

## Svein Gjedrem: Economic perspectives

Address by Mr Svein Gjedrem, Governor of Norges Bank (Central Bank of Norway), at the meeting of the Supervisory Council of Norges Bank, Oslo, 15 February 2007.

*Please note that the text below may differ slightly from the actual presentation.*

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### 1 Introduction

The poet Rolf Jacobsen would have been 100 years old this year. He was particularly interested in geography. In an interview with Telemark Arbeiderblad in 1971, he stated that the Bible was a work of substantial importance, but that the same could be said about the comprehensive guide to public transport in Norway.<sup>14</sup> In one of his geography poems, he writes:

“When the sun is shining on China  
the stars are twinkling here.  
And the reverse. Asia is vast.  
Half the earth’s land mass  
[...]”<sup>15</sup>

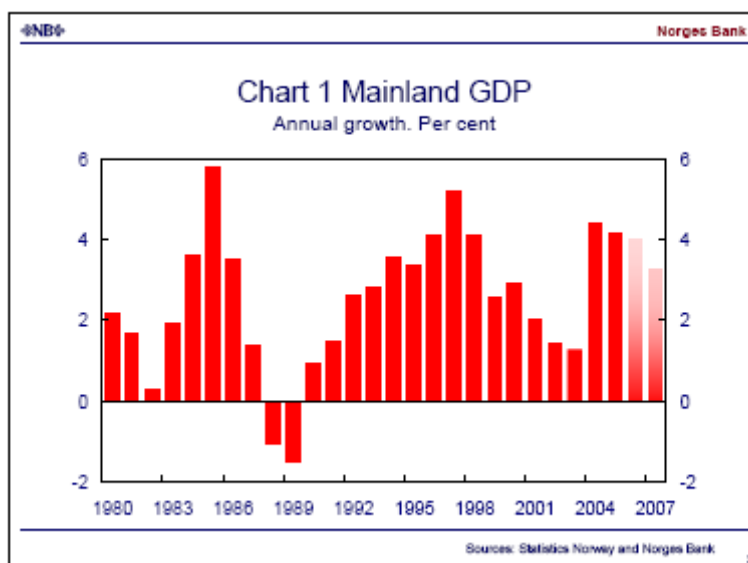
Yes, Asia is vast. The rapid expansion in China and other Asian countries is of growing importance to Norway. These countries are a major source of cheap consumer goods and services and demand for our raw materials.

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<sup>14</sup> Ole Karlsen (editor) (1993): *Frøknorn av ild* (Seeds of Fire). Om Rolf Jacobsens forfatterskap, Landslaget for norskundervisning, Cappelen Fakta.

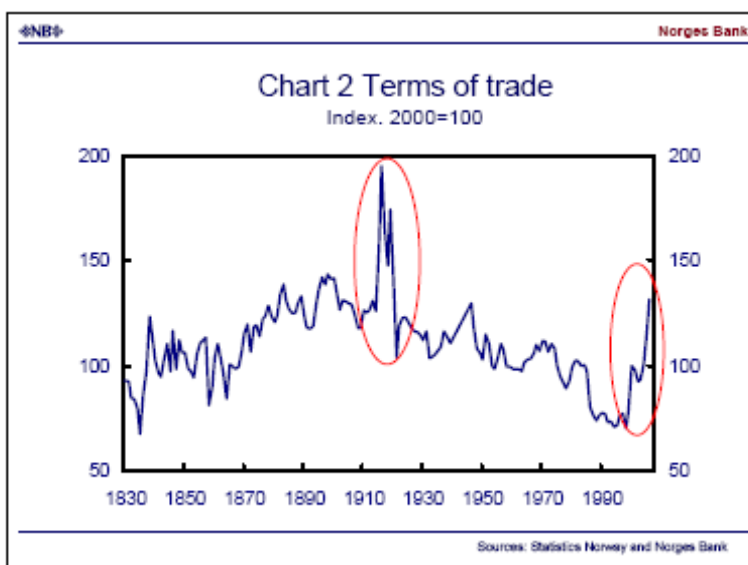
<sup>15</sup> Source: From the poem “Når solen skinner på kinesere” (When the sun is shining on China) in Rolf Jacobsen’s collection of poems “Nattåpent”. Gyldendal Norsk Forlag A/S 1985.

## 2 Interest rates, inflation and the business cycle



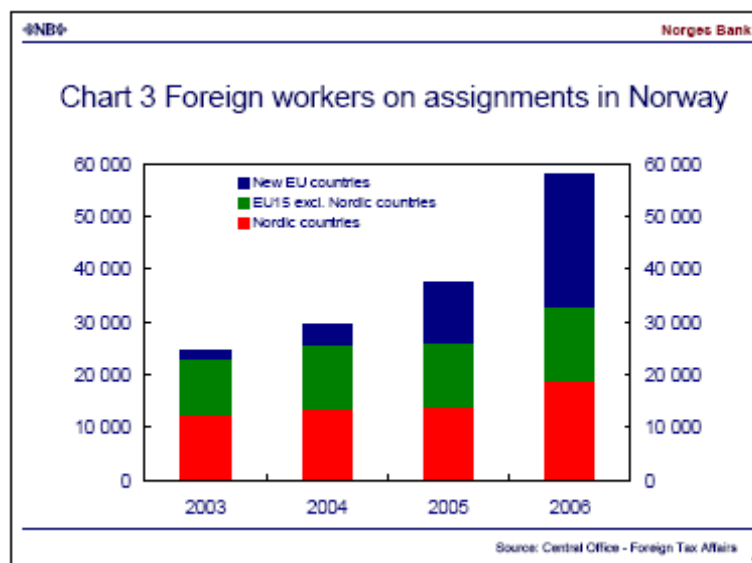
The Norwegian economy is now booming following the pronounced upswing since summer 2003. The upturn followed a period of slower growth as from 1998 and a mild recession in 2002 and into 2003. Even though there have been cyclical changes, growth has been very high over the past 15 years.

Norway is one of the nations that has gained most from trade liberalisation and increased cross-border flows of capital, technology and labour. Norway has experienced the benefits of shifts in the division of labour across countries and regions.

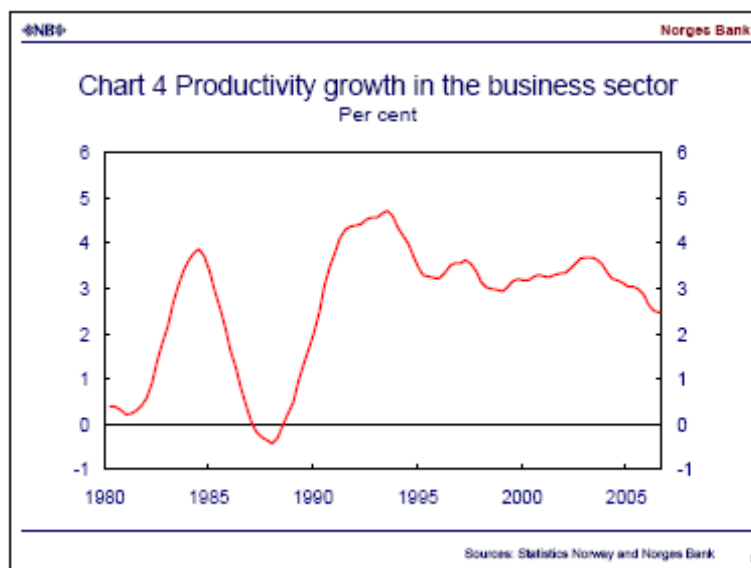


First, Norway's terms of trade have improved markedly. We can buy one and a half to two times the volume of imports for the price paid for our exports than was the case only 5-6 years ago. Prices for oil and gas, shipping, fish, industrial commodities and engineering products have increased considerably. Moreover, Norwegian importers have gained access to new markets in central Europe and Asia which offer considerably cheaper consumer goods. A similar situation has not been seen since World War I, when earnings in the shipping industry and other export industries were exceptionally high for a period.<sup>16</sup>

<sup>16</sup> Tore Jørgen Hanisch, Espen Søylen, Gunhild Ecklund (1999): Norsk økonomisk politikk i det 20. århundre (Norwegian economic policy in the 20th century), HøyskoleForlaget, page 60.

