Monetary policy challenges

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The objective of monetary policy

The primary responsibility of monetary policy is to provide a nominal anchor for the economy. Since 1986, the authorities have focused on maintaining a fixed or stable exchange rate against other currencies. This policy has, on the whole, been successful. Price and cost inflation gradually fell in the years prior to 1990. The process of bringing inflation under control following the overheating in the mid-1980s was associated with considerable real economic costs in the form of unemployment and idle production capacity, but the cost was probably lower and of a shorter duration than in most other countries experiencing similar imbalances. Prices, measured by the consumer price index, rose by an average 21/4 per cent in the 1990s, with a standard deviation of 3/4 percentage point.

Norges Bank had a fixed exchange rate regime with a defined central rate with maximum fluctuation margins in the years between 1986 and 1992. This system had to be abandoned in 1992 following extensive speculation against the krone during the period of turbulence in European foreign exchange markets. The krone depreciated slightly immediately after the crisis, but then remained stable without an extensive use of Norges Bank's instruments. There are several reasons for this. The Norwegian economy grew steadily in the first half of the 1990s. Price inflation was low, fiscal policy was well adapted to the economic situation and oil prices were broadly stable.

Since 1996, the basis for exchange rate stability has not been as favourable. The government budget has not made a sufficient contribution to smoothing growth in domestic demand and production, wage inflation has been substantially higher than in other countries and oil revenues have fluctuated widely. Turbulence in international financial markets has also had a contagion effect on the krone. During this period the krone exchange rate has fluctuated in spite of Norges Bank's active use of instruments.

There are grounds for asserting that the present exchange rate range has more or less prevailed for the past 13 years. Norges Bank finds no basis for maintaining that this range is not the appropriate one also in the years ahead, provided that fiscal policy smoothes fluctuations in the domestic economy and wage formation functions as well as did it in the 1990s.

The political authorities formulate Norges Bank's mandate for the conduct of monetary policy. The mandate is set out in the Exchange Rate Regulation that was adopted by Royal Decree on 6 May 1994. Section 2 of the regulation states:

"The monetary policy to be conducted by Norges Bank shall be *aimed at* maintaining a stable krone exchange rate against European currencies, *based on* the range of the exchange rate maintained since the krone was floated on 10 December 1992. In the event of *significant changes* in the exchange rate, monetary policy instruments will be oriented *with a view to* returning the exchange rate *over time* to its initial range. No fluctuation margins are established, nor is there an appurtenant obligation on Norges Bank to intervene in the foreign exchange market." (my italics)

The regulation is based on the fact that we have a floating exchange rate. The first sentence means that this is a managed float. Instruments are to be oriented towards maintaining a stable krone exchange rate against *European currencies*. Norges Bank chose to define the reference "European currencies" as the euro from 1 January 1999.

The last sentence in the regulation distinguishes our system from a fixed exchange rate regime in that no fluctuation margins have been established around a central rate. To the extent this system calls forth associations with a fixed exchange rate regime, the concept *initial range* should be interpreted as a broad indication of a central rate around which the krone can fluctuate.

The second sentence refers to *significant changes* in the exchange rate in relation to the initial range. It is important to note that no specific values have been defined for *significant changes*, such as the fluctuation margins of 21/4 per cent, 6 per cent or 15 per cent used by the EU countries in their exchange rate regime. *Significant* must be given an economic content. A reasonable interpretation is that exchange rate movements must not influence expectations concerning price and cost inflation to the extent that changes in the exchange rate become self-reinforcing.

The expressions *with a view to, over time, aimed at* and *based on* also show that Norges Bank has considerable scope for exercising discretion.

The regulation's requirement with regard to returning the exchange rate to its initial range may - if stretched - imply an element of "parity policy". For example, in a scenario with a sharp and prolonged fall in oil prices, the krone exchange rate may remain outside the initial range for a longer period. If Norges Bank responds by raising interest rates in order to force the krone back to its initial range, monetary policy could lead to a recession that will undermine confidence in the krone. Similarly, after an appreciation a situation may arise whereby a movement of the exchange rate back to the initial range may require that interest rates be reduced to such a low level that this results in higher inflation. However, this would weaken the basis for exchange rate stability. Hence, Norges Bank cannot with open eyes orient its policy instruments towards triggering higher inflation or a deflationary recession. If a situation arises whereby Norges Bank is not able to return the exchange rate to its initial range without such consequences, the Bank will inform the government authorities that measures other than those available to the central bank are required. Such measures may be fiscal policy measures that enable the exchange rate to return to its initial range and stabilise. On the other hand, if fundamental changes have taken place in the operating parameters for the Norwegian economy, it may be appropriate to consider changes in the guidelines for monetary policy.

