

## Towards an international lender of last resort

Stephen G Cecchetti<sup>1</sup>

In his insightful and comprehensive review of the lender of last resort, Paul Tucker frames the discussion as one of how to best structure the provision of liquidity reinsurance.<sup>2</sup> Because banks provide liquidity insurance in the form of both demandable deposits and callable credit lines, their funding structure puts them at risk of asset fire sales, runs and failure. These have externalities. Fire sales, runs and failures all damage the system as a whole. This creates the need for a liquidity reinsurer. And the only credible reinsurer, the sole entity that can provide liquidity in all states of the world, is the central bank – the lender of last resort.

As fraught as it is, the lender of last resort is an essential element of a financial system that can withstand significant stress and continue to provide services to the economy at large. As Tucker describes in detail, it is possible to design a system that meets society's financial stability objectives. One that mitigates the moral hazard that leads institutions to sell too much liquidity insurance; moderates the adverse selection that arises from the fact that you only borrow from the central bank if you are desperate; and limits the central bank's temptation to use access, collateral and haircut rules to allocate credit. That is, it is possible to design a *domestic* reinsurance system – one in which there is a backstop for intermediaries providing liquidity insurance in the currency of their domestic central bank.

What about transactions in foreign currencies? What if an intermediary issues demandable deposits in a currency other than their domestic money? Who provides the reinsurance then?

During the financial crisis of 2007–09, authorities addressed this need for foreign currency liquidity in two ways. In the first, domestic authorities utilised their often substantial foreign exchange reserves. Intermediaries in their jurisdiction were eligible to borrow in foreign currency from the central bank. Argentina, Brazil, Korea and the Philippines provided US dollars to foreign exchange swap markets, repurchase agreements in which currency was provided in exchange for foreign currency denominated receivables or securities, and outright loans. But the finite size of foreign exchange reserves limited the degree of insurance the local central bank could provide.

This brings us to the second solution: swap lines between central banks. Here, the domestic central bank acts as the intermediary, borrowing from the issuing central bank and lending on to the domestic institution in foreign currency. Foreign currency liquidity reinsurance is being provided to intermediaries by the domestic

<sup>1</sup> Professor of International Economics, Brandeis International Business School; Research Associate, National Bureau of Economic Research; and Research Fellow, Centre for Economic Policy Research. These remarks were prepared for the BIS workshop "Rethinking the lender of last resort", Basel, 15 May 2014. I wish to thank Dietrich Domanski, Paul Tucker and Kim Schoenholtz for discussions that helped clarify my thinking on the issues discussed here. All errors are my own.

<sup>2</sup> P Tucker, "The lender of last resort and modern central banking: principles and reconstruction", in this volume.

central bank in the first instance, with reinsurance at the government level provided by the issuing central bank in the second.<sup>3</sup>

The most prominent (and effective) version of this second solution involved the use of the Federal Reserve's central bank liquidity facilities. Beginning in December 2007, central banks borrowed US dollars, secured by their own currency, and then lent the proceeds on to institutions in their jurisdictions. As the crisis progressed, the central banks with access to the swap facilities eventually expanded to 14.<sup>4</sup> Since one was the ECB, and the euro area included 15 members at the time, you could say that nearly 30 countries had access to dollars directly from the Federal Reserve. That access peaked at borrowings of \$553 billion in December 2008.<sup>5</sup>

The provision of foreign currency liquidity by central banks during the crisis was creative and effective. But the programmes were devised and implemented under significant pressure, so it is worthwhile, with the benefit of time, to step back and think through the issue more carefully. How should we manage the risks arising from the fact that intermediaries offer liquidity insurance in foreign currency?

There are five possibilities:

1. ban or restrict the activity through domestic prudential actions;
2. make reinsurance the responsibility of the authorities where the activity is taking place;
3. supply reinsurance through regional pooling of foreign exchange reserves;
4. obtain reinsurance from a supranational institution such as the IMF; or
5. make reinsurance the responsibility of the central bank that issues the currency.