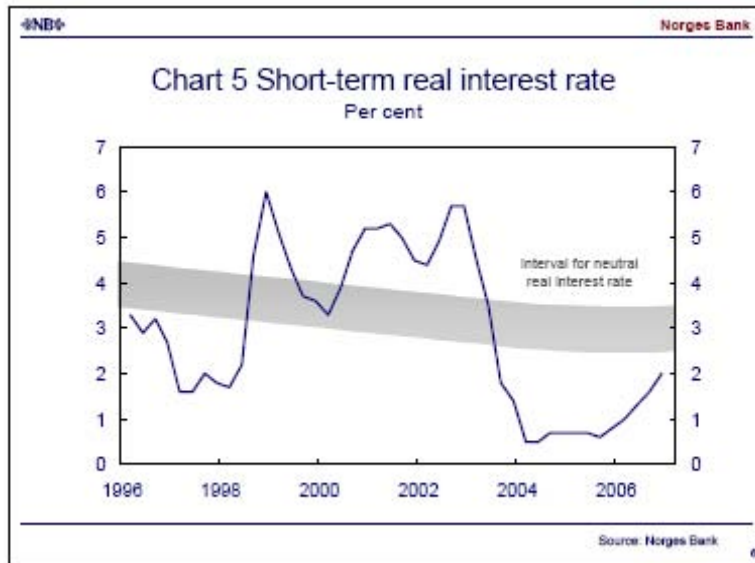


Second, the supply of foreign labour has increased markedly after EU enlargement in 2004. Over the past two years, these labour inflows have accounted for more than 30 per cent of growth in our labour force. Norwegian companies have also been able to be considerably bolder in undertaking new assignments and investments knowing that they can procure labour throughout Europe. In addition to increased labour inflows from Poland, Lithuania and other central European countries, we have long benefited from inflows of labour from Sweden. Many workers are on temporary assignment and their consumption is primarily concentrated in their home country. The Norwegian economy has seen a net capacity increase.

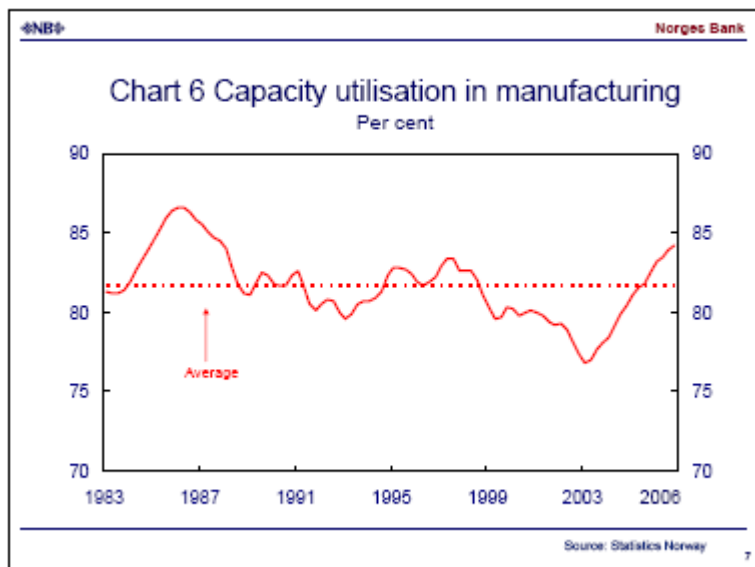


Third, the Norwegian business sector has been quick to integrate information technology. This applies both to companies competing on international markets and those supplying goods and services to the domestic market. In comparison with other countries, it is particularly productivity gains in banks and other service sectors that stand out. Examples are automated processes and swifter payments in the financial industry and improved inventory and management systems in commerce and transport.

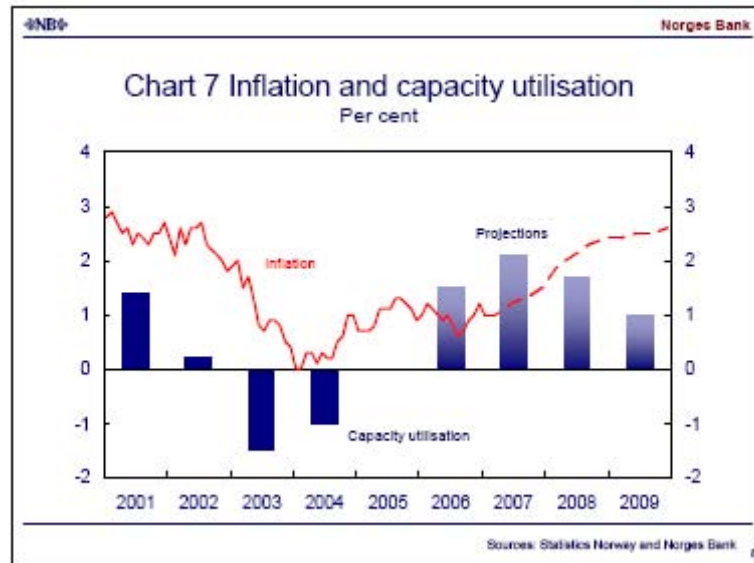
In Norway, monetary policy is oriented towards low and stable inflation. The operational target is consumer price inflation of close to 2.5 per cent over time. We operate a flexible inflation targeting regime. Both variability in output and inflation are given weight in interest-rate setting.



A decline in import prices, ample supply of labour and high productivity growth have boosted the growth potential of the Norwegian economy and led to very low inflation. Against this background, it has been appropriate to stimulate demand for goods and services. We consider a normal real interest rate to be in the order 2½ to 3½ per cent. We have kept the interest rate markedly lower than that level since autumn 2003.



Since the economic recovery started, it has gradually broadened. Capacity utilisation is now at a very high level. There are reports of limited capacity in most industries and regions and labour shortages in almost every occupational category. There are shortages of drivers, pre-school teachers, supervisors, engineers, carpenters, architects, auditors, accountants, IT personnel and health workers. It has probably not been since the 1970s that we find such widespread reports of purely physical production constraints, for example now in the form of shortages of rigs and other equipment in the petroleum industry or shortages of plank, concrete and insulation in the construction industry.

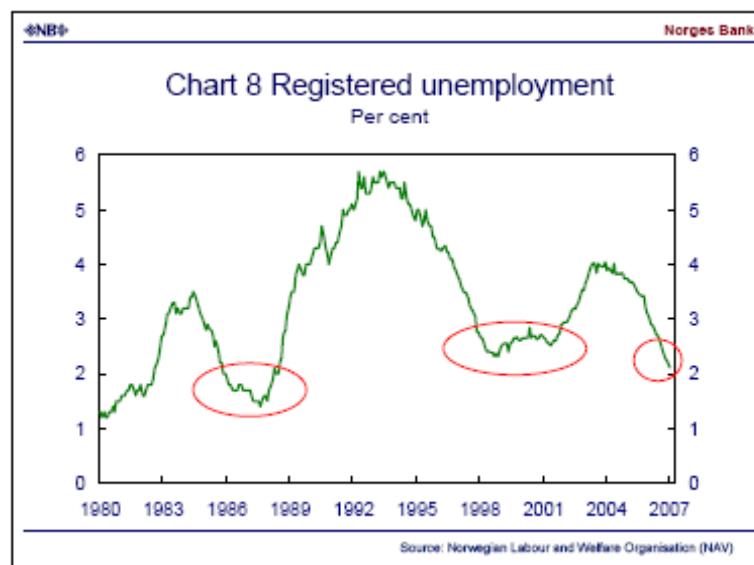


When we reduced the interest rate in 2003, demand and output rapidly picked up. However, it took a long time for employment to rise and the next phase from a pick-up in employment to a fall in unemployment was also long. But now the upturn has entered into a mature phase. As illustrated in the chart, capacity utilisation was higher than its normal level in 2006. Nevertheless, wage growth has thus far been moderate and inflation is clearly lower than the target of 2½ per cent.

The decline in import prices, increased labour flows and higher productivity came into clear evidence when wage and price inflation fell markedly 3-4 years ago. A period of low real interest rates would nevertheless have been appropriate in order to realise the added growth potential. However, after several years of strong growth, resources are now in short supply. With the substantial number of businesses now facing capacity constraints, we can expect inflation to pick up. It is uncertain whether inflation will then rise quickly or only gradually near target.

Strong export growth, high oil investment and after a period higher growth in general government demand have contributed to the upswing in production and employment. But the low level of interest rates has also been a prominent driving force. This reflects the dynamics inherent in interest-rate setting. Low interest rates have stimulated demand and production and should lead to higher inflation, to which we are now reacting by raising interest rates.

