Thomas Jordan: Monetary policy in the euro area's neighbouring countries

Text of the SAFE Policy Lecture by Mr Thomas Jordan, Chairman of the Governing Board of the Swiss National Bank, at the SAFE Policy Center, Frankfurt am Main, 23 February 2016.

* * *

The author would like to thank Oliver Sigrist for his valuable support in preparing this speech. He also thanks Simone Auer, Petra Gerlach and Carlos Lenz for their helpful comments, the SNB's Communications and Language Services units, and Francesca Boucard for compiling the data.

Ladies and gentlemen

I am delighted at the invitation by the SAFE Policy Center to give this presentation in the "capital" of the euro area. While most of my European colleagues attend ECB council meetings here every few weeks, I have somewhat less occasion to visit Frankfurt. Since Switzerland is not a member of the euro area, the Swiss National Bank (SNB) naturally has no right to take part in or influence the decision-making process here. Yet at the same time, decisions on European monetary policy are of utmost interest to us, since they strongly affect the SNB and Switzerland.

This being the case, I would like to speak today about monetary policy in the euro area's neighbouring countries. I will focus not just on Switzerland, but also on other small open economies, and in doing so, illustrate our experiences – both shared and divergent – since the onset of the financial crisis in 2008.

Besides Switzerland, I will also be looking at the Czech Republic, Sweden and – a special case – Denmark (cf. chart 1). These are all small open economies with strong trade links to the euro area. With the exception of Denmark, these countries chose to continue pursuing an independent monetary policy even after the introduction of the euro. Furthermore, the central banks of all these countries have in recent years implemented unconventional monetary policy measures. I will return to this point in more detail later.

Two questions stand at the centre of my speech today. First, can countries bordering a major currency area pursue an independent monetary policy – and have events since the onset of the financial crisis in 2008 affected the answer? And second, how have unconventional measures helped these countries in the implementation of an independent monetary policy? I will argue that the first question – whether countries bordering the euro area can pursue an independent monetary policy – can essentially be answered with a yes. However, for these countries, managing monetary conditions arising from interest and exchange rate levels has become significantly more difficult in recent years. Regarding the second question – how have unconventional measures helped these countries in implementing an independent monetary policy – I will argue that negative interest, foreign exchange market interventions and quantitative easing programmes – instruments each tailored to suit a country's specific needs – have helped these central banks to regain a certain room for manoeuvre. But I will also assert that, when major disruptions occur, central banks cannot always keep inflation and growth stable within a targeted range. This, in turn, is not a new insight per se, in that it adheres to the central banking consensus that monetary policy should be geared to the medium term, and that, depending on the environment, certain short-term fluctuations in output and inflation are unavoidable.

Allow me to begin by providing a definition of what is meant by an independent monetary policy. A country with free movement of capital has two means of achieving monetary policy goals like price stability. First, it can peg the exchange rate of its currency to a foreign currency, thereby adopting the other country's monetary policy. If the two economies move in parallel and the monetary policy of the other country is sufficiently stability-oriented, price stability can be imported by this means. Or, second, a central bank can pursue a monetary policy that is

explicitly tailored to suit the specific needs of that country. The monetary policy trilemma is that, given free capital movement, such a tailored, independent monetary policy is only possible with a floating exchange rate.

Of course, as a small open economy pursuing an independent monetary policy, Switzerland is also exposed to global influences, and particularly to those from within Europe. First, trade relations are of central importance; fluctuations in consumer demand within the euro area are reflected in the exports of neighbouring countries, and influence their economies. Second, changes in the monetary policy of the euro area have repercussions. Interest rate cuts by the ECB usually lead to an appreciation of currencies in neighbouring countries. This dampens growth and lowers inflation. Third, uncertainty during the euro crisis precipitated capital flight towards neighbouring countries, thereby placing exceptional upward pressure on their currencies and thus rapidly changing their monetary conditions. The monetary policy of neighbouring countries must take into account the influences via these channels on domestic economic developments.

The most significant advantage of conducting an independent monetary policy is that it allows the central bank to address the specific needs of its own economy. Countries which join a currency union relinquish this ability to control and stabilise in favour of other advantages – for example, by joining a currency union, a country may take on a more credible and therefore more successful monetary policy than its previous one. For Switzerland, however, the ability to pursue an independent monetary policy has clearly paid off. The structure of the Swiss economy is a singular combination of, first, a strong manufacturing sector specialised in producing high-quality, research-intensive goods (think of pharmaceuticals and watchmaking, but also the specialised machinery industry), and second, a major financial centre which, notwithstanding certain setbacks due to the financial crisis, has retained its global reach. Given this structure, the drivers of economic development in Switzerland are therefore often different to those of other European countries, so it makes sense to have an independent monetary policy.

Developments since the onset of the financial crisis in 2008, however, have served as a reminder that monetary policy cannot always keep inflation and growth stable within a targeted range. This is true of both large and small currency areas. One reason is that the scale of the disruptions and distortions of recent years has been unusually large. Furthermore, the situation has been exacerbated by the fact that conventional interest rate policy has reached its limits.

By introducing unconventional monetary policy measures, central banks have regained a certain room for manoeuvre. However, these unconventional measures cannot be deployed endlessly to achieve desirable monetary conditions. Interest rates, for example, cannot continue to be lowered into negative territory without at some point precipitating a flight to cash. Foreign exchange market interventions and quantitative easing programmes carry with them the increasing risk that a central bank's ability to conduct monetary policy may be compromised in the long term. Furthermore, our practical experience of calibrating unconventional measures and of gauging their effects is still limited compared to that of the conventional interest rate instrument. In light of these reservations, unconventional measures must be used with caution, and their long-term consequences taken into consideration. They must also be continuously reassessed.

Allow me now to illustrate how countries neighbouring the euro area have implemented their monetary policy since the onset of the financial crisis in 2008, using Switzerland, the Czech Republic, Denmark and Sweden as examples. The primary goal of an independent monetary policy in the Czech Republic, Sweden and Switzerland is price stability. Denmark bases the maintenance of its price stability on ECB policy, as Danmarks Nationalbank keeps the krone in a narrow fluctuation band to the euro. The Danish experience of recent years, in particular, provides interesting insights into unconventional monetary policy measures.

Three phases of monetary policy in Europe since 2008

The period between 2008 and today can be divided into three phases. The first phase, from 2008 to 2011, has the global slump in demand at its centre. During this period, primarily conventional monetary policy measures were deployed. The second phase, from 2011 to 2014, is shaped by growing fears about the future of the euro area and, in the event of its collapse, potential consequences for neighbouring countries. This period sees the introduction of unconventional measures. In the third phase, from mid-2014 to the present, the emphasis lies on quantitative easing in the euro area and its effects on neighbouring countries. During this period, unconventional measures are adjusted and their deployment is stepped up.

For each phase, I will illustrate the most important economic developments and how central banks reacted to them, and provide a brief interim conclusion. Finally, I will place these observations on monetary policy in a broader context, before summing up.

Demand slump following the onset of the financial crisis (2008–2011)

The key event following the onset of the financial crisis was the collapse of the Lehman Brothers investment bank in September 2008. The subsequent weeks and months saw a sudden, substantial slump in demand for goods and services. Between 2008 and 2009, global imports and exports fell by some 25% in nominal terms, the sharpest decline since records began in 1948.

