Full Length Research Paper

Will it be the Euro or the US Dollar?

Uğur Ergün

International Burch University, Sarajevo. E-mail: uergun@ibu.edu.ba.

This study investigates the impact of the world's two dominating exchange rates on the exchange rates of selected countries over the last twenty years. Multivariate and recursive co-integration methods are used for the data which includes daily exchange rates for the selected countries from 1990 to 2010. The findings indicate that (a) the Euro has had a significant long term relationship with the selected countries' exchange rates before and after current euro crises unlike the US Dollar (b) the US Dollar lost its impact gradually after the introduction of the Euro and got back its impact together with current Euro crises, (c) the Euro shows a more stable relationship with the selected countries' exchange rates.

Key words: The US Dollar, Euro, multivariate co-integration, recursive co-integration.

INTRODUCTION

The US Dollar was the dominant currency in global financial and product markets, during of the twentieth century. In 1872 and after World War 1, the US economy displaced the British economy in terms of size and amount of exports. To date, the dollar has been used as the major dominant international currency and its usage has increased in international trade, finance and reserve holdings.

In 1944, a new monetary system was established and gold became the official international reserve asset. The US pegged the dollar to gold and then other countries pegged their currencies to the dollar. In 1971, the United States terminated the Bretton Woods Agreement by means of unilaterally closing the official gold window. All the major industrialized countries had ended their currencies being pegged to the dollar by March 1973. The amount of reserves held in the form of US dollars began to decline in the late 1970s.

One of the most important problems was that the countries faced a high and chronic volatility in their exchange rates in relation to the value of the US dollar. A strong dollar causes the US to lower trade barriers and a weak dollar causes other countries to diminish trade barriers. Especially after 1970s, the US was not success-ful in providing a stable, international currency as the dominant currency for the global financial system. This led to the establishment of the European Currency Unit in 1979 and in 1999 the Euro as a rival currency to the US Dollar. The Euro became the first serious challenge to the

US dollar after the Pound Sterling in the 19th century and first half of the 20th century.

The market share of the Euro in international financial markets have increased from 37.09% in 2007 to 39.06% in 2010 .If the Euro continues to increase, it is possible that it will surpass the US dollar in the future, given the high volatility and high risk of inflation for the dollar. Also, the use of Euro has the potential to increase in corporate bonds, government bond markets, equity markets and banking as shown in Figure 1.

In conclusion, despite a mismanaged monetary policy and severe financial crises in the US diminishing and eroding its dominancy, the US dollar still has strong factors maintaining its identity and dominancy in the world financial markets. However, if the Euro overcome successfully current financial crises and continue to keep its stable growth rate as before with the assumption of the US dollar stays unstable, the Euro will likely be able to replace the role of the dollar in the next couple of decades.

