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A CRISIS NOT WASTED – Institutional and structural reforms behind Norway's strong macroeconomic performance

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Institutional and structural reforms behind Norway's strong macroeconomic performance

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ABSTRACT:

The systemic banking crisis and speculative attacks on the Norwegian krone in the early 1990s were the last in a series of blows to Norway's macroeconomic policy regime. In addition to the recession after 1988, the underlying growth potential of the Mainland economy was also weak, despite financial deregulation and improved competitiveness. The large decline in the price of oil in the mid-1980s had demonstrated the risk of uncertain oil revenues as an important source of income to the government. The political awareness of an economic crisis paved the way for a series of structural reforms and changes in the macroeconomic policy regime.

This paper draws the line between the Norwegian boom-bust cycle and crises in the late 1980s and early 1990s, the succeeding institutional and structural reforms, and the strong macroeconomic performance and stability of the last two decades.

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Content

1. Introduction

The systemic banking crises in Norway, Finland and Sweden in 1991 – 1993 were extremely surprising events, both because they occurred after more than 75 years of financial stability, and because they happened in well-organized Nordic countries, a small corner on earth where such terrible things were not supposed to happen. Due to financial liberalization, pegged exchange rates, high international capital mobility and asymmetric shocks, the old stability properties of the Nordic countries' economies had suddenly been undermined, but this was not understood until after the systemic banking crises in Finland, Norway and Sweden (in the years 1991 – 93) had taken their tolls.

Now 20 years have passed, and we are in a position to look back on the post-crisis macroeconomic performance of Finland, Norway and Sweden. In the literature on financial crises and their real effects, it has been emphasized that systemic financial crises are likely to have seriously negative medium-term effects on the real economy; see Reinhart and Rogoff (2009). If not dealt with properly, it could paralyze the credit system and trigger a depression, or as in the case of Japan in the 1990s, lead to “a lost decade”.

The approach of this paper is distinctly empirical, qualitative and with a broad theoretical framework involving both macroeconomic and political economy mechanisms. Due to the identification problem, it is not possible to measure economic effects of a particular financial crisis with reasonable precision, particularly more persistent medium term and long run effects. Still, we think it is interesting to look closely at what happened to the Norwegian banking sector and to the macroeconomic performance after the crisis, and compare Norway with Denmark, Finland and Sweden, four rather similar countries along many economic and institutional dimensions. Denmark is of particular interest because this country avoided a banking crisis twenty years ago. Denmark experienced a similar boom as in Norway in the 1980s, and there were also clear signs of banking distress, but in Denmark the financial deregulation process had started much earlier and was more gradual than in the other three Nordic countries.

The bank losses (relative to GDP and total loans) in Finland were larger than in Sweden, and the bank losses in Norway were smaller than the Swedish ones. One would therefore expect that any short- and long-run effects of the systemic banking crises would be greater in Finland than in Sweden, perhaps even smaller in Norway, and non-existent in Denmark.

In the Nordic countries, it makes good sense to think in terms of a two-sector model in which the sectors produce traded and non-traded goods. It is not controversial to assume that fluctuations in aggregate demand have been important for the boom and busts, and that the financial deregulation policy triggered a huge credit supply shock that increased aggregate demand and asset prices. Large asset price movements released wealth effects in consumption as well as substantial fixed investment fluctuations during the Nordic boom-bust cycles.

Our implicit theoretical framework also includes hypotheses about the political system’s reactions to the crisis. The Nordic countries are parliamentary democracies with big

governments and powerful, non-elected civil service staff, particularly in the Ministries of finance. Norway may now have one of the most powerful *Ministry of Finance* among OECD countries (relative to the economy's size), and this increase in power of economists in the Norwegian government seems to have occurred about the same time as the banking crisis, if not somewhat earlier.

There is also a tradition of corporatism in the Nordic countries, particularly in wage bargaining. The institutional framework of economic policy making usually makes sure that crucial decisions are made to improve macroeconomic outcomes, even under minority governments. It is likely that the Norwegian banking crisis had a partial favorable economic effect due to institutional and structural policy reforms that became possible to implement as a result of the perception of a national crisis by politicians and voters.

In the next section, we take a closer look at the Norwegian boom-bust cycle and compare it with what happened in Denmark, Finland and Sweden. Then we discuss the series of structural and economic policy reforms that took place in Norway, starting with prudential regulations of banks (section 3), monetary policy (section 4) and fiscal policy (section 5) and other structural reforms (section 6). Section 6 also compares the post-crisis performance of the Norwegian economy with those of Denmark, Finland and Sweden. Section 7 concludes.

2. The boom-bust cycle and banking crisis

Norway's dramatic boom-bust cycle started in 1984-85 and ended about 12 years later (Steigum, 2009). The bust began in 1988, three years after the dramatic (for Norway) fall in oil price and three years before the systemic banking crisis. Mainland output gap was not closed until 1996-97.

The Norwegian boom-bust cycle was not only the result of adverse shocks, bad policies and bad luck during the 12 years that it lasted. Some of its roots can be traced back to persistent institutional and economic policy failures in 1970s. Due to the emerging petroleum sector, the oil price shock (OPEC I) in 1973 – 74 had a strong positive wealth effect as well as a resource movement effect as oil revenues increased substantially.[1] OPEC I triggered a rapid increase in aggregate demand, real appreciation of the *krone*, inflationary pressures, and large current account deficits. The expansionary monetary and fiscal policies in the 1970s prevented higher unemployment in the short run, but this economic policy approach was not sustainable. In 1977-78, a wide range of macroeconomic measures were taken to reduce excess aggregate demand and the current account deficit. However, the attempts to increase cost competitiveness by devaluation (in 1978) and price and wage controls (in 1978-79) could only temporarily hold back inflation. At the beginning of the 1980s, many problems not addressed adequately in the 1970s re-emerged, involving difficult challenges for economic policy in the 1980s (Steigum, 1992, 2004). The most important challenges were:

[1] For an analysis of the structural effects of wealth and resource movement effects, see Corden and Neary (1982).

- A considerable foreign debt.
- A new oil price shock (OPEC II) in 1979-80 and substantial exposure to oil price risk.
- Double-digit inflation and increasing unemployment.
- The fixed-exchange-rate policy was not credible due to inflationary bias in economic policy and lack of central bank independence.
- Politically regulated nominal interest rates and a negative after-tax real interest rate.
- Financial repression: A selective credit policy framework involving quantitative regulations of credit flows and increasing chaos in the markets for credit and loans.
- Underdeveloped capital markets and strong political intervention in investment allocation.
- A dysfunctional tax system which (in combination with high and variable rates of inflation) generated powerful incentives to borrow rather than to invest in financial assets as well as providing very strong incentives for firms to invest in capital goods and to choose excessively high debt-equity ratios.

It took almost two decades of structural, institutional and policy reforms to fix the entire set of these problems.

The legacy from the 1970s also included ideas and beliefs about the economy and economic policy that were not supportive of macroeconomic stability and sustained economic growth. An ambitious quantitative planning and regulation approach to economic policy dominated economic policy thinking in first four decades after World War II. There existed a correspondingly strong skepticism among many Norwegian economists and politicians towards increasing the role of markets.

As chart 1 illustrates, Denmark, Finland, Norway and Sweden had inherited an inflation problem from the 1970s. All four countries had crawling pegs in the 1970s and 1980s, with occasional "surprise-devaluations" intended to improve cost competitiveness of industries exposed to international competition. The central banks were dependent and took orders from the government. In Norway, the government also told Norges Bank what the interest rates should be, even money market rates. This was a consequence of the popular "low interest rate policy", with roots back to the early 1950s (Steigum,1992). In all the Nordic countries during the 1970s and part of the 1980s, fiscal and monetary policies became too expansionary to be consistent with fixed exchange rates.

From 1978, the large commercial banks in Norway gained better access to international money market borrowing. In the beginning of the 1980s, the growth of the *eurokrone* market, financial innovations and increasing flexibility of the shadow credit market, made it much more difficult for the government to constrain the underlying market forces by quantitative credit regulations. In 1981-83, the credit ceilings in the government's "credit budget" were exceeded by nearly 30 percent on average. By now it was fairly obvious that the old credit regulation framework of economic policy was not sustainable.

In 1984, the Norwegian government decided to start a financial deregulation process. Financial liberalization in Norway began about four years after Denmark's, but from the start, Denmark's financial sector and monetary policy were to a greater extent based on market-

clearing interest rates than Norway's. Moreover, Denmark's banking industry was much better capitalised than Norway's (Vastrup, 2009). By 1984, the Norwegian economy was financially underdeveloped to a considerable extent. Denmark had developed a system of home-ownership finance which protected borrowers from short-term fluctuations in the money market interest rate. In the other three Nordic countries, home owners were much more exposed to short-term interest rate risk.

In Norway, the financial deregulation policy triggered a huge, positive credit supply shock in 1985 – 1987, as Norwegian banks moved into new geographical regions and competed aggressively for market shares by expanding lending and employing new staff. The lending boom triggered excess aggregate demand for goods and services, and increasing inflation in 1986 and 1987, fueled by the 1986-devaluation and excessive wage increases in 1987.

Sweden and Finland also launched financial deregulation reforms. In Finland and Sweden, the lending boom had similar macroeconomic effects as in Norway, and they lasted longer.

Household saving rates declined to about minus four per cent (of disposable income) in both Norway and Sweden during the boom years, while the decline in the saving rate of Finnish households were much smaller; see Steigum (2004). Chart 2 illustrates the saving rates of Norwegian households for the entire period 1978 – 2012. During the years of fiscal austerity 1987 – 1990, the saving rate recovered just before the systemic banking crisis.[2]

The Norwegian boom-bust cycle and banking crisis were quite similar to those in Finland and Sweden a couple of years later; see Englund and Vihriälä (2009). There are interesting differences though. Most noteworthy, the economic crisis in Norway was not as severe as those in Finland and Sweden.[3] It also took a much longer time for the banking crisis to materialize in Norway after the peak of the business cycle compared to what happened in Finland and Sweden. In addition, the net fiscal cost of the Norwegian government's rescue operation appears to be *negative* in present value terms, see Moen (2004). In other words, the Norwegian government made a positive net profit from using taxpayers' money to rescue the banking sector. Still another difference is that the speculative attack on Norway's fixed exchange rate took place *after* those in Finland and Sweden, whereas the Norwegian boom-bust cycle and banking crisis were leading the corresponding events in Finland and Sweden by one to several years.

Compared to the East Asian crisis in the late 1990s, the Nordic banking crisis was small. Looking at bank loan losses at the peak of the crises as a percentage of GDP, the numbers are 2.8 per cent in Norway, 3.8 percent in Sweden and 4.4 per cent in Finland; see Vale (2004), who remarks that "When comparing these numbers, though, one has to keep in mind that unlike the crises in Finland and Sweden the peak of the Norwegian crisis was preceded by a couple of years with failures in smaller and some medium-sized banks." (Vale, 2004, p.11). He also compares the ratio of non-performing loans in per cent of total loans outstanding in Norway (9 per cent for the entire Norwegian banking industry) and Korea and

[2] The saving rate also declined in 2006 and 2007, and this is partly a result of changes in the corporate tax system which involves strong incentives to pay high dividends before 2006.
[3] See Jonung and Stymne (1997), Steigum (2009), and chapter 5 in Jonung et al. (2009).

Thailand during the East Asian crisis. The corresponding numbers were 30 per cent in Korea and 40 percent in Thailand.

The Norwegian government lost its majority in the Parliament in the 1985 election, and in the spring of 1986, *after* a dramatic fall in the oil price, the central wage settlement resulted in huge wage increases and shorter working hours. In 1986, the rate of (registered) unemployment was 1.8 percent and declining. The current account went from +4.8 percent of GDP in 1985 to –6.2 percent in 1986, and the rate of inflation was high and increasing; see chart 1.

During the fall of 1985 and spring of 1986 speculation against the Norwegian *krone* was intense. In order to prevent the money market rate from increasing, *Norges Bank* supplied short-term loans to the banking system on a grand scale.

As a consequence of the 1985 – 86 oil price shock Norway's terms of trade deteriorated by about 25 per cent and national income declined by about 10 percent. After 1986, inflation increased in Finland, Norway and Sweden. Inflation was not curbed until the effects of recessions were felt in 1990 and onwards. The three countries that later experienced systemic banking crises (Finland, Norway and Sweden) were therefore facing an extra output cost of disinflation that Denmark had already suffered in the mid-1980s.

