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The US dollar's continuing hegemony as an international currency: a double-matrix analysis

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Abstract

The standard framework for debating the international currency system gives space to doubts about the dollar's continuing hegemonic position because it gives space to doubts about the US' ability to finance its external liabilities in the face of worsening economic fundamentals. This paper closes down these openings by adding to the usual matrix linking money's international functions to two different types of agents, private and official, a second matrix linking money's functions to two different types of commodities, material goods and services on the one hand and financial securities on the other. Once it is understood that bonds and equities are now not only types of funding instrument but also types of commodity whose use values to the world's large investors are to serve as stores of value, it is then possible to understand why the huge size of the US capital markets will long continue to bind foreign investors to the dollar because it will be long before other capital markets will reach a comparable size.

Keywords

US dollar hegemony; international currency system; double-matrix analysis; financial commodities

1. **JEL Classification:** F31; F33

1. Introduction

The US dollar's current hegemonic position in the international currency system is not in doubt. What is in doubt is whether the US dollar will continue to maintain this position in the foreseeable future. Had this particular question been resolved, then so too would have been the question as to why there is no other currency that can seriously challenge the dollar in the

international arena for this is simply the same question in reverse. That there is no sign of any such resolution is evidenced by a recent collection of academic papers debating the current state of the international currency system[1]. In his introductory overview of these papers, Jonathan Kirshner observed that while all of the authors agreed that the one remaining pillar holding up the dollar's leading position in the system was "the lack of plausible alternatives" there was no agreed explanation as to why this was the case. As Kirshner put it: "If not the dollar, what? At the moment, there remains no satisfactory answer to this question". (2014, p.1014)

This paper attempts to provide the kind of satisfactory answer that is requested. It does this by addressing what we consider to be a major shortcoming in the current debate on the international currency question, namely, the acceptance of the conventional view of bonds as being only a type of 'debt'. On this view, it must follow that the growth in size of the US government and corporate bond markets, which are at the heart of the US capital markets, may reach a point where foreign agents begin to doubt the US' abilities to service its debt and thus begin to switch to another currency belonging to a country or region with stronger economic fundamentals and thus with more easily serviceable levels of debt. Our core argument is that bonds are now not only a type of debt but also a type of 'commodity' whose use value to the world's large investors, along with that of equities, is to serve as a portable store of value. What follows from this argument is that the huge size of the US capital markets is the critical factor that not only binds foreign agents to the dollar in the present but will also continue to do so long into the future because it will be long before any other national or regional capital markets can reach a comparable size.

The rest of this paper divides into five sections. Section two outlines the standard 'money function-agent motivation' matrix that frames the current economic debate on the international currency system. Section three adds to the usual six-cell matrix linking money's three functions to the motivations of two types of agents, private and official, a second six-cell matrix linking money's functions to two types of commodities, goods and services on the one hand and financial securities on the other. Section four uses this double matrix framework to help explain the US dollar's present hegemony as an international currency.

[1] See Review of International Political Economy, October, 2014, Special Issue: Focus on the International Currency System

Section five goes on to use this same framework to explain why no other currency is likely to challenge dollar hegemony any time soon. Section six concludes.

2. The money function-agent motivation matrix

A recent paper by Cohen and Benney (2014; henceforth C-B) provides an excellent summary of the money function-agent motivation matrix framework first introduced by Cohen (1971)[2], and now used by many political economists in debating the dollar's future as an international currency .[3] After first explaining why the creation of a supranational currency is an impossibility in today's political conditions and why, therefore, a few national currencies have to be elevated to the role of international currency, C-B proceed to outline the standard economic criteria behind this elevation. As shown in Table 1, these criteria are determined by the demands made by two types of agents, private and official, on the three functions of money. Thus a national currency has to fulfil six roles in its capacity as international currency: at the private level it must serve as a vehicle for foreign-exchange trading (the medium of exchange function), as an instrument for trade invoicing and settlement (the unit of account function combined with that of medium of exchange) and as a means of facilitating cross-border investment (the store of value function); at the official level it must serve as an intervention currency (medium of exchange), an exchange rate anchor (unit of account) and as a reserve currency (store of value).

Table 1: The roles of international money

	Functions of money		
Levels of analysis	Medium of exchange	Unit of account	Store of value
Private	Vehicle currency (foreign exchange trading), trade settlement	Trade invoicing	Investment currency
Official	Intervention currency	Exchange rate anchor	Reserve currency

Source: Cohen and Benney (2014)

[2] See also Kenen (1983) and Krugman (1984)

[3] While we acknowledge that there are other important theoretical approaches to the question of international currency supremacy (see e.g. Helleiner and Kirshner 2009a for a general overview) our concern is specifically with the economic or market-based approach, for which reason we take the C-B paper as our cue.

C-B go on to provide a comprehensive empirical picture of the shares taken by different national currencies in fulfilling these functions. What is immediately clear from the summary data shown in table 2 is that the international currency system is still a long way from becoming a genuinely multipolar one in that the US dollar continues to predominate in most areas of international currency use. C-B also provide a further and more precise quantitative estimation of the inequalities at the top of the currency pyramid by using two concentration ratios drawn from the economics discipline: the conventional concentration ratio (N-entity ratio) and the Herfindahl-Hirschman Index (HHI) that measures the sum of the squares of the market shares of all N entities occupying a particular market. The results derived from the comprehensive evaluation of all currency functions and the use of these concentration ratios give strong empirical support to C-B's conclusion that the US dollar's hegemony as an international currency remains solid for the time being. To quote: "Contrary to the popular impression of an emerging multipolarity in the global currency system, we find little evidence of a higher level of competition. Quite the opposite, in fact. Even today there appears to be one true pole in the system- namely, the US dollar. The euro lags behind considerably; also-rans like the yen, pound sterling, and Swiss franc are at best niche players; and the yuan is so far back in the race that it barely even registers as yet" (2014, p.1038)

Table 2. Percentage share of currencies in selected international capacities (2010)

	Vehicle	Banking	Securities	Reserve	Average
US dollar	42.5	43.7	37.8	61.5	48.1
Euro	19.6	39.4	46	26.2	29.5
Yen	8.5	3.7	2.6	2.9	4.4
Sterling	7.5	5.7	8	4.7	6.5
Swiss Franc	3.2	1.5	1.4	0.2	1.5
Other Currencies	18.3	7	4.2	4.4	8.5

Source: Cohen and Benney (2014)

The data may show that the dollar maintains its hegemonic position today, but the question remains as to whether the dollar will continue to maintain this position tomorrow. This question needs to be answered analytically but the problem here is that the analytical framework used by C-B can provide no definite answer one way or the other. The basic reason for this framework's neutrality in respect of the dollar's continuing global hegemony comes down to the fact that while it specifies the types of demands made by agents on the functions of money it does not specify the types of commodities that are the object of monetary exchange. This omission reflects an unquestioning acceptance of the conventional view that only material

goods and services qualify as commodities while financial securities merely represent funding instruments issued by corporations and governments to facilitate their production of commodities. What this view of securities then leads to is a highly ambivalent position regarding the relation between the unusually large size of the US capital markets and the international use of the dollar. On the one hand, there is the argument that the various advantages conferred by the size of these markets, including liquidity and network advantages, are a source of great attraction for foreign investors and therefore something that binds the latter to the use of the dollar (see e.g. Thimann, 2008; McNamara, 2008; Helleiner, 2008, 2009; James 2009). On the other hand, the fact that bonds in particular are only viewed as a type of debt can lead to the very different argument that the growing volume of US government and corporate bonds held by foreign investors may reach a critical point where these investors begin to be concerned about the US' repayment abilities and thus begin to abandon the dollar.

Cohen himself reached just such a pessimistic conclusion in a paper published in 2009. While he was then just as sceptical of the chances of other national currencies assuming an hegemonic position in the global currency system as he is in his 2014 paper, he was also at that point in time more certain that the US' accumulating foreign debt would soon see a dollar-led global currency system replaced by a more fragmented system. To quote: "I do not consider the persistent build-up of America's foreign debt as sustainable for long. Unless reversed by significant policy reform in Washington, the US economy's dependence on foreign capital must be expected in time to erode the advantages historically enjoyed by the greenback, creating an opportunity for challengers. Three currencies are most frequently mentioned as potential challengers for the dollar's crown- the euro, yen and yuan….my assessment is sceptical. None of the three candidates appears capable of making a serious challenge to the dollar; certainly none is likely to surpass the greenback in the foreseeable future. Rather, the more plausible outcome is one in which the dollar's supremacy is eroded but no other single currency manages to replace it. In Jonathan Kirshner's terms, the dollar will become one of several 'peer competitors' in a fragmented currency system, with no dominant leader" (2009, p.143).