LITERATURE REVIEW

Most of the studies on the topic focus on the reserve currency holdings of countries in order to analyze the position of the US dollar compared to its rivals such as the pound sterling and the Euro. The reason for this is the availability of data and the high relevancy of reserve
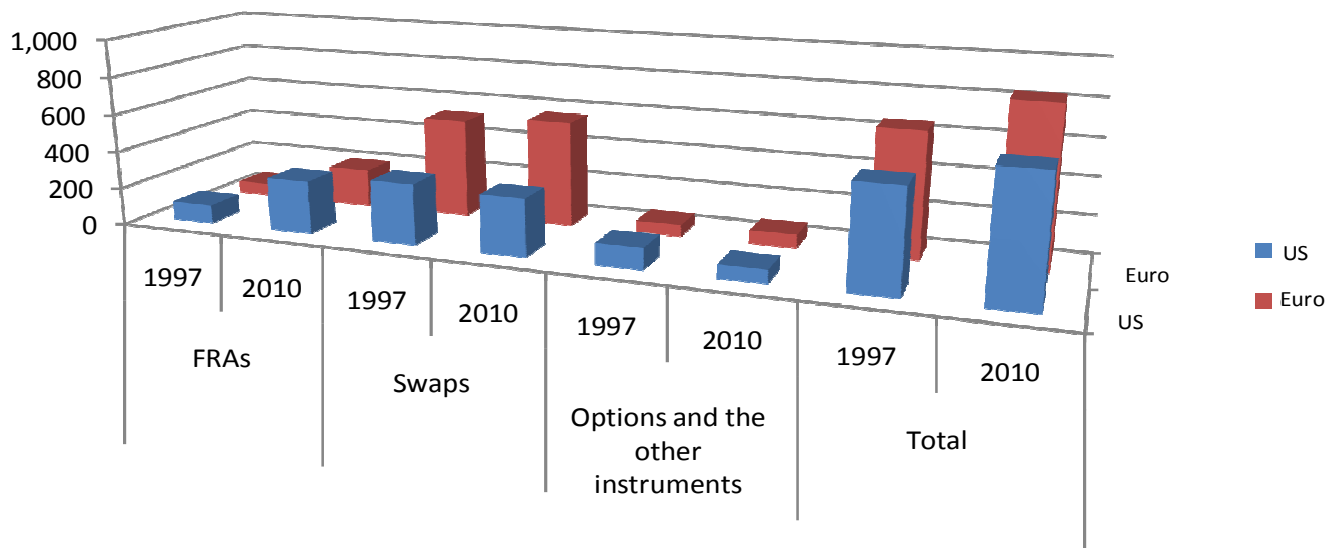
Figure 1. Market share of the Euro and USD in the Int. Fin. Markets.

currency holdings for this objective (Alogoskoufis and Portes, 1992; Bergsen, 1997a; b; Portes and Rey, 1998).

Portes (2007) assesses the impact of the Euro on international reserve holdings via the dynamic mean-variance currency portfolio optimizer in a before-after event study framework. The result shows an increase in the shares of both the dollar and the Euro in foreign exchange reserve holdings in recent years at the expense of other currencies. The Euro gradually is becoming more important, especially in the developing world.

According to Gaspar and Hartmann (2005) the Euro is not successful enough to be an international currency because it is mostly used only inside Europe. However, Detken and Hartman (2000) found an increase in the supply of Euro denominated assets outside of Europe and Rey (2005) stressed that the stock of international debt in Euro has increased from 20 to 30%.

Chinn and Frankel (2005, 2008) conducted a study in order to predict some scenarios under which the Euro might in the future rival or surpass the US dollar as the world's leading international reserve currency. They found that if all European Union (EU) member countries were to join the Economic and Monetary Union (EMU) by 2020, including the United Kingdom, then the Euro would overtake the dollar a few years later. They also found that even if some countries did not join the EMU, this would still occur due to the continuing depreciation of the dollar.

The United State political leadership in security, commercial and cultural affairs has a significant influence on the dominant role of the US dollar. Findlay and O` Rourke (2007) stressed that war and security relationships play a bigger role than technology. The US position as an international military power and the role of the dollar was analyzed by Posen (2008) and he does not find support for the Euro, unlike Dehesa (2004). Dehesa

stressed that being a strong international military power does not necessarily help to make a country's currency internationally dominant. Private economic agents take large volumes and low transaction cost factors into account in choosing a currency. Guillermo (2003) has also stressed that the only way for the Euro to displace the dollar would be the formation of a similar political governance system with a federal state.

McNamara (2008) discussed the relationship between power and currency. He found that though the Euro has many of the underlying economic factors needed to be a peer competitor with the US dollar, the necessary political power and social requirements are missing. He also stressed that transformation is not impossible. Goldberg (2010) examined the US dollar's preeminence as an international currency. He concluded that the dollar retains its dominance for international transactions due to factors such as inertia in currency use, the large size and relative stability of the US economy and the dollar pricing of oil and other commodities.

Helleiner (2008) studied the political determinants of international currency status. Thimann (2008) studied the global role of currencies and found that the global role indicator is positively correlated with such foreign currency reserve holdings. Leverent (2008), Mallaby (2007), Steil (2007) and Posen (2008) argue that the Euro is unlikely to displace the dollar in its global role. Chinn and Frankel (2008) and Bergsen (2005) argued that the Euro is waiting for the continued failure of the US financial system and balance of payments.

