



# Alternatives to self-insurance<sup>1</sup>

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Let me begin by thanking the Swiss National Bank and Philipp Hildebrand, and the IMF and Dominique Strauss-Kahn, for including me in this very important event and in such distinguished company.

I will divide my brief remarks into three parts: current foreign exchange reserves, cross-border stresses in capital markets during the recent crisis and how they were resolved, and possible solutions going forward.

## The size of foreign exchange reserves

At the end of 2009, global foreign exchange reserves across all countries stood at \$8.1 trillion, equivalent to about 14% of world GDP. Foreign exchange reserves have also grown very rapidly over the past decade, more than quadrupling in nominal terms.

Over half of all reserves are held by just five countries – China, Chinese Taipei, Japan, Russia and Saudi Arabia (Table 1). And the growth in these countries' reserves account for \$4.0 trillion of the \$6.3 trillion change from 1999 to 2009.

Why did this increase in reserves happen? Here are three possible reasons:

- Self-insurance
- As a by-product of exchange rate policies
- As the result of a commodity stabilisation fund or a fund for the future

Before I go on to address the topic of this session, I think it is worth stating up front that I do not see self-insurance as a plausible explanation for the very large stocks of reserves held by some countries. Some of the differences in the figures in the table are difficult to reconcile as resulting from differential external risks.

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<sup>1</sup> Views expressed here are those of the author and do not necessarily reflect those of the BIS. I would like to thank Michael Davies, Dietrich Domanski, Robert McCauley and Jhuvesh Sobrun for their contributions.



Table 1  
Foreign exchange reserves

	End-1999		End-2009			
	In billions of US dollars	As % of GDP	In billions of US dollars	As % of GDP	As % of short-term external debt <sup>1</sup>	As % of money <sup>3</sup>
China	155	14	2,399	49	1,598	29
Japan	278	6	997	20	202	12
Russian Federation	8	4	406	33	611	97
Saudi Arabia	15	10	397	107	1,204	150
Chinese Taipei	106	36	348	92	868	40
Korea	74	16	265	32	174	22
India	32	7	259	21	302	25
Hong Kong SAR	95	58	245	116	252	29
Brazil	35	6	232	15	301	22
Euro area	228	3	195	2	4	2
Singapore	77	93	186	105	163	74
World	1,783	6	8,086	14	60 <sup>2</sup>	...

<sup>1</sup> Short-term external debt is calculated as the sum of outstanding international claims (up to one year) of BIS-reporting banks on an immediate borrower basis by vis-à-vis country and outstanding international debt securities (with remaining maturity up to one year) on a residency basis. <sup>2</sup> Sum for countries reporting international bank lending and debt securities data to the BIS. <sup>3</sup> M2 for China, Chinese Taipei, the euro area, Japan, Korea and the Russian Federation; M3 for Brazil, Hong Kong SAR, India, Saudi Arabia and Singapore.

Sources: IMF, *International Financial Statistics*; IMF, *World Economic Outlook*; Datastream; national data.

That said, one of the lessons of the crisis is that, if we want to benefit from globally integrated financial markets, we will need to manage the combination of currency and maturity mismatches that this implies. And, in order to ensure financial stability, we need a global framework.

