

 **NORGES BANK**

Norges Bank Papers No. 2 | 2013

# Evaluation of Norges Bank's projections in 2012

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### Norge Bank

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ISSN 1894-0293 (online)

ISBN 978-82-7553-765-0 (online)

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## Introduction

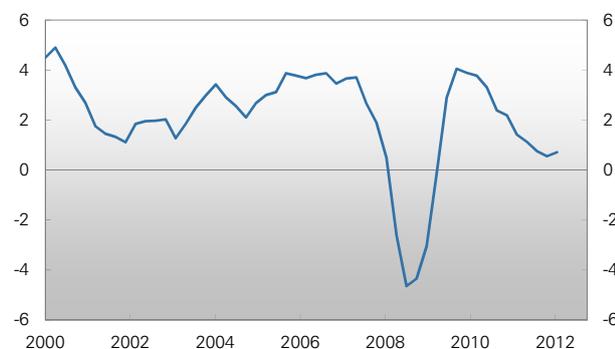
Norges Bank's projections of inflation and economic developments form an important basis for interest rate setting. An evaluation of the projections can provide us with increased insight into the functioning of the economy and help improve our analytical tools. In this article, Norges Bank's projections for 2012 are evaluated. The article starts with a brief overview of developments through 2012, followed by a look at the projections for 2012 that were presented in Norges Bank's *Monetary Policy Report* (MPR) from the end of 2011. A comparison of Norges Bank's projections and projections from other forecasters is also included.

## Economic developments in 2012

### International developments

In 2012, economic growth among Norway's trading partners was low (see Chart 1.1). Growth in euro-area GDP fell by 0.5 percent and growth in the UK was zero. Our closest neighbouring countries also experienced markedly lower growth than normal. Growth in emerging economies helped support global growth, but GDP growth for our trading partners as a whole was 0.8 percent in 2012.

Chart 1 GDP trading partners. Four-quarter change. Percent. 2000 Q1 – 2012 Q4



Sources: Thomson Reuters and Norges Bank

Growth prospects weakened gradually through the year. Extensive fiscal tightening, deleveraging in the private sector and tight credit standards, particularly in some European countries, had a dampening impact on growth. The expected improvement in the growth outlook was thus moved forward in time on several occasions.

The debt crisis in Europe caused turbulence in financial markets. Around the turn of the year 2011/2012, global financial markets were particularly stressed. European banks faced high funding costs and funding difficulties. Central banks responded with various measures. Policy rates were reduced and were close to zero in many countries. The European Central Bank (ECB) provided long-term loans. This contributed to boosting liquidity and reducing interest rates in the European banking system.

Chart 2 Ten-year government bond yields. Percent. 1 January 2010 – 31 December 2012



Source: Thomson Reuters

The turbulence in international financial markets flared up again through spring, however. Spain struggled with economic recession, deep budget deficits and problems in the banking sector. Government bond yields drifted upwards (see Chart 2). An unclear political situation in Greece led to renewed doubt as to the country's ability and willingness to honour its debt obligations. The ECB announced new measures, which helped calm financial markets. The ECB policy rate was reduced in July and later that autumn the ECB offered unlimited support in the form of purchases of European government bonds on certain terms. Greece reached agreement with its creditors in mid-December 2012 on debt restructuring.

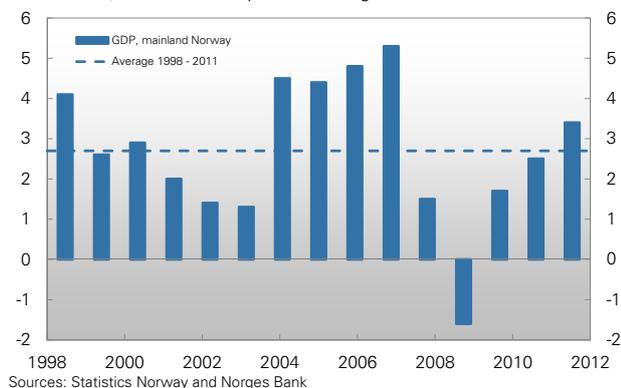
## The Norwegian economy

Developments among trading partners contrasted with developments in the Norwegian economy. For the year as a whole, the Norwegian economy remained robust. Mainland GDP grew by 3.4 percent, which is slightly higher than the average for the past 15 years (see Chart 3). Growth in the Norwegian economy was primarily driven by the sharp increase in activity in oil-related industries and the construction sector. Oil-related investment increased by close to 15 percent, which made a substantial contribution to growth in activity in some manufacturing segments. Other parts of manufacturing were, however, marked by a high cost level and the slump in Europe and other key trading partners.

