exchange reserves towards the euro and away from US dollar for reasons linked to risk aversion. Invoicing Turkey's exports in euro is a natural way of rebalancing its reserves. It can be said that, billing the EU-Turkey trade in euros reduce the circulation of US dollars in Turkey's economy. On the other hand, Turkey is one of the net debtor countries in the world to the IMF in terms of US dollars and US dollar is the dominant currency in currency composition of Turkey's external debt as aforementioned. It is very likely that Turkey will increase its demand for euro especially for imports from EU. However, the introduction of euro will not change the denomination of the existing external debt in the near future and Turkey is likely to pay for the debt service mostly in US dollars. This fact implies that the

[55] Although the currency composition of these interventions is not available, daily data on foreign exchange sale and purchase auctions is available from the CBRT's website (www.tcmb.gov.tr).

[56] See Guimarães and Karacadağ (2004) in order to see the effectiveness of these interventions in Turkey.

currency composition of Turkey's international reserves continue to be dominated equally between these two major world currencies.

As the euro's acceptance by the international financial markets continue to grow as an international currency, in the medium and long term the euro's share in Turkey's financial accounts is likely to rise. It is likely that the acceptance of the euro in daily life and financial transactions comes faster in Turkey than in other countries, this is due to the large number of Turkish citizens living in the EU, and the large volume of trade and tourism transactions[57] of Turkey with the EU.

Undoubtedly the use of a common currency as both store of value and medium of exchange leads to lower transaction costs. The large economic base of the euro and the elimination of the transaction costs involved with multiple exchange rates have increased the use of the euro as a unit of account in the denomination of trade flows in transactions between the euro area and Turkey.

Elimination of the transaction costs arising from a multitude of European exchange rates with the introduction of the euro has also removed the risks connected with more volatile currencies in euro area. This has led to a deep and liquid euro bond market as discussed in Chapter 3. This deep and liquid euro bond market likely to attract more Turkish bond issuers.

[57] Turkey received 21.1 million foreign visitors in 2005 compared with 17.5 million in 2004. Tourism earnings in 2005 were 14 percent higher than in 2004, at 18,2 billion US dollar. 11.6 million foreign visitors entered Turkey from EU-15 countries in 2005, representing 52 percent of total international tourist arrivals from third countries to Turkey. The share of the US tourists was only 2 percent in 2005 (EIU, 2006: 29).

Elimination of exchange rate risk by introducing a single currency has also made it more attractive for Turkish business community to trade with the euro area. Price transparency in a single currency narrows the differences between the prices paid for the same product in different countries. Therefore, the improvements in price transparency coupled with the reduction in transaction costs and the elimination of exchange rate risk lower the trading costs to Turkish business sector. These developments has had a spillover effect of higher investment by euro area countries outside the euro area from which Turkey has also benefited as seen in Table 4.6.

Finally, given the depth of Turkey's relationship with the EU and the USA in light of the statistical figures, the euro and the US dollar will continue to play important roles in Turkish economy. The use of the euro in Turkey will continue to rise by the increasing density of trade and economic relations of Turkey with the EU (and the euro area). Foreign direct investment, notably from the EU countries (and the euro area) to Turkey will contribute more to increasing use of the euro in Turkish economy. Despite of relatively good international trade relations of Turkey with the EU and foreign direct investment inflows from the EU to Turkey, most of Turkey's external debt and foreign exchange deposits will be realized in US dollars for the foreseeable future.

CHAPTER 5

CONCLUSION

This thesis seeks to ascertain the competition between the euro and the US dollar by making comparisons between these two major currencies' main roles basically in financial markets, foreign trade, foreign exchange markets, foreign exchange reserves and exchange rate regimes globally. In addition, this thesis specifically highlights the roles of the euro and the US dollar in Turkish economy.

In order to determine the indicators for making the comparisons, Chapter 2 provides the theoretical framework for the definition, functions, uses and the major determinants of an international currency as they are formulated and analysed in the economic literature.

The US dollar has fullfilled successfully all the major determinants of an international currency mentioned in the Second Chapter and this has favored the use of the US dollar as the dominant international currency after the Word War II within the context of the Bretton Woods System. Germany and Japan emerged as other major economic powers within the same peripd and the US dollar's dominance has been reduced after the Bretton Woods System. However, the US dollar has remained the dominant international currency. On January 1, 1999, the euro was introduced with an

economic area comparable to the size of the USA economy and effects of the euro's introduction have been felt in markets throughout the world economy. In other words, for the first time the US dollar started to face an important rival to its role as the world's major international currency.

