

Evaluating enhancements to reserve management

As markets have opened up and controls are being relaxed, central banks are under increasing pressure to achieve the correct balance between risk and return when calculating the level of reserves to hold. David Smart, Managing Director of Strategic Advisory, Sovereign & Institutional Funds, Franklin Templeton Solutions, discusses developments in this field over the past 25 years.



FRANKLIN TEMPLETON
INVESTMENTS

Over the past 25 years, since the founding of the *Central Banking* journal, the growth in central bank reserves – which has been exponential over that period – has been more than matched by the degree of complexity the managers of those reserves face today. As my colleague Dr Mark Mobius, executive chairman of Templeton Emerging Markets Group, often remarks, when he started investing in emerging markets for Franklin Templeton, also some 25 years ago, he was only able to invest in six markets. He and his team can now access scores of markets and the link with the complexity of reserve management is quite clear: as markets have opened up and foreign exchange controls have been relaxed, the opportunity for increasingly mobile capital to roam the world seeking the best risk-adjusted returns has become very significant.

Those opportunities for the world's managers of capital can, however, cause headaches for central banks attempting to maintain the value of their national currencies. In recent years, these pressures have, in some cases, resulted in punitive taxes to deter speculative capital, such as in the case of Brazil, when the real was under upward pressure. In other nations it has been suggested that some form of capital controls should be reintroduced, for example, in Nigeria earlier this year. In this short paper I attempt to consider some of the developments in reserve management over the past 25 years, the problems that financial repression currently pose and the exceptional challenge of seeking an optimal level of reserves without undue cost but with the ability to deal with sudden shocks to capital flows.



David Smart joined the Franklin Templeton Group in 1988 as senior vice president and head of fixed income with Fiduciary Trust in London, subsequently taking on responsibility for all fund management and institutional marketing initiatives in Europe, the Middle East and Africa, and was a member of the Global Investment Committee for 15 years. In August 2008, he was appointed to his current position, spearheading the group's global efforts in the sovereign fund and supranational area using his strong investment background and experience of providing strategic asset allocation advice to institutional clients. David also sits on a number of the group's subsidiary boards, including the Luxembourg Société D'investissement à Capital Variable.

In November 2008, he was appointed chairman of the National Trust Investment Committee, which oversees the \$1.6 billion endowment fund of the charity that preserves many of Britain's historic buildings. In March 2010 David was appointed external adviser to Beazley, a publicly quoted Lloyds of London specialist insurer. He has six years of experience as an international bond manager with Baring Brothers & Company and County NatWest Investment Management. David holds an MA in classics from St John's College, Cambridge.

Understanding capital flow dynamics As a 2013 Bank for International Settlements (BIS) working paper argues, there can be significant costs associated with the maintenance of very large foreign exchange reserves, and the paper shows that China actually earns negative net income on its large net foreign assets.¹ At the same time, models used to assess reserve adequacy – such as those put forward by Greenspan and Giudotti in the late 1990s or, more recently, by Jeanne and Rancière² – have been challenged by unexpected and sudden flows of capital and many are equally challenged to explain, predict or even understand their magnitude and speed. This year, the Institute for International Finance (IIF) has attempted to develop market understanding of capital flow dynamics with the launch of a monthly publication, while the IIF's longer-standing survey, based on the emerging market bank-lending conditions indicator, has proved a valuable tool in assessing liquidity in emerging markets.

As I have had the privilege of observing reserve managers at work over the past 25 years, the most significant development has probably been in the use of risk management systems. The enormous advances in technology have led to possibilities that previously were unthinkable, and there are a number of central banks that have developed state-of-the-art risk management systems that analyse risk in the reserve portfolio in great detail. As an example, Banco do Brasil has developed an internal system that is widely admired and indeed perhaps appropriately named after Zeus, the ruler of the mythical Olympian gods. This sort of development has led to the ability to manage reserve assets with an attention to detail that was simply unavailable 25 years ago.

It is also worth noting the increasingly diverse nature of the investments in reserve portfolios, largely attributable to the accrual of reserves to levels far beyond those that would be considered necessary purely for intervention purposes. It is thus not unusual to find central banks with various types of credit in their fixed-income portfolios and equities as an additional asset class with attractive risk reduction characteristics, as well as return-enhancing potential. The Bank of Israel, for example, has been very clear about the rationale for including equities in its reserve management programme. As noted above, however, the additional

