A PERSPECTIVE ON THE FUTURE DOLLAR-EURO EXCHANGE RATE: IMPLICATIONS FOR THE PERIPHERAL MEDITERRANEAN COUNTRIES*

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I. Introduction

There has been considerable interest in recent years in the prospective dollar-euro exchange rate motivated by the launch of the single currency in Europe. This project studies some of the factors that may constitute the main determinants of the dollar-euro exchange rate. In particular, it argues that in the year 2002–when the euro becomes legal tender within the euro area–there will be an appreciation in the value of the euro against the US dollar arising from shifts in demand toward the euro. Such shifts would work through EU trade invoicing, private portfolio diversification inside and outside the euro area, and central banks' reserves diversification, strengthening the value of the euro against the dollar. The long-run direction of the dollar-euro exchange rate, though cannot be predicted with certainty, will most likely be determined by such factors as GDP and interest rate differentials between the two areas, and trade and capital flows. Overall, it is very difficult to make a sustainable argument that the euro will not possess the potential of becoming a leading international currency and a strong competitor to the US dollar, as many authors have negatively argued against.

The Mediterranean peripheral countries cannot afford to be passive viewers of these fundamental changes in Europe. The new developments pose formidable challenges and opportunities. There is not a single group of developing countries that will be more affected by these changes than the Mediterranean countries given their geographical proximity to the region, their long historical record of extensive and large economic interactions (trade, finance, and migration). This project therefore examines the implications of the introduction of the single currency in Europe on Mediterranean central banks reserves and foreign external liabilities, trade and capital flows, and exchange rate policies. It is shown that since most Mediterranean trade is with the EU, Mediterranean central banks should hold major portions of their foreign exchange reserves in euros. Also, a Mediterranean currency peg to the euro, or to a basket of currencies where the euro is allocated the highest weight reduces financial and trade transaction costs. Finally, Mediterranean foreign debts will eventually have to be converted into euros as well.

In fact, the question of how strong the euro will be relative to the U.S. dollar and the yen is a new one. It has not received much attention in the literature. The issue is of importance because of the impact of the adoption of a single currency on the European Union (EU) countries and the global economy at large. Undoubtedly, the introduction of a common currency in Europe amounts to a fundamental change in the international monetary system, with three of the G-7 countries giving up their currencies.

On the other hand, as Europe continues to forge a single market and currency, many questions have arisen for its Mediterranean neighbors concerning their eventual relationship with Europe. Questions of trade integration are paramount in understanding and appreciating the eventual use and credibility of the euro in this strategic region. It will be argued that integrated trade between Europe and the Mediterranean region will eventually bring about increased transaction costs in the present dollarized Mediterranean region. These increased transaction costs will eventually lead to the necessity by Mediterranean countries to peg their currencies to the euro, or a basket of currencies where the euro is given the highest weight, and denominate their debts and currency reserves in euros.

This project is divided into two main parts. The first part gives a perspective on the future euro-dollar exchange rate. It argues that the euro will most likely rival the dollar to become a leading world currency. This part is divided into 7 sections. The first section discusses the European Monetary Union (EMU). The second section discusses the importance of economic size and of political integration for the international role of the euro. The third section reviews related literature on the determination of exchange rates. Section four and five examine some of the factors that may influence the dollar-euro exchange rate both in the short and long-run. Section six discusses the impact of the euro on bond, equity, and derivative markets. Section seven focuses on other related considerations. Section eight empirically explores the long-run determinants of the dollar-euro exchange rate. The second Part of the project examines the implications of a strong euro for the peripheral Mediterranean countries. This part is divided into six sections. The first section highlights the main features of the Euro-Mediterranean trade and financial agreements. Section two explores the effects of the introduction of the euro on Mediterranean trade flows. Section three sheds light on capital flows, as well as interest rate differentials between the two areas. The plausible use of the euro as an anchor currency in the Mediterranean region is explored in section four. The effects on Mediterranean central banks' reserves and debts are examined in section five. Section six draws on the main similarities between the U. S.–Carribean and EU–MED economic and financial relationships. Part Four summarizes and concludes the main findings.

II. A Perspective on The Euro–Dollar Exchange Rate

II.1. The European Economic and Monetary Union (EMU)

On January 1, 1999, the European Union (EU) launched Stage Three of the Economic and Monetary Union (EMU) with the introduction of a common currency, the euro[1]. This undertaking represents the most significant European exchange rate arrangement since the creation of the European Monetary System (EMS) in March 1979. The beginning of EMU constitutes a turning point in post-war European history. It is a project driven essentially by political and historical considerations[2].

As of the same date, the European Monetary System (EMS) which also involves the European Currency Unit (ECU) (a basket of currencies of 12 out of 15 member states of the European Union) has ceased to exist[3]. At the same time, the bilateral conversion rates of EMU member currencies were fixed. Also, the conversion rates of national currencies to the euro were irrevocably fixed and EMU has become operational[4]. Circulation of euro banknotes and coins will be introduced by January 1, 2002 at the latest. National currencies will cease to circulate by July 1, 2002.

Only eleven countries adopted the euro in 1999: Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain. By mid-1998, these countries had achieved the necessary degree of convergence in terms of inflation, long-term interest rates, government budget deficits and government debt. In addition, they have met the exchange rate requirement, namely, that their exchange rates have remained stable within the normal fluctuation margins of the Exchange Rate Mechanism (ERM) of the European Monetary System (EMS) for the last two years[5]. Among the remaining four EU members, Denmark, Sweden and the United Kingdom have been reluctant to join the euro from its inception, but they have not excluded membership in the future. By May 1998, when the selection of initial EMU entrants was made, Greece did not satisfy the convergence criteria of the Maastricht treaty and its membership into the single currency was therefore postponed to the year 2001[6].

While there will be a single monetary policy in the EMU, economic, fiscal and social policies remain largely within the domain of national governments. From the beginning of 1999, the European Central Bank (ECB) is responsible for monetary policy in the euro-zone. Its primary objective is to maintain price stability. The monetary policy strategy for Stage Three involves two policy guidelines: a monetary target and an inflation target of 2 percent or less.[7] National central banks will become regional branches of the ECB, conducting open-market operations to keep interest rates within its desired range.[8] Although the ECB controls monetary policy, finance ministers are in charge of exchange-rate policy under the Maastricht Treaty. Also, a new exchange rate mechanism (ERM2) will, in principle, link the currencies of the EU countries, which are outside the euro-zone to the euro[9].

Independent national fiscal policies will in practice be constrained by the provisions of the Stability and Growth Pact[10], which is designed to discourage excessive budget deficits and the accumulation of high levels of governments' debts[11]. The Pact limits euro members' budget deficits to 3 percent of GDP and defines the adverse economic conditions under which a budget deficit may exceed 3 per cent. It also provides for the imposition of sanctions or fines should any government exceed the 3 percent limit set

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[1] In 1989, the Delors Report proposed to move to monetary union in three stages. Stage Three involved the introduction of a single currency. The Maastricht treaty of 1991 provided the legal framework for moving towards a common currency. See Gross and Thygesen, (1995); and Corden, (1994).

[2] See United Nations, 1998, p. 6.

[3] The composition of the ECU was based on twelve European currencies: the Belgian franc, the Danish krone, the French franc, the Greek drachma, the German mark, the Irish pound, the Italian lira, the Luxembourg franc, the Dutch guilder, the Portuguese escudo, the Spanish peseta, and the British pound. Because of the late admission into the European Economic Community, the currencies of Austria, Finland, and Sweden were not included in the ECU's composition.

[4] This depends on the exchange rates of the national currencies against the market value of the private ECU on December 31, 1998. The European Council agreed in June 1997 that references to the ECU in legal instruments would be replaced by references to the euro at 1:1 parity despite the fact that the ECU includes three currencies which will not be part of the makeup of the euro: those of Greece, Denmark and the United Kingdom.

[5] The overriding motivation for these criteria is to ensure that the single currency will be a "hard currency" rather than a "soft currency." See Obstfeld, (1997).

[6] By December 1998, Greece was very close to meeting three of the four criteria of the Maastricht treaty. Its budget deficit, long-term interest rates and public debt had gradually shrunk to acceptable levels; and in October 1998, the fourth target, inflation, was at 3.4 percent, still well above the EU's average inflation rate.

[7] See The Economist, October 31, 1998, p. 91.

[8] See The Economist, October 31, 1998, p. 91.

[9] But it is not clear whether all of the four countries will actually be prepared to enter this mechanism as of the beginning of 1999. Membership in ERM2 is not compulsory. Thus, there is the risk that these countries might resort to devalue their currencies vis-à-vis the euro to become more competitive.

[10] This Pact was concluded at the Amsterdam European Council in June 1997.

[11] The indication from recent economic data is encouraging. The EU budget deficit has declined for by 3.4 percent of GDP between 1993-1997.

for a budget deficit in "normal" times. Thus, countries with high unemployment and budgetary constraints will be limited in using fiscal policy (government expenditures) as an effective policy tool to stimulate GDP growth.

There are various costs and benefits of a single currency. The adoption of a single currency is intended to further deepen the economic and financial integration of the European Union countries[12]. Other benefits of the shift to a single currency stem mainly from the elimination of those transaction costs arising from the need to exchange national currencies against those of other countries in the union. A common currency will also eliminate exchange rate risk within the monetary union and hence remove the costs of foreign exchange hedging. Additionally, a euro that represents a larger economic block will be more attractive as a reserve currency affording the EU the benefits of seigniorage. Further, the euro may provide a convenient vehicle for political integration in Europe[13].

The Maastricht treaty hands the euro monetary policy to an independent European Central Bank (ECB) and commits euro governments to fiscal discipline. From January 1, 1999, the ECB's constitutional job is to maintain price stability (i. e., an inflation rate of less than 2 per cent). Under the treaty, governments cannot order the bank to cut interest rate. Also, it is independent from political interference. The treaty allows for no clear accountability to the European Parliament. The ECB will be the world's most independent central bank. In contrast, the Federal Reserve System in the United States is concerned with inflation but sets no numerical target for it. Along side with inflation, it is required by law to take into consideration output and employment. In addition, the FED is accountable to congress, which questions its top officials and tries to influence their views.

The main cost associated with the monetary union is the loss of monetary policy independence, and therefore, the loss of interest rates as a policy instrument. It also implies the loss of nominal exchange rate adjustments for dealing with asymmetric shocks by the individual countries. A single monetary policy also means a much-reduced scope for different inflation rates among countries and the loss of seigniorage for some European governments[14].

II.2. Economic Size

With the membership of eleven countries, the EMU creates a market of close to 290 million consumers shared by a common currency-roughly 10 percent more populous than the United States. Eventually the market could comprise 15 countries (or more if EMU is successful and the EU expands eastward) with a population of 373 million and a Gross Domestic Product (GDP) of $7743 billion (at 1990 prices and 1990 exchange rates). The United States represents a market of 268 million consumers and a GDP of $6862 billion. The respective figures for Japan are 127 million and a GDP of $3256 billion.

The euro representing a much larger unified economy than that of any one of the members individually, will be a more stable currency and will encourage further EU-World trade and foreign investment in the 15 member countries. Also, a euro that represents a larger economic bloc will be more attractive as a reserve currency affording the EU the benefits of international seignorage. Additionally, the free flow of capital in the unified market will increase by the elimination of currency risk and currency transaction costs. All these will improve resource allocation within the EU.

