

## An Analysis of the Dollar/Euro Exchange Rate within the Framework of the Optimum Currency Area Theory and the European Union

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**Özet:** Euro'nun 1 Ocak, 1999'da tedavüle girmesi yüksek oneme haiz bir ekonomik gelişme olmuş ve Dolar/Euro döviz kurundaki dalgalanmalar büyük ilgi konusu olmuştur. Bu çalışma Euro ve Dolar rekabetçi para rejimlerinin retrospektif bir analizini sunarak konuyu AB genişleme süreci ve Optimal Para Alanı Teorisi çerçevesinde incelemektedir.

**Anahtar kelimeler:** AB, Dolar/Euro döviz kuru, Optimal Para Alanı Teorisi

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**Abstract:** The launch of the Euro on January 1, 1999 has been a highly significant economic event and the fluctuations of the Dollar/Euro exchange rate have become a subject of great concern. This study presents a retrospective analysis of the Euro-Dollar competitive currency regimes and relates it to the concepts of the EU Enlargement Process and the Theory of Optimum Currency Area.

**Key words:** EU, Dollar/Euro exchange rate, optimum currency area theory

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### I. INTRODUCTION

After the World War II, the US Dollar became the global legal tender. Until 1971, the US Dollar was the only global currency and it still remains the most valued international reserve currency. The launch of the Euro on January 1, 1999, under the supervision of the European Central Bank (ECB) has been a highly significant economic event and the fluctuations of the Dollar/Euro exchange rate have become a subject of great concern, impacting some 800 million people in the two economic units which have over 55 percent of world GDP and over 55 percent of world trade (Dutta, 2001). In addition, volatility of Dollar/Euro parity impacts the economies of the rest of the world including both the developing and developed countries.

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As Salvatore (2005) points out, the Euro has been an important international currency from its very beginning and is bound to become even more so in the future as the European Monetary Union (EMU) is a huge economic and trading unit as the United States and it has a well-developed and growing financial market. When the Euro was created it instantly became the second most important currency in the world. Given its shares of world output and trade, the Euro is a challenge to the Dollar's role in global commerce and investment (Baldwin and Wyplosz, 2004). This study presents an analysis of the Euro-Dollar competitive currency regimes and relates it to the concepts of the European Union and the theory of Optimum Currency Area. The rest of the paper is structured as follows: Section II will briefly explain the benefits that Euro offers. Section III will compare the use of Euro with that of other currencies around the world. Section IV will briefly review the Optimum Currency Theory. Section V will analyze the Euro-US Dollar exchange rate

## **II. COSTS AND BENEFITS OF MONETARY UNION AND THE EURO**

There is no doubt that there are benefits to having one currency in a market as large as the EUs. (Gerber, 2005). One of the major reasons for desiring monetary union is to reduce the effects of exchange rate uncertainty on trade and investment (Gerber, 2005). This makes it easier to invest across borders. The risks of changes in the value of respective currencies have always made it risky for companies or individuals to invest or even import/export outside their own currency zone. Profits could be quickly eliminated as a result of exchange rate fluctuations. In a similar vein, companies have greater freedom to borrow competitively from cross-border banks without incurring exchange rate risk. This has forced the incumbent banks to reduce their rates to compete. In short, the "Eurozone" greatly increases the potentially "exchange-risk free" investment area (Nutti, 2000). Competitive funding is also a benefit for the countries that adopted the Euro because national and corporate bonds denominated in Euro are significantly more liquid and have lower interest rates.

Another benefit is the removal of bank transaction costs that previously were a cost to both individuals and businesses when exchanging from one national currency to another. This reduces the financial servicing costs to businesses and individual consumers (Cuaresma and Wójcik, 2006). According to Sawyer and Sprinkle (2006), the Euro is projected to save 0.5 percent of GDP per year (approximately 40 billion USD) per year just in transaction-costs-savings alone. In addition to this, credibility gains resulting

from the adoption of an institutional framework ensures the pursuit of macroeconomic stability (Cuaresma and Wójcik, 2006). This will lead to greater economic integration, through both greater trade and greater foreign direct investment. Decrease in the differences in price levels is another benefit of the monetary union and is supposed to help to restrain inflation. Similarly, price transparency across borders is said to benefit consumers find lower cost goods or services.

