Atl Econ J (2017) 45:443–451
DOI 10.1007/s11293-017-9558-2

A Global Shortage of Safe Assets: A New Triffin Dilemma?

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Published online: 2 October 2017

Abstract A number of researchers have claimed that the international monetary and financial system faces a Triffin dilemma in a new fiscal form. In particular, there is said to be a dilemma between satisfying the world's demand for safe assets and maintaining the solvency of the issuer of such safe assets. On one horn of the dilemma, global deflation threatens if highly creditworthy sovereigns like the U.S. Treasury do not satisfy emerging market demand. On the other horn, a loss of creditworthiness of the issuer threatens as its government debt to gross domestic product (GDP) ratio rises to satisfy fast-growing global demand. This article suggests that the analogy drawn with the original Triffin dilemma is not tight since the safe asset dilemma does not have a clear cross-over point into instability. This paper casts empirical doubt on the claim that such a dilemma exists. On the demand side, emerging market central banks have actually turned to selling safe assets in the last several years, as against forecasts for an ongoing precautionary accumulation. U.S. Treasury yields have actually risen above those on generic private instruments, the opposite of the predicted widening spread of risky over safe yields. On the supply side, a substantial fraction of U.S. dollar reserve assets is invested in instruments other than U.S. Treasury securities. Reserve managers find safe assets among obligations issued by supranationals, national agencies and even large banks, which enjoy varying degrees of governmental support. Thus, demand for safe assets looks less secular than cyclical and the supply of safe dollar assets does not depend solely on U.S. fiscal deficits.

Keywords Safe assets · Triffin dilemma · Foreign exchange reserves

JEL F31 · F33 · H63

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Introduction

Much work in international finance has taken off from the idea that the potential demand for safe assets by emerging economies would outrun their supply by advanced economy governments. This has led to an asserted dilemma that has been likened to that stated by Triffin (1960). Triffin focused on the global demand for U.S. international liabilities (a stock) and the problem of their outgrowing U.S. official holdings of gold (another stock). The safe assets dilemma focuses on the demand for U.S. Treasury liabilities (a stock) and the problem of their outgrowing the U.S. economy (a flow that provides taxes to service the Treasury's debt). The safe asset shortage is basically a fiscal story of a particular global demand for the U.S. Treasury's special liabilities.

Jeanne (2012, p. 1979) summarised Farhi et al. (2011) and Obstfeld (2011) on the safe asset dilemma:[1]

> "As international reserves are primarily composed of U.S. government debt, and the share of the U.S. in the global economy is shrinking, the U.S. progressively loses its fiscal capacity to satisfy the rest of the world's demand for international liquidity [ie demand for U.S. Treasury securities]. Thus, there is a dilemma between the objective of satisfying the global demand for international liquidity, which requires a secular increase in the ratio of U.S. government debt to U.S. GDP, and the objective of maintaining U.S. government debt safe, which requires stabilizing this ratio".

Triffin described a dilemma with two sharp horns. On the one, U.S. international liabilities would grow too slowly, restrain global trade and cause costly deflation. On the other, U.S. international liabilities would grow quickly enough to meet the demands of growing international trade and to forestall deflation, but the system would break down in a run on the U.S. gold stock. To use another metaphor, Triffin's world faced the Hobson's choice between a deflationary famine or an unstable feast.

Neither horn of the safe asset dilemma is as sharp. Several downsides have been envisioned if there is under-production of safe assets. Farhi et al. (2011) cite possible instability resulting from private substitutes. Private agents may attempt to fabricate their own safe assets and fail, as with the subprime crisis, leading to financial instability. Firms may issue short-term debt as ersatz safe debt, with resulting financial fragility. Caballero and Farhi (2013) emphasise that, with an increasing imbalance between the supply of and demand for safe assets, the spread between safe asset yields and risky asset yields would widen, and at the zero lower bound, the economy would fall into a safety trap. There, monetary policy could become ineffective in setting risky asset yields at the appropriate level and output would fall to reduce the demand for safe assets.[2] Caballero et al. (2016) suggest that currency wars can be understood as attempts to redistribute the output decline in a world of safe asset yields stuck at zero.

