

THE FUTURE OF THE U.S. DOLLAR AS AN INTERNATIONAL KEY CURRENCY

Buks Wessels*

University of the Free State, South Africa

Abstract: For the past 60 years and more the international monetary system's need for international money was discharged by the U.S. dollar as the supreme international currency. Although the dollar's global role is still virtually unchallenged, worrying cracks are appearing in the supporting economic determinants of the dollar's key currency status. This paper analyzes the need for an international means of payment, the attributes of the key currency country and the determinants of key currency status. The paper indicates that certain characteristics of and trends in the U.S. economy supporting its key currency status have reached disquieting negative magnitudes that do not augur well for the future of the dollar. Nevertheless, the absence of a currency competitor, the strength of network externalities and historical inertia will, together with the dominant milieu role played by the United States, possibly keep the dollar in its superior position for a considerable time to come.

Keywords: dollar supremacy; American hegemony; key currency status; international liquidity.

INTRODUCTION

International economic activities require a specific and distinguished monetary unit to facilitate international transactions and this unit serves as the key currency of the world economy. Similar to a domestic economy the selected international key currency functions as a medium of exchange, a store of value and a unit of account. The successful execution of these functions is a prerequisite for enhancing the countries' welfare through global investment and trade and for the fluid working of foreign exchange markets. In a domestic economy, the choice of a monetary medium is decreed

by the sovereign government and its management is left to a central bank. In the international economy, no sovereign body or supra-national institution has the final say in determining the type and management of the international monetary unit. Consequently, various monetary units were used in the past to fulfill a key currency function and included not only metals such as gold and silver, but also various foreign currencies such as the British pound, French franc, German mark, Japanese yen, U.S. dollar (hereafter dollar) and more recently the euro. The selection of a particular international money as the key currency

 $\hbox{*Corresponding author: University of the Free State, South Africa; e-mail: wesselgm@ufs.ac.za}\\$

is mainly determined by international market forces and the selection is resolved by various financial, economic and political

determinants.

The foundational importance of money, in general, and international money, in particular, arises from the fact that money is a collective good, which means that the benefit of money to a user derives from the fact that other transactors also use it for the same purpose (De Grauwe, 1996, p.2). The larger the number of transactors that utilise a particular means of money, the greater its utility and the wider its network externalities because of its selfreinforcing and mutually supporting character. Important is that transactors will only hold a specific means of payment or key currency if they have the confidence that its inherent purchasing power will be protected and defended by the issuer or supplier (De Grauwe, 1996, p.2). Since trust is crucial, the issuer of a particular international money unit will have to put in place certain measures to ensure the stability and credibility of its money. As a reward, the incumbent supplier of international money can procure various monetary and political power-based advantages such as seignior age profits and ease of international funding. However, lurking behind the initial advantages are less visible disadvantages or costs that only become operative and apparent at a later stage of the key currency's existence. Over time, these costs inevitably erode the initial benefits, thus casting doubt over the future durability and stability of the specific monetary instrument as international money. This increasingly seems to be the enfolding future fate of U.S. dollar, and this phenomenon comprises the focus point of this paper.

In order to evaluate the future of the dollar, this paper briefly explains the following: (1) elucidates the need for and functions of an international key currency, (2) focuses on the fulfillment of these functions by the dollar, (3) analyses the underlying determinants of key currency status, (4) highlights the advantages that key currency hegemony bestow on the United States, (5) investigates the evolving threats that the key currency status of the dollar inevitably provoke over time and (6) explores the consequences of the weakening economic determinants for the dollar caused by such threats.

THE NEED FOR AND FUNCTIONS OF INTERNATIONAL LIQUIDITY

A key currency, such as the dollar, is a currency used by transactors outside its country of origin and performs the same three functions as a national currency inside a country. They are as follows:

- 1 As a medium of exchange, a key currency is used as a vehicle or transactional currency for private purpose and as an intervention currency for public use.
- 2 As a unit of account, a key currency is used in private international transactions as a quotation currency and in case of international public transactions as an anchor or pegging currency.
- 3 As a store of value, a key currency is used for international private asset investment/ debt and in an international public capacity as a foreign exchange reserve currency.