METHODOLOGY AND DATA

The data set obtained from DataStream includes the daily observations of exchange rates. The focus is centered on data for the US dollar, the Euro and the exchange rates of eleven countries
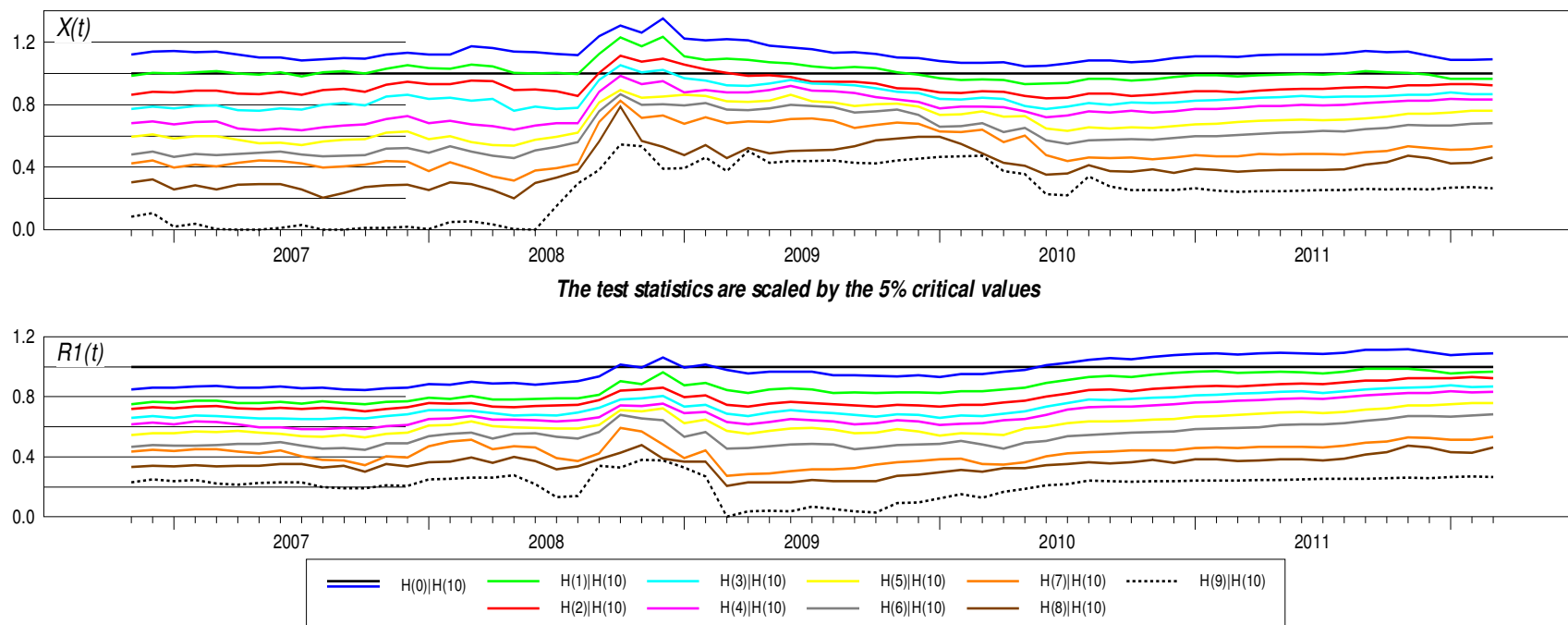
Trace Test Statistics

Figure 2. Recursive co-integration graphs with Euro.

spans from 28 July 2002 and 28 March 2012 (Brazilian Real, Chinese Yuan, Euro, Norwegian Crone, South Korean Won, Mexican Peso, Indian Rupee, Hong Kong Dollar, Singaporean Dollar, Pakistan Rupee, and Japanese Yen) against the British Pound.

In order to highlight the impact of current Euro crisis on the exchange rate integration of countries with USD and Euro, this study divided the whole period two sub-periods based on the current Euro crises.