The euro now offers a new and viable alternative to the dollar as a global currency[15]. The dollar's dominance of trade invoicing, and investment is much bigger than America's weight in the world economy seems to justify. For example: the dollar is used to invoice about 45 percent of world trade, and the Deutchemark about 10 percent. All this when 27 percent of world output is produced in the US and 31 percent in the EU.

The question is what factors will determine which of the existing currencies come to be used as international money. Mundell (1961, p. 663) points out that "…markets for foreign exchange must not be so thin that any single speculator (perhaps excepting central banks) can affect the market price…" Swoboda (1968) suggests that "…asset-exchange costs depend inversely on the size of the market for a particular asset… The size of the market for a particular currency depends, in turn, in part on the size of a

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[12] The euro is expected to unify the European goods, services, and financial markets. It will also generate greater transparency in pricing. All prices, transactions and contracts will be denominated in euros. Before the euro, the European markets were not really unified.

[13] Indeed in France, Germany and other euro-zone countries, monetary union was mostly sold as an economic means to the political end of "ever closer union". See *The Economist*, April 17, 1999, p. 43.

[14] The use of inflation tax as a mean of obtaining revenues, especially for the Southern European countries. See Canzoneri and Rogers (1990).

[15] The conditions for a currency to play a global role are: the size of its economy and trade; the lack of exchange control; its breath, depth, and liquidity; the fundamentals of the economy; its strength and stability.

country's foreign transactions and, therefore, on the volume of its external trade…" (p.10). Secondly, since holders are likely to be risk averse, the domestic market of the currency chosen should be characterized by "depth, breadth and resilience," since there is a greater probability of loss from selling on a small market than on a large one. Finally, for similar reasons, no currency, the exchange value of which is likely to fluctuate widely would hold as international money for a long time. Only a few currencies will actually serve as international media. The currencies which do come to be used are likely to be those of the dominant trading and / or those with well developed domestic money markets, (p.841).

The assumption that average transaction costs decrease with the volume of transactions is also made by Kubarych (1978), who points out that the dollar's dominance in the interbank market arises because the larger markets for dollars make it easier to trade large amounts. The euro will definitely decrease transaction costs (the costs of valuation and currency conversion) in Europe since increasing costs are always associated with a maintenance of many currency areas (Mundell 1961, p. 662).

Many authors have advanced the argument that political integration is essential for the success of a single currency in Europe. "Currencies are mainly an expression of national sovereignty, so that actual currency reorganization (a single currency) would be feasible only if it were accompanied by profound political changes" (Mundell 1961, p. 661). This is true, and, as a first step, the eleven European countries have surrendered the right to print money, which is the first act of moving towards political integration. As the European Union moves towards more political integration, some powers of the national states will be transferred to the federal state. Countries that are not participating yet will be welcome to participate. This will provide the necessary degree of political integration required for the success of the euro. A number of other authors [see, for example, Dornbusch (1997), Kenen (1997), Mundell (1997), Moussa (1997), and Salvatore (1997)] emphasize strong political and institutional commitments to a common currency. In the past, such political and institutional commitments have worked favorably in promoting a national currency to the status of an international currency. They also emphasize the importance of fiscal policy considerations for establishing a single currency in Europe. Furthermore, deficit and debt are very important in bringing down inflation and maintaining strong currencies. Therefore, the transition to a common currency in 2002 points to the importance of external debt for the strength of the single European currency.

A successful money requires both trust in the reliability of its issuer, and a reasonable degree of stability in its value (Black 1985, p.1154). A national currency has a special role as international money whenever it performs the functions of a store of value, a unit of account and a medium of exchange beyond its national borders. During most of the twentieth century, the US dollar has assumed such an international role. It has served as a store of value, with balances held both by central banks and by private individuals; it has served as a unit of account, in which international obligations are dominated and in terms of which prices of commodities are quoted. And it has been used as a means of payments, becoming "vehicle" through which transactions between other currencies are made (Krugman, 1980). The euro will most likely claim these three international money functions.

II.3. Related Literature on Exchange Rate Determination

While exchange rates within EMU will be permanently fixed, the euro will be linked to the dollar and other major currencies via a system of freely floating or managed exchange rates. Recent experience with floating exchange rates has shown that it is very difficult to single out the factors that determine the exchange rate between any two currencies. In reality, there may be a multiplicity of factors. The study by Meese and Rogoff (1983), for instance, showed that for some currencies and time periods exchange rate movements appear largely related to factors identified as economic fundamentals−national money stocks, incomes, nominal interest rates etc.

Wallace (1979) questioned whether foreign exchange markets can determine exchange rates between currencies. He argued that, since fiat currencies are intrinsically useless, there is no fundamental value of one currency in terms of the other[16]. Rather, the demand for currencies will be purely speculative. Karaken and Wallace (1981) have demonstrated that, in the absence of government intervention in the foreign exchange market and in the absence of legal restrictions on asset holdings (e. g., presence of pervasive capital controls or restrictions that prevent one currency from being substituted for another), the demand for individual fiat currencies is not well defined under the flexible exchange rate regime and the equilibrium exchange rate is indeterminate. Thus, the indeterminacy of the exchange rate implies that exchange rate fluctuations will be driven by speculative demand for currencies.

Although the indeterminacy of the exchange rate is a theoretical possibility, it is very difficult to believe that actual exchange rate fluctuations do not depend on fundamental factors. Niehans (1977, p.1254) points out that "the long-term course of

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[16]Gold currency has intrinsic value. The distinguishing features of a gold currency are that it requires significant resources to produce and there is an opportunity cost of using gold to support exchange rather than using it in jewellery, industry, etc. Fiat money, in contrast, is intrinsically useless; it is not backed by gold or other metals; and it is costless to produce. Also, fiat money is supported by legal tender laws to be accepted. Both the euro and the dollar are fiat currencies and thus are consistent with these properties.

exchange rates seems to conform closely to the relative rates of monetary expansion, while the short-run fluctuations show a bewildering variety of seemingly erratic patterns"[17]. "In the intermediate run, however, the adjustment process, may be significantly influenced by variations in trade flows " (p.1256).

Since the collapse of the Bretton Woods system of pegged but adjustable dollar exchange rates, "the dollar has experienced three big swings" (Feldtsein 1998). First, between the beginning of 1974 and the end of 1979, the US dollar depreciated markedly against major currencies. Second, from January 1980 to September 1985, the US dollar surged against major currencies. Third, from October 1985 to April 1991 the US dollar once more depreciated against major currencies. Since 1995 the dollar has again risen sharply against major currencies.

II.4. Shifts in Asset Demand

Shifts in asset demand can be thought of as currency substitution, portfolio diversification, and reserve currency shifts by central banks.

II.4.1. Currency Substitution

Currency Substitution considerations will be an important determinant of the dollar-euro exchange rate. According to the theory, residents of any country may want to hold a variety of currencies in their portfolios, both to facilitate transactions in different currencies and to earn the rate of appreciation of a particular currency vis-à-vis others. As any one currency becomes less attractive as a store of value or medium of exchange, it is reasonable for portfolio holders to replace it with other stronger currencies. In addition, as the decline in the real value of a currency makes the losses involved in holding it larger, its role as a medium of exchange is likely to be taken over by stronger currencies. In the extreme case when currencies are highly substitutable and expectations of the continuing depreciation of a currency are held with certainty, the relative attractiveness of a strong currency will eliminate demand for a weak currency (see Brillembourg and Schadler 1979).

The substitution between strong and weak currencies has important implications for the exchange rate. Under flexible exchange rates, in the long run, a continuing attempt to expand the money supply faster than demand for it grows will steadily erode demand and increase the rate of depreciation of the currency as money holders attempt to switch to other currencies. Money holders choose between currencies on the basis of anticipated real rates of returns. Since the real return on money is

$$r_m = i_m - E_t(p_{t+1} - p_t), \qquad\qquad (1)$$

where, i_m is the nominal interest rate on money, and $E_t(p_{t+1} - p_t)$ is the expected inflation rate. A national central bank can change its real return by altering either the nominal yield or the expected rate of inflation. The greater the degree of currency substitution, the more easily a money issuer can capture a larger share of the market by offering a lower rate of inflation (a higher real yield).

The safest currency for all investors, regardless of their country, is the currency of the country with the least unpredictable inflation. In the case of securities, nominal returns are free to vary, and should change as an adjustment to differences in the rates of depreciation of currencies. In the case of assets with fixed nominal returns, such as currency, adjustment must instead involve substitution from more rapidly depreciating assets to more stable ones. Such a process of substitution would expand the use of strong currencies as media of exchange (Kouri 1978, p. 123).

If money bears no interest and there are no interest-bearing assets that can be held as store of values, the rates of return relevant to holding domestic money are the expected domestic inflation rate, $E_t(p_{t+1}-p_t)$, capturing the direct substitution between domestic money and the commodity, and the expected depreciation rate of domestic money relative to foreign money, $E_t(s_{t+1}-s_t)$, reflecting substitution between domestic and foreign currency[18]. Expected capital gains or losses result in shifts in the desired portfolio composition. For instance, if there is an expected depreciation of the foreign currency, portfolios will be shifted from foreign currency to domestic currency[19].

II.4.2. Portfolio Diversification and Liquidity Effects

The dollar-euro exchange rate will be closely linked to portfolio management decisions. European and foreign investors will maintain a large portfolio of assets denominated in euros and dollars. As long as the euro assets continue to yield an expected rate of return in excess of dollar assets, the stock of euro assets will continue to be augmented forcing a shrinking of dollar denominated assets. Therefore, in this case, the euro will tend to appreciate against the dollar. Onorfi (1990) finds that a change in private-sector behavior (a shift in the portfolio preferences away from

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[17] This represents a rational characterisation of the short-run fluctuations in the euro-dollar exchange rate since its introduction in 1999.

[18] In this case, the stock demand for domestic money, which domestic and foreign residents are willing to hold, is assumed to depend on the opportunity cost of holding domestic money, reflecting portfolio-balance considerations.

[19] Let P_t and P^*_t denote the own-currency prices of US and European goods and s_t denote the foreign exchange rate (i. e., \$/euro). The value of US money in terms of European goods $\pi_1 = (1/S_t)P^*_t$, the value of European money in terms of European goods $\pi_2=1/P^*$, and the value of US money in terms of US goods $\pi_3 = 1/P$.

dollar denominated assets) brings about a depreciation of the dollar. Arifovic (1996) showed that fluctuations of the exchange rate are driven by changes in the agents' portfolio decisions about what fraction of their savings to place in each currency. The inequality of the rates of return on the two currencies drives the changes in the fractions of holdings of the two currencies, which in turn drives the exchange rate fluctuations. These results occur as a result of changes in agents' beliefs about rates of return differentials rather than that of changes in economic fundamentals.

The adoption of the single currency may lead to unprecedented shifts to the euro through the equity markets, because of the redeployment of international public and private portfolios[20]. On the other hand, it may prompt an asset-reallocation, which could take place shortly after the euro becomes legal tender in 2002. There appears to be a significant shift in demand towards euro-denominated bonds in recent months. Some fund managers have abandoned the dollar and have instead embraced euro-denominated bonds. Credit Suisse, for instance, which during the first quarter of 1999 had almost all its bonds in dollars, now holds 78 per cent of its bonds in the new currency. Rebecco Group has cut its share of dollar bonds by more than half, while it almost tripled its euro weighting[21].