In a world with a multitude of countries investing and trading with each other on a continuous basis the use of only one particular key currency constitutes a collective good that dramatically reduces transaction costs as more and more transactors use it

because others are also using it. Efficiency gains are achieved because international transactions have to pass through fewer foreign exchange markets and this not only reduces the set-up costs for market makers, but also reduces transaction costs because of the bigger volume of transactions (Lim, 2006, p.5). Consequently, a key currency not only improves efficient management of information and the minimisation of search costs, but also facilitates risk diversification (Norloff, 2009b, p.422)—and it is here where the dollar has more transactional and projecting power than any other currency.

As a vehicle currency used to buy international goods and do services and in its official use as an intervention currency, the use of a key currency depends on its transaction cost. The latter is reflected in the competitive bid-ask spreads quoted by dealers in the foreign exchange markets. In case of the dollar, these spreads are low due to competition and the enormous daily amounts that are traded. These payments are effected by banks and here the 'network' or 'thickness' of externalities is very important (Portes and Rey, 1997, p.10). These features provide strategic externalities since it creates persistence in the use of an incumbent key currency, making it difficult for upcoming currency powers to replace it. There is a strong evidence of strategic externalities stemming from low liquidity premia, and there are low premia because of the currency's international circulation which has the potential to create persistence, implying that money and trade are indeed complements (Flandreau and Jobst, 2009, p.662). Accordingly, governments will use the key currency as a means of intervening in foreign exchange markets to defend the value of their own or other currencies (Norloff, 2009b, p.423). The vehicle currency role makes it quite natural for central banks to use dollars for intervention in foreign exchange because intervention is cheaper in markets that are highly developed and where buying and selling spreads are less.

Flowing from the foregoing, a key currency is also used as a unit of account because the price of strategic international export and import goods, services and assets are quoted in that currency as is the case with oil, gold, other metals, various types of grain, etc. which are all quoted in dollars. As a result, various governments will use the currency to track the value of the key currency in order to determine the price of their own currency such as dollar pegging or fixing against the dollar in order to establish an exchange value for their trade.

The third or store of value function of a key currency refers to the amount of the currency held in countries' foreign exchange reserves. As store of value, private actors hold their assets and investments in the key currency because it has a relatively stable exchange rate ensuring that its value will not erode. This implies that the currency is also a good international reserve currency for governments to hold as a store of value (Norloff, 2009b, p.423). For the United States this has a double benefit because it holds its own currency as an international reserve currency without carrying foreign exchange rate risks.

EXECUTION OF THE FUNCTIONS OF A KEY CURRENCY BY THE DOLLAR

The dollar clearly and pervasively dominates as reserve currency, vehicle currency as well as invoice currency. According to the BIS (2007), the dollar constituted 86% and the euro 37% (out of 200) of the turnover in traditional foreign exchange markets.

6 B. Wessels

Generally, it also makes sense to use the dollar as a unit of account to quote prices because the United States is the biggest economy in the world and has a high share of global GDP, international trade and also has enormous financial markets. In this regard, Goldberg and Tille (2009) focus on the role of a key currency in trade invoicing and not only highlight the drivers of trade invoicing but also the dominance of the dollar in many instances. This follows because of the vastness of the economy and trade of the United States, and also because of the depth, resilience and breadth of its capital markets. Governments will also determine monetary policy in terms of the dollar exchange rate or even fix to it: there are in fact 40 euro pegs and 60 dollar pegs (Norloff, 2009b, p.428).

The above fact naturally facilitates and boosts the application of the dollar in a reserve currency function because it is so easy to intervene in a key currency. In terms of official sector holding of foreign exchange reserves, Table 1 indicates that 64% of official reserves were held in dollars in 2008 as to the 27% in euro.

