Dramatic years in Sweden and globally: Economic developments 2006–2017

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It is ten years since the global financial crisis broke out. This article describes economic developments globally and in Sweden from the years immediately preceding the crisis up to 2017, and how the crisis has left its mark in various ways during this period. Together with globalisation and technological advances, the financial crisis contributed to a number of comprehensive changes being made in the economic, financial and political areas, both here in Sweden and in other parts of the world. This gave rise not least to a number of existential issues, which included a broad discussion of the legitimacy and tasks of the central banks. The dramatic crisis years also showed how the financial markets had become global and cross-border to a much greater extent than before. Regulation, supervision, analysis and not least cooperation at global and intergovernmental level needed to be substantially reinforced.

1 Origin of the crisis

After several years of strong developments, the US housing market began to slow down in 2006. One could see the first signs of an approaching financial crisis when the premiums for credit derivatives linked to mortgages in the United States began to rise. The problems for borrowers with low credit scores on the US mortgage market were already well known, but now they began to spread to lenders and their financiers.

Over a long period of time, many US households with poor finances had been tempted to borrow money to buy homes. The banks had set low requirements on the borrowers' credit worthiness and tempted them with initially interest-only loans at low interest rates. This meant that the amount of poor quality loans – what were known as subprime loans – aggregated grew rapidly. This was largely based on banks and investors believing they had found a miracle machine in the form of mortgage backed securities (MBS). That is, the banks had developed a technique for packaging subprime loans together with other loans, convert the merged loans into securities and then sell them on the secondary market. The diversification effect appeared to make the risks of investing in MBSs manageable for investors.[1] And the banks felt they had got rid of the risks linked to subprime loans in that they had sold the securities.

It later became obvious that the risks had been severely underestimated. But why did this happen? There are several explanations. Firstly, the complex design of the securities made

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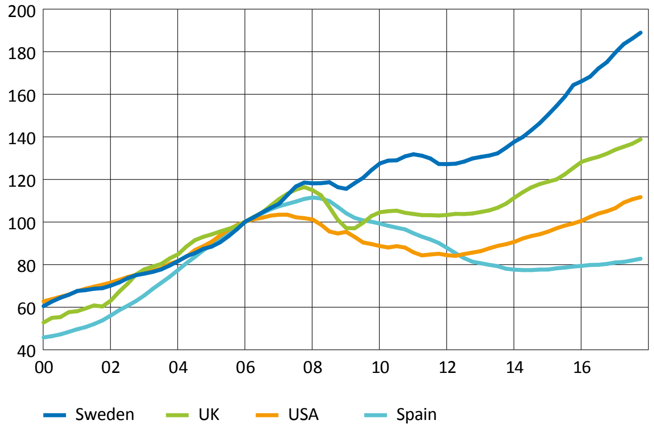
1 The diversification effect was based on the (unfortunately incorrect) assumption that a general downturn in house prices throughout the United States was not likely. This meant that the risk in a security that combined mortgages with a broad geographical spread was thought to be much lower than the risk for a collection of mortgages from a given geographical region.

it difficult to detect the risks, for both investors and credit rating agencies. Secondly, explicit and implicit guarantees given by the banks meant that the risks could quickly find their way back to the banks' balance sheets. But as long as house prices continued to rise rapidly, temporarily favourable funding conditions contributed to concealing the risks that were building up.

When the house price upturn slowed down and house prices eventually began to fall in 2006, house owners with low credit scores were the first to experience problems (see Figure 1). The problems were amplified by the fact that the banks' low interest rates on mortgage loans were adjusted upwards at the same time as monetary policy was tightened and market rates rose. Lenders also began to tighten their credit standards. All of this contributed to an increasing number of borrowers experiencing problems paying their mortgages.

Figure 1. House price levels in the USA, the UK, Spain and Sweden
Index, 2006kv1 = 100



Source: Federal Reserve Bank of Dallas

During 2007, the borrowers' problems began to spread to the lenders. Several agents were affected. First, it was the banks and financial companies who had lent money. These credit granters retained only a certain part of the loans on their own balance sheets, the rest were distributed to other agents such as pension funds and insurance companies. Ultimately, they were also affected by the credit losses that arose on the mortgage market.

The concern over increased credit losses meant that the credit rating agencies began to review all their bonds and downgraded the ones whose credit ratings had deteriorated. The rising loan losses spread throughout the chain from borrowers via mediators to lenders and holders of mortgage bonds.

In addition, many banks had created special investment vehicles and conduits that bought other banks' structured credit products with mortgages as underlying assets.[2] But despite the banks having created these investment vehicles outside their own balance sheets, it was difficult for the banks not to take responsibility for them when they experienced problems. This was partly due to the formal credit lines the banks had opened, and partly due to the banks being anxious of how other parts of their operations might be affected if they gained a bad reputation for not taking responsibility for their off-balance sheet activities.

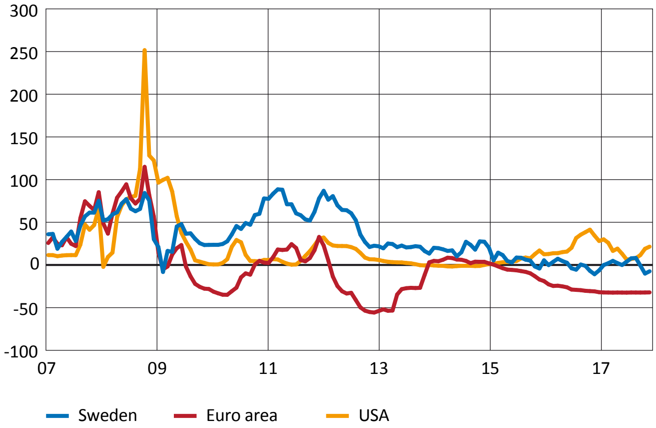
When the banks' special investment vehicles suffered problems, interbank rates (the interest rates paid by the banks on loans from other banks) rose substantially, and the banks suffered major liquidity problems. In other words, it became expensive and difficult for the banks to borrow money to finance their operations.

