

**CURRENCY COMPETITION BETWEEN
EURO AND US DOLLAR**

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Abstract

With the euro's appearance in the world market, the competition between euro and dollar has become a hot-button issue. The author focuses on the movements of the euro/dollar exchange rate and probes into the determinants of its exchange rate. Their competition regarding invoicing and reserves are also studied in this paper.

Key words

Exchange rate, Currency competition, Euro, Dollar

1:Introduction*

When the euro was introduced on 1.1.1999, few observers expected it to experience such a prolonged depreciation against the US dollar. Its future to become a leading currency seemed unclear after the young currency's bad performance in its debut. In this respect, the first natural question that arises is whether the euro is driven by fundamentals and to what degree its movements are predictable. The answer for the latter is ambiguous, because no model successfully forecast the exchange rate fluctuations of euro/dollar in the year from 1999 to 2004, though some predications do have important policy implications. The answer to the former is no, because we have so far not experienced such enormous fundamental changes whereas euro underwent sharp rises and declines during that period.

Then, what determines the euro/dollar exchange rate? Some experts believe that the fundamentals such as economic growth differentials are the main determinants while other observers argue that speculations and expectations lead to the fluctuations of euro/dollar exchange rate.

Euro also competes with dollar on the world trade market and with regard to official reserves. The member countries of the euro area need time to harmonize their fiscal and income policies during the transition period. And as a result, those who are optimistic with the euro should have patience since up to now we have not seen any signs of the increasing share of euro on invoicing and official reserves.

The rest of the paper is structured as follows: Section two analyses different models on the determinants of euro/dollar exchange rate and puts forward various explanations of the euro's weaknesses from 1999 to 2001. Section three discusses the competition on invoicing and official reserves and section four forecasts the future of the euro. Finally, section five concludes this paper.

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2: The Determinants of the euro/dollar exchange rate

A: Hierarchy of Currencies

As a whole, currencies can be listed in seven categories, namely top, patrician, elite, plebeian, permeated, quasi and pseudo currency, with decreasing popularity on the world market (Cohen, 1998). Those currencies are roughly divided into two groups, international currency and national currency. The first three categories are international currencies while the rest are national currencies. National currency only circulates in home country, while a international currency is a widely accepted media of exchange and store of value. International currencies are widely used outside its national border.

Top currencies - the most esteemed of international currencies - dominate most if not all types of cross-boarder activities and their popularity is more or less universal, and there use is not limited to any geographic region. Patrician currencies, which are used for various cross-border purposes, while substantial, are something less dominant, while widespread, they are not universal.

Historically, Byzantine gold solidus, Britain pound, US dollar acted as top international money circulating outside one country. Dominant in the post-war period, of course, was the US dollar, which mainly benefited from the US being the largest economy in the world. The dollar's pre-eminence is particularly evident at the official level, where it remains the clear favourite of most governments for all private uses. The German D-Mark (later the euro) and Japanese yen are becoming more and more important from 1960s on at the cost of the dollar's declining market share. Now, the euro, the leading patrician international currency, is struggling for getting bigger market shares which unavoidably brings a challenge to the dollar's position.

Currency rivalry between states is nothing new. But which currencies are likely to be prevailing in the Darwinian Struggle? First, at least during the initial stages of a currency's cross-border use, widespread confidence in a money's future value backed by political stability in the country of origin is needed. Second, "exchange convenience" and "capital certainty" - a high degree of transactional liquidity and a reasonable predictability of asset value - are relevant. The key to both is a set of well-developed financial markets, sufficiently open to ensure full access to non-residents. Markets must not be encumbered by high transaction costs or formal or informal barriers for entry.

