

The size and composition of central bank balance sheets throughout the world have changed significantly during the global financial crisis. This development can also be seen in Iceland, with the expansion occurring even earlier and more dramatically than in most other countries. This Box discusses briefly the reasons for such radical changes to central bank balance sheets, both in a global context and domestically. It also looks at the possible increased inflation risk as a result of these changes both at home and abroad. One of the factors reducing such risk in the Icelandic context is the fact that assets that the Central Bank of Iceland seized in the wake of the financial crisis are expected to be sold, thereby reducing the Bank's balance sheet.

Why did central bank balance sheets expand during the crisis?

Under normal conditions, central banks set their interest rates and conduct their market operations so that liquidity in the system ensures that market interest rates accord with the central bank's rates. These market operations affect the assets and liabilities on the central bank's balance sheet. In challenging circumstances, such as those prevailing during the global financial crisis, central banks had to take more wide-reaching action to respond to financial institutions' liquidity shortage and looming threats to the financial system. Such measures often result in substantially expanding the banks' balance sheet, as both central bank lending and bond purchasing increase. While central bank balance sheet expansion following a financial crisis is not a new phenomenon, the measures taken during the recent crisis are, in general, more extensive than previously witnessed. They were also more international in scope than before (see, for example, Alessandri and Haldane, 2009).

To a large extent, central banks' response to the financial crisis involved altering the composition of their assets and liabilities to prevent a collapse in asset prices and to ease the terms of financing to financial institutions and the private and public sectors. By so doing, they prevented important markets from closing entirely and impeded a sharp spike in risk premia. To an increasing extent, central banks served the important purpose of ensuring access to credit when traditional channels through capital markets and credit institutions were disrupted (see, for example, Borio and Disyata, 2009).

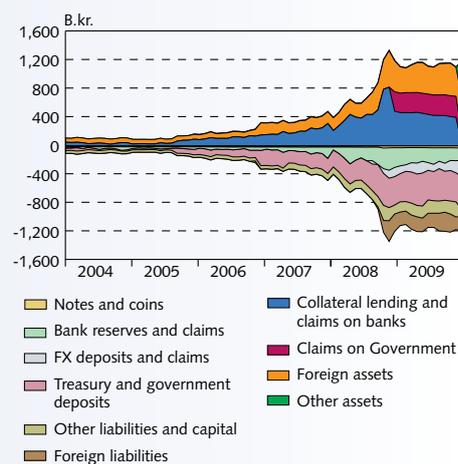
Central banks have various means of achieving this. First, they can direct their actions at the banking system and offer financial institutions more favourable terms than are available on normal credit markets; e.g., interbank, money or bond markets. This involves more than simply the interest rate, as loan duration, required collateral, valuation of collateral, and currency composition are also very important. If the credit provided is insufficient, capital injections from the government may be needed, as the crisis provides examples of. In the second place, actions can be directed at other financial institutions and the private sector. Central banks can, loan directly to the private sector, for instance, or widen the set of financial institutions that have access to central bank facilities. Third, their actions can be aimed at the functioning of important credit markets, involving, for example, the purchase of illiquid bonds or the provision of guarantees to key market agents. Fourth, central bank actions can be directed at the government, e.g. through purchases of sovereign debt to lower the interest rate and interest premium, which in turn affects asset prices and financial conditions for the private sector (see, for example, the ECB article of 2009 and Cross, 2010).

There is nothing to prevent governments from taking the above supportive measures, which makes it appropriate to examine the consolidated balance sheet of the government and central bank when looking at actions of this type. This is due to the fact that financing these actions can either take the form of increased

Box III-2

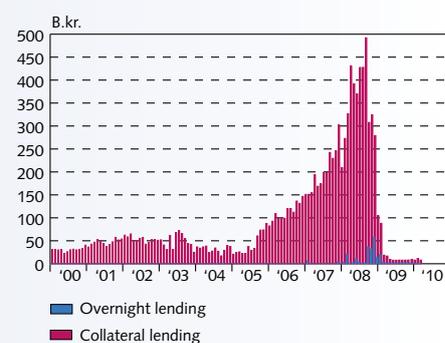
Central bank balance sheet expansion in the financial crisis

Chart 1
Central Bank of Iceland balance sheet
January 2004 - December 2009



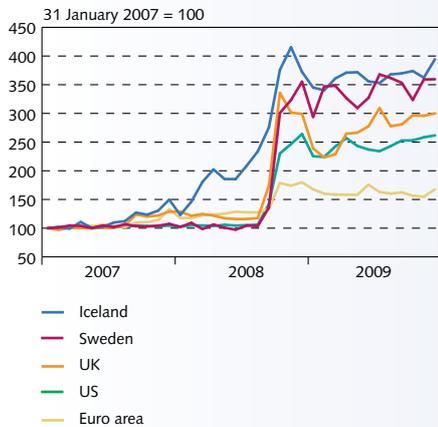
Source: Central Bank of Iceland.