We can go through each of these in turn, starting with the first. Banning intermediaries from offering foreign currency accounts is not only naïve, it is foolish. It is naïve because people will find ways to transact in foreign currency regardless of the rules we might make, and it is foolish since it would dramatically reduce cross-border financial activity. On the first, I note that the eurodollar market developed both in response to capital controls and the Soviet Union's fear of US government seizure.<sup>6</sup> Foreign currency transactions arise as a form of tax and regulatory arbitrage, so effective enforcement of such restrictions would require a degree of international coordination that is nearly impossible to imagine. As for the second, as international diversification has grown, so have gross cross-border asset positions. Today, these are on the order of 150% of GDP, something in the range of

<sup>3</sup> See R Moreno, "Central bank instruments to deal with the effects of the crisis on emerging market economies", *BIS Papers*, no 54, December 2010, for a complete discussion of tools used.

<sup>4</sup> Until 1 February 2010, the list included the Reserve Bank of Australia, the Central Bank of Brazil, the Bank of Canada, Danmarks Nationalbank, the Bank of England, the ECB, the Bank of Japan, the Bank of Korea, the Bank of Mexico, the Reserve Bank of New Zealand, the Central Bank of Norway, the Monetary Authority of Singapore, Sveriges Riksbank and the Swiss National Bank. Since then, the list has been Bank of Canada, the Bank of England, the ECB, the Bank of Japan and the Swiss National Bank.

<sup>5</sup> These needs arose from the dollar funding needs of banks outside the US; particular those in Europe banks, which by mid-2007 were well in excess of \$1 trillion. See G von Peter and P McGuire, "The US dollar shortage in global banking", *BIS Quarterly Review*, March 2009, pp 47–63.

<sup>6</sup> The original eurodollar market is an example of this. For a brief description, see S Cecchetti and K Schoenholtz, *Money, Banking and Financial Markets*, 4th edition, 2014, pp 335–36.

\$120 trillion at market prices. Someone has to bear the exchange rate risk that is embedded in these cross-border transactions. Precluding banks from being a part of this would surely be catastrophic.

This means that in order to ensure that we continue to reap the benefits of global finance, we have to allow banks to provide liquidity insurance in foreign currency.<sup>7</sup> And if there is private insurance there must be public reinsurance.

Short of an outright ban, domestic prudential measures definitely have their place. The analogue to liquidity regulation, which is typically framed in terms of domestic currency, is apt. It is natural for regulators to place limitations on combined maturity and currency mismatches on bank balance sheets. But, in the end, restrictions of this sort will be limited to the degree that a country wishes to benefit from participation in the global system.

Moving to the second possibility, should we simply make foreign currency liquidity reinsurance the responsibility of the central bank where the activity is taking place? If the Bank of England lets intermediaries in London create liabilities in US dollars, or the Bundesbank allows banks in Frankfurt or Berlin to do the same, isn't it their problem? Since the reinsurer has to have a reserve fund to pay off in the case of an insurable event, this approach implies that the responsible central bank should have sufficient reserves to meet the liquidity demands in their financial systems in the event that there is significant stress. Keep in mind that the issue is not what to do in the event of an idiosyncratic shock to a single institution, but what happens when there is stress on the system as a whole.

The desire to have sufficient foreign exchange reserves on hand to manage such a systemic event is surely one reason for the very dramatic accumulation over the past decade. Aggregate foreign exchange reserves are now close to \$14 trillion, or nearly 20% of global GDP. The cost of this is extraordinary. For each percentage point that the real return on these reserves is below the global marginal product of capital, someone is paying 0.2% of global GDP per year! And, those that are paying are primarily low-income countries.<sup>8</sup>

It is in an effort to reduce these costs that countries have worked to form regional reserve pooling arrangements. If countries have access to one another's reserves through multilateral agreements like the Chiang Mai Initiative,<sup>9</sup> then they will have less need to hold precautionary reserves of their own. Two issues arise immediately. First, how can the group ensure that it has sufficient collective resources should there be a global, systemic event? And second, is there really a sufficient reduction in the cost to warrant the complex governance structure needed to make such an agreement work? It is surely better than every country going its own way; but because the fund will have to be quite large, it seems unlikely to be

<sup>7</sup> It is worth noting that, if central counterparties (CCPs) engage in the clearing and settlement of foreign exchange-denominated derivatives, they will be providing a form of liquidity insurance as well. Given this, CCPs may also require liquidity reinsurance. I will not consider this separately, as it is a simple extension of the process for meeting the needs of banks.

<sup>8</sup> Granted, countries hold foreign exchange for a number of reasons, including defending their exchange rate. But in the end, these are held to manage capital outflows that will occur when their economies and financial systems are under stress.