Cohen, writing in 2009, may not have gone so far as to predict that the euro would take over the lead international role from the dollar, but other pessimists did so when writing a little earlier before the full effects of the financial crisis would become painfully evident. The 2008 paper by Chinn and Frankel is a good example. In that paper the authors by no means ignored the important role played by the size of the US capital markets in supporting the dollar's

international role. On the contrary, they gave it explicit recognition for as they stated when listing the determinants of a currency's international status: " capital and money markets in the home country must be not only open and free of controls, but also deep and well-developed" (2008, p57). This said, Chinn and Frankel nevertheless assigned overriding priority to underlying economic fundamentals in the matter of international currency determination, from which standpoint they then predicted that the dollar would lose its position as the leading international currency by 2015 not only because "the euro now exists as a more serious potential rival than the mark or yen were" but also because "the United States by now has a 25 year history of chronic current account deficits and the dollar has a 35 year history of trend depreciation" (ibid.p. 51). To give added weight to their prediction, Chinn and Frankel cited the experience of the British pound to the effect that, while inertia and persistence helped to maintain its international supremacy well into the 20th century long after the UK had been overtaken by the US as the world's leading industrial power, the eventual "dethronement" of the pound by the dollar was an inevitability that "reflected long-run trends in economic fundamentals" (ibid.p50).[4]

While the Eurozone crisis has for the time being put paid to claims that the euro is about to challenge dollar hegemony, there are those who argue that such a challenge will soon be posed by the yuan (Hu 2008, IMF 2011, Chen, Peng, and Shu 2009, Dobson and Masson 2008, Subramanian 2011).[5] The argument is based on the observation that China's economy will soon displace the US economy as the world's largest and on the contention that it will then only be a matter of time before China's government introduces policies, including capital account liberalisation and the lifting of all restrictions on the yuan's convertibility, which will allow China's economic supremacy to find reflection in the international currency system. C-B have objected to these claims on the grounds that those advancing them have tended to use arguments and data sets relating to just one or other of the six international currency functions, typically the reserve currency function. While we agree with this particular criticism, we also believe that it is precisely the aforementioned deficiencies in the standard economic approach to the international currency question that allow predictions about the coming end of dollar hegemony to be made. To give space to the argument that this position can only be temporarily

[4] Comparisons with the trajectory of the UK Pound Sterling and its inertia in remaining the world's global currency is very common in the literature on the future of the US dollar (see e.g. Eichengreen 2005, 2010, Bergsten 2005, McKinnon 2005).

[5] Authors that are more critical of the rise of the Chinese yuan include (Gao and Yu 2011, Wu, Pan,and Wang 2010, Bowles and Wang 2008, Chey 2012, Eichengreen 2009).

sustained in face of the US' worsening economic fundamentals through the power of inertia is to give space to the conclusion that all that is required to put an end to this inertia is for just one group of agents (e.g. the Chinese authorities) to introduce just the right kind of policies that would have just the right impact in one or other of the international currency segments (e.g. that for reserve holdings).

We believe that if predictions about the imminent demise of US dollar hegemony are to be laid to rest, thus allowing a more serious and realistic discussion about the future shape of the international currency system, the standard economic framework for debating these issues must show not only how the US capital markets attract foreign agents to the dollar as a matter of choice but also how these markets force foreign agents to stay with the dollar as a matter of necessity. We further believe that this task can only achieved by showing that capital market securities now constitute not only a means of financing the production of commodities but also commodities in their own right. The next section expands on this argument.

3. The money function-commodity type matrix

The term 'commodity' can be used in various ways; for example, to denote any good or service that is offered for sale or, as in the case of the financial markets, to denote a particular subset of physical assets such as wheat, gold, or oil. Here we follow Marx and define commodity as any entity that (i) has both a use value and an exchange value and (ii) whose exchange value is determined against social standards rather than fixed by private negotiation. Our central proposition is that financial securities have become commodities in this latter sense, a development that, as illustrated in table 3, implies that money must duplicate its three major functions to facilitate the circulation of these financial commodities in addition to that of material commodities. In the following discussion we will first set out what makes financial assets financial commodities and then how (international) money is necessary to fulfil its three functions with regards to the handling of financial commodities.

Table 3. The Money Function-Commodity Type Matrix

Money's Functions / Commodity Types	Unit of account	Medium of exchange	Store of value
Material Commodities (goods and services)	Price assignment	Price realisation	Financing transaction gaps
Financial Commodities (securities)	Price assignment	Price realisation	Financing transaction gaps

As financial securities could only have become commodities because certain agents treat them as such, the question arises as to who are these agents. The answer will not be found on the supply side of the securities markets because governments and corporations will always classify the securities they issue merely as alternative types of financing instrument rather than as a distinct type of commodity as shown in table 3.To find those agents that do treat financial securities as commodities in their own right we need to look at the demand side of the securities markets, which in recent decades has witnessed a significant change in investor composition. In previous eras, it was household investors that were the dominant group of securities buyers, a group that, not having to market asset portfolios to the public, never had cause to view these securities differently from the way that they were viewed by their issuers. In the current era, it is institutional asset managers who have emerged as the dominant group of security buyers.[6] This group does have cause to take a different, unconventional view of securities because of their intermediary role in the securities markets between the issuers on the one side and the end-buyers of their asset management services on the other.[7]

Once a small cottage industry catering for a few wealthy clients, asset management has become a mass industry catering for the retirement and other welfare needs of large sections of the population. Chief among the factors driving this transformation are population ageing, the rise in the wealth to income ratio and the ongoing privatisation of welfare provision

[6] The US experience illustrates the change in investor composition on the buy side of the capital markets. Where small household investors held 95% of US equity in 1945, that ratio had fallen to 23% by 2012. As regards US bonds, the ratio held by households is considerably smaller at between 9-10% (Goldman Sachs, 2013; Blackrock, 2014). Large investors include not only pension and mutual funds and insurance companies but also the asset management arms of banks, Sovereign Wealth Funds and High Net Worth Individuals. For recent data on these groups' security holdings see Goda et.al. (2013), Lysandrou (2013), Goda and Lysandrou (2014), BlackRock (2014), McKinsey (2011), and Capgemini and RBC Wealth Management (2015) for HNWIs.

[7] It is important to note that this argument is based on the US financial markets. In many emerging economies (EMs), including China, yield-seeking, relatively short-term actors (such as hedge funds) still dominate. For reasons we discuss in more detail in section 5, EM assets cannot offer the characteristics of financial commodities required by institutional investors. The dominance of short-term yield seeking investors means that any change in international return and/or funding conditions leads to large capital outflows, which destabilises local asset markets and undermines EM currencies' ability to act as stable stores of value. This illustrates the intimate link between the operations of different types of market participants and international currency status.

(Davis and Steil, 2001; BIS, 2003; Grahl and Lysandrou, 2006; Haldane, 2014). With the growth in the scale of asset management has come a corresponding growth in the scale of demand for 'investables', assets whose use vales are to serve as stores of value into which clients' money can be poured and from which money can be withdrawn to repay clients.

Other assets such as real estate, gold and other natural commodities can also be used as value containers, but the advantage of financial securities mean that institutional investors have to depend on them as the major type of investable asset. The most notable advantage of securities is their liquidity, a term we here use to signify the ease with which any entity and in any quantity can be sold with minimal impact on its price. The ephemeral character of liquidity (Nesvetailova, 2010) highlights its potential cyclicality and the importance of market makers to sustain assets' store of value function in particular during times of elevated market uncertainty. As highlighted by Fender and Lewrick (2015b) market makers' willingness to absorb supply and demand imbalances is vital to smooth market functioning. It is arguably only in the most developed markets for financial assets that such a sophisticated set of market makers is present.[8]

It this dependence on financial securities that explains why institutional investors see the commodity attribute of securities as absolutely vital to their value storage function. Real estate and other material assets may be mapped into commodity space when priced and traded against social standards, but strip away their commodity attribute and they still have a material existence. As financial securities have no material substance, their value storage capacities are determined exclusively by their prices; and as securities' prices are nothing other than the present, discounted values of expected future returns, it follows that the 'tangibility' of these prices, the reliability with which they constitute specified quantities of value, depends on the extent to which there is a reasonable guarantee that the promised streams of returns will actually materialise. Such a guarantee is given when security issuing organisations are tied to two sets of standards: production or service provision standards on the one hand and transparency and governance standards on the other.

Production standards determine the ability of security issuing organisations to distribute cash to investors: e.g. corporations need to make profits in order to distribute cash, and profits depend on competiveness and market share, which in turn depend on compliance with

[8] This is another example of potentially self-feeding and concentrating tendencies in financial markets. Whereas market making activities provide important liquidity to financial assets, it is this same liquidity which is, as shown by Fender and Lawrick (2015b), necessary for market makers to absorb supply and demand imbalances.

prevailing production standards; similarly, governments need to collect taxes to service interest payments on bonds and tax revenues depend to a large extent on the efficiency of provision of government services. Ability, however, is not the same as willingness. Corporations can make profits but still decide to prioritise the interests of other stakeholders over those of investors and thus not distribute part of those profits to the latter. Similarly, governments can generate tax revenues but not make the payment of interests on their bonds a priority. Thus while production standards are a necessary condition for the commoditisation of securities, they are not a sufficient condition. It is transparency and governance standards that supply this condition because it is against these standards that the risks on securities can be compared and controlled.

