On the topic of keeping promises

Speech by Deputy Governor Jan F. Qvigstad at a seminar arranged by Norges Bank and Det Norske Videnskaps-Akademi (The Norwegian Academy of Science and Letters) on 11 November 2008.

1. Why is keeping promises so difficult?

This house, which now belongs to the Norwegian Academy of Science and Letters, was built by Hans Rasmus Astrup in 1886-87. Astrup was an entrepreneur. At the age of 20, he left Norway for Barcelona on a ship laden with a cargo of dried cod. He gradually built up a large trading business and later became an industrialist, not unlike businessmen of our own era. (1)

For innovators and the business sector, a stable operating environment has always been important, providing a foundation for adaptation, economic growth and social progress. A stable value of money is also a component of this foundation.

We were taught as children to keep our promises. If we made a promise, we had to make good on it. But we were also taught that we should not promise too much. If we do not keep our word, others lose confidence in us and our credibility takes a toll. In recent months, we have witnessed that this is of particular importance for the financial system. A proximate example is the situation in our neighbouring country Iceland.

The value of confidence and credibility has been the subject of extensive analysis in many fields, including jurisprudence and the social sciences. One conclusion is clear – progress can be achieved if promises are kept.

If keeping promises is clearly beneficial, why is it then so difficult? The expressions empty promises and empty threats reflect the temptation to renege. The social scientist and philosopher *Jon Elster* writes in his book “Ulysses and the Sirens” (2) about weakness of will, shifting preferences over time, and the complexities of human nature. This is familiar ground. As early as 1960, the economist *Thomas Schelling (3)* discussed similar issues in analyses for which he was awarded the Nobel Prize in economics. According to Schelling, a credible threat can be difficult to establish when realising the threat involves costs for all the parties involved. A promise or a threat will be more credible if the person who has made the promise ties himself to the mast.

Two other economists carried out groundbreaking work when they applied Schelling's analysis to economic issues. In 1977, *Finn Kydland* from Norway and *Edward Prescott* (4) from the US wrote an article showing that authorities who attempt to follow an optimal economic policy plan may have strong incentives to depart from the same plan at a later time. This applies even if no news has emerged to indicate that the plan should be changed5. Later, Kydland and Prescott were awarded the Nobel Prize in economics for their work.

There is a common denominator between Elster, Schelling, Kydland and Prescott: keeping a promise is difficult, because reneging on a promise will often be the tempting or rational choice in the short-term. If loss of credibility is taken into account, the best solution in the long term will nonetheless often be to keep your word.

A key issue is how we can establish mechanisms that also safeguard long-term objectives in the short term. Jon Elster suggested the metaphor of "tying oneself to the mast". We all know the myth of Ulysses and the sirens, referred to in Elster's work. Ulysses wanted to hear the sirens sing, but he knew that he and his crew would then come under the sirens' spell, bringing their voyage to an end. He therefore ordered the crew to tie him to the mast, but before they did so, he filled their ears with wax. This prevented him from steering the ship towards the sirens himself, and the crew were prevented from hearing him when he would later succumb to temptation and order the ship to be steered towards the sirens' island. The story cannot be directly transferred to economic management, but the concept of "tying oneself to the mast" is used in promoting mechanisms that prevent short-term objectives from taking precedence over long-term objectives. Precluding the possibility of breaking a promise makes the promise more credible. Ensuring accountability for promises made through reporting and review can be a mechanism that ties us to the mast.

A central bank's most important task is to ensure a stable value of money. The value of money relies on responsible economic policies. For a central bank to be able to keep its word and deliver a stable value of money, it must have the backing of the political authorities. Otherwise, the central bank will not be *able* to keep its word.

In the long term, the instruments available to the central bank allow it to deliver only the promise of a stable value of money. Earlier, this promise was kept by regulating the amount of money issued. Today, the instrument is the interest rate. The central bank cannot steer real wages, the labour supply, employment or the level of unemployment in the long term. But it can contribute to curbing short-term cyclical fluctuations if price stability is firmly anchored.

Throughout history central banks have attempted to bind themselves to the mast in different ways. In the following, I will discuss the temptations facing issuers of notes and coins, the binding mechanisms that have been tested, and the potential gains for society associated with a central bank that keeps its word.