<sup>9</sup> Initiated in 2000 and enhanced in 2007, the Chiang Mai Initiative is a multilateral swap agreement among 10 countries in East Asia – the ASEAN+3 – that draws on a reserve pool that is currently \$240 billion.

much better. And, in the end, it is hard to see how the size of such an insurance fund can be big enough without the ultimate support of the issuing central bank.

The fourth approach is to have supranational institutions managing shortages in foreign currency. The IMF's Flexible Credit Line (FCL), created in 2009, is an example. The FCL provides qualified countries with guaranteed access to financing for a fee. At this writing, Colombia (\$6.2 billion), Mexico (\$73 billion) and Poland (\$33.8 billion) have obtained committed lines of credit through the FCL – lines that none of them have drawn. In thinking about the future of such arrangements, the natural question is whether the IMF can obtain sufficient resources to offer a programme that would be big enough when it is really needed. Could the IMF have supplied the nearly \$600 billion that was drawn through the Federal Reserve swap facilities in late 2008? Unless there is a way to ensure resources that are nearly unlimited – as the swap lines are – it is hard to see how a supranational institution would be able to meet the demand for foreign currency in the case of a truly systemic event.

This brings me to the final option: the central bank of issue provides the liquidity reinsurance across borders. As we have seen over the past six and a half years, central bank swap facilities are a practical solution. And, I would assert, since the problem is likely to occur only in the currency of a large country whose currency is broadly used for both cross-border transactions – current and capital account – it will be impossible to commit to *not* provide the reinsurance. The reason is that the collapse of the foreign market for the reserve currency will inevitably reverberate through the economy of the country of issue. That is, the currency use itself is a globally systemic activity, whose collapse has an effect on everyone.

I should emphasise that in discussing my list of five solutions to the financial stability risks posed by foreign currency-denominated intermediation activities, I do not mean to suggest that the items are somehow mutually exclusive. That is, adopting one or even two of the solutions does not preclude implementing a third or fourth. They are clearly complementary. For example, if a country and region were to take up options 2 and 3 – domestic and regional foreign currency self-insurance – this in no way stops them from pursuing a swap line as described in option 5. In fact, following the insurance analogy to its logical conclusion, the external reinsurer may even require some self-insurance in order to reduce the moral hazard inherent in the arrangement. The same logic applies to reinsurance provided by a supranational institution – some self-insurance may be a prerequisite.

So far, I have tried to make points that are fairly general. It is now worth turning to the specific case that we face today: the extensive offshore use of the US dollar and the role of the Federal Reserve in providing liquidity outside its national borders. There is broad agreement that the United States benefits from the fact that so many transactions are denominated in dollars. The status of the dollar in global trade and finance both insulates the US economy from fluctuations in the value of its currency and provides a large demand for dollar-denominated assets. The value to the United States is absolutely enormous. We can do a few simple computations to get some sense of the size.

The reserve currency issuer benefits in two ways. First, there is a constant demand for securities issued by the country. And second, the country faces reduced financing costs. The current consensus seems to be that the United States receives a

financing benefit in the range of 0.5% of GDP per year.<sup>10</sup> As big as this is, it pales by comparison with the demand for securities. As is described elsewhere, this appears to be between 2% and 2½% of US GDP.<sup>11</sup> Adding these together, I conclude that the US gross benefit from being the issuer of the reserve currency is around 2½ to 3% of US GDP per year. Since the United States represents 23% of world GDP, this equals something in the range of 0.6% of global GDP.

There are also costs to being the issuer of the reserve currency. Primary among them is that this demand for reserve currency assets tends to push the value of the currency up and encourage borrowing from abroad. This flip side of the currency account deficit has distortionary effects on the domestic economy. It creates sectoral imbalances, disadvantaging both export industries and domestic import competitors, and it encourages borrowing from abroad. As we saw during the recent financial crisis, the latter can be particularly damaging if and when the leveraged asset prices turn from boom to bust. But it is difficult to see these as being on the same order of magnitude as the benefits.<sup>12</sup>

In fairness, the rest of the world does gain from the existence of a reserve currency. The easiest benefit to see comes from the fact that the reserve currency is the de facto international numeraire. What this means is that, instead of having  $n(n-1)/2$  currency markets, we only need  $(n-1)$  with the US dollar as the other side of each. For a world with at least 150 currencies, that's the difference between 149 markets and 11,175. This is why the US dollar accounts for one side of nearly 90% of foreign exchange transactions.<sup>13</sup> Even if there were no reserve currency, the market would create one simply as a way to reduce transaction costs. But it is hard to see these benefits as being anything close to the costs.

