

Why central bank balance sheets matter

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1. Introduction

Let me begin by thanking Governor Prasarn for co-hosting this joint Bank of Thailand-BIS conference here in this historic city of Chiang Mai. And on behalf of all those present, I would like to extend our deepest sympathies to our Thai colleagues and offer encouragement as you and your nation continue to address the challenges arising from the devastating floods this year.

Today, we take up the important subject of central bank balance sheets. This may sound arcane, but it has often proved crucial in designing and understanding policies pursued in the wake of financial crises in recent years. I need hardly tell this audience that balance sheet stocks are just as important as income flows. Indeed, one of the lessons of the recent crisis is that more attention must be paid to balance sheets than was the case before the crisis. This is true for all economic agents.

As you know, Governor, you and your fellow governors of the BIS's Asian Consultative Council encouraged the economists in our Hong Kong office to think hard about the balance sheets of central banks. We have invited a number of leading international experts here to help us by telling us about their research. We hope that this conference, and the research reported, will contribute to our better understanding of the difficult and controversial issues now facing the central banking community.

To set the stage for our discussions over the next day and a half, I'd like to start with some observations about the special role that central bank balance sheets have played historically in ensuring monetary and financial stability. Then I will outline how policy responses to recent crises have transformed central bank balance sheets. Central banks have been ready to buy a wide range of financial assets on a large scale in order to further major macroeconomic and financial stability objectives. Because the scale and persistence of the world-wide expansion in central bank balance sheets is unprecedented, we need to pay special attention to possible medium-term risks. I will pose four questions about such risks and mention work by BIS economists on these questions.

2. The historical power of central bank balance sheets

The central bank's deliberate use of its balance sheet has played a salient role in financial history, especially during crises. From very early on, central banks were given the monopoly of note issue, and the role of lender of last resort naturally fell to them. Bagehot (1873) clearly understood this privileged position vis-à-vis the rest of the financial sector in the 19th century. During times of financial distress, only the central bank could be a credible lender of last resort. Its ability to create monetary liabilities could be used to provide liquid assets to a bank in difficulty.

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During the Gold Standard period, time and again central banks took centre stage in preserving the integrity of the international monetary system. Central banks provided essential liquidity at times when gold convertibility came into question. And it became increasingly well understood during this time that a central bank could play the pivotal role in responding to periodic financial crises. Indeed, it was the deep financial crisis in the United States in 1907 that prompted the US Congress to finally set in motion the creation of the Federal Reserve System. The explicit understanding was that the Fed would use its balance sheet to promote a currency that would be “elastic” in meeting the needs of a growing economy. The idea was also that it would address the forces behind the periodic financial panics that had plagued the United States up to that time.

We should not forget, of course, that mistakes have been made over the years. Lessons were learned along the way. In the 1930s, for example, the deepening of the Great Depression was due in part to the failure of the major central banks to fully grasp the consequences of debt deflation. Central banks in the 1930s failed to use their balance sheets sufficiently to lower long-term rates and to counter a cascading sequence of bankruptcies. The lessons learned from that crisis have guided many central banks in dealing with the recent crisis.

A stylised central bank balance sheet can be helpful in clarifying the various transmission channels (Table 1). Any accumulation of assets implies an increase in corresponding liabilities. In addition, the purchase of domestic assets will directly affect their prices, and therefore credit spreads, term premia and long-term interest rates. An increase in monetary liabilities – eg reserve money – will have implications for the liquidity of the banking sector in the short run, and this may undermine price stability in the medium term. But an increase in long-term liabilities could also crowd out lending to the private sector.

Table 1

A central bank balance sheet

Assets	Liabilities and capital
Net foreign assets	Reserve money
Net domestic assets	<i>Currency in circulation</i>
	<i>Reserves of commercial banks</i>
	Non-monetary liabilities
	<i>Central bank securities</i>
	<i>Others</i>
	Equity capital

Taking into account these transmission channels, it is quite clear that large expansions of central bank balance sheets have implications both for the real and financial sectors of the economy. They do create risks – and we must watch these closely. In some historical episodes, central banks did expand their balance sheets too much in order to finance profligate government spending. This often had inflationary results. On other occasions, central banks were too slow in reversing expansionary policies when conditions improve.