2 Collateralized Debt Obligations (CDO) are an example of a structured credit product that had considerable significance for the financial crisis. A CDO consists of mortgages with different credit ratings packaged into one bond. The credit rating of the packaged instrument was set higher than is justified by the sum of its parts, which made it easier to sell before the crisis broke out.

The banks entered a period of external stress. Many financial institutions in the United States suffered major problems, and some received support from the government and the Federal Reserve. When investment bank Bear Stearns was on the verge of collapse in March 2008 it received an emergency loan from the Federal Reserve. Despite this, Bear Stearns could not be saved, but was taken over by another investment bank, JP Morgan Chase. The two large institutions that financed home purchases in the United States, Fannie Mae and Freddie Mac, were taken over by the state in September 2008. When it became clear that the United States' fourth largest investment bank, Lehman Brothers, could not be saved by the Government, a period of extreme price fluctuations on the financial markets began.[3] Lehman Brothers had counterparts all over the world, and when they filed for bankruptcy protection on 15 September 2008, interbank rates soared, which is shown in Figure 2. Many banks around the world came to experience funding problems.

Figure 2. Interbank rate minus policy rate in the USA, Sweden and the euro area

Basis points



Note. The difference between a 3-month interbank rate and the Federal Funds Target Rate (Federal Reserve), Main refinancing operations rate (ECB) and the repo rate (the Riksbank).
Sources: Thomson Reuters, the ECB and the Riksbank

The disruptions on the financial markets soon spread from country to country. Risk premiums on interest rates on the loans between the banks rose overall on the interbank markets all over the world. When the US money market funds suffered bank runs in September 2008, where a lot of people tried to get their money back at the same time, they reduced their dollar lending to banks in Europe (see Gunnarsdottir and Strömqvist 2010).

Partly as a result of counterparty exposures – and the lack of transparency regarding them – several European banks suffered funding problems during the years 2007–2009. The background to this was the financial imbalances built up over several years with overheated housing markets in the United Kingdom, Spain and Ireland, which contributed to serious banking crises there. In Iceland, all three commercial banks collapsed and were taken over by the state. Also Austria, Belgium, Denmark, Germany, Luxembourg, and the Netherlands suffered problems in their banking sectors. The Swedish banks were affected to a large degree by the crisis in the Baltic countries, which we will describe in the next section. The European debt crisis is described in section 5.

3 The question of whether it was right to support some financial institutions or not and whether the state should have saved Lehman Brothers is still subject for discussion. For an analysis of these issues, see for instance Blinder (2013).

2 The Swedish banks and the Baltic countries

Following the Swedish banking crisis of the 1990s, the consolidated and restructured Swedish banking sector began to expand fairly aggressively, primarily in the Nordic and Baltic countries. Swedish banks rapidly built up a dominant market position in the Baltic countries in particular. In 2004, the Swedish banks had around 90 per cent of the market in Estonia, 50 per cent of the market in Latvia and 60 per cent of the market in Lithuania.

Credit expansion in the Baltic countries was fuelled by the pent-up demand for credit and the rapid economic growth in the transition from Socialist Soviet republics to liberal market economies. In the mid-2000s, the annual rate of credit growth in the Baltic countries was around 40–50 per cent in the corporate sector and around 60–85 per cent among Baltic households (see Sveriges Riksbank 2006).

For the Swedish banks, particularly Swedbank and SEB, their operations in the Baltic countries comprised an increasingly important contribution to their profits during the first decade of the 2000s, with higher profit margins than the investments in the Swedish market.

But when unease on the financial markets increased in 2007–2008, credit was squeezed in the overheated Baltic economies. Property prices fell, consumption and investment plummeted and production in the Baltic countries came to an almost complete stop. Loan losses increased alarmingly.

When Lehman Brothers went bankrupt in September 2008, 16 per cent of Swedbank's lending and 27 per cent of its operating profits came from its operations in the Baltics. The corresponding figures for SEB were 12 and 20 per cent respectively. For Nordea, which was a larger bank that also conducted operations in the Baltic region, the relative shares were smaller: 3 and 2 per cent respectively of the bank's total lending and operating profits.

Estonia and Lithuania had pegged their currencies to the euro a few years earlier via currency boards and the Latvian currency was pegged to the euro with a fixed exchange rate arrangement. Many of the banks' borrowers had borrowed in foreign currency, which made them vulnerable to depreciations in the exchange rate. The risk of devaluation was imminent in the Baltic countries, which made the situation worse for the Swedish banks with exposures in these countries. It became increasingly evident that the problems in the Baltic countries would rebound forcefully in the Swedish banking system.