At first, an augmented Dickey-Fuller (ADF) unit root test was conducted to examine the stationary levels of the series. The augmented Dickey-Fuller (ADF) test constructs a parametric correction for higher-order correlation by assuming that the series follows an AR (p) process adding lagged difference terms of the dependent variable to the

right-hand side of the test regression: They suggest augmenting Equation (1) with lagged values of the dependent variable y_t to mop up any possible serial correlation. The ADF test is then conducted by estimating the following regression:

$$\Delta y_t = \alpha + \Phi y_{t-1} + \delta T + \sum_{i=2}^{p} \beta_i \Delta y_{t-i-1} + \varepsilon_t \,, \quad (1)$$

Where; y_t = variable in period t, T = time trend, ε_t = i.i.d. disturbance with mean 0 and variance σ^2; that is, [$\varepsilon_t \sim NI(0, \sigma^2)$]. Then the null hypothesis of a unit root, $H_0 : \delta = 0$ is tested against the alternative hypothesis of the stationary

trend and evaluated using the conventional t-ratio.

After testing the unit root, the study applied the Johansen multivariate and dynamic co-integration method which involves the recursive co-integration approach of Hansen and Johansen (1992; 1993; 1999).

A base window of approximately one year was selected and moved forward adding new observations one month at a time and then the co-integration statistic was recalculated. The plots of the co-integration statistics demonstrated in Figures 1 and 2 reveal the time-variation or dynamic nature of the long-term relationship. The statistics were calculated and rescaled to a 90% critical value. Rescaled values above one show co-integration; below one, there is no co-integration.

Table 1. Unit root test result.

	Levels	First differences
	ADF	**ADF**
BRL	-O.4414	-5.5870
CNY	0.3560	-5.0966
EURO	1.0396	-6.3793
KRW	-0.4165	-7.6797
INR	-0.6851	-6.7006
JPY	-0.0130	-5.2485
NOK	1.3510	-7.3758
MXN	-1.3716	-6,5472
PKR	-1.9256	-5.9035
SGD	0.8779	-5.7442
USD	-0.3890	-5.3810

Note: t-values are reported in the table.

Table 2. Johansen co-integration test result.

Models		Lag	Trace LR	λ_{max}
First Period (07 July 2012-01 January 2010)				
With Euro*	r_0	2	277.24	265.03
With US Dollar**	r_0	2	307.57	265.03
	r_1		235.90	220.99
Second Period (02 January 2010-28 March 2012)				
With Euro*	r_0	2	276.13	265.03
With US Dollar*	r_0	2	270.42	265.03

Note: r_0 and r_1 shows the number of co-integrating vector. *indicates one co-integrating vector at the 0.01 significance level. ** indicates two co-integrating vectors at the 0.01 significance level.

EMPIRICAL RESULTS

ADF test was applied to the first differences and various levels of each series. Furthermore, appropriate lag lengths were selected according to the Akaike information criterion. The results presented in Table 1 reveal that the null hypothesis of a unit root in the exchange rates of the selected countries cannot be rejected in levels [I(0)], but rejected at first difference [I(1)].

The multivariate co-integration test result based on the sub-periods defined according to the current financial crises in Euro area is summarised in Table 2. Result indicates that the sample countries' exchange rates have had a significant long term relationship with the Euro before and after Euro crises. However, the co-integration with USD which is absent before crises appeared after the Euro crises.

In order to investigate the changes in the long term relationship between the selected countries' exchange rates and the Euro versus the US Dollar over time, a dynamic recursive co-integration test with the multivariate approach of Hansen and Johansen (1992) was performed and the result is summarised in Table 3. The initial period is defined by two years and calculated by lamda trace statistics. Figures 2 and 3 show the evolution of the lamda trace statistic for different multivariate representations and sample exchange rates.

Conclusion

This paper investigates the long term relationships between the world's two dominant rival currencies and the exchange rates of eleven countries randomly selected from different geographic regions. Multivariate and recursive co-integration methods were used for the data which includes the daily exchange rates for the selected countries against the British pound over a twenty year period.