Given these considerations the benefits of a single currency appear to be enormous. Nevertheless, there is a big cost of monetary union: Because the Eurozone has a single monetary policy, and so a single interest rate set by the ECB, it cannot be fine-tuned for the economic situation in each individual country (Cuaresma and Wójcik, 2006). In other words, a single currency does not allow individual nations to pursue an independent monetary policy (Gerber, 2005).

### **III. THE EURO AS A GLOBAL CURRENCY**

It is argued that the competitive value of a currency in the global market depends on the shares of world output and trade it represents. In 2005, EU -25 is the third largest economy, next to China and India, while USA is the fourth. As can be seen in figure EU-25 has around 8 percent of the world population while the US share is around 5 percent. EU-25 share of world GDP is around 30 percent, while US share is around 27 percent. In the post-World War II period, the Dollar was the global unit of currency as it represented competitively very large shares of world output and trade, no other currency regime coming even close to it (Dutta. 2000). With the progression of the European Union, the Euro has progressively become a global currency as its shares of world output and trade have become competitively large. This is evident from Table 2 which shows the share of official foreign exchange holding for the selected years since 1999 when the Euro became an international currency.

As evident from the table 1, given its shares of world output and trade, the Euro is a challenge to the Dollar's role in global commerce and investment. The strength of the Euro relative to the US Dollar might encourage the use of the Euro as an alternative reserve currency (Baldwin and Wyplosz, 2004). Moves by central banks with major reserve currency holdings such as those of India or China to switch some of their reserves from US Dollars to Euros, or even of OPEC countries to switch the currency they trade in from US Dollars to Euros, will further reinforce the US Dollar's decline. In 2004, the Bank for International Settlements (BIS) reported the proportion of bank deposits held in Euros rising to 20% in 2004, from 12%

in 2001, and it is continuously rising. The falling Dollar also raises returns for US investors from investing in foreign stocks, encouraging a switch which further depresses the Dollar (Dutta, 2005).

Table 1. Exports and Imports in EU, USA and the rest of the world. (in US\$ Billions)

		1960	1970	1980	1990	2000	2005
EU-25 Trade	Imports	414.60	750.64	1,777.4	2,272.1	3,700.9	101.83
	Exports	409.27	737.06	1,604.2	2,231.3	3,758.1	89.43
	Net Exports	-5.33	-13.58	-173.23	-40.77	57.12	-12.4
	% of World Imports	0.43	0.42	0.46	0.45	0.44	0.12
	% of World Exports	0.43	0.42	0.44	0.44	0.44	0.11
USA	Imports	104.19	188.48	505.86	712.73	1,335.3	1,891.2
	Exports	123.71	201.66	481.58	631.78	1,010.3	1,762.3
	Net Exports	19.52	13.18	-24.28	-80.95	-325.01	-128.89
	% of World Imports	0.11	0.10	0.13	0.14	0.16	0.13
	% of World Exports	0.13	0.11	0.13	0.13	0.12	0.11
Rest of the World	Imports	966.00	1,808.4	3,879.7	5,064.7	8,487.8	6,231.3
	Exports	961.32	1,826.1	3,639.8	5,031.6	8,573.3	7,422.4
	Net Exports	-4.68	17.68	-239.87	-33.17	85.44	1191.1

Source: World Development Indicators

Table 2. Share of Official Foreign Exchange Holdings (in Percent)

