Financial stability and monetary policy – theory and practice

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Both price stability and financial stability are important for achieving macroeconomic stability. It is not clear-cut, however, what weight should be attached to financial stability and price stability considerations, respectively, when making monetary policy decisions. Nevertheless, both the communication and the monetary policy decisions of central banks indicate that financial stability is in the process of acquiring a more distinct role in monetary policy. This can be ascribed to the recognition that financial stability has consequences for future developments in inflation and output. In Norway, financial stability assessments are incorporated in the monetary policy advisory process, as Norges Bank Financial Stability contributes information, forecasts and recommendations in the process leading to monetary policy decisions.

1 Introduction

Central banks aim to promote economic stability, usually by targeting price stability and financial stability. In monetary policy regimes that target low and stable inflation, the key interest rate is the main policy instrument. However, the level of and the changes in this policy rate may also have an impact on financial stability. In some situations, the two objectives may be in conflict.

What weight should be attached to financial stability and price stability considerations, respectively, when making monetary policy decisions? Financial instability normally develops over a long period, and there are considerable problems associated with operationalising and measuring financial stability. The challenges linked to modelling the interplay with monetary policy are even greater. Flexible inflation targeting, where emphasis is placed on both variability in inflation and variability in output and employment, is a framework where the outlook for financial stability may have monetary policy consequences to the extent that it influences future inflation and output.

External communication and policy decisions in a number of central banks indicate that taking account of financial stability has consequences for practical monetary policy. At Norges Bank, financial stability assessments are part of the preparations leading up to monetary policy decisions. Norges Bank Financial Stability[2] contributes by compiling and evaluating information from the financial sector as well as information concerning the financial position of households and enterprises. In addition, it provides specific recommendations on the monetary policy strategy in the light of the financial stability outlook, where projections of macroeconomic variables of importance to financial stability figure prominently in the assessments.

Section 2 of the article discusses the relationship between price stability and financial stability, and its consequences for the conduct of monetary policy. Section 3 considers three aspects of Norges Bank's incorporation of financial stability in monetary policy: the underlying motivation; the specific contributions; and the basis for the assessments.

2 The link between price stability and financial stability

Both price stability and financial stability are important for achieving macroeconomic stability. When inflation is low and stable, economic agents are in a better position to distinguish relative price changes from changes in the general price level. A more reliable information set underlying decisions on resource allocation contributes to stability in credit and securities markets, and price stability thus contributes to financial stability. Similarly, financial stability is a prerequisite for macroeconomic stability. Instability in the financial system may lead to pronounced fluctuations in monetary variables and in the real economy. Hoggarth et al. (2001) showed that financial crises entail not only financial costs, but also costs in the form of lost output. A smoothly functioning financial system also contributes to promoting macroeconomic stability. Deeper financial markets have probably increased the capacity of the financial system to absorb adverse shocks to the economy. White (2002) points to the emergence of a steadily increasing diversity of credit channels. New instruments are better suited to transferring various types of risk to those best able to cope with it. In addition to banks, institutions that channel credit include securities markets, pension funds, insurance companies and mortgage companies that specialise in high risk projects. White (2002) also stresses that financial institutions now measure risk more accurately, and that it has become simpler and cheaper to access and to exchange information. This helps markets to function more efficiently during periods of turbulence.

Although the objectives of price and financial stability are compatible in many situations, this provides no guarantee of financial stability during periods of price stabil-

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[2] Norges Bank's work on price stability and financial stability is divided between two separate organisational areas: Norges Bank Monetary Policy (NBMP) and Norges Bank Financial Stability (NBFS).

ity. Since the episodes of high and unstable inflation in the 1970s, inflation has been reduced and become more stable in most countries. Nevertheless, there have been a number of incidents where the financial system has been under pressure, with large fluctuations in asset prices and debt levels. In the most serious cases, these have developed into financial crises.

