THE US DOLLAR, THE EURO, THE JAPANESE YEN AND THE CHINESE YUAN IN THE FOREIGN EXCHANGE MARKET – A COMPARATIVE ANALYSIS

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Abstract:
This paper exposes an evaluation of the bilateral exchange rate developments of the US dollar against the euro, the Japanese yen and the Chinese yuan/renminbi and surveys the nominal and real effective exchange rates trends of such currencies over the period 1994-2012. It also briefly reviews the currency composition of the foreign exchange market turnover, pointing out several important features of the evolution of this market after the introduction of the euro.

Key words: *foreign exchange market, US dollar, euro, Japanese yen, Chinese yuan*

The factors influencing the exchange rate of a currency against another may have a convergent or a divergent action with different intensities from one period to another. These factors can be grouped into the following categories: economic, political, social, psychological and technical. In terms of the evolution of a currency position on the market, both short and long term economic factors have a decisive role.

The explanation of the *bilateral exchange rates* must be sought in the evolutions of the basic factors that generally affect the movement of a currency, including: general economic situation (growth rate, unemployment rate, productivity); national developments of the prices and interest rates; balance of payments situation, especially the current account balance, which influences the size of the demand and supply of that currency relative to other currencies; users confidence; psychological and political factors (such as the September 11th terrorist attacks or Iraq war).

Exchange rate stability is a characteristic of the period 1948-1971, represented by the Bretton Woods system rules (fixed but adjustable exchange rates with fluctuation bands of ±1% to 1971 that were broadened to ± 2,25% between 1971 and 1973).

The US administration's decision in 1971 to suspend the official gold convertibility of the dollar and the dollar devaluation in 1971 and 1973 have induced increases in the gold price. Because the fluctuation bands were increasingly difficult to meet the monetary authorities decided in 1973 to replace fixed exchange rates with floating rates, which is determined by the money supply and demand. Relaxing the control of capital movements and exchange rates has triggered the speculative attacks against various currencies and a disorderly movement on the foreign exchange markets, as shown in the following figures.

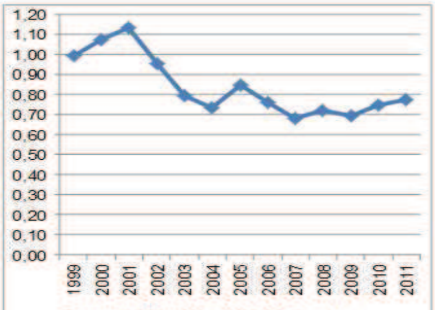

Figure 1. EUR/USD in 1999-2011 (annual average)

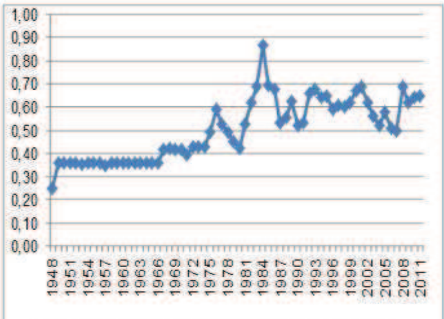

Figure 2. GBP/USD in 1948-2011 (annual average)

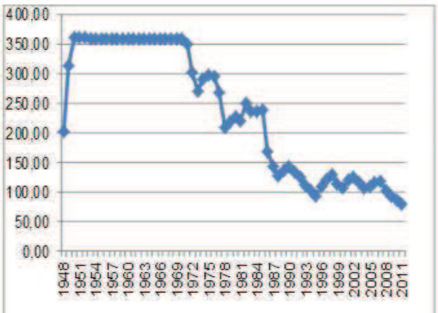

Figure 3. JPY/USD in 1948-2011 (annual average)

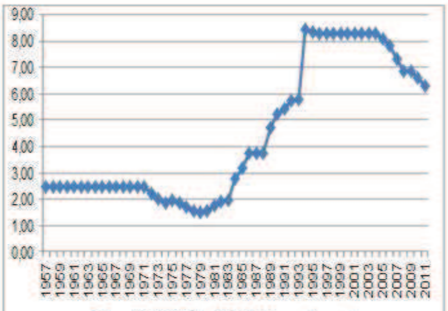

Figure 4. CNY/USD in 1957-2011 (annual average)