Under inflation targeting, it is important to be mindful of the effects of higher interest rates on the krone exchange rate when inflation is low. Interest rate developments in other countries are thus of importance to interest rates in Norway.

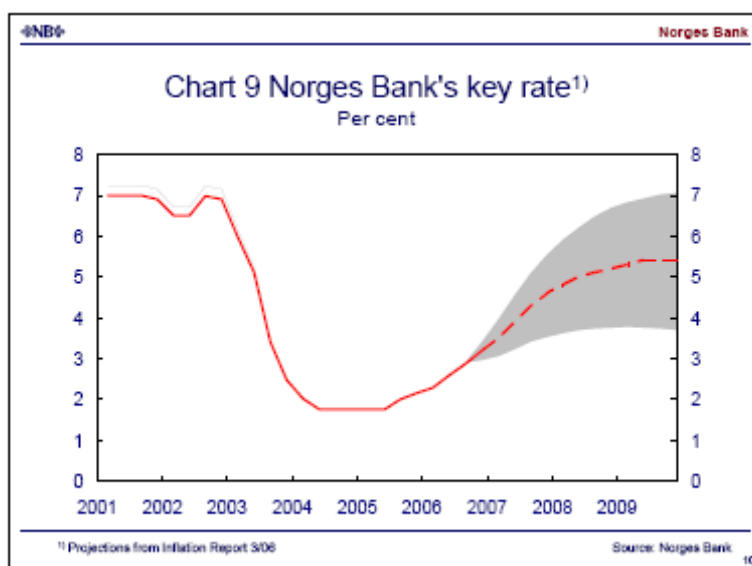


Unemployment has declined sharply in recent quarters. The pace of decline and the level of unemployment are reminiscent of two earlier cyclical peaks, one in the mid-1980s and the one that began at the end of the 1990s and continued into the present decade. Both booms culminated in sharply accelerating cost and wage inflation.

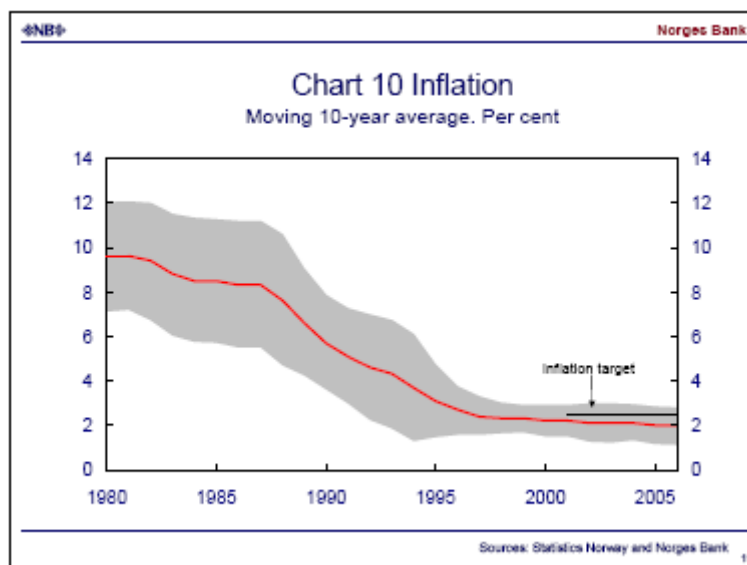
Some of the driving forces that have boosted the growth potential of the Norwegian economy and restrained inflation may diminish. Prices for imported goods are no longer decelerating at the same pace. Labour market conditions are tightening in Sweden and Poland. There are also signs that productivity growth in service sectors is slackening.

We are now seeing the first signs of higher wage growth. We cannot ignore previous episodes of abrupt shifts in wage growth during boom periods. On the other hand, improved labour market adaptability and the supply of foreign labour may have a dampening impact. Unemployment may thus stabilise at a lower level than earlier. Moreover, the social partners' experience of the impact of substantial wage increases on interest-rate setting may also restrain pay increases in the centralised settlements.

Economic policy will increasingly have to reflect the capacity constraints facing many Norwegian enterprises.

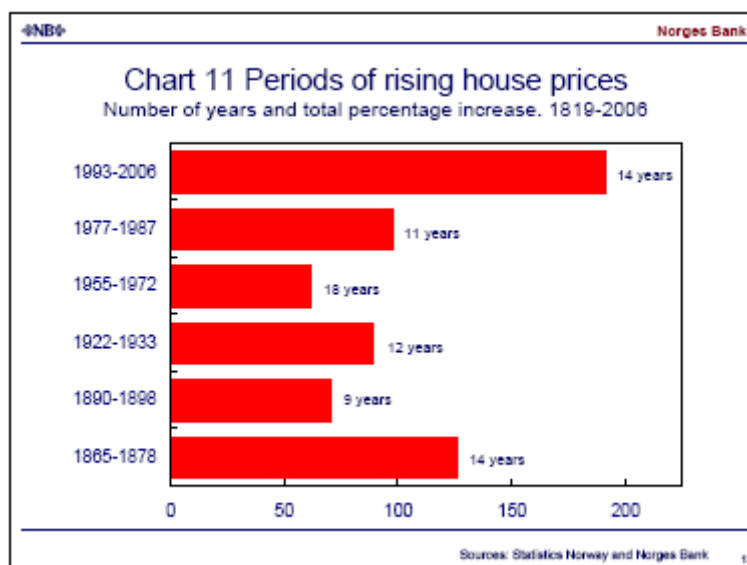


Given the high level of activity and the prospect of a pick-up in inflation, it is appropriate to increase the policy rate from today's level of 3.75 per cent. We envisage a gradual interest rate increase towards a more normal level of a little more than 5 per cent. Economic developments are uncertain. The uncertainty surrounding the interest rate ahead is illustrated by the shaded area in the chart, which is intended to capture the outcome with a 70 per cent probability.

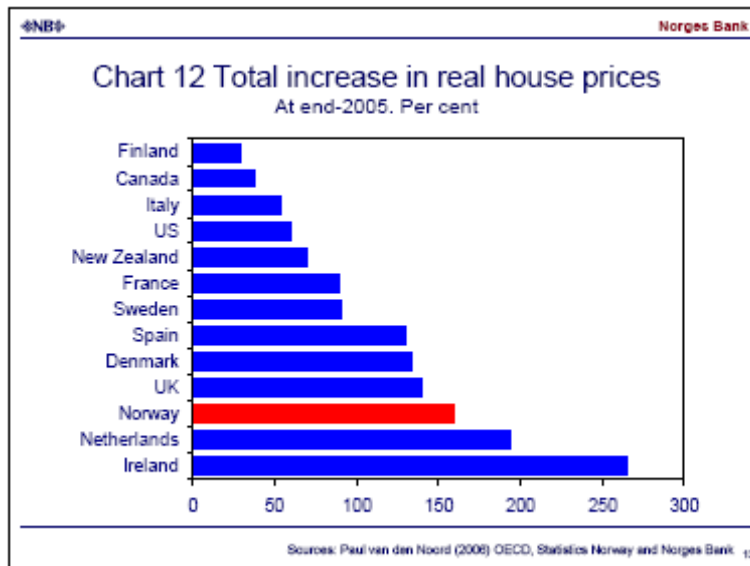


In Norway, inflation fell markedly from the end of the 1980s up to the mid-1990s and has subsequently been low and stable, with considerably less variability than earlier. Inflation has averaged around 2 per cent over the past 5-10 years, i.e. somewhat lower than the target. Thus, the growth potential of the Norwegian economy has been strong and higher than expected.