2. A king's word is worth a throne – but sometimes not a krone

It has always been tempting for issuers of money to exploit this privilege. It costs less to produce a coin or a banknote than the value printed on it. The added value accruing to the issuer is called seigniorage.

Over-issuance of notes and coins leads to inflation and a fall in the value of money, and holders of money pay a so-called inflation tax. A sharp fall or strong rise in the value of money also impairs the functioning of the economy because it becomes more difficult to keep track of changes in the price of one good relative to another. It is important that changes in relative prices are easy for both consumers and producers to observe. Otherwise, the function of prices as conveyors of information for consumption, production and investment decisions will be impaired. The economy will operate less efficiently, resulting in lower growth and welfare.

In the earliest monetary systems, the value of money corresponded to the metal value of the coin. Measured in metal, the value of money was inevitably stable. This system was not as dependent on confidence, since the metal content of the coin could in principle be verified in every transaction.

Those in power nevertheless managed to exploit the system. Roman emperors were in the habit of financing their wars by reducing the precious metal content of their coins. This resulted in higher seigniorage revenues from each coin issued. For a period, these revenues were sufficient to finance an army, a long war or several monuments. This is the number one temptation facing money issuers.

Henry VIII of England was one of the most renowned exponents of this kind of behaviour (6). In the 1500s, he reduced the silver content in coins to 1/3 of the original to finance wars against France and his own expensive lifestyle.

In addition to coins, a system gradually developed involving paper money. Banknotes were a receipt for a money issuer's claims on silver or gold. Instead of using coins as a means of payment, the receipt was used. This was more practical, but with the introduction of banknotes the authorities also introduced a new promise. They promised the bearer that they would redeem the nominal value of the notes in silver or gold. The value of the notes was entirely dependent on confidence in the issuer's promise. The authorities' ability to fulfil their promise depended on government finances. Brutal tax collectors, abundant tax coffers and peace with neighbouring countries inspired confidence in the authorities' ability to redeem the notes in a precious metal then or at some time in the future.

The authorities often granted a monopoly on banknote issuance to an institution they controlled. This was no coincidence as printing money generated seigniorage revenues. This way of raising seigniorage is temptation number two: the authorities borrow money from the issuing bank and the issuing bank provides the loan by printing banknotes. This was particularly common in times of war. It can be difficult to raise taxes or borrow directly from the public to fund an unpopular war. Naturally, a regime at war will be more interested in winning the war than in the long-term economic costs. Who cares about high inflation and debt repayment if surviving as a regime is at stake?

Confidence – and the lack of it – had important consequences for England and France during the Napoleonic Wars. England was able to finance these wars more easily than France. The English government could draw on several funding sources. They raised taxes, but could also borrow, partly from the public and partly from the central bank. They had previously demonstrated that they stood by their commitments, and were therefore granted loans. The French government, on the other hand, had lost its creditworthiness after Louis XVI was sent to the guillotine. The only source of funding that remained was taxation, eliminating the option of spreading war expenditure over time (7).

Our own history also illustrates the costs associated with inflation and a loss of confidence. Soaring inflation in Norway during and after the Napoleonic Wars impaired the functioning of the payment system. The function of money as a unit of measurement was also undermined. An example of this is described in the local history books for the coastal districts of Karlsøy and Helgøy in Troms, northern Norway. At that time, accounts were sometimes kept in silver, or in goods such as cod liver oil, large saithe or flour (8). Inflation also resulted in the transfer of assets from creditors to debtors: the real value of the fishermen's debt to merchants in Bergen decreased. This marked a historic shift. The fishermen were of course happy to see their debt diminish. Creditors, however, lost money, which probably did not increase confidence and a willingness to lend the next time someone needed a loan.

3. The promise of a stable value of money against gold and silver

I have given examples of how easily monarchs succumbed to the temptation of an apparently free lunch by exploiting opportunities for raising seigniorage revenues. In times of political instability, they sometimes had no choice. But eventually, the authorities learned that the costs were high. The public pays an inflation tax, the monetary system is impaired and economic growth slows.