Demand in the housing market increased markedly, reflecting strong growth in household disposable income and continued high labour immigration, with housing starts reaching new heights. House prices increased by 7 percent in real terms. Growth in household consumption was more moderate. Uncertainty surrounding external developments led to a downward shift in household expectations in late 2011 and the first months of 2012. Saving as a percentage of disposable income rose to a historically high level of around 9 percent in 2012. A portion of the increase in saving reflected the rise in housing investment, but a rise in financial investments also made a contribution.

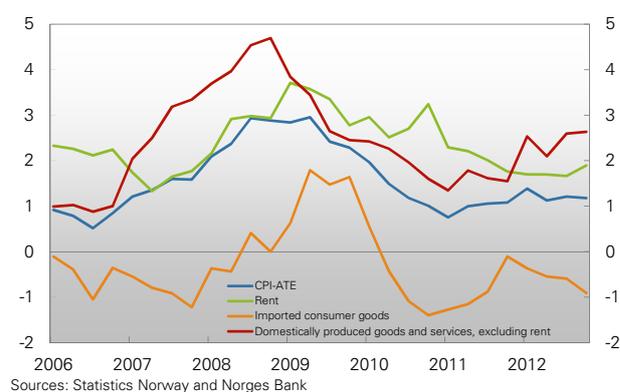
Employment increased sharply and unemployment was low. The number of registered unemployed was 2.5 percent and overall wage growth came to 4 percent.

Chart 3 GDP, mainland Norway. Annual change. Percent. 1998 – 2012



Consumer price inflation was low (see Chart 4). In 2012, annual CPI inflation was 0.8 percent. Adjusted for tax changes and excluding energy prices (CPI-ATE), annual inflation was 1.2 percent. House rents showed a modest rise, while the rise in prices for other and domestically produced consumer accelerated somewhat through 2012. Prices for imported consumer goods have declined over the past three years. The annual rise in prices for imported consumer goods was negative at -0.6 percent in 2012.

Chart 4 CPI-ATE and sub-components. Four-quarter change . Percent. 2006 Q1 – 2012 Q4



## Deviations from projections in 2012

The projections of mainland GDP growth for Norway in 2012 have shown little change since autumn 2011 and have been closely in line with preliminary national accounts figures (see Table 1). In MPR 3/11, growth was projected at 3¾ percent in 2012. In March 2012, the growth projection was revised down to 3¼ percent, partly owing to weaker growth prospects, but also to the fact that the first estimates released for mainland GDP growth for the latter half of 2011 showed considerably lower growth than envisaged in October. In the period to summer, GDP growth picked up and national accounts figures moved closer to the projections in PPR 3/11. The projections of annual growth were thus revised up again in the final two MPRs in 2012. Preliminary national accounts figures now indicate that growth through the latter half of 2012 was slightly lower than projected, but the deviations were fairly small.

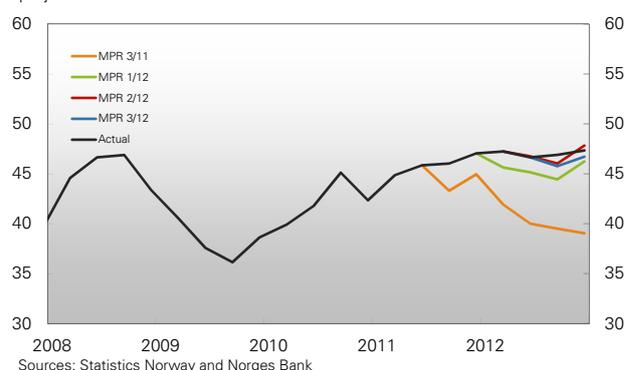
**Table 1: Projections of key macroeconomic variables for 2012. Percentage change from 2011**

	MPR 3/11	MPR 1/12	MPR 2/12	MPR 3/12	QNA, May 2013
GDP, mainland Norway	3 ¾	3 ¼	3 ¾	3 ¾	3.4
Employment	1 ¼	1 ½	2	2 ¼	2.2
Labour force	1 ¼	1 ¾	2	2	1.9
Registered unemployment	2 ½	2 ½	2 ½	2 ½	2.5
CPI-ATE	1 ¾	1 ¼	1 ½	1 ¼	1.2
Annual wage growth	4 ¼	3 ¾	4	4	4

The growth projections for the Norwegian economy were fairly close to the mark through 2012, while labour market developments deviated somewhat from the projections. Both labour supply and demand were substantially higher than projected. The projections of growth in the labour force and employment were revised up from MPR 3/11 to MPR 3/12.