Consider first the question of transparency. For the household investors who were previously dominant on the buy side of the securities markets, it was enough that security issuers provided reasonably accurate information about their financial state. However, for the institutional investors of today who typically manage portfolios to a tightly specified investment target, and who thus need to cross compare securities on a like for like basis to determine which are suitable for selection, it is important that the financial information supplied by issuers be not only accurate but also be in a suitably compact and standardised format such as would allow for comparability. The clearest illustration of this point is to be found in the bond markets where all information relevant to a government or corporation's ability to service its debt collected by a ratings agency such as Moody's or Standard and Poor is compressed into a single metric. This same point also applies in the equity markets. Systematic comparisons of corporate equities to determine which are suitable for inclusion in an equity portfolio can be an arduous and time-consuming process if portfolio managers are forced to rely on firms' own particular criteria of profitability. By contrast, the selection process is greatly simplified if portfolio managers have at their disposal a standardised metric for comparing the financial health of corporations. This precondition was effectively met with the shift from the 'historic cost' accounting system, in which firms' assets are valued according to their replacement costs, to the 'fair value' system in which firms' assets and liabilities are both valued according to the prices that they command in the capital market[9].

[9] The problem with historic cost accounting is not just that it hampers comparability, as would any accountancy method that treats firms as holistic and thus incommensurable entities inasmuch as they differ in their combinations of physical, human and financial capital. It is also that it gives corporate managers too much for scope for 'story telling'. As Bromwich (2004, p. 42) has observed: the 'underlying wish' of accounting standard setters leading them to promote the fair value system 'is for accounting to state things "as they are", free of any managerial manipulation'. On the contrary, to allow managers to give their own estimates of items 'that reflect

Now consider the question of governance. As we say, the value storage capacities of financial securities depend entirely on the regularity or assurance with which determinate amounts of cash are returned to investors. The task of holding firm the quantitative dimension of equities has always been more difficult to achieve for shareholders because as co-owners of the corporations in which they have invested they are expected to share the risks of enterprise, which in practice means giving corporations the right to decide when, and how much, cash should be returned to them. However, this risk sharing feature of equities poses a dilemma for institutional investors trying to manage equity portfolios to pre-set targets. On the one hand, they need to give corporations some discretion over the level and timing of cash disbursements so as to ensure that these do not conflict with the finances needed to maintain the flow of production; but on the other hand they cannot give corporations complete discretion over cash disbursements as this could play havoc with the risk characteristics of equities and thus with those of the portfolios of which they are a constituent part. To help resolve this dilemma, institutional investors closely monitor and cross compare the governance practices of different corporations so as to determine which pay meaningful attention to shareholders' interests and hence to decide which equities to buy. As in the case of accounting information, disaggregation and standardisation are the guiding principles behind the presentation of corporate governance information in a form that meets the stock selection requirements of institutional investors.[10]

The prices of bonds are more tangible in that the payment of interest is obligatory. Even when interests fall to zero, or to sub-zero levels, as happens on certain government bonds, bonds still have a more tangible value storage capacity because of their known redemption value at maturity. However, the downside of bonds is that they can potentially force their issuers into default because of the concentration of risk that they are forced to carry. The threat of default is particularly acute in the case of business corporations whose profits can fluctuate sharply but who are still expected to service the interests on their bonds regardless of circumstances. Government bonds are by comparison generally safer because interest

differing managerial information and different preferences to the market . . . would mean that identical items would be valued differently'.

[10]An example of such a ratings metric, and now generally considered to be the industry standard, is the Governance Risk Indicator (GRid) marketed by the Risk Metrics group.

payments are financed out of tax revenues[11] and they are more likely to be supported by the central bank as market maker or 'dealer' of last resort (Mehrling, 2010). This explains why these bonds are so important to institutional investors such as insurance companies and pension funds who must at all times keep a certain stock of safe assets so as to be certain that obligations to clients can be met. In addition to the greater safety of government bonds, it is also their greater volumes of supply across the maturity spectrum that is important to insurance companies and pension funds given their need to have large amounts of securities falling due at each maturity date so as to meet client demands. Indeed, it is because of the vital role played by government bonds in institutionally managed portfolios that it is in respect of these securities in particular where the divergence between the view of securities as mere financing instruments and the view of securities as financial commodities finds its most acutely problematic manifestation. Governments typically see their bonds as nothing other than forms of debt that need to be redeemed quickly because debt is bad and needs to be avoided whenever possible. However, what may seem entirely rational from a government's standpoint is highly irrational from the standpoint of insurance companies and other asset managers who not only need to hold certain amounts of safe government bonds even under good economic conditions but also need to increase their holdings of these bonds when economic conditions deteriorate and thus when the value storage capacities of corporate bonds become less dependable.

To summarise, where once governments and corporations could only be considered as 'single commodity' providers, organisations whose sole function was to provide the material commodities that meet the production or consumption needs of firms and households, the recent growth of the asset management industry means that governments and corporations have now effectively become 'dual commodity providers', organisations whose additional function is to supply the financial commodities that meet the portfolio needs of institutional investors. As a result, returning to the additional functions of money as illustrated in Table 3, where once money only had to facilitate the circulation of material commodities it now has to duplicate its functions so as to facilitate the circulation of financial commodities.

[11] This explains why government bonds are generally used by the credit rating agencies as the risk free benchmarks against which the risk premiums on corporate bonds are calculated and factored into their ratings. Of course, as not all governments have the same tax raising powers and as therefore the risk quality of the bonds issued by different governments will vary, the bonds of some governments are also used as the risk-free benchmarks for calculating the risk premiums on the bonds of other governments.

In a decentralised market economy it is through money's first two major functions that production standards for goods and services are enforced: sellers assign prices through money's unit of account function while it is through buyers' offers to pay through money's function as a medium of exchange that sellers are informed as to whether their products do or do not comply with prevailing production standards. The same applies to securities. Organisations issuing securities use money as a unit of account to assign prices to these securities but it is through the realisation of these prices with the medium of exchange function of money that investors establish whether the risk-return quality of the securities offered for sale, and thus the prices charged, conform to prevailing transparency and governance standards. The importance of money's third role as a store of value follows from the fact that price formation and the coordination of activities in a decentralised economy constitute sequential processes rather than instantaneous events: firms need to hold cash to fill the gaps in the investment, production, sale cycle just as households need to hold cash to bridge the gaps between wage incomes and consumption expenditures. So it is with institutional investors managing asset portfolios:: as it takes time to buy securities to accommodate fund inflows from clients or to sell securities to finance fund outflows to clients, institutional investors always need to hold substantial amounts of cash so as to be able to temporarily bridge the gaps between these opposing flows.

Alongside the similarities that unite money's role in the circulation of material goods with its role in the circulation of financial securities, there are also certain peculiarities that are specific to the latter process. These peculiarities essentially arise out of the fact that securities transactions are on average larger by orders of magnitude than are material good transactions. Consider money in its medium of exchange function. Institutionally managed equity portfolios need to be frequently rebalanced to accommodate fund inflows from, or outflows to, clients while at the same time keeping to a specified investment target; this entails frequent trading, which can in turn entail potentially high trading costs given the large size of institutional orders that can cause price disturbances that then give speculators the opportunity to front run the orders and thereby profit from them. Thus to minimise the price impact, and hence trading costs, of their rebalancing trades, institutional investors now typically make use of a variety of new trading methods (e.g. the slicing and dicing of large 'parent' orders into a number of smaller 'child' orders); new trading techniques (e.g. the use of computerised programmes to feed orders through several electronic trading platforms simultaneously) and new trading venues (e.g. the use of 'crossing networks' or 'dark pools'

where institutional orders are executed at prices that are not publically disclosed until after the transactions are completed)[12]. Institutionally managed bond portfolios also need to be frequently rebalanced for the same reasons as above, a need which again means a concomitant need to find ways of minimising the costs of rebalancing trades. Given the important market making role of bond brokers in the bond markets, it is the concentration of trading on government bonds that here holds the key to cost efficiency.[13]

Finally, consider money's store of value function. As we say, institutional investors always need to hold certain amounts of cash either while waiting to allocate clients funds to particular asset portfolios or to be ready to meet liabilities that are imminent. Once again, the sheer size of these amounts poses certain problems. Faced with a shortage of banks that could spread the institutional cash pools across in insured, $100,000 increments (the deposit insurance limit), institutional investors can either lend the cash to banks and thus become their unsecured creditors or instead chose the safer option of investing in an assortment of what Pozsar (2011) terms "insured deposit alternatives". These can include repos, short term government securities, corporate or financial commercial paper and asset back commercial paper issued by the shadow banking system.