This paper adds a new dimension to the discussion of the Euro replacement of the US Dollar in world financial markets. Despite the fact that the British pound not entering the Euro basket slows down the transformation,

Table 3. Recursive co-integration results.

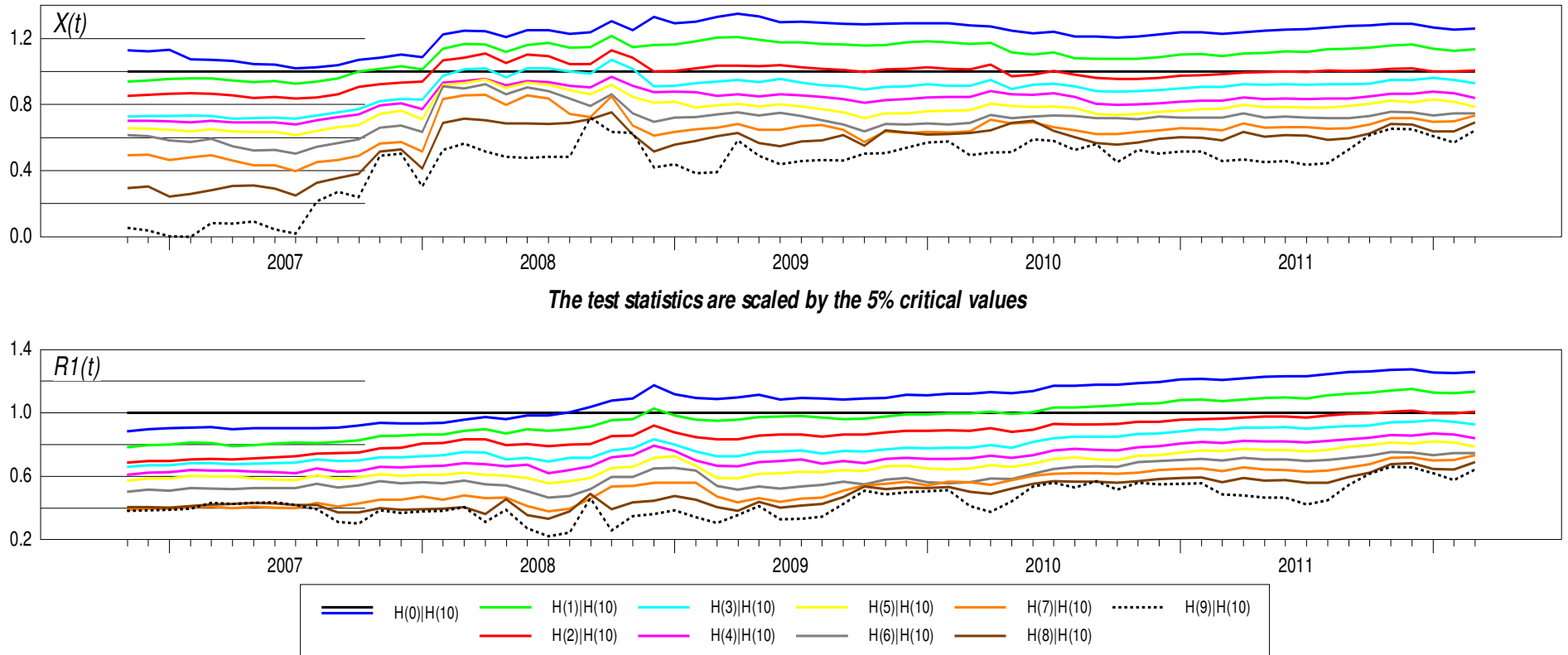| Models	
With Euro	An increasing significance level of co-integration is observed from the first days of the Euro until to date.
With US Dollar	Together with the Euro crises significance level of the co-integration relationship between the US dollar and the selected counties' exchange rates started to increase.

Trace Test Statistics

Figure 3. Recursive co-integration graphs with US Dollar.

the Euro still has enough dynamics to surpass the US Dollar, especially in case of further unstable fluctuations of the US economy.