The euro area, and the neighbouring countries examined here, slipped into recession (cf. chart 2). GDP in the euro area plunged by around 5% in 2008 and 2009, at the height of the crisis. The drop in the neighbouring countries ranged from 3.4% in Switzerland to 7.2% in Denmark, whose economy had experienced a phase of overheating in pre-crisis years. Inflation rates fell sharply due to lower demand and falling oil prices (cf. chart 3).[1] Inflation in the euro area declined to −0.6% in the course of 2009. The lowest inflation recorded during this period was −1% in Switzerland. In the Czech Republic, too, inflation was negative for a short period in 2009. In Denmark and Sweden, it remained in positive territory.

Central banks reacted to the global slump in demand with drastic interest rate cuts – the conventional monetary policy instrument (cf. chart 4).[2] In addition, markets were provided with large amounts of liquidity. In the Czech Republic, Denmark and the euro area, there was still leeway for further steps even after these interest rate cuts. Sweden's Riksbank and the SNB, however, lowered their reference interest rates almost to the 0% bound,[3] thereby de facto exhausting their room for manoeuvre using conventional monetary policy measures.

Movements in nominal exchange rates in Europe, which will play an important role in the second and third phases, varied from one country to another during this first phase. There was already upward pressure on the Swiss franc (cf. chart 5), due to the currency's traditional role as a safe haven. In times of substantial global uncertainty, investors take refuge in such currencies, which subjects them to upward pressure.

---

[1] Chart 3 shows consumer price indices in the Czech Republic, Denmark, the euro area and Switzerland. For Sweden, the CPIF, of relevance for the Riksbank, is shown; this is a consumer price index that assumes fixed mortgage rates and thereby excludes the effects that interest rate changes have on households servicing mortgage debts. In this chart and those that follow, data is shown only until the end of 2015.

[2] Chart 4 shows the following reference interest rates: for Switzerland, the middle of the target range for the three-month Libor; for Denmark, the central bank's lending rate; and for the Czech Republic, the euro area and Sweden, the repo rate for monetary policy operations.

[3] In Sweden, the overnight deposit rate was lowered into negative territory in 2009. This facility, however, was and is almost never used – rather, the intraday deposit facility is used, and its rate remained positive in 2009.

In the course of 2009, the neighbouring countries under review showed signs of emerging from the trough of the global economic crisis. Economies returned to growth, and inflation rates rose once more. Due to the favourable economic developments and the expected increase in inflationary pressure, interest rates were raised, first in Sweden and later in the euro area – and thus in Denmark too (cf. chart 6).

As an interim conclusion, we can state that in the first phase following the onset of the financial crisis, conventional monetary policy helped to cushion the effects of the slump in demand. However, in Switzerland and Sweden, shortly after the onset of the crisis, interest rates were lowered to almost 0% – which at the time was regarded as the lower bound. Conventional monetary policy had thus already reached its limits in these two countries.

The euro crisis and fears about the future of the euro area (2011–2014)

We come now to the second phase, namely the euro crisis and fears about the future of the euro area.

In 2011, it became clear that the global economic recovery had lost a great deal of momentum. In this phase, international financial markets were unsettled by discussions in the US about the debt ceiling. At the same time, euro area activity weakened markedly, and high levels of government debt became a source of concern. In the second half of 2011, yields on various government bonds in the euro area began to diverge rapidly (cf. chart 7).

Before the onset of the global financial crisis, the euro area was regarded by financial markets as a more or less homogeneous unit. Hardly any distinction was made between country risk within the euro area. This was reflected in the fact that the government bond interest rates of most member countries were practically the same as those of the country with the lowest yields, namely Germany. During the course of the financial crisis, concerns over the stability of the euro area led to increasingly large divergences between the sovereign yields of the large member countries. Yields rose not just on Italian and Spanish bonds, but also on French sovereigns. In this environment, the growth and inflation outlook for the euro area again deteriorated. At the end of 2011, the ECB therefore reversed two of its interest rate hikes, those of April and July 2011.

Market uncertainty resulted in renewed inflows to the Swiss franc, causing it to appreciate against a broad range of currencies (cf. chart 8). In 2007, one euro cost CHF 1.65 – by August 2011, the exchange rate had fallen to almost parity. The Swiss franc also gained markedly against the US dollar, which at the time was not regarded as safe haven due to discussions about the debt ceiling. In 2007, a dollar cost CHF 1.25 – in autumn 2011, it temporarily fell to 75 centimes. A rapid and substantial appreciation was also taking place against the other major currencies, with no end in sight. The Swiss franc was overvalued against a broad range of currencies, resulting in a severe deterioration in the economic and inflation outlook for Switzerland, threatening severe consequences for the real economy.

To turn this dramatic tide of events, at first the SNB increased its liquidity – in August 2011 alone, liquidity expansion amounted to CHF 170 billion. This measure, however, did not have a sustained effect. Finally, in September 2011, the SNB introduced a minimum exchange rate of CHF 1.20 per euro as a temporary, exceptional measure (cf. chart 9). The SNB was thereby prepared to use its balance sheet to purchase foreign currency in order to stop the spread of panic. While this policy measure corrected the exceptional strength of the Swiss franc, the currency remained substantially overvalued. Nevertheless, the stabilisation of the euro/Swiss franc exchange rate allowed the Swiss economy to adjust to the new currency reality. In addition, the inflation outlook, which had worsened due to the strong Swiss franc, brightened again.

The euro crisis impacted not just the economy in Switzerland, but also the economies and exchange rates of the other neighbouring countries under review. They, too, eased their

monetary policies. In Sweden, from the end of 2011 to the end of 2013, interest rates were lowered in successive steps to 1%; between 2010 and 2011, they had been raised to 2% on the back of robust economic growth. The Riksbank was thereby able to slow the economic downturn and simultaneously prevent a further appreciation of the krona and a decline in inflation expectations (cf. chart 10).

Interest rates in the Czech Republic touched 0% at the end of 2012, and the Czech National Bank (CNB) announced its intention to intervene on the foreign exchange market if necessary. At the end of 2013, the CNB intervened to weaken the Czech koruna and ease monetary conditions (cf. chart 11). Thus, like the SNB, the CNB also decided to use the exchange rate as an instrument for easing monetary conditions.

The Danish krone, explicitly pegged to the euro since the inception of the currency union, also suddenly found itself having to contend with upward pressure. This reflected concerns about the future of the euro, and market assumptions that Denmark could become a member of a Nordic euro should the euro area split. At the end of 2011, Danmarks Nationalbank reacted by cutting its reference rate to below that of the ECB, and continued to lower it in successive steps thereafter. At the same time, it intervened on the foreign exchange market. In mid-2012, when the ECB once again lowered its rates, Danmarks Nationalbank lowered its deposit rate into negative territory in order to keep pace with the ECB's monetary policy easing (cf. chart 12).[4] The negative interest rate affected the entire banking system, and Danmarks Nationalbank found itself in uncharted monetary policy terrain.[5]

The introduction of negative interest in Denmark showed that moderately negative deposit rates are a viable monetary policy instrument. Concerns that lowering interest rates into negative territory could potentially precipitate a flight to cash had previously dissuaded central banks from using this measure. When interest must be paid on bank deposits or money market instruments, holding cash in a vault may appear more advantageous. However, this too entails high risk, and, in the case of large sums, sizeable costs in terms of logistics, storage and insurance. Such costs can outweigh those of moderately negative interest rates; in Denmark, a flight to cash did not take place.