The other horn may seem sharper. The U.S. Treasury's credit standing would be downgraded if the U.S. political system allowed U.S. Treasury debt to grow at the pace of global growth, rather than at the slower rate of U.S. growth. At some stage, the level of

[1] See Carlson et al. (2016) for work on safe assets in the U.S. economy.
[2] Recent observations of negative government bond yields make the safety trap less likely.

debt could prevent the U.S. from responding to adverse shocks by expansionary fiscal policy, depriving the U.S. and global economy of a stabilising force. At the limit would be the choice between default and a surprise inflation that would serve to reduce government debt to a level consistent with the tax base.[3] Either one would amount to a systemic breakdown, perhaps a worse one than the dollar going off of gold. But the horn seems less sharp once it is asked at what level of debt could one safely predict a consequential credit downgrade and impairment of the U.S. capacity for countercyclical fiscal policy, much less default or hyper-inflation? Thus, the analogy between the Triffin dilemma, with its two well-defined stocks, and the safe asset dilemma is not so tight.

This article, however, examines the empirical basis for the safe asset shortage and finds that it is not as strong as is widely thought.[4] On the demand side, things look different today from as recently as 2013. In particular, the peaking of global reserves in 2014 and the continuing growth of emerging market economies belie the assumption that emerging market economies need an accumulation of safe reserve assets to grow. On the supply side, the idea that the U.S. Treasury has a monopoly on the production of quite safe assets was never well-founded.

The article sketches the original Triffin dilemma in one figure. We try to do so for the safe asset dilemma, offering two vintages of the figure in order to highlight the waning plausibility of the demand story. We return to the simple figure to emphasise the competition that the U.S. Treasury has in providing safe assets in the U.S. dollar.

The Original Triffin Dilemma in One Figure

As in Bordo (1993), Fig. 1 captures the dilemma and demonstrates how few years elapsed between the cross-over point and the closing of the gold window in 1971. The first point that is easily overlooked is Triffin's reading of the gold market. He took the real price to be too low for gold to satisfy the growing demand for global liquidity, defined as official holdings of currency and gold assets. Had the real price of gold been higher, then the sum of the two solid lines would have grown faster. The rest of the world's holdings of monetary gold (the thin solid line) could have grown without a rundown of the U.S. gold stock (the thick solid line) and without such a rise of U.S. liabilities to official agencies in the rest of the world (the thick broken line).

Given this equilibrium in the gold market (and the infeasibility or undesirability of raising the dollar price of gold), the rise of U.S. liabilities to official agencies represented for Triffin a useful supplement to the rest of the world's gold holdings. The world depended on the additions to dollar reserves to support global trade growth. So far so good.

The dilemma was that, in the absence of deflation, U.S. liabilities to the rest of the world's official agencies would surpass the U.S. gold stock. From that moment, in Triffin's view, the gold-dollar link was fated. Seven years elapsed between the crossing of the thick solid and broken lines in 1964 and the closure of the gold window in 1971, with a variety of devices like the gold pool only delaying what in Triffin's view was the inevitable.

[3] Leeper and Walker (2011) describe the fiscal theory of the price level which foresees the inflation outcome.
[4] For an earlier dissent, see Portes (2012).

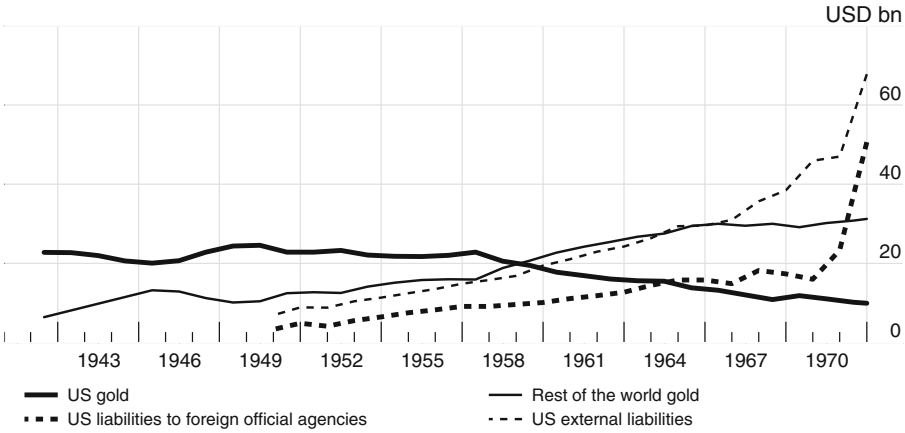

Fig. 1 U.S. liabilities to foreign official agencies and U.S. monetary gold, 1940–1971. In billions of U.S. dollars. Source: Bordo (1993)