The Baltic countries were not able to obtain sufficient funding from international investors and could not borrow euros from the European Central Bank (ECB). This made the situation more problematic for them and therefore for Swedish banks. Latvia in particular had problems as a result of a crash in the country's largest domestically-owned bank, Parex Bank. The solution was that the countries received a loan programme from the International Monetary Fund (IMF) and the EU. Before this was in place, however, the Riksbank and Danmarks Nationalbank provided a bridge loan in December 2008 in the form of an agreement allowing Latvia's central bank, Latvijas Banka, to temporarily borrow EUR 500 million in exchange for Latvian lats (see Sveriges Riksbank 2008).

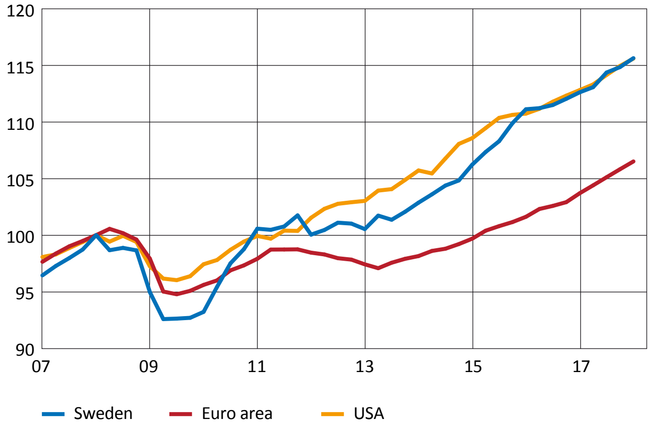
The Riksbank later also entered into a similar temporary loan agreement with the Estonian central bank, Eesti Pank (see Sveriges Riksbank 2009a). The agreement gave Eesti Pank the possibility of borrowing up to SEK 10 billion against Estonian krooni to strengthen Estonia's preparedness to provide liquidity support in domestic currency should this become necessary. However, the problems in Estonia were not nearly as great as in Latvia and the credit never needed to be utilised.

Ultimately, neither Estonia, Latvia nor Lithuania needed to devalue their currency. Instead of changing their exchange rate policy, these countries managed to implement what is sometimes called 'internal devaluation', which is to say that wages and public expenditure were cut to bring down the level of costs. This allowed them to restore international competitiveness and relatively quickly convert their large deficits in the balance of payments to surpluses when growth in the region increased after the crisis.

3 The deepest recession of the post-war period

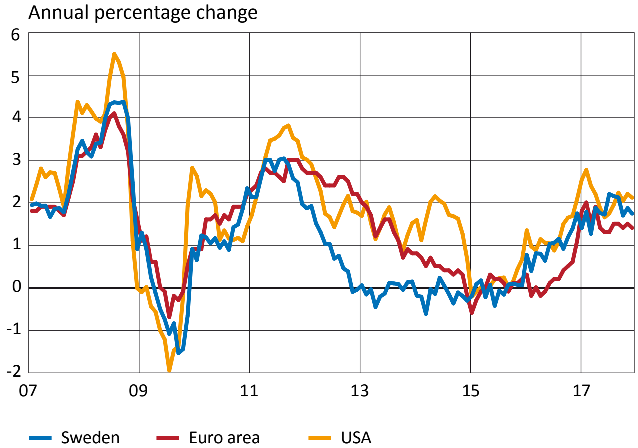
The consequence of the global financial crisis was a very deep international economic slowdown that intensified dramatically after Lehman Brothers entered into bankruptcy protection in the autumn of 2008. Many emerging market economies were also affected when world trade collapsed. The global recession deepened in 2009 and the crisis became truly serious in Sweden when gross domestic product (GDP) fell by 5 per cent over the year (see Figure 3). This was the greatest downturn since 1931, when GDP fell by 7 per cent. Sweden was so utterly impacted by the crisis due to its strong dependence on exports, the Swedish banks' comprehensive and high-risk operations in the Baltic countries and the way that households and companies postponed their consumption of durable goods and their investments until the financial unease had eased. Figure 4 illustrates how inflation fell sharply and became negative for a period in the United States, Sweden, the euro area and elsewhere.

Figure 3. GDP level in the United States, Sweden and the euro area
Index, 2007=100



Sources: The Bureau of Economic Analysis, Eurostat and Statistics Sweden

Figure 4. Inflation in the United States, Sweden and the euro area
Annual percentage change



Note. This refers to the HICP for the euro area and the CPI for the United States and Sweden.
Sources: Bureau of Labor Statistics, Eurostat and Statistics Sweden

Around the world, the demands on central banks to provide the economy with liquidity increased. In coordination, the central banks also heavily cut their policy rates in the autumn of 2008. During the financial crisis, many central banks also adopted so-called unconventional (or complementary) monetary policy measures that involved, for example, providing loans for longer maturities or in foreign currency, approving more securities as collateral for loans and expanding the circle of monetary policy counterparties. After the central banks jointly cut their policy rates worldwide, the Riksbank continued to briskly cut the repo rate by a further 0.5 percentage points at the end of October and by no less than 1.75 percentage points in December 2008. All in all, the Swedish repo rate was thus cut by 2.75 percentage points over a couple of months and, in the course of just over half a year, it had been cut further, by a total of 4.5 percentage points.

In the EU, finance ministers and central bank governors entered an agreement for how affected authorities should cooperate across borders during financial crises. The EU countries also decided to harmonise the regulations for deposit guarantees and introduced a harmonised level for all deposits by private individuals and companies of EUR 100 000 per bank.

