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Norges Bank

Address: Bankplassen 2

Postal address Postboks 1179 Sentrum, 0107 Oslo

Phone: +47 22316000

Fax: +47 22413105

E-mail: central.bank@norges-bank.no

Website: www.norges-bank.no

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Introduction

Norges Bank's projections of inflation and economic developments form an important basis for interest rate setting. An evaluation of the projections can provide us with increased insight into the functioning of the economy and help improve our analytical tools. In this Staff Memo, Norges Bank's projections for 2013 are evaluated.

Economic growth in 2013 was lower than projected. Private consumption showed particularly slower growth than expected. The rise in prices for domestically produced goods and services proved to be broadly in line with projections, while imported inflation was higher than projected because the krone depreciated markedly through 2013.

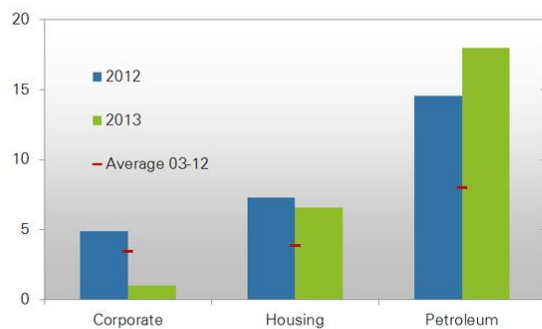
This article starts with a brief overview of developments through 2013, followed by a comparison of the projections for 2013 in Norges Bank's *Monetary Policy Report* (MPR) with actual developments and attempts to identify reasons for the major forecast errors. A comparison of Norges Bank's projections and projections from other forecasters is also included.

Economic developments in 2013

There were signs of a moderate global economic upturn, but growth in many advanced economies remained weak. Overall, growth for our trading partners in 2013 was somewhat weaker than projected. Growth in the US and Sweden turned out to be somewhat weaker than projected at the beginning of the year and euro area GDP fell slightly.

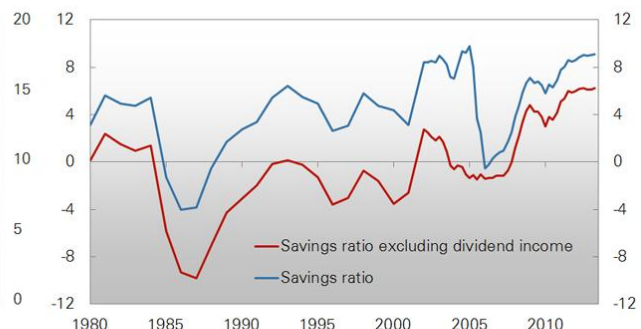
Growth in the Norwegian economy slowed through 2013. Following growth of over 3 percent in 2012, mainland GDP rose by 2 percent in 2013. Growth slackened in most industries, but the slowdown was most pronounced in the construction and oil supplier industries. Segments of the export industry continued to reflect weak demand from Europe and a high cost level. In 2012, strong growth in oil investment and solid growth in domestic demand contributed to counterbalancing weak external impulses. Oil investment continued to expand at a brisk pace in 2013, but demand from households

Chart 1 Investment growth. Per cent. 2012-2013 and average from 2003-2012



Source: Statistics Norway

Chart 2 Savings rate. Four quarters rolling average. Per cent. Q4 1980 – Q1 2014



Source: Statistisk sentralbyrå

Chart 3 Housing prices. Seasonal adjusted monthly change and twelve month change. Per cent. January 1997 – July 2014