## Cross-border stresses during the crisis

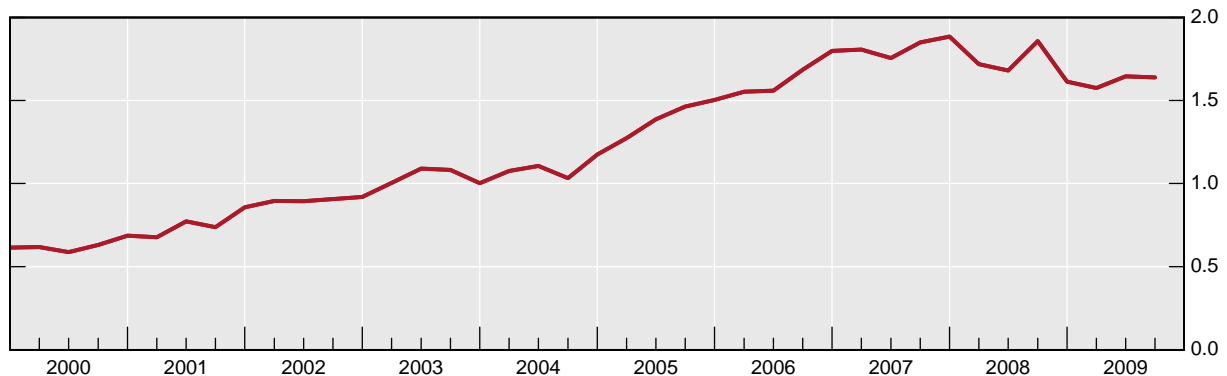
To give you some idea of what I am talking about, let me point to how central banks and others dealt with the global dollar shortage during the crisis. If you turn to Graph 1, you will see that non-US banks went into the crisis with huge funding needs in dollars. This graph, generated from the BIS banking statistics, shows a lower estimate of the short-term US dollar funding needs of long-US dollar banks. This includes Canadian, Dutch, German, Japanese, Swiss and UK banks. As shown in Graph 1, this US dollar funding gap reached some \$1.8 trillion by mid-2007. The gap was funded mainly through the FX swap market, but also partly through the interbank market and from wholesale providers like monetary authorities and money market funds.



Graph 1

**Long-US dollar banks' dollar funding gap<sup>1</sup>**

Net position vis-à-vis non-banks, in trillions of US dollars



<sup>1</sup> This estimate is constructed by aggregating the on-balance sheet cross-border and local positions reported by Canadian, Dutch, German, Japanese, Swiss and UK banks' offices. These banking systems have net long US dollar asset positions. The estimate is the sum of estimated net cross-currency funding, net interbank borrowing and net borrowing from monetary authorities. This is a lower bound estimate.

Sources: BIS consolidated statistics (immediate borrower and ultimate risk basis); BIS locational statistics by nationality.

As we now know, European banks' US dollar assets tended to be a mix of US government debt and structured finance products, which proved to be much less liquid. In contrast, their dollar funding had much shorter maturities.<sup>2</sup> This left these institutions vulnerable to rollover risk. Maturity mismatches also became an issue in Korea, where banks (particularly the local branches of foreign-owned banks) accumulated sizeable short-term US dollar interbank liabilities as part of their role as the counterparties to Korean corporations who wanted to hedge their (future) US dollar revenues.<sup>3</sup>

During 2008, funding markets dried up, with a growing imbalance between the demand for and the supply of US dollars. Following the bankruptcy of Lehman, there was an acute US dollar shortage on a global scale, with knock-on impacts on local money markets.

So how was this recent crisis resolved? As you all know better than I do, the Federal Reserve met the dollar shortages by providing US dollars through central bank swap lines. They started small on 12 December 2007, with \$20 billion to the ECB and \$4 billion to the SNB, and then slowly ramped up to include 14 central banks, across five continents, covering the entire global trading day. At the peak in December 2008, the Federal Reserve had more than \$580 billion in swaps outstanding.<sup>4</sup> Additional swap networks were also established between some central banks in Europe and Asia.

Some countries, including Brazil, Korea, Mexico and Sweden, used part of their FX reserves to help banks and also non-bank corporates that were facing foreign currency funding cutbacks as a result of the retrenchments in cross-border lending.

<sup>2</sup> See P McGuire and G von Peter (2009): "The US dollar shortage in global banking", *BIS Quarterly Review*, March.

<sup>3</sup> See Committee on the Global Financial System / Markets Committee (2010): "The functioning and resilience of cross-border funding markets", *CGFS Papers*, no 37, Bank for International Settlements, March.

<sup>4</sup> See M Fleming and N Klagge (2010): "The Federal Reserve's foreign exchange swap lines", *Current Issues*, Federal Reserve Bank of New York, April.