The economic progress experienced by Norway and other countries in the second half of the 1800s was founded on more than a thousand years of money and credit history. The authorities probably knew that a credible promise of a stable value of money measured in metal was one of the cornerstones of the success experienced by towns in northern Italy during the Renaissance and in 17th century Netherlands They knew that confidence in the promise of a stable value of money could be maintained by relinquishing seigniorage and limiting the issuance of money. The opposite was equally true. Kåre Lunden, for example, writes that "after 1387, no coins were minted in Norway for a hundred years". According to Lunden, the deep crisis in the Norwegian economy between 1350 and 1500 was not only due to the Black Death but also to the absence of a monetary system. (9)

Stability in the value of money eliminated uncertainty and doubt among potential investors. Long-term planning became easier. Providers of credit could be reasonably certain that their investment would not be inflated away. They did not have to move their wealth into property or other fixed investment in order to preserve it. The willingness to save and accumulate wealth increased.

History had taught the authorities the value of price stability, and the commitment mechanism was a monetary system linked to silver or gold. The whims of French kings were replaced by parliaments that were accountable to the people. It is no coincidence that the name of the most prominent great power's monetary unit – the pound – reflected a measure of weight: the value of a pound of silver. (10)

Credibility hinged on orderly government finances and a stable political situation, which contained seigniorage temptations and in turn strengthened public confidence in the value of money. A number of conditions need to be in place to enable a central bank to keep its promise!

When Norges Bank was established in 1816, the government sought to ensure credibility by establishing a tax-financed silver fund. A par value against silver for the new paper money – the speciedaler – was announced. However, the market value of the speciedaler was considerably below par value – the authorities in our young country were in a difficult financial situation and had not yet established confidence. It was not until 1822 that the authorities were able to establish a more orderly system when the Storting adopted a long-term strategy whereby the silver value of the speciedaler would gradually increase to par value. (11) This goal was reached in 1842, twenty years later, bearing witness to long-termism and persistence in policy implementation.

And persistence was rewarded. The rest of the 1800s and the period to the Second World War were generally characterised by price stability and strong growth in the Norwegian economy, even though there were also periods of weaker growth.(12) Towards the end of this period, confidence provided Norges Bank with the scope to adjust the interest rate to the domestic economic situation rather than solely in relation to the gold standard. (13) ,(14)

4. The era of broken promises

The interwar years proved to be highly turbulent, both in Norway and abroad. In 1921, for example, per capita GDP in Norway fell by 11 per cent. The structure of the economy had changed, the functioning of the labour market had deteriorated (15), external trade had become more important and the share of employment in agriculture had declined. We had become more vulnerable to external economic developments.

The objective of monetary policy continued to be a stable value of money in relation to gold. However, the authorities set an ambitious goal: they aimed to restore the krone's pre-war value, which implied deflation. Moreover, they were more patient than had been the case after the Napoleonic Wars a hundred years earlier. At that time, the par value of money had been restored over a period of 20 years, but now the authorities achieved the same in a quarter of the time at considerable real economic costs. (16) We usually refer to this as "parity policy".

The ambition to keep their promise was admirable, but the follow-through lacked flexibility. (17) We might say that in the 1920s, the central bank adhered rigidly to "the letter of the law". (18)

After the Second World War, unemployment in the 1920s and 1930s was often associated with the rigidity of "parity policy", which led to considerable changes in views on economic policy. (19)

The objective of a fixed exchange rate and a gold standard nevertheless remained intact and was achieved. Norway and a number of other countries pegged their currencies to the dollar under the Bretton Woods Agreement. In reality, they also linked the value of their money to gold, since the dollar was linked to gold. (20)

The post-war period was marked by the strong conviction that the economy could be fine-tuned by the coordinated use of instruments decided at a centralised level. The value of the krone was pegged to the dollar and to gold while a policy of low interest rates was accompanied by an ample credit supply. This was possible in a highly regulated economy. The positive attitude to regulation probably stemmed from the period of rationing and centralised government during World War II. The system had functioned reasonably well and a regulatory apparatus was already in place. (21)

Internationally, there was widespread desire to stabilise economic developments, originating in theories published by John Maynard Keynes in the early 1930s. This was part of the background for Norwegian politicians' ambition to fine-tune the economy in Norway. The works of A. W. Phillips (22), published in 1958, also supported this view. According to Phillips, a country could apparently choose between low unemployment and low inflation. This menu option is often referred to as the Phillips curve. And what kind of "option" was that? Unemployment is real, while inflation is only changes in an index! By formulating the question in this way, the choice was obvious. This analysis had a considerable impact on economic policy.