In order for a currency to be considered international, it should fulfil the traditional functions of money (unit of account, store of value, and medium of exchange) at an international level. In other words, an international currency is one that is used outside its home country. In the scope of Chapter 2, the private and public uses of an international currency are described shortly by using the three traditional functions of money. For private international transactions, a currency serves as a unit of account if it is used as an invoicing currency, as a medium of exchange if it is used as a vehicle currency and as a store of value if it is used as an investment and financing currency. For official international purposes, a currency serves as a unit of account if it is used as an anchor currency, as a medium of exchange if it is used as an intervention currency and as a store of value if it is used as a reserve currency.

The Second Chapter focuses also on the literature on determining factors of an international currency. Size of the economy and importance in international trade, size, openness, liquidity and depth of domestic financial markets, confidence in the value of the currency, network externalities, convertibility of the currency, macroeconomic policies and monetary stability, inertia and transaction costs are discussed in detail in Chapter 2 as the main determinants of an international currency.

The Third Chapter investigates the competition between the euro and the US dollar as international currencies in many phases. In discussing the competition firstly the major economic indicators of the euro area and the USA are compared. Secondly, the competition is discussed by taking into account the international roles of the euro and US dollar as financing and investment, invocing, vehicle, reserve, anchor and intervention currencies.

The findings of Chapter 3 have shown that the shares of the US dollar and the euro broadly reflect the weight of their respective economies in almost all the main international currency roles. The US economy is one of the largest in the world, accounting for about 20.9 percent of world output in 2004. The introduction of the euro created an area very similar to the USA with respect to the size of its economy and this area's share was 15.3 percent in world output. However, EU–15 countries together make an economic unit as large as the US economy, and in many respects larger than that of US. The EU–25 GDP exceeds US GDP, the EU–25 (and the euro area) population exceeds US population and the EU–25 (and the euro area) exports exceed that of US. Considering all these factors, deepening integration of the EU's economies is likely to lead to an increase in the international role of the euro.

The emergence of large and liquid euro financial markets has led to widespread use of the euro as investment and financing currencies in international debt securities markets right from the start of EMU. The euro surpassed the share of the US dollar at the end of 2003 for the first time and become the leading international currency in international debt securities issuance. The total stock of euro-denominated international debt securities reached a share of 44 percent in 2005 compared with about 26 percent in 1998 just

before the start of EMU. The share of the US dollar decreased from about 47 percent to 38 percent during this period, and that of the Japanese yen from 11 percent to about 3 percent. Although the share of the euro has increased gradually and has come closer to the share of the US dollar since its introduction, it is still the second investment and financing currency both in international bank liabilities and bank assets. Between the end of 1998 and 2005, the share of the euro increased from 23,6 percent to 32,2 percent while the share of the US dollar has remained around 40 percent in international bank liabilities. Within the same period, a rise of 15,1 percentage points can be observed in the share of the euro in international bank assets, bringing it to 37,7 percent against 40,7 percent for the US dollar in 2005. The share of the US dollar was around 40 percent for the years 1998 and 1999 and its share has decreased from about 6 percentage points between the years 2000 and 2005 in international bank assets. In the financial markets, whereas the US dollar is the dominant currency of issuance in most regions of the world, the euro is mainly used as the currency of denomination for international debt securities issued by emerging economies geographically closest to the euro area.

The US dollar is still the dominant international currency in invoicing of international trade transactions, but the euro is the second most used one and shows an increasing trend. Moreover, oil and other energy products are invoiced in US dollars. As oil is an important commodity in world trade, in terms of value, if the pricing of oil were to shift to the euro, it could provide a boost to the global acceptability and use of the euro. Findings of the Third Chapter shows that the euro has played a regional role in international trade transactions. For example, euro invoicing in euro area's and the new EU member states' exports and imports of

goods and services has grown notably, reaching a share of over 50 percent in many EU countries in 2002. Although the share of the euro has increased for the EU countries and some non-EU countries as an invocing currency, it is still a long way to go to gain equal weight as the US dollar in international trade transactions.