At the outset of the crisis, the four major Swedish banks were financially strong. They had low loan losses and the debt-servicing ability of their borrowers was considered to be good. Neither were they significantly exposed to the structured credit products that formed the root of the crisis. This meant that the Swedish interbank market initially functioned relatively well, with no need for liquidity support measures of the kind the ECB had introduced in the summer of 2007. But when Lehman Brothers entered bankruptcy in September 2008, the Swedish banks were also impacted by the worldwide lack of liquidity. They found it more difficult and more expensive to obtain funding. In addition, problems started to gather in the Baltic countries like storm clouds on the horizon. It became clear that extraordinary measures would be necessary to maintain financial stability in Sweden.

Alongside the Riksbank, other government authorities were involved in fighting the crisis. The Swedish National Debt Office increased the stock of treasury bills to meet the market's demand for safe assets. It then lent the money received from these issues to the banks against collateral in mortgage securities. In this way, the Swedish National Debt Office made it easier for the banks to fund their lending to the general public in the beginning of the crisis. It thus acted as a financial intermediary.

In November, the Government also intervened by presenting a guarantee programme to support the banks' and mortgage institutions' medium-term funding. When unease mounted over the possibility that the problems in the Baltic countries could lead to major loan losses, the Government also set up a stability fund to manage any future solvency problems in Swedish institutions. The Swedish state also participated in a new issue of shares in Nordea to increase the bank's capital strength.

The Riksbank, the National Debt Office and the Government thus implemented a range of measures to make it easier for the banks to find funding and thus to manage their credit supply. On an international level, the Riksbank offered loans in euros to the central bank of Latvia, as we mentioned earlier, as well as to the central bank of Iceland, against collateral in domestic currencies. This support was part of a range of measures taken by central banks and the IMF to reduce the risk of the local financial crisis in the two countries spreading to other countries in the region, including Sweden.[4]

The crisis made clear how important it is for Swedish authorities to cooperate in this way. According to the Riksbank, this cooperation worked well and made it possible to take powerful measures to reduce the socioeconomic costs of the crisis (see Sveriges Riksbank 2008b).

The crisis also made clear the need for authorities in different countries to coordinate international efforts. Several central banks, including the Riksbank, received temporary US dollar loans from the Federal Reserve to allow them to supply US dollars to their national financial markets. The Riksbank also entered into an agreement with the ECB with the

4 See also 'Measures taken by the Riksbank and other Swedish authorities during the financial crisis in autumn 2008' in the Riksbank's Annual Report for 2008 (Sveriges Riksbank 2009).

corresponding aim of lending euros. The temporary loan agreement with the Federal Reserve was extended on two occasions and the foreign exchange reserves were expanded through borrowing via the Swedish National Debt Office to improve preparedness to safeguard financial stability.

The financial crisis provides examples of how the boundaries between the Riksbank's different operations, primarily monetary policy and financial stability, are not so sharp. Financial stability is decisive for payments to be made securely and efficiently and for the supply of credit and liquidity in a society to function. In addition, it is crucial for monetary policy to function and supply stable prices. According to this point of view, financial stability is a precondition for the implementation of an efficiently functioning monetary policy.

4 The Riksbank's 'unconventional' measures

The Riksbank lent amounts equal to at most just above 9 per cent of GDP to Swedish banks. The large cuts in the repo rate meant that the level of the repo rate approached zero, which at the time limited the Riksbank's capacity to use further rate cuts if the economy needed stimulation. However, further monetary policy stimulus was necessary, as GDP continued to fall heavily in early 2009.

The Riksbank therefore took unconventional (complementary) monetary policy measures. Firstly, the Riksbank offered its counterparties loans in SEK at longer maturities and loans in USD, secondly, more securities were accepted as collateral, including lending against collateral in commercial papers to facilitate corporate funding, and thirdly, the Riksbank increased its circle of counterparties (see Sveriges Riksbank 2009b and Sveriges Riksbank 2009c). The first loans were disbursed in October 2008 and after that loans were offered regularly right up to the end of October 2010.

The Riksbank granted loans in US dollars to Swedish banks partly with the help of funds from the foreign currency reserves, and partly via a temporary lending facility offered by the Federal Reserve to the Riksbank and other central banks (see Elmér et al. 2012).

In July 2009, the Riksbank announced that it intended to leave the interest rate at the low level of 0.25 per cent for more than a year. At the same time, the Riksbank decided to offer fixed-rate loans. Banks were offered SEK 100 billion in fixed-rate, low-interest loans with a maturity of around 12 months. The monetary policy toolbox needed to be supplemented with such unconventional measures in a situation where the repo rate was approaching its lower bound but monetary policy stimulus was still required. In total, the Riksbank offered three fixed-rate loans with a maturity of around one year, totalling 100 billion Swedish kronor each at the monetary policy meetings in July, September and October 2009. The Riksbank also provided emergency liquidity assistance in 2008 to two individual banks, Kaupthing Bank and Carnegie.

5 Brief recovery – debt crisis on the way

The global economy began to slowly recover during the second half of 2009, most noticeably in Asia. In the United States and the euro area, the downturn slowed, and signs of a turnaround began to appear. Global trade started to increase again, and the financial markets stabilised. In Sweden, a relatively rapid recovery in GDP growth began from the end of 2009. In 2010, the acute phase of the crisis had passed, and banks were able to borrow themselves on the global financial markets. The rapid recovery led to the Riksbank beginning to raise the repo rate again in July 2010 and increases continued until July 2011 when the repo rate reached 2 per cent. The Riksbank's work was moreover increasingly aimed at reforming the regulatory framework, above all the requirements of the banks' capital adequacy and liquidity buffers, and the supervision of the financial markets, and in particular the need to supplement the traditional institution-focused supervision with macroprudential policy, with a focus on identifying and counteracting risks to the system as a whole (see further Johansson et al. 2018).