Sources: Eiendom Norge, Eiendomsverdi and Finn.no

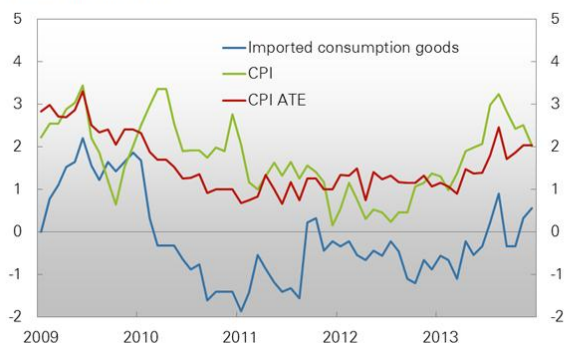
and mainland enterprises was clearly weaker than in 2012 (see Chart 1). Growth in private consumption was the lowest since the financial crisis, and household saving as a share of disposable income rose to 9 percent (see Chart 2). Activity in the housing market was also somewhat more subdued, and house prices and housing investment fell through autumn (see Chart 3).

Nevertheless, house prices rose by nearly 5 percent between 2012 and 2013, and on an annual basis, there was also solid growth in housing investment in 2013. Business investment exhibited only a marginal increase compared with the level in 2012.

Lower growth in activity also resulted in lower growth in demand for labour. Employment continued to increase, but growth slowed markedly compared with 2012. The number of registered unemployed rose somewhat through 2013. At year-end, 2.8 percent of the labour force was registered as unemployed. Nevertheless, wage growth remained firm. The Technical Calculation Committee for wage settlements (TBU) has estimated annual wage growth in 2013 at 3.9 percent, approximately as in 2012.

Consumer price inflation was low at the beginning of 2013, but picked up through summer and autumn (see Chart 4). The annual increase in the consumer price index (CPI) was 2.1 percent. Owing to the normalisation of electricity prices from a very low level in 2012, energy prices rose more than other consumer prices. Adjusted for tax changes and excluding energy products (CPI-ATE), inflation was 1.6 percent in 2013, up from 1.2 percent in 2012.

Chart 4 Inflation. Twelve month growth in consumer prices. Per cent. January 2009 - December 2013



Source: Statistics Norway

Chart 5 Import-weighted krone exchange rate (I44). Actual and forecasts. January 1 2010 - December 31 2013



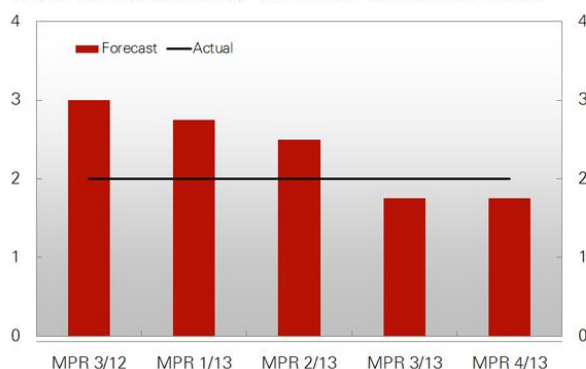
Sources: Thomson Reuters and Norges Bank

The Norwegian krone depreciated sharply through 2013 (see Chart 5). Measured by the import-weighted krone exchange-rate index (I-44), the krone was 10 percent weaker at end-2013 than at end-2012. Some of the depreciation of the krone is due to signs weaker growth in the Norwegian economy, but a considerable part of the depreciation of the krone was also interpreted as a higher risk premium on the Norwegian krone (see box in MPR 1/14).

Projections for 2013

As the outlook for the Norwegian economy weakened, the projection for mainland GDP growth was gradually revised down from 3 percent in autumn 2012 to 1¾ percent in autumn 2013 (see appendix table and Chart 6). Reports from Norges Bank's regional network in winter and in spring 2013 indicated lower-than-expected growth in many industries, and contacts envisaged

Chart 6 GDP Mainland Norway. Growth in per cent from 2012 to 2013



Sources: Statistics Norway and Norges Bank

that growth would remain moderate also in the period ahead. Oil investment continued to grow at a robust pace, and generally more than projected in the MPRs published since autumn 2012, but according to Norges Bank's regional network, there was a fairly sharp decline in the growth outlook in the oil supplier industry through 2013. Preliminary national accounts figures now indicate that GDP growth through the second half of 2013 was well in line with projections in the two last MPRs published in 2013.

