

Government asset management and the role of the Petroleum Fund

Address by Governor Svein Gjedrem. Meeting of the Polytechnical Society, Oslo, 28 November 2000

The Norwegian economy is currently characterised by substantial revenues as a result of high oil production and high oil prices. The current account shows a large surplus, and government finances are robust. Following an upturn that started in 1993, however, there are signs of stagnation in the mainland economy, with sluggish productivity gains and low employment growth.

The oil revenues will presumably prove to be advantageous for the Norwegian economy, but they also represent a considerable challenge, in that it has proved difficult to find an appropriate approach to phasing these revenues into the Norwegian economy. History also has many examples of other countries that have failed to address similar challenges. It is also a demanding task to manage in a sound and profitable manner the wealth from petroleum revenues that is transferred to the Government Petroleum Fund.

I am going to consider some aspects of these challenges.

Phasing in of petroleum revenues

Three crucial points have to be taken into account in connection with the use of petroleum revenues in the Norwegian economy:

- avoiding the Dutch disease, so that restructuring costs are not excessive when petroleum revenues decline
- assuring a fair distribution of petroleum revenues across generations
- avoiding pronounced cyclical fluctuations in the mainland economy due to variations in oil revenues

Dutch disease and historical experiences

The name "Dutch disease" is applied to the negative effects that use of income from natural resources may have on the exposed sector, ie industries that export or produce in competition with foreign producers. The substantial revenues that the Netherlands obtained from gas resources in the Groningen field from the end of the 1960s financed a sharp growth in government expenditure. This led to a decline in competitiveness and a loss of jobs in the exposed sector. These developments went too far, and large current account deficits and deteriorating government finances made it necessary to tighten policy, with the result that unemployment rose sharply in the first half of the 1980s. Not until the latter half of the 1990s could it be claimed with any certainty that the Dutch economy had recovered from problems associated with the extensive use of gas revenues in the 1970s.

The Norwegian economy was also infected by Dutch disease in the 1970s, when government expenditure and social programmes were expanded rapidly in anticipation of increased petroleum revenues. At the same time, there was a contraction in the exposed non-oil sector. As a result, the recession in the Norwegian economy was significantly sharper than it otherwise would have been after the fall in oil prices in the mid-1980s.

The Netherlands is not the first example of a nation that suddenly benefitting from valuable (new) resources. We find an even clearer example in Portugal and Spain as far back as the 17th century. The colonisation of South and Central America gave these countries access to a wealth of natural resources, and to gold. Spain chose to spend a large portion of the windfalls on luxury and war.

In 1690, the Moroccan ambassador in Madrid described the Spanish society of the time as follows:

"The Spanish nation today possesses the greatest wealth and the largest income of all the Christians. But the love of luxury and the comforts of civilization have overcome them, and you will rarely find one of this nation who engages in trade or travels abroad for commerce as do the other Christian nations (...). Similarly, the handicrafts practiced by the lower classes and common people are despised by this nation, which regards itself as superior to the other Christian nations. Most of those who practice these crafts in Spain are Frenchmen [who] flock to Spain to look for work [and] in a short time make great fortunes."

One happy Spaniard of the time is quoted as saying:

"Let London manufacture those fabrics of hers to her heart's content; Holland her chambrays; Florence her cloth; the Indies their beaver and vicuna; Milan her brocades; Italy and Flanders their linens, so long as our capital can enjoy them. The only thing it proves is that all nations train journeymen for Madrid and that Madrid is the queen of Parliaments, for all the world serves her and she serves nobody."

These are quotations from the book "The wealth and poverty of nations" by the economic historian David Landes. Landes himself sums up in the same book what we can learn from Spain's experience of sudden wealth:

"Spain, in other words, became (or stayed) poor because it had too much money. The nations that did the work learned and kept good habits, while seeking new ways to do the job faster and better. The Spanish, on the other hand, indulged their penchant for status, leisure, and enjoyment (...)."

When the flow of gold dried up in the mid-1600s, the Spanish crown had heavy debts and experienced a long period of decline. The moral of the story, according to Landes, is that:

"Easy money is bad for you. It represents short-run gain that will be paid for in immediate distortions and later regrets."