If money has to duplicate its major functions at the national level, then so also must it do so at the international level in light of the fact that institutional and other large investors have taken full advantage of capital control reductions and other recent regulatory developments to include foreign securities in their portfolios[14]. This said, there are two fundamental differences that separate out the international context from the national one. The first difference, as already discussed above, is that at the international level money must perform its three functions in respect not only of the private sector but also of the official sector. The second difference concerns the relevance of the distinction between securities as financing instruments and securities as financial commodities. At the national level, this distinction may not appear to be significant because it will have no bearing on the choice of currency,

[12] For further discussion of these points see Gomber et.al (2011) and Valliante and Lanoo (2011).

[13] The crux of the matter here is homogeneity. Corporate bonds are a relatively heterogeneous class in the sense that they are spread out more thinly across different maturities because of the differences in the time profiles of the financing needs of different corporations. This heterogeneity explains why corporate bonds are relatively less liquid as well as relatively less safe than are government bonds. This in turn explains why bond brokers, who at all times need to keep large inventories of bonds to meet the needs of their institutional clients, prefer for cost reasons to concentrate these inventories on government bonds. For further discussion see Fender and Lewrick (2015a and b).

[14] BIS, 2003, p.13: "regulatory developments have resulted in a globalisation of institutional portfolios, with the focus moving more towards international asset classes. As a result of more diversification opportunities, home bias has tended to decline".

and it will not do so simply because there is no such choice given the central government's monopoly control of its domestic currency. By contrast, at the international level where a few national currencies must replicate their functions in the absence of a world currency and thus where the constraints on agents who use a foreign national currency in an international capacity are primarily economic in content[15], the distinction between securities as financing instruments and securities as financial commodities is crucial because it has a fundamental bearing on the nature of these economic constraints. There is no subject that illustrates this point more perfectly than the subject of dollar hegemony.

4. The US dollar's current hegemony as an international currency

The US dollars' hegemony as an international currency is partly self-reinforcing in that while it is the depth and liquidity of the US dollar market that makes the dollar the currency of choice for foreign agents engaged in speculative[16], hedging[17] or other currency exchange activities unrelated to underlying transactions[18], it is the widespread use of the US dollar in these roles that in return helps to boost the depth and liquidity of the US dollar market. This said, dollar hegemony must have some grounding in the fact that, at a time when the world's securities markets are increasingly dominating the world's product markets as shown in figure 1, the US continues to be the world's leading supplier of securities as shown in table 4.

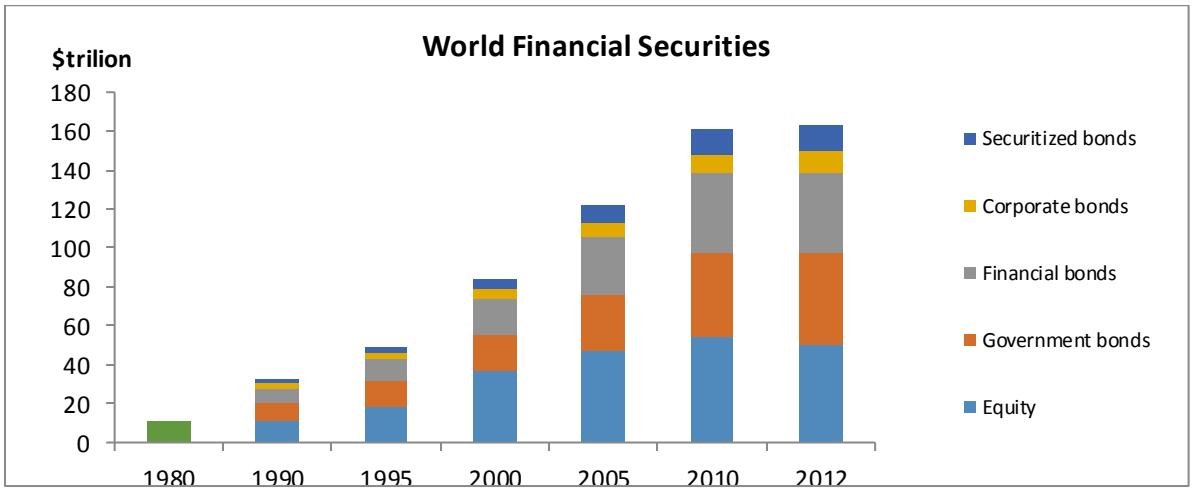
[15] This is not to say that politics does not matter in the international sphere. Indeed, as Helleiner shows political factors shape the attractiveness of a currency both directly and indirectly (Helleiner, 2008). However, it can be argued that as long as we lack a truly global governance system, political factors will continue to bear more weight on the national or regional level rather than on an international one.

[16] For example, given its relatively low interest rate environment and deep financial markets, the US$ is one of the main funding currencies for international carry trade operations. This role cements the dollar's predominant international role as investors have to acquire it to meet their outstanding external obligations (e.g. Galati et al. 2007; McCauley and McGuire, 2008). This becomes particularly pertinent during moments of increased risk aversion which leads to a tightening of the international funding constraint (Brunnermeier, 2008). In addition to the carry trade, a more recent development that has served to boost daily turnover in the spot dollar market is high frequency trading: the use of sophisticated computers by hedge funds and other speculative vehicles to trade the same pair of currencies many times over in a single day so as to extract any profit generated by even the smallest disturbances in the prices of these currencies. See BIS, 2011; Gomber et.al.2011.

[17] Of the $5.3 trillion average daily turnover in the foreign exchange markets as of April, 2013 (BIS, 2013), 44% of this total comprised of FX swaps: instruments that combine spot and outright forward transactions between the same pair of currencies and the same pair of counterparties in a single transaction. While some proportion of FX swaps are used for hedging (or speculating on) the risks associated with currency exchange, another substantial proportion are used as an alternative type of repo, the difference being that key currencies rather government bonds are used as collateral (see Grahl and Lysandrou, 2003). As the dollar has the deepest and most liquid market, this is the currency that is most typically used in this collateral role (ECB, 2010).

[18] In 2012, US dollar denominated international bank lending accounted for more than 43% of the total.

Figure 1. Financial Deepening of the Global Economy



	1980	1990	1995	2000	2005	2010	2012
World Deposits(Strillion)	9	23	26	35	42	57	62
World GDP ($trillion)	11	22	30	33	46	64	72

Source: Mckinsey (2013), IMF (2013)

Table 4. Country shares of world GDP, securities stocks and currency market activity, 2012

	US	**Eurozone**	**Japan**	**UK**	**China**	**EMEs(ex China)**
% Share of World GDP	22.42	16.83	8.23	3.41	11.36	20.72
% Share of World trade	10.74	24.62	4.35	3.60	9.94	27.29
Net Trade (US$ bn)	-58	31	-14	-9.8	17	7.6
Exports (US$bn)	217	581	93	78	226	631
Imports (US$bn)	276	551	107	88	210	623

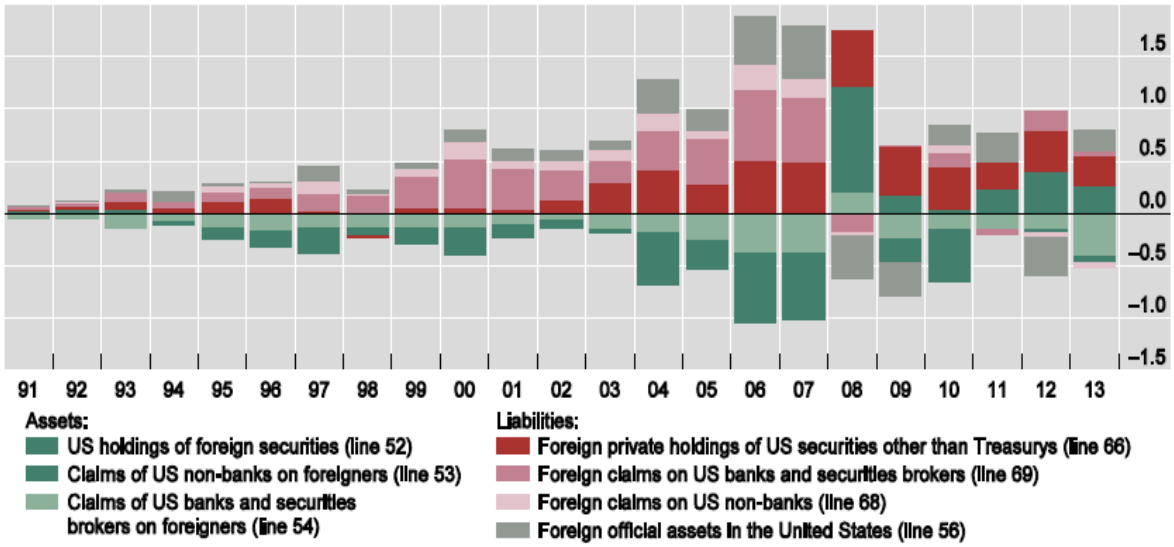
% Share of World Securities	37.49	19.58	12.72	6.13	5.21	
(Total)	35.11	11.87	6.92	5.68	6.95	19.52
Equities	38.88	24.11	16.12	6.39	4.18	NA
Bonds						
% Share of World Currency Use	56.92	33.75	8.74	8.56	1.31	8.94

Sources: World Development Indicators; Bank for International Settlements; WTO-World Trade Statistics

While the US' respective shares of world GDP and of world trade in goods and services continue to be significant factors in the international use of the dollar as an international currency, it is foreign involvement in the US securities markets that now provides the more important explanation for this use. A steady trickle in the years before 2000, foreign capital flows into the US began to rise sharply from this time on as shown in figure 2, trade surpluses with the US being the principle source of the inflows from Asia and leverage in addition to surpluses being a major source of inflows from Europe (Bernanke et.al. 2011)[19]. As shown in figure 3, foreign investors are particularly prominent in the US treasuries market where they currently hold over 60% of the total amount outstanding (45% held by foreign official agents, 15% held by foreign private agents). And as shown in figure 4, foreign ownership of US corporate securities is particularly pronounced in the corporate bond sector where the percentage share has averaged 40% to 45% in recent years as compared to an average share of between 10% and 15% in the US corporate equity sector.