Table 1. Projections of key macroeconomic variables for 2013. Percentage change from 2012

	MPR 3/12	MPR 1/13	MPR 2/13	MPR 3/13	MPR 4/13	Preliminary figures 2014
GDP, mainland Norway	3	2¾	2½	1¾	1¾	2.0
Employment	1¾	1½	1¼	1¼	1¼	1,2
Labour force	1½	1¼	1	¾	1	1
Registered unemployment	2½	2½	2½	2¾	2¾	2.6
CPI-ATE	1½	1¼	1¼	1¾	1½	1.6
Annual wage growth	4¼	4	3½	3½	3½	3.9

Developments in the labour market were also somewhat weaker than assumed. Demand for labour increased somewhat less than expected, and unemployment rose slightly more than projected. Even so, the deviations between the projections and actual labour market developments were fairly small. The projections for growth in employment and the labour force in 2013 were revised down by ¼ percentage point in each of the first two MPRs published in 2013, in line with the downward revision of the GDP projections. Subsequently, the projections for employment and the labour force were closely in line with actual developments. Registered unemployment as a share of the labour force rose more than expected through summer 2013. The projection for the unemployment rate was therefore revised up from 2½ to 2¾ percent in MPR 3/13.

The impact of slower economic growth on the labour market was also dampened by somewhat weaker-than-expected developments in labour productivity. Productivity growth has been fairly low in the years following the financial crisis. In the MPRs it was assumed that productivity growth would gradually pick up again, though it would not be as high as in the years prior to the financial crisis. Some of the lower productivity growth in 2013 was probably of a temporary nature, since enterprises spend some time adjusting to changes in output and demand in the economy. According to the regional network, there was a relatively pronounced decline in capacity utilisation through the first half of 2013, while output growth proved weaker than had been expected by network contacts.

At the same time, productivity growth over time also represents growth potential in the economy. Owing to lower productivity growth, the projections for potential growth in the Norwegian economy in 2013 were gradually revised down somewhat. As a result, projections for overall capacity utilisation were revised down somewhat less than the lower activity growth in isolation would indicate. Overall capacity utilisation was forecast to slow somewhat faster through 2013 than previously projected. This is in line with the somewhat higher than projected unemployment and the lower capacity utilisation reported by enterprises in Norges Bank's regional network through 2013.

Developments in private consumption were substantially weaker than projected in the MPRs published since autumn 2012. Household saving has risen in recent years, and as a share of disposable income had risen to a historically high level in 2012. With capacity utilisation in the Norwegian economy close to normal and the prospect of continued solid growth in real household income, the projections for consumption for 2013 were based on the assumption that the saving ratio would level off at a high level. However, preliminary national accounts figures show that the saving ratio rose further through 2013.

In the course of spring and summer 2013, somewhat higher uncertainty regarding developments in the Norwegian economy and eventually also regarding the direction house prices would take has weighed on household demand. Tighter bank credit standards may also have dampened consumption more than assumed. Changes in the pension system and high labour immigration have likely contributed to the rise in the saving ratio in recent years.¹ Both cyclical and structural conditions may thus have contributed to a higher-than-projected saving ratio than envisaged in the MPRs published since autumn 2012.

In autumn 2012, mainland business investment was projected to grow by (8) percent in 2013, so that the level of investment in Norwegian enterprises would gradually pick up again somewhat after a steady decline following the financial crisis. Better access to credit and low interest rates might contribute to such an outcome. However, in the course of winter, current statistics indicated the prospect of weaker developments in investment than assumed, and the projections were revised down in the first MPR published in 2013. A high cost level and uncertainty regarding the economic outlook may have weighed on investment. Following this downward revision, developments have been as projected in the MPRs.