From 2010 onwards, however, there was growing unease over sovereign debt problems in Europe. Developments were particularly troublesome in Greece, Ireland, Portugal and Cyprus, countries that were unable to find funding on the international bond market. They therefore received support from the IMF, the EU and the European Monetary Union via support packages and requirements for measures to reduce budget deficits and public debt. In addition, large countries such as Spain and Italy had weak public finances and had their credit ratings cut. Several banks in the euro area also had poor capital adequacy, weak profitability and a large amount of non-performing loans, which have slowed recovery for a long time.

Several problem countries had also lost competitiveness compared with the average in the euro area. With a common currency, there was no scope for correcting this by weakening the exchange rate. Instead, competitiveness needed to be restored by holding back price- and wage increases.

In several countries, public finances were made worse by distressed banks being given state aid. A negative spiral emerged in which weak public finances caused interest rates to rise and this increased funding costs for already weak banks who in turn tightened their lending to households and companies, which hampered recovery.

The serious imbalances in public finances led to a situation in 2011 in which only 3 out of 27 EU Member States were not in contravention of the rules on excessive deficits and debt ratios laid down in the 1998 Stability and Growth Pact.[5]

During the summer and autumn of 2011, unease over developments in public finances in both the United States and the euro area increased, and growth prospects abroad deteriorated. This unease also affected developments on the financial markets, and stock markets around the world fell substantially as a result. At the end of the year, the European debt crisis escalated and Swedish growth slowed. Swedish inflation was also lower than expected and led to the Riksbank cutting the repo rate in December.

In 2012, the Swedish economy weakened further as a result of weak developments abroad, inflationary pressures were subdued and the repo rate was cut on three more occasions.

The extensive problems in the euro area had consequences in many areas. The European debt, banking and cost crisis was managed by several authorities. The ECB cut its policy rate and introduced a number of bank lending programmes. In 2012, the ECB also announced a programme, Outright Monetary Transactions (OMT), which made it possible to buy unlimited amounts of government bonds from euro countries that needed support measures from the newly established support authority, the European Stability Mechanism (ESM). OMT was justified by the fact that the ECB needed to ensure that monetary policy had a uniform impact through an efficient transmission to the real economy. Merely offering the option of buying government bonds helped to dampen the unease on the financial markets.[6]

Work on building a banking union was also started. In the wake of the debt crisis, the Riksbank once again considered that the foreign exchange reserves needed to be increased and the Government established a Council for Cooperation on Macroprudential Policy in Sweden at the beginning of January 2012.

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5 These three countries were Finland, Luxembourg and Sweden, see further on the website of the EU-Commission under 'ongoing and closed excessive deficit procedures'.

6 In 2015, the Court of Justice of the European Union ruled that the programme was within the ECB's mandate for price stability and designed in a way that did not contravene the ban on monetary funding, see ECB (2015).

6 Inflation continued to fall and monetary policy was faced with difficult considerations

As early as 2006, the Riksbank had begun to issue warnings that household indebtedness and housing prices were increasing at a rate that was not sustainable in the longer term (see Sveriges Riksbank 2006, p. 9). When the repo rate was increased between July 2010 and July 2011, it was pointed out on several occasions that the risks of household indebtedness had substantially increased. However, the primary grounds stated for the rate rises were that inflation had to be stabilised around the target of 2 per cent and that excessively high resource utilisation needed to be avoided. But the Riksbank noted that a gradually rising repo rate can also contribute to slower growth in household borrowing and reduce the risk of imbalances building up in the Swedish economy (see Sveriges Riksbank (2010). The Riksbank therefore considered the risks of household indebtedness and housing prices in its assessment, which later contributed to the debate on the Riksbank's attempt to 'lean against the wind'.[7]

The international economic slowdown and lower import prices contributed to lower-than-expected inflation in Sweden in 2013. It also proved difficult for companies to pass on their increased costs to the consumer (see Apel et al. 2014). But the monetary policy discussion also continued to revolve around the increased risk for high household indebtedness that low interest rates potentially pose. Household indebtedness accelerated once again and between 2012 and 2017, housing prices rose by 10–20 per cent per year.

This monetary policy consideration came to a head towards the end of 2013. Inflation outcomes had been unexpectedly low during the autumn, despite economic activity being roughly as expected for most of the year. Inflationary pressures were lower than the Riksbank had previously assumed. The repo rate was cut to 0.75 per cent and the forecast for the repo rate was revised down. Despite household indebtedness being assessed as a risk in the longer run, the unexpectedly low inflationary pressure was nevertheless considered to weigh heavier, which justified a more expansionary monetary policy.

In 2014, inflation outcomes continued to be lower than the Riksbank's forecast and the forecasts for inflation were gradually revised down. At the same time, inflation expectations continued to fall. Monetary policy therefore needed to become even more expansionary and the repo rate was cut to zero to contribute to anchoring inflation expectations close to the target.

But there was a clear dilemma that Stefan Ingves expressed on several occasions, for instance, in a speech held in November 2015: 'Monetary policy is the policy area that has the best conditions for influencing the exchange rate and inflation. But to restrain household indebtedness, we would actually need an "extra policy rate", aimed at households and able to be set at a higher level than the usual policy rate. However, as the Riksbank can only steer the general level of interest rates and a part of the transmission is that households borrow more when interest rates are low, we now have to turn to other policy areas to manage household indebtedness.' (See Ingves 2015)

The Riksbank did not remain passive, but recommended measures that the authorities concerned should take to dampen the growing household indebtedness. These recommendations covered everything from more housing, higher capital requirements for the banks, extended direct loan limits for households, to reduced tax relief on interest expenditure.