Much of the explanation for the episodes of financial instability must be ascribed to problems associated with the transition from a regulated to a liberalised financial system (see Allen and Gale, 1999)[3]. Financial liberalisation may to some extent have increased the volatility of the financial system, because inherent pro-cyclical forces in financial markets are subject to fewer restrictions than before (Borio et al. 2001). On the other hand, increased system volume and liquidity serves to create greater stability.

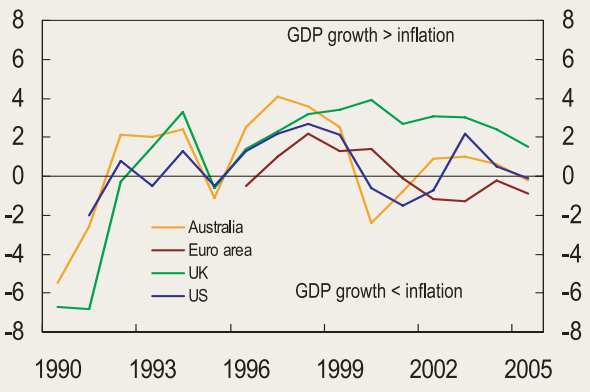
The recent relatively long period of low and stable inflation has shown that strong economic growth does not necessarily result in high inflation (see Chart 1).

If the cause of the strong growth is a positive supply side shock, for example in the form of stronger international competition or higher productivity, inflation will remain low. In such situations, it can therefore be argued that there is less of a case for tightening monetary policy. The combination of moderate interest rates and strong economic growth may then lead to an upswing in asset and property prices. This will tend to lead to an increase in bank lending, because economic agents need more capital to purchase assets. There is a risk of their becoming overly optimistic in their assessment of the future. A number of studies have shown that risk perceptions tend to depend on the current state of the economy.[4] If economic agents systematically overestimate the probability that the economy will continue to grow at the same high pace, this may lead to an excessive rise in asset prices relative to fundamentals. The new higher debt level may then be unsustainable over time for economic agents. At some point in time, for example when economic growth begins to stagnate, imbalances may unwind abruptly. If they have been extensive, the effect may feed through into the financial system and the real economy, through falls in collateral values and a decline in the debt-servicing capacity of households and enterprises[5]. This happened during the Nordic banking crises in Norway, Sweden and Finland in the late 1980s and early 1990s.

Thus price stability is no guarantee of financial stability. A somewhat more controversial view is that monetary policy oriented towards low and stable inflation may be a source of financial instability. Borio and Lowe (2002) take a case in which monetary policy, aimed at low and stable inflation, is accorded a high degree of credibility by economic agents. They take low inflation as a given in wage settlements and price-setting, even in a situation where the economy is approaching full capacity utilisation. This delays price signals in the products market, which in turn delays the monetary policy response to demand pressures. The pressures may instead be manifested in the form of an upswing in asset prices and the debt level, variables that are not affected by inflation expectations, and to which monetary policy does not respond. By the time inflationary pressures ultimately feed through to the products market, financial imbalances have had a chance to build up.

The relationship between price stability and financial stability is normally benign, but it may change over time. Monetary policy-makers may therefore have to consider whether to trade the two objectives off against one another. The emergence of ever more relevant literature on this subject in recent years bears witness to a growing recognition that dilemmas of this kind can arise. Should there be a trade-off between the objectives of financial stability and price stability in monetary policy decision-making? Conclusions based on theoretical models vary, but central bank practice appears to be fairly similar.

Chart 1 Difference between GDP growth and consumer price inflation in selected countries. Annual figures. 1990-2005



Source: EcoWin

Challenges in taking account of financial stability in monetary policy

Financial stability is important in the conduct of monetary policy. As discussed above, the state of the financial system has a direct impact on the economic objectives that the central bank attempts to attain. Moreover, financial stability plays a more concrete role in the conduct of monetary policy. A smoothly functioning financial system enhances the effect of changes in the central bank's policy rate on money market rates. These are the interest rates that ultimately influence the central bank's monetary policy objectives through their impact on consumption and investment.