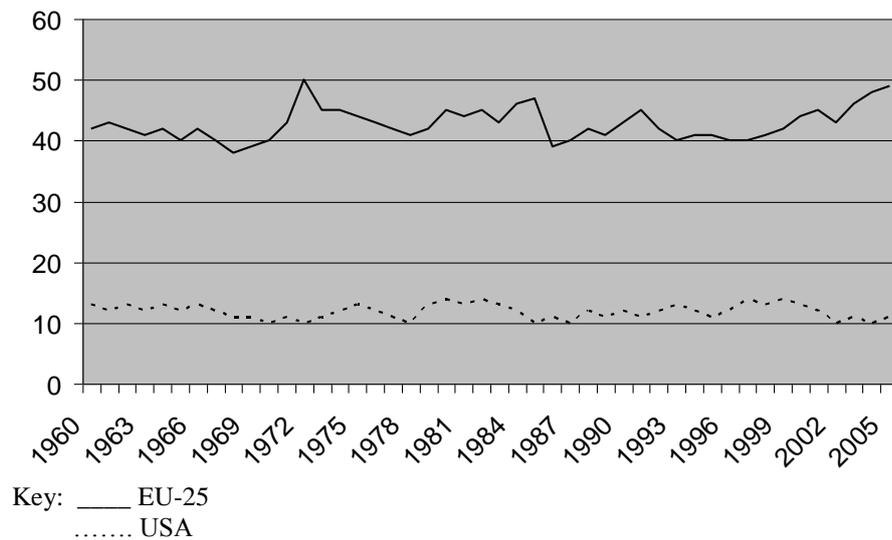
	2001	2002	2003	2004	2005
<i>In Developed Countries</i>					
US Dollar	64.4	65.1	66.6	64.2	65.2
Japanese Yen	3.2	3.6	3.6	5.5	4.4
British Pound	3.5	3.6	4.2		4.1
Euro	14.2	16.3	16.6	18.1	19.8
<i>In Developing Countries</i>					
US Dollar	59.2	62.2	62.9	59.8	59.3
Japanese Yen	4.6	6.1	5.4	5.5	5.2
British Pound	4.5	5.1	5.4	5.8	6.2
Euro	15.3	15.6	16.2	17.9	18.9

Source: IMF Annual Report

As can be seen in the table 2, in general, the US Dollar, Japanese yen, and British Pound continues to hold their respective shares of official world currency reserve in the last five years. For the developed countries as well as for the developing countries, the same situation is observed.

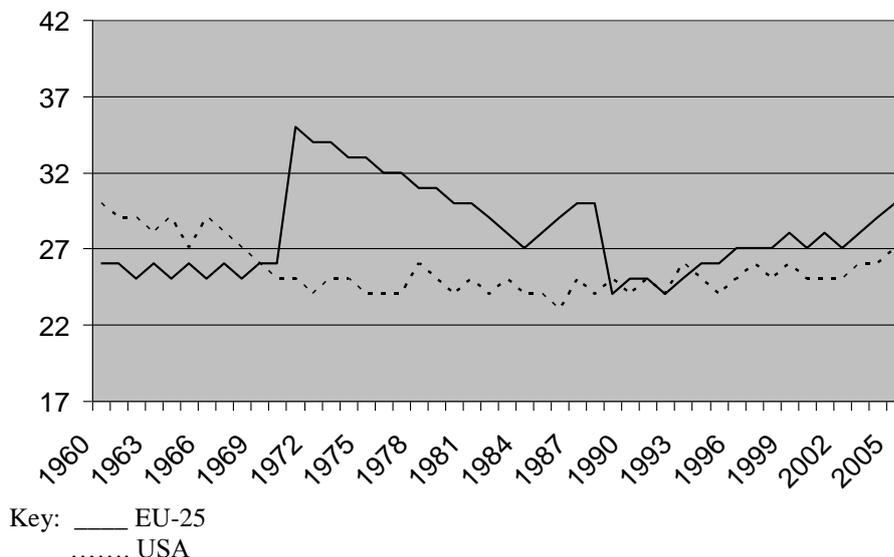
According to Mishkin and Eakin (2006), with the introduction of Euro, the US Dollar faces a challenge to its position as the key reserve currency. They report that before the Euro, eighty per cent of the world's currency reserves were held in US Dollars. This used to give the US economy a huge subsidy in that reserve Dollars are invested in US institutions or foreign institutions under US control. This subsidy helped cushion the effects of a possible strong Dollar. If Euro becomes a hegemonic currency replacing the Dollar or a co-hegemonic currency equal in reserve status to the Dollar, some of the subsidy the USA gains would be transferred to the EU and help balance out any problems of the heterogeneous economic structure (Mishkin and Eakin, 2006).