The global economic situation became difficult into the 1970s, with low growth and high inflation in Norway and other countries. The US and European authorities opted to pursue an active counter-cyclical policy rather than combating inflation. But the trade-off between inflation and unemployment did not hold in the long term, as economists had first thought. The analyses had not factored in expectations formation. When higher inflation gradually came to be expected by economic agents, it no longer led to lower unemployment.

In his work, Phillips introduced the dilemma of short-term gains and long-term costs in a new area. The benefit was lower unemployment for a period. But confidence that inflation could be kept low would eventually be eroded. The cost was persistently higher inflation. The short-term benefit evaporated along with confidence.

It is easy to see that it can be tempting to exploit the short-term gains even though the long-term costs are known. In 1971, for example, US president Richard Nixon sought higher growth in the money supply and an attendant reduction in unemployment in order to increase his chances of being re-elected. (23) He was aware of the inflation problems that would subsequently arise, but his view was that they could be addressed at a later stage. Perhaps he believed that if he were not re-elected, the long-term costs would be someone else's problem. The lesson we can learn from this is that a system involving changing governments may be particularly prone to short-term temptations. Finding an effective commitment mechanism is of particular importance in this context.

Because of a lack of fiscal discipline, the Federal Reserve suspended its obligation to redeem dollars for gold in 1971 and the Bretton Woods Agreement collapsed. This was the beginning of a period of inflation and economic instability in many parts of the world, referred to as the decade of Great Inflation. In Norway as in other countries, the government moved in practice away from the objective of a permanently stable exchange rate. (24) It carried out 10 de facto devaluations of the krone in the period 1976-1986 (25), which led to high inflation. Data on price developments in Norway are available back to 1516. Five hundred years of price history show that in historical terms the inflation period in the 1970s and 1980s is unique. (26) Previously, periods of high inflation had been associated with government deficits as a result of war and unstable governments. This time, inflation was related to the system of economic policy management.

The era of high inflation must be viewed against the background of the mixed experience of the parity system and reduced weight on keeping promises, ambitious economic stabilisation policies and belief in the validity of the Phillips curve. In addition, perhaps the importance of a stable value of money had lost some of its prominence.

As there are many lawyers present here today, I will venture to comment on a case in your field of expertise: the so-called gold clause case ("Gullklausulsaken"). (27) The Norwegian government had issued a number of bonds in the period 1896 to 1909. (28) Many of the bonds were held by French moneylenders. The bonds were issued in the gold standard period and the moneylenders were promised repayment in "monnaie d'or". When the bonds matured, the Norwegian government wanted to make the repayment in banknotes that had lost much of their value. This implied a devaluation that could perhaps be compared to the devaluation under Henry VIII. The case finally came before the Supreme Court in 1962. In their voting, the Supreme Court gave weight to a law from 1923, which stated that the gold clause, i.e. repayment in gold money, did not apply when the obligation to redeem banknotes for gold had been suspended, which was permanently done in September 1931. In the explanation of their ruling, the Supreme Court also referred to "vital national interests". It would cost Norwegian taxpayers far too much to repay the gold money that had been borrowed 60 years earlier.

It would be far too pretentious of me to offer an opinion on the court ruling as such. What makes this case interesting in the light of today's topic is that in the Supreme Court's assessments of "vital national interests", there is no discussion of what the nation's interests are in the short term versus the long term. However, it must be added that it is probably not easy for a court to review other government authorities' assessments of this point. There is also the question of whether this falls within the court's purview.

5. Modern monetary policy – a promise both possible and right to keep

The theoretical breakthrough by Kydland and Prescott and the era of high inflation eventually had implications for practical policy. It was observed that countries where weight was given to low inflation recorded favourable economic developments.

Since the beginning of the 1980s, there has been a broad consensus that monetary policy must be geared towards price stability. This paradigm shift also reached Norway, but not until the end of the 1980s. The government recognised that the repeated devaluations were ineffectual. Confidence had been lost. In Norway, inflation had also soared without a fall in unemployment. Even if it was costly to restore credibility, in reality we had no choice. (29) The alternative was to bring the country even closer to the brink of financial chaos and runaway inflation. The devaluation in 1986 would become the last in the series.