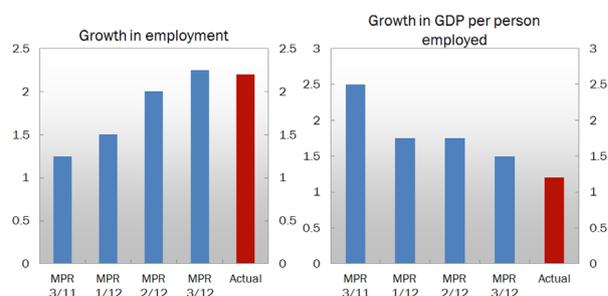
Labour immigration to Norway has made a considerable contribution to the labour force growth in recent years (see Chart 5). The projections in MPR 3/11 were based on some decline in inflows from eastern European countries as the situation in Europe was expected to improve through 2012. As net immigration to Norway remained high in the first months of the year and the growth outlook for Europe weakened further, the projection of net immigration was raised by about 8 000 persons in MPR 1/12. The projections of net immigration in 2012 in the three MPRs published last year were all close to the actual figure for net immigration of 47 000 persons. The forecast error for net immigration in MPR 3/11 can explain about a third of the deviation between actual and projected labour force growth. The deviation primarily reflects a faster-than-expected rise in labour force participation among the existing population.

Chart 5 Net immigration to Norway. Thousands of persons. Actual and projections in various MPRs



Labour productivity turned out to be lower than projected. The projections in the MPRs were based on a pickup in productivity growth from a very low level in the years following the financial crisis (see Chart 6). The catch-up was considerably smaller than expected and employment growth through 2012 was thus consistently stronger than projected. The forecast errors for labour supply and demand were about the same. Unemployment as a percentage of the labour forces has moved in line with that projected.

Chart 6 Growth in employment and mainland GDP per person employed. Percentage change from previous year. Actual growth and growth projections for 2012 in various MPRs



Sources: Statistics Norway and Norges Bank

Growth in private consumption was weaker than projected.<sup>1</sup> Despite strong population growth and high growth in household real disposable income, consumption growth was not in line with that projected. Household saving thus turned out to be higher than projected. A high household debt ratio, combined with a deterioration in the outlook for household finances and the domestic economic, may have contributed to dampening consumption growth. Moreover, the pension reform has extended the period for remaining economically active while drawing a full pension. Under

<sup>1</sup> See Gudmundsson and Reiakvam (2013): «Husholdningenes sparing etter finanskrisen» [Household saving after the financial crisis] for a broader discussion of factors that have influenced household consumption in recent years.

the new scheme, expected pension payments are neutralised, which means that total pension income in the pension period will be more or less independent of when a person starts receiving pension. This offers the opportunity to earn higher income for a temporary period which many may have chosen to save.

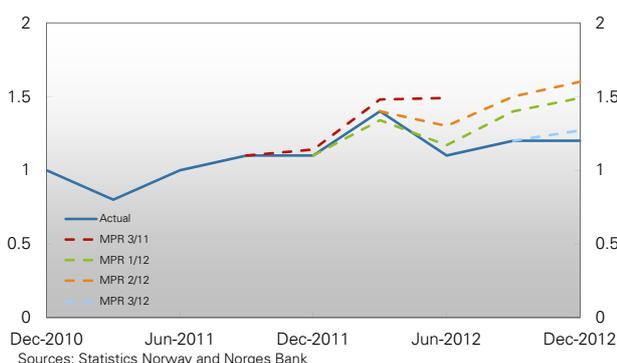
Preliminary national accounts figures indicate that the growth impulses from business investment were slightly lower than projected in MPR 3/11, where investment as a percentage of GDP was projected to increase through 2012 as a result of low interest rates and increased capacity utilisation. Lower global growth prospects and tighter bank lending impaired the favourable conditions for the expected investment upswing. The projections of business investment growth were thus revised down in the first two MPRs in 2012.