Stefan Ingves commented in his introduction to the Riksbank's Annual Report for 2014 that measures were urgently needed to limit the rate of increase in household indebtedness.

7 'Leaning against the wind' is when a central bank uses interest rate policy to try to counteract financial imbalances. The general picture at this time was, however, that the Riksbank's monetary policy was well-founded and primarily based on traditional monetary policy considerations. See Jansson (2014) for an analysis of this issue and of how domestic and international criticism of the Riksbank's monetary policy arose.

'We could choose from among a series of measures to reduce household indebtedness, for example amortisation requirements, limiting the proportion of variable interest-rate loans, abolishing tax relief and lowering the cap on the loan-to-income ratio. In the prevailing zero interest-rate situation, other policy areas must reduce the risks linked with household debt as a matter of urgency. Both measures aimed directly at households' demand for credit and reforms to improve the functioning of the housing market are needed.' (See Sveriges Riksbank 2015)

In the euro area, too, inflationary pressures were subdued. The ECB revised down its inflation forecast for 2014, 2015 and 2016 and decided that the deposit rate, which is the rate governing the overnight rate in the euro area, would be negative with effect from June 2014.

In January 2015, the ECB decided to begin an extensive asset purchase programme, with the focus on government bonds, to make its monetary policy even more expansionary and to ensure that inflation began to rise. This contributed to supporting the recovery in the euro area, but the purchases also risked strengthening the krona exchange rate, which had an impact on Swedish monetary policy. The ECB decided to extend its asset purchase programme in December 2016 up to the end of 2017, or if necessary even longer, until inflation could be seen to be approaching the target in a sustainable manner.[8]

When making monetary policy decisions in recent years, the Riksbank has thus not solely taken into account the low inflation and falling inflation expectations in Sweden. Sweden is a small, open economy and strongly dependent not only on global growth and inflation but also on monetary policy abroad. If Swedish monetary policy were to deviate too far from that in other countries, it could lead to severe exchange rate fluctuations. The ECB's low policy rate and extensive asset purchase in the period 2014–2017 therefore affected Sweden and the Riksbank's monetary policy.

In 2015 the Riksbank cut the repo rate below zero for the first time and also decided to purchase government bonds so that monetary policy would become even more expansionary and have a broader impact. The Riksbank then gradually cut the repo rate to –0.50 per cent. At the end of 2018, the total purchases are expected to amount to a total of around SEK 350 billion, excluding reinvestments.

7 Strengthened international financial regulation

The global financial crisis made it clear that the financial regulatory framework and supervision had serious shortcomings. After deregulation and financial innovations in the 1980s and 1990s, the financial sector had grown too large and complicated, rendering it impossible to effectively gain an overview of it using the structures available at the time. The global scope of the crisis made it obvious that both new institutions were required to come to grips with the complex system and an infrastructure was needed to coordinate the cross-border actions of authorities. It was also clear that new tools needed to be added to the authority toolbox, both to counteract the build-up of systemic risks and to handle financial problems in large and complex banks.

These insights triggered extensive global efforts to strengthen the regulation and supervision of financial markets. This globally coordinated reform work began in 2009, when G20 leaders met in Pittsburgh. One of the measures agreed was to task the Financial Stability Board (FSB) to tackle the problem of banks being too big to fail. [9] The results of these

8 The German federal constitutional court announced in August 2017 that it considered there were clear indications that the ECB's programme for bond purchases was in breach of the ban on monetary funding and therefore referred the case to the Court of Justice of the European Union, see Germany's Second Senate of the Federal Constitutional Court (2017).

9 Financial Stability Board (FSB) is an international organisation that monitors and makes recommendations about the global financial system. FSB members consist of representatives from the major G20 countries and international organisations such as BIS, ECB, European Commission, IMF, OECD and the World Bank. The FSB is based in Basel.

efforts included guidelines on how to handle global systemically important problem banks more effectively (see FSB 2011). The idea of the framework was to be able to wind up or reconstruct a bank in a way that made it possible to maintain socially important functions without the taxpayer having to foot the bill for any losses that may be incurred. Based on these guidelines, the EU adopted the Bank Recovery and Resolution Directive (BRRD) in 2014. The BRRD was incorporated into Swedish law in February 2016, and, pursuant to the new act, the Swedish National Debt Office was appointed as the resolution authority for Swedish banks. This also marked the introduction of 'resolution' as a concept in Swedish law to denote the handling of crisis-stricken banks.

After the crisis, intensive efforts were also initiated to plug gaps in the financial supervisory regulatory framework. The Basel Committee on Banking Supervision (BCBS) took a number of initiatives within the framework that came to be known as 'Basel III' (see Niemeyer 2016). This was above all a matter of strengthening the resilience of banks to shocks by not only setting higher capital requirements for them, both in terms of quantity and quality, but also tightening the requirements for how they managed liquidity risks. For example, a requirement was introduced for banks to maintain capital buffers in excess of the basic minimum requirements. In addition, banks were to have sufficiently large liquidity reserves to be able to cope with at least one month of liquidity stress. From 2011 onwards, the work of the Basel Committee was led by Stefan Ingves, who took over as its chair.