What is my interim conclusion for this second phase? Once the interest rate instrument had come up against its limits, the euro crisis forced central banks in neighbouring countries to deploy unconventional measures. In doing so, these central banks were able to regain a certain room for manoeuvre in influencing monetary conditions. At the same time, they had crossed into uncharted monetary policy terrain, since practical experience of calibrating these unconventional measures and of gauging their effects was still limited in comparison to that of the conventional interest rate instrument.

This second phase shows that unconventional measures can have a role to play in influencing monetary conditions. Distortions in a currency's valuation, in particular, can justify interventions on foreign exchange markets – even in an environment of floating exchange rates. With regard to the interest rate instrument, it has become apparent that the room for manoeuvre in monetary policy is larger than previously assumed, and that interest rates can be lowered into negative territory. The fear that the introduction of negative interest will precipitate a flight to cash has thus far proved unfounded.

---

[4] Chart 12 shows the deposit rates of Switzerland, Denmark and the euro area. For the Czech Republic, the discount rate is used, and for Sweden, the repo rate minus 10 basis points. In Sweden, this interest rate is available to the banking system within the context of fine-tuning operations by the Riksbank.

[5] In Switzerland, the Federal Council introduced negative interest for foreign account holders in the 1970s. For details, cf. Bernholz, Peter (2007), From 1945 to 1982: the transition from inward exchange controls to money supply management under floating exchange rates, *The Swiss National Bank 1907–2007*.

Further monetary policy expansion in the euro area (from mid-2014)

Now we come to the third phase, shaped by quantitative easing in the euro area.

Economic recovery in the euro area was slow, although the ECB's promise in July 2012 to do everything necessary to preserve the euro greatly reduced market uncertainty. While the economy was tentatively getting back on its feet, inflation in the euro area dipped below 2% at the end of 2013 and continued to fall from there. At the beginning of 2015, it slid into negative territory, giving rise to concerns about whether inflation expectations were well anchored (cf. chart 13).

In June 2014, the ECB lowered its main refinancing rate to 0.15% and its deposit rate to below zero. Today, they are at 0.05% and –0.3% respectively. In lowering the interest rate into negative territory, the ECB followed the example of Danmarks Nationalbank, which had already introduced negative deposit rates for banks in 2012. The primary goal of the ECB was, however, not the same as that of Denmark (which was to reduce capital inflows); instead, it sought to increase inflation by stimulating lending.[6]

From mid-2014, the ECB sent ever clearer signals that it would be substantially easing its monetary policy. At the same time, there were increasing signs that the US Federal Reserve would be exiting its zero interest rate policy. Against this backdrop, the euro began to depreciate considerably not only against the US dollar, but also against the pound sterling. Between mid-2014 and the beginning of 2015, the euro lost almost 15% against the pound and more than 20% against the US dollar (cf. chart 14). A phase of general euro weakness set in.

Finally, on 22 January 2015, the ECB announced a quantitative easing programme going well beyond market expectations in terms of length, target volumes and the wide range of the securities eligible for purchase. The euro lost even more ground against the US dollar and the pound sterling.

For its neighbours, the ECB's monetary policy easing had both positive and negative effects. On the one hand, the measures promised to support economic recovery in the euro area, which, thanks to real economic linkages, would also benefit neighbouring states. On the other hand, as with the US dollar and the pound, it led to increased upward pressure on the euro area's neighbour currencies.

Switzerland's monetary policy situation saw a fundamental shift. Let me explain this situation by means of interest rate differentials on call money (cf. chart 15).[7] The call money rates enable the best comparison of monetary policy restrictiveness. In a positive interest rate environment, they reflect movements in the main refinancing rate, and in a negative interest rate environment, they follow central bank deposit rates. In the phase leading up to the crisis, the interest rate differentials between the euro area and the Czech Republic, Denmark and Sweden were close to 0%.

In contrast, Swiss interest rates have historically been below the euro area's interest rates. This interest rate differential reflects Switzerland's status as a safe haven. In exchange for the greater security of Swiss investments, investors accept lower interest rates than they would receive abroad. During the course of the crisis, this interest rate differential was continually eroded as the SNB quickly reached the zero lower bound and the ECB continued to ease its monetary policy. When the SNB introduced its minimum exchange rate in September 2011,

---

[6] To attain this goal, the ECB introduced a number of additional measures, including targeted longer-term refinancing operations.

[7] Chart 15 shows interbank offered rates for Switzerland, the Czech Republic and Sweden, and transaction-based interbank rates for Denmark and the euro area.

the interest rate differential between Switzerland and the euro area was already smaller than it had been before the crisis. It was, however, still significant.

The ECB's monetary policy easing from mid-2014 had a much greater impact on Switzerland than on the other neighbouring countries, as it led to the interest rate differential disappearing completely. This had dropped to almost zero by the end of 2014 (cf. chart 16).[8] For the other neighbouring countries, the interest rate differential to the euro area was within its normal range at the end of 2014. The reason for this was, of course, that these countries had similarly high interest rates as the euro area at the start of the crisis, and that their central banks were therefore able to lower rates to the same extent as the ECB. As the interest rate differential had hardly changed, and these countries' currencies were less sought after as safe havens than the Swiss franc, they were subjected to considerably less upward pressure against the euro than the Swiss currency.

The situation in Switzerland was made even more difficult by the fact that, as a result of the minimum exchange rate, both the Swiss franc and the euro lost value against the US dollar and the pound sterling. This put the broad overvaluation of the Swiss franc that had led to the introduction of the minimum exchange rate into perspective. Both of these factors, i.e. the disappearance of the interest rate differential and the reduction of the overvaluation, finally led to rapidly increasing pressure on the minimum exchange rate.

At the beginning of 2015, it became clear that the minimum exchange rate of CHF 1.20 per euro was no longer sustainable from a monetary policy perspective, and would require ever-larger foreign currency purchases to enforce it. If the SNB had ignored the changing reality and attempted to maintain the minimum exchange rate, the extensive interventions would have led to the bank losing control over its balance sheet and thus over longer-term monetary conditions in Switzerland. Putting this decision off would also not have helped the economy. The minimum exchange rate was introduced as an instrument against widespread and extremely pronounced Swiss franc strength. In this new phase of general euro weakness, it was no longer the right tool. The conditions which existed when it was introduced in 2011 had fundamentally changed.

On 15 January 2015, the SNB therefore decided to discontinue the minimum exchange rate and to impose an interest rate of –0.75% on sight deposits held by banks at the SNB. With this negative interest rate, the interest rate differential to the euro area was at least partially restored. At the same time, the SNB announced that it would continue to intervene on the foreign exchange market if necessary. By implementing both of these measures, the SNB's aim was and remains to reduce the upward pressure on the Swiss franc. Immediately after the minimum exchange rate was discontinued, the Swiss franc appreciated abruptly against the euro before weakening again somewhat. The Swiss franc saw the same appreciation that the US dollar and the pound sterling had already experienced. Due to Switzerland's close trade links with the euro area, this appreciation presented the Swiss economy with major challenges.