Traditional exports grew at a faster pace than projected, despite weaker-than-expected growth among trading partners and a somewhat stronger krone than projected. That primarily reflected strong-than-expected growth in exports of oil-related goods and services. Exports of fish and fish products also exhibited strong growth and contributed to higher growth in exports than projected. Imports grew at a slower pace than projected.

## Prices

Inflation was lower than projected. In MPR 3/11, annual CPI-ATE inflation was projected at 1¾ percent (see Chart 7). The main drivers were assumed to be (rising) wage growth and moderate productivity growth, but in addition increased capacity utilisation was expected to allow enterprises to increase their margins by increasing prices. The rise in prices for domestically produced goods and services was projected to edge up in the latter half of 2012.

Chart 7 CPI-ATE. Actual developments and projections in various MPRs. Four-quarter change. Percent



A stronger krone exchange rate and lower wage projections as a result of the downward adjustment of growth in output and demand resulted in a downward revision of the inflation projection in MPR 1/12 by ½ percentage point. In spring, price developments were broadly in line with projections, while in MPR 2/12 the inflation projection was revised up again by ¼ percentage point, owing to some improvement in growth prospects and an upward revision of wage growth to 4 percent after the completion of centralised wage negotiations.

Through the summer months, the rise in prices for domestically produced goods and services was lower than projected in June, leading to downward revision of short-term inflation projections in MPR 3/12. The actual rise in prices for domestically produced goods and services remained low also in the final months of 2012 and was lower than projected in MPR 3/12. The projections of the rise in prices for imported consumer goods were fairly close to the mark through 2012.

Cost pressures in the business sector were probably lower than assumed when drawing up the projections of consumer price inflation. Measured by unit labour costs, costs in the mainland economy increased more than projected. In isolation, this would imply higher inflation in Norway than projected. Overall cost inflation does not necessarily provide a good expression of the cost increases that are passed on to consumer prices, however. In the past 5-6 years, there has been a relatively wide deviation between overall cost inflation and the rise in prices for domestically produced goods and services. Norges Banks therefore constructed costs aggregators that better represent costs for enterprises that produce consumer goods and services, which were applied in drawing up the projections published in MPR 1/13. These analyses show that wage growth has been lower and productivity growth higher in CPI-relevant production sectors than in the mainland economy as a whole. As a result, the rise in domestically produced goods and services was not projected to be as high. For more details concerning these analyses, see Staff Memo 6/2013.<sup>2</sup>

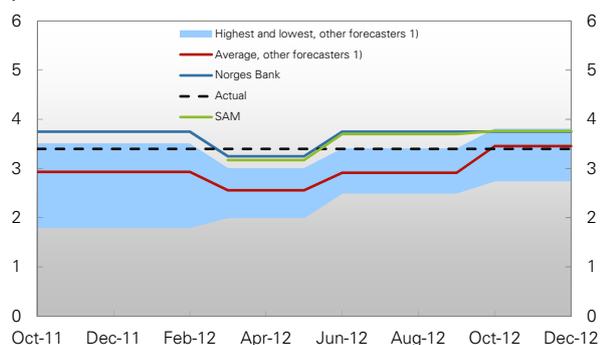
<sup>2</sup> See Hov, Marius N., Naug, Bjørn E., and Stensland, Njål (2013): «Factors driving consumer price inflation». Norges Banks Staff Memo No. 6 /2013.

## Comparison with other forecasters

Compared with other institutions, Norges Bank's mainland GDP projections in 2012 were closely in line with preliminary national accounts figures (see Chart 8). The Bank's published projections have also been in line with the projections from our system of averaging short-term forecasts, SAM.

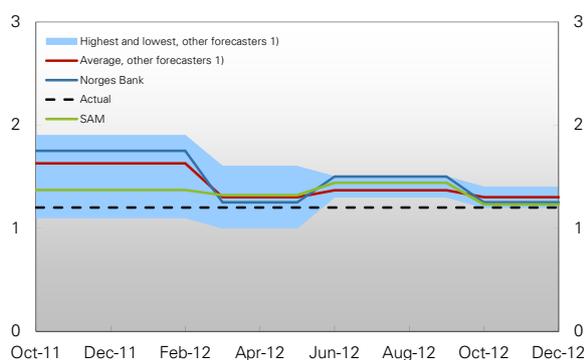
Norges Bank's projections of CPI-ATE inflation in 2012 were slightly higher than, but close to, the average of the projections from the other institutions since autumn 2012 (see Chart 9). Early SAM-based projections were closer to the mark than the published projections from Norges Bank. There was a tendency for the forecasters to over-estimate CPI-ATE inflation in 2012.