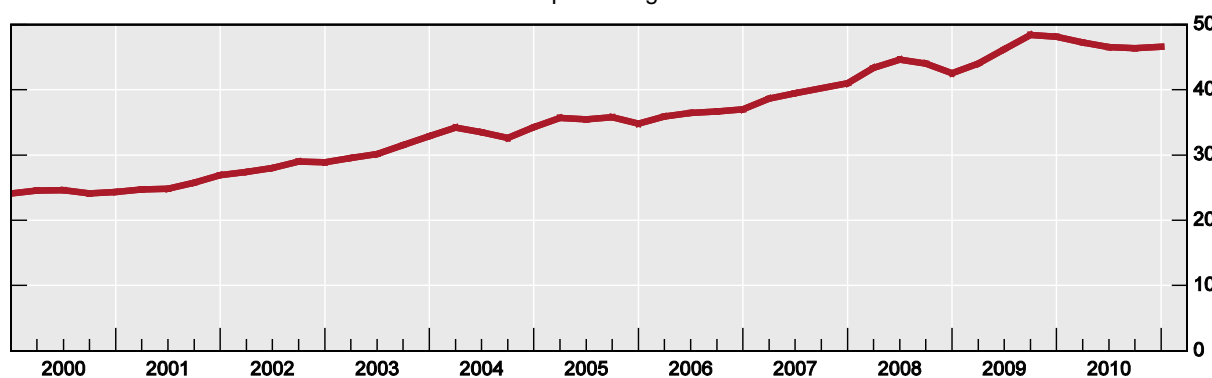
3. Crisis-induced revival of a policy focus on balance sheets

In normal periods of stability and prosperity, however, interest in central bank balance sheets tends to wane. Indeed, by the end of the 1990s, the policy focus of most central banks in the

advanced economies had moved away from their balance sheets. Monetary policy frameworks came instead to focus almost exclusively on policy interest rates. This was the time of what we once called the “Great Moderation”. Inflation worldwide had fallen to low levels and become more stable. The variability over time in the level of assets and liabilities of central banks declined. Balance sheets took a back seat in the formulation of monetary policy, even though they continued to play an important role on the operational side of central banks in the implementation of policy.

Two major shocks have changed this. The first was the Asian financial crisis of 1997/98. This convinced the authorities in Asia that they needed to build up foreign exchange reserves to protect themselves against future crises. But nobody in the mid-2000s expected such a large increase: forex reserves held by central banks in emerging Asia rose from \$2 trillion at the beginning of 2006 to over \$5 trillion now – exceeding 45% of GDP (Graph 1).

Graph 1
Foreign reserves in Asia¹
As a percentage of GDP



¹ Aggregate of China, Chinese Taipei, Hong Kong SAR, India, Indonesia, Korea, Malaysia, Philippines, Singapore and Thailand. Japan is excluded.

Sources: IMF, *IFS*; national data.

The motives for the further accumulation of forex reserves changed as time progressed. Increasing foreign exchange reserves became more and more the by-product of the exchange rate regimes adopted in the region. This policy choice often reflected the export-oriented growth strategy pursued by many countries. This has had major international implications, but these are not the subject of my speech today.²

The sizable build-up of the asset side of central bank balance sheets also required a comparable increase in domestic liabilities. Since such liabilities are the assets of banks and other financial institutions, the process of domestic financial intermediation has been altered.

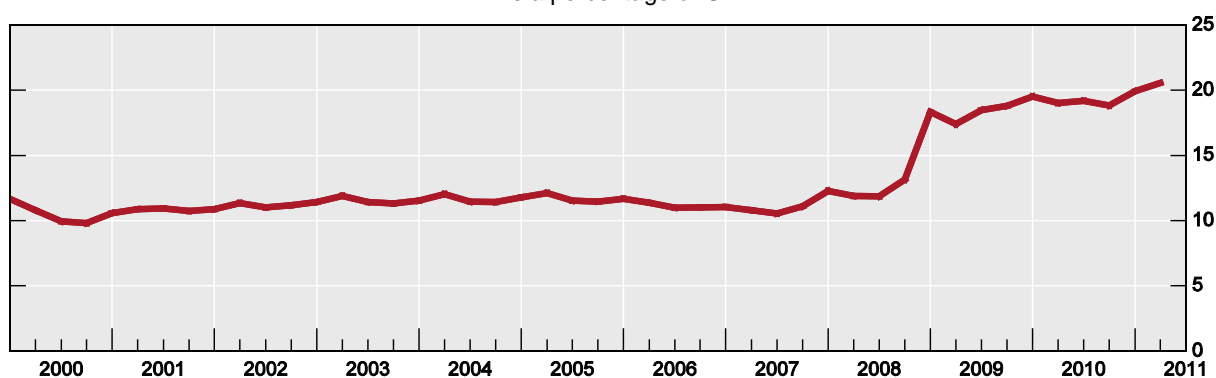
The potential implications of such changes for monetary and financial stability meant that central banks had to be very careful in structuring their local liabilities as their foreign assets increased. As we will discuss at this conference, central banks used many instruments – reserve requirements, the issuance of sterilisation bonds, etc – to neutralise the liquidity associated with the massive rise in their forex reserves.