The euro area's neighbours reacted to the ECB's monetary policy measures in varying ways. Denmark lowered its deposit rate to –0.75% in January 2015 and intervened in the foreign exchange market.[9] Sweden introduced a negative interest rate in February 2015, although the relevant deposit rate currently stands at –0.60%. The Riksbank also began its own quantitative easing programme and announced that it would intervene on the foreign exchange market if necessary. The Czech National Bank reacted with more foreign exchange market interventions, but decided not to implement negative interest.

---

[8] The table shows values for November 2014, since the SNB's announcement in December of a rate of –0.25% on sight deposits with effect from January 2015 immediately impacted market interest rates.

[9] By January 2016, the situation had eased enough for Danmarks Nationalbank to raise the interest rate to –0.65%.

By discontinuing the minimum exchange rate, the SNB regained some of its ability to conduct monetary policy. The new monetary policy stance is beginning to have an impact. Since the minimum exchange rate was discontinued, there have been periods of great uncertainty on the financial markets in connection with Greece, but also with China and other emerging economies. This would normally have caused the Swiss franc to appreciate, whereas the franc has actually weakened slightly over the last 12 months. Nonetheless, the Swiss franc remains considerably overvalued against the euro in real terms.

I draw the following conclusion for the third phase: unconventional monetary policy measures are now widespread in Europe and have given central banks slightly more room for manoeuvre. The Riksbank and the ECB are operating quantitative easing programmes. The central banks of the Czech Republic, Denmark, Sweden and Switzerland are prepared to intervene in the foreign exchange market as necessary. And finally, Danmarks Nationalbank, the ECB, the Riksbank and the SNB have all introduced negative interest rates.[10]

What kind of impact have negative rates had from a monetary policy perspective? As hoped, they have contributed to reducing upward pressure in the neighbouring countries of the euro area. However, corporate financing conditions have not significantly improved, unlike with a conventional reduction in interest rates, and mortgage rates have even risen in some cases.

The cost/benefit ratio of unconventional monetary policy instruments must be continually reassessed. If an instrument is no longer having the desired effect after a change in prevailing conditions, monetary policy should be adjusted accordingly. In this regard, it is of central importance that not only the short-term costs and benefits are analysed, but also the long-term consequences.

Overall, those euro area neighbours with an independent monetary policy have thus far emerged from the crisis in reasonably good shape (cf. chart 17). GDP in Switzerland and Sweden is currently about 12% higher than the pre-crisis level at the beginning of 2007, while in the Czech Republic it is more than 9% higher. Having the ability to react to the situation at home with an independent monetary policy appears to have paid off, despite all the challenges.

Inflation in the euro area's neighbouring countries is, however, lower than targeted – as, indeed, it is in the euro area member states themselves. In the case of Switzerland, where inflation has historically been lower than in these countries, inflation is currently even negative. This is part of a short-term adjustment process, since negative inflation contributes to reducing the real appreciation of the Swiss franc.

Conclusion

I will now place my observations on monetary policy in a broader context and formulate three key messages.

But before doing so, I would like to point out that the decision to adopt an independent monetary policy is not a purely economic one. Central banks act within the framework that is laid down for them by the legislature and, ultimately, the sovereign power. The culture and history of a country play an important role in selecting the national monetary order.

And now I come to my three key messages.

My first message is that it is possible for small open economies bordering a large currency area to pursue an independent monetary policy. It allows the central bank to react to disruptions specific to its own country and to ensure price stability in the medium term. For example, following the onset of the financial crisis, central banks in Europe lowered their

[10] The first central bank outside Europe to introduce negative interest rates was the Bank of Japan, at the end of January 2016.

interest rates at different points in time and to varying degrees to cushion the effects of the demand slump. Both conventional and unconventional monetary policy measures helped to absorb the shocks of the euro crisis and the ECB's substantial monetary policy easing from March 2014.

My second message is that in times of crisis, monetary policy's usual room for manoeuvre can be quickly exhausted, making unconventional measures necessary. This is true of both large and small currency areas. In smaller currency areas, an increase in exchange rate volatility can present monetary policy with additional, substantial challenges. In both the neighbouring countries of the euro area and the member states themselves, negative deposit rates and quantitative easing programmes have therefore been implemented to influence monetary conditions. Furthermore, the central banks of the Czech Republic, Denmark, Sweden and Switzerland are prepared to intervene in the foreign exchange market as necessary. This range of unconventional measures has extended the monetary policy options for the various central banks.

My final message is that, despite the expanded set of monetary policy instruments available, the options are not unlimited. First, the effects of monetary policy measures can wane with duration and dosage. This is particularly the case if the solution to structural problems requires adjustments to economic policy. Monetary policy is no replacement for such adjustments. Second, the benefits of unconventional monetary policy measures always come at a potential cost. These costs must be continually evaluated and monetary policy adjusted if the long-term costs outweigh the short-term benefits. Third and finally, for small open economies in particular, monetary policy cannot cushion the impact of every negative development in the global economy or the international financial markets. Favourable conditions for the economy and a high degree of adaptability among companies play a key role in a country's ability to overcome crises and disruptions.

Chart 1

EURO AREA AND NEIGHBOURING COUNTRIES UNDER REVIEW

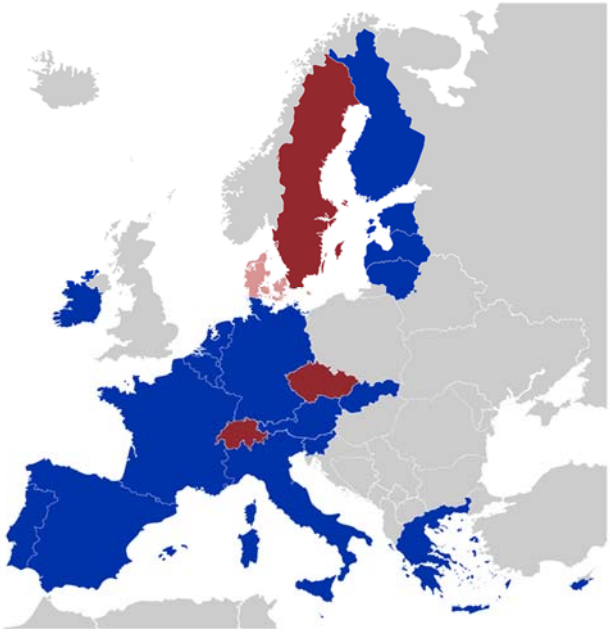
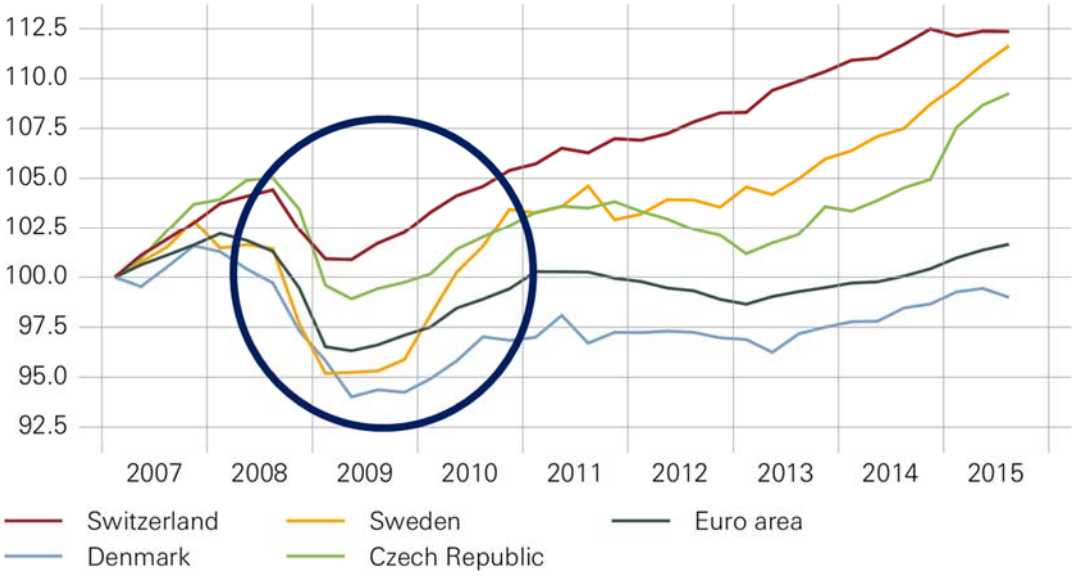