In autumn 2012, mainland exports were projected to grow by 1 percent in 2013. Preliminary national accounts indicate that exports rose more than that, despite the fact that growth for our trading partners was lower than projected. On the other hand, the sharp depreciation of the krone helped to improve cost competitiveness.

Demand from the oil industry continued to show strong growth in 2013. Preliminary national accounts figures show growth in oil investment of 18 percent, while growth was projected at 9 percent in MPR 3/12. After expanding rapidly over several years, investment in 2013 was projected to grow at a somewhat slower pace, owing to capacity constraints, than implied by companies' investment plans as reported in investment intentions surveys. According to preliminary national accounts figures, however, investment turned out to be close to survey forecasts.

Wages and prices

In the last MPR published in 2012 and the first MPR published in 2013, annual wage growth in 2013 was projected at 4 percent. The centralised wage negotiations in spring 2013 between the Norwegian Confederation of Trade Unions (LO) and the Norwegian Confederation of Enterprise (NHO) resulted in a 3.4 percent increase. At the same time, respondents in Norges Bank's regional network and labour representatives in Opinion's expectations survey envisaged wage growth of 3¾ and 3½ percent, respectively. Against this backdrop, wage growth of 3½ percent was projected in the MPR published in June. After the centralised negotiations are concluded, there is little information available regarding wage developments. Expectations indicators published in the course of autumn indicated minor or no changes in wage expectations from the previous year, and thus provided no reason to change the projections for wage growth in the two latest MPRs. According to the TBU, overall wage growth was 3.9 percent in 2013. Wage growth was especially high in the financial sector and among salaried employees in industry among NHO-member enterprises.

¹ See Gudmundsson and Reiakvam (2013): "Husholdningenes sparing etter finanskrisen" [Household saving after the financial crisis] and the box on household saving in MPR 2/14 page 42 for a broader discussion of household consumption and saving in recent years.

Consumer prices rose by 2.1 percent in 2013, approximately as projected in MPR 3/12. Electricity prices increased after having been especially low in 2012, with the result that prices for energy products rose faster than other consumer prices. The CPI-ATE projections were, in general, also fairly close to actual annual inflation (see table).

Even though the projections were accurate, price developments through the year were slightly different from the assumptions in the MPR published in autumn 2012 (see Chart 7). Prices for domestically produced goods and services rose less than projected early in the year, and we revised down our projection for inflation. Hov et al. (2013) documented that over time, cost growth in household-oriented sectors had been lower than in the economy overall.² Through the remainder of the year, prices for domestically produced goods and services rose at a somewhat faster pace than projected (see Chart 8). This must be viewed in conjunction with the change in the way the indices for rent and food products have been computed as from January 2013. These changes contributed to higher measured inflation in these two product categories. Food prices also rose more sharply than indicated by the outcome from the agricultural settlement, which resulted in higher annual food price inflation through summer. The krone exchange rate depreciated markedly through nearly all of 2013, resulting in stronger than expected inflation for imported consumer products, especially in the second half of 2013. Holm (2014) showed that the feed-through from the exchange rate to consumer prices is somewhat stronger when there is considerable movement in the exchange rate.³ Towards year-end 2013, the twelve-month rise in the CPI-ATE was somewhat higher than projected one year earlier.

Comparison with other forecasters

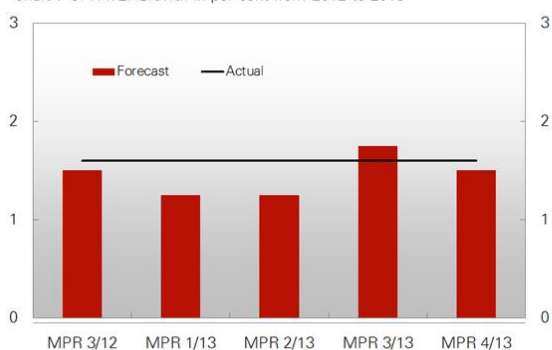
Other institutions included in the comparison also revised down their projections substantially for GDP growth through 2013 (see Chart 9). Norges Bank's growth projections for the mainland economy were broadly as accurate as the average of the other institutions through 2013. The three largest institutions that publish forecasts for the Norwegian economy, Statistics Norway, the Ministry of Finance and Norges Bank, were fairly synchronised in revising down their projections.