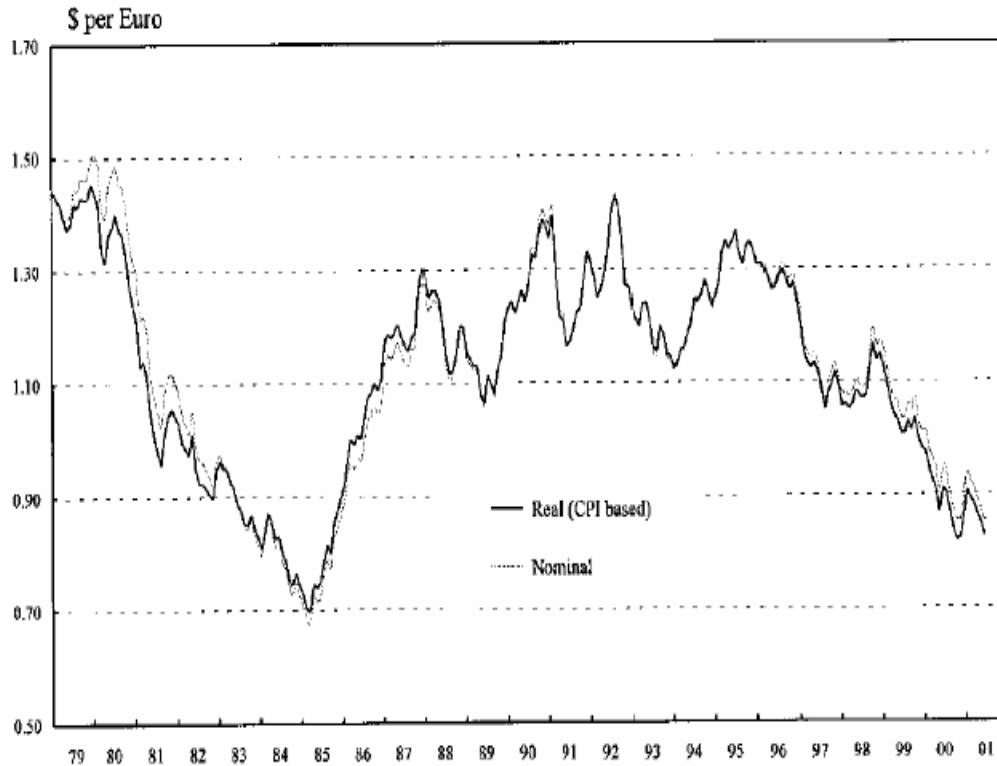
They must be also broad, with a bulk choice of instruments available for temporary or longer-term forms of investment. And they must be deep and resilient, with full operating secondary markets for most, if not for all financial claims. Third, and most important of all, a money must promise a broad transactional network, since nothing enhances a currency' acceptability more than the prospect of acceptability by others. The currency of a country that has a large share of international output, trade and finance has a natural advantage.

At first glance, the euro has the potential to rival dollar because it fits all the three requirements listed above. But whether it really can be as competitive as the dollar still needs consideration.

B: The post war financial system and the history of mark(euro)/dollar exchange rate movement

The post war international financial system can be roughly categorised into two parts, before 1973 and after 1973. Under the Bretton Woods system, the dollar was by far the dominant currency, its role and market share was unmatched. After 1973, many developed countries adopted a floating exchange rate regime. In Europe most currencies pegged to the D-Mark under the European Monetary System (1979-1998). With the economic 'miracles' in the 1950s and 1960s, West Germany and Japan have narrowed the gap with the US in GDP and other economic indicators. Consequently, Deutsche Mark and Japanese Yen gained a much bigger market share and became after the breakdown of the Bretton Woods system for the first time potential threats to the US dollar. Significantly, the biggest drop in the dollar's reserve role was in Europe - a natural concomitant of the emergence of the D-Mark bloc since the "snake" in 1973, which later became the European Monetary System.

The exchange rate between D-Mark (later euro) has become the most widely cited index in the world financial market. Before 1973, the German government deliberately devalued its currency in order to boost its exporting industry. After the collapse of the Bretton Woods system, we saw big fluctuations between DM and dollar, which were characterized by two large swings: the early-1980s euro surge and the late-1990s euro spike (see figure 1).