Source: IMF, International Financial Statistics

Some movements can be explained by the run from or to the "safe haven currencies": under uncertainty and risk aversion conditions, some currencies are more attractive than others. Looking at the period 1993-2007, Ranaldo and Soderlind (2009) show that when US stock prices fall and US bond prices grow and exchange market volatility increases, the US dollar tends to depreciate against the euro, Japanese yen, Swiss franc and British pound which are considered "safe havens".

After the introduction of the euro, the period 1999-2001 was characterized by an appreciation of the US dollar against the euro (1 USD = 0,9954 EUR, average of 1999; 1 USD = 1,1347 EUR, average of 2001) but also against the British pound (1 USD = 0,6187 GBP, average of 1999; 1 USD = 0,6895 GBP, average of 2001) and the Japanese yen (1 USD = 113,9068 JPY, average of 1999; 1 USD = 121,5289 JPY, average of 2001). The second half of 2002 highlighted a depreciation of the US dollar against the euro, the Japanese yen, the British pound and the Chinese yuan/renminbi. This trend of depreciation has continued until 2007, even if on short periods a slight appreciation is recorded. During the global crisis, the US dollar exchange rate evolutions are both depreciation - to the Japanese yen and the Chinese yuan/renminbi - and appreciation - to the British pound and the euro.

The main arguments for a weak US dollar after 2002 are: market concerns about the current account deficit of the United States, increasing of the budget deficit, uncertainty of economic growth, rising of the geopolitical tensions or the war in Iraq.

Since the beginning of the euro zone crisis, the resilience of the euro was in contrast to the sharp depreciation of other currencies in times of banking or debt crises.

Regarding the exchange rate of the US dollar against the Japanese yen, the global crisis and the devastating earthquake have brought a high level of volatility compared to other periods of crisis that hit Japan, especially the Asian crisis of 1997. The Japanese yen is expected to depreciate in the long term.

The US dollar exchange rate movements against the Chinese currency should be viewed in the light of China currency arrangements evolutions since 1973, thus: managed floating peg to US dollar within a ±2% band (1974-1981, 2005-2009); managed floating peg to US dollar (1981-1992, 1994-2005 and after 2009); or managed floating linked to a basket of currencies defined according to their share in the world trade (abandoning yuan/renminbi peg to the US dollar in June 2010). The Chinese authorities announced that they would gradually increase the exchange rate flexibility, with the intention to internationalize the yuan/renminbi.

With the development of international trade and increased economic and financial globalisation, *real effective exchange rate* - REER become a more relevant variable, measuring its major trading partners' price levels, as a measure of the value of a currency against a weighted average of a basket of other currencies.

The effective exchange rate of the Bank of International Settlements is a CPI based index for 61 economies, updated according to the international trade in 2008-2010. UNCTAD also recommends using REER, arguing that in recent years that such a system is simple and viable, that helps to prevent currency misalignments and speculations. The real effective exchange rate is the nominal effective exchange rate relative to the CPI (consumer price index). It actually measures the overall competitiveness of a country to its trading partners.

As can be seen in Figure 6, compared to the reference year 2010, the US dollar appreciated strongly in real terms during the 1995-2002 period, a trend accompanied by increasing current account deficits, the competitiveness of US recovering later and the real effective exchange rate reaching in 2008 the level of 1995. The depreciation registered after 2002 with domestic demand contraction contributed to some extent to the US current account deficit. Despite the slight recovery in 2008, the REER in the US is at the lowest level after 2011.

In the euro zone between 1999 and 2002 is observed a depreciation followed by an appreciation in real terms until 2010 and then again a depreciation trend to the record minimum values during 2012.

The real effective exchange rate of Japan indicates an alternation of depreciation with appreciation periods, the general trend of the reporting period being of depreciation, with minimum levels recorded in 2007-2008.