Internationally, the 1980s ushered in three innovations that would become decisive for the design of modern monetary policy as we know it today.

- First, market deregulation led to freer cross-border capital flows. Promises could no longer be relegated to the future. Failing credibility was promptly reflected in higher interest rates and weaker exchange rates. Nixon's disinflation plan to bring down inflation at some point in the future would have had immediate consequences. On the other hand, it also became clear that a credible and transparent monetary policy could be more effective precisely thanks to financial markets' swift reactions. (30)

- Second, the notion of central bank autonomy regained favour. The political authorities, who wanted to show the world that they were committed to delivering their promise of price stability, did as Ulysses and tied themselves to the mast. The mechanism was central bank independence and Norway was no exception. The new Norges Bank Act of 1985 gave Norges Bank the authority to set the interest rate. Democratic control is now ensured through a clear mandate defined by the government for the central bank's conduct of monetary policy. The political authorities can verify the central bank's compliance with the mandate without deciding on the use of the instrument. (31)
- The third innovation sprang out of New Zealand. In connection with economic reforms, the authorities introduced fiscal performance targets. They then started searching for good and realistic performance targets for monetary policy. They found that what monetary policy should deliver was stable inflation in the medium term – New Zealand introduced a so-called inflation target for monetary policy. (32)

What is the difference between what is referred to as inflation targeting and the former policy of parity? Let me explain the difference using a stylised example. Assume that the price index has been 100 over a longer period. The price level is thus stable. An increase in, say, energy prices then occurs and the index moves up to 105. Energy has become more expensive in relation to other goods. Under the parity system, other prices had to be reduced to move the index back to 100. This could require a substantial decline in output and employment, as was the case in the interwar years. Under an inflation targeting regime, it is in this example accepted that the index remains at 105. The central bank will ensure that economic agents do not believe that inflation of 5 per cent has become the normal level, thereby preventing such a belief from affecting their behaviour. Under an inflation targeting regime, the central bank will accept, when shocks occur, a price increase without having to reduce other prices. The promise made under an inflation targeting regime is easier to keep when the economy is exposed to major shocks than the promise made under a parity system. (33)

From 1986 to the beginning of the 1990s, Norway pursued a fixed exchange rate against European currencies without devaluations. In practice, this meant that Norway also had to pursue the same inflation goal as those countries. In autumn 1992, the fixed exchange rate regime collapsed. Even if we no longer operated a formal fixed exchange rate system, in the following years monetary policy was still oriented towards maintaining a stable exchange rate at all times. (34) However, the currency turbulence in the latter part of summer 1998 demonstrated that like other central banks, Norges Bank could not make good on the promise to maintain a stable exchange rate from hour to hour, day to day or week to week. Domestic economic considerations indicated that there were limits to how high the interest rate could be set in support of the krone exchange rate. An excessively high interest rate would not have been credible since it would have resulted in an excessively sharp downswing in domestic economic activity.

In August 1998, Norges Bank shifted policy to setting the interest rate with a view to keeping inflation low and stable over time.(35) The shift in monetary policy was explained in articles and statements in early winter 1999. (36) The inflation target was finally formalised in a new regulation on monetary policy in 2001, a good eleven years after New Zealand, nine years after the United Kingdom and eight years after Sweden.

The mandate for Norges Bank states that monetary policy shall, in addition to securing price stability, contribute to stabilising output and employment. It is possible to give weight to cyclical fluctuations in interest rate setting, and to new information, as long as there is confidence that inflation remains near the target. The central bank's announced interest rate strategy ahead will be adjusted as new information emerges. This stands in contrast to the parity system, which was more rigid.

The authorities cannot systematically allow policy to be more expansionary than announced to bring down unemployment. As Kydland and Prescott demonstrated, this would lead to higher inflation without lower unemployment in the long term. Credibility hinges on the active use of the interest rate to attain the target.