Concerning the use of the euro and the US as vehicle currencies in foreign exchange market, the US dollar/euro is the most intensively traded currency pair and the euro is the second most widely traded currency in foreign exchange markets worldwide taking part in 37.2 percent of transactions in 2004 compared with 88.7 percent in case of the US dollar. In foreign exchange markets, while the US dollar is the main international vehicle currency traded globally, the euro inherited a regional vehicle currency role from the Deutsche Mark in the Nordic as well as some central and eastern European countries.

With respect to roles of the euro and US dollar as reserve currencies, it is not surprising that the US dollar is still the dominant international currency in official foreign exchange reserve holdings of the world's monetary authorities since euro's introduction. The share of the US dollar peaked at 71 percent in 1999 but declined to 65.9 percent at the end of 2004 in the foreign exchange reserves of all countries. By contrast, the share of the euro rose from 17.9 percent in 1999 to 24.9 percent in 2004. This increase reflects the gradual improvement in the role of the euro in the world foreign exchange reserves. The euro's share is also significantly above the previous aggregate share of the euro legacy currencies but still far below the share of the US dollar.

The euro is a regional anchor currency and plays only a very limited role as an anchor currency in the rest of the world. About 50 countries in Europe, the Mediterranean and Africa have pegged their currency to the euro or adapted their exchange rate policy to the euro in 2004. On the other hand, the US dollar is the second most popular choice for a currency peg, with around 25 countries officially tying their currencies to the US dollar in 2004. The use of the US dollar in third countries' exchange rate regimes is spread more globally and has less of a regional dimension. The US dollar plays a role in exchange rate policies of authorities on several continents, especially in the Western Hemisphere and in Asia.

Little information is available at globally on the roles of US dollar and euro as intervention currencies. However, it can be said that countries using the US dollar and euro as reserve and anchor currencies are likely to conduct their interventions in these currencies because anchor and reserve currency uses of an international currency are closely intertwined with that of intervention currency use. Consequently, a result of US dollar's role as the primary international reserve currency is its use as the main currency for intervening in foreign exchange markets. However, the US dollar has a dominant but not exclusive position as an intervention currency in the world. Since its role as an anchor currency, the euro has been used as an intervention currency by several third countries at the regional level.

The information and statistics examined in Chapter 3 also support the views of Cohen (2006) and Mundell (2003) who argue that the role of international currencies tend to change only gradually and subject to inertial forces (as indicated in Chapter 2) and prove wrong some earlier expectations of a rapid rise of the euro's

international role. Hence, the international role of the euro is growing gradually in almost all above mentioned private and public uses of an international currency.

In the light of the findings of Chapter 2 and Chapter 3, Chapter 4 focuses on the Turkish case by examining the roles of the euro and the US dollar in Turkey's economy with respect to currency composition of trade flows, debt, deposits, FDI, exchange rate regime and reserves in Turkey.

Statistics and information about Turkey's GDP and foreign trade volume given in Chapter 4 indicate Turkey's growing importance in the world economy and its integration with the world trading system. Therefore, developments and changes in the world economic system as a result of introduction of euro have consequences on Turkey's economy in many ways.

Chapter 4 determines that the USA and the EU have always been Turkey's major trading partners. The USA ranked third or fourth in Turkish imports while usually second in exports between the years 1999 and 2005. On the other hand, Turkey makes roughly half of its foreign trade with the EU, and this makes the EU (and the euro area) its main trade partner. Introduction of euro eliminated the transaction costs arising from a multitude of European exchange rates and made it more attractive for Turkish business community to trade with the euro area.

According to the findings of Chapter 4, the euro and the US dollar currencies account for approximately 95 percent of Turkish foreign trade invoicing and invoicing pattern of Turkish foreign trade is evenly distributed between these two major currencies. However,

the share of euro in invoicing Turkish exports increased from 35 percent to 48 percent between 1998 and 2005, while the US dollar which declined from 55 percent to 43 percent between 1998 and 2005, has been loosing its dominance in invoicing Turkish exports since 2002. In invoicing Turkish imports, the share of the US dollar (57 percent in 2005) is still higher than the euro (38 percent in 2005). Interestingly, although the share of the euro has remained around 38 percent between 1998 and 2005, the share of the US dollar has increased about 4 percentage points in the same period in invoicing Turkish imports.

The Fourth Chapter has also shown that the euro area countries were the main source of FDI inflows to Turkey between 2002-2005 period. The share of the euro area countries was 56 percent in FDI inflows to Turkey while the share of the USA was 1 percent in 2005. Since the euro area countries were the main source in FDI inflows to Turkey, this is likely to lead increasing use of euro in Turkey's economy.