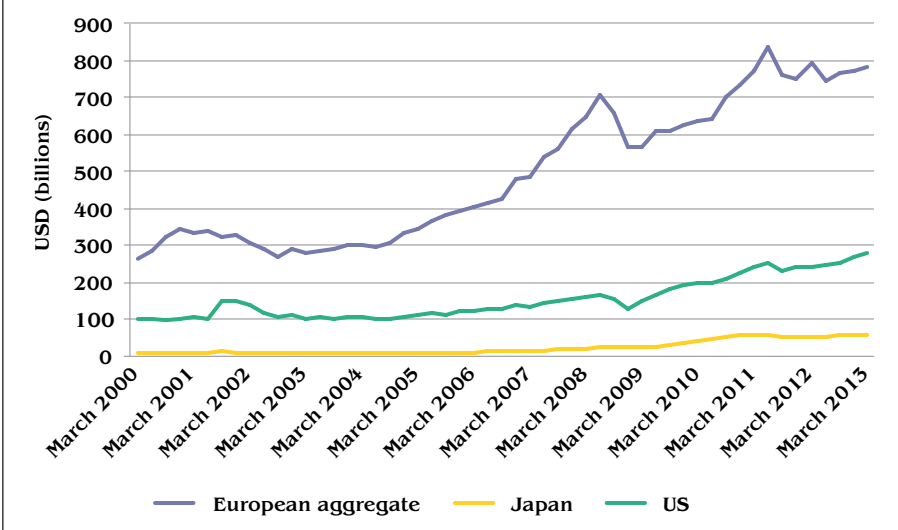
degrees of sophistication witnessed in the reserve management space have been accompanied by a bewilderingly complex world of sudden shocks and contingent liabilities, some of which – as I shall attempt to demonstrate – have been far more difficult to predict or model than to explain with the benefit of hindsight.

There is a significant body of academic and supranational literature on the subject of sovereign asset/liability modelling, which is testament to the degree of development that has occurred in this area, particularly in the 21st century. The fact that this discussion started to build up at the turn of the century is probably connected to the publication of the Greenspan-Guidotti rules of reserve adequacy and analysis of the Asian and Russian crises in 1997 and 1998.³ The analysis identified debt management issues to be just as much a source of problems as those posed by overvalued exchange rates; overreliance on short-term funding could expose otherwise perfectly creditworthy sovereigns to severe strains, as Korea discovered to its cost. Probably the most comprehensive guide to this field was published by the International Monetary Fund (IMF) in October 2012, which analyses in considerable detail the complexities that the incorporation of liabilities and, in particular, contingent liabilities into a framework of asset/liability management poses.⁴

As noted in that paper, there are frequently institutional or governance hurdles to overcome in moving towards this approach, as different public bodies may be responsible for the debt and asset management of the sovereign. However, if it is assumed that such hurdles can be overcome through sufficient collaboration, it is possible to harness significant technological power to build models that attempt to capture all of the relevant data points. Of those presented in appendix 1 of the IMF paper, my preference is for the dynamic stochastic optimisation model; as noted by Romanyuk, it can “incorporate low-probability, high-impact scenarios.”⁵

The contingent claims analysis approach, also considered in that appendix, is also worth looking at in more detail, particularly in light of the examples offered later in this paper. It is, however, perhaps only too easy to assume such models will work effectively to aid the overall asset/liability management process. As we saw during the financial crisis, markets have a nasty habit of finding new ways of surprising participants and there are some highly relevant, more recent examples of seemingly unconnected events that have had a significant impact on foreign exchange reserve managers. Many experienced market participants know only too well that normal probability distribution may cover market moves most of the time but, in more extreme conditions, there is a negative skewness that many models find difficult to capture.

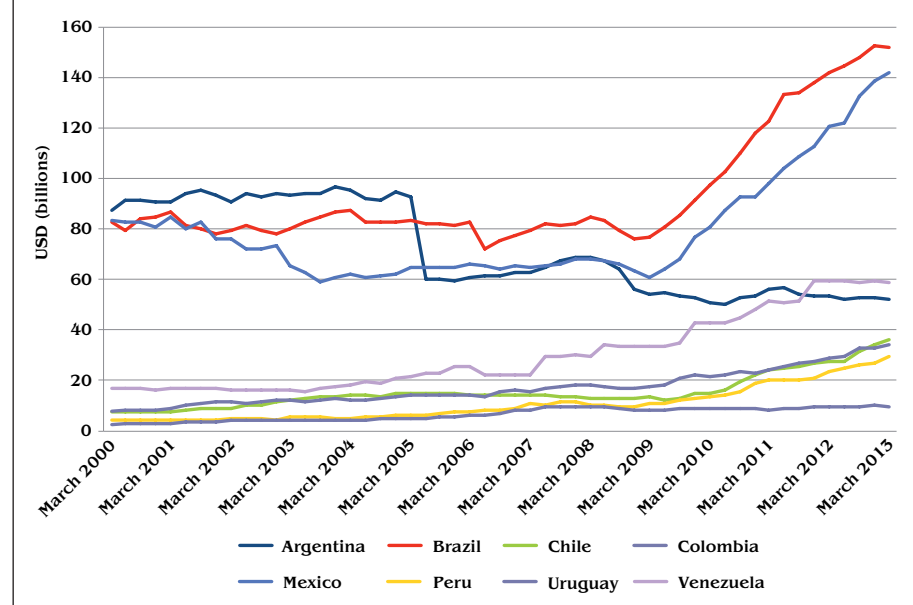
For example, during the eurozone crisis in 2011, US regulators warned US money-market funds that they had more exposure to French banks than was considered prudent. Understandably, the managers responsible for those funds began to reduce their exposure to French banks, thereby causing strains in the dollar-funding base of those institutions. The BIS publishes detailed statistics showing the extent to which bank credit to emerging markets is dominated by European banks, mostly denominated in dollars. Not surprisingly, with the benefit of hindsight – though it took some months at the time to figure out what was happening – French banks began to reduce or cut lines to a wide range of emerging market economies and, as chart 1 illustrates, there was a significant contraction in the amount of bank credit outstanding that autumn. The strains reported in dollar-funding markets in