Developments in Scandinavia in the 1800s stand in direct contrast to Spain's experiences as a result of easily acquired wealth. David Landes explains Scandinavia's economic growth in the 1800s as follows:

"Property rights were secure; the peasantry was largely free; and life was a long stretch of somber hard work broken intermittently by huge bouts of drinking and seasonal sunshine."

"Scandinavia built on free enterprise and quick response, on the export of staples to more advanced industrial countries, on the investment of these gains in more diversified production".

Studies of the relationship between long-term economic growth and the supply of natural resources seem to suggest that countries with an abundance of natural resources have had a tendency to record slower economic growth than countries with a limited supply of natural resources.¹ In the 1600s, growth in a country with limited natural resources, such as the Netherlands, was substantially higher than growth in Spain. In the 1800s and 1900s, growth in Switzerland and Japan, both countries with limited natural resources, was far higher than in resource-abundant Russia. In the last 30 years, growth has been highest in newly industrialised countries with limited resources, such as Korea, Taiwan, Hong Kong and Singapore. Oil-rich nations such as Mexico, Nigeria and Venezuela have experienced considerable problems in stabilising their economies, which has weakened their long-term growth potential.

We do not seriously believe that there is a curse on windfall gains, so there must be another explanation.

- An explanation from political economy is that an abundance of resources leads to an extreme focus by various groups, who seek maximum profits from the natural resource. The production of petroleum and extraction of other natural resources yield a profit that exceeds the normal return on invested capital, ie 'economic rent'. The contest for this profit is often referred to as 'rent-seeking behaviour'.² Resource-rich countries may be more susceptible to extreme 'rent-seeking' behaviour than economies with limited resources. The competition between the various fractions may lead to an inefficient depletion of natural resources and unwise use of revenues. Entrepreneurship, talent and energy in both the business sector and political life are used to secure a share of these revenues instead of on more productive activities in both the public and the private sector.³
- A sociological explanation is that such windfalls reduce the incentive for innovation and work.
- A possible economic explanation is that the existence of a large, broad-based sector that is exposed to competition from abroad promotes learning and development. In countries with abundant natural resources, this sector may be scaled back, while sheltered sectors expand. The intensity of competition in the economy may decline, and the capacity and willingness to innovate may suffer.

We must be very cautious about drawing definitive conclusions based on historical comparisons. The intention rather is to improve the management of our wealth. Nevertheless, three critical factors merit special attention:

First: The decision-making forms and political and economic processes must provide an effective safeguard against a situation where special interest groups acquire a disproportionate amount of control and share of the petroleum wealth, or acquire protection when petroleum revenues are high.

Second: It is important for the growth potential of the economy that we preserve and develop a large, broad-based mainland sector that encounters effective competition from abroad.

Third: It is of fundamental importance that we preserve and develop incentives for acquiring knowledge and for innovation.

The Nordic countries had a fairly similar point of departure in 1970, and a fairly similar social structure, but now Norway is distinctive because of its petroleum sector. Comparative studies of developments in the four countries may shed some light on how beneficial petroleum has been for our country. The jury is still out on this point. In 10 to 15 years, when the significance of oil and gas production is again substantially reduced, we will be able to see more clearly whether oil was an advantage for the Norwegian economy.

Norway's long-term challenges, and distribution across generations

Central government pension expenditure is expected to increase sharply after 2010, both because the number of pensioners is growing, and because the number of persons entitled to a full supplementary pension will increase substantially.

The number of disability pensioners has increased sharply in the last 25 years, and growth is expected to continue until 2010.

Because of the ageing population, there will be an attendant increase in the need for health and care services.

This chart clearly illustrates developments in the labour force and the number of pensioners in the period up to 2050. Between 2000 and 2030, it is estimated that the labour force will increase to about 100 000 persons, while old-age and disability pensioners will increase by some 400 000, and the number of persons in the labour force per pensioner will drop from 2.5 to 1.8. These rough figures are based on the assumption that labour immigration remains at the present level.

While old-age and disability pension expenditure will rise, the central government's net cash flow from petroleum activities will decline. Government old-age and disability pension expenditure is estimated to increase from 7 per cent of GDP in 2000 to 15 per cent in 2030, while petroleum revenues are expected to drop to less than 4 per cent.