European investors expect that by the year 2002 they will have shifted 53 percent of their overall equity assets from domestic investments to the euro zone. This would imply a total shift of $650 billion of euroland funds and $110 billion from non-EMU (excluding UK) European funds. If this was achieved not just through new cash flows but by selling domestic holdings and investing in non-national euroland equities, the total rebalancing might be worth around $1520 billion or $425 billion annually. Pressures toward the nominal appreciation of the euro stemming from capital inflows would lead to a revaluation of the euro. Consequently, this will also cause a real exchange rate appreciation, thereby leading to losses in Europe's international competitiveness[22].

The advent of flexible exchange rates has been associated with increased variability of exchange rates. Uncertain exchange rates create incentives for diversification by wealth holders, which reduce the usefulness of the dollar as a store of value (see

Krugman 1984)[23]. The result has apparently been a gradual diversification away from the dollar since 1973. This has been more evident in the Eurocurrency markets. Also, there is substantial evidence of diversification of official reserve holdings away from dollars since the 1970s. The dollar share of the Special Drawing Rights (SDR) value of official holdings of foreign exchange has fallen from 82.8 percent at the end of 1978 to 73.1 percent at the end of 1980[24].

One has also to consider the potential effects on the dollar-euro exchange rate of an increase in demand for liquidity in euros by financial markets. Euros will be demanded for transactions in asset markets. In this case, the equilibrium dollar-euro exchange rate will depend on money demand in asset markets and the share of money used in asset transactions[25]. The effect of the volume of asset trading on the demand for money is confirmed by Allen and Connolly (1989). Grilli and Roubini (1992) find that the exchange rate level depends on the share of money used for asset transactions. In particular, the greater the share of money used in asset market transactions, the stronger is the domestic currency.

II.4.3. Reserve Currency Shifts

Since the euro meets the criteria of a reserve currency, it may rival the dollar and have a major impact on central banks' foreign exchange reserves. Here a fundamental issue involves the euro stability in purchasing power as a reserve asset. To this end, a country could expect stability in the purchasing power over imported goods and services of that part of its reserves held in euros.[26] The dollar's dominance of official international reserves is greater than America's weight in world economy seems to justify. The dollar accounts for over half of official reserves, more than twice the US share of global output.[27] Moreover, at the end of 1996, the dollar represented about 59 percent of exchange reserves, the deutchemark about 14 percent, and the yen about 6

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[20] As currency risk is removed after unification, fund managers may diversify into assets in different European countries. See Bergsten (1997)

[21] *The Economist*, April 24, 1999, p.80.

[22] This result is consistent with the empirical evidence about the high correlation between nominal and real exchange rates. (e. g. Mussa 1987).

[23] It was for that reason that the Europeans set up the European Monetary System (EMS) in March 1979. They aimed at promoting exchange rate stability in Europe and counter the effects of US dollar instability on intra-European exchange rates.

[24] See Black (1982), Britain (1981), and Krugman (1984).

[25] The link from financial markets to the money market is also considered by Giovannini (1994). Suppose that transactions in a given asset absorb the national currency in which the asset is denominated. If there is higher demand for that asset, interest rates will have to go down and at the same time demand for the currency of denomination of that asset will go up. This will strengthen that currency in the foreign exchange markets.

[26] This stability would protect such a country only from price changes in its imports owing to exchange rate changes, and not from price changes owing to inflation in the exporting countries (i.e., euro zone).

[27] This extra demand for the dollar as the world's main reserve currency has made it even easier for the US to finance its current account deficit.

percent. Also, the dollar represents 40-60 percent share of world finance, the European currencies: 20-40 percent, and 50 percent of the global holding of financial assets are in dollars while only 10 percent are in European currencies. All this when US GDP amounts to $6.8 trillion while EU GDP to $7.7 trillion.

The dollar's dominance has been due mainly to the unrivalled depth and liquidity of its financial markets. Given the overweighing of the dollar in their current portfolios, central banks will most likely shift some of their dollar assets into euros (Alogoskoufis 1997). In this framework the quantity of supplied assets denominated in euros will be less than the quantity demanded. This will lead to a rise in the price of the euro against the dollar (i.e., a reevaluation).

Also, Central banks have now more incentives to shift to the euro than ever before: returns on dollar assets are likely to be much lower than in recent years. The US stock market already looked overvalued before corporate profits started to fall. Yet foreign investors still seem to be unconcerned by this. The past couple of years have seen extraordinary turmoil in global financial markets. Rich–country stock markets and currencies have not been spread. Yet Europe has been comparatively speaking a safe heaven. Intra-European movements in exchange rates have been tiny. Financial markets regarded the promise to stabilize intra-European exchange rates as credible.

Therefore, an overvalued stock market, a credit-driven consumer-spending boom and a current account deficit all point to the same conclusion: the US expansion is unsustainable. The dollar and the US stock market are closely linked, soaring share prices have lured in foreign capital and so contributed to an artificial appreciation of the dollar. The reverse is also true: a sharp drop in the dollar could itself burst the stock market bubble, pushing the economy into a recession.

Overall, the dollar would have to coexist with the euro and other currencies in the reserves of central banks.

II.5. Impacts on Bond, Equity, and Derivatives Markets

EMU will ensure a fully integrated capital market in the euro area. As of January 1, 1999 the capital markets of the eleven European countries started operating in euros. Also on that date, the new issues of public debt have been denominated in euros. But more importantly, all participating countries have decided to convert to euro their outstanding public debt. For the first time, European investors who were used to investing in domestic government bonds can now invest across borders without bearing any exchange risk. Due to lower transaction costs and wider investment opportunities, the adoption of the euro produced one large transparent and liquid government bond market that in size is roughly equivalent to the US market. This integrated market will replace the eleven relatively small and fragmented old bond markets. Also, this market unification has, on the one hand, reinforced convergence of spreads and produced more conformity in market practices, and on the other, reduced the number of existing cross-border institutional investors (i.e., insurance companies, and Trust and Pension Funds). These developments will ultimately lead to a substantial increase in the depth and liquidity of the European securities market. Consequently, the cost of financing has decreased, and access to financing enhanced. The corporate bond market is also expected to benefit from the introduction of the euro. An integrated corporate bond market will allow corporations to issue their own bonds without resorting to bank loans for financing and to take advantage from a large pool of investment capital. It should be pointed out that the European bond market has always remained small because corporations found it difficult to raise funds from their respective domestic markets.

Following the launch of the euro, major markets' turnover in euro substantially exceeded earlier transactions in euro's constituent currencies. In particular euro-denominated bonds made up for half of all new international bond issues in January 1999 (euro-issues amounted to the equivalent of 69.3 billion US dollars) compared to 40 per cent bonds issued in US dollars.

At constant 1990 exchange rates, issues of euro-dollar bonds amounted to $361.7 billion in 1997, thus a rise of 34.6 per cent over the 1996 volume of $268.7 billion. The 1997 volume of international bonds issues in yen was down by 34 per cent compared to 1996. ECU-denominated debt more than doubled in volume to reach under $10 billion equivalent, accounting for a 132.4 per cent increase over 1996. The upswing was mainly due to an anticipation of the European Monetary Union[28].

The adoption of the single currency addresses one of the factors that has contributed to the segmentation of capital markets in Europe, that is, the need to hedge exchange rate risk. With the elimination of currency risk, the valuation of financial assets is expected to be based on credit risk and industry-specific considerations (see OECD 1999, p.8). Equity market integration should also be furthered by EMU, owing to removal of exchange rate risk and a common interest rate. The stock markets have decided to operate in euros and to convert the quotation to euros as of the end of 1998. Hence, all stock markets function in euro as of January 1, 1999. Since, European governments have cut spending substantially, short and long-term interest rates have remained at historically low levels. These low interest spreads have pushed investors into stock markets in euroland (see OECD 1999, p.7). In the first week of 1999, euro-

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[28] See *Organization for Economic Co-operation and Development*, February 1998 p.52.

area equity prices grew by more than 5 per cent. They have later dropped back, but so far they appear to remain firmer than US stocks (p. 7).

The derivative market, however, has started to shrink since the introduction of the euro. The currency derivatives will disappear as a result of currency unification. Interest rates derivatives will also decrease, as different government rates will now converge toward a single interest rate.

II.6. Current Account and Foreign Debt

Since the 1980s, the United States has shifted into substantial deficits in the current account, while Japan and Europe have experienced surpluses during the same period[29]. In other words, foreigners have been accumulating claims of different forms on the United States, which has implied a capital inflow (capital account surplus). By contrast, Europe and Japan have been net investors in the rest of the world: their purchases of foreign assets represent a capital outflow (capital account deficit). Many studies have raised concerns about the sharp increase in the US international indebtedness and the sustainability of the current account deficit (Husted 1992). Estimates show that up to about the end of 1983 the US current account tended toward zero. Since that time, there has been an apparent structural shift in the relationship between trade flows, resulting in a long-run tendency for a deficit in excess of $100 billion. Rodriguez (1980) finds that trade flows are a fundamental determinant of both the current level and the future time path of the exchange rate. Trade deficits which are expected to continue into the future, as has been the case, for example, with the recent US deficits, generate the expectation of a deteriorating net foreign asset position for the United States and, in turn, the fall of the dollar. Helpman and Razin (1985) analyze the case of a debtor country that is running a current account deficit and has to accumulate foreign currency in advance to repay its foreign debt. This generates an increase in the demand for foreign currency and thus a depreciation of the exchange rate.

High imports have pushed America's merchandise-trade deficit to $26.2 billion in February 1999, a 12-month total of $262.2 billion[30]. It is estimated that the US current account deficit will hit $300 billion in 1999. This will be as high as it was in 1987–the

biggest previous American deficit this century–a year when the dollar went into a sharp decline. The US net foreign liabilities amount to 15 percent of GDP. It is now running an increasing deficit on its investment income, which will cause its current account deficit to widen indefinitely even if a weaker dollar stabilizes the trade deficit.

Japan and the euro area have a large and growing current account surplus. In the long-run, creditor countries' currencies tend to strengthen. Rodriguez (1980) argued that if a country has a deficit in its trade balance than it has an over-valued currency in the short-run.

II.7. Other Considerations

One potential gain to the US from the international role of the dollar is "seigniorage." The term international seigniorage refers to gain, over and above costs of production, to the issuer of international money. Since it is relatively costless to produce international money, the issuing country can run a cumulative deficit in its balance of payments and, by so doing, can therefore increase its real national absorption (of foreign goods, services and assets) relative to real national income. In effect, by being willing to hold this international money, foreigners extend free credit to the issuing country. The net seigniorage gain accruing to the issuing country depends fundamentally on its monopoly position as a source of international money (Cohen 1971). The euro position as an international currency is bound to gradually increase while the dollar's preeminent position will gradually decline. Competition from the euro and the yen will grow sufficiently stiffer, thereby reducing the monopolistic advantage that the United States might have enjoyed as a source of international money[31]. As a result, the US will lose some of the seigniorage benefits that are associated with the international use of the dollar. Krugman (1998) points out that the US does in effect get a benefit in the form of a zero-interest loan out of the dollar's international role, and therefore it will lose from the introduction of the common European currency. According to his estimates, the loss will amount to only a few billion dollars.

Pressures towards nominal appreciation of the euro stemming from capital inflows could lead to real appreciation. Consequently, this would have a large impact on the competitiveness of companies operating in the euro area: EMU exports would become

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[29] The United States has risen to become the world's biggest debtor nation after having been a net creditor continuously for seventy years. The massive US current account deficit owes much to the discrepancy between the low level of domestic saving and the high level of private spending. Only a spectacular depreciation of the dollar in the near future will improve the US current account in the medium term (see Otto Pohl 1986).