Figure 1. US and EU-25 Comparative Shares of World Exports (as a percentage)



As can be seen in Table 2 and Figure 1, it seems likely that the share of official reserves held in Dollars will decline, while the share invested in the Euro will increase. The Euro will probably become one of two, or perhaps three, major global reserve currencies. Currently, international currency exchange is dominated by the U.S. Dollar (USD). The U.S. Dollar is used by banks world-wide as a stable reserve on which to ensure their liquidity and international transactions and investments are often made in U.S. Dollars. Euro is the first real competitor to the Dollar since it surpassed sterling as the world's dominant money (Baldwin and Wyplosz, 2004).

Figure 2. US and EU-25 Comparative Shares of World GDP (as a percentage)



A currency is attractive for foreign transactions when it demonstrates a proven track record of stability, a well-developed financial market to dispose of the currency in, and proven acceptability to others. The Euro will almost certainly be able to match these criteria at least as well as the U.S. Dollar, so given some time to become accepted, it will likely begin to take its place alongside the Dollar as one of the world's major international currencies. There are several benefits to reserve currencies of being such an internationally acceptable currency. If the Euro were to become a reserve currency it would benefit member countries by lowering the service charges on their debts. Since the currency would be so broadly acceptable it would make the premiums paid to debt holders lower, since the risk to the borrower is lower. It is estimated that the United States government currently saves 10-15 billion Dollars a year on 2 trillion Dollars of international debt because of this principle. The issuer of the reserve currency is free to pursue macroeconomic policy adjustments to suit its own needs in terms of financing its debt, or influencing other countries. Reserve status would also lower the cost of many commodities for Europeans.

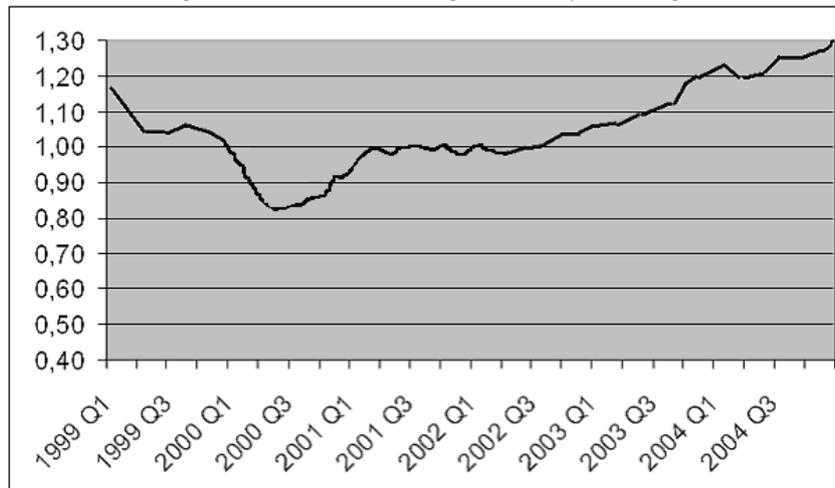
If the EU central bank can keep inflation low so that the Euro becomes a sound currency, this should bode well for the Euro (Mishkin and Eakin, 2006). However, for the Euro to eat significantly into the Dollars position as a reserve currency, the European Union must function as a

cohesive political entity that is able to exert its influence on the world stage. There are serious doubts on this score and most analysts think that it will be a long time before the Euro beats out the Dollar in international financial transactions (Mishkin and Eakin, 2006).

#### IV. THE EURO/DOLLAR EXCHANGE RATE

The creation of a single European currency is the most important development in the evolution of the international monetary system since the widespread adoption of flexible exchange rates in the early 1970s. Hence, the Euro-Dollar exchange rate fluctuation is also critical issue and it must be addressed with a well designed agenda. After the introduction of the Euro, its exchange rate against other currencies, especially the US Dollar, declined heavily.