Figure 1 : Real and nominal euro/dollar exchange rate

Source : Meredith (2001)

More recently, the euro experienced a rather long period of dramatic depreciation during 1999 and early 2002 followed by a strong rally after the middle of 2002.

C: The basic exchange rate theories

Established exchange rate theory provides us with two equilibrium theories of exchange rate. But can these theories explain the movements between euro and dollar?

Purchasing power parity (PPP)

The argument goes like this: one and the same commodity must cost exactly the same in two different markets, otherwise arbitrage transactions would earn profit just by moving the goods from the place where the price is lower to the place where the price is higher. Then supply on the place with the lower price rises and price will go down and vice versa. So prices would rapidly be equalized.

But as far as we know, the inflation rates (or CPI) in both euro area and the US were quite stable during 1999 and 2003, which makes the PPP theory rather pale in explaining the dramatic fluctuation of euro against dollar.

Uncovered interest parity (UIP)

UIP runs as follows: the investment market, or the capital account between two currency areas, will only be in equilibrium if, after adjusting for different risks, investors receive the same rate of return in both markets. So if the market offers a higher return than another in local currency units, this advantage has to be taken away by expected changes of exchange rates: the currency of the country with the lower interest rate has to adjust just so much that the return differentials is equalised (Streissler, 2002).

This is contradictory to our observation of the years from 1999 to 2000, when the interest rate in the euro area is lower than that of US, but euro declines sharply; in fact, the euro dropped by about 27 % from its introduction until September 2000. Isard (1995) discredits UIP and believes that interest differentials tend to predict a small part of the changes in exchange rates, while unexpected information plays a bigger role.

Broadly speaking, PPP and UIP are based on many assumptions and some or even most of them are unrealistic which undermines their credibility.

D: The determinants of euro/dollar exchange rate

Due to the non-existence of a theory, which can readily and convincingly explain the movements of the euro/dollar exchange rate, large numbers of new approaches appear to solve this problem. Generally speaking, the approaches can roughly be classified into two groups, fundamental approach and expectation approach, but the former group is by far the mainstream.

There are some well-elaborated articles presented by economists who mainly owe the exchange rate fluctuations to economic fundamentals like GDP growth and interest rate differentials.

Maccauley (1997) is a good example. He predicts that the exchange rate of euro/dollar will reflect inflation outcomes, growth performance, and long-term developments in net-foreign-asset positions on both sides of the Atlantic. Over short horizons, the relation between business cycles and associated cycles in monetary policy will figure importantly in variations in the euro/dollar exchange rate. Clostermann and Schnatz (2000) by constructing a synthetic euro/dollar exchange rate over a long period from 1975 to 1998

and applying co-integration approaches, identify four factors as fundamental determinants of the real euro-dollar exchange rate: the international real interest differentials, relative prices in the traded and non-traded goods sectors, the real oil price and the relative fiscal position.

From 2001 on, many economists designed various kinds of models to analyse the determinants of the euro/dollar exchange rate. To mention is the research done by Fernandez, Osbat and Schnatz (2001) as well as Alquist and Chinn (2002). Fernandez, Osbat and Schnatz get a similar result as Clostermann and Schnatz (2000) after an empirical study of the medium-term determinants of the effective euro/dollar exchange rate. They find that differentials in real interest rates and productivity, and (in some specifications) the relative fiscal stance and the real price of oil, have a significant influence on the effective euro/dollar exchange rate. Also, similarly Alquist and Chinn estimate co-integrating relationships between the real exchange rate, productivity, and the real price of oil using the Johansen and Stock-Watson procedures. They found that each percentage point in US-Euro area productivity differential results in a 5 percent point real appreciation of the dollar. This finding can explain the depreciation of the euro from 1999 to 2001, but it contrasts sharply with the following euro surge. While the approximately 1.5 percent point productivity differential in favour of the US observed over the 1995-2000 period is unlikely to be sustained, it is also plausible that a smaller positive productivity differential might persist in favour of the US. If this is the case, they conclude that the long run value of euro may continue to decline, although cyclical and portfolio balance factors may obscure the trend.