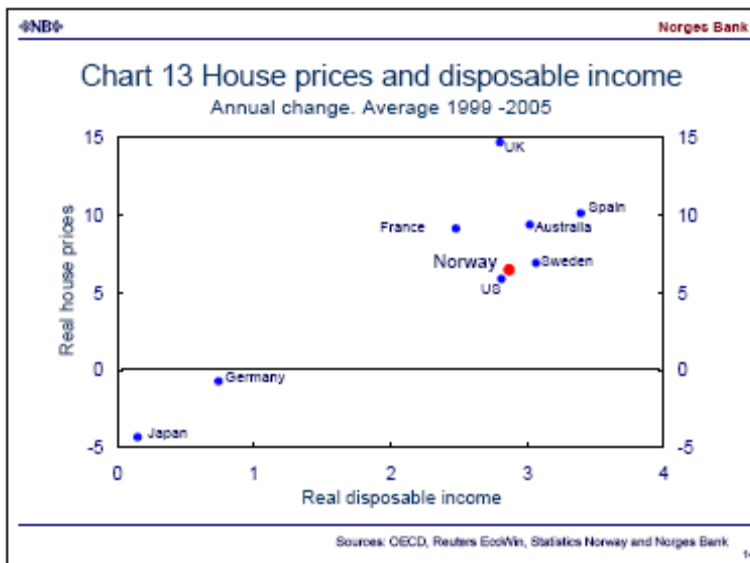
### 3 Long-term interest rates, income growth and house prices



Favourable economic developments in Norway have had an impact on developments in our property markets. House prices have risen sharply over the past 14 years. Real house prices have almost trebled. This rise has been considerably stronger than earlier. Moreover, the rise in house prices has spanned a long period. With the exception of a few months in 2003, house prices have risen continuously since 1992. This is the second longest period of rising real prices since 1819. Statistics for earlier years do not exist. House prices also rose in the 18 years between 1954 and 1972, albeit at a more moderate pace.

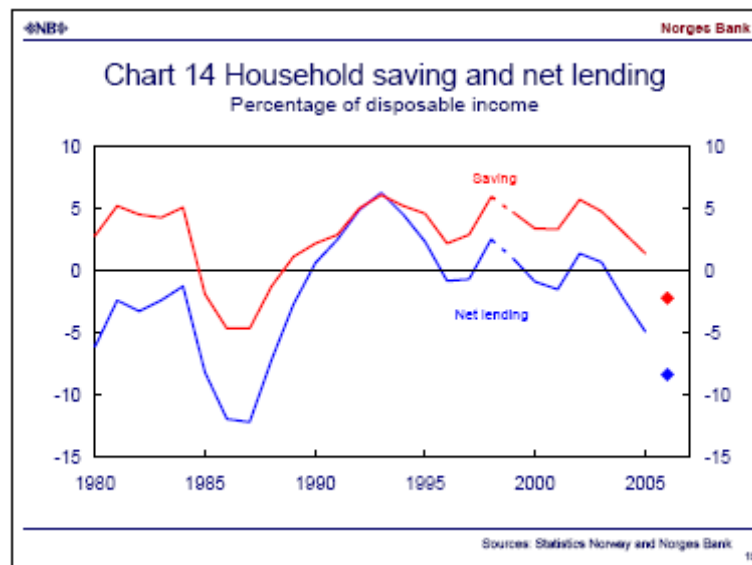


Norway is not the only country where house prices have shown a strong rise over a long period. House price inflation has been particularly high in Ireland and the Netherlands, but Denmark, the UK and Spain also stand out. The countries where house price inflation has been high are the same countries where economic growth has been strongest.

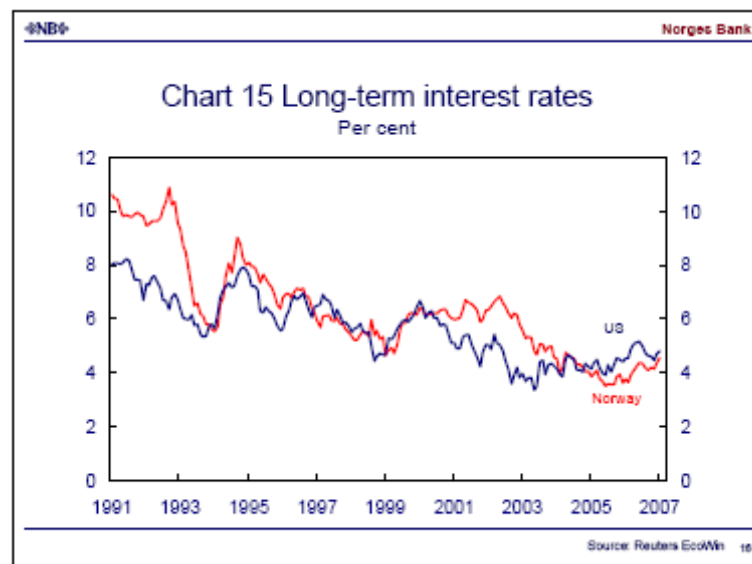


Since prices are rising in tandem in many countries, it is natural to look for common driving forces. With increasing cross-border flows of intermediate goods, capital and increasingly so labour, prices will largely reflect growth and competition in the global economy. If capital or labour becomes too expensive in one country, businesses can relocate production. Prices for fixed factors of production, such as property, will on the other hand reflect income developments in different countries. Consequently, the rise in property prices will tend to be highest in those countries where income growth is highest.





Norway is now reaping the considerable benefits brought by the strong expansion in Asian countries and changes in the international division of labour. Norway's GDP is increasing sharply and this is reflected in high government revenues and saving, increased household purchasing power and buoyant earnings in the business sector. The rise in house prices is partly being driven by growth in household income. Moreover, this period of prosperity and government budget surpluses may have engendered a sense of security which is also affecting household saving and house purchases. It would appear that household saving has fallen markedly in Norway in the recent past. Saving was probably negative in the latter half of 2006, which would be the first time saving has fallen since 1988. Housing investment for the household sector as whole is being fully debt-financed, i.e. an increase in net debt.

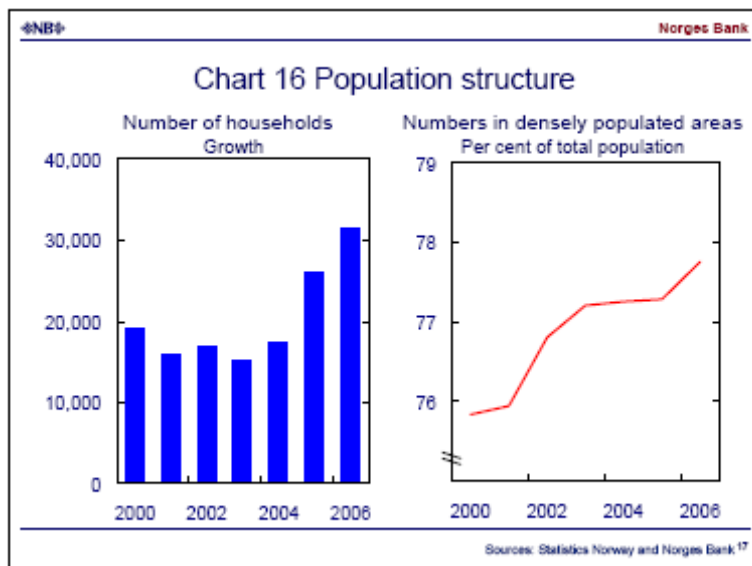


External and domestic interest rates are low in an environment of solid growth. Long-term interest rates have fallen sharply both in nominal and real terms since the beginning of the 1990s. Inflation has declined and contributed to a fall in nominal interest rates. A more stable inflation environment also results in lower real interest rates when investors become more certain about returns. Furthermore, it would appear that high saving in some parts of the world is pushing down long-term interest rates. Saving is high both in oil-producing countries, China and other Asian countries.

Long-term interest rates in Norway largely shadow external interest rates because like other countries Norway is keeping inflation in check. Norwegian households primarily finance house purchases by means of floating-rate loans. Long-term interest rates are still of considerable importance because

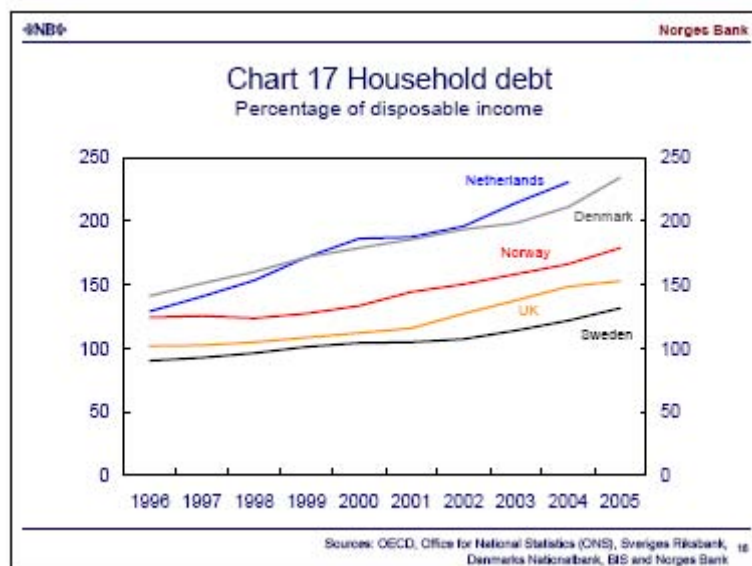
they provide information about the future path of short-term interest rates that borrowers can expect over time.