[30] *The Economist*, April 24, 1999, p.119.

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[31] During the twentieth century, Britain's seigniorage gains from the international use of the pound was completely eliminated by competition from the dollar. During the period of the pre-First World War gold standard, sterling was the primary vehicle currency in international financial markets and a substantial proportion of world trade was denominated in and financed in sterling. See Cohen (1971).

more expensive while imports would be cheaper.[32] Also, an appreciation of the euro against the dollar would reduce the standards of living of North America and of other countries. Only a tight coordination of the monetary policies of the two regions would insure the stability of the dollar-euro exchange rate after the year 2002.

Before the euro-launch in January 1999, most experts confidently predicted that the euro would rise against the dollar, as investors and central banks shifted into the new currency. Instead, the euro has actually weakened against the dollar, falling below $0.95 at one point − more than 20 percent below its starting rate of $1.17.

The euro's decline in recent months reflects changes in the relative strength of the American and euro-area economies[33]. Faster growth in America and slower growth in Europe has led to cuts in interest rates in euroland and to interest rates increases in the US, making the dollar more attractive. Short-term interest rates in the euro area are already lower than America's. On March 30, 1999, interest rates were only 3 per cent in euroland and 4.81 per cent in America. Another explanation for the strength of the dollar has been mainly due to the fact that foreign investors have been willing to finance America's external deficit, due to rapid economic growth and high returns, especially in its equity market. Soaring share prices have attracted foreign capital into the United States and so pushed up the dollar. If foreign investors prove less willing to finance America's external deficit and share prices tumble in the future, one may see a sharp drop in the dollar. Moreover, the euro's recent weakness can be attributed to European politicians' interference in the affairs of the ECB−most notably Oskar Lafontaine, Germany's former finance minister, who was pressing the ECB to cut interest rates. Further, the conflict in Kosovo has also put enormous pressure on the euro, as it was taking place in Europe's backyard. Yet, the foreign exchange market of the new "shadow currency" is still in a "state of flux", and this has been reflected in the euro's erratic fluctuations. Finally, the ECB has to establish its own credibility and acquire the experience needed to manage monetary policy over such a diverse economy as Europe's. However, the recent sliding of the euro has been welcomed in Europe as it is helping the international competitiveness of euroland.

II.8 The Long–Run Determinants of the Euro–Dollar Exchange Rate

There exists ample literature on models of exchange rate determination. These models have been primarily designed to explain the volatility of the exchange rate in terms of the macroeconomic fundamentals. Two classes of models have since the early 1970s dominated the literature. The portfolio balance approach and the monetary approach of exchange rate determination. In the portfolio balance model of Branson (1977), exchange rate movements are the main determinants of movements in the current account. In the monetary approach of exchange rate determination, which includes both the fixed and flexible price models, the interest rate parity is assumed to hold and foreign and domestic assets are perfect substitutes. In the sticky price two-country monetary model first introduced by Dornbusch (1976) and Frankel (1979) the dynamics of the exchange rate are reflected primarily by the relative demand for money in the two countries. In the flexible price two-country monetary model of Frenkel (1976), Kouri (1976) and Bilson (1978) the purchasing power parity (PPP) is assumed to hold.

The recent empirical evidence presented by MacDonald and Taylor (1994), and Mark (1993) has shown that the flexible-price monetary model is a valid and robust long-run exchange rate determination model. Using data for the US-UK exchange rate and the cointegration technique of Johansen (1988) they established that long-run movements in the exchange rate are indeed determined by the macroeconomic fundamentals of the two economies.

We have already argued that what will determine the long-run direction of the euro-dollar exchange are the respective macroeconomic fundamentals of the US and euro area respectively. The model we will estimate extends the flexible price monetary to include the effects of the current account on the euro-dollar exchange rate. Hooper and Morton (1982) have extended the flexible price monetary model to incorporate the effects of the current account on the exchange rate. Meese and Rogoff (1983) have also extended the basic flexible–price monetary model, to include variables such as the expected long-run foreign and domestic inflation differentials and domestic and foreign trade balances.

Our model is given by

$$e_t = \beta_0 + \beta_1(m_t - m_t^*) + \beta_2(y_t - y_t^*) + \beta_3(i_t - i_t^*) + \beta_4 ca_t + \beta_5 ca_t^* + \varepsilon_t, \qquad (2)$$

where e_t the spot exchange rate, is the dollar currency price of one euro[34]. The fundamentals in parentheses represent the GDP differential ($y_t - y_t^*$), money supply

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[32] This result is consistent with the empirical evidence about the high correlation between nominal and real exchange rates (see, for instance, Mussa 1987).

[33] *The Economist,* May 1, 1999, p. 18.

[34] We will use the ECU-dollar rate as a proxi for the euro-dollar exchange rate, since European Council agreed in June 1997 that references to the ECU in legal instruments would be placed by references to the euro at 1:1 parity despite the fact that the ECU includes the currencies of Denmark, Greece, and the United Kingdom, which are not part of the make-up of the euro.

(M1) differential ($m_t - m_t^*$), interest rate differential ($i_t - i_t^*$), and ca_t and ca_t^* are the current accounts of the US and the euro11 countries respectively. All stated variables denote EU variables.

Equation (2) posits the following coefficient restrictions: $\beta_1 > 0$, (a relatively higher supply of money in the US leads to a depreciation of the euro-dollar exchange rate); $\beta_2 < 0$, (a relatively higher GDP in the US leads to an appreciation of the euro-dollar exchange rate); $\beta_3 < 0$, (relatively higher US interest rates leads to an appreciation of the euro-dollar exchange rate); $\beta_4 < 0$ (a US current account deficit leads to a depreciation of the euro-dollar exchange rate), and $\beta 4 > 0$ (a current account deficit in euroland leads to an appreciation of the euro-dollar exchange rate).

II.8.1 Unit Root Tests for Stationarity

To explore the long−term relationship between the euro-dollar exchange rate and the macroeconomic fundamentals of the US and the euro11 respectively, we use quarterly data from 1980:1−1998:4.

Before the Johansen cointegration test can be applied, it must be determined whether the series are non−stationary or have unit roots. It is common for time−series data to demonstrate signs ofnon-stationarity; typically both the mean and variance of macroeconomic variables trend upwards over time. It is useful to test explicitly for manifestations of non-stationarity because the presence of non-stationarity often has important econometric implications. We will therefore run the following regression

$$\Delta X_t = \beta_1 + \beta_2 t + \beta_3 X_{t-1} + \delta_i \sum_{i=1}^{2} \Delta X_{t-i} + \varepsilon_t, \qquad (3)$$

where Δ is the first−difference operator; β_i and δ_i, are constant parameters; t is a time trend; and ε_t is a stationary stochastic process[35]. We will include two lagged difference terms so that the error term ε_t in (3) is serially independent. The null Hypothesis is $\delta_i = 0$, that is a unit root exists in each series (i.e., that the series is non−stationary)[36]. The above equation is to be estimated by replacing X_t with each of the following variables: e_t, $(m_t - m_t^*)$, $(y_t - y_t^*)$, $(i_t - i_t^*)$, and $(ca_t - ca_t^*)$.

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[35] In regressions involving time series data, the time variable t is often included as one of the regressors to avoid problems of spurious correlation. Data involving economic time series often tend to move in the same direction because of a trend that is common to all of them. To avoid such a spurious association, we regress each variable on its lagged value and a time trend t (see Granger and Newbolt 1974).

[36] Cointegration tests involve two steps. First, individual time series are examined to determine their order of integration. This involves unit root tests based on the work of Fuller (1976), Dicky and Fuller (1979,

To determine the order of integration of the individual series we run the same model (3) with second differences on lagged first and two lags of second differences.

That is:

$$\Delta^2 y_t = \phi_1 + \phi_2 t + \phi_3 \Delta y_{t-1} + \beta_i \sum_{i=1}^{2} \Delta^2 y_{t-i} + \eta_t, \qquad (4)$$

where, $\Delta^2 y_t = \Delta y_t - \Delta y_{t-1}$, ϕ_i and β_i are constant parameters; t is a time trend; and η_t is a random error term. The Augmented Dickey-Fuller (ADF) test will be applied to equation (3) and (4).

II.8.2. Cointegration Tests

Our next task will be to check whether the variables are cointegrated. Testing for the existence of cointegration among economic variables has been widely used in the empirical literature to study economic interrelationships. Such relationships would imply that the series would never drift too far apart. The Johansen (1988) method will be used to examine the existence of a long−term relationship between the euro-dollar exchange rate and the four macroeconomic differentials at the 5 per cent and 1 per cent level of significance respectively. The cointegration test will be applied using alternative lag lengths in the vector autoregression (VAR).

II.8.3 Short-Term Dynamics of the Euro−Dollar Exchange Rate

If the estimation results indicate that there exists a long−term relationship between the euro-dollar exchange rate and the macro fundamentals, it will then become instructive to check whether in the short-run there may be disequilibrium. If that is indeed the case we will then employ an Error Correction model to tie the short−run behavior of the exchange rates and the economic fundamentals respectively to their long−run values. The vector error correction model (VECM) was first introduced by Sargan

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1981), and Phillips and Perron (1988). These tests involve the calculation of t-statistics for $\rho = 1$ in OLS regressions of the form: $X_t = \rho X_{t-1} + u_t$ (1) where X_t is the variable of interest and u_t is iid, $N(0, \sigma^2)$. The t−statistic does not have the standard t distribution; critical values under the null that $\rho = 1$ are found in Fuller (table 8.5.2). If u_t violates the iid assumption, modifications to (1) must be implemented in conducting the test. The Augmented Dickey−Fuller (ADF (p)) test supplements (1) with p lagged changes in the dependent variable as additional regressors (see equations 3 and 4 in the text). Alternatively, the Phillips−Perron test involves the estimation of equation (1), coupled with a nonparametric correction of the t−statistic for general forms of autocorrelation in the errors. Equation (1) is often expressed in an alternative form as $\Delta X_t = (\rho - 1) X_{t-1} = \delta X_{t-1} + u_t$, where $\delta = (\rho - 1)$ and where Δ is the first difference operator. This equation is equivalent to equation (1), however, now the null hypothesis is that $\delta = 0$. This is the line we follow in the project.

(1964) and later popularized by Engel and Granger (1987). Their method will thus be used to estimate the following equation

$$\Delta e_t = \alpha_0 + \alpha_1 EC_{t-1} + \alpha_2 \Delta(y_{t-1} - y_{t-1}^*) + \alpha_3 \Delta(m_t - m_t^*) + \alpha_4 \Delta(i_{t-1} - i_{t-1}^*) \quad (5)$$
$$+ \alpha_5 \Delta(ca_{t-1} - ca_{t-1}^*) + \varepsilon_t,$$

where Δ denotes first differences, ε_t is the error term with the usual properties. In equation (5), $\Delta(y_{t-1} - y_{t-1}^*), \Delta(i_{t-1} - i_{t-1}^*)$, $\Delta(m_{t-1} - m_{t-1}^*)$ and $\Delta(ca_{t-1} - ca_{t-1}^*)$ capture the short-run disturbances in e_t whereas the error correction term EC_{t-1} captures the adjustment toward the long-run equilibrium. If α_1 is statistically significant, it tells us what proportion of the disequilibrium in e_t in one period is corrected in the next period.