Chart 8 GDP, mainland Norway. Annual change in 2012. Percent. Actual and projections in various MPRs



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

Chart 9 CPI-ATE. Annual change in 2012. Percent. Actual and projections in various MPRs



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

## Summary

Norges Bank's projections presented in the *Monetary Policy Report* are evaluated every year. This article evaluates Norges Bank's projections for 2012. The economic growth outlook for our trading partners turned out to be weaker than assumed and the expected rebound in the euro area was moved further ahead. The projections of annual GFDP growth for mainland Norway were fairly close to GDP growth in the preliminary accounts. Private consumption and business investment were weaker than expected. Despite a weaker external environment than envisaged, growth in mainland exports was higher than expected.

The projections were based throughout the year on a too strong catch-up in productivity growth. The low productivity growth observed in Norway in the years after the financial crisis persisted to a further extent than assumption underlying our projections. Labour demand proved to be considerably stronger than assumed. At the same time, the supply of foreign labour was higher than projected last year, but the labour force participation rates also rose more than expected.

Inflation was lower than projected, primarily reflecting the low rise in prices for domestically produced goods and services. In the light of our experience with price projections in 2012, Norges Bank carried out a more disaggregated analysis of price developments in various sectors in MPR 1/13. These analyses, which are published in Staff Memo No. 6/2013, show that wage growth has been lower and productivity growth higher in CPI-relevant sectors than in the mainland economy as a whole. Empirical models for domestically produced goods and services with cost aggregates that are relevant for the CPI explain historical price developments well. The results of this work have led to a downward revision of the price projections in MPR 1/13.

# Annex 1

**Table 2:** Projections of key macroeconomic variables for 2012. Percentage change from 2011 unless otherwise stated

	MPR 3/11	MPR 1/12	MPR 2/12	MPR 3/12	QNA, May 2013
<b>Prices and wages</b>					
CPI	1½	1	1	¾	0.8
CPI-ATE	1¾	1¼	1½	1¼	1.2
CPIXE	1½	1¼	1¼	1	1.0
Annual wage growth	4¼	3¾	4	4	4.0
<b>Real economic variables</b>					
GDP	3	2¾	3½	3¼	3.1
GDP, mainland Norway	3¾	3¼	3¾	3¾	3.4
Output gap, mainland Norway (level)	¼	¼	½	½	¼ <sup>3</sup>
Employment, persons (QNA)	1¼	1½	2	2¼	2.2
Labour force, LFS	1¼	1¾	2	2	1.9
LFS unemployment (rate, level)	3	3¼	3	3	3.2
Registered unemployment (rate, level)	2½	2½	2½	2½	2.5
<b>Demand</b>					
Demand, mainland Norway	4	3½	2¾	3	2.8
- Private consumption	4½	3	3½	3½	3.0
- Public consumption	1¾	2¼	2	1¾	1.8
- Gross investment, mainland Norway	6½	3¾	2½	4	3.7
Petroleum investment	14	17¼	15	14	14.5
Exports, mainland Norway	3	1½	¾	1	2.2
Imports <sup>4</sup>	3½	3½	3	1½	2.4
<b>Interest rate and exchange rate</b>					
Key policy rate (level)	2¼	1½	1½	1½	1.6
Import-weighted exchange rate (I-44, level)	88½	87¼	87¾	87	87.1
<b>International economy and oil price</b>					
GDP, trading partners	1¾	1	¾	¾	0.8
International price impulses, EPC	-½	-½	-½	½	0.5
Oil price, USD per barrel (level)	97	121	106	112	112

<sup>3</sup> Our projection

<sup>4</sup> The projection of imports in MPR 3/12 was revised down as a result of the historically low level of imports in the national accounts that had been published then. The impulse from imports in Q3 and Q4 showed little change from MPR 2/12 to 3/12. Subsequent national accounts figures are revised up again, while the latest national accounts figures show that import growth has been lower than projected.