Chart 2
Central Bank of Iceland overnight and collateral lending
January 2000 - March 2010



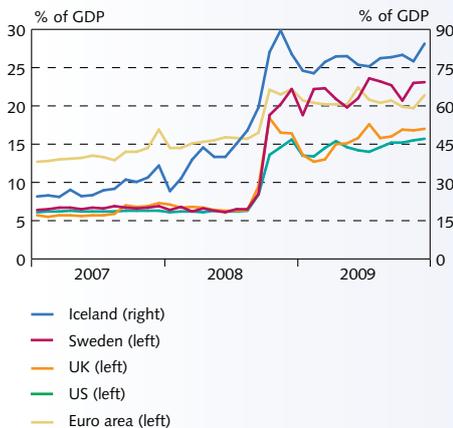
Source: Central Bank of Iceland.

Chart 3
Central banks balance sheets
January 2007 - December 2009



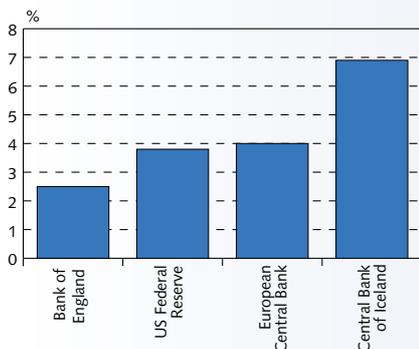
Source: Reuters EcoWin.

Chart 4
Central banks total assets as a share of GDP
January 2007 - December 2009



Source: Reuters EcoWin.

Chart 5
Maximum size of central bank as a percentage of financial system size in the financial crisis¹



1. Maximum scope of total central bank assets in 2008-2009, as a percentage of financial system size in 2008. Based on estimated size of Icelandic financial system in mid-2008.

Sources: Bank of England, European Central Bank, IMF, Central Bank of Iceland.

central bank debt – e.g. through higher reserves – or increased issuance of government bonds. In essence, all of these supportive actions involve exchanging assets that differ as to their liquidity and credit risk. In so doing, governments and central banks are reducing risk in the financial system or among the private sector by shifting part of this risk onto their balance sheet with the aim of facilitating financing conditions and enhancing the functioning of the financial system. As a result, the central banks' balance sheets expand, and a substantial increase in bank reserves with the central banks is one consequence of this expansion. Transferring risk to central banks and the state in this manner is not without risk, as Iceland's experience clearly testifies, and it is therefore important to arrange this so as to minimise the financial risk involved in the actions as far as possible and to keep it manageable (see Borio and Disyata, 2009, and Sections 4.5.5 and 7.6.1 in the report of the Special Investigation Commission of the Icelandic Parliament). In addition, it can create considerable moral hazard problems if the government can always be expected to intervene to save key financial institutions, making it important to seek ways to reduce this risk (see Tarullo, 2009, and Tucker, 2010).

Expansion of the Central Bank of Iceland balance sheet during the run-up the financial crisis

The balance sheet of the Central Bank of Iceland grew rapidly, coinciding with the expansion of the Icelandic banking system (see chart 1). At the end of 2004, rules on securities accepted as collateral for Central Bank facilities were amended and financial institutions were allowed, for instance, to provide non-indexed bonds issued by domestic financial institutions as collateral in such transactions.¹ This resulted in increased issuance of the banks' non-indexed bonds and in turn boosted collateralised lending by the Central Bank.

After conditions for financing on international markets grew more difficult from mid-2007 onwards, the rules on collateralised lending were amended three times in order to increase access to liquidity by domestic financial institutions. The scope of the Bank's collateralised lending grew rapidly and peaked at almost 500 b.kr. in the autumn months of 2008. The expansion of the Central Bank's balance sheet during the period preceding the banks' collapse can therefore be attributed largely to increased credit provided in response to liquidity problems of domestic financial undertakings. As Chart 3 indicates, the balance sheet of the Central Bank began to expand somewhat ahead of that of other central banks, as the liquidity problem began earlier here than in most other countries. The scale of the expansion is scarcely equalled in other industrialised countries, however. The Bank's assets swelled from around 30% of GDP at the beginning of 2008 to around 80% of GDP by the end of that year (Chart 4). Even considering the size of the financial system preceding its collapse, it is evident that the Bank's balance sheet was proportionally larger than those of the US Federal Reserve, the Bank of England and the European Central Bank at their peak (Chart 5).

1. The Rules on Central Bank of Iceland Facilities for Financial Institutions state:
The following securities are eligible as collateral for Central Bank facilities: certificates of deposit issued by the Bank, electronically registered Treasury savings bonds, Treasury notes, Treasury bills, HFF bonds and Housing Authority bonds, as well as bonds issued in Icelandic krónur which fulfil the following conditions: a) the market value of the series is over 3 b.kr. and it is confirmed that this amount has been sold; b) the issuer has a rating from one of the three rating agencies Standard & Poor's, Moody's or Fitch of A- or higher, in the rating system used by Standard & Poor's and Fitch, and A3 or higher from Moody's; c) the securities have a market maker on the Nasdaq OMX Iceland or a similar exchange.