In the analysed period, China's exchange rate appreciated in real terms, with moderate depreciation between 2002 and 2008, the REER reaching the highest level in 2012. In the IMF view, the yuan/renminbi remains substantially undervalued compared to medium-term fundamentals. According to estimates, the percentages vary between 5% and 20% (Leonhardt, 2012). The required appreciation of the Chinese currency cannot be achieved suddenly and on the short term. Adam and Vines (2009) consider that it is necessary a gradual appreciation of the real exchange rate, with 4-5% per year over the next 10 years.

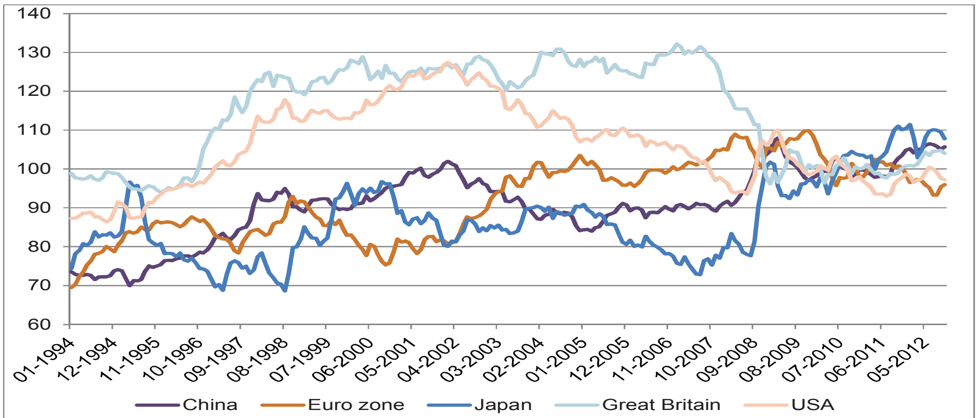

Figure 5. Evolution of the nominal effective exchange rates in selected countries, 1994-2012 (BIS, index, montlhy average, 2010=100)

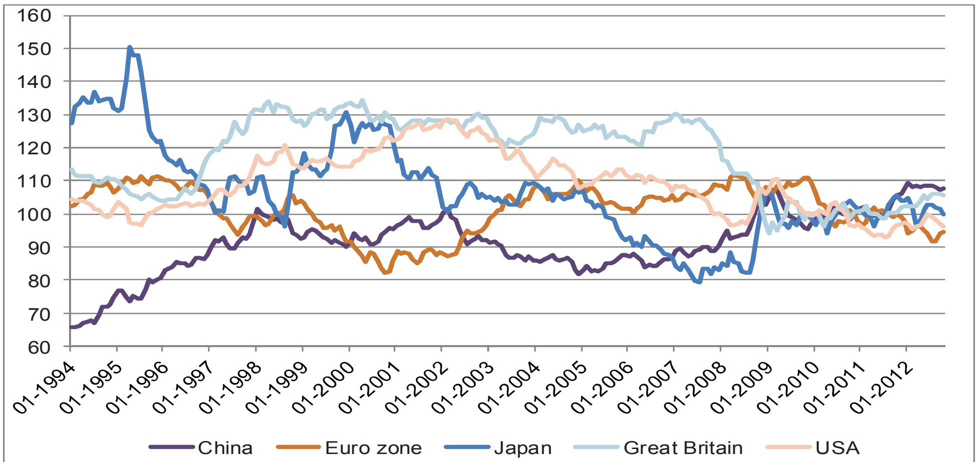

Figure 6. Evolution of the real effective exchange rates in selected countries, 1994-2012 (BIS, index, montlhy average, 2010=100)

Source: BIS

The US dollar remains the dominant currency on the *foreign exchange market* while the euro's role is comparable to the German mark. The currency structure of the foreign exchange transactions between 2001 and 2010 is presented in the Figure 7.