In order to take explicit account of financial stability in the conduct of monetary policy, financial stability must be clearly defined. The concept is complicated and diffi-

[3] For example, one of the key factors triggering the Norwegian banking crisis was the failure to dismantle the artificially low, politically regulated interest rates following the deregulation of the credit system. For a further elaboration of the Norwegian banking crisis, see Moe et al., 2004.

[4] See for example Borio, Furfine and Lowe (2001).

[5] An asset price correction will result in a fall in collateral values, which in turn may lead to a credit squeeze. Bordo and Jeanne (2002) show that this may lead to undesirable boom-bust investment cycles (see also Kiyotaki and Moore, 1997).

cult to operationalise[6] and this field of research is still in its early phase. Developments in financial stability cannot be captured in a simple qualitative measure (see Houben et al., 2004). The state of financial institutions, markets and infrastructure is decisive, but it is not obvious how to include and weight the elements in appropriate intermediate objectives. Moreover, there must be an understanding of how financial stability is influenced by factors within and outside the financial system, and what conditions actually threaten financial stability.

A common definition of financial stability is the absence of imbalances in financial markets (Foot, 2003). There is an ongoing debate as to whether the central bank should react using the precautionary principle by tightening monetary policy to counter the emergence of imbalances in the financial system. There are many challenges involved in such an approach (see e.g. Bernanke and Gertler, 2001). Identifying imbalances requires the identification of the causes underlying developments in asset prices, which is a difficult task. The relationship between sharply rising asset prices and debt accumulation and a period of financial instability varies over time. A monetary policy response would not necessarily be able to reduce the imbalances, and the degree of precision might be low. An excessive tightening of monetary policy may lead to instability in other sectors of the economy. If central banks have a stated strategy of responding to imbalances, this may have a negative effect on economic agents' behaviour by impairing their assessment of future risk. In that case, the monetary policy strategy could create imbalances rather than preventing them.

Nickell (2005) illustrates these difficulties by looking at the surge in house prices in the UK in 2002. In his analysis, he finds that an interest rate increase of about 3 percentage points over three years would be necessary to curb the rise in house prices. Nickell's calculations show that such a monetary policy response would have led to a decline in GDP growth of ½ per cent in 2003. In addition, Nickell argues that it is difficult, both in real time and in retrospect, to determine whether the rise in house prices actually represented an imbalance.

The difficulties relating to identification and implementation may indicate that monetary policy should only be used as a reactive instrument to alleviate the effects of a financial crisis, and not as a proactive instrument to prevent financial imbalances (see Greenspan, 2002). Those who are still in favour of a precautionary approach to financial imbalances recognise the problems above, but argue that the costs of not responding are too high to disregard. Borio and Lowe (2004) argue that there are also serious estimation and identification problems associated with other variables, such as the output gap[7]; a key variable in monetary policy analyses. The challenges of identifying and measuring financial imbalances should therefore be addressed. Gruen et al. (2003) argue that three factors are decisive in determining whether the precautionary principle should be applied. The likelihood that imbalances will resolve themselves should be low, efficiency losses associated with the bubble should be high and the expected effect of monetary policy on bubbles should be substantial.

The activist view has often been referred to as "leaning against the wind"[8], and entails increasing the key rate in response to emerging financial bubbles with the aim of reducing the likelihood of future economic instability and the costs that would imply. This can be likened to an insurance policy, where the insurance premium is the cost of potentially lower economic growth for a period (Bordo and Jeanne, 2002).