The new Labour government that took over in May 1986 immediately devalued the *krone*, followed by an increase in the money market interest rate and a fiscal restraint program. The new government justified the need for a fiscal austerity with the following strong words:

> *"Norway is now in the most serious situation of crisis. The country faces profound problems involving a huge weakening of the balance of payments and a consumption level that we as a nation cannot afford. The problems have been increasing during the last year, and were enhanced by the dramatic drop in the oil prices." (National Budget 1987, published in October 1986).*

Even without the benefit of hindsight, the statement that Norway could not "afford" the consumption level was a substantial exaggeration. In 1986, Norway's share of private consumption in total GDP was 52.3 percent, and total saving was 11.1 percent (of GDP). Compared with most other industrialized countries, Norway's saving rate was respectable, even after the oil price shock.[4] The exaggeration by the *Ministry of Finance* cited above suggests that the Norwegian government intended to use the crisis to improve the economic policy framework, a goal that appeared politically impossible to achieve before the oil price shock. For example, one very difficult question for the Labour party was to justify to its members why Norges Bank should be in charge of monetary policy, and not the government.

[4] The negative oil price shock itself called for a long-run fiscal restraint due to the fall in government wealth. In a dependent economy theoretical framework, Steigum and Thøgersen (2003) show that optimal fiscal policy involves temporary deficits and a low neutral real rate of interest if sectoral adjustment is costly and time-consuming. In the Nordic countries, the real rate of interest became very high as a consequence of the fixed exchange rates, however, triggering an intertemporal coordination failure.

Strong aggregate demand growth financed by borrowing is not sustainable because households and firms must satisfy their intertemporal budget constraints and cut future spending. This idea was not well understood by the *Ministry of Finance* at that time. Moreover, the high rates of investment in 1985 and 1986 were clearly a part of the cause of the considerable current account deficit (in addition to falling oil revenues). The relatively high investment rates in the petroleum sector and in sectors producing non-traded goods were unlikely to be permanent. It was therefore not obvious why the government should increase taxes in order to curb the real income growth of households that were already heavily indebted.

According to the *Ministry of Finance's* own fiscal policy indicator, the fiscal restraint in the three years 1986-88 summed up to 4.5 per cent of Mainland GDP. The government also reduced – in several steps – the rate at which nominal borrowing costs could be deducted from income taxes. The most significant steps occurred in 1988 and as an element in the 1992 tax reform.[5] Together with a rising German interest rate and falling inflation, the change in the tax rules increased the after-tax real rate of interest from about zero in 1987 to more than 7 per cent in 1992 (chart 3). The increase in the real rate of interest had a strong negative effect on aggregate demand and on housing prices in the period 1988 – 93.

In December 1986, the government delegated to *Norges Bank* the responsibility to set its interest rates in order to defend the fixed exchange rate, defined in terms of a currency basket. Norges Bank did this successfully and after about three years, there were no longer signs of devaluation expectations in the money market interest rates. In 1988 and 1989 wage regulation laws were passed to speed up the disinflation process. In 1988 – 89, Norway went into a recession and unemployment increased rapidly; see chart 4. Going back to Chart 1, it is evident that the rate of inflation did in fact come down fairly quickly. During 1989 – 95, inflation was in fact *lower* than the average inflation rate of Norway's trading partners.

The macroeconomic story from 1986 to the end of the decade was the familiar story of disinflation through restrictive macroeconomic policies, and a recession. Although the extent of the cyclical downturn in 1988 – 89 came as a surprise, the idea of bringing down inflation quickly by establishing credibility of the fixed exchange rate received support from a majority of Norwegian economists.

In 1990, a peg to the *ecu* replaced the currency basket. Soon, Finland and Sweden made the same decision. Before 1989, the German money market interest rate had been significantly lower than the US money market rate, but in the beginning of the 1990s, after the German unification, the German rate climbed far above the US rate. Monetary policy was geared to the fixed exchange rate and could not be tailored to the Norwegian business cycle. Consequently, monetary policy became increasingly tight and pro-cyclical in the late 1980s and early 1990s due to German monetary policy.

[5] In the early 1980s, a tax commission recommended a tax reform that would have reduced the tax incentives to borrow. This recommendation was not followed up until the new Labor government took over in May 1986.

The strength of the boom in 1985 – 87, as well as the sharp decline in economic activity in 1988 – 89 and the following period of weak economic performance during 1989 – 92, were all great surprises to the government. Apparently, after the financial deregulation, the Norwegian economy did not behave as it used to do, and despite attempts to use fiscal policy to stabilize aggregate demand, aggregate demand fluctuated widely.

Chart 5 illustrates the booms and busts in the four Nordic countries. The Norwegian boom was the most short-lived, ending in 1987 due to restrictive monetary and fiscal policies. The 1986 oil price shock had weakened the current account significantly and given the *Ministry of Finance* arguments to recommend a switch to a Danish-style economic policy involving fiscal austerity, no more devaluations, and disinflation. We see from chart 5 that the Danish and Norwegian booms were quite similar, both ending in 1987. In Finland and Sweden, however, there were no perception of a crisis, and the lending boom continued for three more years. We also see from chart 5 that the Finnish boom was both rapid and long-lasting. Also Sweden's boom lasted longer than the Norwegian, but its speed was slower than the Finnish one.

During lending booms, overinvestment in housing and commercial property is common. Typically, easy access to credit stimulates speculation and bubbles in asset markets, see Allan and Gale (2000). Inflated asset prices will usually create excessive incentives to invest in housing and commercial property. After the burst of the asset bubble, lending and construction suddenly stop and unemployment soars. Recent extreme cases are Ireland and Spain. Both in Finland, Norway and Sweden, asset prices increased rapidly during the boom in the 1980s, and building and construction activities were high before collapsing after the bust.

Chart 6 shows the relative prices on commercial property (deflated by the CPI) in Oslo and Stockholm. This relative price increased substantially during the lending boom, peaked in 1986 and then fell sharply to about the same level in 1992 as in 1982. The data suggest real estate price bubble fed by the credit supply shock, which busted when economic policy was changed after the oil price shock in 1986. The fact that this relative asset price did not increase during the next boom in the 1990s also indicates that a real estate price bubble emerged in conjunction with the lending boom in the 1980s. In Chart 6 we have assumed (somewhat arbitrarily) that the start of the asset price bubble took place in 1981 in Oslo and in 1983 in Stockholm. Ten to eleven years later, the relative prices in terms of the CPI were back to where they started in both cities. Chart 6 suggests that the bubble in Stockholm was larger than the Oslo-bubble. The former was built up over a longer time than the Oslo bubble, which busted after five years (in 1986). The Stockholm bubble busted after seven years (1990) and the decline was steeper and more dramatic than in Oslo.

Both Denmark and Norway experienced increasing banking distress from 1987, but as losses were larger and equity capital ratios were smaller in Norway, all the largest commercial banks (and a couple of large savings banks), had to be rescued by the Norwegian government in 1991 and 1992. Shortly afterwards, even more devastating banking crises shattered the economies of Finland and Sweden. As mentioned above, a common shock hitting the Nordic countries was the Bundesbank's shift to restrictive monetary policy and

real appreciation after the German unification in 1990, forcing the Nordic countries to increase real interest rates to keep the exchange rates fixed. This asymmetric shock was bad luck. On top of this, income tax rules in Norway and Finland were changed to reduce tax deductions for nominal interest payments. After-tax real rates of interest in Norway increased substantially; see chart 3. Both Sweden and in particular Finland were also affected by several negative external shocks that reduced export demand. These shocks as well as tighter monetary conditions also stimulated speculative attacks on a number of European currencies, including the four Nordic ones. Finland devaluated the *markka* in November 1991 and then floated in September 1992. The speculative attacks improved competitiveness in Finland and Sweden and permitted lower real interest rates. Both countries shifted to inflation targeting and flexible exchange rates. In 1999 Finland joined the EMU and adopted the euro. The Norwegian krone was also attacked by speculators in December 1992, shortly after the attack on the Swedish krona. The effects on Norway's real exchange rate were small and temporary, however.

In all the three Nordic countries hit by a banking crisis, the governments reacted very fast to rescue the large banks that had failed (Jonung et al., 2009 (chapter 2) and Steigum, 2009). Details differ, but the resolution policies were sufficient to restore bank lending and economic growth fairly quickly in all three countries. In Norway, the government immediately passed new legislation in Parliament in order to nationalize the three largest commercial banks without letting previous shareholders benefit from the rescue.

3. More robust banks and better financial regulation

The credit market deregulation from 1984 and onwards quickly changed the competitive environment of Norwegian banks and released aggressive competition for market shares in the credit market and strong aggregate growth of loans to households and firms. Norwegian commercial banks were poorly capitalized when loan markets were deregulated in 1984 – 85. During the period of financial deregulation and the lending boom, capital requirements in Norway were lax as the government had yielded to strong pressure from the banking industry.

The large commercial banks played a crucial role in the Norwegian banking crisis in 1991 – 92. Their vulnerability was related to low profitability in general. Average profits before tax of Norwegian commercial banks turned negative already in 1987, and gradually deteriorated until the collapse in 1991 – 92 as a result of mounting losses that triggered the government rescue operations.

Chart 7 shows that Norwegian banks (both commercial and savings banks) had much higher operating costs and losses in per cent of total assets before the banking crisis than after the turn of the century. During the credit expansion period 1985 – 1988, profits before tax deteriorated. Operating costs were 1 per cent of total assets in 2009, down from 3.5 percent in 1984 – 1985. According to chart 7, losses became slightly negative in 1995 – 1997 as previous loss provisions had been higher than necessary *ex post*. This may partially be due to the fact that new managements of rescued banks had an incentive to exaggerate losses that

are recognized as a possibility, in order to receive more equity capital from the government. On the other hand, the Norwegian economy did in fact recover faster than expected after 1993. Chart 7 shows that net losses were also negative in 2005 – 2006. Looking at profitability before tax in 2008 and 2009, the effects of the recent international financial crisis have been minor.

Chart 8 shows that the Norwegian banking industry's loans and total assets have become much larger (relative to GDP) after the banking crisis. In 1989 the ratio was 66 per cent, declining to 55 per cent in 1993. It increased to 106 per cent in 2007, before declining to 99 per cent in 2009. This time, there was no banking crisis or even banking distress in Norway.

In the 1990s, the Norwegian government gradually sold part of its equity stakes in the commercial banks. The government has kept its minority share holdings in the largest bank, *Den norske Bank (DNB)*, however, probably as a safeguard to prevent the bank from being sold to foreign banks and having its headquarters moved to another country. This is definitely a long-run effect of the banking crisis. Before the crisis, no Norwegian government intended to become an owner of equity in commercial banks.

The government's involvement in the banking industry highlights the "too-big-to-fail-problem", which has become even more serious over time in all the Nordic countries, as bigger and more complex financial institutions have evolved over time. For example, the total assets of *Den norske Bank* amounted to about 90 percent of Mainland Norway's GDP in 2011. This ratio is higher than the corresponding number for the entire banking industry during the banking crisis.

Before the banking crisis, most Norwegian banks lacked competence or focus on risk management, resulting in excessive operational and credit risks. After the banking crisis, the focus of the new management groups switched to cost effectiveness and better risk management. New methods have been employed to calculate appropriate risk premiums in loan rates.

Also the Financial Supervisory Authority of Norway (FSA Norway) had insufficient competence in the critical years after financial deregulation. FSA Norway was established as an integrated supervisory institution in 1986 (*Kredittilsynet*, under the authority of the *Ministry of Finance*), after a merger of the two former supervisory authorities for banking and insurance. It employed only 71 staff members in 1986, and did not give priority to bank supervision during the lending boom. From the start it was responsible for prudential supervision of banks, insurance companies and other financial institutions, as well as financial market surveillance and business and market conduct. Later the integrated supervisory model was adopted by Denmark (1988), Sweden (1991) and Finland (2009).

The banking crisis had a profound effect on FSA Norway. It won political support for allocation of more resources for expansion, and the banking crisis made it much easier to employ former bankers. In the three years after the banking crisis, its staff increased by 30 per cent (from 99 full-time employees in 1992 to 129 in 1995). Another result of the banking crisis was the adoption of a new program for macroeconomic surveillance in 1994. In 2010 the staff had further increased to 255 employees and the share of employees with a college

degree has gone up significantly. The growth of the staff is also due to the fact that FSA Norway has been delegated additional responsibilities.[6]

An integrated financial supervision authority makes it easier to limit regulatory arbitrage and supervisory gaps. It gives the FSA Norway more authority and makes it easier to hire highly qualified staff. It is also easier for an integrated supervisory authority to cooperate with the central bank and with financial supervisory authorities in other countries. After the banking crisis, the prudential supervision in Norway became different from the "light touch" regulation by FSA in London. It has defined its approach as "active risk-based supervision" with regular on-site inspections and close contact (quarterly meetings) with managements of the most important financial institutions.