Figure 2. US annual capital flows ($ trillions)

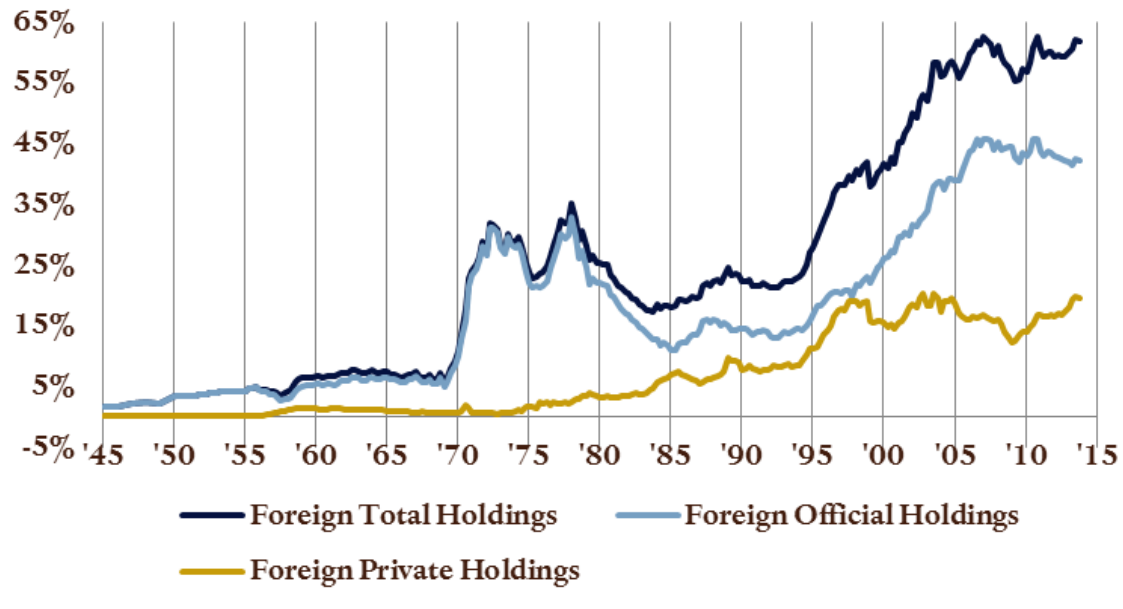
[19] It should be noted that at the time of the crisis in 2007-8, US treasury officials and their advisors focussed attention solely on US trade deficits with China and other Asian economies as the source of inflows into US securities (the 'savings glut' thesis) and only later was there a realisation that there were also heavy European inflows into US securities, with leverage playing a more significant role here.



Note: Positive bars represent an increase in liabilities, or a capital inflow into the United States.

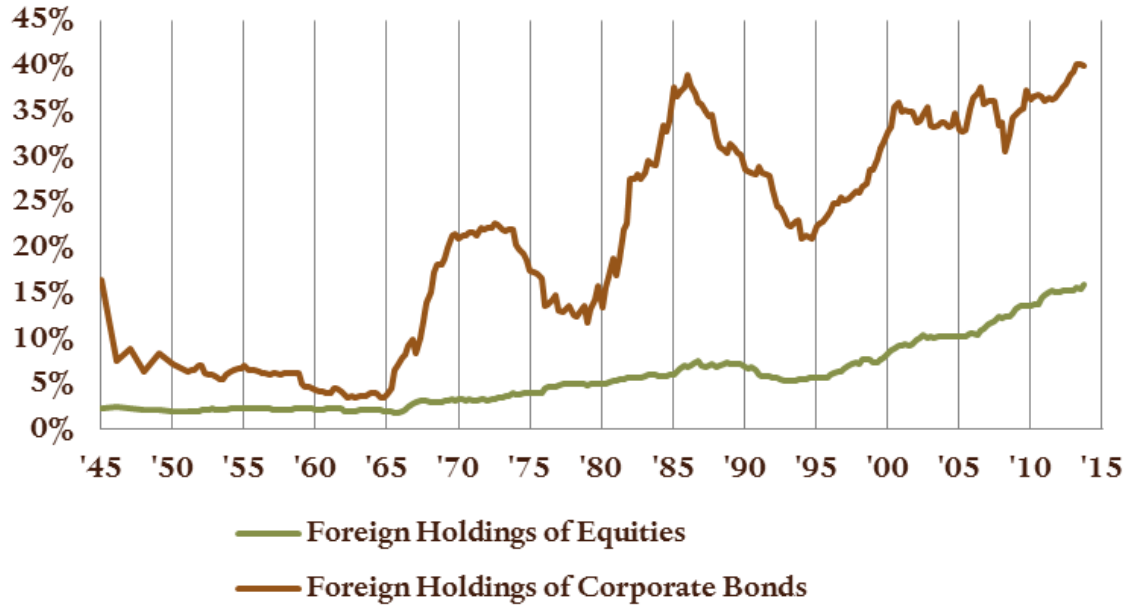
Sources: Shin (2012) updated; US Bureau of Economic Analysis.

Figure 3. Foreign Ownership of US Treasuries (percentage of total market)



Source: Council on Foreign Relations (2015)

Figure 4. Foreign Ownership of US Corporate Bonds/Equities (percentage of total markets)



Source: Council on Foreign Relations (2015)

Apart from the sheer magnitude of the US long term capital markets, and particularly of the US bond markets, there are two further features that attract foreign private investors to them. The first is their high degree of uniformity and standardisation, the fact that each particular class of security exhibits more or less the same mix of risk and return attributes. The most uniform type of security is of course US treasuries. Beyond these though, the high degree to which information and disclosure standards, in addition to the rules of governance, are evenly applied across the US corporate sector means that the risk-return characteristics of the bonds and equities issued by the large corporations rarely deviate from the industry average. Foreign investors, as with their US counterparts, find this uniformity of the US securities markets advantageous because it allows them to make informed and cost-efficient choices not only as to how to allocate funds to different asset classes according to their respective risk profiles but also as to when to switch from one asset class to another according to how any changes in the economic climate impact on the profiles of different asset classes. It is this overriding attractiveness of US securities that cements the role of the dollar in its various roles as an international currency. Foreign investors operating dollar portfolios will need to use dollars not only in a medium of exchange role (when simply buying and holding dollar

securities) but also in a combined unit of account and medium of exchange role (when selling dollar securities to buy other dollar securities) and also in a store of value role to bridge the gaps between sales and purchases of dollar securities.

This last point brings us to the second feature that attracts foreign investors to the US bond markets especially, which is the scale of US brokerage support services on the one hand and the scale of the US short term money markets on the other. As with their US counterparts, foreign institutional investors managing dollar bond portfolios have to rely on the market making services of US bond brokers, and the latter are well placed to efficiently deliver these services given the depth and liquidity of the market for those securities on which their inventory stocks need to be most concentrated, namely, the US treasury bond market. Similarly, as foreign institutional investors together with their US counterparts face limits on the amounts money they can safely deposit with banks, they need to have available to them large supplies of insured deposit alternatives in which they can house their cash pools accumulated in the gaps between long term asset allocations. In this regard the US is extremely well placed to make accommodation for it is by far the world's leading supplier of such short terms instruments as repos, FX swaps, treasury and municipal bills, corporate and financial commercial paper and asset backed commercial paper. Indeed, the US' domination of the short term segment of the global financial sector has reached the point where dollar denominated money market instruments on average account for a larger percentage share of the global markets for these instruments as compared with the dollar's share of the global equity and bond markets[20].