Unusually low short-term interest rates have probably also boosted the rate of increase in house prices in recent years, but this particular effect will be reversed when the interest rate is raised to a more normal level. Developments in short-term interest rates have influenced the path for house prices over the past 15 years, but periods of low interest rates are followed by periods of higher interest rates. Norges Bank's policy rate is therefore of limited importance for house price inflation over a period of 15 to 20 years.



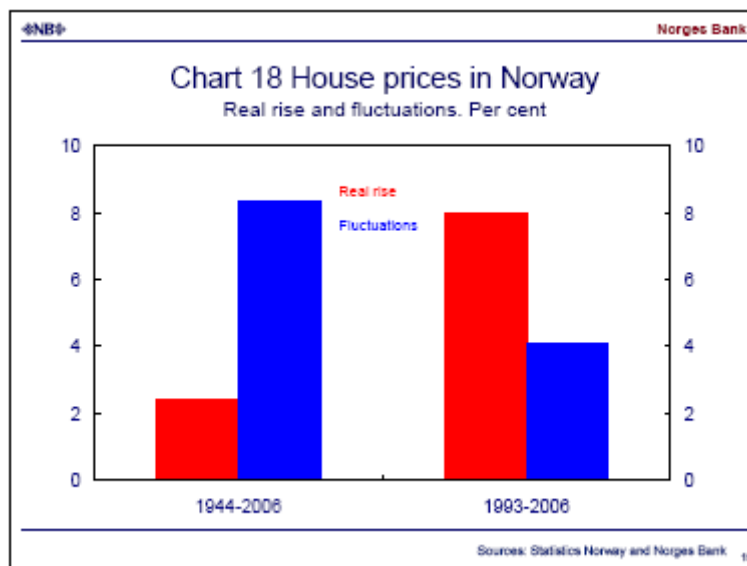
The housing stock in Norway, which numbers a good 2.2 million dwellings, shows little change from one year to the next. As a result, higher demand for housing will primarily translate into higher prices in the short term. In the 1990s, housing starts in Norway were fairly low in relation to growth in the number of households. Moreover, population growth has been higher in recent years, largely reflecting a high level of immigration. In 2006, the population increased by more than 40 000 and the number of households by roughly 30 000.

Furthermore, migration patterns in Norway follow the business cycle. Migration to densely populated areas is now rising. Demands for high standards and new building regulations have also pushed up housing construction costs and thereby house prices.

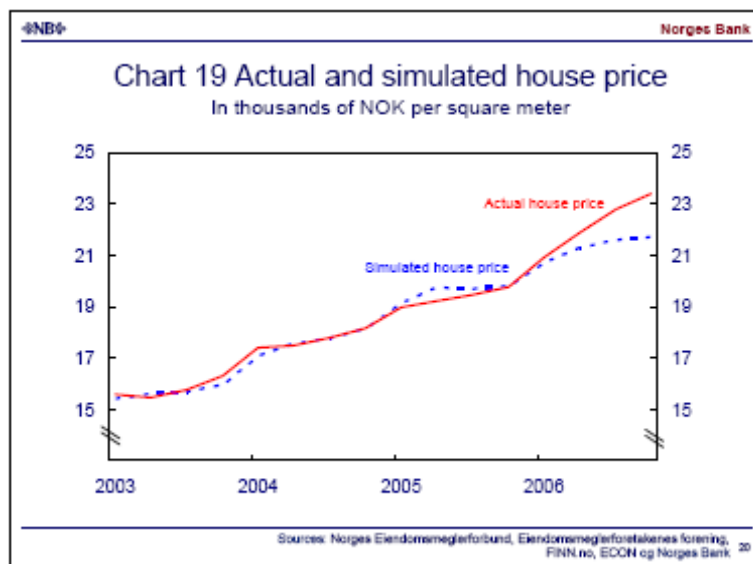


The rise in house prices has been accompanied by a sharp increase in household debt. In Norway, household debt is now almost twice the level of disposable income, and the debt to income ratio is the highest ever. It is higher than in Sweden and the UK, but lower than in Denmark and the Netherlands.

Norway is among the countries with the highest share of owner-occupied dwellings, at around 80 per cent. This high proportion partly accounts for the high mortgage debt of households. In recent years, new loan products have also been launched, facilitating mortgage equity withdrawal. Housing wealth has become more liquid. Borrowers have greater scope for choosing repayment profiles. We cannot identify the exact level of household debt that can be sustained over time, but the rapid accumulation of debt increases household vulnerability.

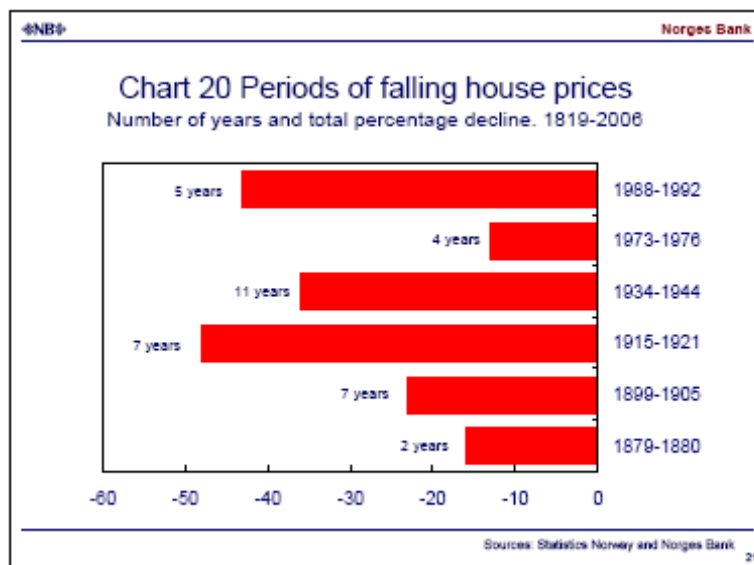


Housing investment has been profitable in recent years. Since 1992, the real rise in house prices has averaged 8 per cent, which is markedly higher than for the entire post-war period. At the same time, fluctuations in prices have been considerably smaller.



The main determinants of house price inflation have long been income, unemployment, interest rates and residential construction. In the past year, however, house price inflation has been higher than implied by these factors. A large share of the increase in 2006 cannot be explained by previous patterns. Developments since the beginning of the 1990s may have engendered expectations that house prices will only continue to rise. This may increase house purchases for pure investment purposes and induce younger buyers to enter the housing market earlier than otherwise. The pronounced fall in saving indicates that households are taking greater chances.

The housing market may now be in a state of euphoria.



After a long period of rising house prices, it may therefore be of interest to look at periods of falling prices. Earlier periods of decline have not lasted very long. Generally, the increase has been stronger than the ensuing fall. There are nevertheless examples of periods where house prices exhibited a continuous fall of up to 50 per cent.

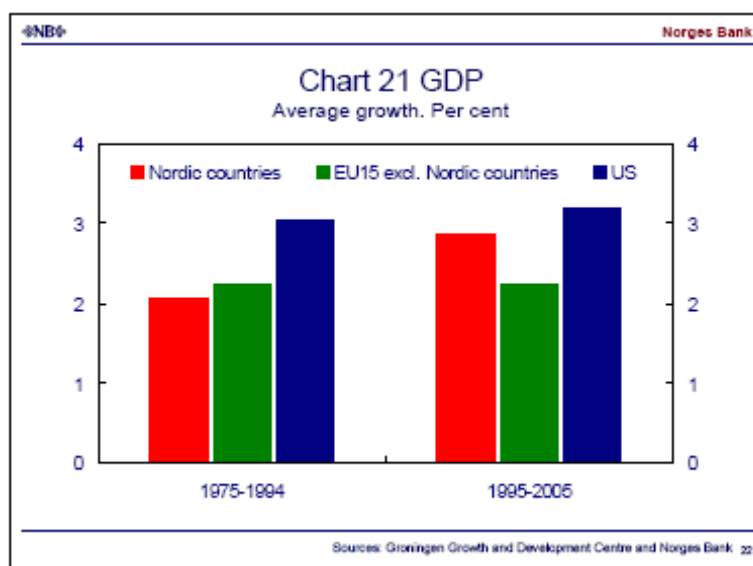
Earlier periods of declining house prices probably do not provide a perfect guide. The two most well-known episodes are the fall in house prices around 1990 and the housing market collapse in Christiania (now Oslo) around 1900.