A close tripartite cooperation with the *Ministry of Finance* and *Norges Bank* has evolved after the banking crisis. The three of them share a common financial reporting data base and have regular meetings to discuss financial stability issues. After the failure of Lehman Brothers in September 2008 and the freezing of the international money markets, there were frequent meetings between the three parties to discuss ways of securing medium-term bank funding. There is a particular close cooperation between *FSA Norway* and *Norges Bank* at top level, department head level as well as at expert level.

4. The evolution of monetary policy

What are the characteristics of successful monetary policy? Clearly, the consensus view has changed substantially over time. While for example the surprise element was seen as a prerequisite for successful exchange rate devaluations under the fixed exchange rate regime of the 1970s and early 1980s, the modern framework of flexible inflation targeting builds on the view that the reaction function of the central bank should be fully internalized by all agents in the economy. Thus, successful interest rate setting should ideally be characterized by zero surprises.

The striking change in the monetary policy regime in Norway is not the result of any single comprehensive reform. It is rather the consequence of a gradual evolution. A sequence of adjustments and changes has been made in response to innovations in economic theory, experiences from actual policies and changes in the domestic as well as global economic environment. Over time this has accumulated to significant changes in the monetary policy framework. Today, both Sweden and Norway have well established flexible inflation targeting regimes. While Sweden adopted such a regime as early as 1993, the process towards inflation targeting was much more gradual and time-consuming in Norway. Inflation targeting was in effect adopted by Norges Bank in 1999 and formalized in 2001.

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[6] In addition to banks and insurance companies, the FSA Norway is now responsibility for supervision of finance companies, pension funds, mortgage companies, investment firms, debt-collecting agencies, all markets for securities (including the stock market), auditors and auditing firms, external accountants, IFRS compliance, prospectuses, real estate agents, and IT-supervision.

4.1 Towards inflation targeting

The question of whether the exchange rate should be fixed or flexible had not been a political issue in Norway, however, even though the growing dependence on oil revenues could have been used as a sound argument for exchange rate flexibility to absorb terms-of-trade shocks and dampen the effects of other asymmetric shocks.[7] An important reason for the popularity of fixed exchange rate was the Scandinavian-style wage formation system in Norway, according to which the manufacturing industry exposed to international competition should act as a wage leader. In order to agree on a proper nominal wage increase consistent with satisfactory cost competitiveness, a fixed exchange rate was perceived as a great advantage in the centralized wage bargaining process. A fixed exchange rate has therefore always been strongly recommended by the labor market organizations, but in years of excessive wage increases, accommodative devaluations have been welcomed too.

Looking back, the transition in 1986 – 1989 from a non-credible exchange rate regime to a credible fixed exchange rate was a significant step forward for the development of monetary policy in Norway. With the benefit of hindsight, the "devaluation-decade" from 1976 to 1986 can be regarded as a rather naive version of old fashioned Keynesian policy. The result was a highly discretionary conduct of monetary policy, involving a series of devaluations, each attempting to surprise the agents of the economy. In combination with the politically determined low nominal interest rate, this monetary policy triggered wage-price spirals, high and volatile inflation and large macroeconomic fluctuations.

The change of monetary policy in 1986 came after a turbulent spring with a very chaotic wage negotiation process, a political crises that lead to a new government and a 12 per cent devaluation of the krone. The new regime was based on a commitment to the fixed exchange rate which gradually gained credibility. The end of the devaluation-era paved the way for much lower and less volatile inflation, see chart 9. The annual inflation rate fell from an average of almost 10 per cent in the period 1970 – 1986 to a fairly low level between 2 and 2.5 per cent since the early 1990s.

The fixed exchange rate policy after 1986 still faced formidable challenges. After the government had deregulated international capital flows in 1990, the *krone* became much more exposed to speculative attacks. In December 1992, after a powerful speculative attack, Norges Bank terminated the fixed exchange rate policy and let the *krone* float. The value of the krone only dropped by about 5 per cent, however, and then gradually recovered. A new monetary policy regulation was implemented in 1994, stating that the new objective of monetary policy should be currency stabilization, but without any formally specified target zone. In the following years, Norges Bank referred to an “interval” password

[7] Norway revaluated the *krone* in 1973 to reduce inflationary pressure. However, this step was unintentionally seen as a signal to increase wages by the labor unions, and the real exchange rate appreciated substantially after the wage settlement in 1973. This unfortunate experience may explain why exchange rate flexibility has not been an issue in the economic policy debate in Norway until the 1990s.

for the *krone*, widely and consistently interpreted as the range between 8.2 and 8.4 krone per euro. Now, increased attention was directed to the underlying variables that would contribute to stability in the krone rate in the longer run. For example, the Revised National Budget for 1994 stressed that low inflation was a prerequisite for exchange rate stability over time.

Even if the new monetary policy regulation prevented further speculative attacks, monetary policy could not contribute to stabilization of the Norwegian business cycle. The impulses from the petroleum sector related to fixed investment as well as to the spending of government petroleum revenues resulted in business cycle fluctuations which were not synchronized with the European cycle. Accordingly, fiscal policy tended to be overburdened as the only available instrument for macroeconomic stabilization.

In 1998, the combination of high wage growth and turbulence in foreign currency markets highlighted the weaknesses of the Norwegian target zone framework of monetary policy. A sharp increase in the key policy interest rate from 3.5 per cent to 8 per cent was not sufficient to counteract a strong depreciation; see chart 10. During the fall of 1998 it became clear that the high interest rate affected aggregate demand negatively. In response, the new governor changed the focus of Norges Bank from exchange rate stabilization to inflation targeting in January 1999. The key interest rate was cut significantly. “In 1999 we targeted in effect a 2 per cent inflation rate”, according to Gjedrem (2010).

This change in monetary policy was welcomed by most financial market participants and economists in Norway. Several observers argued that the transition to the new operational regime lacked formal foundations, see Hamilton et al. (2000). Still, the 1994-regulations, which referred to exchange rate stability, were not revised at once. Even though the reaction function of the central bank had been changed, it could be argued that monetary policy still was in accordance with the regulations, as stabilization of inflation in turn would contribute to stabilization of the krone.

In March 2001, the new inflation targeting regime was finally formalized by a new regulation. The inflation target was set to an annual 2.5 per cent rate, adding that monetary policy should be “...contributing to stable developments in output and employment”, i.e. flexible inflation targeting. The new monetary regulation was introduced together with the announcement of new guidelines for fiscal policy (the “Fiscal Rule”), highlighting a smooth and gradual spending path for the government’s petroleum revenues, see Section 5 below. Giving fiscal policy a more long run orientation implied that the role of monetary policy in macroeconomic stabilization now became much more important.

In contrast to Sweden and the UK, the Norwegian government introduced inflation targeting without undertaking any full-fledged institutional reform. On the contrary, the old law for Norges Bank from 1985 was not changed. This law does neither state any goal for monetary policy, nor does it give any formal operational independence of Norges Bank. Moreover, according to Svensson et al. (2002), the new regulation from the Government contained internal inconsistencies in the first paragraph, which reads:

> *"(1) Monetary policy shall be aimed at stability in the Norwegian krone's national and international value, contributing to stable expectations concerning exchange rate developments. (2) At the same time, monetary policy shall underpin fiscal policy by contributing to stable developments in output and employment."*

Svensson et al. (2002) makes the following comments:"…stability in the price level and the nominal exchange rate cannot be reconciled, especially when a fiscal expansion induces a real currency appreciation (…) In order to resolve the inherent inconsistency between exchange-rate stability and stable inflation for Norway, the references to exchange-rate stability in the monetary-policy guidelines should be deleted."

The Svensson report also recommended a number of improvements in the framework to strengthen the accountability and transparency of Norges Bank, many of which were implemented in the following years. The Svensson report observes, however, that even if the Norwegian central-bank legislation does not safeguard operational independence, in practice Norges Bank has significant operational independence:

> *"In practice, Norges Bank has significant operational independence, in the sense that it independently decides what level of its instrument rate (…) is appropriate. Before announcing and implementing its decision, it is still obliged to inform the government through the Ministry of Finance. As mentioned, the government has never formally rejected the Bank's instrument decision; doing so would have been a major political event. Furthermore, if that would happen, the presumption is that the governor of Norges Bank would resign. Thus, with a strong governor and a strong reputation for Norges Bank, it would seem quite difficult for the government to interfere with interest-rate decisions, (…) On the other hand, a weak governor and a weak Bank might of course adapt interest-rate decisions to what the government is likely to prefer, in order to avoid conflict."*

In light of the still ongoing debate about the monetary policy regime, the new inflation target framework was clearly beneficial for the conduct of monetary policy in Norway. In the end it turned out that the introduction of the inflation target was almost without any frictions. This probably reflected that all agents had already got used to the central bank's reaction function under such a regime since 1999.

4.2 Towards best international practice

Norway's inflation targeting regime was to a great extent inspired by the monetary policy frameworks of *Bank of England* and *Riksbanken*. Well-functioning inflation targeting requires that the target is credible and that the central bank's reaction function is understood and internalized by relevant agents in the economy. Maintaining credibility will rely on successful communication strategies and consistency in the actual policy decisions. *Norges Bank* had already published inflation reports regularly since 1995. In 1999 the Bank also began to present rather detailed press releases after the executive board's interest rate decisions. Moreover, from 2004, forward-looking strategy reports were included in the inflation reports (which later, in 2007, were renamed as monetary policy reports). It is therefore fair

to conclude that *Norges Bank* quickly caught up with best international communication practice.

The new inflation targeting regime also had consequences for *Norges Bank* research and use of quantitative models in monetary policy analysis. The Bank needed a structural model for derivation of optimal interest rate paths, capturing theory-consistent, explicitly articulated assessments of the transmission mechanism. This paved the way for the deveolpment of a modern DSGE model nicknamed NEMO (Norwegian Economy MOdel). The use of the NEMO model seems to have been helpful in the interest rate setting decision process.

In the fall of 2005, *Norges Bank* started to publish interest rate and exchange rate projection three years ahead in each monetary policy report. This was considered to be a natural step to improve credibility by being predictable. An explicit interest rate path including estimated probability distributions would be a much more precise tool for influencing agents' expectations than various verbal statements subject to all kind of interpretations. The publishing of future interest rate and exchange rate paths is consistent with the importance of expectation formation for optimal policy in academic research. According to Woodford (2005): "For not only do expectations matter, but (...) very little else matters". Compared to the "surprise-devaluation" monetary policy regime until the mid-1980s, today's framework built on publications of future interest rate paths and management of expectations á la Woodford, seems like the ultimate opposite!

Closely related to the publishing of the interest rate path, is the publishing of a quantitative decomposition of the various sources for revisions of the path. This decomposition highlights that the interest rate path is a contingent forecast – that by definition will be revised in response to altered assumptions about various variables. Recalling that some other major central banks like the ECB and the *Bank of England* at times have been critical towards the publication of interest rate paths due their worry for agents' not really capturing the concept of contingent forecasts (see Spence, 2010), this decomposition is highly useful.

In every monetary policy report, the new interest rate path is discussed in the light of an explicit list of "criteria for an appropriate interest rate path" and supported by a graphical analysis illustrating the impact of each criterion. The first of the criteria states that inflation over time should be brought back to its target level, while the second criterion states that it should be a reasonable balance between the path for inflation and the path for capacity utilization (the output gap). It follows that the two first criteria simply capture the two arguments in a standard loss-function. The graphical illustration of how this trade-off is dealt with, has earned recognition from Woodford (2007). The last criterion states that monetary policy should be robust in the sense that the risk of financial imbalances should be taken into account and, moreover, that an acceptable inflation – output gap development should be likely under alternative assumptions about the functioning of the economy (see the monetary policy report no. 2, 2013).