As previously noted, although other authors have pointed to the close connection between the depth of the US capital and money markets and the dollar's current hegemony as an international currency the fact that they view securities merely as financing instruments, and bonds in particular merely as debt instruments, means that they can also be profoundly sceptical of the dollar's continuing hegemony. The data appear to give good grounds for this scepticism for just as bonds now dominate the global securities markets that in turn dominate the worlds' product markets (figure 1), so are these ratios manifested in the US' percentage share of the world markets, lower in the product markets (22.42%) than in the financial markets (37.49%), and lower in the equity markets (35.11%) than in the bond markets (38.88%). And, as also just noted, the US's percentage share of the global supply of short

[20] See, e.g. McKinsey (2011).

term debt instruments such as treasury bills and commercial paper is higher still. Now if bonds, bills and commercial paper are only viewed as forms of debt then it must surely follow that the US' hugely disproportionate share of the world's supply of these instruments has to be a source of great concern for foreign investors. They might initially be attracted by the liquidity and other advantages conferred by the large size of the US bond and money markets, but if this size grows too large there may come a point when foreign investors decide to exit these markets en masse because of the fear that the US cannot finance its debt in the face of a continuing deterioration in underlying economic fundamentals. Thus to recall Cohen's comment: "Unless reversed by significant policy reform in Washington, the US economy's dependence on foreign capital must be expected in time to erode the advantages historically enjoyed by the greenback, creating an opportunity for challengers". And to recall Chinn and Frankel's prediction made in 2008 that the euro would displace the dollar as the leading international currency by 2015, we find that at its core is the argument that the "chronic" deficits in the US trade and government sector accounts mean that the US "cannot count on being bailed out indefinitely" (ibid. p.67).

By contrast, a very different perspective on dollar hegemony is opened up once bonds are also viewed as financial commodities with a wealth storage function and money market instruments are viewed as means to help facilitate the circulation of these financial commodities. Equities are the other major class of financial instruments that have a wealth storage function, but it is bonds that are the more reliable instrument in this regard for the reasons discussed above. The greater safety of bonds as an asset class helps to explain why, at a time of increasing uncertainty in the global economy, global bond stocks have grown at a much faster rate than have equity stocks as shown in figure 1. This 'de-equitisation' phenomenon may be regrettable from a production standpoint[21] but not from an asset management one in that institutional investors needing to closely match their liabilities with corresponding amounts of assets are better placed to do so with bonds than with equities. Now when the reality of a trend increase in the global institutional demand for bonds as safe

[21] This is because, as Haldane (2014) for example explains, industrial investments are likely to be scaled back if corporations are not able to issue more equities and thus spread the risks of these investments more widely. Haldane goes on to argue that regulatory and accounting changes have helped to spur 'de-equitisation', but while this may be true it is the growing uncertainty in the globalised economy that in our view provides the more all-encompassing rationale for this development. Note, for example, how the recent fall in the world's leading stock market indexes, caused largely by the slowdown in China's growth rate and the resulting collapse in oil and other commodity prices, has served to further boost financial flows into bonds.

stores of value is taken in conjunction with the reality that the US continues to be the world's leading supplier of these stores of value it becomes clear why foreign investors are forced in the aggregate to stick with the dollar.

The problem of aggregation is at the heart of the matter here. When bonds are only viewed as debt instruments there is no such problem because what is true at the individual level is also true at the collective level: just as any one foreign investor can abandon the dollar when the US' debt burden is thought to be unsustainable, so can all foreign investors do the same. By contrast, this equivalence principle no longer holds when bonds are also viewed as commodities with a wealth storage function: any one foreign investor can at any time abandon US bonds but the same exit option is not open to all foreign investors taken in the aggregate given the huge size asymmetries in bond supplies separating the US at one end of the scale from the world's EMEs at the other (table 5). In this aggregate case the role played by the deterioration in the US' trade and government accounts in regard to the dollar's hegemony as an international currency is the exact opposite of the usual interpretation: rather than undermine the dollar's hegemony, the deterioration in these accounts helps to strengthen it precisely because substantial proportions of the trade surpluses with the US generated by China and other EMEs have to be poured into the US' bond markets given the relative underdevelopment of the bond markets in most other regions. In other words, continued foreign purchases of US securities amount less to a 'bailing' out of the US than to an expanded form of commodity exchange, material commodities for financial commodities rather than just material commodities for other material commodities.

Confirmation of this argument would appear to be given by the patterns in the annual capital flow data for the US shown in figure 2 and by the data shown in figures 3 and 4. Foreign private capital flows into US securities rose steadily from the late 1990s/early 2000s but these inflows became particularly heavy in the years between 2004 and 2007, a development that helped to fuel concerns that the US' growing reliance on foreign capital inflows would make it dangerously vulnerable to any 'sudden stop' and reversal of those flows. As it turned out, there was no such sudden stop before the global financial crisis of 2007-8. Nor was there any stop after that crisis, as might have been expected given that it was the problems in the US financial sector that triggered the crisis in the first place. In fact, the contrary happened. The fears and uncertainties arising out of the substantial damage done to the global real economy by the financial crisis precipitated a global capital flight to safe haven securities, typically triple A rated government and corporate bonds of which the US was by far the largest

supplier. In the case of US private investors holding foreign asset portfolios this meant a massive repatriation of funds back into the US in the period 2008-9. However, in the case of foreign private investors that were holding dollar portfolios there was no repatriation of funds on any similar scale as they had no choice but to hold onto US securities given the shortage of safe haven bonds outside of the US and a few other advanced market economies[22].

Just as the aggregation problem is that which ultimately binds foreign private agents to the dollar so also is this true of foreign official agents. Note from table 2 that while the dollar's share of currency use in an international capacity averages 48.1% across the different functions of international money, it is the official reserve function where the dollar's percentage share is most pronounced (61.8%). Only a very small part of this ratio is accounted for by governments that are formally operating a dollar anchorage policy for one reason or other.[23] The majority part is accounted for by the governments of large economy countries such as Japan, China and India who want to maintain their currency's international value at a certain level and use its exchange rate against the dollar as the reference rate. The major reason why these governments have to accumulate huge stocks of reserves in the contemporary era is that this is the only way that they can protect their currencies against sudden speculative runs and reversals of speculative, yield-seeking capital inflows. As European governments during the 1992 ERM crisis and Asian governments during the 1997 Asian currency crisis found to their cost, speculative vehicles such as hedge funds and the proprietary arms of banks can today muster huge financial firepower when attacking a currency, firepower typically sourced out of the huge reservoirs of value stored in financial securities[24]. And of course the major reason why such a large percentage of official reserve

[22] As shown in figure 2 but as can also be seen more clearly in figure 1A in the appendix, the US capital outflows have in recent decades broadly kept pace with foreign capital inflows into the US. However, as can be seen in figure 2A in the appendix, the respective compositions of these flows was markedly different, with US investors concentrating more on higher risk foreign equities and foreign investors concentrating more on lower risk US bonds. Now when global economic conditions turn adverse, the switch by US investors from high risk equities to low risk bonds typically involve a simultaneous switch from foreign equities to domestic bonds because of the shortage of safe foreign bonds. This same shortage explains why, by contrast, any asset switching by foreign investors when conditions turn adverse will typically involve a switch from one set of dollar securities to another set.

[23] At the present time some 90 governments peg their currencies to the dollar (Auboin, 2012). For these governments who are mostly based in small, developing countries, it is GDP-related factors that are the dominant consideration behind dollar anchorage. These factors include trade (export or import dependence on the US), production (dependence on inward FDI by multinationals who produce for exports to the US or other dollar markets), banking (dependence on dollar denominated foreign bank loans needed to finance trade or government deficits) or macroeconomic stability more generally (a means of controlling domestic inflation).

[24] A recent illustration of this point is the Chinese government's warning to George Soros and other speculators that they will use their huge dollar reserves to protect the renminbi ("Beijing warns Soros against going to war on renminbi, Financial Times, 27th January, 2016)

holdings have to take a dollar form is that these holdings must principally consist of US treasuries. If a currency is to be given effective protection against a speculative attack the backing reserves have to be highly liquid i.e. consist of financial instruments that can be sold in very large quantities in exchange for the domestic currency but where the sales of these instruments have a minimal impact on their price. The paradigmatic instruments in this regard are triple-A rated government bonds given that there is always a huge demand for these bonds emanating from so many different private sector agents (including insurance companies who need them as safe stores of value, banks who need them as collateral in repo transactions, and bond brokers who need them as the core constituents of their inventory stocks). US treasuries currently account for about 24% of the world's total supply of government bonds, but if we just take the triple-A component of this total the US' percentage share rises to about 80%, in other words, to a ratio that no other government can even begin to match.[25] Thus it is that the governments of even the very largest economies in the world are forced to hold huge stocks of dollar denominated US treasuries to protect their currencies because there is nowhere else for them to go.