Many countries have introduced an explicit inflation target for the conduct of monetary policy. In addition to stabilising inflation, weight is commonly given to short-term stabilisation of the real economy, known as flexible inflation targeting[9]. Bean (2003) argues that a flexible inflation target takes sufficient account of the objective of financial stability in the conduct of monetary policy. A financial crisis or a sharp unwinding of financial imbalances may have an adverse impact on future inflation and output. Central banks should therefore give weight to such events in their maroeconomic forecasts and respond accordingly. The outlook for financial stability will have monetary policy implications to the extent that as it has consequences for future inflation and output. Thus, a separate financial stability objective for monetary policy is not necessary. Moreover, flexible inflation targeting ensures that economic agents will not be charged high interest rates at the same time as unemployment is high and demand in the economy is low. Critics argue that it takes a long time for financial imbalances to build up and that flexible inflation targeting should thus apply a longer time horizon in the assessment of the outlook for inflation and output. The need for greater emphasis on the distribution of risk around future expectations has also been highlighted (see Borio, 2005).

The costs associated with financial instability are not necessarily linked to the effects on prices and output. For example, structural costs may arise as a result of poor decisions by agents using faulty information. It can be argued that flexible inflation targeting, where the focus is only on the costs of imbalances in the form of future inflation or production, does not give sufficient weight to financial stability[10]. This view implies that financial stability should be an independent objective of monetary policy. In addition to the operational challenges associated with such a monetary policy regime, one can argue that agents will have difficulty understanding the monetary policy strategy and hence struggle to form stable expectations about the central bank's

6 For a discussion of different definitions of financial stability, see e.g. Schinasi (2004).

7 The output gap can be defined as the difference between actual output and potential output in an economy, and is then used as a measure of pressures in the economy.

8 Trichet (2005) defines "leaning against the wind" as increasing the interest rate to or over the level that is necessary to maintain price stability in the near and medium term when a potentially adverse increase in asset prices has been identified.

9 For a further discussion of flexible inflation targeting, see Svensson (2003).

10 See, for example, the discussion in Norges Bank Watch 2005.

response pattern when this involves a trade-off between several different objectives.

International practice among central banks reflects a growing awareness of financial stability issues in the conduct of monetary policy[11]. In situations where the financial system is under pressure, there appears to be agreement that monetary policy should be used to promote financial stability (Gjedrem 2005). As regards the question of whether the central bank should respond to long-term imbalances, the communication and practice of central banks reflect a similar view, albeit with different rationales. In a speech given in 2002, Federal Reserve Chairman Ben Bernanke, then member of the FOMC, took a positive view to giving weight to financial balances in the conduct of monetary policy to the extent that they have an impact on inflation. ECB President Jean Claude Trichet argued in a speech in June 2005 that allowing short-term deviations from price stability on the basis of financial imbalances could in some cases be an optimal monetary policy if this better ensures price stability in the longer run (Trichet, 2005).

The *BIS Annual Report* (2005) points out that both the Bank of England and the Reserve Bank of Australia indicated that concerns about rising house prices and debt played a role, along with strong demand growth, in explaining their interest rate increases in 2005. Sveriges Riksbank, for similar reasons, did not lower interest rates as much as might have been expected given that it was actually undershooting its inflation.

The objective of financial stability thus seems to have a bearing in the practical conduct of monetary policy, but how do central banks approach this issue in practice? The next section explores three aspects of incorporating financial stability into Norges Bank's monetary policy: the motivation, specific contributions and basis for the assessments.

3 Financial stability and monetary policy in Norges Bank

Norges Bank's monetary policy is oriented towards low and stable inflation. Inflation targeting shall be flexible so that weight is given to both variability in inflation and variability in output and employment. The Executive Board sets the key rate. The Executive Board is composed of five external members in addition to the central bank governor and deputy governor. Three times a year, the Executive Board decides on a strategy for the implementation of monetary policy over the subsequent four-month period. Interest rate decisions are normally taken by the Executive Board at its monetary policy meetings held every sixth week. Norges Bank Monetary Policy plays a key role in the preparatory work for the monetary policy meetings and the strategy discussion. Their work includes projections for economic variables and monetary policy analyses. Norges Bank Financial Stability (NBFS) also participates in the process by contributing information, assessments, forecasts and advice. This role is further discussed below.