ATTRIBUTES AND UNDERLYING DETERMINANTS OF KEY CURRENCY STATUS

A variety of economic and political factors playing a role in determining key currency status can be distinguished (Lim, 2006, p.5). First, the large size and continuous growth and strength of the domestic economy together with far-reaching trade and financial ties of a country support its key currency status. Furthermore the economy is vibrant and dynamic in a resilient sense it will be of further benefit for achieving and maintaining key currency status. This will create a large market in foreign exchange transactions with at least one leg in its own currency and will induce economies of scale that will reduce the average transaction costs. This will also project the key currency country as a safe haven in times of political turmoil and capital flight. In addition, the country should act as a capital exporter, making it a kind of a world banker that supplies international money to the rest of the world. From 1996 to 2010 the share of the United States GDP as percentage of world GDP (at PPP) has ranged from a high of 23.8% in 1999 to a low of 20% in

Table 1 Share of national currencies in total identified official holdings of foreign exchange; end of year

All countries	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
U.S. dollar	69.4	71.0	71.1	71.5	67.1	65.9	65.9	66.9	65.5	64.1	64.0
Japanese yen	6.2	6.4	6.1	5.0	4.4	3.9	3.8	3.6	3.1	2.9	3.3
Pound sterling	2.7	2.9	2.8	2.7	2.8	2.8	3.4	3.6	4.4	4.7	4.1
Swiss franc	0.3	0.2	0.3	0.3	0.4	0.2	0.2	0.1	0.2	0.2	0.1
Euro	-	17.9	18.3	19.2	23.8	25.2	24.8	24.0	25.1	26.3	26.5
Deutsche mark	13.8	-	-	-	-	-	-	-	-	-	-
French Franc	1.6	-	-	-	-	-	-	-	-	-	-
Netherlands guilder	0.3	-	-	-	-	-	-	-	-	-	-
ECU	1.2	-	-	_	_	_	-	_	-	_	-
Other currencies	4.5	1.6	1.5	1.3	1.6	2.0	1.9	1.7	1.8	1.8	2.0

Source: IMF, Annual Report, 2009

2010, which is far higher than the share of 13% for China in 2010 and the 15% of the euro area in 2010 (Economy Watch, 2010), thereby confirming the United States dominance in the world economy.

Second, the aspiring key currency must provide exchange convenience and a high level of liquidity in order to minimise transaction costs (Cohen, 2008, p.3). Accordingly, the key currency country must have free, well-regulated, broad, deep, efficient and resilient financial markets with sufficient liquidity and a high degree of openness. The United States excels in this area, especially in equity and money markets, although the euro area has vast bond markets. In addition, the key currency country must have convertibility of currency that are unaffected by exchange controls.

Third, widespread confidence in the future value of the key currency is needed to complement the vastness of its economy. The currency must, thus, have a stable purchasing power and exchange rate. Confidence in a currency's purchasing power is reflected in its price stability, and this is especially important since the currency is used for working balances by the private sector and as official reserves by the official sector. Such confidence assures holders that the value of currency will not be inflated away (Lim, 2006). For the United States the percentage change in CPI from 1992 to 2009 ranged between a high of 3.4% in 2005 and a low of -0.36% in 2009 (IFS, 2009). Although relatively higher at times than that of Germany, France and Japan, the CPI inflation index for the United States is in step with what is required of a key currency supplier.

A fourth important determinant is political stability. This provides the guarantee that the state will not collapse (Lim, 2006, p.7)

and it also sustains the country's underlying economic and monetary stability. Political stability enhances the safe haven feature of a key currency because it contributes to its power projection and strengthens the aloofness of the country in order to play a strategic world political role. As the most dominant country regarding military spending, troop deployment and political power projection, the United States has no equal in this area.

Fifthly, as mentioned before, a key currency must provide a wide transactional and strategic transactional network affording it with universal acceptability by others. The networking attributes of the dollar seems clear from the fact that less than 30% of world trade is with the United States, but almost 70% of central bank reserves are kept in dollars. This also explains why most commodities are quoted and traded in dollars.