The fall in house prices 15-20 years ago was probably ascribable to the very high real interest rates required to tame inflation and stabilise the exchange rate following two decades of very high inflation. This is not a challenge we are facing today.

The period at the end of the 1890s, just prior to the housing market collapse in Christiania, has some features similar to today's situation. It was a period of rising house prices, a housebuilding boom in Christiania, rising equity prices and rapid credit growth. At the same time, the level of prices for goods and services was stable. After the housing market crash in Christiania in 1899, house prices fell by more than 50 per cent over 5 years. The fall in house prices for the country as a whole was more moderate.

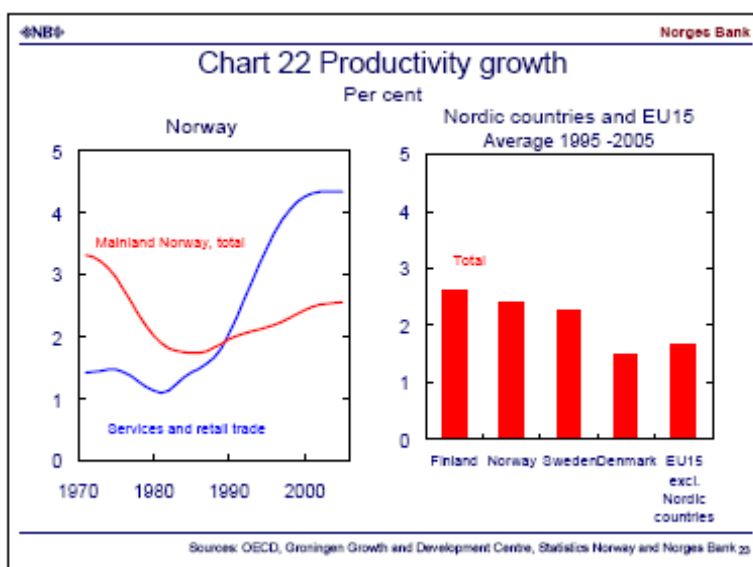
Higher debt will become a mounting financial burden for many households and limit the willingness to pay in the housing market. Long-term interest rates are unusually low and will probably rise over a few years. Moreover, the current level of population and income growth is not sustainable. On balance, developments in these variables will eventually stem the rise in house prices and lead to a period of stagnating or declining prices.

#### 4 Modernisation of the economic system

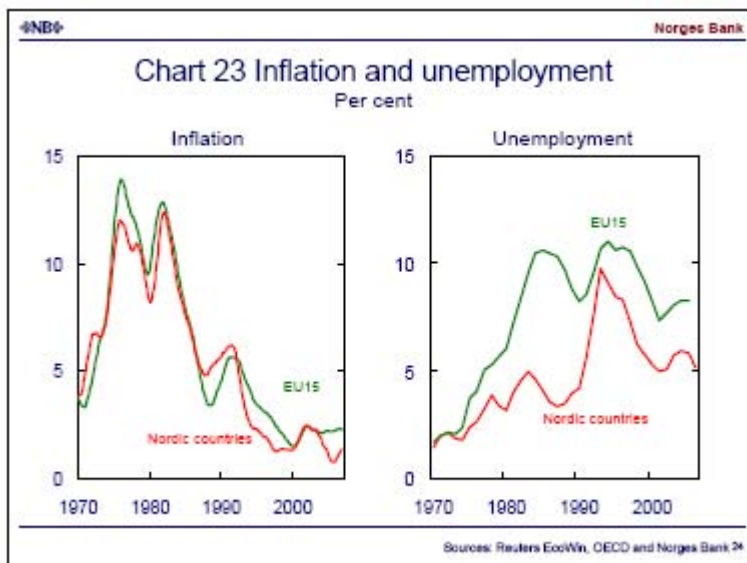


The global economy has become increasingly integrated. Norway and the other Nordic countries are tackling the challenges. Adaptability in the business sector, the willingness to integrate new technology, a relatively efficient public sector, high growth, low inflation and moderate unemployment are now characteristic features of our region. Since the mid-1990s, the Nordic countries have expanded at a faster pace than other European countries and almost as fast as the US economy.

This was not the case only 20 years ago. Following strong economic growth in the post-war period, the Nordic countries lost ground in the 1970s and 1980s. Growth in the Nordic region, particularly in Denmark and Sweden, was lower than in other European countries and the US during this period. Finland recorded strong growth for a long period, but a poorly diversified industry structure made the country vulnerable. Oil brought growth to the Norwegian economy, but the first decades of the oil age were still marked by instability in the mainland economy.



Solid growth in the Nordic countries in recent years has been underpinned by strong productivity gains in most of these countries. Finland and Sweden have a highly developed ICT industry. A feature shared by the Nordic countries is the growing efficiency of service production.



- Changes in the economic system
1. Division of responsibility in economic policy
  2. Trade policy
  3. Tax system
  3. Financial and credit markets

1. Division of responsibility in economic policy
- |   |   |                       |
|---|---|-----------------------|
| Monetary policy                           | ➡ | Price stability       |
| Fiscal policy                             | ➡ | Krone exchange rate   |
| Wage formation, structures and incentives | ➡ | Employment and growth |

Economic developments in the 1970s and 1980s were unstable both in the Nordic region and in Europe. Inflation was very high and variable, but was tamed in the 1990s. Falling demand and production resulted in high unemployment. For a long period, there was a tendency in both the Nordic region and elsewhere in Europe for unemployment to climb to higher levels in each cycle. This tendency has been reversed in the Nordic countries, while unemployment still remains high in several European countries.

During the 1980s and 1990s, economic policy was revised in all the Nordic countries. Denmark tightened government budgets as early as the 1980s. The other Nordic countries deregulated credit and housing markets, but this was followed by growth bubbles. At the same time, monetary policy was tightened in order to stabilise the exchange rate and rein in high inflation. This proved to be impossible without a sharp fall in the level of activity and employment, and high interest rates shook the financial system.

Following the crises, the Nordic countries were not locked into a low growth trap. Many enterprises were closed. This freed up labour and other resources that could be channelled to new areas. The decline in itself provided fertile ground for innovation and entrepreneurship – we experienced creative destruction in the Nordic economies.

An elaborate system of direct regulation of activities in the business sector and the labour market was devised in the post-war period. Loans from banks and financial undertakings were regulated through quotas that were set out in a separate credit budget and state banks accounted for a substantial share of credit to households and enterprises. Cross-border capital movements – for example non-resident rights to buy Norwegian equities and Norwegian enterprises' access to foreign funding – were regulated by separate quotas. The government authorities set both short-term and long-term interest rates at a low level, with demand for credit periodically outstripping supply. Credit was rationed. The krone exchange rate was in principle fixed, but was frequently adjusted when cost inflation spiralled out of control despite extensive regulation. House prices in cities were regulated, with queues and under-the-table transactions. Direct price and wage controls were also applied in periods. There was an active business policy through state ownership and support and subsidy schemes.

Government spending increased substantially as a share of total GDP, from 35 per cent in 1970 to 50 per cent in 1990, hand in hand with tax increases. The government budget was also used to secure high employment, but unemployment still rose from one cycle to the next.

The experience and lessons of the 1970s and 1980s have left their mark on the current formulation of policy. Prior to, during and following the crises around 1990, policy reforms were introduced in all the Nordic countries. In Norway, the economic system was modernised over a 10-15 year period.