The second shock was the recent financial crisis that originated in the advanced economies. A loss of confidence in banks and in many financial products in the advanced economies disrupted global financial markets. This occurred in large part because the normal operations

² CGFS (2009): Capital flows and emerging market economies, *CGFS Papers*, No 33, January.

of financial markets became impaired – blocking the transmission of lower policy rates to the real economy. Central banks countered this by buying “unconventional” assets on a large scale. They started by short-term lending or by buying short-term assets, but progressively moved towards buying long-term paper. At present, the aggregate size of central bank balance sheets in the advanced countries is nearly \$8 trillion, the equivalent of more than 20% of GDP (Graph 2). In some cases, balance sheets are still growing. In addition, as the effective zero lower bound for policy rates was reached, large-scale asset purchase programmes became the primary tools in efforts to prevent any renewed financial meltdown. With short-term interest rates near zero, such policies also sought to provide additional monetary stimulus by lowering the long-term interest rate on government bonds.

Graph 2
Total central bank assets in advanced economies¹
 As a percentage of GDP



¹ Aggregate of Canada, the euro area, Japan, Sweden, Switzerland, United Kingdom, United States.

Sources: IMF, *IFS*; national data.

4. Four questions about policy risks

This global expansion of central bank balance sheets is unprecedented. Central banks showed commendable imagination and skill in using their balance sheets to prevent what could have been an even worse crisis. An unprecedented crisis required unprecedented measures. Even so, many central banks feel distinctly uncomfortable about the longer-term implications of such large balance sheets.

This sustained expansion means that the central bank’s balance sheet becomes more exposed to market developments: a fall in the value of foreign assets or a rise in long-term interest rates could reduce the value of their assets while leaving the value of their liabilities intact. At some point, the capital of the central bank could be put at risk. This could in some circumstances raise unwarranted political questions and may even undermine the central bank’s credibility. A country is better off if the central bank has the financial strength needed to carry out its functions. It is of course the macroeconomic and financial stability of the country that should determine policy decisions of the central bank. It is not profit or loss implications for the central bank’s balance sheet.

But this risk to the central bank’s own balance sheet is already well understood. Today, I would like to consider whether balance sheets of the current size could create broader policy risks. Such risks could include: inflation, financial instability, distortions in financial markets and conflicts with government debt managers. There is of course nothing inevitable about such risks materialising. But it is prudent never to lose sight of the risks created by expanding balance sheets. Analysing balance-sheet-related risks can also help design suitable “exit

strategies". So let me outline four questions that are commonly raised about central bank balance sheets.

Inflation risks

The first is: Does the expansion of central bank balance sheets risk creating inflation? A preliminary answer is "not necessarily". Central banks today have clearly been able to increase the size of their balance sheets without losing their credibility for price stability. A good track record of low inflation has given central banks some leeway. There has been little correlation in recent years between the expansion of central bank balance sheets and inflation. This is true both for emerging economies and for advanced economies. That is the good news.³

But the ultimate answer to this question about inflation might be "not yet". Much will depend on whether governments in the advanced countries take decisive action in the years ahead to curb future fiscal deficits in a durable way. The very high and growing levels of public debt in many countries raise uncomfortable questions for central banks not only about the creditworthiness of the sovereign but also about fiscal dominance. I discussed those risks in a recent speech in India.⁴

In any event, the large expansion of central bank balance sheets has brought about a substantial rise of base money relative to GDP. The banking systems in many countries have become very liquid. Bringing central bank balance sheets back to more normal levels in these economies will, at some point, require the intensive and timely use of tools for draining liquidity. Central banks face no significant technical difficulties in doing this. At present, the financial markets appear to expect a smooth exit once the time is ripe. But the road ahead may still prove to be rather bumpy. A drain of excess bank reserves on this scale is going to be unprecedented. It will require not only judgement about uncertain and evolving financial conditions, but also skill in managing market expectations. Sensitivity to the political economy dimensions of restrictive policies is always wise. Fortitude in the face of political pressures is part of the duty of a central bank.