There was also some progress on multilateral initiatives. The IMF introduced a Flexible Credit Line (FCL) in March 2009, which aimed to provide timely and upfront support – with no ongoing (ex post) conditions of the type associated with traditional forms of IMF lending – for economies with sound economic fundamentals and policies. Within one month of the FCL's introduction, three countries (Colombia, Mexico and Poland) had signalled interest, and were subsequently granted lines worth \$77 billion in total. The ASEAN+3 countries agreed in June 2009 to multilateralise the Chiang Mai Initiative. This facility will be made operational in June 2010, and pools together \$120 billion of reserves.

These interventions, taken as a whole, succeeded in stabilising the major funding markets and the financial system more broadly. It is hard to isolate the effectiveness of individual measures, though feedback from market participants highlighted the positive impact of the central bank swap lines in particular.<sup>5</sup>

The swap lines worked well for at least three reasons:

- They were available in very large size and were flexible.
- They avoided any stigma, as many countries used the facility, and the Federal Reserve approved individual countries for their programme.
- Moral hazard was minimised. The introduction of the facilities was not expected prior to the crisis, so financial institutions could not adjust their behaviour to take advantage of it. Also, the Federal Reserve arranged swap lines with the host country central bank, rather than directly with financial institutions. This meant that the home central bank was responsible for distributing the available liquidity to its banking system, and also that the Federal Reserve took on less credit risk.

I have to confess that, given what happened in 2007 and especially 2008, I was surprised at how quickly the problems in US dollar funding markets re-emerged last week. The fact that the Federal Reserve, along with the European Central Bank, the Bank of England, the Swiss National Bank, the Bank of Japan and the Bank of Canada felt the need to reinstate the US dollar swap lines so quickly should, I think, give us all pause.

## What to do going forward

Returning to the history, following the pre-May 2010 episode, many countries want more reassurance that they will have protection against another international liquidity crisis. How can they get this reassurance? I believe we can divide answers into three categories:

- regulation and monitoring;
- capital controls; and
- crisis funding.

The best thing would be not to have the problem in the first place. The role of regulation is to reduce the probability of a problem, and to reduce its severity if it occurs. Consistent with this, regulation is being tightened. The Basel Committee on Banking Supervision is working on a set of proposals to strengthen global capital and liquidity regulations, with the goal of promoting a more resilient banking sector.

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<sup>5</sup> See Committee on the Global Financial System / Markets Committee (2010): "The functioning and resilience of cross-border funding markets", *CGFS Papers*, no 37, Bank for International Settlements, March.



Monitoring of funding mismatches by regulators is also important. To this end, significant efforts are under way to improve data on financial system linkages, to better analyse the already available data, and facilitate greater information sharing across national and multinational agencies to help identify, manage and contain future crises.

Another answer is to manage cross-border flows, containing any potential problem. However, the benefits from the free flow of capital are significant. As discussed earlier today, capital controls may be useful when the capital flows are likely to be transitory, the levels of foreign reserves and the exchange rate are appropriate, and capital controls are used together with macroeconomic and prudential policies.

This brings us to the last possibility and the focus of this session: access to foreign currency funding. Here, I see three options: (1) self-insurance, where a country can purchase reserves outright or borrow them; (2) bilateral agreements; and (3) multilateral agreements. While I have listed these separately, I do not want to give the impression that they are somehow substitutes – they are not.

Each of the possible solutions to the problem of sudden needs for foreign currency funding – needs that cannot be met by traditional lender of last resort operations – has problems:

- Bilateral agreements have potentially unlimited size and flexibility, but there is no guarantee of agreement, and they can create moral hazard.
- Self-insurance is immediately available with no questions asked, but has limited size and can be expensive.
- Multilateral agreements can be relatively large and cheap, but, again, are of finite size and can create stigma. Also, access may not be timely.

My sense is that, in the absence of cooperative solutions, self-insurance through increases in international reserve levels will be increasingly likely. Not only is this potentially costly for some countries, but it can create externalities for the global economy by distorting capital flows.