Chart 1. Total lending to Latin American emerging markets (2000–2013)

Asia and Latin America, in particular, were testament to the shortage of dollars emanating from US regulators' response to a European crisis. This is exactly the sort of unanticipated chain of events the dynamic stochastic modelling option may just capture, but it also argues that there is probably just as much need for detailed fundamental analysis combined with strong interpretational analysis as there is for models. It is worth remembering that the success of the mathematicians led by Alan Turing at Bletchley Park in deciphering the Enigma code needed to be matched by the interpretational skills of their analytical colleagues, led by Harry Hinsley. The need for analytical lateral thinking to complement models and help in exploring the possibilities of events that are so frequently described as 'one in 100 years', but have an annoying habit of cropping up twice in a decade, has arguably never been greater.

The impact of debt on foreign exchange More recently, the build-up of debt in international capital markets by the private sector appeared to result in exchange rate strains, which ultimately fall on the central bank to deal with. As chart 2 illustrates, since the global financial crisis there has been a significant accumulation of international debt by Latin American companies. Markets have tended to focus on EPFR Global Fund Data to monitor the flow of funds to or from emerging markets, but it has become clear that, at times, it is intrinsically unlikely that redemptions in US and European mutual funds can explain the magnitude of some of the currency moves we have seen in the past year or, indeed, the size of intervention required to stabilise currencies. Unhedged private sector dollar liabilities can be equally influential in determining both exchange rate appreciation during the debt accumulation phase as dollar proceeds are repatriated into the local currency, and depreciation when concerns appear that the dollar may be about to appreciate based on changes in US monetary policy.

These are by no means the only examples of the challenges faced by central banks attempting to adopt asset/liability modelling techniques. During the crisis, previously unknown option positions booked offshore by a Mexican supermarket chain caused havoc in the foreign exchange market for the peso. There is now

Chart 2. International debt securities issues in Latin American emerging markets (2000–2013)

much greater emphasis on ensuring that such positions are reported to central banks on a timely basis. These examples demonstrate it is not easy to attempt to combine reserve management strategy with liability management, though it is arguably desirable to do so.

A further area of complexity for the reserve management community is that of **The rise of the renminbi** increasing dramatically over the past few years. The resultant change in the composition of trade-weighted baskets against which reserve pools are managed has, in some cases, been pronounced, as the South African Reserve Bank demonstrated last year. The resultant conundrum of seeking to invest a reasonably substantial portion of reserves in a new bond market with settlement procedures that differ significantly from those in the Group of 7 markets – where the majority of reserves are usually invested – and may not offer the liquidity normally demanded for reserves is causing headaches for a number of reserve management departments, although the move to internationalise the renminbi by the Chinese authorities will surely help resolve some of these issues in the next couple of years.

Overall, while very significant enhancements to the process of reserve management have occurred in the past 25 years, so have the complexities. And, with continuing financial repression in the form of exceptionally low interest rates, the role of the reserve manager has arguably never been more demanding. The development of liability management techniques in the past decade, which I have touched on briefly, is undoubtedly a step in the right direction in terms of achieving greater risk awareness. There is, however, no easily discernible answer in the current economic environment as to how to achieve the right balance between risk and return when the fiscal cost of holding reserves for many countries is so high and yet there exists the

Restoring stability to emerging markets

The theme of differentiation remains an important one across emerging markets. Those that have not taken the right path in reform and, in the case of India, for example, suffered from monetary policy mistakes over the past few years are now faced with having to take extraordinary – though, it must be said, very imaginative – measures to attempt to restore some stability. The exploitation of the Indian diaspora's wealth through offering three- to five-year swaps at non-market rates yielded spectacular results in terms of adding more than \$30 billion to India's reserves. It is also testament, however, to the strains caused by lack of progress on reform.

In summary, while strong fundamental cases remain in many emerging and frontier markets, there are a number in which the problems of current account deficits in particular suggest caution in investing.

Perhaps the biggest challenge for some emerging markets is the extent to which growth has been propelled in the recent past by a significant build-up in debt, largely taken on in foreign currency. As charts 1 (page 76) and 2 (page 77) illustrate, this is particularly the case in Latin America and has arguably been a powerful contributor to recent instability.

risk of sudden stops in markets. As I have attempted to argue, the stochastic models that are being used offer the most realistic chance of success. From an internal governance perspective, their use – combined with the interpretative fundamental analysis of capital flows – offers the best chance of a successful and transparent approach to reserve management. The degree to which central banks have become more transparent has been a noticeable and welcome feature over the past 25 years and has been very helpful in creating an environment of constructive debate. □

Notes

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3. Greenspan, Alan (29 April, 1999), *Currency Reserves and Debt*, before the World Bank Conference on Recent Trends in Reserves Management, Washington, DC, <http://www.federalreserve.gov/boarddocs/speeches/1999/19990429.htm>
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