Norges Bank's instruments

Norges Bank has two monetary policy instruments, ie exchange-market interventions and the interest rate. Interventions influence the supply of and demand for NOK in the foreign exchange market. A change in the interest rate influences conditions in the foreign exchange market, aggregate demand and production in the economy in one to two years.

Exchange-market interventions

Turnover in the foreign exchange market has risen sharply in recent years. Norges Bank has considerable foreign exchange reserves, but seen in relation to the size of the market these reserves are small.

In Norges Bank's experience, extensive and persistent exchange-market interventions to influence the krone exchange rate have yielded poor results. When the central bank intervenes heavily to defend the krone, market participants may perceive such interventions as an interesting opportunity to make a profit. Market operators know that a situation in which the krone exchange rate is being propped up because Norges Bank is buying kroner cannot be sustained. It is then tempting to take reverse positions in the foreign exchange market in relation to the central bank. This means that

extensive and persistent interventions in the foreign exchange market may intensify the pressure on the krone over time, steadily increasing the necessary volume of intervention purchases. The foremost example of such a game situation in Norway's exchange rate policy history was Friday, 20 November 1992 when Norges Bank made intervention purchases for NOK 37 billion from the time the market opened until the market closed. Intervention purchases amounting to NOK 14 billion were also made the previous day after Sweden allowed its currency to float. All in all, Norges Bank used more than NOK 50 billion of its foreign exchange reserves in the course of six trading hours over a two-day period. Similar experiences in the spring of 1997 and autumn of 1998 may indicate that exchange-market interventions can only restrain pressures on the krone exchange rate for a short period.

Nor are extensive currency purchases sustainable as this supplies a large volume of krone liquidity to the market, pushing interest rates down. In principle, liquidity can be withdrawn by issuing short-term government paper, but this also increases the central government's interest expenditure. It is also uncertain to what extent this type of liquidity is effective. From the individual bank's point of view, increased holdings of short-term government paper might be considered highly liquid, and may thereby form the basis for a more aggressive lending strategy.

If market participants assume that Norges Bank will use the interest rate to defend specific exchange rate levels, this may lead to a game situation. A sharp increase in interest rates to defend the exchange rate will, over time, lead to a deflationary recession. The market may therefore try to test how high Norges Bank is willing to set the interest rate. In the autumn of 1998, speculation against the krone was combined with speculation that Norwegian interest rates would increase when the krone depreciated. If Norges Bank had not ended the "game" by suspending interventions and increasing interest rates, the economy might have experienced a negative spiral.

Norges Bank does not want to act in such a way that provokes a game situation. Nor can we expect other central banks to help us to an extent that makes a decisive contribution to our resistance. However, the Bank may use interventions to a limited extent if the krone moves substantially out of line with what we consider to be reasonable based on fundamentals or in the event of exceptional short-term volatility in thin markets. In such circumstances, there is less risk of ending up in a game situation with prospects of losses for Norges Bank against market players.

The interest rate

The central bank's most important instrument is the interest rate on banks' deposits and the overnight lending rate. The interest rate influences the krone exchange rate directly through the return that can be achieved on krone positions, but also indirectly through the effect on the outlook for price and cost inflation in Norway.

Experience shows that the central bank's key rates have a fairly considerable impact on money market rates at the very short end of the market, ie overnight and one-week rates. The effect on interest rates on financial instruments with longer maturities is not as direct. Long-term money market rates are determined by transactions between market participants. Expectations concerning the central bank's pattern of behaviour and general confidence in monetary policy play a role here. The interest rate on financial instruments with the longest maturities will approach the international required return on capital. However, there will still be differences in long rates between countries. This is due to differing cyclical situations (real interest rates) and premia that compensate for uncertainty and differences in expected inflation.

A higher interest rate will increase the return on krone instruments. A greater number of market players will want to invest in NOK and the krone will appreciate. If the interest rate is *too* high, monetary policy could contribute to a deflationary recession. Market participants may then fear exchange rate losses and may want to sell NOK even if the interest rate is high. An increase in interest rates will then weaken the krone, while a lower interest rate will strengthen the krone. If the interest rate is so low that it contributes to higher inflation, monetary policy credibility will be weakened. Waning confidence in economic policy results in an unstable exchange rate, large risk premia and unnecessarily high long-term interest rates.

Monetary policy credibility is fragile and vulnerable. It takes time to build up confidence but little to destroy it. If credibility is lost, substantial efforts are required to restore it.