The lawyer and economist Michael Woodford has pointed out that in order to keep your word it is not enough to make a promise today and keep your word tomorrow. (37) When making interest rate forecasts, we must also take into consideration the promises made yesterday. Only then can we fully use expectations to stabilise the economy optimally. This is referred to as monetary policy from a timeless perspective. (38) My understanding is that a person will likewise both look backward and forward when interpreting the laws of a society. It is Norwegian court practice for judges to consider precedent effects and case law when interpreting legislation.

Today there is general consensus that price stability is not only the best contribution that monetary policy can make to economic stability over time, but perhaps also the only promise the central bank can actually deliver.

6. Today's financial crisis

These days the world is in the throes of a severe financial crisis – the deepest crisis since the 1930s. Many foreign banks have suffered large losses and a sense of fear is prevailing. We are entering a global economic recession. The authorities are taking action to restore confidence in the financial industry. Macroeconomic policy measures are aimed at limiting the crisis-related effects on the real economy. It is clear that regulatory improvements will eventually be needed so that the financial industry can assume a greater role in safeguarding their own credibility.

The credibility of central banks is also being tested in this situation. In dramatic cases, such as Iceland, we are again seeing an example of runaway inflation when confidence in government finances is severely impaired. In this situation, inflation targeting at the central bank of Iceland did not suffice. In Iceland, the problems stemmed from an over-dimensioned financial industry and fundamental macroeconomic imbalances. When the banks encountered problems, the authorities provided support in an attempt to secure a functioning financial system. As the Icelandic state did not have the financial strength to take over the banks' total commitments, confidence in its currency and monetary policy was also shattered without the central bank being able to redress the situation.

The financial crisis is a global one, and the Norwegian economy will be affected. However, our country is in a sound position to curb crisis-related effects. In Norway, government finances are healthy, the banking system is solid and there is confidence that monetary policy will continue to maintain a stable value of money. This means that we can use the interest rate actively. We have already reduced it in two increments by a total of 1 percentage point, and we are willing to use the interest rate to a further extent if necessary.

Central banks still face many unknowns about economic behaviour. There is nothing in our history that indicates that monetary policy, or any economic policy for that matter, has found its final form. But there is one certainty: keeping promises and creating confidence are fundamental both for monetary policy and more generally for growth and development.

The man who built this house, Hans Rasmus Astrup, died in 1898, just before the housing market crash in Kristiania and the ensuing crisis. House prices plummeted by more than 50 per cent at that time and several banks collapsed in the next few years. The outfall of the current crisis is hardly likely to be as dramatic. Prime Minister Jens Stoltenberg has stated that "the Norwegian authorities are prepared to implement necessary measures to secure confidence in the Norwegian banking system". This is a promise that the government authorities both have the ability and will to fulfil.

Footnotes

1) See Sevåg, Reidar (1967): *Statsråd H. R. Astrup*, Oslo, Dreyer

2)See Elster, Jon (1979): *Ulysses and the Sirens. Studies in Rationality and Irrationality*

3) Schelling, Thomas C. (1960): *The Strategy of Conflict*, Harvard University, Cambridge, Massachusetts, London, England

4) Kydland, F.E. and E.C.Prescott (1977): "Rules Rather Than Discretion: The Inconsistency of Optimal Plans" in *Journal of Political Economy*, 85, No. 3, pages 473-491

5) In macroeconomics, this dilemma is called the time inconsistency problem.

6) Davies, Glyn (2002): *A History of Money from Ancient Times to the Present Day,* University of Wales Press, page 200

7) Bordo, Michael D. and Eugene N. White (1990): "British and French Finance during the Napoleonic Wars", NBER Working Paper No. 3517, also published in Bordo, Michael and Forrest Capie (Eds.) *Monetary Regimes in Transition*, Cambridge University Press, 1993

8) Bratrein, Håvard Dahl (1989-1994): *Karlsøy og Helgøy bygdebok*, Karlsøy kommune, http://karlsoy.com/bygdebok/

9) Article by Kåre Lunden in the newspaper *Klassekampen*, 11 November 2008

10) Encyclopædia Britannica, http://search.eb.com/

11) Eitrheim, Øyvind (2005) in Eitrheim and Qvigstad (Eds.): "Tilbakeblikk på norsk pengehistorie. Konferanse 7. juni 2005 på Bogstad gård (Norwegian monetary history in retrospect. Conference, 7 June 2005, Oslo)", *Occasional Papers* No. 37, Norges Bank