The Safe Asset Shortage in One Figure, 2013 and 2016

The simplest rendition of the safe asset shortage is to juxtapose the stock of U.S. Treasury securities with the potential holdings of them in official foreign exchange reserves (Fig. 2). Through 2013, the U.S. Treasury was running up its debt relative to U.S. GDP at a fast-enough rate to accommodate the growth of U.S. dollar foreign exchange reserves. But double-digit rises in the stock of U.S. Treasuries outstanding in 2008–2012 were not sustainable. Between the end of 2007 and 2013, the consolidated U.S. government debt (at nominal value) rose from 57.8% of GDP to 96.9% of GDP.

One had to imagine the solid line bending down to a growth rate no higher than the U.S. economy's 4% or so nominal growth rate to anticipate a shortage. If emerging market economies were growing at 6% per annum, and their reserve to GDP ratio were stable to rising, then a shortage could be anticipated.

Indeed, the IMF (2012) projected the demand for safe assets rising on the back of a projected 61% rise in global foreign exchange reserves by the end of 2016. This

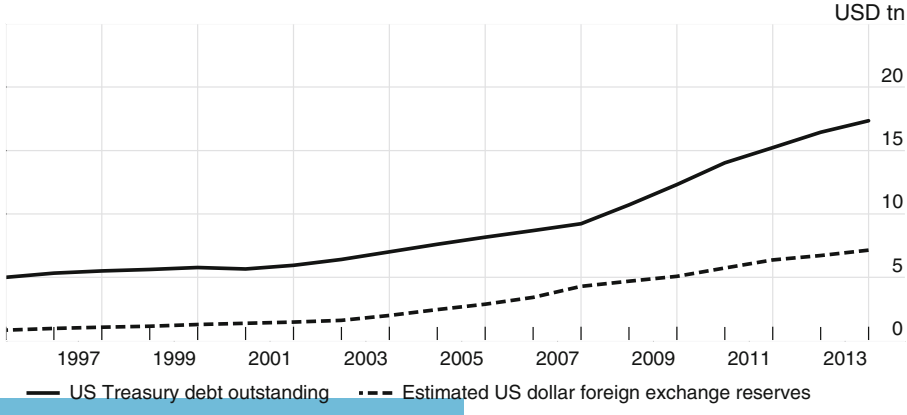

Fig. 2 U.S. Treasury debt outstanding and U.S. dollar foreign exchange reserves, 2013. In trillions of U.S. dollars. Sources: IMF (2017b); U.S. Department of the Treasury (2017a); authors' calculations

double-digit annual growth would have well exceeded global growth, much less U.S. growth. This projection would have carried global official foreign exchange reserves to near $18 trillion and U.S. dollar reserves to about $12 trillion. If the solid line in Figure 2 had flattened out and the broken line had risen smartly, a safe asset shortage scenario was not far-fetched.

But the dollar's rise in 2014 led to a break in the seemingly inexorable growth of emerging market foreign exchange reserves (Figure 3). Global reserves did not break $12 trillion at their peak in 2014 and have declined since to $10.9 trillion, showing little of the net growth projected by the IMF (2012). It turned out that the Chinese economy could continue to grow even as its reported reserves declined from about $4 trillion to $3 trillion.[5] Will 2014 prove to be "peak reserves"?

Stepping back, perhaps the secular rise in emerging market foreign exchange reserves reflected not a precautionary demand for insurance against sudden stops and other hazards of international finance. Perhaps instead it reflected the management of currencies in the face of a cycle of depreciation of the dollar that lasted, with a big interruption in 2008, from 2002 to 2011. A depreciating dollar encourages carry trades that put upward pressure on emerging market currencies. When the authorities resist appreciation, they accumulate reserves as a by-product of currency management.

As noted above, one of the ways that the safe asset shortage was expected to manifest itself was in a widening of the spread between the safe asset, on the one hand, and more risky assets, on the other. However, Fig. 4 shows that just the opposite has been associated with the selling of U.S. Treasury securities by the rest of the world's official agencies. The so-called swap spread is the difference between the U.S. Treasury yield at any given maturity and a generic private sector yield used in derivative transactions. At the ten-year maturity, we observe an anomalous negative spread between the U.S. dollar swap yield and the U.S. Treasury yield. The latter yields more (solid line in negative range in recent quarters).[6] The story told by market participants is that heavy selling of U.S. Treasury notes by official agencies (shown by the grey bars in Figure 4) has led to the premium yield on safe assets relative to this private rate. In any case, on this evidence, there is not so much a safe asset shortage as a glut.