Figure 3. Euro/USD Average Quarterly Exchange Rates



At its introduction in 1999, the Euro was traded at 1.18 US Dollars; on 26 October 2000, it fell to an all time low of 0.83 US Dollars per Euro. It then began what at the time was thought to be a recovery; by the beginning of 2001 it had risen to nearly 0.96 US Dollars. It declined again, although less than previously, reaching a low of 0.83 US Dollars on 6 July 2001 before commencing a steady appreciation. The two currencies reached parity on 15 July 2002, and by the end of 2002 the Euro had reached 1.04 US Dollars as it climbed further. On 23 May 2003, the Euro surpassed its initial 1.18 US Dollars = 1.00 Euros trading value for the first time.

At the end of 2004, it had reached a peak of 1.37 US Dollars per Euro as the US Dollar fell against all major currencies. US Dollars recovered in 2005, rising to 1.18 US Dollars per Euro in July 2005 and remained stable throughout the second half of 2005.

What explains the weakness of the Euro in its first two years and its recovery in its third and fourth year? While the Euro was coming into existence EU economies were experiencing only slow recoveries from recession thus causing both real and nominal interest rates to fall. In contrast, in 1999 and 2000 the US experienced very rapid growth substantially above their EU counterparts. Low real interest rates in EU relative to those in the US drove down the value of Euro. With the slowing of the US economy, which entered into a recession in the Spring of 2001, the process reversed. The growth rate fell slightly behind Europe's so that US relative real and nominal interest rates fell setting the stage for the current recovery in the Euro. (Mishkin, 2006)

It may be that the initial weakness of the Euro was due to low confidence in this currency. Once the Euro became "real" in the sense of existing in the form of cash, confidence in the Euro rose and the increasing perception that it was here to stay helped increase its value. This effect was probably significant in the Euro's decline and recovery between 1999 and 2002, but other factors are more significant since then.

Part of the Euro's strength in the period 2001-2004 was thought to be due to more attractive interest rates in Europe than in the United States. The US Federal Reserve had maintained lower rates than the ECB for these years, despite key European economies, notably Germany, growing relatively slowly or not at all. However, although the interest rate differential formed part of the conditions, the main justification for the Euro's continuing rise against the Dollar was the concern over the huge unsustainable US current account deficits.

Another key factor is that a number of Asian currencies are raising less against the Dollar than is the Euro. In the case of China, the renminbi was until recently pegged against the Dollar, whilst the Japanese yen is supported by intervention (and the threat of it) by the Bank of Japan. This means much of the pressure from a falling Dollar is translated into a rising Euro.

Despite the Euro's rise in US-Dollar-denominated value, as well as those of other major and minor currencies, the US trade deficits continue to rise. Economic theory would suggest that a fall in the Dollar and a rise in the Euro should lead to an improvement in US exports and a decline in US imports, as the former becomes cheaper and the latter more expensive.

However, this depends to some extent on how currency costs are passed down the supply chain. Furthermore, the declining Dollar makes foreign investment in the US cheaper (although also reducing the return), so that continuing foreign investment may underpin the Dollar to some extent. Many economists argue that as the EU central bank improves its credibility with financial markets, the Euro's value will continue to rise. Some sceptics maintain however that until EU economic performance improves substantially relative to that in the US the Euro will remain weak relative to US Dollar (Hubbard 2005).

The strength of the Euro relative to the US Dollar might encourage the use of the Euro as an alternative reserve currency. Moves by central banks with major reserve currency holdings such as those of India or China to switch some of their reserves from US Dollars to Euros, or even of OPEC countries to switch the currency they trade in from US Dollars to Euros, will further reinforce the US Dollar's decline (Dutta. 2002). In 2004, the Bank for International Settlements reported the proportion of bank deposits held in Euros rising to 20%, from 12% in 2001, and it is continuously rising. The falling Dollar also raises returns for US investors from investing in foreign stocks, encouraging a switch which further depresses the Dollar.