Generational accounts are a tool used to shed light on the question of whether government expenditure can be sustained over time without it being necessary to increase taxes or reduce government expenditure.⁴

The Government's updated calculations, according to the Budget for 2001, show that the generational accounts are roughly in balance. The interpretation is that the current level of public benefits and already adopted increases can be maintained without a need for economic tightening in the long term if all goes according to calculations.

There is of course a great deal of uncertainty associated with these calculations. The oil price may be higher than assumed, but it may also be lower, and the same applies to productivity growth. The real return on the Petroleum Fund may be 4 per cent annually on average, as assumed, but it may also be higher or lower. We can hope to be lucky, but we should not count on it. It is reasonable to base budget adjustments on some degree of caution in the projections of future expenditure and revenues. The downside risk should be assigned greater importance than the upside risk.

To make it easier for the government to finance future expenditure on social security and care services, government budget surpluses need to be substantial for the next couple of decades while petroleum production is high. A high level of government saving may well be a prerequisite for maintaining confidence in the National Insurance Scheme and public services. The transfer of petroleum revenues from the North Sea to the Petroleum Fund can be regarded as a pure reinvestment of wealth. It will help to reduce dependence on petroleum revenues and reduces risk.

In the calculations, the State's Direct Financial Interest in petroleum activities (SDFI) contributes a substantial annual cash flow to central government. Any sale of interests would immediately provide the government with an amount that in principle would be equivalent to the value of the interests after tax. Other revenues from any interests sold or transferred by the government would take the form of corporate tax or dividend. In the event, this would increase uncertainty as to when the government would receive these revenues.

Higher oil revenues and adjustment in the short term

The Government Petroleum Fund is a buffer that makes it easier to separate the annual use of petroleum revenues from current revenues. Decisions concerning the use of petroleum revenues are based partly on long-term considerations and partly on more short-term considerations relating to the level of domestic activity. The Fund arrangement ensures that changes in oil prices and revenues do not have a direct impact on the level of domestic activity, but results in changes in allocations to the Petroleum Fund.

Fiscal policy in Norway has an important role in stabilisation policy. With large, and to some extent varying, budget revenues, the basis for determining central government expenditure and taxes from one year to the next may easily be impaired. If budget expenditure is allowed to fluctuate in step with oil prices, the result may be abrupt shifts and instability in the Norwegian economy. Changes in oil prices may then quickly influence wage and price expectations, the exchange rate and long-term rates. Short-term interest rates will also have to be changed frequently and sharply. It is important, therefore, that the annual budgets be anchored in a long-term strategy that allows for the fact that oil revenues may fluctuate from one year to the next.

It is an advantage if fiscal policy can also be used to counter fluctuations in demand and production. This may mean less use of petroleum revenues from year to year during a boom such as the present one, even though we have an unusually high inflow of petroleum revenues at present.

The Petroleum Fund

The government has an array of ownership interests, assets and liabilities, and other future obligations. In principle, the contribution from the various asset and liability components to expected future returns and risk should be evaluated as a whole. In the following, however, I will confine my comments to the role of the Petroleum Fund.

Management purpose and framework

Pursuant to the Act on the Government Petroleum Fund, the Ministry of Finance is responsible for the management of the Fund. The operational management has been delegated to Norges Bank, which has established a separate unit for this purpose. Norges Bank's management mandate is set out in a regulation, supplementary documents and in a management agreement between the Ministry of Finance and Norges Bank.

The Petroleum Fund features a long investment horizon, and great emphasis is placed on the objective of maintaining the Fund's international purchasing power. The purpose of management is to invest the capital with a view to maximising the Fund's purchasing power when we eventually have to draw on the Fund. At the same time, the risk must be acceptable. It is thus expected return and risk in the long term that are relevant. Variations in the return on the Fund from one quarter to the next, or one year to the next, are less important.

The Ministry of Finance has defined a benchmark portfolio to be used in steering the management of the Fund. The broad-based composition of the benchmark portfolio contributes to reducing the risk associated with individual countries and regions, and therefore provides a sound diversification of the portfolio. The value of the Fund will vary depending on developments in the value of global equity and bond markets - in other words, how favourably the world economy develops.