During this period, a new policy area – macroprudential policy – was launched on a broad front. The focus of macroprudential policy was to be on the risks in the financial system as a whole, and it therefore constituted a complement to traditional, narrower, institution-focussed supervision. One of the tasks of macroprudential policy is to counteract the 'boom and bust' tendencies that often characterise the financial sector, which is to say excessive risk-taking in economic upswings and destructive herd behaviour in slowdowns. Another focus area of macroprudential policy is the often intricate links that arise between various financial agents and that can contribute to the rapid spread of problems within the financial system.

At the end of August 2013, the then Minister for Financial Markets, Peter Norman, announced that the Government intended to hand the Swedish macroprudential policy remit to Finansinspektionen (Swedish financial supervisory authority) and that a financial stability council would be established, in which the Minister for Financial Markets, the directors-general of Finansinspektionen and the Swedish National Debt Office and the Governor of the Riksbank would be members. In many respects, the Government's proposal went against the division of responsibility for financial stability advocated by the Riksbank in its consultation response to the Financial Crisis Committee's interim report (see Sveriges Riksbank 2013).

New authorities within the EU were also formed in the wake of the crisis. In January 2011, the European Systemic Risk Board (ESRB) was established with the task of monitoring the build-up of systemic risks in the EU and warn EU Member States when necessary. The ESRB also came to play an important role in developing the macroprudential policy toolbox, work very much driven forward by the ESRB's Advisory Technical Committee (ATC). The ATC, later chaired by Stefan Ingves, developed the ESRB's macroprudential policy manual, which provides guidance in how various macroprudential policy tools are to be used, for example capital buffers, loan-to-value versus income-to-value ratios (LTV and LTI) and sectoral capital requirements, etc.[10]

10 For a detailed list and description of macroprudential policy tools, see, for instance, ESRB (2014).

But, without a doubt, the most comprehensive institutional change within the EU in the wake of the crisis was the creation of the European Banking Union. The Banking Union meant that the responsibility for banking supervision was transferred from the national level to the European level. The Banking Union covers the entire euro area and other Member States that choose to join. The arrangement is based on the common European regulatory framework and currently includes both a single supervisory mechanism (SSM) and a single resolution mechanism (SRM). It means, for example, that the European Central Bank (ECB) has taken over the supervisory responsibility and that a single resolution authority, the Single Resolution Board (SRB), has taken over the responsibility for crisis management for banks in banking union member countries. The longer-term aim is for the Banking Union to include a single deposit guarantee system. However, the issue of a single deposit guarantee, which is intended eventually to be jointly funded by the Banking Union member countries, is extremely controversial and is far from settled within the EU. Especially Germany and other northern European countries are worried about being forced to pay disproportionately large amounts of money to save depositors in other countries (see Reuters 2016).

When the Banking Union was created, Sweden elected not to join for the time being. One reason for this was the uncertainty surrounding the obligations membership would entail and how any possible losses in European crisis banks would be distributed (see, for instance, Dagens Nyheter 2012). Another important reason was the lack of influence Sweden would have over the supervision of its cross-border banks, as Sweden is not a euro country.

The work and role of the IMF was also affected by the global financial crisis. In the wake of the collapse of Lehman Brothers, several countries in the euro area were forced to turn to the IMF for financial support. The IMF increased its lending capacity by around 500 billion US dollar via temporary bilateral loans from its member countries. The Riksdag (Swedish parliament) decided to increase its preparedness to lend to the IMF by 100 billion Swedish kronor to help dampen the effects of the debt crisis in the euro area.

During the IMF annual meeting in the autumn of 2008, global finance ministers and central bank governors agreed on a five-point plan to restore confidence in financial markets. The agreement basically meant that all IMF member countries would ensure that their national deposit guarantee systems were sustainable and consistent. Authorities in all countries were to take the necessary measured to kick-start the secondary market for various securities. The IMF would also be given a central role in coordinating the continued process of re-establishing confidence in global financial markets, partly by lending to assist countries with payment problems and partly by functioning as a platform for discussions on what should be done to avoid similar crises arising in the future. The IMF also established a number of new alternatives to be able to assist more countries with loans. The financial crisis reinforced the role of the IMF as the international financial system's firefighter.

8 Clear global recovery not until ten years after the crisis

In all, the financial crisis contributed to a deep and drawn-out global recession. After the crisis, GDP in the United States and Sweden has grown considerably quicker than in the euro area, which has fallen behind as a result of the European debt crisis. At the end of 2016, the GDP level in the United States was 16.5 per cent over its level at the start of 2007. In Sweden, GDP has risen by 14.1 per cent during the same period, while GDP in the euro area was only 4.8 per cent higher in late 2016 than in early 2007.[11] Unemployment in the euro area also rose sharply, particularly in the crisis countries. Both the measures taken and the lack of measures contributed to public dissatisfaction and an unstable political situation in several

11 Measured as GDP per capita, the recovery after the crisis was even slower. GDP per capita between 2007 and 2016 increased by 4.4 per cent in the United States and 5 per cent in Sweden but only by around 0.5 per cent in the euro area, see Ingves (2017).

euro countries. In 2017, however, some positive economic signals were noted in the euro area even if the imbalances had decreased slowly.

Long after the most urgent phase of the financial crisis, interest rates in many developed countries remained at very low levels. One of the explanations to the historically very low policy rates was the pre-existing downward trend in global real interest rates. Global real interest rates had fallen by just over 4 percentage points since the end of the 1980s to just below 1 per cent in 2016, as a result of, for example, structural changes in the economy in several countries.[12] Earlier in history, real interest rates have also been at very low levels and then returned to more normal levels (see also Hansson et al. 2018 and Rachel and Smith 2015). There was considerable uncertainty, however, as regards how long the global real interest rate would continue to be so low.