Motivation

In its work on financial stability, Norges Bank monitors financial institutions and securities markets in order to identify developments that may weaken the stability of the financial system. The assessments are published biannually in the report *Financial Stability*. The assessments of financial stability are also included in the preparatory work for the monetary policy meetings. The Governor of Norges Bank, Svein Gjedrem, discussed the underlying motivation for this in a speech (Gjedrem, 2005). He highlighted three aspects:

- Monetary policy should pay sufficient attention to the potential risks to financial stability.
- In monetary policy work, all available information that may influence future inflation and output should be taken into account. One of the six criteria for evaluating monetary policy strategy reflects one aspect of this: *"Interest-rate policy must also be assessed in the light of developments in property prices and credit. Wide fluctuations in these variab les may in turn constitute a source of instability in demand and output in the somewhat longer run."*[12]
- Structural and empirical information about factors central to analyses of financial stability, such as financial markets, asset prices, financial institutions and the debt-servicing capacity of households and enterprises, provide extra information about developments in the Norwegian economy.[13]

The specific contributions

NBFS contributes in the preparations leading up to monetary policy decisions by compiling, sorting and evaluating information with a bearing on financial stability. The information is used in the overall assessments of the economic situation and the future outlook that is presented in the *Inflation Report*. NBFS also provides the Governor with specific advice on the monetary policy strategy three times annually in the light of the financial stability outlook. The advice contains an evaluation of the prospects for a build-up of financial imbalances in the long term. This is analysed mainly by means of projections of macroeconomic variables with a particular bearing on financial stability.

In connection with the monetary policy meetings every six weeks, NBFS advises the Governor as to which interest rate decision will best safeguard financial stability.

[11] For a further discussion, see Gjedrem (2005).

[12] *Inflation Report* 3/05

[13] The financial stability outlook is reported twice a year in the Financial Stability report, which has been published since 1997.

This advice does not weigh up the objective of financial stability against that of attaining the inflation target. The written contribution contains short-term assessments of the prospects for acute liquidity and solvency problems in the financial sector. The risk of a build-up of financial imbalances that may threaten financial stability over time is also discussed. This discussion is closely related to the analyses in the input to monetary policy strategy and the *Inflation Report.*

Assessments

A large range of data and analytical tools can be drawn upon in the work of providing input for monetary policy. Banks, households, enterprises, financial markets and asset prices are all important factors in evaluating financial stability. The situation of the household sector and the enterprise sector, in particular, are thoroughly analysed from both a macro- and a micro-perspective, because they affect banks' credit risk. This constitutes important information in the monetary policy process.

Macroanalyses

Macroanalyses, with the focus on households, enterprises and financial institutions as a group, feature prominently in NBFS's input into the process that culminates in monetary policy decisions. The analyses are based largely on macroeconomic equations which are estimated for variables that are indicators of the situation in these sectors.