Chart 2

REAL GDP

Indexed Q1 2007 = 100

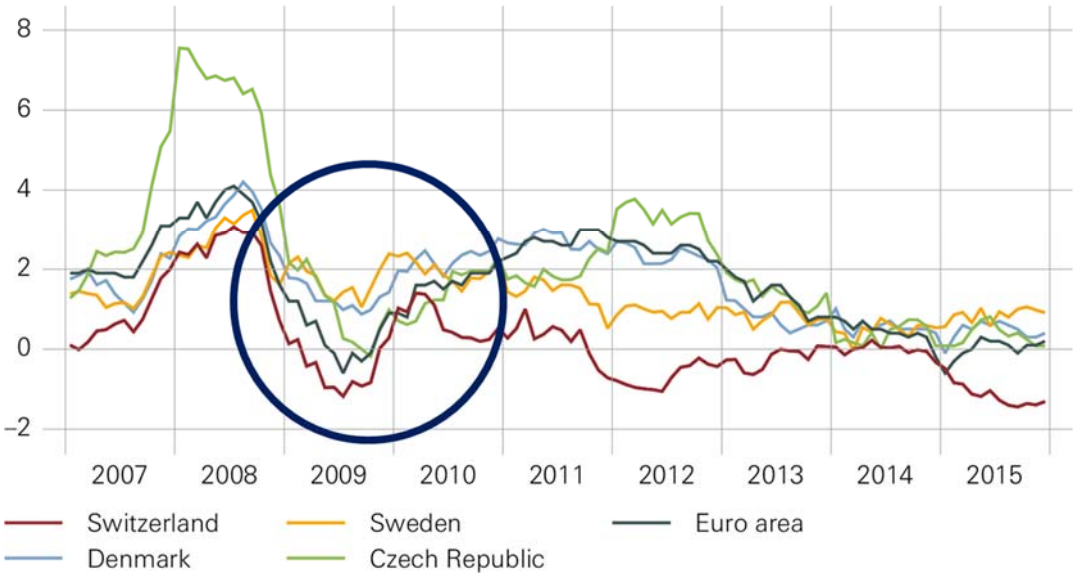


Sources: Datastream, SNB

Chart 3

INFLATION

In percent

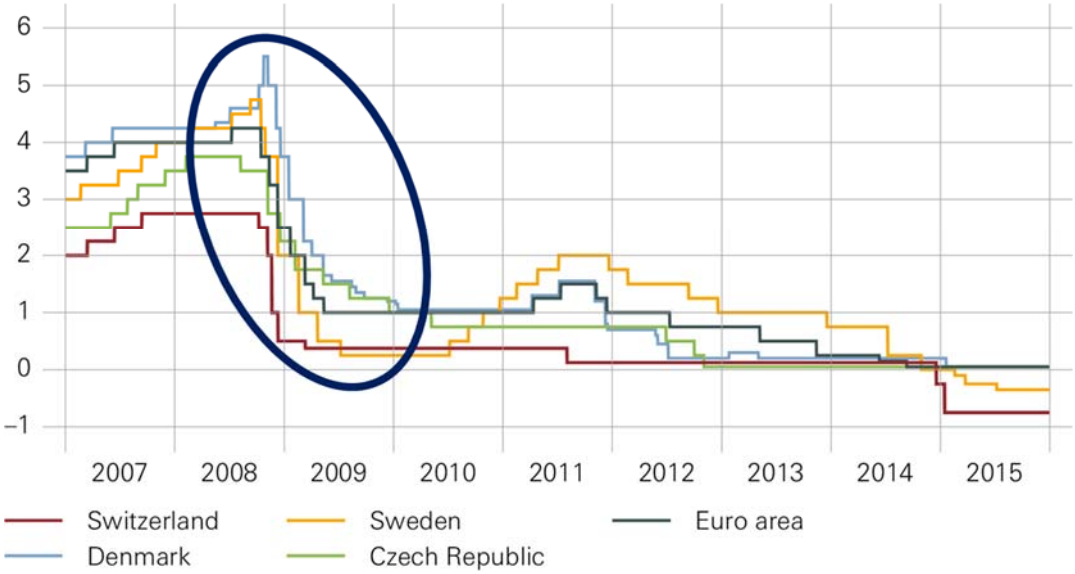


Sources: OECD, Riksbank, SNB, Statistics Denmark, Statistics Sweden

Chart 4

REFERENCE INTEREST RATES

In percent

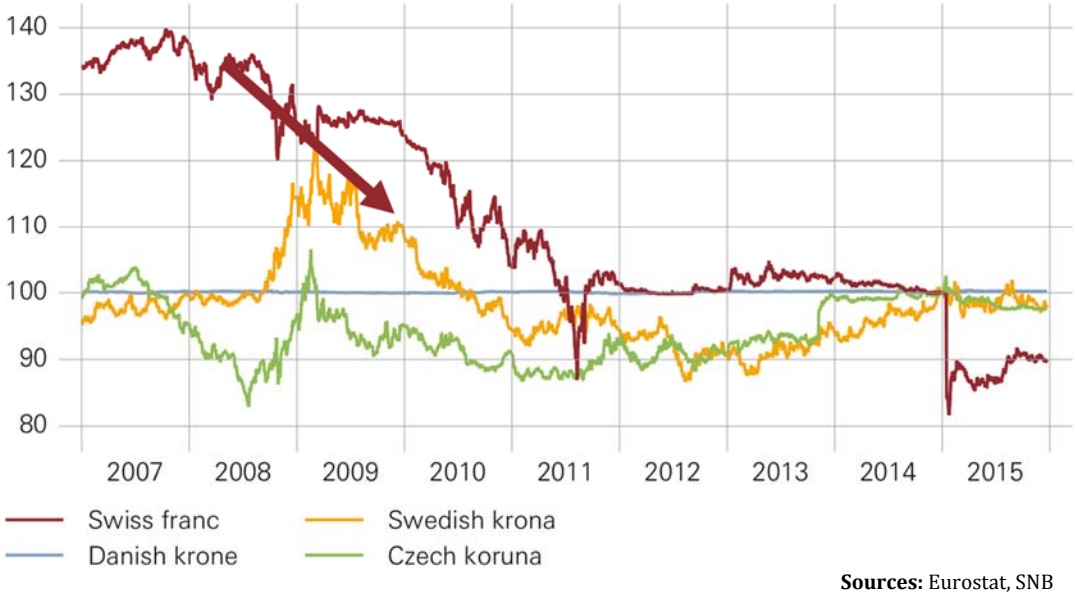


Sources: CNB, Danmarks Nationalbank, ECB, Riksbank, SNB

Chart 5

NOMINAL EXCHANGE RATE AGAINST THE EURO

Indexed 02.01.2015 = 100

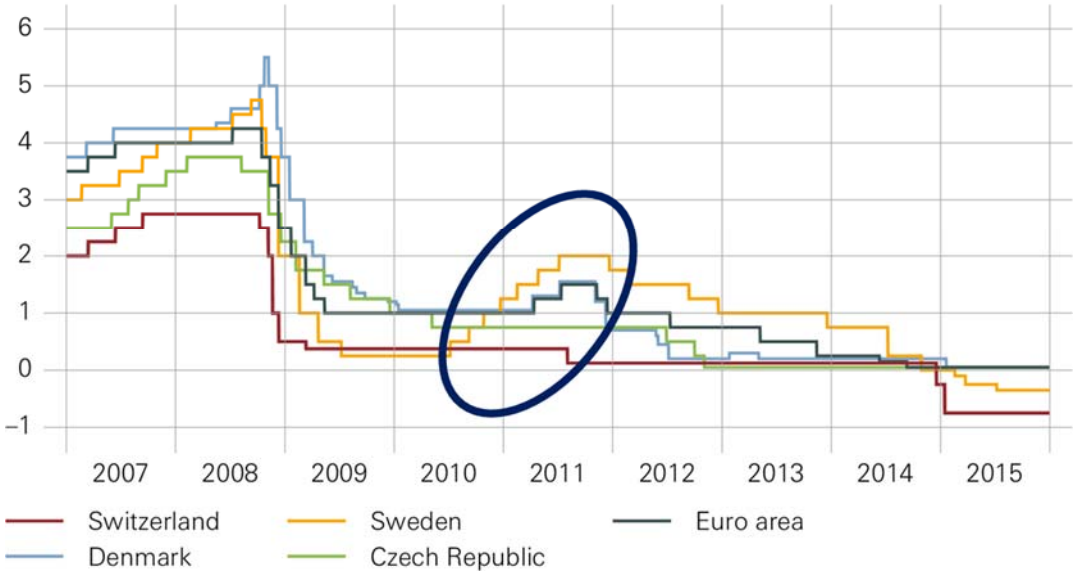


Sources: Eurostat, SNB

Chart 6

REFERENCE INTEREST RATES