In 2017 and most of 2018, the global economy has nevertheless been in a recovery phase. Forward-looking indicators have strengthened for a period and public finances in the euro area have improved. However, the combination of political uncertainty and remaining financial imbalances are still contributing to risks in Europe that can hinder recovery. For example, there are still a risk of certain euro countries not complying with the applicable macroprudential policy and fiscal policy regulations. In addition, there is a lack of structural reforms in several euro countries to increase the potential growth rate. The consequences of the United Kingdom's decision to exit the EU is also contributing to political and economic uncertainty. In the United States, the new administration after the presidential election of 2016 has pursued policies that restrict trade and if a trade war were to escalate, there is a risk of a significant slowdown in global growth.

In Sweden, however, monetary policy has had a clear impact on the economy. Inflation has been rising since the beginning of 2014, as have long-term inflation expectations, which have risen to around 2 per cent. During the second half of 2018, CPIF inflation has been over 2 per cent. Economic activity in Sweden is also strong and unemployment has declined. Monetary policy has contributed to this positive development.

9 Conclusions

The years 2006–2017 were dramatic, both in Sweden and globally, and were characterised to a great extent by the global financial crisis that broke out in 2008. Together with the continuing globalisation and technological advances, the financial crisis contributed to a number of comprehensive changes being made in the economic, financial and political areas, both here in Sweden and in the world as a whole. This gave rise not least to a number of existential issues, which included a detailed and broad discussion of the legitimacy and tasks of the central banks.

Among other things, experiences from the financial crisis gave rise to important questions about what mandates and tools central banks should have. Before the crisis, many central banks considered that monetary policy should not have the explicit goal of counteracting the accumulation of financial imbalances. It was considered more appropriate to use monetary policy to 'tidy up' after a financial crisis had occurred. But after the highly comprehensive cleaning operations required after the global financial crisis – which are still under way in some countries ten years after the start of the crisis – some economists have argued that, alongside the inflation target, monetary policy should have a clearer task of counteracting imbalances and risks like those that accumulated ahead of the outbreak of the crisis. It could be said that one justification for clarifying the tasks of monetary policy in this way is that a stable financial system forms a precondition for the monetary policy

12 There are several different explanations for the falling trend in global real interest rates. Among the most important are increased saving as a result of longer life expectancy and an ageing population, reduced innovativeness and lower growth, and higher demand for safe assets. See Ingves (2017) for a review of various possible causes.

transmission mechanism, the basis of which is that the impact of the central bank's interest rate decisions comes from how the banks set their interest rates for households and companies.

Other economists have instead emphasised the need for a new policy area – *macroprudential policy*. The global financial crisis was considered to be due not merely to shortcomings in how monetary policy had been applied. Instead, some economists saw it as a failure of traditional financial supervision, which had myopically focused on the development of individual institutions at the same time as it essentially ignored the financial bubbles that were expanding around the world. The existing financial supervision largely lacked both the knowledge and the mandate to adopt such a bird's eye view. According to many analysts, what was needed was a complement to the short-sighted 'microprudential policy' – a 'macroprudential policy' with the task of monitoring and counteracting risks in the system as a whole. Macroprudential policy could also be given more *targeted* tools to counteract the accumulation of risk in specific sectors than, for example, the central banks' relatively blunt interest rate tools. Examples of such targeted tools include loan-to-value ceilings and amortisation requirements, which can be aimed at counteracting risks specifically on the mortgage market. With macroprudential policy in place, monetary policy, according to some economists, should be able to continue primarily to stabilise inflation and the real economy.

Following the crisis, macroprudential policy came to be established in many parts of the world, for example in the form of special councils between authorities and as additions to the existing mandates of central banks or supervisory authorities. In Sweden, macroprudential policy came to be granted to Finansinspektionen, albeit with a slightly restricted mandate. A financial stability council was also set up, in which the Ministry of Finance, Finansinspektionen, the Riksbank and Swedish National Debt Office participate.

The crisis also demonstrated that the financial markets had become global and cross-border to a much greater extent than before. Regulation, supervision, analysis and not least cooperation at global and intergovernmental level therefore needed to be substantially reinforced (see also Johansson et al. 2018).

The crisis entailed that comprehensive work was initiated in many different areas at the point of intersection between macroeconomics and finance, for example, both among central banks and academics. This work is expected to continue for a long time to come. A discussion is also under way on the political level concerning the role of central banks in general and monetary policy in particular. For example, at the end of 2016, the Swedish Government appointed a parliamentary committee with the task of performing a review of the monetary policy framework and the Sveriges Riksbank Act (see Ministry of Finance 2016).

As we noted, the central banks in general had to carry a heavy burden in stabilising the world's economies after the financial crisis. The central banks' unique ability to rapidly create large amounts of liquid funds gives them a special position as lender of last resort, which is to say the party able to assist banks encountering temporary liquidity problems and thereby prevent disastrous domino effects in the financial system. The stability of the financial system has great significance for the role of the central bank as lender of last resort and for its tasks of both promoting a safe and efficient payment system and implementing monetary policy efficiently. In practice, this means that, in the future, central banks will also have to follow the development of the financial system closely and address tendencies towards risk accumulation in the system with the means at their disposal.

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