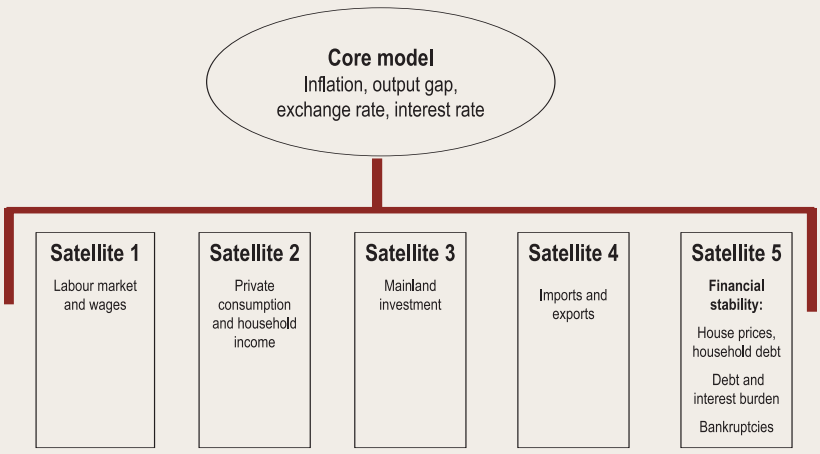
Bankruptcy trends are an important indicator of the debt-servicing capacity of enterprises. Jacobsen and Kloster (2005) have modelled an equation for bankruptcy developments in which the real interest rate, real exchange rate, level of activity in Norway and abroad, real production costs and commercial property prices are all included as explanatory factors. In a small, open economy like that of Norway, the international competitiveness of enterprises is particularly important. The empirical analysis indicates that developments in the krone exchange rate and domestic production costs relative to foreign costs can substantially influence the number of bankruptcies, and hence financial stability.

Historically, banks' losses on loans to households have been relatively low compared with losses on loans to the corporate sector, and the credit risk on loans to enterprises is therefore higher than that on loans to households. The situation in the household sector is nevertheless important for two reasons. First, households account for an increasing share of bank loans. The potential impact of the household sector on the financial system has therefore increased. Second, pronounced negative developments in the household sector will lead to enterprises experiencing a fall in demand. Such an indirect effect may have substantial consequences for the total credit risk of banks. The estimated macroeconomic equations for developments in house prices and household debt are central to analyses of the household sector (Jacobsen and Naug, 2004, 2005). Interest rates, housing starts, unemployment and household income are the most important explanatory factors behind house price developments, which in turn constitute the key explanatory factor for developments in household debt. A change in house prices has a strong and prolonged effect on household debt, because it takes time before all dwellings are sold at the new price level. Other explanatory variables for household debt are housing stocks, interest rates, unemployment, turnover in the housing market and wage income.

NBFS has linked its econometric macro-equations to Norges Bank's forecasting and policy analysis system (FPAS)[14]. They form part of the financial stability satellite, which is still being developed and which is linked to the core model and other satellites in the system (see Chart 2).

FPAS enables us to analyse developments in the real economy and the financial system within a common framework, with internally consistent paths for central economic variables. The system can also be used for analysing alternative risk scenarios for macroeconomic developments. A common database and infrastructure simplify cooperation between NBFS and NBMP. The system does not include explicit channels for the repercussive effects of the variables in the financial stability satellite on the core model or other satellites.[15] Results from the financial stability satellite are nevertheless used as input for the qualitative analyses of the household and corporate sectors, and may thus have repercussive effects on macroeconomic estimates.

Chart 2 Forcasting and policy analysis system



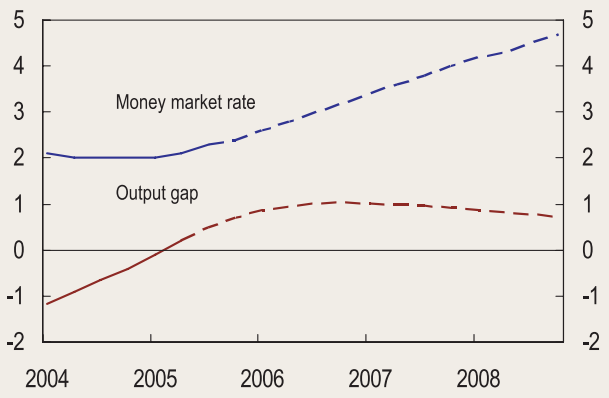
[14] For a more detailed account of the FPAS, see Qvigstad (2005).

[15] In addition, NBFS uses a small-scale estimated aggregated model to capture the effects of the financial sector on the rest of the economy. When different monetary policy strategies are to be evaluated in the light of the financial stability outlook, such effects may be important.