An interesting observation is how *Norges Bank* has changed the specified horizon for inflation to stabilize close to the inflation target. In 2001, the horizon was 2 years. Then, in 2004, the horizon was specified as normally 1 – 3 years. Later, the horizon was just specified as "the medium term" with the additional explanation that the exact horizon will depend on

which type of impulses the economy is exposed to and how they impact the prospects for inflation and the real economy. These changes in the specification of the horizon can be rationalized by new insights after 2001 about the working of the Norwegian economy. In particular, a series of positive and persistent supply side shocks (like increased import from China and other low-cost producers), a much larger inflow of immigrants to the Norwegian labor market and, at least for some time, increased competition in several business sectors all contributed to below-target inflation.

5. Fiscal policy – adopting sustainable fiscal strategies

While the huge government petroleum wealth is an obvious blessing for the Norwegian economy, it also makes fiscal policy much more challenging. More than 85 per cent of the net cash flow from the petroleum sector is collected by the government by means of a special petroleum tax system and direct public ownership. This implies that public revenues have become severely exposed to oil price risk.

In Norway's early days as an oil exporter in the beginning of the 1970s, oil price risk did not receive much attention, at least not from a fiscal policy point of view. This partly reflected that the initial scale of the petroleum activities was not large. But, more importantly, the idea that oil prices would increase over time due to the non-renewable characteristics of oil and natural gas was widely accepted in the 1970s and the early 1980s.[8] These perceptions changed completely during the 1980s due to considerable upward revisions of global resources. For Norway, the period of high oil prices and large and growing petroleum revenues abruptly came to an end when oil prices plunged in 1985-86. To illustrate the size of this adverse terms of trade shock, the estimated present value of the future government net petroleum revenues, as calculated by Statistics Norway, was reduced from 1388 billion kroner in 1986 (i.e. 275 per cent of Mainland-GDP at the time) to a low 413 billion kroner in 1988 (approximately 80 per cent of GDP), see Thøgersen (1994).[9]

The experience of the 1980s highlighted the need for mechanisms that could smooth the spending of petroleum revenues over time. Otherwise, erupting sectoral imbalances and increasing future net tax burdens would potentially create severe problems. Before 1986, the government made plans to regulate and limit the level of annual extraction of petroleum. The idea of using global financial markets to accumulate a financial petroleum fund in one way or another was dismissed in the 1970s, reflecting a lack of trust in the working of the financial markets.[10]

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[8] The theoretical basis for these forecasts is the Hotelling-rule. This rule predicts that in equilibrium the (net-) price of an exhaustible resource like oil should increase exponentially over time due to resource scarcity, see for example Dasgupta and Heal (1979).

[9] The petroleum wealth estimate was even higher in the first part of the 1980s. In 1981, for example, the estimate was close to 500 per cent of GDP.

[10] As described in more details in Thøgersen (1994), leading politicians and bureaucrats at the time referred to the risks of revolutions and hyperinflation as the reason for avoiding accumulation of significant amounts of the financial assets.

As it turned out, the early political ambitions to regulate the extraction level never materialized. Given the technological complexities and the long-run nature of oil and gas investment projects in the North-Sea, this was hardly surprising. Consequently, the need to separate extraction and collection of resource revenues from a preferred smooth, long-run spending path, called for strategies to accumulate foreign financial assets in a public petroleum fund in years of large petroleum revenues. This idea was discussed in two government white papers during the 1980s.[11] The first was published in 1983 and discussed the design of a "buffer-fund", smoothing revenues over an intermediate time horizon. Skepticism about the ability and discipline of the political system to accumulate a large fund remained. The second report published in 1988 emphasized that a petroleum fund could be an instrument for transferring resource wealth into foreign assets, limiting spending (including tax cuts) to the permanent income of the sum of the petroleum fund and the remaining resource wealth.

It took many years before the actual accumulation of financial assets into a Norwegian petroleum fund materialized. Formally, the legislation of such a fund, which initially was named the Norwegian State Petroleum Fund, passed the Storting in January 1990, and according to its rules, the growth of the fund should be linked to fiscal surpluses, which should be invested in foreign assets. Fiscal deficits in the first years after 1990 prevented any accumulation in the fund. Gradually, however, the macroeconomic performance of the Norwegian economy improved during the 1990s, helped by steady increases in petroleum production. Accordingly, the oil price exposure remained high. In 1995, the fiscal budget posted a small surplus, and this lead to the first allocation to the petroleum fund in 1996.

5.1 The Government Pension Fund Global

Norges Bank was given the responsibility to manage the foreign assets in the State Petroleum Fund – which later, in 2006, was renamed the Government Pension Fund Global. At the outset, the idea was to utilize Norges Bank's experience in managing foreign currency reserves, and the first allocations were invested in sovereign bonds only. Due to the substantial increase in the world oil price after the turn of the century, huge government cash flows from the petroleum sector have accelerated the growth of the fund, see chart 12. In a relatively short period of time Norges Bank has built up a professionalized asset management wing within Norges Bank, called Norges Bank Investment Management (NBIM).

The fund started to invest in listed equity in 1998, and in 2011 the fund made its first investment in real estate in London. The investments in stocks and fixed income securities are based on a benchmark portfolio specified by the *Ministry of Finance* which captures the stock and bond markets of all developed and emerging markets. The benchmark portfolio is defined by general global indices. No attempts have been made to introduce a benchmark portfolio that potentially could serve as a hedge towards the overall oil price exposure of the Norwegian economy, however.

[11] See the government white papers NOU 1983:27 and 1988:21 respectively.

In addition the fund is given a small "risk budget" for active management. The bulk of the investments, including the active positions, are taken in-house the NBIM organization. However, several specialized investment mandates have also been allocated to external asset management firms. The fund's assets now (January 2014) amount to more than 800 billion USD or 160 per cent of one year's GDP. It is now one of the largest sovereign wealth funds in the world.[12]

As mentioned above, the fund's formal name changed to Government Pension Fund Global in 2006. This is in fact somewhat puzzling given that the fund is not a pension fund in the sense of having defined liabilities given by future pension outlays. The fund is rather an endowment fund without any underlying earmarking to specific purposes other than an instrument for supporting the welfare state and smoothing tax burdens over time and across generations.

Having large amounts of capital invested in a global fund involves considerable risks. During the recent financial crises in 2008-2009 the value of the fund declined temporarily by almost 25 percent. This acted as a political stress test of the ability of the public and media to cope with financial risks on a large scale. During the crisis and afterwards, there was no serious opposition to the chosen investment strategy, and the political parties appear to have accepted the risks to the value of the fund. The annualized real return of the fund is now slightly below the 4 per cent real return which has been set as the long-run objective.

Clearly, the institutional framework of the fund is also exposed to domestic political risks. This includes the risks of political biases in the fund's allocations, both with respect to the design of the fund's benchmark and with respect to active management. Another is the risk of myopic overspending of the fund as a part of the annual decisions on the fiscal budget. Still another risk is that the existence of a large and liquid fund will reduce the political system's ability to implement important structural reforms.

5.2 The Fiscal Rule

During the 1990s, the long run effects of fiscal policy received increased attention by the Norwegian governments. From the mid-1990s; the "generational accounting" method was employed to evaluate the intergenerational distribution of net tax burdens implied by current fiscal policies. When the petroleum revenues started to increase sharply after the turn of the century, the government changed the framework of monetary and fiscal policy in order to promote macroeconomic stability as well as to smooth the path of spending (including tax cuts) of petroleum revenues. The new "Fiscal Rule" was announced together with the new inflation targeting framework of monetary policy in 2001. According to this rule, the non-oil fiscal deficit (i.e. the deficit before the net cash flow from the petroleum sector) should – in a normal year – be given by an upfront calculated 4 per cent real return on the Government Pension Fund Global.

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[12] For more details about NBIM's organization and the funds activities, see NBIM's homepage http://www.nbim.no/en/. A more general discussion of the role of sovereign wealth funds is given by Steigum (2013).

The rule has a "bird-in-hand" property in the sense that only wealth accumulated in the fund matters, not the remaining petroleum wealth on the continental shelf. Therefore, the Fiscal Rule is not an optimal rule derived from economic theory – but rather a rule based on pragmatic considerations. [13]

Since population ageing will increase pension and health spending significantly in the future, the Fiscal Rule contributes to intertemporal smoothing of tax burdens. In addition, the rule is transparent and not difficult to explain and communicate to a broader audience.

The fiscal rule allows for some flexibility. First of all, the automatic fiscal stabilizers are allowed to work freely. Second, the fiscal rule refers to a "normal year" and it allows for deviations caused by, for example, unexpected fluctuations in the magnitude of the fund or even active fiscal stimulus policy to assist monetary policy for stabilization purposes. An example of the latter is the active fiscal policy measures taken after the international financial crisis in 2009.

Chart 13 illustrates the extent to which the Fiscal Rule has been followed since 2001. We see that spending, measured by the structural non-oil deficit, has been close to the "4 per cent path". Years with some "overspending" (like the period 2002 – 2005) have followed by fiscal discipline and "underspending". Compared with the familiar debt-bias in most democracies as well as predictions from the political economy literature, the Fiscal Rule has served its purpose well. The Fiscal Rule has in fact been followed by both left and right wing governments so far. Among the possible explanations is a low degree of polarization among the political parties in Norway when it comes to economic policy. Another potentially important factor is the determination and professionalism of the non-elected civil service staff within the *Ministry of Finance*.

5.3 Tax and pension reforms

The institutional reforms of fiscal policy were underpinned by some efficiency improving reforms of the Norwegian tax-transfer system, most notable a tax reform in 1992, and later a reform of the old age pension system in 2009.

The tax reform of 1992 had ambitious goals. It should contribute to an improved efficiency/re-distribution trade-off, and also provide a much needed simplification of parts of the tax system. Equal treatment across different sectors, owners, types of investments and capital income was center stage, and a general objective was to increase tax bases and reduce tax rates. More recent assessments of this tax reform conclude that the intended effects were reached, particularly with respect to the economic efficiency dimension.[14] It also turned out that the reform increased the return on fixed business investments in many sectors of the Norwegian economy.

[13] An optimal rule should be derived from a stochastic tax smoothing model that captures precautionary saving, see van der Ploeg (2010a, 2010b) and Steigum (2002).
[14] See the report of the appointed 2003 Tax commission, government white paper NOU 2003:9.

The reform of the old age pension system in 2009 was the result of a long process over many years involving a lot of political discussion and a series of government white papers dealing with various pension issues. During the late 1980s and the 1990s the introduction of a generous early retirement program as well as other smaller adjustments of the pension system had to a considerable extent weakened the economic incentives to stay in the labor force until ordinary retirement for many groups of senior workers, see Bratberg et al. (2004). While the weak labor participation incentives called for a reform, the existence of a large and increasing public financial wealth in the Government Pension Fund probably made it harder to reach broad public support for a reform. Still, in the end the pension reform passed the Parliament with broad political support.

The pension reform introduced a flexible pension age in combination with a stronger link between individuals' labor force participation and income on the one hand, and the level of the pension benefits on the other. In addition, the reform involved a longevity adjustment similar to the one implemented in Sweden. The pension reform is expected to increase labor supply and reduce future pension outlays. While the pension reform seems to be quite successful along several dimensions, some challenges remain. This includes in particular insufficient consistency between the pension systems in the private and public sectors.

6. Benefitting from reforms – Norway's post-crisis macroeconomic performance

Norway's growth and employment performance after the banking crisis has been very strong. We suggest that the banking crisis of the early 1990s had a favorable, albeit indirect effect through structural and economic policy reforms. After the banking crisis, Norway's financial supervisory authority was strengthened considerably and the powers of the *Ministry of Finance* increased as a result of the perception of a national crisis after the oil price shock in 1985 – 86. Other structural reforms include a tax reform in 1992, closer income policy cooperation between the government and the central labor market organizations to increase cost competitiveness and reduce unemployment, as well as a series of product market reforms designed to increase competition and economic efficiency, including energy markets, telecommunications and markets for other non-traded services.

6.1 Comparing GDP and productivity

Going back to chart 5, we can compare the volume growth of GDP in the four Nordic countries after the systemic banking crises in the beginning of the 1990s. Finland's boom-bust cycle is the largest, while the Norwegian and Swedish cycles are not very different, except that the Norwegian bust happened much earlier than the Swedish and the Finnish ones. The Danish boom and bust were much milder. Chart 5 also shows that after 1993, output growth in Finland and Mainland Norway have been faster than real GDP growth in Denmark and Sweden. It is surprising that the performance of Denmark is inferior to the three other Nordic countries that experienced a banking sector melt-down in 1991 – 1993.

This fact makes it difficult to argue that Finland, Sweden and Norway suffered from significant medium- or long-term economic costs due to their systemic banking crises.