12) See for example Hodne, Fritz and Ola Honningdal Grytten (2000): *Norsk økonomi i det 19. århundre* (The Norwegian economy in the 19th century), Fagbokforlaget

13) In Norway, the silver standard was replaced by the gold standard on 1 January 1874. See annex by Ragna Alstadheim in Qvigstad, J.F. and A. Skjæveland (1994) "Valutakursregimer – historiske erfaringer og fremtidige utfordringer (Exchange rate regimes – historical experience and future challenges)", in Berg, S. A., J. F. Qvigstad and K. Storvik (Eds.) Stabilitet og langsiktighet: *Festskrift til Hermod Skånland* (Stability and a long-term perspective: Festschrift for Hermod Skånland), 1994, Aschehoug

14) Øksendal, Lars Fredrik (2008), "Monetary policy under the gold standard – examining the case of Norway, 1893-1914", *Working Paper* 2008/14, Norges Bank

15) See Bjerkholt, Olav and Jan F. Qvigstad (2007): "Introduction to Ragnar Frisch's 1933 pamphlet Saving and Circulation Regulation", in *Revista di Storia Economica,* Banca d'Italia

16) See Eitrheim Øyvind., Jan T. Klovland and Jan F. Qvigstad (Eds.) (2004), page 293: "Historical Monetary Statistics for Norway 1819-2003", *Occasional Papers* No. 35, Norges Bank, Oslo

17) However, they were more flexible in September 1931. It only took seven days for Norway to follow the UK's lead in abandoning the gold standard.

18) There was a consensus on parity policy in the 1920s. See for example Hodne, Fritz and Ola Honningdal Grytten (2002), pages 111-112: *Norsk økonomi i det 19. århundre* (The Norwegian economy in the 19th century), Fagbokforlaget and Skånland, Hermod (1967) "Det norske kredittmarked siden 1900 (The Norwegian credit market since 1900) *Samfunnsøkonomiske studier* No. 19, Statistics Norway, Oslo. See also Mykland, Knut (ed.) *Cappelens Norgeshistorie*, Vol. 13 page 86.

19) For further discussion of parity policy and Norges Bank's role, see Ecklund, Gunhild J. (2008), pages 46-51 and 67-71: "Creating a new role for an old Central Bank: The Bank of Norway 1945-1954", Series of Dissertations 2/2008, BI Norwegian School of Management, Oslo.

20) This link to gold was not as strong as when the obligation to redeem in gold applied. Under the Bretton Woods system, countries whose public finances were in disequilibrium, or who allowed inflation to rise for other reasons, had to let their exchange rate depreciate against the dollar. When the exchange rate against the dollar fell, the value of money measured in gold decreased.

21) See Bjerkholt, Olav (2008): "Sosialøkonomenes oppmarsj og nasjonalbudsjettet (The rise of the economist and the national budget)", *Samfunnsøkonomen* Nos. 6 and 7, Vol. 68

22) Phillips, A. W. (1958): "The Relation Between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861-1957", *Economica*, Vol. 25, No. 100, pages 283-299

23) Friedman, Milton and Rose D. Friedman (1998): *Two Lucky People: Memoirs*, University of Chicago press, pages 386-387. More rapid growth in the money supply would imply lower interest rates in the short term.

24) In 1975, Sargent and Wallace published the article " 'Rational' Expectations, the Optimal Monetary Instrument and the Optimal Money Supply Rule" in *Journal of Political Economy*, Vol 83, No. 2, April, pages 241-254. According to the article, monetary policy had to come as a surprise in order to have any impact on the economy. Expected policy had no effect. This was probably also part of the reason for the acceptance of diverging from promises made, and may explain why transparency was of so little interest to the authorities. Theoretical works published some years later showed that expected and rules-based policy could stabilise the economy provided price and wage rigidity existed. Some examples are: Fischer (1977): "Long-Term Contracts, Rational Expectations, and the Optimal Money Supply Rule", *Journal of Political Economy*, 85, No. 1, pages 191-206), Taylor (1980): "Aggregate Dynamics and Staggered Contracts", *Journal of Political Economy*, 88, No 1, pages 1-24 and Calvo (1983): "Staggered Prices in a Utility-Maximizing Framework", *Journal of Monetary Economics*, 12, No. 3, pages 983-998. Only when these articles were published was the theoretical basis in place for keeping promises while at the same time allowing monetary policy to contribute to stabilising the economy.