Expansion of the Central Bank of Iceland balance sheet in the wake of the banks' collapse

Following the banks' collapse, the Central Bank of Iceland became a major creditor of domestic financial institutions, holding claims secured by various types of collateral. Loans backed by the banks' own securities were lost, and to cover some of the Central Bank's losses, the Treasury agreed to purchase part of the Bank's collateralised lending positions in return for an indexed debt instrument. As a result, the Central Bank's balance sheet has remained very large following the banks' collapse, even though its traditional collateralised lending has practically ceased, as Chart 2 shows. These assets have recently been transferred to a subsidiary of the Central Bank. Efforts will be made to maximise the value of these assets and sell them off once market conditions make it feasible. The balance sheet of this subsidiary was equivalent to around 42% of the Central Bank's total balance sheet at year-end 2009, when its assets totalled 491 b.kr. Boosting the Bank's foreign exchange reserves, which is part of the IMF economic programme, has also enlarged the Bank's balance sheet.

Bank reserves increased substantially, in line with the Central Bank balance sheet expansion, creating temporary excess liquidity in the banking system after the commercial banks' collapse, which depressed market interest rates below the desired level of monetary restraint. Issuance of certificates of deposit, however, ensured more consistency between market interest rates and Bank rates, as central banks can manage the size of their balance sheet without hindering the implementation of their interest rate policy (see Borio and Disyata, 2009).

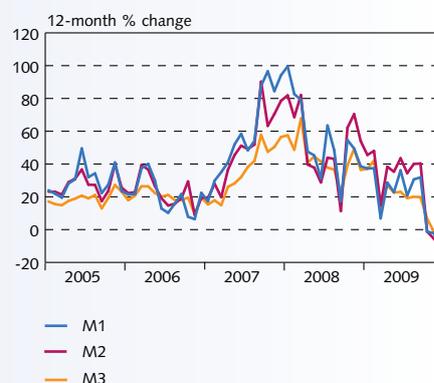
Expansion of the Central Bank's balance sheet has brought a strong increase in money holdings

In simple terms, when a central bank supplies loans to a commercial bank, it deposits this amount into the latter's account with the central bank. The commercial bank can then use this money to loan to the public and lower its lending rates to encourage borrowers to take out new loans. This increases the amount of private sector money holdings and should boost economic activity, other things being equal, and create additional inflationary pressure.

Therefore, the question naturally arises as to whether the significant increase in bank reserves following the global financial crisis will result in substantially increased lending, eventually creating inflationary pressures. Furthermore, the surging public debt in many countries after the crisis could even lead to increased pressure on central banks to monetise the debt. On the other hand, however, the swelling of central bank balance sheets reflects to a large extent the previously mentioned unconventional central bank responses to the financial crisis and the uncertainty following in its wake, which has resulted, for instance, in a sharp rise in demand for bank reserves (see, for example, Keister and McAndrews, 2009). Money holdings have therefore not increased to the extent that the expansion of central banks' balance sheets might suggest. In addition, most central banks pay interest on reserves and can therefore influence the motivation the banks have to lend part of these reserves to their customers. As a result, price stability is not necessarily as threatened by increased bank reserves as might be concluded from simple economic models.

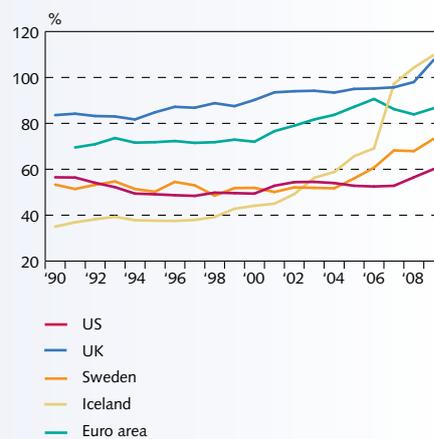
As Chart 6 shows, the increase in money holdings in Iceland was sizeable long before the financial crisis, and it was repeatedly identified as a cause of concern in previous issues of *Monetary Bulletin*. Following actions by the Central Bank to bolster liquidity in the financial system, however, money holdings grew enormously. This

Chart 6
Money supply growth
January 2005 - December 2009



Source: Central Bank of Iceland.

Chart 7
Monetary aggregates as a share of GDP
1990-2009¹



1. Refers to M3 where applicable, otherwise M2.
Source: Reuters EcoWin.

was also reinforced by a major shift by investors from various types of investments, such as equities, to government-guaranteed bank deposits. Since the banks' collapse, however, the growth rate of money holdings has slowed gradually, and in recent months money holdings have begun contracting.

Central banks need to unwind their balance sheet expansion

Even if price stability is not yet necessarily threatened by the strong expansion of central bank balance sheets, there is a risk that it will create additional inflationary pressures in the longer term. Consequently, central banks throughout the world face the task of winding down their supportive actions in phase with economic recovery, while at the same time ensuring price stability. Their balance sheets will therefore shrink once more even if they remain for some time larger than they were prior to the crisis, e.g. due to the desire of financial institutions to maintain a stronger liquidity position.

In Iceland, the size of foreign currency reserves is likely to keep the Central Bank's balance sheet sizeable in coming years. In the future, however, asset sales will serve to reduce the Bank's balance sheet and facilitate its liquidity management in support of the inflation target.

Sources

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