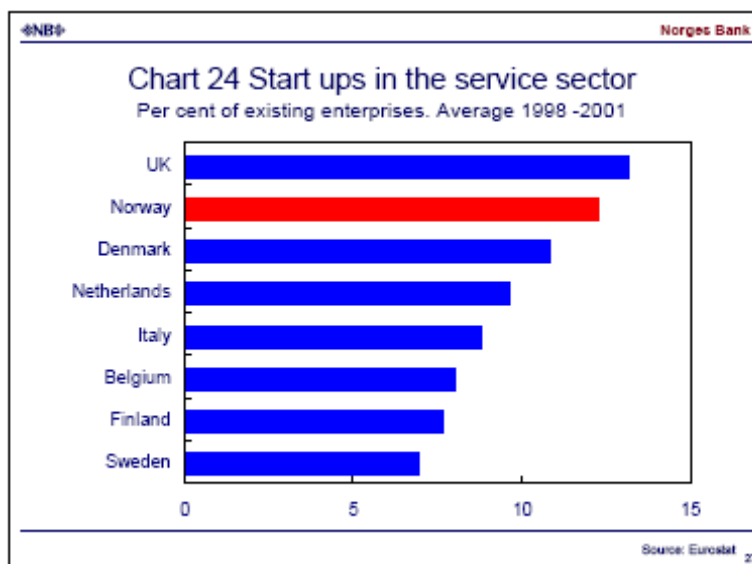
First, as in other countries, increased emphasis was placed on norm-based or rule-based monetary and fiscal policy, and over time a clear division of responsibility was established. Monetary policy steers inflation in the medium and long term and can also contribute to smoothing fluctuations in output and employment. The government budget – growth in public spending – influences the real krone exchange rate and the scale of the tradable sector in the medium term. Government spending and revenues must be in balance in the long term. Wage formation, the economy's structures and incentives determine how efficiently we make use of labour and other economic resources.

Second, trade policy plays an important role for growth in small open economies. Since the beginning of the 1990s, Norway, like Sweden and Finland, has become more closely integrated into Europe. The EEA Agreement, which provides for the free movement of labour, capital, goods and services, has enhanced efficiency in many industries. The recent WTO rounds have covered a broader range of goods and services and the number of member countries has increased. Almost all countries are now members or observers, and the issues are broad-ranging. Trade policy has paved the way for the change in the international division of labour which has brought benefits to Norway and the other Nordic countries.

Third, the tax reform in 1992 was a crossroads. It made it possible to finance the welfare state with a substantially lower loss of efficiency and wealth creation than previously. The key was to reform the deduction schemes for personal and company taxation and to introduce more equal tax treatment of companies across industries and aim at neutral taxation of capital income and interest. Marginal taxes could be lowered. The tax deductibility rate for interest was considerably reduced for households. It became more advantageous to save and less advantageous to borrow.

The pressure on our tax system has also been reduced because public spending control has improved over the past 10-15 years.

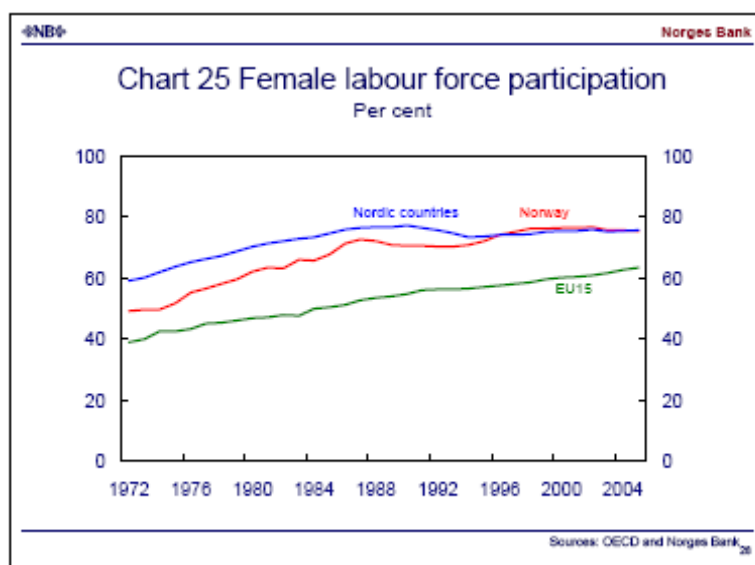
Fourth, Norwegian credit markets have undergone structural changes. The function of state banks has become more concentrated and their share of the credit market has been reduced from more than 30 per cent in the 1980s to 8 per cent today. The first wave of banking deregulation in the mid-1980s was not particularly successful. It was only after the banking crisis and the tax reform that Norwegian credit and capital markets started to function efficiently. It became more profitable to channel capital to investment projects that yield the highest social return and locked-in capital was freed up for new industries and businesses.



It became easier for entrepreneurs to start up and build up businesses and capital. Illustrative of the enterprise spirit in the period 1998-2003 – which was not a period of particularly strong growth – was the start-up of 12 new businesses for every 100 existing businesses, which was quite high compared with other countries.

Norwegian credit and capital markets are relatively well developed today. Sound projects will always find funding. The main weakness is still to be found in housing, property and wealth taxation, which favours considerable overinvestment in dwellings and holiday homes.

In addition to the changes I have highlighted, the framework conditions for the electricity market, telecom market, aviation and audiovisual industry have changed. Retail trade has been liberalised. State-owned companies were listed on the stock exchange and new forms of managing public entities were developed.





Economic growth has also been bolstered by higher female labour force participation. Higher educational attainment and maternity leave have also made a contribution.

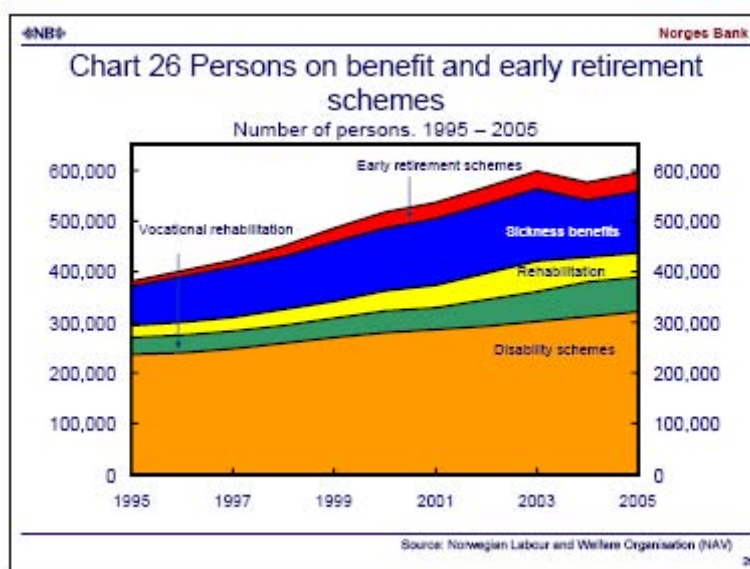
Just as there are new companies that start up each year, there are also many people who change jobs every year. On average for the years 2000-2005, 260 000 work contracts were terminated. Every eighth person changed jobs. At the same time, new jobs were created, bringing net annual job creation to 4 000 in this period. Job change and the diffusion of new technology tend to go hand in hand. The key here is that companies have had the opportunity and capacity to rationalise and adapt when new technology has made this profitable.

The modernisation of economic systems must be given the main credit for the solid performance of Nordic countries over the past 10-15 years. Norway is benefiting from oil, but developments in the mainland economy have also been considerably more stable. Global economic developments have brought us substantial gains, but this does not explain the strong productivity gains in our service industries. Moreover, it may appear that cooperation in companies is better in Nordic countries than in many other European countries. In Norway, there are few examples of objections to investing in new technology on the grounds that it will eliminate jobs. On the contrary, employees will often be the first to support new investments to strengthen a company's position in highly open and competitive markets.

Labour market adaptability is fairly similar in the Nordic region, even though legislation and rules are quite different. For example, there is a high level of employment protection legislation in Norway, Sweden, and Finland but not in Denmark. In Denmark, agreements between the social partners can stipulate firing rules.

The negotiating position that employment protection offers employees can induce companies to go farther in safeguarding employees' interests in the event of restructuring. The social safety net – unemployment benefits and the more permanent benefit schemes – probably also make it easier to gain support for rationalisation.

But this safety net has also become a pretext for not addressing the problems at hand. The increased use of our welfare schemes is increasingly becoming the Achilles' heel of the Norwegian economy.



Sickness absence has risen sharply in Norway and a steadily higher share of the working-age population is on disability benefit or rehabilitation schemes. Many choose to retire under contractual early retirement schemes at the age of 62, and these numbers will probably increase ahead. In Norway, close to 600 000 persons among the working-age population are outside the labour force and on benefit and retirement schemes. This accounts for 25 per cent of the labour force. Sweden has seen a similar development.