Here's where we stand. To a large extent, the global financial system is running on US dollars. Enormous benefits accrue to the United States, while the rest of the world bears large costs. Given this, should the United States help reduce these costs?

So far, the Federal Reserve has set up swap lines that meet its domestic interests. If a country or jurisdiction is systemically important *for the United States*, then it has been offered a dollar swap line. We can see this in the list of central banks that have unlimited access to liquidity swaps. Since early 2010, the

<sup>10</sup> This number is in substantial dispute. I have used the very conservative estimate of 50 basis points from S Curcuru, T Dvorak and F Warnock, "On returns differentials", Board of Governors of the Federal Reserve System, *International Finance Discussion Papers*, no 1077, April 2013. Dividing foreign holdings of \$14.6 trillion from the TIC data by 2014 GDP of \$17.1 trillion and multiplying by 50 basis points yields 0.5%.

<sup>11</sup> See S Cecchetti and K Schoenholtz, "How big can the US current account stay?", [www.moneyandbanking.com](http://www.moneyandbanking.com), 5 June 2014.

<sup>12</sup> A few years ago, a group of researchers at the McKinsey Global Institute put everything together and concluded that the net benefit to the US is in the range of 0.5% of GDP. Their estimate seems quite small as a consequence of the fact that they treat the current account deficit as primarily a cost to exporters and import competitors who supply less, rather than a benefit to households that can consume more (for a very long time). See R Dobbs, D Skilling, W Hu, S Lund, J Manykia and C Roxburgh, "An exorbitant privilege? Implications of reserve currencies for competitiveness", McKinsey Global Institute, December 2009.

<sup>13</sup> See the BIS Triennial Central Bank Survey of foreign exchange and derivatives market activity in 2013.

programme has included only five central banks: the Bank of Canada, the Bank of England, the ECB, the Bank of Japan and the Swiss National Bank.<sup>14</sup>

Would it also be in the US's enlightened self-interest to provide dollar liquidity beyond this rather short list of countries during a crisis? If it wishes to maintain over the long run the benefits of having the US dollar as the reserve currency, the answer is yes.

However, things get complicated immediately. There are problems analogous to those faced by the domestic lender of last resort: moral hazard, adverse selection and overstepping of one's mandate. On the first, if they have a backstop, countries will be tempted to allow their banks to provide too much foreign currency liquidity insurance to facilitate trade and capital flows. Controlling moral hazard will require a combination of international standards that restrict activity and a sufficiently high price charged by the Fed for the dollars – a penalty rate à la Bagehot. On adverse selection, there will have to be some mechanism for ensuring that the least creditworthy countries aren't the ones at the head of the line asking to swap their compromised currencies for dollars. Something similar to the IMF's prequalification mechanism may ultimately be required. And, since relying on an external organisation is likely to be even more politically charged than doing it at home, one of the costs of being the supplier of the reserve currency may be that the Fed will have to employ a small staff of people who evaluate whether a country qualifies for a swap line. As for stepping on other people's toes, the US president may well view providing dollars to a foreign central bank, and hence to a foreign country, as foreign policy. Some people already view swap lines as beyond the bounds of the Fed's agreed activities. Political support for a broader extension of dollar liquidity provision is not in evidence.<sup>15</sup>

Among the many lessons that we learned from the events of the last decade is that a financial system requires a lender of last resort. Domestic financial stability requires having a central bank that can provide domestic currency to ensure the system remains liquid. By the same token, if we are to continue to benefit from the movement of goods, services and capital across borders, then we need a system that efficiently allocates the foreign exchange risk arising from the transactions that support these activities. And the facilitation of cross-border transactions and the allocation of the associated risks inevitably require that banks provide liquidity insurance in foreign currency. In the vast majority of cases, this means dollar liabilities. Ensuring financial stability in such circumstances requires that, when they face a liquidity crisis, banks outside the United States have access to dollars. So long as the global financial system runs on dollars, something that is likely to be the case for some time to come, it is to the benefit of the United States that the Federal Reserve finds a way to provide such access.

<sup>14</sup> See footnote 3 for those central banks with access at the height of the crisis.

<sup>15</sup> There is also what I would consider to be a legal detail. The swap lines are the responsibility of the FOMC, and they require annual reauthorisation as a matter of law, so permanence cannot be assumed.