As it is highlighted in Chapter 4, Turkey is one of the net debtor countries in the world with a total debt of 352 billion US dollars in 2005. Turkey's domestic debt is mainly denominated in Turkish liras (84 percent in 2005). The external debt of Turkey is fairly high and account for 47 percent of Turkey's GDP. Introduction of the euro has helped Turkish authorities in managing, monitoring and accounting operations of Turkey's foreign debt. However, the introduction of euro has not significantly changed the currency composition of Turkey's external debt. Between 1998- 2005 period, the US dollar was used to denominate roughly 50 percent of Turkey's external debt while the euro was used to denominate about 30 percent of this debt.

The US dollar dominates the borrowing of Turkish treasury via bond issuances. Turkish Treasury borrowed a total of approximately 40 billion US dollars via bond issues in the international capital markets between February 1998 and March 2006, 41,6 percent of which was denominated in euros (and Deutsche marks in 1999) and 55,2 percent in US dollars.

Euro's share has increased and the US dollar's share has decreased since euro's introduction but euro is still the second currency in foreign exchange deposit accounts of commercial banks in Turkey. In 2005, in foreign exchange deposit accounts, the share of the US dollar was 59 percent and the share of the euro was 39 percent, respectively. However, although the share of the US dollar has increased from 1,5 percent to 7,0 percent between the years 1998 and 2005, the euro and its legacy currencies have by far dominated (92 percent in 2005) currency composition of foreign exchange deposits of the Central Bank in Turkey. This is because of the fact that most of Turkish workers are in the EU and open foreign currency deposit accounts in the Cental Bank of Turkey.

Considering the exchange rate regime, different exchange rate regimes were implemented in different periods in Turkey as examined in a detailed way in Chapter 4. Freely floating exchange rate regime has been implemented since May 2001 and this regime will be implemented at least until Turkey's entry to the EMU according to Turkish authorities. Although the exchange rate regime is one of free float, the level of foreign exchange reserves of Turkey are important for Turkey's debt repayments to the IMF in terms of US dollars and for the Central Bank to clear its balance sheet of some types of foreign exchange liabilities, such as deposits (mainly denominated by euro) of Turkish workers abroad.

Regarding reserves, foreign exchange reserves amounting 70 billion US dollars in 2006 comprise the largest share of international reserves of Turkey. In Turkey, the lion's share of foreign exchange reserves are held and managed independently by the Central Bank. However, the Central Bank does not publish currency compositon of foreign exchange reserves of Turkey. The Central Bank manages these reserves according to the its liability structure, which is mosty dominated by saving deposits held by Turkish citizens living abroad and according to foreign debt repayments of Turkish Treasury in forthcoming years. Moreover, the Central Bank manages its foreign exchange reserves to control the floating exchange rate system implemented since May 2001 and intented to be implemented at least until Turkey's entry to the EMU.

Given Turkey's strong economic and political links with the EU and the USA, the introduction of the euro and the euro and US dollar rivalry has been exerting certain impact on Turkish economy, and it is expected that the magnitude of this impact is likely to grow in the coming years. It is also important to conclude that while foreign trade invoicing of Turkey is somehow equally distributed between the euro and the US dollar, most of the Turkish external debt and foreign exchange deposits are denominated in US dollars.

As an overall conclusion, this study proves that the euro has already been a successful international currency since its introduction and became the second most widely used international currency after the US dollar in the world. Euro's rank in the world as an international currency is not only due to the inheritance of the twelve countries' currencies, in particular the Deutsche mark, but is also the result of the economic weight of the euro area and

the emergence of large and liquid euro financial markets. The use of the euro as an international currency shows an increasing trend both in the world markets, and specifically in Turkey's economy. The euro has even surpassed the international role of its legacy currencies. Although the euro's role has been increasing, the US dollar remains the international currency of choice in many areas and has still some advantages over the euro as an international currency. Morever, the US dollar is an international currency that is used worldwide, while the euro is an international currency with a strong regional focus. However, with the introduction of the euro, the US dollar is no longer the sole international currency that has been the case for most of the twentieth century. In other words, the introduction of the euro leads to bipolar currency regime which replaces the US dollar centered international monetary system. This study also reflects that if the increasing trend continues in euro's role since its introduction, the euro will play an increasingly prominent role in the world, and specifically in Turkey.

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