Interplay between policy areas

Fiscal policy

determines the scale and financing of public expenditure. As a result of the age composition of the population, the National Insurance Scheme's obligations will rise considerably when the large post-war generations reach retirement age 10-20 years after the turn of the millennium. In order to maintain the welfare state when petroleum revenues decline, fiscal policy should ensure that government finances are solid in the long term. This implies that the central government should accumulate substantial financial wealth the next few years.

The public sector lays claim to a large share of value added in Norway. Tax receipts and expenditure on unemployment benefits are influenced by economic developments over the business cycle and also serve as automatic stabilisers. Fiscal policy can also contribute to stabilising the domestic economy through active counter-cyclical measures.

The Norwegian state has greater fiscal leeway than most other countries to use the government budget actively to stabilise the economy. The government authorities have clear ambitions with regard to smoothing cyclical fluctuations by adapting the growth in public expenditure and taxes. Government revenues vary in accordance with the oil price. Allocations to the Government Petroleum Fund may contribute to sheltering the economy from wide fluctuations in oil prices (see further comments below).

Monetary policy

can serve as a nominal anchor by contributing to a stable krone exchange rate and low and stable inflation. In the short term, monetary policy can influence developments in the real economy. Norges Bank takes this into account in two ways. First, the Bank seeks to avoid a situation whereby monetary policy contributes to abrupt shifts in the economy. Second, developments in the labour market and product markets influence wage growth and inflation, and thereby the krone exchange rate. Norges Bank takes this into account when evaluating economic developments and when setting interest rates.

Monetary policy is not a suitable instrument for influencing production and employment in the long run. Nor can it be used to influence the size of the internationally exposed sector over time. It is primarily the use of petroleum revenues over the government budget, wage and income determination, and the adaptability and efficiency of the economy that determines this.

Nor is monetary policy an effective tool of incomes policy. Interest rates cannot be used to influence the negotiating climate of income settlements. This could act as a highly negative constraint on monetary policy's freedom of manoeuvre.

Developments in recent years show that the central bank cannot fine-tune the krone exchange rate. It will continue to be influenced by mood shifts in international financial markets, changes in the oil price, budgetary policy and domestic price and cost inflation. When setting interest rates, Norges Bank therefore focuses on the fundamental conditions for a stable exchange rate. In order to a achieve a stable exchange rate against the euro, the instruments must be oriented towards bringing price and cost inflation down to the level aimed at by the European Central Bank (ECB). At the same time, monetary policy must not in itself contribute to a deflationary recession because this would undermine confidence in the krone.

The possibility of financial bubbles, that are characterised by an abnormally high rise in prices of financial assets without a basis in economic fundamentals, also represents a challenge to monetary policy. Bubbles can jeopardise economic stability and thereby the basis for both a stable krone exchange rate and price stability. It is easier, however, to identify these bubbles in retrospect than when they are emerging. A special problem arises when the krone exchange rate appreciates or depreciates considerably more than implied by economic fundamentals, and this situation persists over a longer period. The economic effects on mainland Norway's sheltered and exposed business sector may have permanent negative consequences.

Since both fiscal policy and monetary policy influence the domestic economy, it is important that these two components of economic policy are compatible. However, there is a risk that a situation may arise where Norges Bank maintains a high interest rate level based on its evaluation of the economic outlook, while the government authorities increase spending in order to stimulate employment. This is a genuine dilemma. In view of its mandate and responsibilities, the best way for Norges Bank to address this challenge is probably to promote transparency in its analyses and reaction patterns so that the government authorities can take into account the implications for Norges Bank's setting of interest rates when decisions concerning the government budget are taken.

Measuring the results of monetary policy

For Norges Bank it is important to be able to evaluate the results of monetary policy. This requires a broad assessment. It is impossible to find a simple measure that is efficient and makes the task of determining whether monetary policy has been successful a simple exercise. When a country has determined that exchange rate stability shall be the primary objective of monetary policy, there is little else that a central bank can do to achieve this objective other than to react automatically by changing interest rates or intervening in the exchange market. A failure in other policy areas or external shocks tend to be the main factors underlying the exchange rate's departure from the established range. Traditional fixed exchange rate regimes are also characterised by an inherent weakness in that they invite speculative attacks.