Meredith (2001) is not in favour of the oil price's role. His research shows that the oil price has few effects on the euro/dollar exchange rate given that the net oil imports of the euro area were slightly higher than those of the United States. He adds that the past experience with rising oil price does not show any similar trend of currency movements as seen in 1999-2000. Tesmer (2001) doubts the key factor of differentials in GDP growth. He argues that if the euro is being driven down by expectations of higher US growth, what explains the path of the Yen against the US dollar and Euro? The weakness of the Japanese economy over the last decade (see table 1) as not led to a corresponding depreciation of the Yen.

Table1 :Growth and inflation - average annual percentage change

	Real GDP				Consumer prices ¹			
	1991–2000	2001	2002	2003 ²	1991–2000	2001	2002	2003 ²
Advanced industrial countries	2.5	0.9	1.7	1.7	2.4	2.1	1.5	1.9
United States	3.2	0.3	2.4	2.3	2.8	2.8	1.6	2.4
Euro area	2.1	1.4	0.8	1.0	2.4	2.4	2.2	2.0
Japan	1.4	0.4	0.3	0.8	0.8	-0.7	-0.9	-0.6
United Kingdom	2.3	2.1	1.8	2.0	3.2	2.1	2.2	2.8
Canada	2.8	1.5	3.4	2.7	2.0	2.5	2.2	3.1
Australia	3.4	2.7	3.8	3.0	2.2	4.4	3.0	3.0
Other countries ³	2.1	1.3	1.5	1.3	2.1	2.2	1.8	2.1

¹ For the euro area, harmonised index of consumer prices; for the United Kingdom, retail price index excluding mortgage interest payments. ² Consensus forecast published in May. ³ Denmark, New Zealand, Norway, Sweden and Switzerland.

Sources : BIS, 73rd Annual Report (2003)

No economist gives us a more thorough explanation of the weaknesses of the euro from 1999 to 2002 than Meredith (2001). He refers to many reasons which have been put forward for the weaknesses of the euro using the following headings: Initial conditions or structural weaknesses in the euro area (e.g. labour market rigidities, size of welfare states, difficulties in establishing sound fiscal policies); political factors (e.g. the Danish referendum not joining the European Monetary Union); world oil shocks; policies by the European Central Bank (uncertainties, and/or an anti-growth bias); contrast with US new economy (e.g. productivity growth); portfolio shifts (e.g. increased international issue of euro-denominated bonds); non-fundamental market dynamics (e.g. herd behaviour).

According to Meredith if the home currency is a net creditor in foreign assets, the home currency will tend to appreciate as uncertainty rises, provided that investors are generally risk-averse. In the world capital market, the euro area is a net creditor while the US is a net debtor. This will result in euro's appreciation, contrary to the real movements of the euro since 1999. He is quite sceptical about most other reasons for the weakness of euro, with the only exception of portfolio shifts and non-fundamental market dynamics. So, he uses the portfolio shifts as the only factor in economic fundamentals, which more or less explain some parts of the euro's weaknesses, but non-fundamental factors are his last resort.

Moosa (2002) reckons that exchange rates are driven primarily by short-term and medium-term expectations, and rational expectation is a poor guide to the real world since it assumes that market participants passively forecast events rather than actively

causing them. If speculation dominates the short-term expectations, the exchange rate movement will become unpredictable since speculation itself is capricious. Moosa's idea is not new. The explanation of expectation can be broadly divided into two groups, school of rational expectations and Keynesianism. The former, represented by Lucas and the New Classical School, holds that all events are known in a probabilistic sense and all economic agents have the same expectations of the world which is based on many repeatable events. The latter, like Keynes, believes that not all future events are known and economic agents have different expectations using animal spirits to discover the unknown world. So Moosa's idea is inherited from Keynes.