Chart 3 shows the projections for money market rates and the output gap through the forecast period in *Inflation Report* 3/05. Chart 4 shows projections for developments in house prices and household debt, which are based on the projections for interest rates and other macroeconomic variables upon which the report is based. A gradual rise in interest rates contributes to curbing the rise in house prices and debt growth after a while. It is important to bear in mind that models are uncertain, and that the estimates must be interpreted with caution.

In NBFS's input into the monetary policy strategy, macroanalyses are used as a basis for evaluating the outlook for the financial position of households and the enterprise sector. A development that strengthens their financial position will reduce banks' credit risk, and thereby improve the financial stability outlook. The consequences of various interest rate paths are analysed in order to identify the monetary policy that best safeguards financial stability. The interests of the household and enterprise sectors may be in conflict, as illustrated by developments in the Norwegian economy in recent years. Norway has experienced a period with a strong rise in house prices and household debt growth. An interest rate increase may curb this rise, and thereby reduce the risk of more unstable economic developments in the long term. This will contribute positively to financial stability. On the other hand, a rise in interest rates could lead to an appreciation of the krone, and thereby increase the number of bankruptcies in the enterprise sector. This will contribute negatively to financial stability. In NBFS's advice on monetary policy strategy, these two considerations must therefore be weighed against one another, and the FPAS system is a tool for assisting in this process.

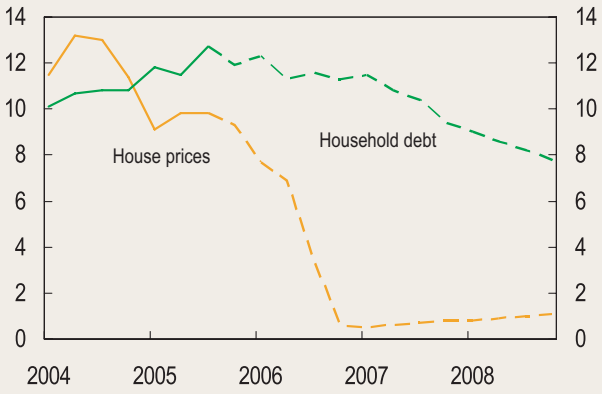
Chart 3 Money market rate and output gap in *Inflation Report* 3/05. 2004 – 2008[1]



[1] Projections from 2005

Source: Norges Bank

Chart 4 Rise in house prices and household debt in *Inflation Report* 3/05. 2003 – 2008[1]



[1] Projections from 2005

Sources: Norwegian Association of Real Estate Agents, Association of Real Estate Agency Firms,,FINN.no, ECON and Norges Bank

Microanalyses

Microanalyses focus on individual households, enterprises and financial institutions.

Norwegian microdata on these areas are of high quality and are relatively easily available, and form a valuable basis for Norges Bank's macroeconomic monitoring and modelling.

Household microdata are based on Statistics Norway's Income Distribution Survey. This survey provides information on the financial position of a representative sample of households. The last survey (2003) covered 17 000 households. This material can be used to reveal how many households have a high debt burden, and the share of total debt that is attributable to these households. We can also determine how financial wealth is distributed, and how many households with a large amount of debt also have small financial buffers. The analyses indicate how vulnerable households are to unexpected negative economic shocks.

In the enterprise sector, the microanalyses are based on accounts figures for all Norwegian limited companies, of which there were 125 000 in 2004. Detailed analyses can therefore be carried out of developments in the profitability and financial strength of various enterprises and industries. A bankruptcy prediction model has also been developed which is estimated on these data.[16] The model provides estimates of the probability of individual limited companies going bankrupt in the course of the next three accounting years. The probability is a function of age, size, industrial characteristics and accounting variables which represent the company's earnings, liquidity and financial strength.[17] By combining the individual bankruptcy probabilities, a measure is obtained of the bankruptcy risk facing the enterprise sector as a whole. Moreover, by multiplying the debt of the individual

[16] For a presentation of the SEBRA model, see Eklund et al. (2001).