25) See reference in footnote 13

26) See Eitrheim, Øyvind (2005) in Eitrheim and Qvigstad (Eds.): "Tilbakeblikk på norsk pengehistorie. Konferanse 7. juni 2005 på Bogstad gård (Norwegian monetary history in retrospect. Conference, 7 June 2005, Oslo)", *Occasional Papers* No. 37, Norges Bank

27) Bahr, Henrik (1962): "Høyesteretts dom i gullklausulsaken (The Supreme Court ruling in the gold clause case)", *Lov og Rett: norsk juridisk tidsskrift,* booklet No. 5, pages 193-211

28) Two government-guaranteed banks had also issued bonds.

29) The new recognition that policy should be based on confidence rather than a series of surprises reflects the influence of theoretical developments on practical policy, c.f. footnote 24.

30) In recent times, central banks throughout the world have become more independent but at the same time more predictable in their communication with other economic agents. This is also related to the new recognition referred to in footnote 24.

31) Norges Bank reports on the conduct of monetary policy in its *Monetary Policy Report* and *Annual Report.* Norges Bank's reporting obligations are set out in § 75c of the Constitution and § 3 of the Norges Bank Act. *The Annual Report* is submitted to the Ministry of Finance, presented to the King in Council and communicated to the Storting in the

Government Credit Report. The Governor of Norges Bank also appears at an open hearing of the Standing Committee on Finance and Economic Affairs.

32) The objective of EMU is consumer price stability in member countries as a whole, rather than stable prices in the individual country. The arguments for a stable value of money are the same as for Norway.

33) Another difference is that under parity policy the authorities stabilised the price of gold and not the price of a basket of representative goods – the consumer price index. Today, stabilisation of the consumer price index would be described as price level targeting. Inflation targeting, on the other hand, implies stabilisation of changes in the consumer price index. There is also a difference in that there is no longer any redemption obligation. Confidence is not based on gold reserves, but more generally on responsible economic policy as a basis for achieving the inflation target through the active use of the interest rate.

34) At that time, little academic research was available on alternatives to a fixed exchange rate regime or money supply targeting. Leading politicians and economists were sceptical about the idea of abandoning the fixed exchange rate regime. Money supply targeting was regarded as out of the question because of instability in the money supply. John Taylor's works on interest rate rules that could contribute to stabilising inflation and the real economy, through transparency and predictability, were not published until 1993 (Taylor, John B: "Discretion versus Policy Rules in Practice", *Carnegie-Rochester Series on Public Policy* 39, 195-214).

35) Storvik, Kjell (1998) "Aktuelle økonomiske og pengepolitiske problemstillinger (Current economic and monetary policy issues)". Lecture at Forex Norway, 28 August. Norges Bank was prepared for a change in regime, cf . the discussions in Choosing a Monetary Policy Target, Christiansen, A.B. and J.F. Qvigstad (Eds.), Universitetsforlaget (1997) and Perspektiver på pengepolitikken (Monetary policy perspectives), Qvigstad, J.F. and Ø. Røisland (Eds.), 2000. A workshop entitled "The Conduct of Monetary Policy in Open Economies" was also held at the Norwegian Academy of Science and Letters in October 2000.

36) Article in the newspaper Aftenposten on 5 January 1999 in connection with the appointment of Svein Gjedrem as governor of Norges Bank, lecture by Svein Gjedrem, Gausdal, 28 January 1999: "Utfordringer i den økonomiske politikken (Challenges to economic policy)" and article by Svein Gjedrem in *Aftenposten* 4 May 1999: "Utfordringer i pengepolitikken (Challenges to economic policy)".

37) Woodford, Michael (2003): *Interest and Prices*, Princeton University Press

38) Woodford (2003) points out that the central bank's announced interest rate strategy can be adjusted as new information becomes available. However, in order to maintain confidence in the announced interest rate path and for it to be useful, the public must not have reason to expect systematic deviations.