II.8.4 Empirical Results

We test for stationarity by applying the ADF test on equations (3) and (4). Also, the Phillips-Perron test is applied to equations (3) and (4) without the lagged differenced terms on the right hand side. Statistical results are summarized in Table 2.

ADF [p] is the Augmented Dickey-Fuller test; it gives the t-statistics from a specification that includes a constant, trend, and p lagged changes in the dependent variable. PP is the Phillips and Perron test, where the standard errors have been adjusted to account for non-white noise error process. A * indicates rejection of the null hypothesis of non-stationarity at the 5 percent level of significance, while ** indicates rejection of the null hypothesis at the 1 percent level of significance. Makinnon critical values for rejection of a unit root are for ADF -4.08 (1 percent), -3.46 (5 percent), and for PP -4.07(1 percent) and -3.46(5 percent).

Both the ADF and PP test statistics indicate that the five series are non-stationary. The computed t-statistics are smaller in absolute terms then Mackinnon's 5 percent critical values. We therefore do not reject the null hypothesis that $\delta_i = 0$ (or unit root) that is the five series exhibit a unit root, which is another way of saying that the five series are non-stationary. However, four of the five first differenced series turn out to be stationary. At the 1 percent level of significance the critical value computed by McKinnon is – 4.08. Both test results have t-statistics exceeding MacKinnon's critical value, so that the hypothesis $\delta_i = 0$ could now be rejected except for the first-differenced money supply series which fails the ADF test. In other words the Euro-dollar exchange rate and the differentials of GDP, interest rates, and the current account first-differenced series do not exhibit a unit root, and the four series are stationary. Since $\Delta(y_{t-1} - y_{t-1}^*)$, $\Delta(i_{t-1} - i_{t-1}^*)$ and $\Delta(ca_{t-1} - ca_{t-1}^*)$ are stationary, they

are I(0) stochastic processes, which means that $(y_{t-1} - y_{t-1}^*)$, $(i_{t-1} - i_{t-1}^*)$ and $(ca_{t-1} - ca_{t-1}^*)$ are I(1) time series, essentially they are random walks (non-stationary stochastic processes.

Our next task is to check whether the four series are cointegrated. Because our four macroeconomic fundamental variables contain unit roots and are non-stationary in the level, cointegration is the appropriate dynamic macroeconomic modeling technique for these variables. The intuition behind cointegration is that it allows to capture the equilibrium relationships dictated by macroeconomic theory between non-stationary variables within a stationary model. A linear combination of such variables is identified such that this combination is stationary. If such combination exists, then the variables are said to be cointegrated.

Table 3 unveils the presence of one cointegrating relationship for each of the four variables. The test of the hypothesis of no cointegration relationship is rejected at the 5 percent level of significance. We thus conclude that the euro-dollar exchange rate and the differentials of GDP, interest rates and the current accounts have a stable equilibrium relation even though the individual variables are individually non-stationary.

To check whether short-run changes in the fundamental variables have an impact on short-run changes in the exchange rate we estimate equation (5)

$$\Delta e_t = -0.002 - 0.08 EC_{t-1} + 0.047\Delta e_{t-1} + 0.00\Delta(y_{t-1} - y_{t-1}^*) + 0.00025\Delta(i_{t-1} - i_{t-1}^*)$$
$$\quad (-0.3) \quad (-2.71) \quad (0.38) \quad (0.14) \quad (0.019)$$
$$+ 0.0003\Delta(ca_{t-1} - ca_{t-1}^*), \quad (6)$$
$$\quad (0.68)$$
$$R^2 = 0.13.$$

The numbers in parenthesis are the t-statistics. The t-statsitics on the error correction term is highly significant indicating that about 0.08 of the discrepancy between the actual and long-run values of the euro-dollar exchange rate is eliminated or corrected each quarter. Equation (6) shows that short-run changes in the economic fundamentals do not have a statistically significant impact on short-run changes of the euro-dollar exchange rate. This result is documented in the empirical literature on exchange rate determination. This literature stipulates that any attempt to provide explanations of short-term exchange rate movements based solely on macroeconomic fundamentals may not prove successful. Baxter and Stockman (1989) and Flood and Rose (1993) have argued that the usual set of macroeconomic fundamentals is unlikely to be capable of explaining short-term exchange rate movements on its own. Frankel and

Froot (1987, 1990a, 1990b) and Allen and Taylor (1990) suggest that changes in expectations might be one factor explaining short-run fluctuations in the exchange rate. Another suggested explanation of short-run movements is the significant influence of foreign exchange analysts who do not base their predictions on economic fundamentals but on the identification of recurring patterns in graphs of exchange rate movements−i.e., technical or chart analysts. The evidence also suggests that almost all foreign exchange traders employ technical analysis when making exchange rate forecasts over shorter horizons.

III. Implications of The Introduction of The Euro on Peripheral Mediterranean Countries

III.1 The Euro-Med Trade Agreements

For the past three decades the EU has been engaged in financial and trade co-operation agreements with Mediterranean countries. This is not only justified by geographical proximity but also by the long and extensive trade and cultural relationships. These agreements had duration of five years and provided unilateral trade concessions by the EU to Mediterranean countries (duty free access for industrial goods and trade preferences for agricultural products while maintaining varying degrees of tariff protection against EU imports). This framework of co-operation last reviewed in 1990 was substantially altered with the Barcelona Conference in 1995. One of the prominent features of Barcelona is to create a Euro-Mediterranean free trade area by the year 2010 that will promote trade flows in the region, as countries will lift obstacles to trade and perceive trade as a source of growth, rather than perceiving it as an intrusion into their domestic economies[37]. One main feature of the agreement is to establish an integrated Euro-Mediterranean region of mutual economic co-operation.

Already concluded agreements are with Tunisia (1995), Israel (1995), Morocco (1996), Jordan (1997), and an interim agreement with the Palestinian Authority was signed in 1997. Negotiations are still taking place with Lebanon, Egypt and Algeria, while preparatory talks have begun with Syria.

III.2. Trade and the Euro-Mediterranean Region

Many analysts have put forth the argument that once the EMU is fully established with the euro as its only currency, the growth rate of the EU will improve

considerably. It is also assumed that the macroeconomic stabilization programs introduced by the Stability and Growth Pact, along with the reduction in government debt and deficits, would also contribute to higher growth rates. Although, much of the convergence criteria have been about attempting to create economies that would act and react to economic shocks in a similar manner, the reality is that such integration will eventually give way to regional specialization. In fact, it can be anticipated that as the EC begins to act as one market, rather than a number of linked economies, it will begin to experience increased returns to scale as various industries begin to experience external economies of scale that occur when the cost per unit depends on the size of the industry but not necessarily on the size of any one firm. This scenario leads to the idea that there will not emerge in Europe a number of homogeneous economies, rather one economy with various regional centers of specialization.

The United States has seen the regionalization of a number of industries as they have reaped the benefits of such economies. Most recently, we can think of the computer industry, which fostered much of its research and development in Silicon Valley, California. The benefits of such regionalization for certain industries will definitely increase their efficiency and profitability. The gains from locating firms in the same industry together are in terms of specialized suppliers, labor market pooling, and technological spillovers. It will also mean greater growth and increased GDP for Europe as a whole. In fact simulation models presented by the IMF have stipulated that by the year 2010 economic growth rates in the Euro area will reach 3 per cent, at a time when it is expected to be at 0.2 per cent in other industrial countries, and 0.3 per cent in some developing countries.

Needless to say, this increased growth and prosperity in Europe will be expected to spillover to the Mediterranean peripheral countries as Europeans begin to consume more exports as well as domestic goods. The Southern Mediterranean region is particularly posed to benefit from this geographic proximity for a number of reasons. Historically, The Mediterranean region has had strong trade and cultural ties with Europe. Existing trade patterns points significantly in this direction where on average more than 55 percent of Mediterranean trade is with Europe (see Table 4).

Most countries of the region are former colonies that have maintained close trade links with Europe even in the post-colonial period. One good example in this context is the Euro-Mediterranean Free Trade Area, which has been emerging since the Barcelona Declaration of November 1995, and is to be accomplished by 2010. Trade between these two regions has historically rested on a model of comparative advantage. The Mediterranean region has usually offered labor, and land intensive goods, while Europe has provided the Mediterranean region with human and physical

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[37] The Barcelona Declaration signed in 1995 by the EU, and the eligible Non EU Mediterranean Partners (Algeria, Morocco, Tunisia, Turkey, Egypt, Lebanon, Syria, Jordan, Israel, Palestinian authority, Cyprus and Malta) established the adoption of the "Euro-Mediterranean Partnership" consisting of mainly economic and financial partnership, to promote regional integration.

capital-intensive goods. Often this has translated into the Mediterranean providing raw materials and semi-finished goods to Europe in exchange for finished goods from Europe. This exchange has been based on a number of asymmetries; consequently, the Mediterranean has remained less developed and dependent on Europe. Although the Barcelona Declaration sets in place a free trade area, the two regions have always had preferential trade agreements and, in fact, there are some scholars who argue that the eventual free trade area is no more than a reassertion of these previous ties.

Consequently, we can anticipate an intensification of previous trade patterns in light of increased trade flows. In fact, it can be assumed that the sectors in which Europe emerges as having external economies of scale, industries which lead to low costs of producing that good or service via a large industry with many firms, will continue to be the sectors that will dominate European trade. Moreover, the learning curve argument leads to the assumption that even if one of Europe's trading partners could produce the good cheaper, they could not replace Europe as the producer of this good due to the fact that they would incur short-run higher costs when initially entering the market. Since Europe already provides the good cheaper, the short-run costs would deter its production in the partner country unless there was some type of subsidization of production for this industry in the short-run. This situation could prove particularly difficult for Mediterranean partner countries as the Euro-Mediterranean Free Trade Area agreement which has already been signed by Israel, Jordan, Morocco, the Palestinian Authority and Tunisia stipulates that state aid in partner countries will be prohibited whenever it endangers competition in Euro-Mediterranean trade.

Krugman (1980) has asserted that external economies potentially give a strong role to historical accident in determining who produces what, and may allow established patterns of specialization to persist even when they run counter to comparative advantage. Consequently, Europe will have to consciously pursue a strategy of deeper integration of partner countries in the Mediterranean if trade patterns other than those founded on low wages and natural resource extraction are to develop. Yet, even given these present trade patterns we can anticipate an increase in trade between the two regions. This increase in trade flows will be a result of increased growth and prosperity in Europe, which will lead to an increased demand for goods from the Southern Mediterranean countries. This increase in trade, which will be based on the classic model of comparative advantage, will lend itself to a much higher per cent of the partner countries' GDP being in international trade than European countries[38].

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[38] Hakim and Kandil (1999) have argued that the Mediterranean region heavily depends on trade with the EU and the respective economies are extremely vulnerable to the economic performance of their trading partners in the North.

This situation will arise not only from the fact that Mediterranean countries will have to rely on Europe for most of their finished goods– which have much more value added. Consequently, the partner countries will find that they export most of what they produce to Europe in an attempt to cover what they consume. This scenario will inevitably lead to many of the partner countries running a trade deficit with Europe. Tunisia, who has had preferential trade agreements with Europe dating back to its post-colonial period, is a case in point.

These trade agreements, present and future trade patterns and trends will be at the foreground in terms of determining the implications to the Mediterranean countries of the full adoption of the euro in 2002. In fact, these patterns and flows reveal much about the eventual impact of the euro and possible reactions by the Mediterranean countries.