If Norges Bank was not seeking an excess return in its management, one might expect that the return on the Fund would be marginally lower than the return on the benchmark index. Norges Bank is allowed to deviate to some extent from the benchmark portfolio, in order to enhance the expected return. The deviation that is allowed is constrained both by specified limits and by a general measure of risk: tracking error. In general, it can be said that the establishment of a benchmark portfolio and limits for permissible deviations ensure that Norges Bank fulfils the owner's strategic objective.

The management model chosen allows the Ministry of Finance, as the owner, to control all the main aspects of management. This should be the case. It is the owner who, by issuing guidelines, has mainly determined the Fund's expected return and risk. Norges Bank shall

seek to achieve an excess return, within the risk limits established by the owner. The Bank shall manage the capital in a prudent manner.

The agreement between the Ministry of Finance and Norges Bank is a commercial agreement that can be terminated with one year's notice by either party. Norges Bank's management responsibilities are defined so precisely that the results achieved by the Bank are readily accessible to both the owner and other parties. Norges Bank's responsibility for performance applies to the entire management - including the part that has been delegated to external managers. It was only on this clear commercial basis that Norges Bank could undertake this responsibility.

The rules and agreement allow Norges Bank to decide how to use its latitude to achieve the highest possible return. Norges Bank uses its latitude to engage in cost-effective management aimed at outperforming the benchmark portfolio. When evaluating Norges Bank's management, the owner will be able to monitor the return differentials between the actual portfolio and benchmark portfolio, the risk taken by the Bank and the costs incurred.

An important part of Norges Bank's management strategy is to diversify the active risk taken in relation to the benchmark portfolio. Norges Bank has chosen to make extensive use of external managers precisely in order to give breadth to Fund management, and in order to benefit from expertise that cannot be developed internally. We have, however, developed our own expertise in both equity and fixed-income management for use in the day-to-day management of the portfolios and in order to achieve an excess return in selected areas. Responsibility for the results of both external and internal management has been delegated to Norges Bank, along with the freedom to decide how this management should be oriented. The annual reports provide a breakdown of the results of both external and internal management.

Norges Bank advises the owner with regard to strategic aspects.

Future returns and risk

How large a return is it realistic to expect on the Fund's capital? The official projections are based on a real return of 4 per cent. The future return on the capital that has already been transferred to the Fund, and that will be transferred in the years ahead, will be of great importance to the Norwegian government's financial leeway in the long term. The chart shows a simple projection of the size of the Petroleum Fund as a percentage of GDP as a function of the real return on the Fund. With a real return of 5 per cent, the size of the Fund as a percentage of GDP will rise for a very long period, whereas with a real return of 3 per cent it will start diminishing from 2020.

A required real rate of return of 4 per cent is lower than that of private investors with regard to business investment. A number of business leaders would claim that they will achieve a substantially higher real return on assets. But if we consider the return on equities and bonds combined, enterprises do not on average achieve the targets that are very often held out to investors. A real rate of return of 4 per cent on total assets is fairly close to the return achieved by the business sector as a whole over a long period.

Future real returns will depend on the return on bonds and the risk premium on equities. Historically, and over long investment horizons, equities have generated substantially higher returns than bonds. It has been argued that for long-term investors, equity markets are significantly less risky than one would expect on the basis of daily, monthly or annual fluctuations.

There are a number of reasons why we should take into account that the risk premium in the future will be lower than the historical premium.

- The reasons for the steep advances in equity markets in the 1990s have long been debated. The value of the stock market is equivalent to the discounted value of future dividends, and because there is great uncertainty associated with future dividends and required rates of return, it is difficult to determine whether the current price level is correct or not. Rapid technological progress was a salient feature of the twentieth century. Movements in equity prices must be considered from this historical perspective. The sharp rise in equity prices in the 1990s may also be a one-off increase as a result of a gradual reduction in the required rate of return. It may also reflect a tendency towards herd behaviour among investors.
- If the future real return on equities is to be the same as the real return in the last 20 years, the share of value added accruing to the owners of the capital will increase significantly unless future economic growth is substantially higher than average growth in the last century. Strong opposing forces will undoubtedly arise in markets to prevent any such shift in institutional income distribution.
- The US equity market has experienced a long period without the severe crises that hit markets in Japan, France, Germany, Italy and Russia. In economic literature, this phenomenon is called survivorship bias. There is a continuous and complete time series of rates of return for the US market because the country has avoided major crises.
- The high risk premium, particularly in the US, is difficult to explain in terms of financial equilibrium models for pricing risky assets. For the models to be consistent with historical data, the risk aversion of investors must be improbably high. This is a phenomenon known as the "risk premium puzzle"