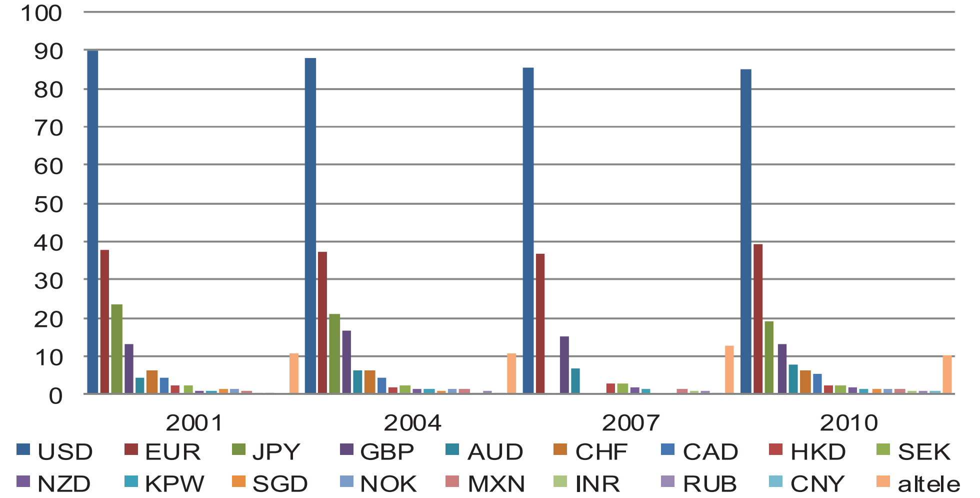

Figure 7. The share of the currencies in the global foreign exchange markets in 2001-2010 (April, % of daily average)

Source: BIS, Triennial Central Bank Survey,
Report on global foreign exchange market activity, 1999-2010
Note: Because one exchange transaction involves two currencies, the total is 200%.

In the period 2001-2004 has not been significant changes in the currency structure of turnover in foreign exchange transactions compared to the period before the introduction of the euro: USD (88,0%), EUR (37,4%), JPY (20,8) and GBP (16,5%) in 2004. The pair USD/EUR was the most traded, accounting for 28% of total transactions in 2004, followed by the pair USD/JPY (17%) and USD/GBP (14%). On the foreign exchange markets in emerging countries, the US dollar remained the dominant currency, except Eastern European countries where the euro began to be in sight. Regarding transactions in local currencies of the emerging countries, their share rose from 4,5% in 2001 to 5,2% in 2004.

Although the USD/EUR pair has remained the most traded (27% in 2007), the currency structure of turnover in the global foreign exchange market has diversified in the interval 2004-2007, registering a decline for the four major currencies: USD (from 88% to 85,6%), EUR (from 37,4% to 37%), JPY (from 20,8% to 17,2%) and GBP (from 16,5% to 14,9%). Some increases are seen for the Hong Kong dollar (from 1,9% to 2,8%), due to China economic growth, the Australian dollar (from 5,9% to 6,7%) and the New Zealand dollar (from 1,0% to 1,9%), which attracted the investors by increasing yields and even for the Chinese yuan/renminbi (from 0,1% to 0,5%). We have to note that the share of transactions in the currencies of emerging countries has grown to about 20% in April 2007, according to Bank of International Settlements.

The period 2007-2010 is characterized by slightly divergent changes in the shares of major currencies: increases for the euro (from 37% to 39,1%) and the Japanese yen (from 17,2% to 19%); and fallings for the US dollar (from 85,6% to 84,9%) and the British pound (from 14,9% to 12,9%). But for some currencies of emerging countries were registered gains: Korean won (from 1,2% to 1,5%), Singapore dollar (from 1,2% to 1,4%), Chinese yuan/renminbi (from 0,5% to 0,9%). The pair USD/EUR remained the most traded (28%), followed by the USD/JPY (14%) and USD/GBP (9%). The Chinese yuan/renminbi is traded in pairs with the Indian rupee and the Russian rouble.

As a result of the global crisis a series of changes in foreign exchange markets is emerging. Can we imagine a future global market where the US dollar, the euro and the Chinese yuan/renminbi to hold the most important weights? It remains to be seen depending of what happens with the Chinese currency internationalization, what solutions have the European authorities to the euro zone crisis and what will be the United States position in the global economy.

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