III.2.1 Transaction Costs

Krugman (1980) has argued that transaction costs are the main determinant of the use of a currency. Needless to say, transaction costs increase as the facilitation of trade transactions increases in any given currency. These transaction costs can be the result of a number of factors. Most importantly for the Mediterranean countries will be the traditional money functions–store of value, unit of account and medium of exchange. These functions and the transaction costs that they could levy on the Mediterranean countries will all be important incentives not only to have transactions in euros, but also to eventually peg their currencies to or substitute their currencies for euros. In any trade transaction the role of money becomes paramount. Firstly, it is imperative to have goods priced in a currency that is stable and reliable–a vehicle currency. Thakur (1994) points out that an international currency that maintains a constant purchasing power can be used in international trade and commercial contracts. The ECB's mandate to promote price stability within the euro area renders the euro the preferred currency choice for the Mediterranean region.

Historically the dollar has played this role for most Mediterranean countries. In fact, the dollar is often used in lieu of direct exchanges between two currencies as the use of the dollar as the third party currency has lower transaction costs. This has meant that most Mediterranean countries exchange their own currency for dollars even when making payments or sales to European countries. Lebanon began not only to use the dollar as a substitute currency for the Lebanese Lira during its protracted civil war, but even in its post-period. The Lebanese civil war has been officially over for a decade now; however, the dollar remains a perfect substitute for the Lira on the streets of Beirut. In fact, one of the arguments of why the dollar is still tolerated as a medium exchange within Lebanon is that traders have found it much more efficient and

profitable to buy and trade only in dollars in spite of the fact that 45 per cent of Lebanese trade is with Europe.

This extensive use of the dollar has also been reinforced by the fact that much of the exports from this region are in primary products -- potash, oil, gas - all of these products or resources are priced on the international market in dollars. Yet, stronger agreements and trade relations with Europe and this region may challenge the wisdom of only using the dollar for international quotes and trade invoicing.

III.2.2 Costs and Benefits of Increased Mediterranean Trade with the EU

Market integration in the Single European Market will improve the efficiency of its internal market. This will therefore substantiate the growth rate of the EU and sustain its future improvement. Moreover, an expected appreciation of the euro against the dollar will make Mediterranean goods cheaper than locally produced goods. It will thus be cheaper for the EU to substitute locally produced goods by imported ones. The demand for Mediterranean imports will thus increase reinforcing the above income effect. In turn this will be expected to translate into higher Mediterranean growth rates. Minasi (1998) has argued that the free trade area for industrial products (one of the byproducts of the Barcellona Declaration) might promote growth in both the Mediterranean region and euroland. However, this will be true, only if Mediterranean countries improve domestic imbalances, and open up their economies for a better integration with the Euro Area, and if the EU actively participates in some of the Mediterranean costs of opening up. The EU has already committed funds to assist in financing the adjustment cost associated with free trade[39]. However, greater integration between the two areas entails some Mediterranean costs. The greater competition, which will be brought about by improved openness, might affect growth negatively in the region, as this might force some firms to exit the market, as a result of greater competition. Dornbusch (1992, pp. 81-82) has argued that "the elimination of obstacles to trade invariably creates an immediate increase in imports[40]. But the beneficial rise in exports and growth do not happen immediately." Mansoorian and Neaime (2000) have explored the effects of trade liberalization on the current account. It is shown that immediately after a decrease in tariffs a country will experience a sharp increase in expenditures, and a current account deficit. But this deterioration in the current account will be short lived, as there will come a time after which the country will start running a current account surplus. Thus, although there will be short-term costs associated with increased integration with the EU, it is however, anticipated that the long-term benefits accruing to Mediterranean countries as a result of trade integration with the EU will be much more significant.

Table 5 indicates that Mediterranean countries have on average a total trade-to-GDP ratio of 50 percent. This ratio is somehow close to most industrial and other developing countries, and is due to the particular factor endowments of the region (rich in oil, poor in water) resulting in a considerable oil exports and food imports rather than regular trade. Contrary to what the figures indicate, the region has substantial restrictions on trade and services (including high tariff barriers). It is, however, hoped that once the free trade area is in place, much of the Mediterranean obstacles to trade with the EU would be removed to reap the benefits of closer trade ties with Europe.

III.3. Euro–Mediterranean Capital Flows

Trade flows are not the only balance of payment component that will improve with greater internal efficiencies. Capital flows are more likely to move to the EU from the Mediterranean region. There are two reasons for the emergence of this pattern of capital flows. First, the rapid growth of the Euro economies must be sustained by a higher level of investment than in the past. Second, the formation of the single European market introduces market security for its members. Monetary integration further reduces the exchange rate risk within the EU. As the domestic market within the EU becomes more secure than its trading partners, investments will move toward the more stable market. Industries with high mobility costs, such as those that are capital and technology intensive, are usually more sensitive to the security of their markets than others. All this could create an interest rate differential between the EU and the Mediterranean region in the short-run right after the introduction of the euro. Interest rates in the Mediterranean region will have to rise (as risk premium) to compensate for the relative insecurity brought about by the improved market security in the EU. Foreign investors will demand this risk premium before they choose the Mediterranean region instead of the EU. Higher interest rates, which are expected to prevail in short-run after the introduction of the euro, might negatively impact growth rates in Southern Mediterranean countries. This however will be short lived as greater interest rate convergence is expected in the long-run with greater financial integration.

On the other hand, during the last two decades, controls on capital flows between countries have been much reduced resulting in increased international financial integration. Technological advances such as cross–listing of stocks and the gradual elimination of barriers to the flow of capital have spurred a substantial increase in

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[39] The budget for such commitments amounts to about ECU 9.4 billion ($12 billion) for the period 1995–99 divided evenly between funds from the European Union and loans from the European Investment Bank. Around $ 6 billion are directed to alleviate the costs of opening up, while the balance will be devoted to deal with social development costs.

[40] This is expected to negatively affect growth in the Mediterranean region right after liberalization.

cross-border financial activities between Mediterranean countries. This trend is expected to strengthen and spillover into significant financial flows between Europe and the Middle East. Mediterranean countries have started to implement the adjustment measures to benefit from the competitive environment imposed by the globalization of European financial markets. This increased financial integration is expected to lead to more convergence in interest rates between the two areas in the long-run, or at least to greater convergence in interest rate fluctuations. However, in the medium and short-run European rates are expected to be much lower than their Mediterranean counterparts. Alessadrini and Resmini (1999) have argued that the adjustment process might take some time, however, countries like Morocco, and Turkey, have started immediately to implement the structural adjustment programs necessary to reduce domestic and external imbalances. Syria and Turkey have still various types of restrictions on capital flows, however, Egypt, Jordan and Lebanon have virtually no restrictions. Israel and Morocco have liberalized policies with regard to capital inflows but still maintain some restrictions on capital flowing out of their respective economies. In terms of money market transactions, Lebanon, Israel, and Jordan have fully removed any types of restrictions. Tunisia has minor regulations on foreign lending, while Lebanon, Syria, Algeria and Tunisia have still restrictions on borrowing from abroad. Full free foreign exchange convertibility is allowed in Egypt, Israel, Jordan and Lebanon (see Nsouli and Rached 1998).

Some analysts believe that joining the EU block will give Mediterranean countries considerable advantages relative to Asia and countries in Eastern Europe and Turkey. Also, deeper links with the EU imply greater credibility of policy commitments, and the potential of attracting greater investment as part of a large market. Wages in most Mediterranean countries are a fraction of those in most European countries, implying substantial potential for competitiveness. Thus, as a result of greater integration with Europe, European Direct Investment flows are expected to increase to the Mediterranean Region. However, El Hedi (1999) has raised some doubts about FDI inflows to the region. In fact, and contrary to expectations and despite the world-wide expansion of FDIs and hopes associated with the FTAs with the EU, the region has lagged well behind other developing regions of the world. This is attributed to the fact that the infrastructure is still inadequate and high tariffs are still in place which constitute major obstacles to the development of intra-regional trade. The key for promoting FDIs to the region is through the removal of regional and intra-regional trade barriers−the larger integrated market will thus promote the attractiveness of the region as a host to FDI.

III.4. The Euro an Alternative to the Dollar as an Exchange Rate Anchor

In 1975, nearly 65 countries had a dollar peg, however, in 1997 only about 15 countries have maintained this peg. This declining trend is expected to continue due to two main reasons. The first is the tendency to move toward more flexible exchange regimes in general, and the second being the emergence of the euro as an alternative anchor currency to the dollar. However, many countries with announced flexible exchange rate systems are in fact pursuing fixed or pegged exchange rate arrangements to either one currency or to a basket of currencies. With the exception of perhaps Lebanon, most Mediterranean countries are still under a dollar peg or in some instances a basket of currency peg, at a time when all these countries are moving towards more economic, trade and financial integration with EU countries (see Table 6). To reap the low inflation benefits and high-expected EU GDP growth rates, Mediterranean countries will have to lower restrictions on financial transactions and open up their goods and capital markets. The first best choice would then be the euro as an anchor to their respective currencies, the second best choice would be an anchor to a basket of currencies where the euro enjoys the highest weight, as opposed to the dollar. The dollar anchor, therefore, will cease to constitute a rational exchange rate peg for Mediterranean countries.

The Mediterranean countries' costs and benefits from a euro anchor as an alternative to the dollar will depend on how well−integrated their economies are with their potential European partners. Membership in an exchange rate area may involve costs as well as benefits, even when the area has low inflation[41]. The costs arise because a country or group of countries joining an exchange rate area give up their ability to use the exchange rate and monetary policy for the purpose of stabilizing output and employment. Most Mediterranean countries have pegged their currencies to the dollar or to a basket of currencies and are still operating under fixed exchange rate regimes. These countries have never used exchange rate policies to stimulate their exports and the growth in their GDP. These fixed exchange rate arrangements are expected to prevail in the Mediterranean region. This is because all the economies of the region are relatively small with low degrees of financial developments and diversification in production, and with a high degree of trade concentration with Europe. There will thus not be any real costs associated with a euro peg but rather only benefits to reap

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[41] A country may wish to peg its exchange rate to an area (or another country) of price stability to import the anti-inflationary resolve of the area's monetary authorities. When the economy of the pegging country is well integrated with that of the low−inflation area, low domestic inflation is easier to achieve. The reason is that close economic integration leads to international price convergence, and therefore, lessens the scope for independent variations in the pegging country's price level.

from a euro anchor. It is expected that a high degree of economic integration between Mediterranean countries and the euro area will magnify the monetary efficiency gain these countries reap when they fix their exchange rate against the area's currency.

An optimum currency area between partners hinges therefore, on how closely integrated are the two areas through international trade–the Barcelona declaration is one step in the right direction–factor mobility, and financial flows. Factor mobility between the two partners is an important aspect of economic integration. The evidence suggests that both factor markets are still segregated and labor and capital are not fully mobile yet. There are still various restrictions on the movements of labor and capital from Mediterranean countries not only to the Euro Area but also to the US and other areas of the world. However, by and large, factor mobility between Mediterranean countries and Europe exceeds by far the mobility with the US.

If one looks at justifications for a dollar peg for Mediterranean countries the economic arguments are rooted in history. The fact that the dollar has been the only anchor after the breakdown of the Bretton Woods System has justified the ongoing dollar Mediterranean anchor. Additionally, this has lead to international pricing of primary products in dollars, as well as, the development of a number of hedge facilities that center on the dollar. Moreover, the Mediterranean like many developing countries benefited from aid dollars during the cold war. This situation justified during the1970s and the early 1980s the focus on the dollar in these economies; however, with the introduction of the euro any rational for a continuous dollar peg can no longer be sustained based on efficiency and monetary considerations.