Unfortunately, none of the above mentioned models predicted the euro's appreciation in the year 2002-2004. A global head of foreign-exchange research at ABN-Amro Bank in London predicted that the Euro could fall to 75 US cents in the year of 2003, and to a further decline to 0.55-0.60 US cents by 2004 (Tesmer, 2001). Alquist and Chinn M. D. (2002) predicted the equilibrium exchange rate is 85 cents per euro.

As a whole, few people can be successful in their attempts to forecast exchange rates, because the exchange rate is influenced by many factors, among which some are changing from time to time or even invisible. Schnatz and Vrijnselaar (2003) maintain that the models are surrounded by significant uncertainty, reflecting the inherent difficulty of modelling exchange rate behaviour. Nevertheless, the models impose useful structures by identifying the channels through which various factors play a role.

3. Competition on world trade and official reserves

Monetary union in Europe introduced a euro that will generally carry more weight as an international money than the Deutsche mark, but less weight than the sum of the euro's constitutive currencies. In the invoicing of international trade, the euro is likely to denominate something like one-quarter of world trade, more than the D-Mark's sixth, but less than the combined EU currencies' third. As a reserve currency, the euro is likely to claim a share of about one-sixth, much the same as D-Mark, and lower than one-fifth claimed by all EU currencies (Maccauley, 2000).

A: Competition on invoicing

Only the dollar is extensively used as a top currency in the strict sense, that is, to denominate trade between countries. This invoicing difference between the United States

and other industrial countries is obvious. Industrial country imports are inclined to be more dollar-denominated than their exports, reflecting the importance of commodity imports. As matters stood in the early 1990s, the dollar's share of trade invoicing was near one-half (see table 2); its decline since 1980 seems due to the decline in the share of oil trade and the D-Mark's increasing popularity in Europe.

Table 2: Euro and dollar: comparison (share, %)

	Germany, France and Italy	UK/pound sterling	USA/dollar	Europe
Location of foreign exchange market turnover (1989)	4.6	25.6	16.0	
Foreign exchange market turnover (2001)	9.4	31.1	15.7	
Foreign reserves (1989)		2.3	51.3	17.8 (DM)
Foreign reserves (1998)		3.9	60.3	12.1 (DM)
Invoicing currency (1980)			56	31 (24)*
Invoicing currency (1992)			48	34 (28)*

* The figures in brackets for invoicing currency are figures excluding pound sterling.

Sources: IMF, BIS.

An argument, which has been brought forward is that if EU-15 as a whole was a larger importer of certain homogenous goods than its competitors, then the euro could replace the dollar for these goods. The most important good in the world market is certainly oil. According to WTO data, Western Europe was the largest importer of oil from the rest of the world. So from this point, the expectation that the euro can challenge the dollar as the main invoicing currency has gained some credibility.

But at present the major derivatives' markets for these products are in the UK and the US, and they function mainly in dollars, which will even strengthen the network advantages of US currency, in particular if UK stays away from the EU. These arguments point to the potential inertia in commodities invoicing which may favour incumbency - the dollar for quite a long time.

An event which would be favourable for the euro's competitiveness is UK's joining the euro area. London is the most important financial centre in foreign exchange which is unmatched for any other European counterparts (see table 2). This would shift the London commodity markets (International Petroleum Exchange, London Bullion Market, London Metal Exchange, etc., which in some cases even lead US markets) to the euro area, also probably improving the international role of the euro to a great extent. Though a period is needed to harmonize the market if UK joins the euro area, the outstanding role of London as an international financial centre, and the broadness, depth and sophistication of its markets should give a boost to the euro as an attractive invoicing currency.