Finally, the existence of inertia with regard to replacing the key currency makes it very difficult to replace the dollar despite its waning economic and trade role in the global economy. Users of the dollar as key currency become locked-in into history and become path dependent, ensuring a dominant position to the dollar that is very difficult to dislodge (refer 'Consequences of the weakening underlying economic fundamentals of the dollar').

From an overarching perspective, the preceding economic and political determinants and features of the dollar as key currency interact in a mutual beneficial way in the process of strengthening the basis upon which the dollar's supremacy rests. Most important is that the foregoing determinants should be viewed in a dynamic way since some of the economic features can and will be quantatively and qualitatively modified by the assumption of key currency

8 B. Wessels

status. Over time, the evolution in the determinants can even impact negatively on the key currency features and provoke a confidence crisis which might erode the supremacy of the currency and open the way for another currency to replace it.

ADVANTAGES OF KEY CURRENCY HEGEMONY TO THE UNITED STATES

One of the principal points of critique against the dollar as key currency stems from the fact that the United States can finance its foreign deficits by creating its own finance by supplying dollars to a dollarhungry world. The United States can, therefore, remain a debtor nation without having to borrow money. Since about 68% of the world's foreign reserves are held in dollars and 88% of daily foreign exchange trade in foreign exchange markets takes place in dollars (IMF, 2009), the accumulated dollar holdings abroad provide finance for the United States balance of payments (BOPs) deficits and allow the United States to run bigger deficits much easier than other countries. The key currency status of the dollar also provides the United States with more macro-economic policy flexibility since it does not face the usual financial constraints other countries do when they run current account or budget deficits. This beneficial situation handsomely permits the United States to enhance its domestic economic growth, employment and the expansion of its political power base.

The position of the dollar as the world's primary international currency not only bring about higher living standards and wealth levels to U.S. citizens, but also lowers the costs of treasury and other financing. These funds are then invested at higher rates of return in other countries. In reality, this is a formerly underestimated benefit for the

United States and emphasises that it extracts a higher investment return differential in the form of a higher rate of return on its assets abroad than what it pays on liabilities that foreigners keep in the United Statesand foreign investors in the United States don't even demand a higher return despite the possibility and risk of a depreciation in the dollar (Norrloff, 2009, p.2). Moreover, these hegemonic benefits bestowed on the United States by the dollar are more persistent and sustainable because of the earlier mentioned inertia in replacing the dollar as the incumbent key currency. The preceding benefits of the dollar as key currency allowed the United States to spend far more than it earned so that the its national expenditure has actually exceeded the national income by more than 20% during recent years, a large part of which is spent on consumption (Persaud, 2009, p.1).

Extending the dollar benefits further is the fact that dollar currency notes, of which about 60% circulate outside the United States, also brings in seigniorage profit that allows it to obtain real resources/imports almost costless (Portes and Rey, 1997). The United States seignior age profit reached an amount of approximately \$43 billion in 2008 and in effect the use of the dollar as key currency provides an interest free loan to the United States.

The foregoing economic benefits of monetary hegemony also provide the United States with substantial political benefits since the country is internally better insulated from external influences. Internationally the United States has more leverage on other countries' affairs and can pursue its own foreign policy objectives without constraint (Portes and Rey, 1997, p.3). The key currency status of the dollar provides the United States with increased political leverage and capacity, and therefore

structural power—it can set and determine international agendas and even their outcomes as to what should be done and how Kirshner (2008, p.425). It is clear, therefore, that the key currency domination of the dollar translates into political domination and vice versa.

THREATS TO THE KEY CURRENCY STATUS OF THE DOLLAR

A worrisome feature of the U.S. economy is the steep increase in its budget deficit. From a surplus of 2.37% of GDP in 2000 the budget moved into a deficit of -3.48% in 2004 and even -11.2% in 2009, where the latter amounts to \$1.6 trillion (CBO, 2009, p.2; U.S. government spending, 2010). Similarly, U.S. government's gross public debt as percentage of GDP has risen from 57% in 2000 to 64% in 2007, and then shot up to more than 90% (more than \$13 trillion) in 2010. These are disturbing figures not befitting the supplier of a key currency since they harbour serious dangers not only for future U.S. inflation, interest rates and the deficit on the current account, but also for the trust in the dollar which is supposed to be backed-up by the sound macroeconomic fundamentals of a key currency hegemon. The United States has lived beyond its means since 1983 and this undermines the dollar's reputation.