All the recent developments point toward more trade and financial integration between the euro area and Mediterranean countries. It is, therefore, imperative for Mediterranean countries to shift towards a euro peg to reap all the benefits of integration with an area with low inflation and significant growth potentials. Moreover, a euro peg is much superior to the dollar peg. This is not only imbedded in the geographical proximity and existing trade patterns of both Europe and the Middle East, but also because the euro is expected to become a dominant world currency and might even assume the leading role of the dollar in the region and perhaps the world. Quere and Revil (1999) have used a sample of 49 countries, including Algeria, Morocco, Tunisia, and Turkey to determine the preferred anchor currency for each one of these countries. Their empirical results have shown that for the four Mediterranean countries the preferred nominal peg is the euro and not the US dollar.

III.5. Mediterranean Debt and Central Banks Reserves

Krugman (1980) emphasizes the role of transaction costs in international financial markets and Central banks reserve holdings. Only a country's currency that minimizes transaction costs will become a vehicle currency. If the euro is the optimum currency choice for Mediterranean countries, the lower transaction costs it offers will make it attractive for its acceptance in these financial markets (portfolio diversification and central banks reserves diversification). Dooley, Mathieson, and Lizondo (1989) argue that only currencies with low transaction costs will be part of central banks' foreign reserves. If that is the case, then, other countries will use this money to intervene in foreign exchange markets to defend their respective exchange rates. We have argued that since most Mediterranean trade is with the EU, the adoption of the euro as an anchor currency and as an official currency for trade transactions and quotations is therefore expected to reduce Mediterranean trade and exchange rate transaction costs.

Central banks hold reserves to first undertake foreign transactions. We have argued in section III.2 that Mediterranean trade flows are expected to increase with the euro area, and that the euro is the likely plausible denomination of these trade flows. This will, therefore, prompt Mediterranean central banks to hold their reserves in euros to either pay for their European imports or to save the proceeds of their exports to Europe denominated in euros. Moreover, the central bank of a small open economy holds reserves to meet liquidity needs arising from unexpected capital outflows. A euro peg for example requires the holding of reserves in euros. This enables the respective central bank to intervene on the foreign exchange market buying or selling the domestic currency in exchange for euros to protect its peg. Since a euro peg is the likely plausible alternative to the dollar peg, we expect most Mediterranean central banks to start shifting the denomination of their foreign exchange reserves into euros. The ECB, being today the world's most independent central bank, has successfully kept inflation and interest rates at relatively low levels. Thus, the strong focus of the ECB on price stability should render the euro an alternative store of value, which also reinforces its role as a reserve currency in the Mediterranean region.

On the other hand, the currency denomination of foreign debt dictates the denomination of a substantial portion of foreign reserves, as the debt servicing is usually denominated in the same currency. Most Mediterranean debt is still denominated in dollars, however, lower interest rates in Europe are expected to prevail during the next few years. This will thus make borrowings in euros much more attractive. It is, therefore, expected that Mediterranean countries will soon start borrowing from the European bond market and may be prompted to convert important

portions of their foreign debt into euros[42]. In most developed economies the currency denomination of trade flows is the same as that of foreign debt. In Mediterranean countries, however, this is surprisingly not the case. While most trade is with the EU, the dollar followed by the Japanese Yen still constitutes the main denomination of most Mediterranean external liabilities (see Table 7). One explanation to this, is the fact that European debt markets have, and until the introduction of the euro, always been segmented, illiquid, and have offered much higher interest costs than the US market. Contrary to corrections in the denomination of Mediterranean trade flows which could occur instantaneously, the correction in foreign debt might be gradual and will take place but over a sustainable period of time.

III.6. The Caribbean and U.S. Relationship: Lessons to be Learned

If one wants to truly appreciate the type of relationship that can be seen evolving between Europe and the Mediterranean region probably the best parallel for prophecy is the U.S.-Caribbean region. The Caribbean region lies on the southern flank of the U.S. and has come to rely heavily on the U.S. for trade as well as currency stability. Many of the countries of this region have been able to keep their inflation rates under control by pegging their currencies to the U.S. dollar. They also benefited before 1984 as points of offshore banking for many U.S. institutions. Offshore banking was not permitted in the U.S. until the U.S. began to grasp the extent of the revenue lost to this region. As small states that are considered a part of the developing world, these countries have provided the U.S. with mainly primary products and labor-intensive goods in exchange for finished goods and capital intensive goods. The area has also been a vacation haven for Americans wanting to go abroad without traveling far from home.

It is not surprising given their geographic proximity coupled with intensive trade and capital flows that most of these countries have decided to peg their currencies to the U.S. dollar. This decision in fact, as many analysts have argued, has benefited the Caribbean region in various respects. Most of these countries have lower inflation rates than many of their Central American neighbors who do not peg their exchange rates to the dollar (IMF 2000). They also have minimized trade and financial transaction costs for doing business with the U.S. and the stability that this has created, has been an attractive aspect for many banks and other similar U.S. institutions to have branch offices in this region. It is also worth noting that inspite of the unique relationship these countries have had with the U.S. it has not been a

catalyst for change in terms of trade patterns (IMF 1997). As was argued earlier in this project, established trade patterns are not easily broken without a conscious and vigorous effort on the part of both parties. Thus far, the U.S. has not been willing to make the type of investments necessary in the Caribbean region to really bring about such change. Moreover, given the difference in size and resource endowments, it could be argued that an attempt to create any additional competitive advantage on the part of these countries in the U.S. would not be effective. However, it does appear that they have taken the appropriate policy positions of pegging their currencies to the dollar in an attempt to maximize the present relationship (see Table 8).

IV. Concluding Remarks and Policy Implications

This project has studied a number of factors that may constitute the main determinants of the dollar-euro exchange rate and the implications of the introduction of the euro on Mediterranean counties. It has found that demand shifts toward the euro stemming from increased trade invoicing, private portfolio diversification inside and outside the euro area and central banks' reserves diversification will all be working in favor of the euro and may strengthen its value against the dollar after the year 2002. In the long run, the euro-dollar exchange rate will most likely be determined by the macroeconomic fundamentals of the European and US economies respectively. The euro may stimulate the growth of bonds and equity markets and will encourage other countries to do business in euros. It is also essential for the dollar to fall vis-à-vis the euro and the other international currencies in order to correct America's huge current account deficit.

In the last two decades the United States has risen to become the world's biggest debtor nation after having been a net creditor continuously for seventy years, while Japan and the Euro area are net creditors. In the long run, creditor countries' currencies tend to strengthen. In the medium and long-run the euro stands to benefit from the dollar's weakness. The euro possesses all the potential to become a leading international currency and to challenge the hegemony ("imperialism") of the dollar in international financial and goods markets in general, and the Mediterranean region in particular.

Economic and Monetary Union in Europe will most likely change the global financial architecture. The international system will never be the same again. It is naturally evolving along the lines of regional currency zones. A regional currency arrangement (co-operative) in Europe and the Middle East which may include 26 or more countries, and a dollar bloc (hegemonic) in the Americas. Argentina's president, Carlos Menem, recently asked his technocrats to examine the idea of using the US dollar throughout Latin America. In private, senior financial officials in Washington

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[42] Lebanon has actively been taping the Eurobond market. By the end of 1998 the total borrowings by commercial banks amounted to $1297 million. These borrowings are in the form of Eurobonds, certificates of deposits, global depository receipts and subordinated loans (see Banque du Liban Annual Report 1998).

suggested that regional dollarization is a sensible long-term goal[43]. A "yen bloc" in Asia also seems a possibility. The yen, despite Japan's current economic difficulties is clearly the leading Asian currency. Japanese policy makers have recently been talking up the international role of the yen and have even referred again to an Asian monetary fund: a regional self-help group that might provide liquidity for the area's cash-strapped economies, and perhaps a precursor to a regional currency regime.

Some analysts had anticipated that after its introduction in 1999, the euro will appreciate against the US dollar. However, and since its introduction the euro has been volatile and had in general been depreciating against the US dollar. Several factors are contributing to this depreciation. The anticipated shifts to the euro have not yet taken place. Trade invoicing in Europe is still denominated in the respective countries' currencies. Respective European currencies are still being used for daily transactions. The EU has introduced a new currency but has not required any member country to use it yet. In fact, most analysts who had predicted an initial appreciation of the euro against the dollar have somehow neglected the interim period between January 1, 1999 (the date of the introduction of the euro), and January 1, 2002 (the date when the euro will become the only legal tender in the Euro area). Then, automatically all national transactions and international trade invoicing will be denominated in euros and the expected private portfolio shifts will take place. Euroland trade invoicing left alone could exert tremendous buying pressures on the euro leading subsequently to its appreciation. The transition to the euro in Europe is expected to start effectively after January 1, 2002, while the transition in the Middle East will most probably occur at a later stage. Ultimately, it is in Middle Eastern countries' best interest to shift their currency anchor, foreign exchange reserves, and foreign external obligations to the euro. Geographical proximity is not the only factor justifying this shift, but trade as well as cultural and historical considerations are also important factors justifying the transition to the euro.

After the full adoption of the euro in 2002 it is anticipated that trade flows will strengthen between the Mediterranean countries and Euroland. This increase in trade flows will be the result of increased growth and prosperity in Europe, which will lead to an increased demand for goods from Southern Mediterranean countries. Although there will be short-run Mediterranean costs associated with increased integration with the EU, it is however anticipated that the long-term benefits accruing to Mediterranean countries as a result of trade and financial integration with the EU will be much more significant.

Most Mediterranean countries are still under a dollar peg or a basket of currencies where the dollar is dominant, at a time when all these countries are moving toward more economic, trade and financial integration with Europe. The dollar is thus expected to cease to constitute a rational exchange rate peg for Mediterranean countries. If one looks at justifications for a dollar peg for Mediterranean countries, the arguments are rooted in history. Only the fact that the dollar has been the only anchor after the breakdown of the Bretton Woods System does not really justify an ongoing Mediterranean dollar-anchor. This could have been perhaps justified during the late 1970s and early 1980s, however, with the introduction of the euro any rationale for a continuous dollar peg can no longer be sustained based on efficiency and monetary considerations.

All the recent developments point toward more trade and financial integration between the euro area and Mediterranean countries. It is, therefore, imperative for Mediterranean countries to shift towards a euro peg to reap all the benefits of integration with an area of low inflation and significant growth potentials. Moreover, the adoption of the euro as an anchor currency, as a denomination of foreign external liabilities and reserves, and as an official currency for trade transactions and quotations is therefore expected to reduce Mediterranean trade and exchange rate transactions costs, as well as the costs of foreign borrowings. Finally, there exist striking economic, trade, and financial similarities between the U.S-Carribean region and the Euro-Mediterranean region. We therefore expect similar exchange rate, trade and financial arrangements to prevail between Europe and the Middle East.

From the EU perspective, the Barcelona agreements are a new effort to deepen relations with Southern Mediterranean countries with ultimate objectives being: enhanced economic prosperity on both sides of the Mediterranean. We believe that the benefits of these agreements could be substantial but might come relatively late unless major reforms are implemented consistently and early on. Having signed on, the Mediterranean countries now really have no choice but to integrate the EU agreements in a comprehensive development strategy. They should make full and early use of the 10-year transition period provided.