All in all, it appears likely that the risk premium on equities will be lower in the future than history suggests. But even if the excess return proves not to be as high in the future, it seems probable that equities will continue to outperform bonds in the long term.

The nominal yield on long US government bonds is close to 6 per cent at present. This yield reflects market expectations of real interest rates and inflation in the long term, and may form the basis for yield expectations in the bond market.

I will present the results of some calculations that have been carried out for the Petroleum Fund. It is assumed that the annual transfers to the Fund will be in line with the estimates in the National Budget. The estimates for the years 2006 to 2010 are based on technical projections.

The annual nominal return in the equity market is set at approximately 9 per cent. This is a technical assumption that involves a risk premium of about 3 percentage points in the equity market. The return in the bond market is set at just under 6 per cent, which is the current yield on long US bonds. The global inflation rate is set at 2.5 per cent. Calculations are based on the current investment strategy: 40 per cent equities and 60 per cent bonds.

The uncertainty estimates are based on historical experience.⁵

The calculations show that the expected real value of the Fund in 2010 is about NOK 1800 billion. This corresponds to an annual real rate of return of about 5 per cent.

The risk is high however, and it increases with the investment horizon because there are more things that can go wrong in the long term than in the short term.

The uncertainty regarding the value of real wealth in 5 and 10 years' time can be illustrated by calculating the probability of not achieving an annual real rate of return of 4 per cent on average. This probability is relatively high. The probability of the Fund not achieving a cumulative real return of 4 per cent after 5 years is almost 40 per cent, while it falls to just over 30 per cent after 10 years. This example demonstrates that we must be cautious about anticipating a high return on the Fund's capital.

The management of the Petroleum Fund is also evaluated on the basis of short-term results. The chart shows the expected annual nominal rate of return and the uncertainty interval surrounding this expectation. Even though the expected annual return is positive, there is a very high probability that the Bank will record a negative return in any one year. With the current investment strategy, a negative return can be expected in about one of five years.

As I have been speaking at some length, I will not take up more time by concluding with a summary.

Thank you for your attention.

¹ See Jeffrey D Sachs, Andrew M Warner: Natural resource abundance and economic growth, In *Leading issues in economic development*, Oxford University Press, 2000 and NBER Working Paper no. 5398 (1995).

² See Anne Krueger, *The Political Economy of the Rent-Seeking Society*, *American Economic Review*, Vol. 64, June 1974 for an early discussion. See also P. Lane and A. Tornell: *Power Concentration and Growth*, Harvard Institute of Economic Research Discussion Paper No 1720, May 1995.

³ This is not a phenomenon specific to developing economies. When oil revenues climbed in Alaska, central government representatives and bureaucrats showed an inclination to reduce the monitoring of various proposed development projects, to enable them to lobby only for their own projects. The government development programme finally fragmented into a number of local programmes which were not subject to overall evaluation and control. See page 10, note 5, in 'Oil Windfalls - Blessing or Curse?', Alan Gelb and associates. A World Bank Research Publication, 1988.

⁴ See A.J. Auerbach and L.J. Kotlikoff (1987): *Dynamic Fiscal Policy*, Cambridge University Press, Cambridge and E. Steigum Jr. (1993): "Accounting for Long-Run Effects of Fiscal Policy by Means of Computable Overlapping Generations Models", in: S. Honkapohja and M. Ingberg (eds.), *Macroeconomic Modelling and Policy Implications*, Elsevier Science Publishers, Amsterdam.

⁵ In order to visualise the uncertainty, it is assumed for the sake of simplicity that the return on equities and bonds is normally distributed.