The Safe Asset Figure Again: The U.S. Treasury Competes

If the decline in global foreign exchange reserves has been a recent turn of events on the demand side that was unanticipated by the proponents of a shortage of safe assets, then the neglect of competition on the supply side is long-standing. Maggiore and Farhi (2017) represent a notable exception, in that their model allows other countries to compete in the issuance of safe dollar assets. This element of competition on the supply side of dollar reserves recalls Swoboda (1968).

This competition emphatically does not involve much in the way of strictly private liabilities, as discussed by Farhi et al. (2011). German banks were sold private label

[5] The valuation effect of the stronger dollar on non-dollar holding in reserves implies that the decline in the stock overstates substantially the drawdown of reserves. See IMF (2017a) for an estimated decomposition.
[6] See Summers (2016) on the inconsistency of the inverted swap spread and the safe assets shortage and Clark and Mann (2016) on the inversion more generally.

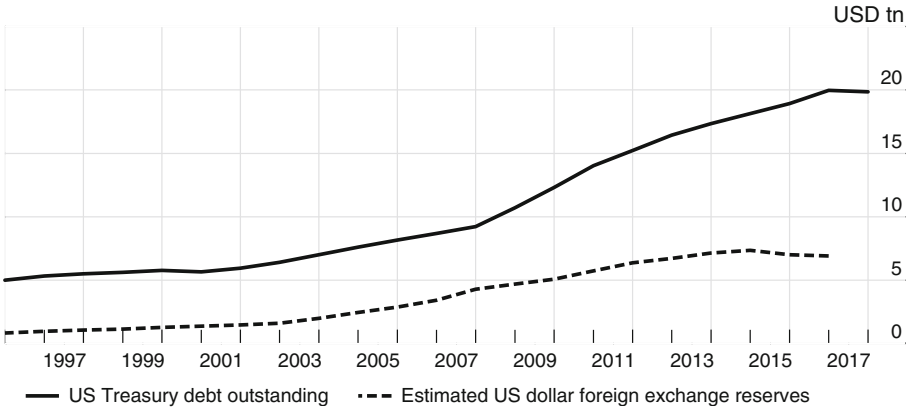

Fig. 3 U.S. Treasury debt outstanding and U.S. dollar foreign exchange reserves, 2016. In trillions of U.S. dollars. Note: 2017 U.S. Treasury debt outstanding is Q1 2017. Sources: IMF, (2017b); U.S. Department of the Treasury (2017a); authors' calculations

mortgage-backed securities in the mid-2000s, but the reserve managers of Asia were not (Ma and McCauley 2014).

Instead, reserve managers invest in the obligations of various entities that not only have their own cash flows, but also some form of government support. These include obligations of U.S. agencies, international organisations, agencies backed by prime governments outside the United States and banks headquartered in major countries. From explicit guarantees (KfW of Germany) to implicit guarantees (the U.S. agencies Fannie and Freddie before the U.S. Treasury conservatorship in 2008), to "too big to fail" support, a variety of governmental support mechanisms underpins these credits.

Figure 5 shows that identified holdings of U.S. Treasury securities by foreign official agencies are trillions of dollars less than estimated dollar reserve holdings. In June 2007, by one account, only 43% of identified U.S. dollar official reserve holdings were invested in U.S. Treasury securities (McCauley and Rigaudy 2011). As can be seen