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[43] See "Global Financial Survey," *The Economist*, January 30, 1999, p. 17.

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Appendix A:
Table A1: National Currency Units Per ECU: End of Period

Currency	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
US Dollar	1.4419	1.3096	1.0852	0.9677	0.8274	0.7089	0.8879	1.0704	1.3034	1.1726
Deutsche Mark	2.4906	2.5578	2.4444	2.3001	2.2575	2.2318	2.1839	2.0761	2.0603	2.0778
Pound Sterling	0.6475	0.5536	0.5665	0.6003	0.5706	0.6098	0.6153	0.7249	0.6968	0.6485

Currency	1989	1990	1991	1992	1993	1994	1995	1996	1997
US Dollar	1.1970	1.3633	1.3409	1.2109	1.1200	1.2300	1.3142	1.2530	1.1042
Deutsche Mark	2.0241	2.0420	2.0355	1.9556	1.9357	1.9053	1.8840	1.9465	1.9763
Pound Sterling	0.7427	0.7079	0.7161	0.7982	0.7561	0.7870	0.8451	0.7372	0.6661

Table A2: Euro Conversion Rates

1 Euro =	
Austrian Schilling	13.7603
Belgian Franc	40.3399
Dutch Guilder	2.20371
Finnish Mekka	5.94573
French Franc	6.55957
German Mark	1.95583
Irish Punt	0.78756
Italian Lira	1936.27
Luxembourg Franc	40.3399
Portuguese Escudo	200.482
Spanish Peseta	166.386
US Dollar[*]	1.17
Japanese Yen[*]	133.0
British Pound[*]	0.7

Notes: * Market rate on December 31, 1999
Source: European Commission

Appendix B
Table B1: Mediterranean Selected Macroeconomic Indicators

Country	FDI Inflows (Millions of US $)			GDP (Millions of US $)		
	1995	1996	1997	1995	1996	1997
Algeria	5	13	7	41258	45568	47072
Cyprus	119	100	175	8709	8805	-
Egypt	598	636	834	60457	67301	75617
Israel	1974	2442	3407	83169	93375	95679
Jordan	13	16	70	6592	6715	7051
Lebanon	35	80	150	11122	13082	14286
Malta	184	300	110	3241	3361	3268
Morocco	290	311	500	33259	36322	32869
Syria	100	89	80	16568	17128	18113
Tunisia	264	253	360	17987	19513	18985
Turkey	885	722	606	132288	133101	141733

Country	Population (in Millions)			GDP / Capita (US $)		
	1995	1996	1997	1995	1996	1997
Algeria	27.92	28.54	29.23	1478	1597	1610
Cyprus	0.73	0.74	-	11930	11898	-
Egypt	57.42	58.62	59.76	1053	1148	1265
Israel	5.54	5.70	5.83	15012	16382	16411
Jordan	4.29	4.44	4.60	1537	1512	1533
Lebanon	3.04	3.16	3.29	3659	4140	4342
Malta	0.37	0.37	-	8759	9085	-
Morocco	27.12	27.67	28.22	1226	1313	1165
Syria	14.15	14.59	15.04	1171	1174	1204
Tunisia	8.90	9.07	9.24	2021	2151	2055
Turkey	61.64	62.69	63.75	2146	2123	2223

Source: *World Investment Report* 1998, UNCTAD; *Joint Arab Economic Report*, 1998; *International Financial Statistics*, 1998, IMF.

Table B2: Currency Composition of Mediterranean Long–Term Debt (%)

Algeria

	1990	1991	1992	1993	1994	1995	1996	1997
$US	33.8	34.0	39.8	43.0	40.9	38.3	39.0	41.7
SFr	0.8	0.6	0.6	0.5	0.6	0.7	0.5	0.5
SDR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S.Pound	1.5	1.4	1.1	0.9	1.0	1.0	1.0	1.2
Multiple Cur.	4.9	6.3	6.8	7.4	7.5	7.7	7.7	7.9
Yen	15.2	15.8	15.4	16.0	15.2	12.2	12.2	11.6
FFr	16.8	15.8	13.1	11.9	13.8	16.9	16.9	15.6
DM	10.5	10.1	8.3	6.6	6.3	6.9	6.9	6.7
Other	16.3	16.1	14.9	13.7	14.7	15.6	15.6	14.8

Egypt

	1990	1991	1992	1993	1994	1995	1996	1997
$US	41.9	37.9	38.0	37.9	35.1	34.1	35.7	38.8
SFr	3.0	2.6	2.4	2.4	2.5	2.7	2.4	2.3
SDR	0.6	0.2	0.0	0.0	0.0	0.1	0.2	0.3
S.Pound	2.5	2.5	1.9	1.7	1.7	1.5	1.5	1.5
Multiple Cur.	8.4	7.7	7.9	8.2	8.0	7.4	6.8	6.4
Yen	8.2	11.0	11.6	13.2	14.0	13.2	12.3	11.6
FFr	13.8	19.1	19.5	18.5	19.3	20.3	19.8	18.2
DM	12.4	10.7	10.5	9.8	10.5	11.2	11.1	10.5
Other	9.1	8.3	8.2	8.2	9.0	8.5	10.2	10.3

Syria

	1990	1991	1992	1993	1994	1995	1996	1997
$US	86.4	86.4	86.8	85.1	83.5	82.4	82.7	84.8
SFr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SDR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S.Pound	0.8	0.6	0.4	0.8	0.8	0.7	0.7	0.7
Multiple Cur.	3.4	3.1	2.8	2.7	2.5	2.7	2.4	0.6
Yen	1.9	2.8	2.9	3.5	3.8	3.5	3.1	2.8
FFr	0.8	0.7	0.7	0.7	0.7	0.8	0.7	0.7
DM	2.1	2.2	2.2	2.1	2.3	2.4	2.2	2.0
Other	4.8	4.2	4.1	5.1	6.4	7.5	8.2	8.4

Table B2: Contd.

Jordan

	1990	1991	1992	1993	1994	1995	1996	1997
$US	44.4	42.6	39.7	40.4	35.0	28.8	29.4	30.3
SFr	0.8	0.7	0.7	0.4	0.4	0.5	0.4	0.4
SDR	2.8	7.4	0.2	0.1	0.3	0.5	0.5	0.7
S.Pound	8.0	7.4	7.6	7.1	6.7	6.7	7.5	7.2
Multiple Cur.	8.4	8.0	9.5	10.1	10.6	11.8	12.3	11.9
Yen	6.0	12.2	15.7	18.3	21.6	24.1	22.3	22.2
FFr	3.5	3.5	7.9	7.5	8.7	9.9	9.2	8.4
DM	7.9	7.6	8.3	7.2	7.7	7.6	6.9	6.3
Other	18.2	10.5	10.4	8.9	9.0	9.9	11.4	12.7

Lebanon

	1990	1991	1992	1993	1994	1995	1996	1997
$US	44.4	42.6	39.7	40.4	35.0	28.8	29.4	30.3
SFr	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.0
SDR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S.Pound	0.8	0.5	0.3	0.5	0.2		0.1	0.1
Multiple Cur.	9.4	8.7	7.6	10.7	8.3	7.4	6.8	6.5
Yen	0.5	0.4	0.3	0.2	0.1	0.0	0.0	0.0
FFr	31.7	35.2	64.1	62.0	23.5	8.2	6.2	4.6
DM	5.3	4.6	3.9	2.6	1.2	1.1	2.7	8.3
Other	10.9	8.9	6.2	10.2	9.2	14.0	19.2	18.5

Malta

	1990	1991	1992	1993	1994	1995	1996	1997
$US	33.9	31.9	34.7	33.8	30.1	29.4	30.1	31.9
SFr	0.0	4.3	4.3	4.1	3.3	0.0	0.0	0.0
SDR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S.Pound	1.2	1.6	1.5	1.5	1.3	1.3	1.5	1.6
Multiple Cur.	2.8	2.4	2.9	2.7	2.2	1.8	1.8	1.7
Yen	9.2	13.3	14.8	15.6	13.5	16.6	14.3	12.9
FFr	0.6	0.5	0.4	0.2	0.1	0.1	0.0	0.0
DM	12.9	11.1	11.0	9.7	7.9	7.6	7.0	6.2
Other	39.4	35.0	30.3	32.4	41.6	43.2	45.2	45.7

Table B2: Contd.

Morocco

	1990	1991	1992	1993	1994	1995	1996	1997
$US	41.0	32.3	32.6	32.0	29.5	28.2	28.8	30.9
SFr	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2
SDR	0.1	0.3	0.2	0.2	0.2	0.2	0.1	0.1
S.Pound	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Multiple Cur.	15.8	19.5	20.5	22.3	23.5	23.8	22.9	22.3
Yen	2.3	3.0	3.7	4.1	4.3	3.9	3.5	2.6
FFr	23.3	24.9	23.2	21.5	21.5	21.2	21.3	19.5
DM	5.4	6.4	6.8	7.4	7.8	7.8	7.1	6.9
Other	11.8	13.3	12.7	12.1	13.0	14.7	16.0	17.4

Tunisia

	1990	1991	1992	1993	1994	1995	1996	1997
$US	21.8	18.9	20.8	19.3	16.4	17.2	24.1	28.2
SFr	0.6	0.4	0.2	0.2	0.2	0.2	0.1	0.1
SDR	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1
S.Pound	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Multiple Cur.	22.7	23.9	23.6	26.0	27.0	24.6	22.8	21.1
Yen	8.6	8.5	7.8	8.2	9.4	13.4	13.1	13.8
FFr	13.6	14.2	13.5	13.1	14.4	14.5	11.7	9.9
DM	11.0	10.3	9.7	8.5	8.0	7.1	5.8	6.0
Other	21.3	23.5	24.1	24.4	24.2	23.7	22.2	20.8

Turkey

	1990	1991	1992	1993	1994	1995	1996	1997
$US	40.0	36.0	36.4	36.4	36.2	38.3	41.4	49.2
SFr	5.2	4.5	3.8	3.3	3.0	2.9	2.0	1.5
SDR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S.Pound	0.8	0.8	0.6	1.0	1.0	0.9	1.0	0.9
Multiple Cur.	18.9	19.2	17.4	15.7	14.3	13.3	12.1	3.5
Yen	12.1	15.5	18.7	21.6	23.2	23.3	22.0	18.5
FFr	1.6	1.7	1.8	1.6	1.6	1.6	1.6	1.5
DM	17.4	18.6	17.1	17.3	17.6	16.7	16.8	21.2
Other	4.0	3.8	4.1	3.1	2.9	2.8	3.0	3.6

Source: *Mediterranean Central Banks*, Various Issues.

Table B3: Total Mediterranean Trade Patterns

Country	Exports (Millions of US $)			Imports (Millions of US $)		
	1995	**1996**	**1997**	**1995**	**1996**	**1997**
Algeria	10422	12599	13923	10123	8329	8889
Cyprus	1229	1429	1245	3694	3984	3696
Egypt	3441	3534	3908	11739	13019	13168
Israel	19016	20339	22477	28218	29938	29019
Jordan	1442	1471	1479	3660	4310	3866
Lebanon	688	1153	711	6567	7560	7457
Malta	1913	1740	1644	2942	2805	2553
Morocco	4642	6881	7030	8563	9704	9525
Syria	3970	3939	4051	4709	6362	6028
Tunisia	5785	5519	5363	8032	7749	7918
Turkey	21648	23123	26246	35760	42464	48656

Source: *Direction of Trade Statistics*, IMF 1998.