Future potential impacts on US Dollars are that the Euro may lead international investors to diversify more into Euro assets. Second, central banks may choose to hold more of their reserves on Euros and less in Dollars. Third, the Dollar has been the currency of choice for invoicing trade and the pricing of some commodities. Therefore, the Euro may lead to a somewhat weaker Dollar as the demand for Dollars falls over time. (Sawyer and Sprinkle, 2006)

## **V. THE THEORY OF OPTIMUM CURRENCY AREA**

The Euro-Dollar competitive currency regimes present a choice of optimum currency areas (Mundell, 1961) for the global economy. The European Union is based on the principle of competition and the Euro-Dollar competitive currency regimes will contribute to the optimization of economic gains for all micro units in the two currency regimes and also in the rest of the world. As we have demonstrated in the previous section, the EU -25 with its commanding shares of world output and trade is a challenge for the US Dollar.

As the Euro zone is one of the world's newest and largest currency areas in the world, much research was and is focused on whether the Eurozone is an Optimal Currency Area. In economic theory the degree of fulfilment of the following four criteria indicates whether an area is optimal

for a monetary union (De Grauwe, 1997). These criteria are often called the Optimal Currency Area (OCA) criteria. Although these criteria are not exhaustive and far from absolute, they are generally accepted as a sufficient measure. There are three economic criteria such as labour and capital mobility, product diversification, and openness, and one political criterion, namely fiscal transfers (Issing, 1999). All these criteria stand in relation to the ability to deal with asymmetric shocks (i.e. shocks that only hit one area). Symmetric shocks are less problematic in a currency area as the currency will depreciate or appreciate to the needed level for all areas, as this level is the same for all areas (De Grauwe, 1997), while asymmetric shocks will create an exchange rate that is too high for one area and one that is too low for the other. This causes wage and price changes and unemployment problems. This problem is often worsened in reality as wages are fixed by social regulations, thus increasing unemployment even more (Dutta, 2001).

This theory has been most frequently applied in recent years to the Euro and the European Union. By these criteria the European Union does not constitute an Optimal Currency Area and therefore the Euro should not be a successful union of currencies. Europe may be an optimal monetary area from a political point of view, but it certainly does not appear to be one from an economic one (Rogoff, 2005).

## **VI. CONCLUSION**

Adoption of the Euro has increased integration of Europe's financial markets, which could help them rival those in the United States. The resulting increase in the use of Euros in financial markets is making it more likely that international transactions are carried out in the Euro (Mishkin and Eakin, 2006).

If the EU central bank can keep inflation low so that the Euro becomes a sound currency, this should bode well for the Euro (Mishkin and Eakin, 2006). However, for the Euro to eat significantly into the Dollars position as a reserve currency, the European Union must function as a cohesive political entity that is able to exert its influence on the world stage. There are serious doubts on this score and most analysts think that it will be a long time before the Euro beats out the Dollar in international financial transactions (Mishkin and Eakin, 2006).

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somewhat weaker Dollar as the demand for Dollars falls over time. (Sawyer and Sprinkle, 2006)

There is little agreement on whether EU constitutes an optimal common currency area. This is because neither of the two Mundell conditions appears to be satisfied. While the future maybe different, EU counties have experienced very different shocks in the past. Labor mobility is very low in Europe and is likely to remain so (Blanchard, 2003). Given the language and cultural differences between European countries, mobility between countries is likely to be even lower. We conclude that European Union does not constitute an Optimal Currency Area.

The risk is that at some time in the future one or more Euro members suffers from large decline in demand and output and can neither use the interest rate or use the exchange rate to increase activity.( Blanchard, 2003)

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As the US current account deficits continue to rise and the US plans no austerity measures to limit foreign imports and increase exports, the situation may cause the US Dollar to lose its position as a hegemonic currency replaced by the Euro.

Therefore, the Euro-Dollar exchange rate fluctuation is a critical issue and it must be addressed with a well specified agenda. Continental economic regionalization is expected to be the order of the new economic paradigm for economics of globalization.

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