To summarise, from a commodity perspective it becomes a simple matter to explain the US dollar's hegemony because it then becomes a matter of simple arithmetic: if on one side of the equation, there are major groups of private and official agents who need financial securities carrying a sufficient enough value storage capacity into which they can put their money, and if on the other side of the equation it is the US that is most able to supply the quantities of these securities in the amounts needed by foreign agents, then the latter have little choice but to channel substantial amounts of their funds into US securities, which means that they have little choice but to make the US dollar their number one currency for international use. This is not all. Once capital market securities are viewed as commodities in their own right it also becomes easy to understand why no other national or regional currency will soon challenge dollar hegemony because it then becomes easy to understand why no other national or regional capital markets will soon match those of the US in size.

5. Why Dollar Hegemony Will Remain Unchallenged

[25] In 2014, only 11 governments had a triple A rating from one or more of the three major ratings agencies, the US government itself only receiving triple A from Moody's and Fitch. While Standard and Poor had downgraded US treasuries in 2011, this did little to prevent many of the world's large investors, both private and official, from continuing to treat these securities as safe stores of value. (Guardian, October 20th, 2014)

While good governance institutions are important for the development of a strong domestic business sector, they are absolutely vital to the development of a strong domestic financial sector. The point bears repeating that as securities have no intrinsic value, being nothing other than claims on the future income streams generated by governments and corporations, their quantitative dimension, their value storage capacity, rests entirely on the degree to which the issuing organisations can be trusted to return cash to investors at the required rates and at the required intervals. Given that bond issuers are legally obliged to pay interest, strong public governance institutions generally suffice to guarantee the tangibility of bonds as wealth containers (these institutions, which relate to the general environment within which agents operate, include the efficiency of the legal process, protection of property rights, judicial independence and control of organised crime). However, the same is not true of corporate equities: corporations can make profits but decide not to distribute them to investors for any number of reasons. In the case of equities, strong private governance institutions in addition to strong public institutions are required if investors are to have any faith in their wealth storage capacity (these institutions relate to the internal workings of corporations and include protection of minority shareholder rights, strength of auditing and accounting standards and board efficacy)[26].

From these remarks, it becomes clear that the US' current disproportionate contribution to the global stocks of securities essentially comes down to this country's unique combination of three key factors: (i) a large domestic economic base; (ii) fairly strong public governance institutions; and (iii) very strong private governance institutions[27]. While the size of its domestic economy is the major supply side determinant of the US' securities stocks, in that it enables the US government and US corporations to generate the revenues needed to fund the sums returned to investors, it is the strength of the US' governance institutions that are the major demand side determinant in that they give a high degree of assurance to investors that the revenues generated by US security issuers will actually be distributed to them. Given that debt securities must pay interest, the quality of the US' public governance institutions is generally sufficient to guarantee the tangibility of US bonds, while it is the high quality of the US' private governance institutions in addition to that of its public governance institutions

[26] In its annual Global Competiveness Report, the World Economic Forum lists governance institutions as the first pillar of country competitiveness. These institutions are divided into two categories: 'public' that comprise 16 institutions and 'private' that comprise five institutions. The quality of these institutions is ranked from 1 (lowest quality) to 7 (strongest quality).

[27] In 2013, the US's public governance institutions scored an average of 4.49 according to the WEF while the US' private governance institutions scored an average of 5.74.

that helps to maintain investor trust in the consistency with which US corporations return profits to shareholders[28].

Now let us turn to the Eurozone group of countries that when taken as a single entity certainly meets the GDP criterion determining capital market size but just as certainly fails to meet the governance criteria. In the absence of the sterling capital markets, the Eurozone capital markets never quite managed to compete in size with those of the US, a fact that was on its own enough to inhibit foreign inflows into the Eurozone from reaching the levels going to the US. However, what made matters worse was the fragmentation of the Eurozone markets. While the adoption of a single currency by the Eurozone member countries gave their securities a measure of homogeneity by eliminating exchange rate risk, what that initiative could not do is to give each class of security the same high degree of homogeneity as exists in the case of US securities or, indeed, in the case of UK sterling securities. It could not do so because a single currency could not on its own compensate for the widely divergent quality of governance standards across the Eurozone, with high quality standards in Germany and other core countries and significantly poorer standards in Greece and other countries on the Eurozone periphery[29]. Nowhere was the intra-security class heterogeneity, symptomatic of the uneven development and application of governance standards across the Eurozone, more pronounced than in the government bond class with Greek government bonds, for example, being priced differently to German government bonds even though both of these bond groups were denominated in the same currency.

Thus even before the outbreak of the global financial crisis, and the subsequent Eurozone crisis, when the prospects of continued Eurozone economic growth looked good, the disparity between the US and Eurozone securities markets in terms both of scale and degree of

[28] The argument that the US has strong governance institutions may appear to be odd given that the subprime crisis of 2007 broke out in the US and given that the toxic securities at the epicentre of the crisis did indeed break all the rules for transparency and good governance. In answer, it should be pointed out that it was precisely because of the fact that all the major US bond markets stuck to the usual rules that the US banking system was forced to step outside of the normal 'conforming' mortgage market and bring in extra numbers of 'non-conforming' borrowers to create the raw material needed for the creation of the extra amounts of yield bearing securities demanded by institutional investors. Certainly, the banking sector had the opportunity (the exploitation of weak regulation) and the incentive (the maximisation of fee incomes) to create the toxic CDOs. However, the timing of events, the fact that the CDO market, which had been in existence since the early 1980s, only registered a twelvefold increase in size between 2003 and 2007 i.e. exactly at the time when yields were falling in all of the major US bond markets due to the global pressure of demand for safe stores of value, would indicate that imbalances outside of the banking sector had more to do with causing the crisis than the failures inside that sector. For further discussion see e.g. Caballero (2010); Goda et.al. (2104); Lysandrou and Shabani (2015)

[29] Thus in 2013 Germany's governance institutions scored an average of 5.23 according to the WEF's annual competiveness report while those of Greece scored an average of 3.76

integration meant that there was little likelihood that the euro would overtake the dollar as an international currency because there was little likelihood that foreign private investors' involvement in the Eurozone markets would surpass their involvement in the US markets. What the Eurozone crisis has done is to reduce that likelihood even further for the foreseeable future because in tearing away the thin veneer of homogeneity given to Eurozone securities by the single currency and exposing instead the deeper institutional asymmetries underlying these securities, the crisis has served to further steer many of the world's institutional and other private investors towards the use of the dollar in its various international currency roles. A case in point is the demand for US dollars as a means of purchasing US treasuries as safe haven stores of value in a time of economic turbulence. Given that the supply of high grade Eurozone government bonds, already small by comparison with their US counterpart, was made even smaller by the negative impact of the Eurozone crisis on Eurozone periphery government bonds, one could see why the strong foreign private demand for US treasuries coming from large EMEs was reinforced by the strong demand coming from Eurozone private investors[30].

If the size and degree of integration of a country's domestic capital markets are the ultimate determinants of the international standing of that country's domestic currency, then it follows that China's yuan will have even less of a chance of challenging the US dollar's supremacy in the near future than has the euro. What China shares in common with the Eurozone countries when considered as a single entity is that it only really meets one of the three criteria behind capital market size, the GDP criterion. As with the Eurozone area, China's governance standards are of an uneven quality, high in some sub-categories (e.g law and order, crime prevention) and low in others (e.g protection of minority shareholders). Where China differs from the Eurozone is that it will find it even more difficult to raise all of its governance institutions to the same uniformly high level because the various impediments that have to be overcome in this case have to do not only with cultural factors, the weight of historically conditioned customs and traditions, but also with political factors, specifically the absence of democracy. No country can fully develop its governance institutions in the absence of a full commitment to the freedom of the press and to all the other institutions and practices of a

[30] See Lysandrou (2013) for more on this point.

modern, multi-party democracy and the Chinese central authorities are not about to give any such commitment[31].

The reason for this comes down to the magnitude of the task facing the ruling Communist Party in managing China's transition from communism to capitalism. As is well known, the central element in that transition strategy is the staggered integration of China's 800 million strong workforce into the global capitalist economy, a process that began with those parts of the workforce based in the coastal Special Economic Zones and that is now gradually being expanded to encompass the other parts of the workforce situated in the hinterland areas. While this transition strategy makes sense given the sheer size of China's working population, its downside is that its successful implementation requires the maintenance of strict controls on the freedom of movement and other civil liberties, controls that are in turn only possible to maintain under a centralised, one-party system. Such a system is of course not all that inimical to inward foreign direct investments into mainland China given that what the foreign multinational corporations typically engaging in this type of investment most require is a stable, crime-free environment in which to conduct their production operations. By contrast, such a system is inimical to inward foreign portfolio investments because what the foreign institutional investors who typically engage in this type of investment require above all else is strong public and private governance institutions, including protection of minority shareholder rights, and what the strengthening of these institutions essentially depend on is an equally strong commitment to democracy[32].