Equally disturbing are the deficits on the United States external accounts, especially the current account. In reality, a key currency supplier should be a debtor nation and run moderate deficits on its external accounts. However, the current account deficit of the United States has moved into dangerous terrain during the past 10 or more years. This radiates serious doubts regarding the sustainability of the United States trade position and hence the dollar's position as a key currency. From an amount

of -\$398 billion in 2001 the deficit increased to -\$803.5 billion in 2006, thereafter dropping to -\$706.1 billion in 2008 and -\$420 billion because of the world wide recession (BEA, 2010). Disconcerting is that the deficit tripled from 1997 to 2000 and the United States current account deficit moved towards 8% of GDP in 2008, thereafter subsiding to 3% at the end of 2009. This huge deficit means that the United States has to rely on the implicit costs for other nations of not financing its current account as assurance that financing will continue (Lucarelli, 2007, p.1). Bergsten (2007, pp.1-2) also affirms that the huge and growing trade and current account imbalances represent the single greatest threat to the stability and prosperity of both the United States and the world economy. He shows that the external deficit has risen by \$100 billion per year during the 4 years up to 2007 and that this trajectory is clearly unsustainable.

Adding to the above predicament of the dollar is the problem regarding one of the broadest measures of a nation's financial balance sheet or the amount that a nation's residents owe to the rest of the world, namely the net international investment position (NIIP). Since the United States debt is denominated in dollars and its assets mostly in other currencies it means that if the dollar depreciates the United States NIIP increases. However, the NIIP of the United States has deteriorated during the past three decades (BEA, 2010) and it reflects in an increase in foreign debt and has drastically weakened. Interesting, however, is that despite this huge deterioration in NIIP the net inflow of investment income has nevertheless remained positive until 2005 and this anomaly suggests that the United States is still performing its role of foremost financial intermediary and is still enjoying huge exorbitant privileges because of the dollar's supremacy and hegemony.

10 B. Wessels

CONSEQUENCES OF THE WEAKENING UNDERLYING ECONOMIC FUNDAMENTALS OF THE DOLLAR

The foregoing threats to the dollar confirm the current concern about the unsustainability of the U.S. debt/GDP ratio, its debt/export ratio and its current account/ GDP ratio since these suggest that the day of reckoning for the United States and the dollar is in the offing. In fact, Gray (2006, p.3) is of the opinion that the United States has reached a systemic vulnerability with huge adverse potential because of a looming Achilles' heel in its economy, namely, that the key currency hegemon (United States) will exhaust the ability of its currency to retain the confidence of its holders. The dilemma is that the United States has become a waning hegemon but the prosperity of the rest of the world depends on the increase in the gap between its imports and exports. It is going to be difficult to keep the dollar above suspicion because international net worth (INW) will inevitably decline. This will make depreciation in its currency imminent and might trigger a capital flight of enormous proportions. Indeed, the ongoing accumulation of international disserving by the international net and the consequent steady decline in its INW, which is financed by non-residents acquiring more dollar assets, show that a high probability of a loss of confidence exists, which might eventually create such a crisis (Gray, 2006, p.6).

Since the international net cannot expect to be bailed out indefinitely, this will not only stop its benefits obtained from seignior age and the phenomenon of borrowing cheap and lending high, but also its exorbitant privileges pointed out in previous sections. The uncomfortable truth is that the United States as the biggest world power has also become the biggest debtor which means that it is now dependent on the discretionary financial acts and generosity

of other countries to maintain its high standard of living and consumption. The preceding dilemma can go on as long as foreigners are willing to accumulate dollar assets such as U.S. bonds and treasury bills, thereby, financing the U.S. deficits but simultaneously contributing to the exploding U.S. foreign debt. This cannot last and Lucarelli (2007, p.7) correctly states that the United States is caught in a debt trap because it must attract ever increasing net inflows of capital to cover its ever-increasing current account deficits. This suggests that the United States over-extended deficits might take their toll and its financial empire might implode on itself. If so, the dollar's value will slump and housing and equity markets will drop sharply, causing the entire economy to follow suit.