Other institutions' inflation projections for 2013 were generally close to Norges Bank's projections from autumn 2012 (see Chart 10). Most of the institutions revised their projections downward somewhat in spring and raised their projections through the second half of 2013.

² Hov, Marius N., Bjørn E. Naug and Njål Stensland (2013): «Factors driving consumer price inflation», *Norges Bank Staff Memo* 6/2013.

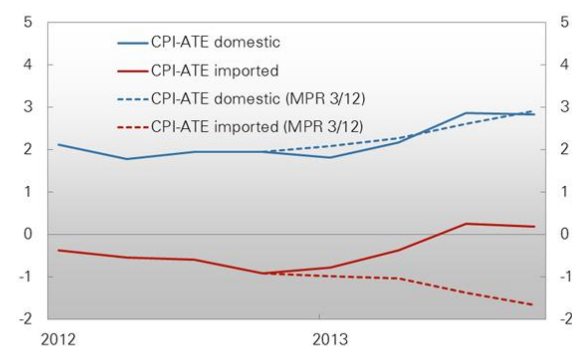
³ Holm, Martin B. (2014): «The exchange pass-through to consumer prices in Norway», *Norges Bank Staff Memo* 4/2014

Chart 7 CPI ATE. Growth in per cent from 2012 to 2013



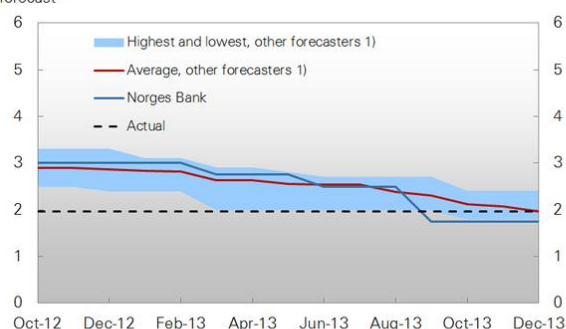
Sources: Statistics Norway and Norges Bank

Chart 8 Inflation. Twelve month growth in consumer prices. Per cent. Q1 2012 - Q4 2013



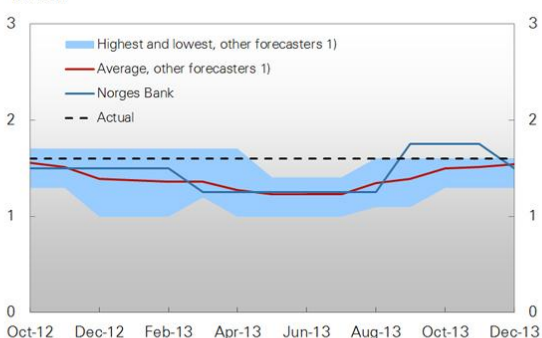
Sources: Statistics Norway and Norges Bank

Chart 9 GDP Mainland Norway. Growth in per cent from 2012 to 2013. Actual and forecast



1) Danske Bank, DNB, Handelsbanken, Ministry of Finance, NHO, Nordea, SEB and Statistics Norway
Sources: Other institutions and Norges Bank

Chart 10 CPI ATE. Growth in per cent from 2012 to 2013. Actual and forecast



1) Danske Bank, DNB, Handelsbanken, Ministry of Finance, Nordea, SEB and Statistics Norway
Sources: Other institutions and Norges Bank