Even in countries with an inflation target the task of measuring the effectiveness of central bank action is not easy. The inflation target is often a medium-term objective. It is seldom exact. Many countries use a target range or an interval for inflation. During the period defined disturbances will occur that result in a departure in price inflation from the target. How quickly and to what extent the interest rate should be changed to bring inflation back into the target range must be evaluated on a discretionary basis. The economic costs associated with abrupt shifts in interest rate must be weighed against the risk of a weakening of monetary policy credibility if the inflation rate should deviate by a substantial margin and for a longer period from the target established. The costs of

maintaining a narrow range within which the inflation rate must be kept at all times may prove to be high and undermine the long-term stability of the economy.

In Norway the objective of monetary policy is linked to the exchange rate without any specific requirements applying to short-term developments. As mentioned earlier, in its conduct of monetary policy, Norges Bank will emphasise two fundamental conditions that must be satisfied in order to achieve exchange rate stability against European currencies. First, price and cost inflation must not be higher over time than the level aimed at by euro countries. Second, monetary policy must not in itself contribute to deflationary recession.

Developments in long-term rates and the yield curve provide information about changes in inflation expectations. Forward rates in NOK provide an indication of exchange rate expectations. It is therefore possible to assess whether economic policy, including monetary policy, is contributing to maintaining a sound nominal anchor by monitoring developments in these variables. A large or rising volume of indexed contracts and index-based wage agreements would be a sign of deteriorating confidence in this nominal anchor.

Developments in inflation and the exchange rate provide a basis for evaluating in retrospect the monetary policy that has been conducted in relation to the objective of monetary policy as defined in the Exchange Rate Regulation. However, developments in these variables can also shed light on the effectiveness of other economic policy components. It should be underlined that developments must be evaluated over a longer period, preferably 1-3 years. The results of the monetary policy conducted will largely be determined by how quickly and to what extent interest rates are changed when the economy is exposed to disturbances. The results cannot be assessed solely on the basis of developments in the exchange rate and price inflation. One must also evaluate on a discretionary basis whether the exchange rate and inflation could have been stabilised at a lower economic cost.

If the krone exchange rate is more or less stable within the range defined in the Exchange Rate Regulation and inflation is in line with the level aimed at by euro countries, one can say that monetary policy has been successful in relation to the established objective. In a situation with a weak exchange rate and high inflation, it is natural to question the effectiveness of monetary policy. It may have been too expansionary. Similarly, in a situation with a strong exchange rate and zero inflation or deflation, monetary policy has probably been too tight.

If price and cost inflation are in line with the level aimed at by euro countries, one of the fundamental conditions for exchange rate stability is satisfied. In spite of this, the exchange rate may be perceived as "too strong" or "too weak" in relation to the initial range. This may be due to conditions in the real economy, which imply a real appreciation or real depreciation of the krone. The background for such changes in the exchange rate may be that the cost competitiveness of Norwegian industry has to be adapted and that the equilibrium range for the krone exchange rate has changed. In this situation Norges Bank should carefully evaluate the reasons for exchange rate movements. If there were reason to believe that the exchange rate would remain permanently strong or weak, Norges Bank should inform the government authorities that measures other than those available to the Bank are necessary.

Situations may occur where interest rates have to be maintained at a high level, contributing to a deflationary recession, in order to keep the krone within the initial range for a period. However, this would hardly be a stable situation. As long as fundamentals do not underpin an exchange rate that is within the initial range, it is highly unlikely that such a situation will persist. Normally, a deflationary recession will sooner or later lead to a depreciation of the krone. If monetary policy has contributed to a deflationary recession, it can hardly be qualified as successful even if the krone has remained

stable within the initial range for a period because this would have set the stage for future exchange rate fluctuations. Similarly, a krone exchange rate within the initial range, combined with high inflation, cannot be sustained over time. Monetary policy cannot be characterised as successful in relation to the guidelines because it would also in this case have contributed to paving the way for future instability in the exchange rate.

The Norwegian economy may be exposed to economic disturbances that contribute to both higher inflation and a temporary weakening of the exchange rate. The appropriate monetary policy response would be to prevent inflation from remaining at a high level because higher inflation will also contribute to subsequent instability in the exchange rate. However, Norges Bank should duly inform the government authorities of this, and the authorities should also evaluate what measures can be taken to stabilise economic developments.

The Norwegian may also be exposed to negative events that increase the prospect of a deflationary recession and a depreciation of the krone. For instance, a decline in oil prices may have such an effect on the economy. In retrospect, it should be assessed whether monetary policy has contributed to countering the deflationary tendencies. Also in such a situation Norges Bank should give the government authorities fair warning that measures other than those available to the central bank are required.