B: competition as a reserve currency

Summarizing the post-war overview of international currency use as the official reserve, it can be safely concluded that the world has shifted somehow to a tri-polar international monetary and financial system during the past two decades, but without any hint of reaching a symmetric tri-polarity in real sense. A gradual diversification out of the dollar mainly into the D-Mark and Japanese yen since the unravelling of the post-war monetary order in the early 1970s came to a halt since the early 1990s and in any case, never threatened the dollar's hegemony to a large extent (Maccauley (1997)). As for the D-Mark, the largest share in foreign reserve is only less than 20 percent, far less than dollar's 50 percent. The dollar still continues to be by far the most significant international currency on the global level in virtually all main money functions. The D-Mark and the yen had more says than before in their respective regions, but not at the global level. The issue of yen being the leader of the so called yen zone in Asia is still an open discussion, but the introduction of euro has made a great move forward on its way to challenge the dollar as the world's leading currency. Although the People's Bank of China has declared to diversify its reserve currencies, the US dollar still dominates in most countries who own large amount of reserves.

In brief, the euro has achieved dramatic progress in its way to catch up with the dollar in its use as invoicing and reserve currency, but it is still a long way to go to attain its goal to gain equal strength as the dollar.

4: Forecast about euro's future

Compared with the euro area, the US enjoys at least two privileges – it has nearly not to care about the dollar-exchange rate and it can earn seigniorage for dollar's role as the world's leading invoicing currency and official reserve currency. But all fifteen EU countries together make an economic unit at least as large as the US economy, and in many respects larger than that of US. Current EU GDP exceeds US GDP by 16 percent, the EU population exceeds US population by 40 percent, EU exports exceeds that of US by 22 percent (Hartmann, 1998). With increasing integration of EU's economies, will the euro challenge the dollar as the world's leading currency? If yes, to what extent, and at what pace the euro will become the leading currency hinges on many economic and non-economic factors.

Many people are quite optimistic about the dollar's dominance, but less sanguine predictions are possible even from the US. As Paul Krugman (1992) mentioned:

“The troublesome of possibilities are either that the dollar's fundamental advantages will drop to some critical point, leading to an abrupt unraveling of its international role, or that a temporary disruption unraveling of world financial markets will permanently impair the dollar's usefulness. These are not purely academic speculations, since they have precedent in the history of sterling's decline. The disruption of World War I led to a permanent reduction in sterling's role, while the gradual relative decline of Britain's importance in the world was reflected not in a smooth decline in sterling's role but in surprising persistence followed by abrupt collapse.”

Krugman is not alone in believing in the euro's long-term potentials. The for-euro view is best summarized by Henning (1996):

“When it is introduced, there will probably be no large, precipitous displacement of the dollar. Nonetheless, much of the increased role of the new European currency can be expected to come at the dollar's expense, and this would reinforce the gradual historical decline in the role of the dollar exhibited over the last several decades.”

We have seen that most of Western Europe, Eastern Europe, some of the countries boarding the Mediterranean and Francophone Africa are using euro or pegging their local currencies to euro. It seems that euro has gained more popularity, but less optimistic voices are also strong. The best representative is Herr's argument. Herr (1997) argued,

“it would be unwise to assume, even from a medium-term perspective, that there will be a transition from the international monetary system dominated by the US, with the dollar at the top of the currency pyramid, to an oligopolistic multicurrency system. There may be long time trend towards multicurrency system, but long-term forecasts are involved with a high degree of uncertainty.”

Many factors which may harm the euro’s long-term competitiveness are raised as e.g. the following:

Firstly, the euro area is weak in the new economy. If the euro area lags far behind the US in a surge in productivity growth due to factors such as permeation of information technology for long, it will be an obstacle to the euro’s future.

Secondly, reserves are decentralised in the euro area. The European Central Bank holds the equivalent of US \$43 billion reserves while the 12 member central banks hold on to \$331 billion (Tesmer 2001). Reserves must be centralized in the ECB just as they are in the Federal Reserve.