In percent

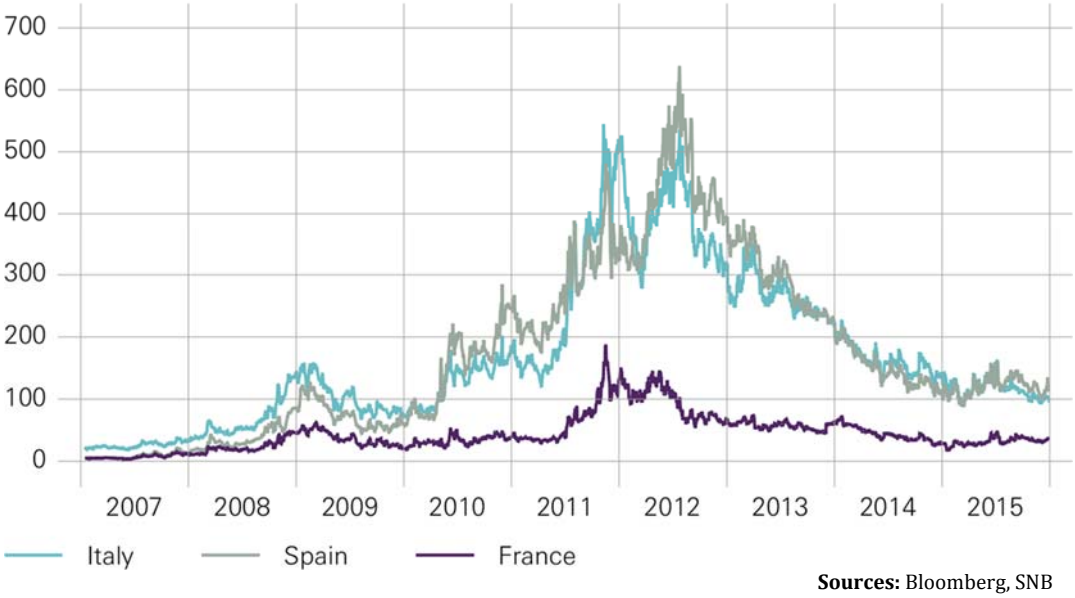


Sources: CNB, Danmarks Nationalbank, ECB, Riksbank, SNB

Chart 7

YIELDS ON TEN-YEAR GOVERNMENT BONDS

Yield mark-up relative to Germany, in basis points

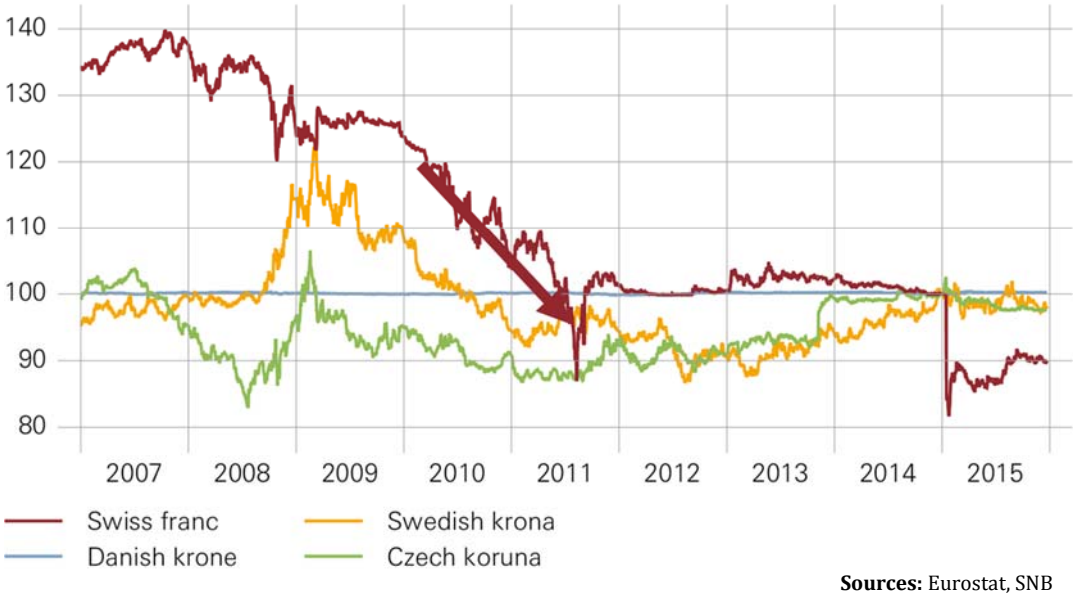


Sources: Bloomberg, SNB

Chart 8

NOMINAL EXCHANGE RATE AGAINST THE EURO

Indexed 02.01.2015 = 100

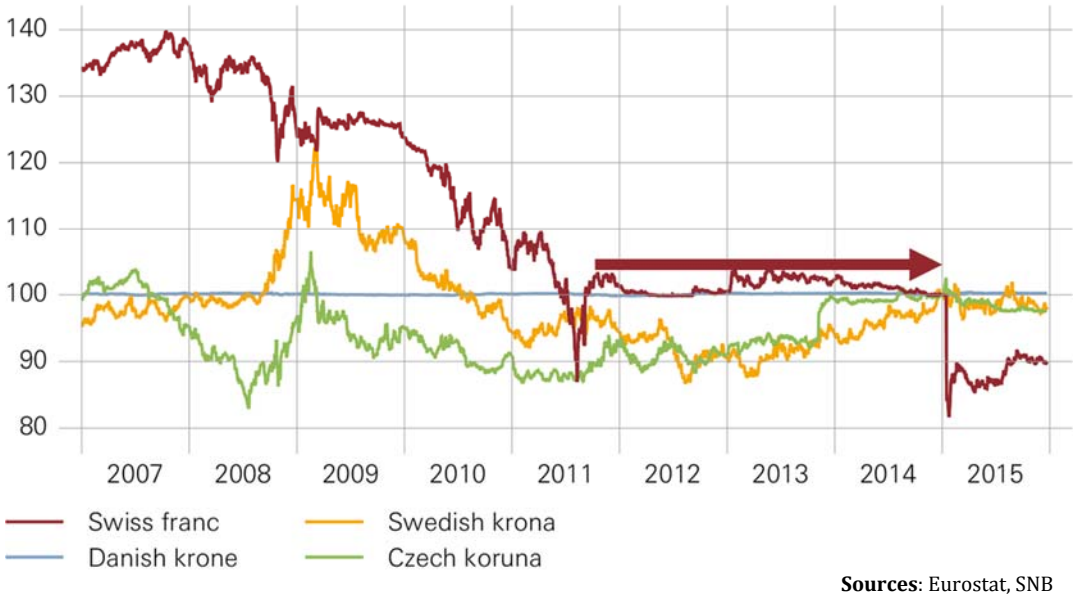


Sources: Eurostat, SNB

Chart 9

NOMINAL EXCHANGE RATE AGAINST THE EURO

Indexed 02.01.2015 = 100



Sources: Eurostat, SNB

Chart 10

NOMINAL EXCHANGE RATE AGAINST THE EURO

Indexed 02.01.2015 = 100