In order to dissuade individual countries from building reserve levels further, we must do the following:

- provide adequate assurance that funds will be there when needed;
- avoid excessive moral hazard and, in particular, avoid giving countries in “fundamental disequilibrium” the means to delay necessary adjustment; and
- avoid placing unreasonable burdens on liquidity providers.

How can these broad criteria be applied to the specific shortcomings of the three options?

For self-insurance, the problem of size is hard to overcome. As global economic and financial integration continues, and the gross level of cross-border activity increases, foreign exchange reserve demands on individual countries are likely to rise.

A partial solution may be for countries to issue long-term debt in foreign currency and convert the proceeds into reserves. This approach allows countries to build up reserves relatively quickly, while having no direct effect on exchange rates. This reduces the global externalities from individual countries’ choice to self-insure. The cost of reserves added through borrowing is an intermediation spread – the interest rate on the borrowed funds less the interest rate on the additional reserve assets. This spread is typically quite small for AAA-rated countries, but is obviously larger for lower-rated sovereigns. Sweden is an example of a country that has



recently borrowed foreign currency to temporarily increase its foreign exchange reserves.<sup>6</sup> Nonetheless, getting foreign exchange reserves to a point where they are big enough to protect against severe crises could be difficult and expensive for some countries.

For bilateral agreements, the main problem for the borrowing country is that it needs to be confident that the funds will be available during a crisis. But institutionalising a framework of standing agreements creates difficult moral hazard problems. One possibility is to have off-the-shelf swap programmes ready to go. But this may raise more questions than it answers. Should their existence be public knowledge? How large should they be? How will the credit risk be allocated?

For multilateral agreements, one disadvantage is size. While bigger than individual countries' reserves, multilateral arrangements are still finite in size, and may not be sufficient if too many countries need to access them at the same time. Are there reasonable ways to make multilateral facilities sufficiently large?

While pre-approval sounds appealing as a solution to issues of timeliness and surveillance in multilateral arrangements, we know that it is no panacea. Can the multilateral authority pre-approve some countries and not others? Should the list of pre-approved countries be public?

Then there is stigma. In the recent crisis, central banks found elegant ways to mitigate this problem. One example is the auction mechanisms with multiple winners. The Federal Reserve used this in its Term Auction Facility and showed that there is safety in numbers. We may wish to explore similar mechanisms for distribution of foreign currency funding to countries.

## Conclusion

Looking back over the experience of the last few years, and trying to apply both the lessons of past crises and knowledge of how modern financial markets work, I am led to the unfortunate conclusion that there are no easy answers to this problem. If the problem were simple, or if there were a compelling solution, we would have found and implemented it already. Instead, looking ahead, I expect that not much is going to change – at least not anytime soon. Countries will continue to rely to varying degrees on a mix of self-insurance and bilateral or multilateral agreements.

Has caution triumphed over creativity yet again? My conclusion is that the answer is no. One of the themes running through my comments has been that self-insurance and cooperative arrangements are complements, not substitutes, so a mix is the appropriate result.

Bilateral and multilateral agreements are more cost-effective than self-insurance. However, for the foreseeable future, it seems unlikely that we will reach a point where countries will have automatic access to a sufficient quantity of foreign currency funding to cope with a material crisis. Moreover, countries might not want to access a central, multilateral facility every time they have a foreign currency problem. All countries will want some reserves of their own.

Consistent with the theme of countries using a mix of insurance options, the stabilisation package for Europe that was announced on 10 May is a combination of multilateral funding from the euro area and potentially the IMF, and was accompanied by bilateral central bank swap facilities.

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<sup>6</sup> See Sveriges Riksbank (2009): "The foreign currency reserve to be strengthened", press release, 27 May.



That said, we should still continue to work on developing cooperative arrangements.

So, my final words are that self-insurance is not going away, but we need to keep working on alternatives in the hopes that it will.

Thank you.