Thirdly, whether the euro can be more inviting than the dollar or yen depends much on the future policy of European Central Bank. Assuming that US and Japanese monetary policies remain unchanged, a strict anti-inflation policy taken by ECB following the German Bundesbank will lead to more euro invoicing in world trade and larger share of the euro in reserves. If the European Central Bank adopted a monetary policy, which is some average weight of historic policies of the former EU national central banks, then the euro could be less attractive than the dollar in terms of price stability. At the time being, the European Central Bank seems to follow the tradition of the German Bundesbank stressing a low inflation target.

Fourthly, the European Central Bank should have more coordination with the Federal Reserve. Belka and Gros (2002) find that drastic fluctuation of exchange rates is harmful to euroland’s economic development and to a less extent to the US’s economy. They suggest that the European Central Bank and the Federal Reserve should contemplate joint actions to reduce excessive exchange rate variability because coordinated interventions

have a higher probability of success and move the exchange rate by a larger margin than unilateral interventions.

Fifthly, more cooperation and coordination within the euro member nations are needed. High trading volume, low exchange rate variability, large and sophisticated domestic financial markets and a stability oriented domestic monetary policy are four determinants of a currency's competitiveness (Hartmann, 1998). But political factors must weigh at least as heavily as economics issues in the euro/dollar rivalry. The integration of Europe was driven by political objectives. Now with the enlargement of the euro area, it seems that Europe is apt to have more problems in reaching an agreement. Rifts in agriculture policy and Iraq war are good examples. Disagreement over regional and general economic policy issues alone could seriously interfere with a stability-oriented policy on the part of the European Central Bank and weaken the European currency. Furthermore, EMU-area financial markets will not be as integrated as the domestic markets in the US or Japan. What should be borne in mind is that a wedding ring by no means guarantees an everlasting marriage, divorce remains an option.

Last, but not least, the European Central Bank will continue to be a follower but not a policy-maker in the so-called US-EU game as long as US has a much more powerful military strength. If US- and EU- policy makers have the similar expectations of the euro/dollar exchange rate, it will be easy for them to cooperate. But if they have different preferences of that exchange rate, one has to concede in most cases and at present the US has absolute more says in controlling the exchange rate. In respect to the exchange rate the US is an inward-looking hegemony. According to Ishiguro (2002), the priority of US-exchange-rate policy is domestically oriented, which means that it will appreciate the dollar and later depreciate it to cater for its own economy. In such a kind of game the EU does not have enough ability to reverse that trend and has to follow the willingness of the US.

Empirically, the recent economic performance in Europe is far from on the right track, the major economies show low growth and have some difficulties in harmonising their policies. Private sector investment is low and demand is not robust. Overall monetary policy in Europe is still tight

(Barrel et al., 2003). Germany and other countries could fulfil the Stability and Growth Pact for several years. There is no coordination in fiscal policy in Europe.

In the long run and theoretically the euro will be a rival for the dollar of similar importance in the world market. But since currency competition is not part of the usual objectives of economic policies and without having done a thorough evaluation of the overall costs and benefits, Europe's authorities might be well advised neither to actively obstruct market forces for euro internationalisation, if they emerge, nor to seek their currency's internationalisation at any price (Maccauley 1997).

5: Conclusion

Since World War II, the US dollar has been the dominant international currency. With the inauguration of the euro in the year 1999, the euro has become the most powerful potential opponent for the dollar in the international monetary and financial market. Depending on the size of the member countries of the Euro area, the euro will become comparable not only in international trade, but also on GDP to the US dollar. Will this shock or big event to the international monetary system cause further diversification out of dollar? Will the euro have the chance to challenge the dollar or even replace it as the world leader?

Although opinions differed, the mainstream economists argued that the euro after its creation would more likely appreciate than depreciate. In any event, nobody appears to have anticipated the magnitude and speed of the depreciation of euro since 1999. This paper puts forward a number of explanations for the euro's weaknesses since its debut depending on various kinds of models. Both fundamentals and expectations are among possible reasons, but unfortunately, most of them are not satisfactory.

From a long-term view the euro has great potential. But if it will get the same importance as the dollar for instance in invoicing and in reserve remains to be seen.

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