Table 1 looks at what happened in the first seven years after the banking crisis. Finland, which had the largest decline in real GDP under the banking crisis, also had the best growth performance in the period 1993 – 2000 with an impressive average growth rate of 4.5 per year. The corresponding growth rate of Mainland Norway was 3.68 percent, marginally higher the Sweden's average (GDP) growth rate of 3.52 percent over the same period. Denmark's growth rate was significantly smaller, only 2.37 per cent on average. In the next 8 years, the average grow rates became smaller for all countries. Now Mainland Norway had the best growth performance (3.23%), followed by Finland (2.95%), Sweden (2.58%) and Denmark (1.3%).

Growth accounting suggests that multi-factor productivity growth is considerably lower in Denmark than in the other three countries. OECD finds that in the period 1993 – 2006, average multi-factor productivity growth in real GDP was 2.5 per cent per year in Finland, 1.9 per cent in Sweden and only 0.8 per cent in Denmark.

Andersen et al. (1999) emphasize that excessive real wage growth and reduced international competiveness are important factors behind the relatively modest economic growth in Denmark. Another explanatory factor is a low share of R&D expenditure relative to GDP. Whatever the causes, they are unlikely to have much to do with the fact that Denmark avoided a systemic banking crisis around 1990.

Previous papers on the real economic costs in terms of output loss of the Nordic crises are IMF (1998), Hoggarth et al. (2002), Schwiertz (2004), Hagberg and Jonung (2009) (the latter only analyzing Finland and Sweden).[15] The results are sensitive to the measurement of output trends and to how the start of a banking crisis is identified. Some of these studies also pick up the effects of shocks that are not directly related to the banking crises, such as the shock hitting the Finnish industry after the collapse of the Soviet Union in 1991. A surprising finding of the three first papers referred to above is a larger "economic cost" in Norway than in Sweden and Finland, but this is probably an artifact of the particular methods used to measure trends and output gaps.

6.2 Unemployment and employment rates

Chart 4 reveals that the post-crisis unemployment rates differ a lot in the four countries. The unemployment crisis was worst in Finland, where the collapse of textile exports to the former Soviet Union had a devastating effect. The unemployment rate in Finland increased to nearly 17 per cent in 1994. In 2000, seven years after the end of the banking crisis, the Finnish unemployment rate was still above 9 per cent. It took another 8 years to bring the unemployment rate in Finland back to 1986 level. Also the Swedish unemployment rate increased rapidly during the banking crisis, and reached almost 10 per cent in 1997. So far it has not returned to the low levels of less than 4 per cent observed in the mid-1980s,

[15] These methods have been improved by Bordo et al. (2001).

however. The unemployment records of Finland and Sweden are therefore consistent with a negative persistent effect of the banking crisis.

In the case of Norway and Denmark, the Danish unemployment rate has been systematically higher than the Norwegian one throughout the period covered by chart 4. The Norwegian unemployment rate peaked at about 6.5 percent in 1993, the first year after the end of the banking crisis.[16] Despite the fact that Denmark did not experience a systemic banking crisis, unemployment was much higher than in Norway during and after the Nordic banking crisis in 1991 – 93. In both countries the rates of unemployment have come down to the levels in the mid-1980s.

Unemployment persistence is a mechanism through which banking crises may have negative medium-term and long-term effects. Such effects are usually closely related to long-term unemployment, and in this regard Norway's performance has been much stronger than the three other countries'. In addition to low unemployment, the share of long-term unemployed in total unemployment has been low and declining after 1994 (from 28.5 per cent), see chart 14. In the boom year 2000, long-term unemployment in Norway was only 5 per cent. In Finland, the share of long-term unemployment declined from 37 per cent in 1995 to 25 per cent in 2001. Sweden's share of long-term unemployment increased for four years after the banking crisis, and declined from 33.5 per cent in 1997 – 98 to 14 per cent in 2005 – 2006. Also Denmark had its long-term unemployment share above 30 per cent in 1994, and the decline afterwards has been more modest than in the three countries that experienced a systemic banking crisis.

Finally, we look at employment rates (share of persons of working age 15 to 64 years) in employment, see chart 15. Employment rates have traditionally been significantly higher in the Nordic countries than in the rest of OECD. The banking crises did not change this fact. However, there has been a considerable persistence in the decline in employment rates in Finland and Sweden. The Swedish case strongly suggests that the crisis in the early 1990s had a persistent effect on both unemployment and employment rates. In 1985 – 86, the Swedish employment rate was above 80 per cent and increasing (the highest rate among the four Nordic countries), and in 2008 it was 76 per cent. Again, Denmark and Norway experienced much smaller declines in employment rates during and after the Nordic banking crisis, and the employment rates more than recovered in the period. In 2008, the employment rates in Denmark and Norway were higher than Sweden's.

6.3 Fiscal deficits and government debt

Government debt is another mechanism for persistent effects of banking crises. Chart 16 shows that the government deficits in Sweden and Finland increased substantially during the banking crisis. This was mostly due to automatic fiscal stabilizers, however. The fiscal costs of the banking crises in Finland and Sweden were modest, see Sandal (2004). In the last

[16] Both Norway and Sweden put in place labor market programs to increase the human capital of unemployed workers. Participants in such programs are not counted as unemployed. If workers in such programs are added to the unemployed, the gross rate of unemployment in Norway would have been about 8 percent in 1993. Still, this is significantly lower than the unemployment rate in Denmark.

banking crisis year (1993), the fiscal deficits of Sweden and Finland were 11.2 and 8.3 per cent of GDP, respectively. The Norwegian government also ran fiscal deficits in the early 1990s.

Table 2 reports gross public debts (in percent of GDP) for Sweden, Finland and Denmark. Unfortunately, net debt numbers are not available. The increase in the debt 1990 to 1995 was almost 50 percentage points in Finland and somewhat smaller in Sweden. Denmark had more favorable macroeconomic developments, but still increased its public debt (in per cent of GDP) by about 13 percentage points from 1990 to 1995. In the period 1995 – 2008, Denmark reduced the gross public debt to a much lower level than in 1990. By 2008, the gross debt in Sweden was back to the 1990-level. In Finland, however, the gross public debt in 2008 has not recovered from the crisis in the 1990s. Again, it is worth emphasizing that the data from Finland is influenced by the collapse of the exports to the Soviet Union.

6.4 Norway's performance during the Great Recession

The recession in Norway turned out to be much milder and more short-lived than in most other OECD countries; see Bjørnland et al. (2010). The rate of unemployment (according to the Labour market survey) only increased from 2.5 per cent in 2007 to 3.6 per cent in 2010 (and down to 3.3 per cent in 2011). The growth rate of Mainland GDP declined from 5.3 per cent in 2007 to 1.5 per cent in 2008 and -1.6 per cent in 2009. Thereafter, the percentage growth rate increased to 1.7 in 2010, 2.5 in 2011 and 3.5 in 2012. Despite a deep, temporary decline in the oil price in 2008, Norway has been running huge current account surpluses of more than 11 per cent of GDP before, under and after the Great Recession.

The relatively good macroeconomic performance during the Great Recession and afterwards is probably a result of the combination of good macroeconomic policies, good financial regulation, as well as good luck. Monetary policy in Norway was very expansionary since December 2008, when *Norges Bank* (following *Riksbanken*) cut the policy rate by 175 basis points. From August 2008 to June 2009 the policy rate declined from 5.75 to 1.25 per cent, see chart 11. Moreover, after the Lehman Brothers failure in mid-September 2008*, Norges Bank* supplied more and longer NOK funding as well as lending USD to domestic banks. In late October, a facility was passed in the Parliament to help Norwegian banks to exchange Norwegian covered bonds (OMFs) with government securities for a period of 3 – 5 years, see Bergman et al. (2009). In February 2009 the government established two new funds in order to strengthen Norwegian banks tier 1 capital as well as providing a source of funds for industrial companies issuing bonds; see Bjørnland et al. (2010). Although the international financial crisis temporarily interrupted international funding to many Norwegian banks, this problem was cleverly managed without any sizeable credit crunch.

The effects of monetary policy on aggregate demand appear to be greater in Norway than in most other European countries due to a combination of high household indebtedness and floating mortgage rates. Fiscal policy also became much more expansionary in 2009, on top of the effects of strong automatic stabilizers. The expansionary monetary and fiscal policy measures bolstered consumer confidence and stopped the decline in housing prices;

Norwegian housing prices had been falling through 2008, but have been increasing in the period 2009 – 2012.

Good policies and financial regulation are other factors that could explain the absence of a banking crisis, or severe problems in any of the Norwegian banks in 2009. It was also fortunate that the oil price (in USD) doubled in the course of 2009 and that the Norwegian manufacturing sector is relatively small, has high capital intensity, and does not engage in producing consumer durables to any large extent.

7. Final remarks

Apparently, the systemic Nordic banking crisis did not have sizable negative medium-term macroeconomic effects in neither Finland, Norway nor Sweden. There were no signs of a lost decade for the three countries hit by systemic banking crises in the beginning of the 1990s. On the contrary, the country that had the least impressive growth performance after 1993 was Denmark, the only Nordic country (together with Iceland) avoiding a systemic banking crisis in the beginning of the 1990s. In the labor markets, however, there are signs of persistent negative employment effects in Finland and Sweden. The labor market performance was much better in Norway and Denmark.

The main reason why the banking crises did not have strong negative effects is probably the fast and efficient banking crisis resolution by the Nordic governments. The failing banks were quickly re-capitalized (and re-managed) and were able to support new economic growth without any credit crunch.

The increase in the government debt from 1990 to 1995 was almost 50 percentage points in Finland and somewhat smaller in Sweden. By 2008, the gross public debt in Sweden (relative to GDP) was back to the 1990-level. In Finland, however, the gross debt share in 2008 has not recovered from the crisis in the 1990s.

It is likely that the Norwegian banking crisis indirectly had favorable economic effects due to structural policy reforms that became possible to implement as a result of the perception of a national crisis by politicians and voters. Probably, the crises also had a positive learning effect in the banking industries of Finland, Norway and Sweden, preventing their banks from excessive risk-taking of the style prevalent in many US and European banks.

We have presented evidence that strongly suggest that the cost-efficiency and risk management of the Norwegian banking industry have improved substantially after the banking crisis. At the same time, Norway's supervisory authority has become much stronger and competent as a result of the banking crisis. There are also reasons to believe that the performance and effectiveness of the banking industries and prudential regulation in Finland and Sweden have improved in a similar manner as a result of the banking crisis.

The Nordic experience shows that a quick and efficient government resolution of the banking crisis could restore economic growth rather quickly despite previous economic policy and financial regulation failures before the crisis. Instead of a lost decade after the

banking crisis, the economic growth of Finland, Norway and Sweden outperformed that of neighboring Denmark.

The system of pegged or fixed exchange rates did not serve the Nordic countries well after the financial deregulation. Monetary policy became increasingly procyclical during the boom and bust, and changes in income taxation rules contributed to high real after-tax interest rates before and under the banking crisis. Flexible exchange rates and inflation targeting have worked well in Sweden and Norway, making it easier to move the real rate of interest counter cyclically. An important lesson for small open economies that intend to open up their capital accounts is to permit exchange rate flexibility. When Finland and Sweden finally stopped defending their pegs, real depreciations and lower interest rates laid the ground for aggregate demand stimuli and economic growth.

Norway's impressive macroeconomic performance is both a result of favorable terms-of-trade developments and of a series of institutional and structural reforms that increased productivity and improved the framework of monetary and fiscal policy. The most important reform was the introduction of flexible inflation targeting and a new Fiscal Rule that permitted a smooth path of spending of petroleum revenues and the accumulation of a sovereign wealth fund.

A final lesson concerns the importance of the financial supervisory authorities. These institutions were weak and lacked competence during the credit expansion period leading up to the Nordic banking crisis. Capital requirements were too lax (except in Denmark). After the crisis, these institutions have been strengthened considerably. The integrated supervision model in Norway has been a success, and many countries have adopted this model in the 1990s and 2000s. After the banking crisis, Norway's Financial Supervisory Authority adopted an "active risk-based supervision" approach, and a close tripartite cooperation with the *Ministry of Finance* and *Norges Bank* has evolved to deal with financial and macroprudential stability issues. Strengthened financial supervision and regulation, as well as the learning effect of the banking crisis in the early 1990s, seem to have prevented Norwegian banks from excessive risk-taking before the recent international financial crisis.