The Government Petroleum Fund and monetary policy

The Norwegian economy is a small and open economy. The strong external impulses imply that demand management is particularly challenging. The Government Petroleum Fund plays an important role in stabilising developments in the mainland economy. A large share of government petroleum revenues is invested abroad through the Fund. By investing these foreign exchange revenues abroad, the balance in the krone market is maintained, dampening the effect of oil price fluctuations on the exchange rate.

A portion of the petroleum revenues is used to finance central government expenditure. The share of the revenues used by oil companies in Norway, among other things to finance investment, also has an impact on the mainland economy.

The portion of central government petroleum revenues that is not used domestically is placed in the Petroleum Fund's account in Norges Bank. Norges Bank buys foreign exchange for an amount equivalent to the allocations to the Fund. Foreign exchange earnings from the State's direct financial interest in petroleum activities (SDFI) are transferred directly to Norges Bank. Norges Bank buys the remainder in the market. The capital in the Fund is subsequently invested abroad. The return on the Fund's capital is also invested abroad.

The accumulation of capital in the Fund is based on the objective of distributing petroleum revenues between generations and ensuring the long-term stability of state finances. The larger the Fund, the less dependent Norway will be on petroleum revenues in the future.

Furthermore, the Petroleum Fund shall act as a buffer against short-term variations in petroleum revenues. Since a large share of the revenues from petroleum activities accrues to the state, any fluctuations in oil prices will primarily result in changes in allocations to the Fund. Since all of the Fund's capital is invested abroad, such changes will in principle not influence economic activity. This makes the Norwegian economy more robust in response to oil price fluctuations, thereby reducing oil dependence also in the short term.

Petroleum revenues enter the Norwegian economy through an external and internal circular flows (see Chart 2). The dividing line between the external and internal circular flow is important for exchange rate stability. This implies, among other things, that short-term changes in oil prices shall not influence the orientation of economic policy. If the dividing line between the two circular flows should collapse, and the use of petroleum revenues varies in pace with oil prices, the result would be an unstable economy and an unstable exchange rate.

Let us assume that the oil price shows a temporary rise of NOK 10 per barrel, or a little less than USD 1.50 per barrel. This is a small change in the oil price, well within normal variations from one year to the next. Government revenues - and thereby the budget surplus - would then increase by around NOK 8 billion in the first year and NOK 10-11 billion the next year. This corresponds to almost 1 per cent of Norway's annual GDP. If the added revenues are absorbed into the economy through higher expenditure or reduced taxes, this would influence aggregate domestic demand. An increase in expenditure requires an increase in the public sector's use of real resources, primarily labour. This would mean that 1 per cent of GDP is quite high. If the increase in petroleum revenues is used domestically in this way, it corresponds, for example, to almost half of the annual growth in the mainland economy in a normal year. If the private sector of the economy is growing and the economy is already nearing capacity limits, such a policy would rapidly lead to substantial pressures on resources in the economy. This would translate into an acceleration in wage and price inflation and unstable conditions in the foreign exchange market. The Government Petroleum Fund is designed to channel the revenues resulting from such a small increase in the oil price to the Fund for investment abroad, in order to prevent an increase in oil prices from influencing the budget. The increased revenues would thereby not have an impact on the domestic economy, but be invested abroad through the Petroleum Fund.

An expansionary fiscal policy would increase the burden on monetary policy. This may give rise to the perception that cost competitiveness must be weakened in order to transfer real resources from the business sector to the public sector as called for by the authorities. If there is confidence in monetary policy, the market may expect an appreciation in the exchange rate. This could give rise to a situation where monetary policy cannot counter an appreciation of the krone without fuelling inflation. This would in turn weaken the basis for exchange rate stability.

Conclusion

In Norway, the central government budget is responsible for stabilising growth in production and employment. The Government Petroleum Fund shall serve as a buffer so that fluctuations in central government petroleum revenues do not influence the mainland economy, but only capital exports. The local and centralised income settlements determine wage growth. Monetary policy instruments are oriented with a view to maintaining a stable exchange rate against European currencies.

If the government budget stabilises the domestic economy, wage developments are in line with developments in Europe, and petroleum revenue fluctuations do not prevent the Petroleum Fund from acting as a buffer, there is a good prospect that Norges Bank can maintain a stable krone exchange rate through monetary policy.

Since 1996, however, developments have shown that Norges Bank's instruments are not sufficient to maintain a stable exchange rate when other imperatives are not satisfied. Norges Bank must therefore emphasise that the fundamental domestic prerequisite for a stable exchange rate against the euro is that inflation in Norway must be approximately on a par with the level aimed by the European Central Bank.