The sharp increase in benefits cannot be explained by the population's state of health, which is steadily improving. A survey of more than 31 European countries also shows that there is a high degree of job satisfaction among Norwegians.<sup>17</sup>

Demographic developments will have a dampening impact on demand for public services and social security disbursements over the coming years. The number of elderly among pensioners, i.e. 80 years and older, will not grow and the post-war generation will only start drawing on social security in the next decade. There will still be pressures for higher public spending. Demand for services we have chosen to let the government provide, for example health services, increases markedly when revenues rise at the pace they are rising today. Growth in government revenues – among others the return on the Government Pension Fund which is rising rapidly – also raises our expectations. At the same time, this is also a period of strong growth in demand for labour in the business sector.

With the exception of part-time employees who want to work more, there are now few idle resources in the labour force. We cannot expect a substantial increase in the supply of foreign labour. Workers from other countries, such as Sweden and Poland with families and the largest share of consumption in their home country, have increased production capacity in Norway, but it now appears that the supply of foreign labour is starting to become more limited. Other inward labour migration does not generate higher value added per capita. Immigrants that become permanent residents make the same contribution to increasing demand as to increasing production.

The main challenge is to limit flows of persons into benefit. Recent research findings can provide us with guidance.<sup>18</sup> During periods of restructuring of private and public sector activities, the number of new benefit claims rises. Findings show that the interaction between unemployment benefit schemes and other social security schemes is not optimal. When demand for labour falls, flows into benefit increase. But the flows do not primarily go into unemployment benefit and seeking work and activity, but directly into rehabilitation. And rehabilitation is to a large extent a gateway to disability benefit. A broad range of measures is probably needed to limit these flows. The new government agency the Norwegian Labour and Welfare Organisation is facing considerable challenges. Moreover, there should be strong financial incentives in enterprises to counter employee flows into benefit. Certain schemes should be reassessed, schemes that now function as pure poverty traps, because for certain recipients there is little to be gained financially in early phases from moving from welfare to work.

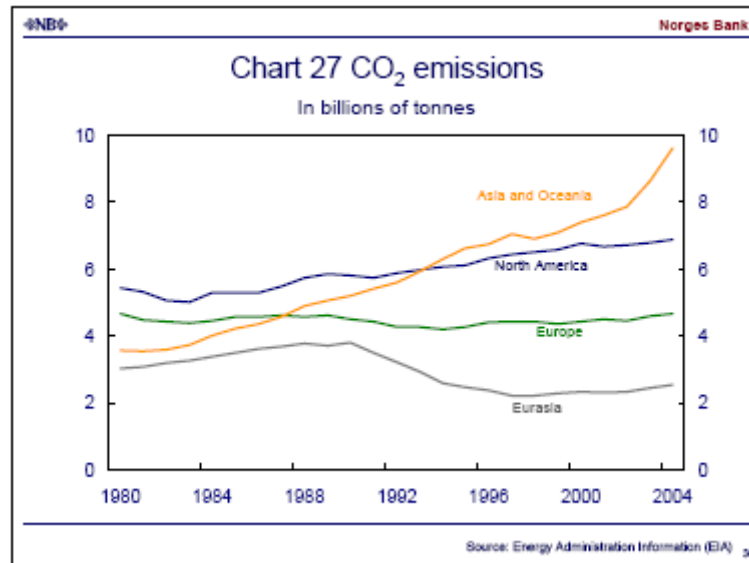
## **5 Growth and the environment**

Strong growth in the world economy is reducing poverty at a faster pace than ever before. Increased trade and economic integration are bringing opportunities for raising living standards to ever larger groups.

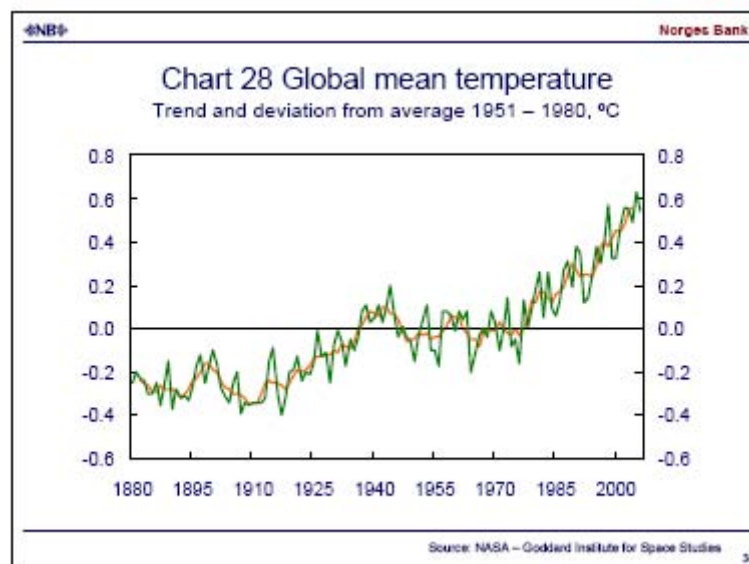
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<sup>17</sup> European Foundation for the Improvement of Living and Working Conditions (2006): "Fourth European Working Conditions Survey".

<sup>18</sup> Knut Røed: "Hvor stor er arbeidskraftsreserven? Og hvordan kan den mobiliseres?" (How large are labour reserves? And how can they be mobilised?) Presentation at the conference: Arbeidsmarked, lønn og økonomisk politikk, (The labour market, wages and economic policy) University of Oslo, 23 January 2007.



But growth has a price. This is particularly reflected in increased emissions of greenhouse gases as a result of growing human activity. The highest emission levels per capita are found in rich, industrialised countries. Growth in total emissions is nevertheless highest in Asia.<sup>19</sup>



Scientific findings are clear: In the past 100 years, the global mean temperature has risen by 0.74°C. There is more than a 90 per cent probability that the increase in gas emissions has contributed to global warming over the past decades. Developments mean that the Arctic ice may melt away, the climate may become more unstable and the supply of safe source water may decline.

The changes also have an economic cost. It is expensive to repair damages to buildings and infrastructure following storms and floods. Insurance pay-outs are rising and premiums are following suit. When insurance is not possible, society must bear the cost directly.

It is important to combine knowledge about nature and knowledge about the functioning of the economy in addressing environmental challenges. Maximum positive impacts and minimal negative impacts are achieved by using instruments that induce businesses and individuals to choose the technology and consumption pattern that stem emissions. Using these instruments releases the full

<sup>19</sup> John Llewellyn (2007): "The Business of Climate Change. Challenges and Opportunities", Lehman Brothers, February 2007.

force of market mechanisms. Taxes that require the polluter to pay and tradable emission quotas are important instruments.

When the costs of reduced emission are to be distributed, it will be tempting for countries to act as free riders. Restrictions and taxes that only apply to one country or to a small group of countries do not solve the problem. There are important lessons to be drawn from international trade cooperation in the post-war period, which was also marked by strong conflicts of interest but still made headway through the period.

It is still uncertain how serious the impact of gas emissions will be. But once the impact comes into full evidence, it may be too late to take corrective action. There is also the risk that the concentration of greenhouse gases in the atmosphere reaches such a high level that it exceeds critical values that cannot be reversed. The right approach is therefore to guard against events that may have serious consequences even if there is a small probability of the event occurring.

Most of us already pay a certain amount every year to guard against the consequences of events we will hopefully never experience. The cost of curbing global warming can be looked upon as such an insurance premium. Higher transport taxes and increased electricity and energy prices are a small price to pay.

## 6 Conclusion

I opened by quoting from Rolf Jacobsen. In the poem "Otherness land"<sup>20</sup> he describes Norway as a country in the far north, a nation struggling and resisting intimidation.

A prominent feature of Norway is its natural resources. The harvesting of waterfall power, oil and gas, timber and fish are important to income and welfare in Norway. Jacobsen writes:

"... But we became a civilised people in the end,  
seafarers from the start, rulers  
of the whole of the North Atlantic.  
And now we are reaping black gold from the seabed (...)"

And

So do not ..... dwell in a dream  
for we await your hands and goodwill.

We should hope that we have become a civilised people – but we should not believe that we can safeguard welfare simply by reaping black gold from the seabed. Welfare is secured by putting hands back to work, productive labour and the willingness to change – and of no less importance by protecting the environment.

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<sup>20</sup> A previous translation of the poem does not exist. The verses included in the address have been translated by Norges Bank's staff translators Janet Aagenæs and Helle Snellingén.