The Nordic governments' crisis resolution policies did not address the too-big-to-fail distortion. On the contrary, the implicit subsidies given to holders of bank debt as a result of the government rescue policies have probably reduced risk premiums and given the large Nordic banks a competitive advantage in funding relative to smaller banks. If this problem is not dealt with, the implicit subsidies to large banks may trigger industry dynamics that make the too-big-to-fail problem even more dangerous over time.

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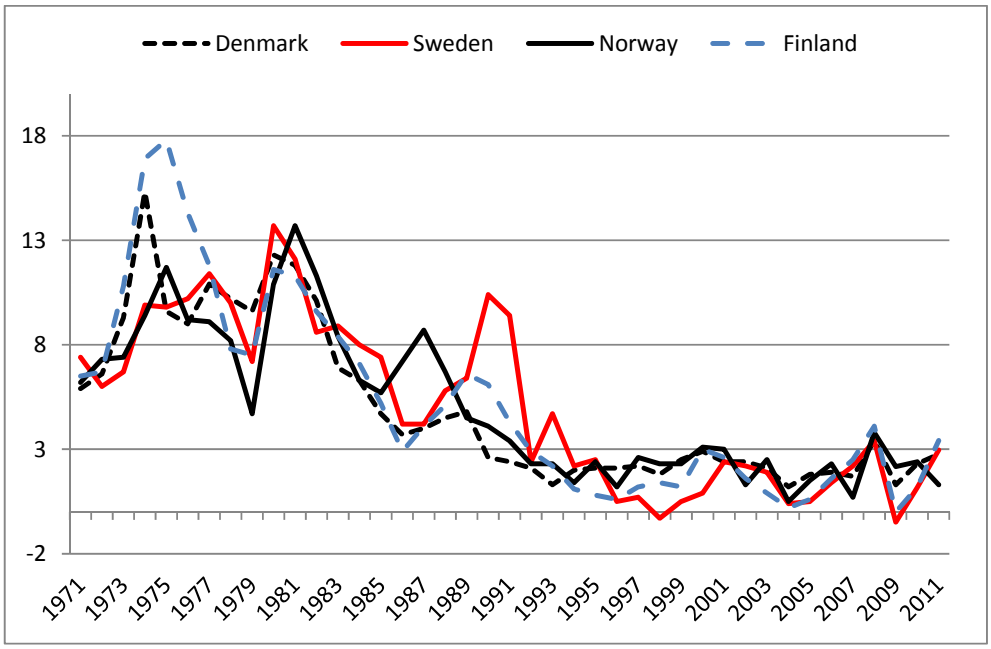
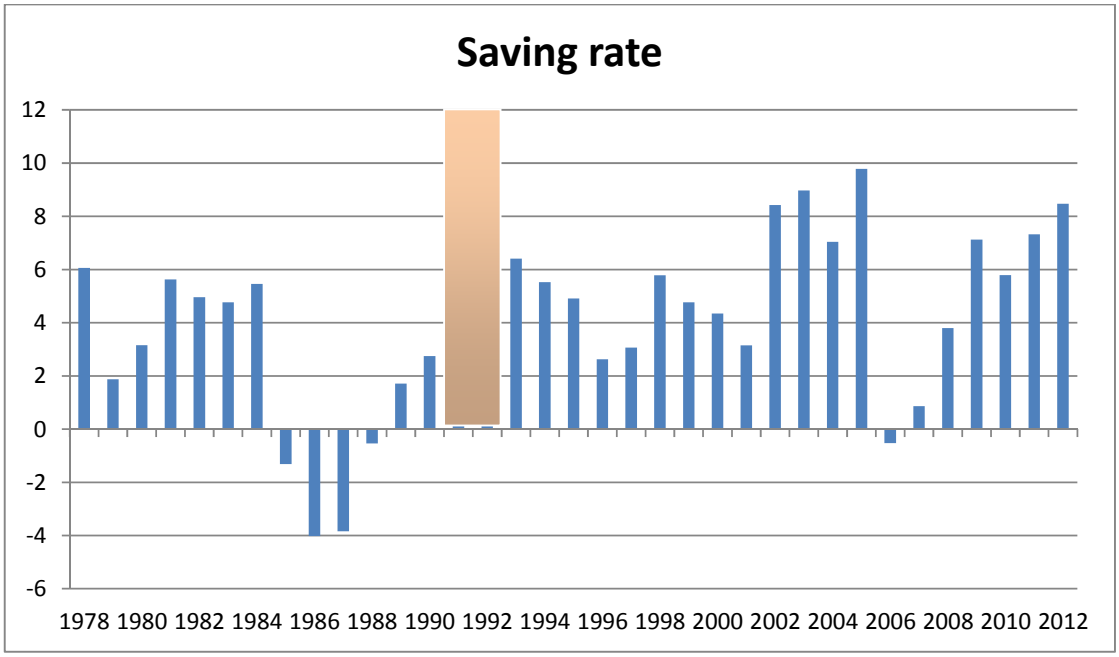
Charts and tables

Chart 1. Consumer price inflation (CPI) in Denmark, Sweden, Norway, and Finland, 1971 – 2011



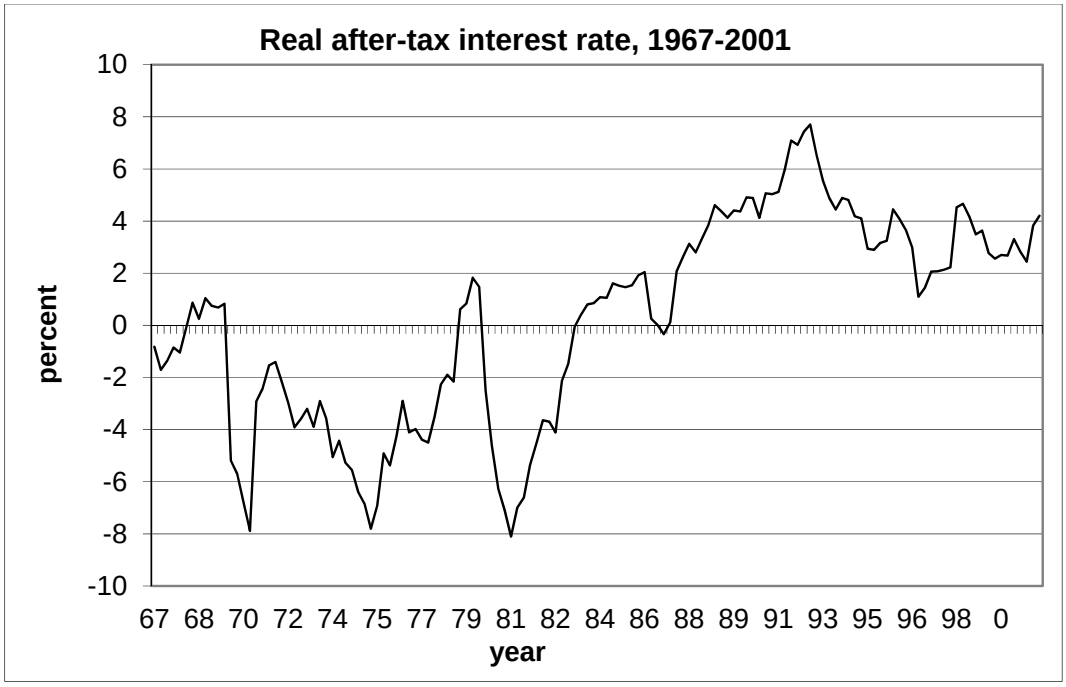
Source: OECD and Statistics Denmark, Sweden, Norway and Finland.

Chart 2. The saving rate of Norwegian households, 1978 – 2012



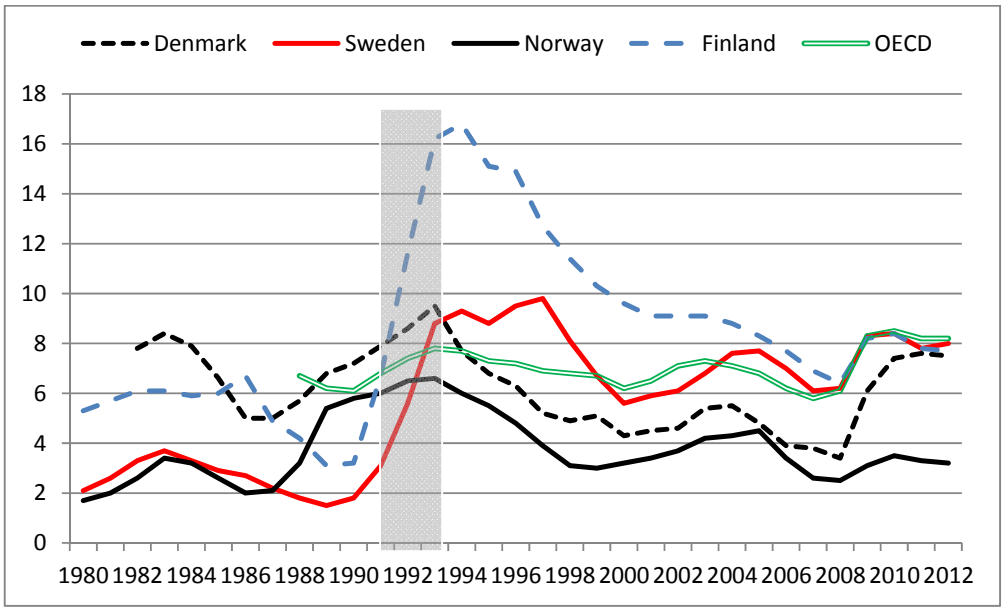
Source: Statistics Norway.

Chart 3. Real after-tax real rate of interest in Norway, 1967 – 2001 (per cent p.a.)



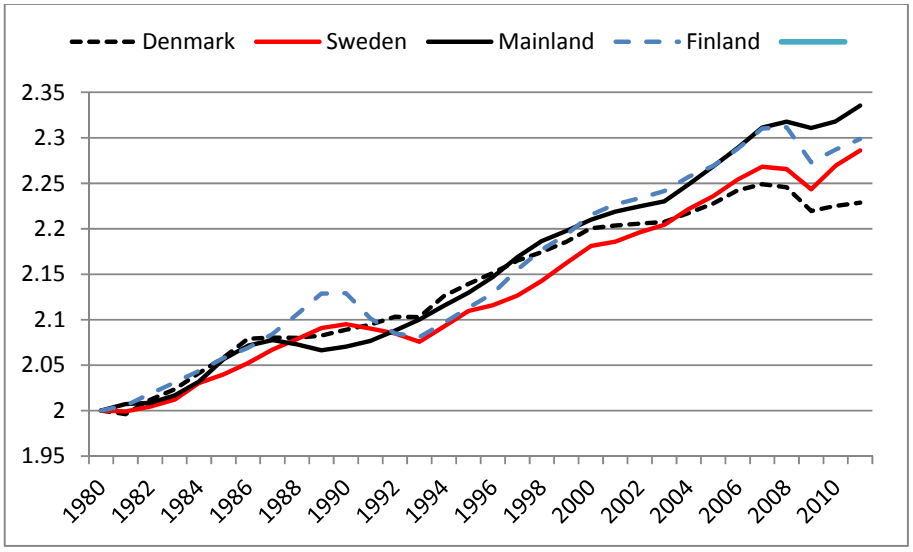
Note: Mortgage loans. Marginal tax rates for average income.
Source: Norges Bank.