Sources: Eurostat, SNB

Chart 11

NOMINAL EXCHANGE RATE AGAINST THE EURO

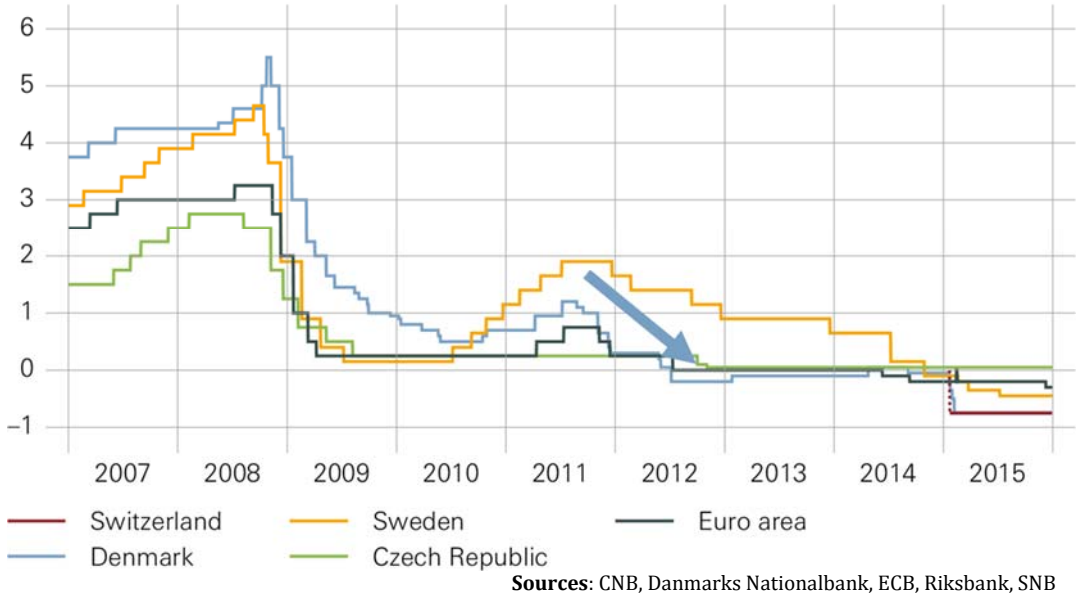
Indexed 02.01.2015 = 100

Sources: Eurostat, SNB

Chart 12

DEPOSIT RATES

In percent

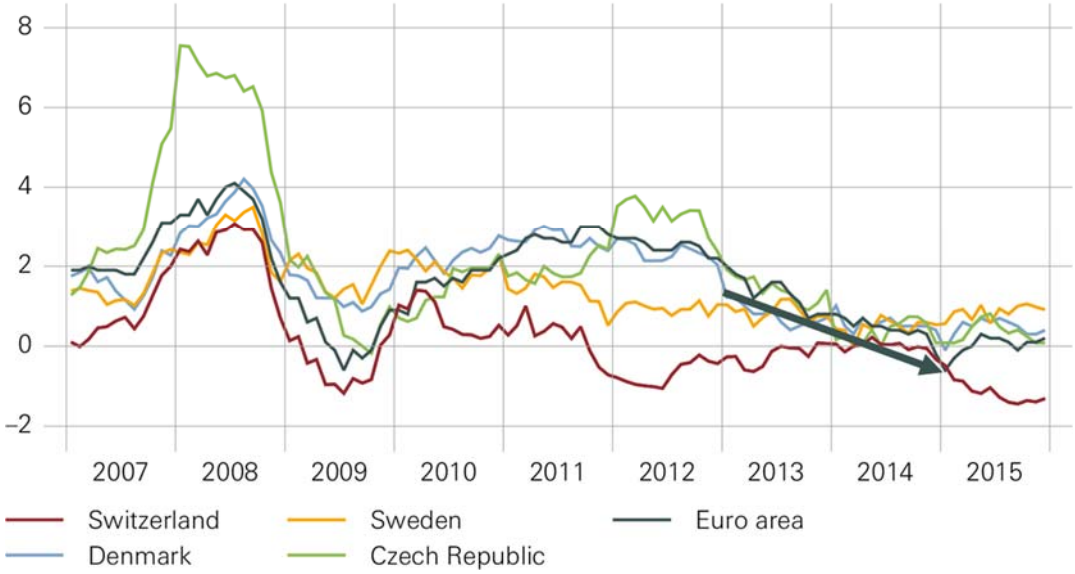


Sources: CNB, Danmarks Nationalbank, ECB, Riksbank, SNB

Chart 13

INFLATION

In percent

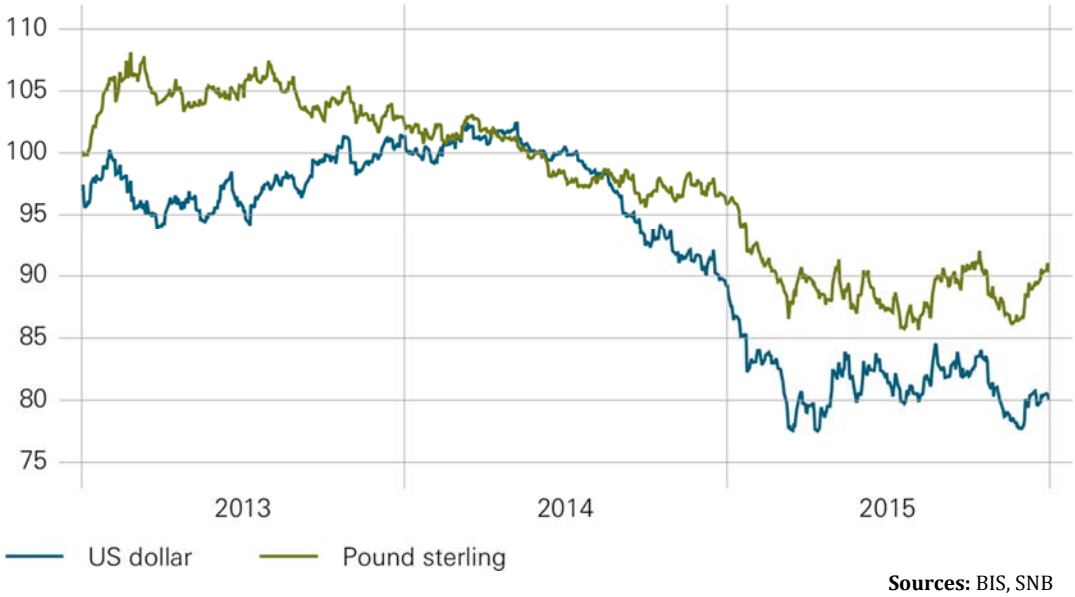


Sources: OECD, Riksbank, SNB, Statistics Denmark, Statistics Sweden

Chart 14

NOMINAL EXCHANGE RATE

In euros, indexed 02.06.2014 = 100

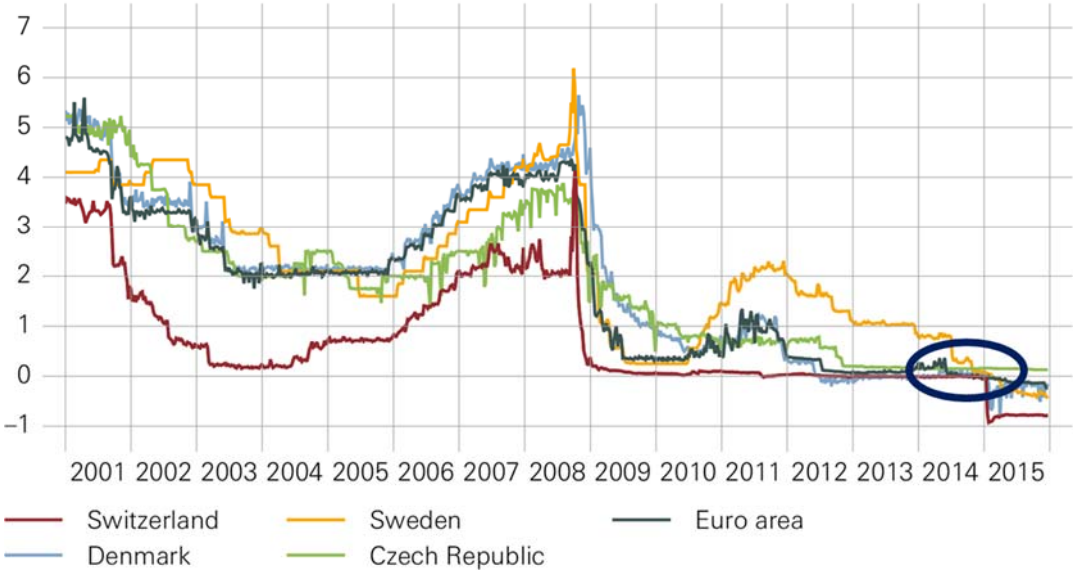


Sources: BIS, SNB