Financial stability risks

A second question is: How large an impact will central bank balance sheets have on domestic financial intermediation? Could financial stability risks be introduced? Several papers written in our Hong Kong Office address this important question.

One risk is excessive credit expansion. This could be stimulated by the increase in the banks' local currency assets, which are the major counterpart of the increase in the foreign currency reserves. And there does seem to have been some correlation between credit growth and foreign exchange asset accumulation in recent years. A recent analysis by Cook and Yetman (2012) argues that there is growing evidence of incomplete sterilisation which is reinforcing this risk. The threat to financial stability from an increase in bank lending is greater when credit growth is already robust and inflation pressures are picking up.

Are there implications for financial stability from the choice of tools to limit the expansion of bank credit? Some central banks have relied on reserve requirements. Such measures act as a tax on domestic bank intermediation. Indeed, Ma, Yan and Liu (2011) document China's use of reserve requirements to withdraw excess liquidity. They estimate that the higher

³ BIS (2011): *81st Annual Report*, chapter 4, June.

⁴ See <http://www.bis.org/speeches/sp111118.pdf>.

reserve requirements impose a burden on banks equal to 0.3% of GDP. Such measures may also drive intermediation out of the regulated sector into the unregulated sector. A number of central banks are grappling with the growth of “shadow banking” in their countries.

Could central bank issuance of longer-dated paper have financial stability implications? Mehrotra (2012) notes that Asian central banks have relied heavily on central bank paper to sterilise the build-up of foreign reserve assets. The need to limit the refunding risks of short-term paper has led central banks to extend the average maturity of outstanding sterilisation bonds. The advantage of issuing higher-yielding, longer-term debt is that it makes sterilisation more effective. The disadvantage is that increased bank holdings of such paper may, in the short run, tend to crowd out bank loans to the private sector. Some call such paper “lazy” assets because they give banks a yield without much effort. Moreover, the presence of large holdings of these relatively low-yielding, liquid securities by banks tends to depress retail deposit rates. A medium-term risk is that the very liquid balance sheets may influence bank lending behaviour in ways that are difficult for policymakers to predict.⁵ Filardo and Grenville (2012) argue that the build-up of ‘lazy assets’ (eg government bonds) in banks may encourage banks to eventually take on excessive risks.