Chart 4. Harmonized unemployment rates in Denmark, Sweden, Norway and Finland, 1980 – 2008 (per cent of labour force)



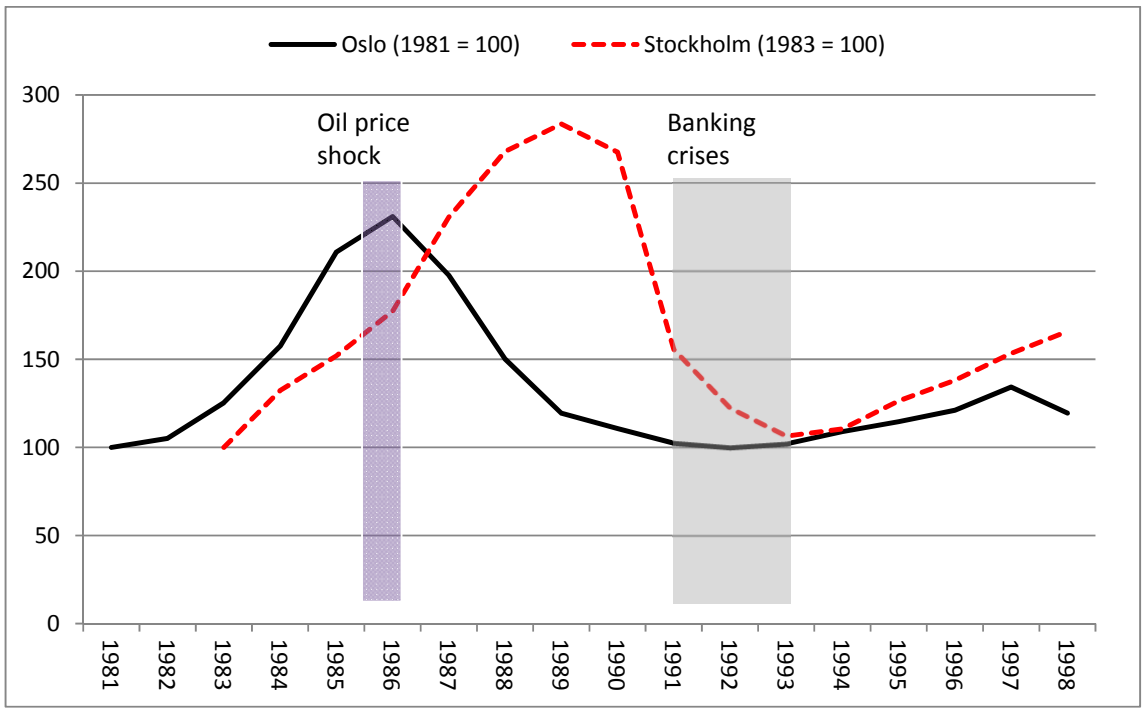
Source: OECD.

Chart 5. Log real GDP in Denmark, Sweden, Mainland Norway and Finland, 1980 – 2012



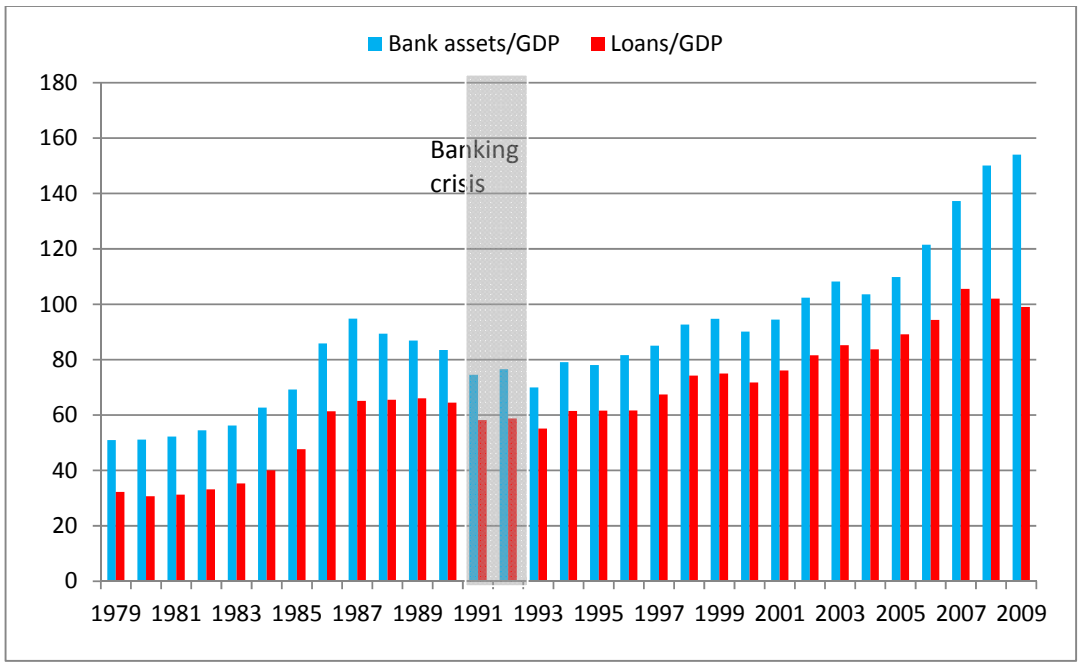
Note: 1980 = log100. Norway's business cycle is illustrated by Mainland Norway's GDP, excluding the petroleum sector and shipping overseas.
Source: OECD.

Chart 6. Real prices on commercial property in Oslo (1981 = 100) and Stockholm (1983 = 100), 1981 – 1998



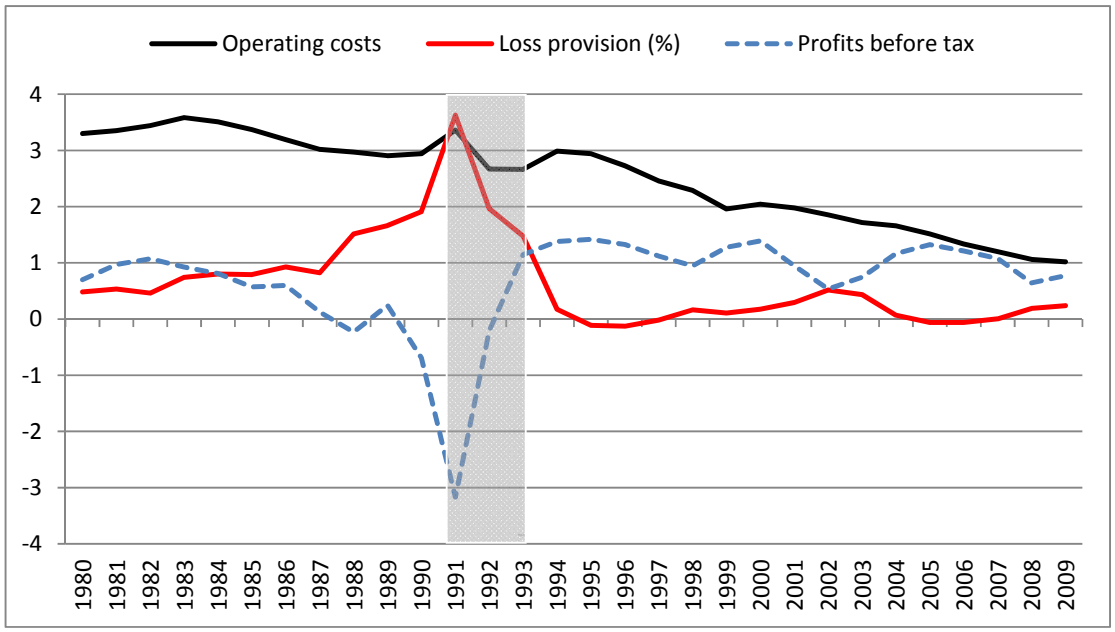
Note: Nominal price deflated by the CPI.
Source: Steigum (2004).

Chart 8. Bank assets and bank loans in Norway (per cent of GDP), 1979 – 2009



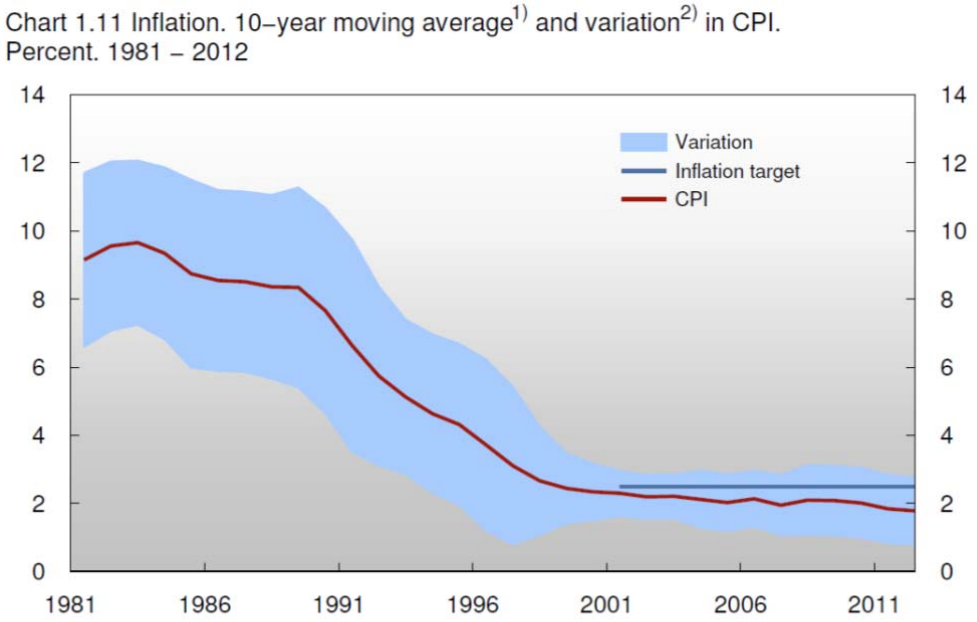
Source: Statistics Norway.

Chart 7. Operating costs, loss provision (net) and profits before tax in Norwegian banks, 1980 – 2009 (per cent of total assets).



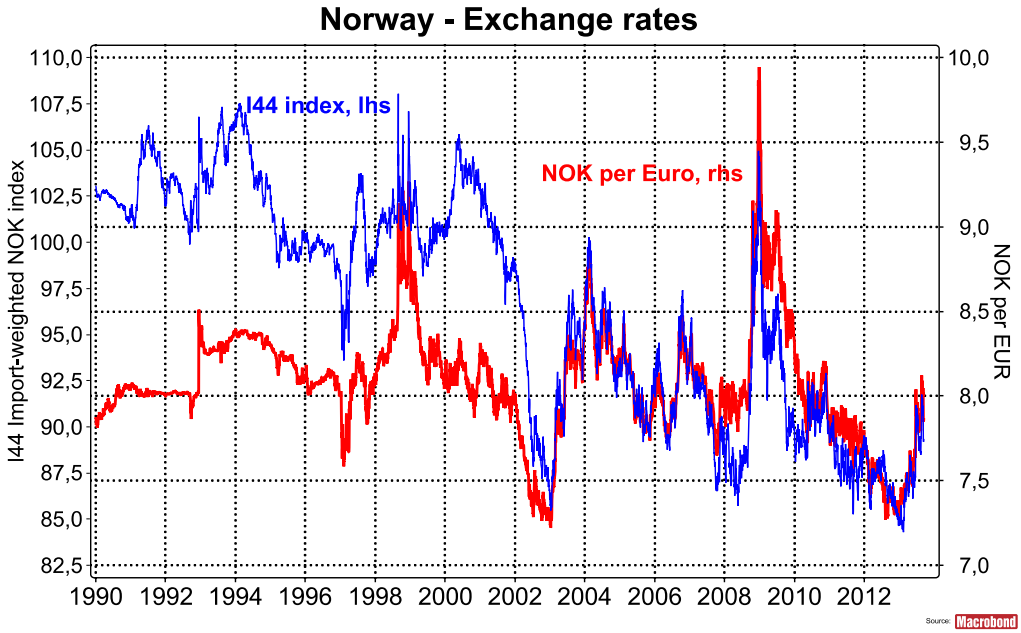
Source: Statistics Norway.