A further point to note here is that the fact that Chinese financial assets do not fulfil the requirements for institutional investors means that the foreign participation in its capital

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[31] For an overview of the general relation between law, politics and governance see the collection of papers in Roe (2006). For a good discussion of how China's political system impedes the development of a governance environment conducive to foreign portfolio investment inflows see Li and Filer (2007) and Wu, Li and Filer (2012)

[32] The observation regarding the correlation between the varying amounts of inward FPI and FDI received by China (low amounts of FPI compared to the amounts of FDI) and the varying quality of China's governance institutions (weak private institutions compared to strong public institutions) has significant implications regarding the governance policies of other EMEs. FDI has generally been favoured on the grounds that it is more stable and gives rise to more positive externalities from which the domestic economy can benefit (see Moran et al., 2005) as compared to the FPI mode that can be more volatile (see Hausmann and Fernadez-Ariaz, 2000). However, FDI can also have disadvantages amongst which is its tendency to force domestically owned firms into lower productivity sectors (see Hanson, 2001, and Loungani and Razin, 2001; Moran et al., 2005), while FPI has the advantages that it enables domestic firms to share the risks of investment without loss of managerial control and that it potentially improves the efficiency of domestic financial markets (see Wilkins, 1999, and Government of India, 2005). EMEs are thus likely to maximise the benefits of foreign investment inflows by relying on a particular mix of the two contrasting modes rather than simply relying on one mode and what this entails is a strengthening of both public and private governance institutions. For further discussion of this point, see Goda et.al. (2016)

markets remains heavily skewed towards short-term yield seeking investors. As indicated previously, these investors are very sensitive to changes in international financial market conditions, resulting in large and often very sudden swings in capital flows, exchange rates and domestic asset prices, which are frequently independent of domestic economic conditions. Even if the exchange rate is fixed, as in the Chinese case, these asset price movements and the resulting uncertainty will further undermine these currencies ability to act as stable store of values. At the same time, these episodes reinforce the US dollar's hegemonic position. The depth of US capital markets and the lack of alternatives secure its value stability and make it a safe haven in the eyes of investors. The relative dominance of US financial markets also means that a large proportion of foreign investments in EMs are funded in US dollars, generating an automatic demand for that currency when international market and funding conditions tighten (McCauley and McGuire, 2008; McCauley and Zukunft, 2008).

To summarise, when financial securities are viewed as commodities with a value storage function it follows that a country's governance infrastructure is as important as the size of its domestic economy in determining its share of global securities stocks and hence the position of its national currency in the international currency system. Other countries meet the GDP criterion for issuing large amounts of securities (e.g. China), while yet other countries meet the governance criteria for ensuring the tangibility of the securities issued (e.g. Germany or Switzerland), but only the US combines both sets of criteria in a way that allows it to be able to create the vast quantities of reliable stores of value required by the world's investors, which is what in the end underpins dollar hegemony.

6. Conclusion

The dollar's hegemony as an international currency has been criticized as unfair in that it gives the US an exorbitant privilege that no other country can enjoy. This criticism is in our view justified, as are the calls for a complete overhaul of the international currency system so as to make it a fairer, more equitable system. However, until such time as the configuration of political, economic and social forces necessary for this overhaul is in place, it is important to understand the nature of the international currency system that we will continue to have in the interim. The central argument of this paper is that such an understanding ultimately comes down to how one views financial securities, the stuff of the world's capital markets that now

dominate the world' product markets. View securities as only a type of financing instrument and you raise the possibility that the present international currency pyramid will dissolve into fragments. View securities as also a type of commodity and this possibility turns out to be an illusion: the currency pyramid will remain solid. View securities as only a type of financing instrument and you inevitably raise the question as to what other currency can challenge the dollar: " If not the dollar, what?" . View securities as also a type of commodity and the question turns out to be redundant: it is still the dollar, and will remain the dollar. That is what.

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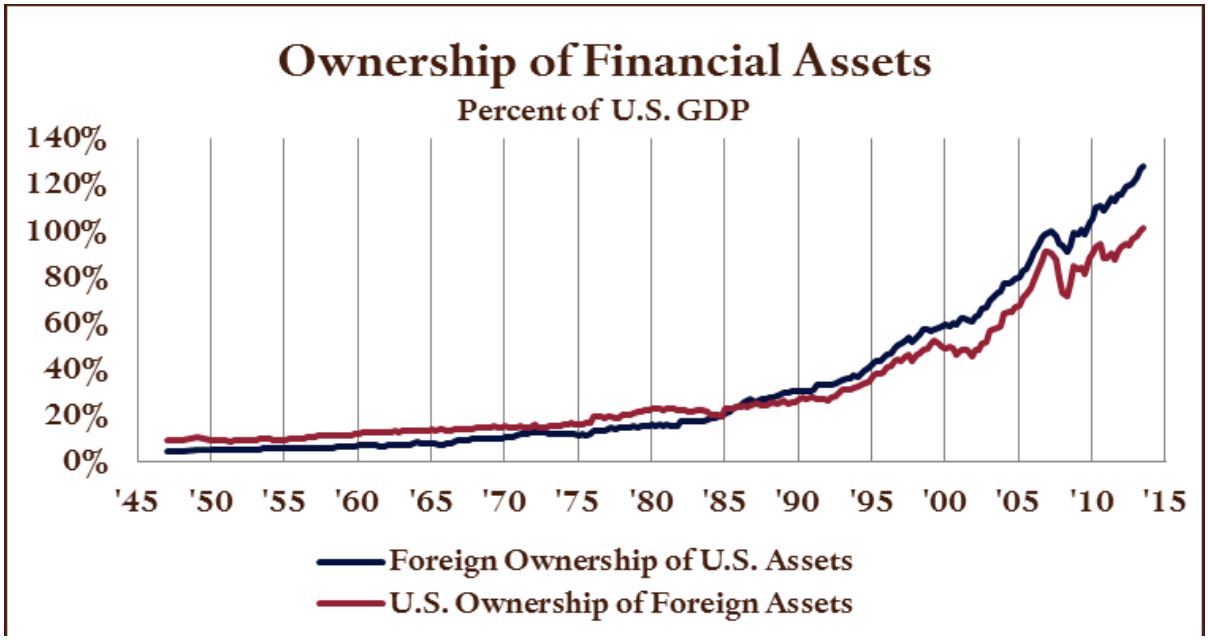
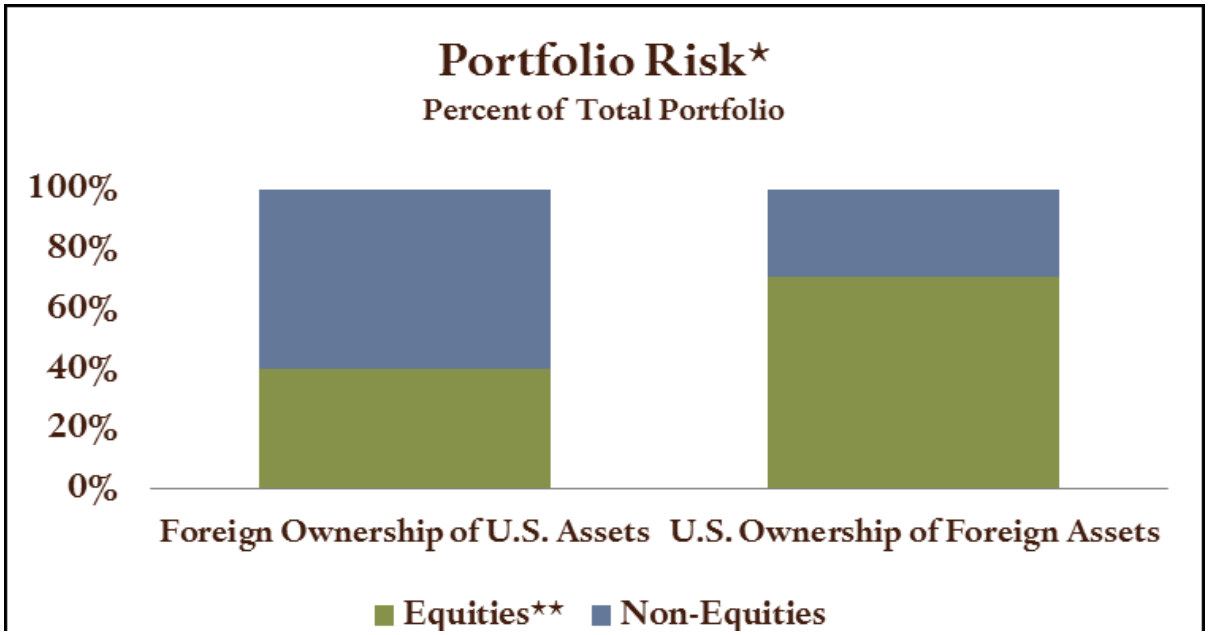
Appendix

Figure 1A. Foreign Ownership of US Assets and US Ownership of Foreign Assets



Source: Council on Foreign Relations (2015)

Figure 2A. Portfolio Risk



Source: Council on Foreign Relations (2015)