Bergsten (2007, p.9) agrees that the huge deficit on the current account can trigger a huge drop in the exchange rate of the dollar and a subsequent deep recession or stagflation. This will trigger a financial stampede which will be difficult to stop. It can easily evolve into a minsky moment with cascading bankruptcies and financial defaults. In fact, as the sub-prime crisis of 2007 and beyond has demonstrated financial and foreign exchange markets are prone to selfreinforcing financial instability and the stronger the conduits of impact between the international markets and the lower the reserves/liquidity ratio the quicker will be the contagion and the more serious the following systemic crisis (compare Gray, 2006, pp.78-80).

Should the economic crisis indeed occur, far ranging political consequences that will restrain the United States political and military operations abroad will no doubt ensue (Kirshner, 2008, p.426). The reduced economic and financial power will have to be emulated by a decreased political power

profile. If, as expected, the United States is no longer the world's largest economy by the mid-21st century, India and China will overtake not only the United States, but also Western Europe and Japan as well (Persaud, 2009, p.3). This underscores the fact even further that the United States should reduce its external deficits, balance its budget and adapt to an international system where the dollar and the United States is not central and supreme anymore and where international monetary co-operation in a round table fashion should be conducted in the interest of the global economy.

However, real the foregoing scenario may be the effect of inertia, tradition and hysteresis in a key currency sphere that should never be underestimated. History has shown that, as was the case with the British pound as key currency, regimes do not change overnight. Therefore, save for a catastrophic currency crisis, the preceding disturbing scenario concerning the dollar's future might not happen overnight. It will be difficult to dislodge the dollar because of its incumbency advantages and because the euro is unlikely to supplant the dollar (Norloff, 2009a, p.17). This is even true due to the continuous debt crisis that has plagued the euro area since 2010 when some of its founding members (PIIGS) encountered serious fiscal and other economic problems. Consequently, the dollar's dominance can last longer though it is not the most stable currency and despite the U.S. economic deficits and problems and even though the dollar's future lies increasingly in the hands of other counties. Due to political reasons and also of its high stakes that all countries of the global economy have in the well-being of the dollar and its future, capital flight might not ensue because the damage so caused will be a collective one and might be prevented by mutual interest and joint international participation to ensure an optimal global financial future. A systematic, orderly retreat by the dollar from its prominence is, therefore, a realistic probability and a soft landing for the dollar seems to be a more probable outcome than a crash landing. But this does not take away from the fact that a co-ordinated effort to solve the imminent international currency and economic crisis is a matter of primary concern and should be tackled as soon as possible in a joint reform process to urgently reform the international monetary system towards a less dollar-centred one. The important challenge will be to create an environment where national sovereignty and pride will have to play second fiddle in order to find global solutions for future political peace and economic prosperity. History reveals that such an optimal outcome will neither come about naturally or easily, nor without intense political power struggles.

CONCLUSIONS

The dollar has been the supreme key currency of the world economy for more than 60 years and did not have a serious contender during its reign. This is still the case today. The dollar fulfilled and currently still fulfills all the key functions expected of a key currency and this is clearly manifested in its dominance in all three functions of an international money unit. However, justifiable concerns about the weakening U.S. economy and the erosion in the fundamental requirements for upholding the status of the dollar emerged during the past decade. Legitimate unease regarding the United States waning economic strength and its increasing internal and external deficits and indebtedness cast uncertainty over the future credibility of the dollar and its ability to continuously serve the global economy as a key currency. The dimensions of some of the economic problems in the U.S. economy has taken on such proportions that there is a realistic probability that their further weakening might cause a world-wide economic crisis with substantial contagious potential. However, if committed international cooperation and joint dedication to finding solutions for the pending international dilemma can be mustered, the possibility of a contagious international crisis can be avoided. In the interim the remaining economic and political power of the United States, the absence of a strong competitor for the dollar and the reality of inertia, hysteresis and pathdependence in case of the dollar's key currency role will ensure that it will remain the dominant key currency for longer than just the immediate future.