Chart 9. Inflation and inflation volatility



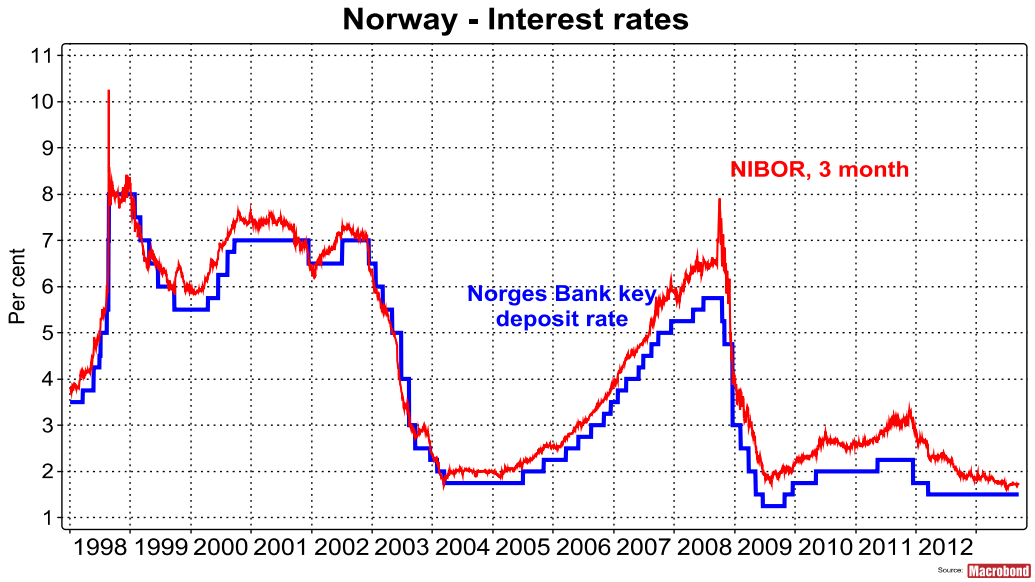
Source: Norges Bank

Chart 10. The krone exchange rate



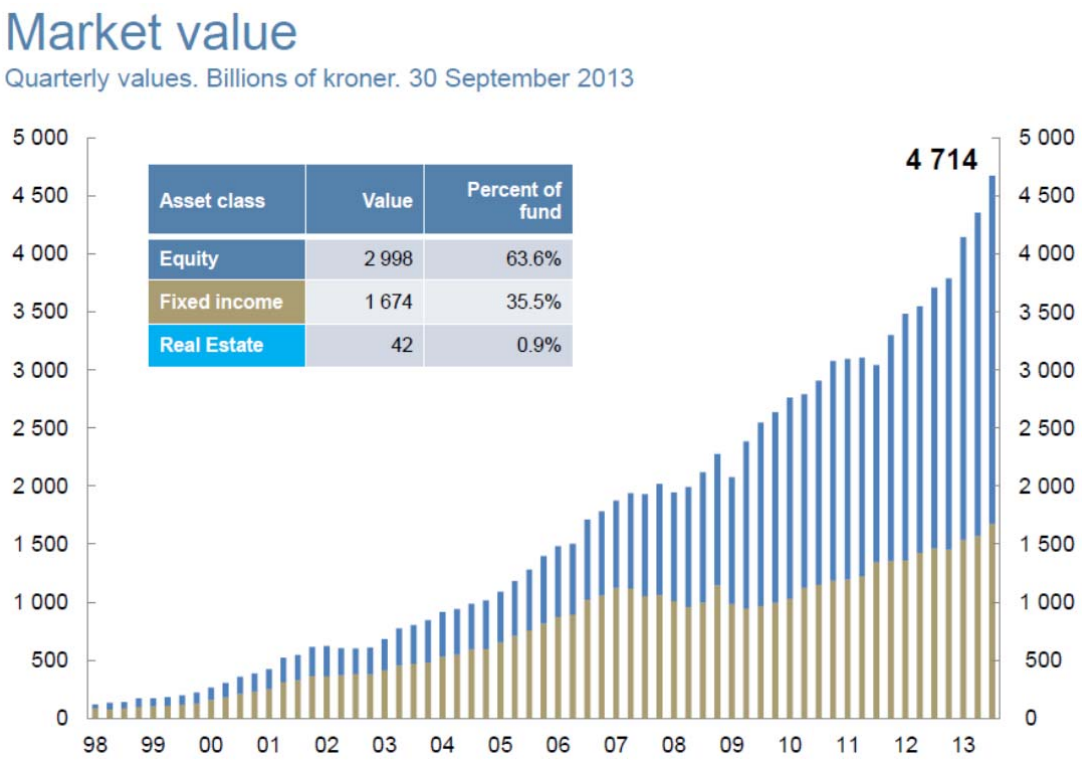
Source: Macrobond Financial

Chart 11. Norway – Interest rates



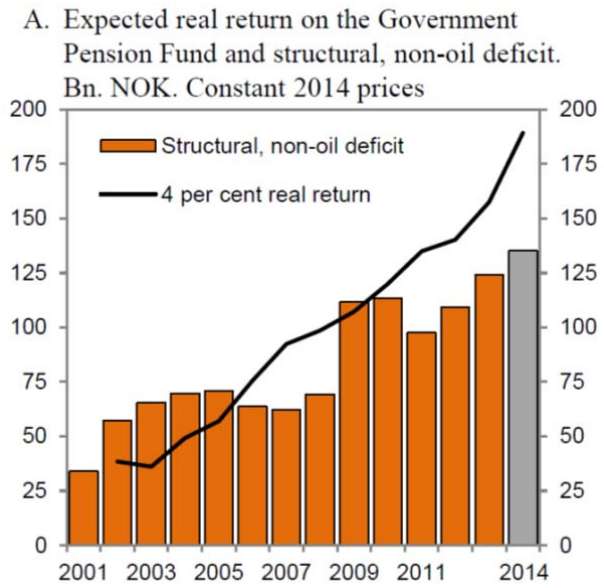
Source: Macrobond Financial

Chart 12. Market value of Government Pension Fund Global



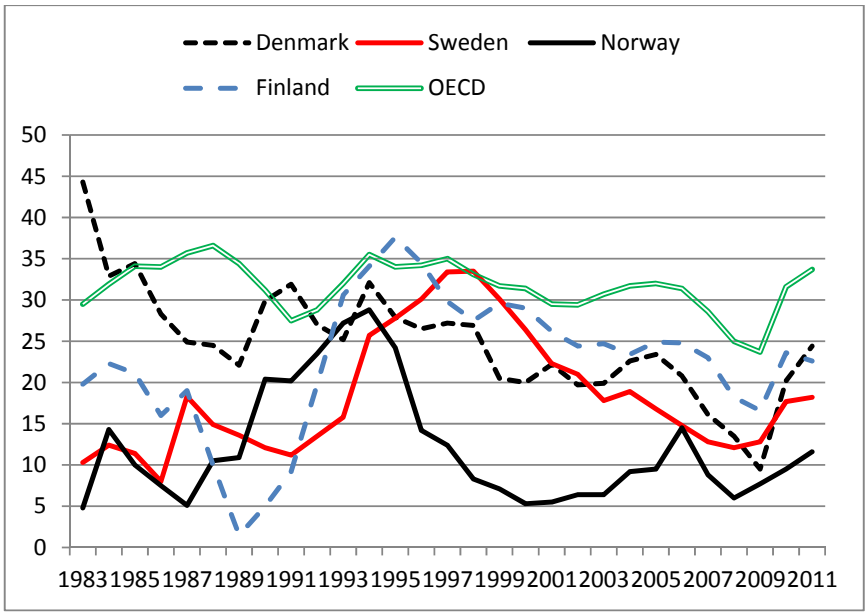
Source: Norges Bank Investment Management

Chart 13. The fiscal rule in practice – The 4 per cent rule versus the actual structural non-oil fiscal deficit



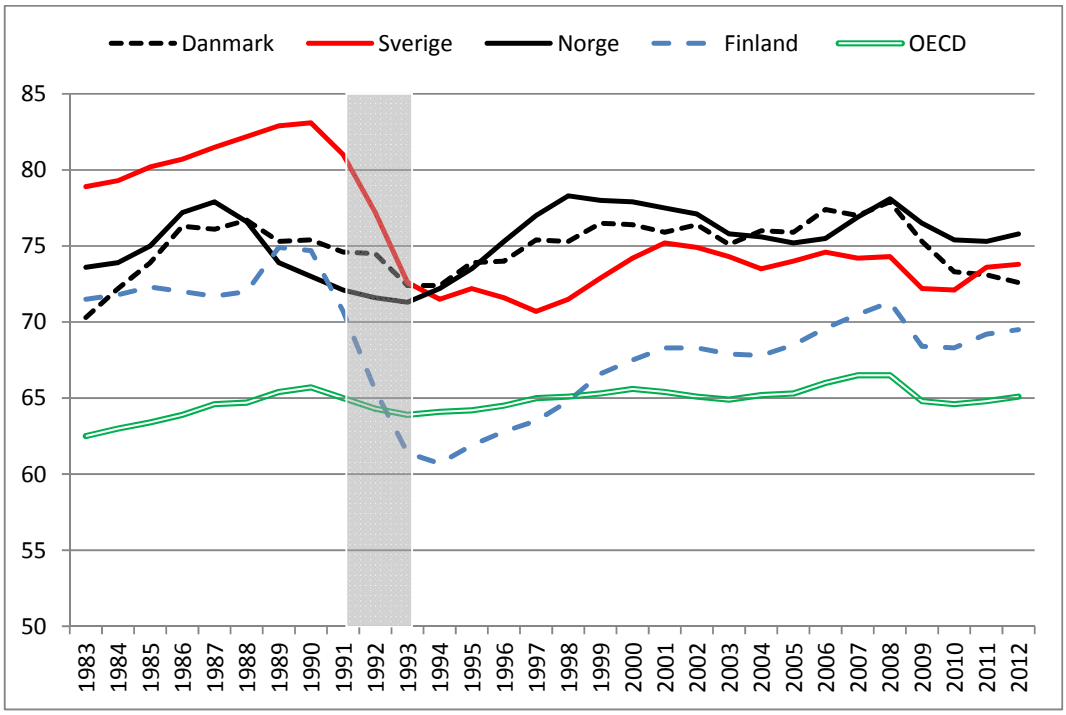
Source: Ministry of Finance

Chart 14. Long-term unemployment as a share of total unemployment in Denmark, Sweden, Norway and Finland, 1993 - 2011.



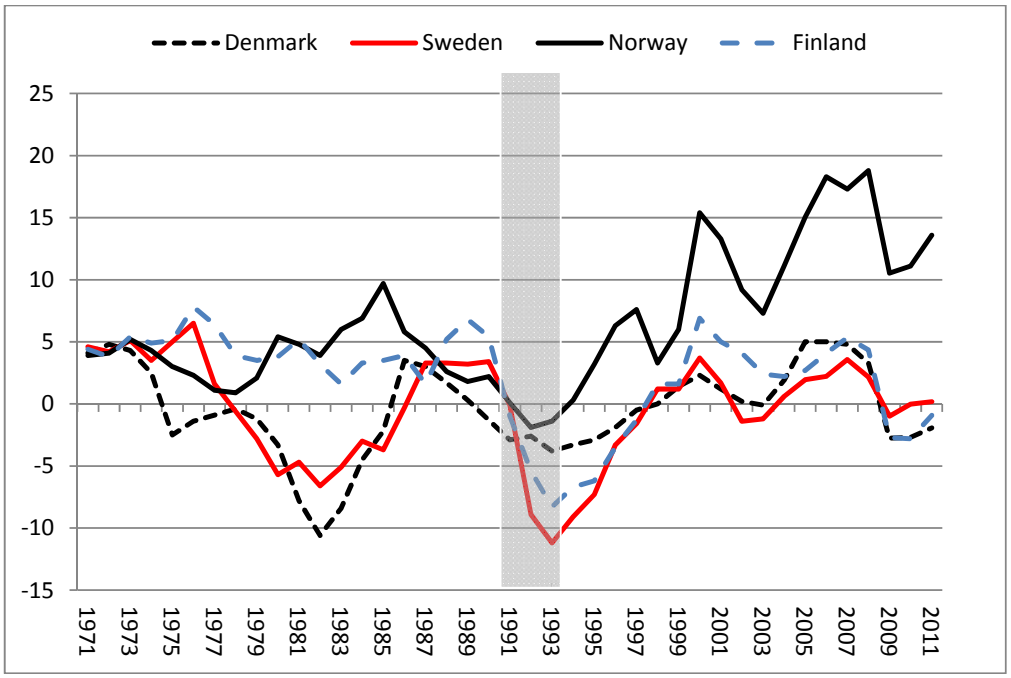
Source: OECD.

Chart 15. Employment rates in the Nordic countries and OECD average, 1983 – 2012. Share (percent) of persons of working age (15 to 64 years) in employment.



Source: OECD.

Chart 6. General government net lending in Denmark, Sweden, Norway and Finland, 1971 – 2009



Source: OECD.

Table 1. Average post-crisis real GDP growth rates in Denmark, Sweden, Mainland Norway and Finland, 1993 – 2008 (per cent per year)

	1993 - 2000	2000-2008
Finland	4.51	2.95
Mainland Norway	3.68	3.23
Sweden	3.52	2.58
Denmark	2.37	1.30

Source: OECD.

Table 2. General government gross financial liabilities, Sweden, Finland and Denmark, 1990 – 2008 (as percentage of GDP)

Year	Sweden	Finland	Denmark
1990	46.3	16.3	66.4
1995*)	81	65.2	79.3
2000	64.7	52.3	57.1
2008	47.1	40.7	39.8

*) Maximum gross debt share, except in Sweden where the share increased to 84.4 in 1996.
Source: OECD.

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