Chart 15

INTEREST RATES FOR UNSECURED CALL MONEY

In percent



Sources: Bloomberg, Danmarks Nationalbank, Riksbank, SNB

Chart 16

INTEREST RATE DIFFERENTIAL TO EURO AREA

Unsecured call money, difference in percentage points

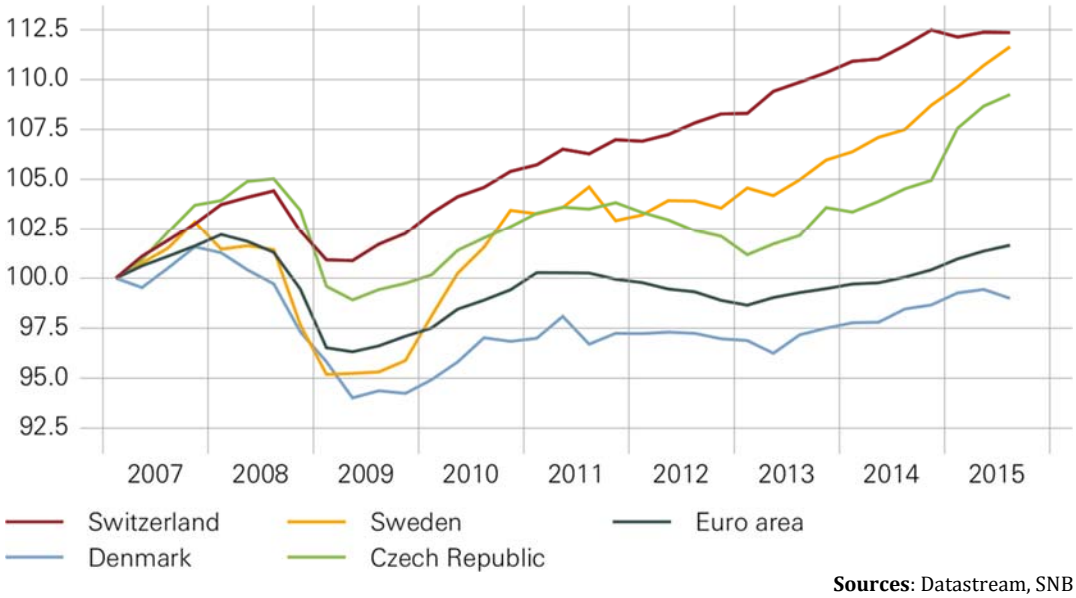
	Ø 2001-2007	Ø Sept. 2011	Ø Nov. 2014	Ø Jan. 2016
Denmark	0.16	0.05	0.06	0.00
Sweden	0.10	1.20	0.10	-0.14
Czech Republic	-0.14	-0.29	0.16	0.36
Switzerland	-1.68	-1.03	0.00	-0.53

Sources: Bloomberg, Danmarks Nationalbank, Riksbank, SNB

Chart 17

REAL GDP

Indexed Q1 2007 = 100



Sources: Datastream, SNB