The empirical results reported previously have two conclusions which are: (1) the multivariate co-integration test results show that the Euro has a significant long term relationship with the exchange rates of the selected countries before and after current Euro crises unlike the US Dollar; (2) the recursive co-integration test results indicate that the Euro had an increasing long-term association with the selected currencies until 2007, and from then until 2012 it has remained stable. The long term relationships with the US Dollar which was absent before crises has appeared after Euro financial crises.

The results imply that the Euro is strengthening its position with other currencies and closing the gap with the US Dollar and, supporting the findings of Chinn and Frankel (2008) and not those of Posen (2008), it will be able to replace it sooner or later. The current Euro crises have slowed down this replacement process. So, yes, it will be the Euro.

REFERENCES

Alogoskoufis G, Portes R (1992). European Monetary Union and International Currencies in a Tripolar world, in Matthew Canzoneri, Vittorio Grilli and Paul Masson (eds), Establishing a Central Bank: Issues in Europe and Lessons from the U.S. Cambridge, Cambridge University Press, pp. 273-302.

Bergsen CF (1997a). The Dollar and the Euro. Foreign Affair, 76(4): 156-180.

Bergsen CF (1997b). The impact of the Euro on Exchange Rates and International Policy Cooperation, in Paul Masson, Thomas Krueger and Bart Turtelboom, EMU and the international Monetary System. Washington, DC: International Monetary Fund, pp. 17-49.

Bergsen CF (2005). The Euro and the Dollar: Toward a Finance G-2? Inst. Int. Econ., pp. 27-39.

Chinn M, Frankel J (2005). 'Will the Euro eventually surpass the Dollar as leading International Reserve Currency?'NBE July. p. 11510,

Chinn M, Frankel J (2008). Why the Euro will rival the Dollar? Int. Fin., 11(1): 40-73.

Detken C, Hartmann P (2000). The Euro and the International Capital Markets. Int. Fin., 3(1): 53-94.

Findlay R, Kevin OR (2007). Power and Plenty: Trade War and the World Economy in the Second Millennium, *Princeton,* NJ: Princeton University Press.

Gaspar V, Hartmann P (2005). The Euro and Money Markets: Lessons for European Financial Integration, in Adam Posen, The Euro at Five: Ready for a Globe Role?, Inst. Int. Econ., pp. 87-98.

Goldberg LS (2010). Is the International Role of the Dollar Changing? Current issues in Economics and Finance, Federal Reserve Bank of New York, 16: 1.

Guillermo de la D (2003). The International Role of the Euro, Briefing Paper to the ECON Committee of the European Parliament.

Hansen H, Johansen S (1992). Recursive estimation in cointegrated var models. University of Copenhagen Economics Working Papers. Copenhagen.

Hansen H, Johansen S (1993). Recursive estimation in cointegrated models. Institute of Mathematical Statistics 1, Univ. of Copenhagen.

Hansen H, Johansen S (1999). Some tests for parameter constancy in cointegrated VAR-models. Econ. J., 2: 306-333.

Helleiner E (2008). Political Determinants of International Currencies: What future for the US Dollar?. Rev. Int. Pol. Econ., 15(3): 354-378.

Mallaby S (2007). The Dollar in Danger. Washington Post (12 November).

McNamara KR (2008). A Rivalry in the Making? The Euro and International Monetary Power. Rev. Int. Pol. Econ., 15(3): 439-459.

Portes R (2007). The rise of the euro. *VOX*, June 14.

Portes R, Rey H (1998). The emergence of the euro as an international currency. Econ. Pol., 13: 305-341.

Posen AS (2008). Why the Euro will not Rival the Dollar. Int. Fin., 11(1): 75-100.

Rey H (2005). The impact of five year Old Euro on Financial Markets in Adam Posen, The Euro at Five: Ready for a Globe Role? Washington, DC: Inst. Int. Econ., 11-116.

Steil B (2007). Digital Gold and a Flawed Global Order. Financial Times (5 January).

Thimann C (2008). Global Roles of Currencies. Int. Fin., 11(3): 211-245.