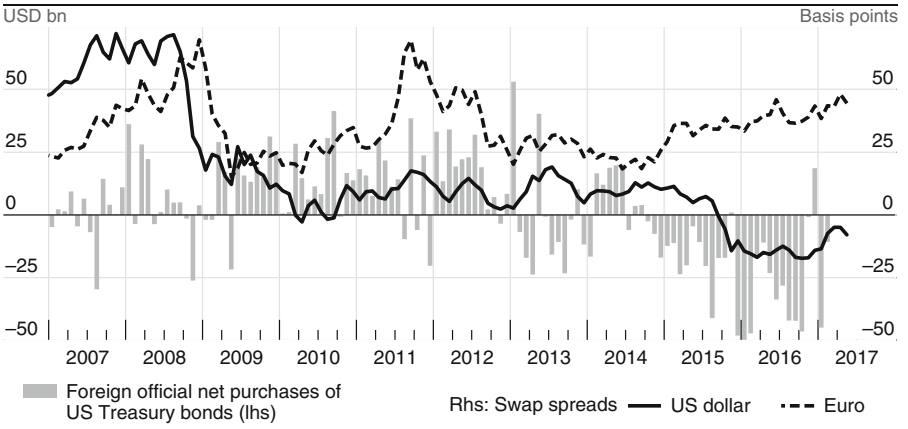

Fig. 4 Ten-year interest rate swap spreads and foreign official net purchases of U.S. Treasury securities. Monthly average of daily observations. Sources: Bloomberg (2017), U.S. Treasury (2017b); authors' calculations

in Fig. 5, this fraction subsequently rose as reserve managers cut their holdings of U.S. agencies – after the U.S. Treasury took them over – and bank deposits.

In sum, on the supply side, the assumption that only fiscal deficits can add to the supply of safe assets is too limiting. Governments can create and provide backing to safe assets out of domestic or foreign cash streams. As the conservatorship of the U.S. housing agencies indicates, this backing need not be trouble-free to be effective. The U.S. Treasury has no monopoly on the supply of safe assets denominated in the dollar.

Conclusion

Triffin's apparent success in predicting the collapse of Bretton Woods attracts arguments about macro-financial quantities with unbalanced growth that may imply systemic instability. This article casts doubt on the empirics of one such argument.

The idea that emerging market demand for safe assets will allow U.S. Treasury profligacy, or otherwise cause instability, relies on a stable, secular demand for foreign exchange reserves. Since 2014, the facts have put the inevitability of a secular build-up in emerging market foreign exchange reserves into question. The demand for safe assets that was interpreted as the secular result of underdeveloped financial markets increasingly looks like the cyclical result of dollar depreciation and associated carry trades.

The idea that only U.S. fiscal deficits can provide dollar denominated safe assets relies on a narrow theory of the production of safe assets. It ignores the extension of sovereign support to assets like mortgages, export credits, and development loans. Both the U.S. government and other well-rated governments extend such support and thereby allow highly rated dollar bonds to be created against such assets without fiscal deficits.

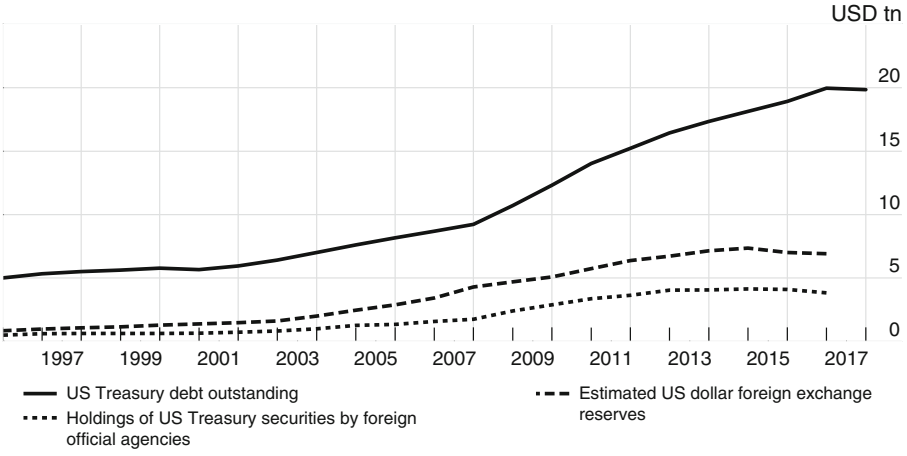

Fig. 5 U.S. Treasury debt outstanding, U.S. dollar foreign exchange reserves and official holdings of U.S. Treasury securities. In trillions of U.S. dollars. Note: 2017 U.S. Treasury debt outstanding is Q1 2017. Sources: IMF (2017b); U.S. Department of Commerce Bureau of Economic Analysis (2017); U.S. Department of the Treasury (2017a); authors' calculations

Acknowledgements The authors thank José Maria Vidal Pastor for research assistance. The views expressed are those of the authors and not necessarily those of Rutgers University or the Bank for International Settlements.

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