REFERENCES

- Bank for International Settlements (BIS) (2007)
 Triennial Central Bank Survey of Foreign
 Exchange and Derivative Market Activity, Basel,
 Switzerland.
- Bergsten, F.C. (2007) The Current Account
 Deficit and the US Economy. Testimony Before
 the Budget Committee of the United States
 Senate, Online: www.iie.com/publications/
 papers/print.cfm?researchid=705&doc=pub,
 accessed 26/03/10).
- Bureau of Economic Analysis (BEA) (2010) US International Transactions Accounts Data, May 2010. Washington, D.C.
- Cohen, B.J. (2008) Toward a Leaderless Currency System, UC Santa Barbara: Global and International Studies, Online: http:// escholarship.org/uc/item/2dd5364j, accessed 12/02/10.
- Congressional Budget Office (CBO) (2009)

 The Budget and Economic Outlook: An Update,
 Online: http://www.cbo.gov/ftpdocs/105xx/
 doc10521/2009BudgetUpdate_Summary.pdf,
 accessed 28/05/10.
- De Grauwe, P. (1996) International Money. Postwar Trends and Theories, 2nd ed., Oxford University Press, Oxford.

- Economy Watch (2010) GDP Share of World Total, Online: http://www.economywatch.com/economic-statistics/economic-indicators/, accessed 2/06/10.
- Flandreau, M. and Jobst, C. (2009) 'The empirics of international currencies: network externalities, history and persistence', *The Economic Journal*, Vol. 119, pp.643–664.
- Goldberg, L. and Tille, C. (2009) What Drives the Invoicing of International Trade?, Online: http://www.voxeu.org/index. php?q=node/4316, accessed 17/05/10).
- Gray, H.P. (2006) The Exhaustion of the Dollar. Its Implications for Global Prosperity, Palgrave, New York.
- International Monetary Fund (IMF) (2009) Annual Report, Washington D.C.
- International Monetary Fund (IFS). (2009)
 International Financial Statistics,
 Washington D.C.
- Kirshner, J. (2008) 'Dollar primacy and American power: What's at stake?', Review of International Political Economy, Vol. 15, pp.418–438.
- Lim, I-G. (2006) The Euro's challenge to the dollar: different views from economists and evidence from COFER (Currency Composition of Foreign Exchange Reserves) and other data, *IMF Working Paper WP/06/153*, IMF, Washington D.C.
- Lucarelli, B. (2007) *The United States Empire of Debt*, Online: http://www.nodo50.org/cubasigloXXI/congreso08/conf4_lucarelli.pdf, accessed 12/02/10.
- Norloff, C. (2009a) Advantages of Monetary Hegemony, Paper presented at the IUHEID Political Science Colloqium, 19 May 2009, Geneva, Switzerland.
- Norloff, C. (2009b) 'Key currency competition. The euro versus the dollar', Cooperation and Conflict: Journal of the Nordic International Studies Association, Vol. 44, pp.420-442.
- Persaud, A. (2009) When Currency Empires Fall, Online: http://www.gresham.ac.uk/event. asp?PageId=45&EventId=260, accessed 10/05/10.

Portes, R. and Rey, H. (1997) The Emergence of the Euro as an International Currency, Online: http://faculty.london.edu/hrey/ecopolicy.pdf, accessed 25/02/10.

US Government Spending (2010) US Federal Debt as Percent of GDP, Online: http://www.

usgovernmentspending.com/downchart_gs.php?year=1980_2010&view=1&expand=&units=p&fy=fy11&chart=H0-fed&bar=0&stack=1&size=m&title=US%20Federal%20Debt%20As%20Percent%20Of%20GDP&state=US&color=c&local=s, accessed 02/06/10).