Conclusion

Norges Bank's projections presented in the Monetary Policy Report are evaluated every year. In this article, we have evaluated Norges Bank's projections for the Norwegian economy in the MPRs published between October 2012 and December 2013. In 2013, economic growth among our trading partners was somewhat weaker than projected. Growth prospects for the Norwegian economy weakened through the year, and mainland GDP growth turned out lower than projected in the first MPRs. Employment growth was lower than projected and unemployment rose more than projected. Developments in private consumption and business investment were weaker than projected, while petroleum investment increased more than projected. Mainland exports rose somewhat more than previously projected. A sharp depreciation of the krone exchange rate helped to counteract the effect of lower-than-expected market growth abroad.

Household demand proved to be particularly weaker than projected. Private consumption has been lower than projected in the MPRs over a longer period. Households have likely changed their behaviour in a way that our models do not capture. In the box "Household saving" in MPR 2/14, a number of factors are discussed that have contributed to pushing up saving in recent years. Changes in the pension system and labour immigration are probably among the most important individual factors. Even though the changes are well known, it is still difficult to forecast consumption accurately since it is very difficult to predict the extent to which these changes will impact saving behaviour.

Our projections for consumer prices in 2013 published at the end of 2012 were close to the mark, but there were still some surprising developments. Through the first half of 2013, the rise in prices for domestically produced goods and services was surprisingly low. Our analyses indicated that this was attributable to lower cost growth over time in the household-oriented sector than in the overall economy. In the second half of the year, the rise in prices for imported consumer goods was higher than projected, primarily owing to a weaker krone exchange rate. This probably reflected a somewhat stronger feed-through from the exchange rate to consumer prices when the exchange rate shows a

pronounced movement. Moreover, changes in the method for calculating house rents and food prices likely contributed to a higher reported rise in prices.

Appendix table: Projections of key macroeconomic variables for 2013. Percentage change in relation to 2012 unless otherwise stated

	MPR 3/12	MPR 1/13	MPR 2/13	MPR 3/13	MPR 4/13	Preliminary figures for 2013
Prices and wages						
CPI	2	1½	1¾	2¼	2¼	2.1
CPI-ATE	1½	1¼	1¼	1¾	1½	1.6
Annual wage growth	4¼	4	3½	3½	3½	3.9
House prices					4½	4.6
Real economic variables						
GDP	2½	1¾	½	¼	¾	0.6
GDP, mainland Norway	3	2¾	2½	1 ¾	1¾	2.0
Output gap, mainland Norway (level)	¾	½	¼	0	0	0
Employment, persons (QNA)	1¾	1½	1¼	1¼	1¼	1.2
Labour force, LFS	1½	1¼	1	¾	1	1
LFS unemployment (rate, level)	3	3¼	3¼	3½	3½	3.5
Registered unemployment (rate, level)	2½	2½	2½	2 ¾	2¾	2.6
Demand						
Demand, mainland Norway	4¼	3	2¾	2¼	2¼	2.4
- Private consumption	4¼	3¼	3	2¼	2¼	2.1
- Public consumption	2¼	2	2½	2½	2	1.6
- Gross investment, mainland Norway	6¾	4	2¾	2	2½	4.7
-- Business investment	8½	2¼	-½	0	1,1	1.0
-- Housing investment	6½	6½	7,7	6½	6,3	6.4
Petroleum investment	9	11	10	12½	15	18.0
Exports, mainland Norway	1	½	½	1 ¾	1	1.9
Imports	5¼	3¾	¼	0	2¼	2.5
Interest rate and exchange rate						
Key policy rate (level)	1¾	1½	1½	1½	1½	1.5
Import-weighted exchange rate (I-44, level)	85¾	85½	87	88	89	89
International economy and oil price						
GDP, trading partners	1¾	1¼	1¾	1¼	1	1¼
International price impulses, EPC	¼	0	-¼	-0	0	0.1
Oil price, USD per barrel (level)	105	110	105	109	109	109



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