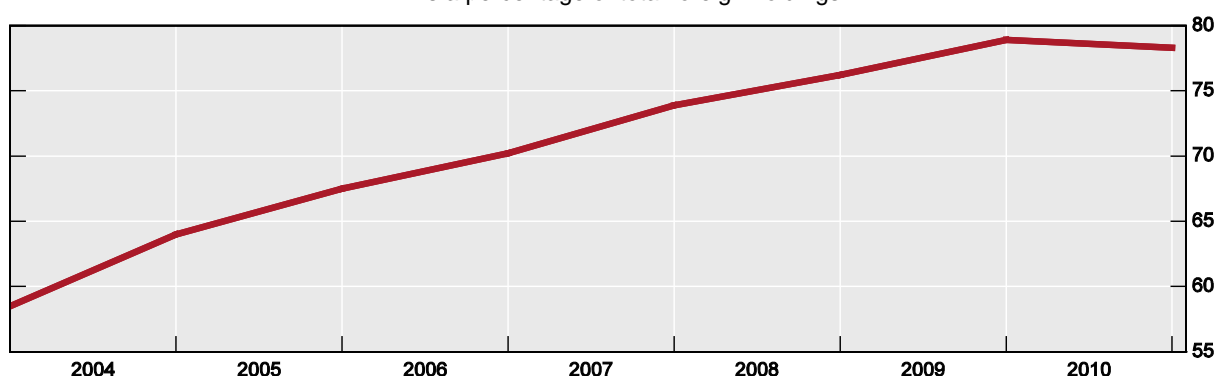
Financial market distortions

My third question is: could the increased size of central bank balance sheets relative to private domestic capital markets have unintended adverse consequences for the functioning of capital markets? For example, foreign official institutions now account for almost 80% of aggregate foreign holdings of US Treasury securities (Graph 3). In the years before the recent financial crisis, the preference of foreign central banks for US Treasuries tended to depress US yields and boost bond and other asset prices. More recently, large-scale asset purchases by the Federal Reserve have lowered US long-term yields, tending to push down yields in overseas markets as well.⁶ The paper by Chen, Filardo, He and Zhu (2012) to be presented later in this conference documents the significant spillover of Quantitative Easing on Asian financial markets.

Graph 3

Long-term us treasury securities held by foreign official institutions

As a percentage of total foreign holdings



Source: US Treasury International Capital System.

⁵ M S Mohanty and P Turner (2006): Foreign exchange reserve accumulation in emerging markets: what are the domestic implications?, *BIS Quarterly Review*, September.

⁶ Also see BIS (2011) for a discussion of the distortions arising from ultra-low interest rates.

Should we be concerned about such international spillovers at the current juncture? When financial markets are subject to elevated uncertainty, central bank actions (actual and expected) on asset markets can play a disproportionate role in influencing financial market outcomes. And this could create a potent cross-border feedback loop: large-scale asset purchases in the West depress the domestic yield curve, which tends to widen the interest rate gap with emerging Asia; the threat of capital flows encourages more foreign reserve accumulation in emerging Asia and easy monetary policy; and this puts additional downward pressure on US treasury yields as the demand in Asia for US treasury securities rises. Anticipating such a dynamic, investors can become overly sensitive to expected central bank policies.

Sovereign debt management conflicts

My final question is: how are large changes in a central bank's balance sheet coordinated with sovereign debt managers? The management of sovereign debt has taken on increased importance as government debt has risen and central bank balance sheets have expanded. The much-increased official holdings of financial assets (forex reserves or domestic assets acquired under Quantitative Easing) will have implications for the management of the corresponding liabilities. Increased issuance of short-term debt – either by the government or by the central bank – affects conditions in money markets, and this influences monetary transmission mechanisms.

Could conflicts arise between the central bank's actions and debt issuance policy? If a central bank is trying to take duration out of the market by buying longer-term sovereign debt, there may be a temptation for debt managers to take advantage of a temporary decline in the cost of issuing new bonds by increasing issuance of long-term paper. When central banks want to sell government bonds – and so reverse extraordinary policy accommodation – what will be the reaction of debt managers who are anxious to place their own new issuance? Strong coordination across institutions will be needed to make sure sovereign debt managers do not inadvertently work at cross-purposes to the monetary authorities both in crisis conditions and during the exit phase.

5. Conclusions

Policy tools that involve the active use of central bank balance sheets – both the assets and the liabilities – can help monetary authorities to navigate the policy challenges during times of financial stress and when interest rates are close to zero. And they can be vitally important, as these times of financial strain have shown. The increased use of these tools in recent years reminds us that central banks do not need to rely merely on short-term interest rates in order to achieve their policy goals.

But the judgement that such and such a policy was the right choice in current exceptional circumstances should not make us complacent about possible medium-term risks arising from such a significant shift in the size and composition of central bank balance sheets.

With the economic and financial world constantly changing, we need to continuously re-evaluate the appropriate role of central bank balance sheets in the formulation of policy. In other words, we need to continue researching how changes in central bank balance sheets affect financial markets and thus the real economy – not only now, but also in the future. Let me reiterate a lesson from the recent crisis that I mentioned at the beginning: we cannot afford to ignore the implications of balance sheet developments.

Let me remind you too about the considerable fiscal risks that many countries face – risks that could at some point confront central banks with extremely difficult choices. It is very useful to share our central bank experiences with each other at events like this one. I am

also very happy to welcome those of you from the academic world and from policy think-tanks to help us think critically about the issues before us.

It is the right time to be thoughtfully considering the various roles of central bank balance sheets. Exit strategies from these enlarged balance sheets will be an issue that will pre-occupy us for some years to come. Doing it right is important. I look forward to the progress we will make over the next two days in our understanding not only of the wider economic implications of increased central bank balance sheets, but also of how to address the potential risks.

Thank you very much for your attention.

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