[17] Syversten (2004) compares the prediction capability of the SEBRA model with that of Moody's KMV Private Firm model for Norway. He concludes that the precision of SEBRA is just as high as, or somewhat higher than, the precision of the KMV model.

enterprise with the corresponding bankruptcy probability, an estimate can be obtained of banks' risk-weighted debt. This may be an indicator of banks' prospects of losses on loans to enterprises.[18]

Microdata for households and enterprises are used to supplement and add detail to the picture provided by the macroanalyses. If one group of households has the largest share of the debt, while another group has the largest share of the wealth, this may constitute a risk factor for financial stability, even if the overall situation appears satisfactory. Microdata are only published once a year, and are mainly commented upon when new data are available. Nevertheless, the conclusions drawn from the analyses always form a part of the assessments provided in NBFS's interest rate recommendations.

Financial markets

In the input to monetary policy strategy, assessments of financial markets are used to supplement the assessments of the economic balance of risks in the period ahead. It is desirable that prices in financial markets reflect the fundamental value of the underlying object. This will reduce the risk of abrupt, substantial price changes which would affect the value of the financial reserves of financial institutions. A sudden change in prices in the equity market will also affect the earnings of listed companies and households, and thus affect the credit risk of banks. Such shocks may thus threaten financial stability.

Financial markets are particularly volatile and difficult to model. Nevertheless, various indicators may help to reveal valuations and driving forces in markets.[19] The ratio of share prices to expected earnings (P/E) is one such indicator. A rise in share prices may reflect an upward adjustment of expectations regarding companies' future earnings, so that the P/E ratio remains unchanged. A rise in the P/E ratio may be due to a lower risk premium. Sharp upswings in financial markets due to investors' underestimating future risk may give rise to turbulence. The degree of uncertainty associated with future price developments can be measured by means of implied volatility indicators.

In the input to monetary policy strategy, a broad set of valuation indicators for the financial market are discussed, with a view to identifying the potential for substantial price changes in securities markets which may be a source of economic instability. Market expectations regarding future economic developments are also discussed. There is a particular focus on equity markets and the earnings growth and risk premia that are priced into share prices.

Overall assessment

The assessments of financial institutions, enterprises and households, and developments in financial markets are combined to provide a qualitative overall picture of the financial stability outlook. This picture is thoroughly documented in the Financial Stability report. Recommendations are also provided on the interest rate path that will best safeguard financial stability in the period ahead. The insight and recommendations become part of the basis for monetary policy decision-making through the established channels, which ensures a focus on financial stability considerations in monetary policy. In addition, micro- and macro-knowledge of the financial system and the financial position of households and enterprises provide extra information on developments in the Norwegian economy.

Norges Bank's Executive Board receives an overall recommendation concerning the monetary policy strategy and the interest-rate decision. The financial stability outlook is also assessed in the recommendation. The Executive Board's assessments and trade-offs are presented in the discussion of monetary the policy strategy and press releases associated with interest rate decisions. The discussion of the background to the monetary policy strategy adopted on 2 November 2005 includes the statement that "Safeguarding financial stability implies that the interest rate should be brought up towards a more normal level." Following an overall assessment of the economic outlook, the Executive Board concludes that "the interest rate may gradually – in small, not too frequent steps – be brought back towards a more normal level. (…) The interest rate path presented in this Report will provide a reasonable balance between the objective of bringing inflation up to target and the objective of stabilising developments in output and employment, conditional on the information Norges Bank has at this juncture."

4 Conclusion

Financial stability and the interplay between financial stability and monetary policy are relatively new fields of research which are continuously evolving. There is no simple answer to the question of how much emphasis the central bank should place on financial stability considerations in its monetary policy. Nevertheless, both the communication and the monetary policy decisions of central banks indicate that financial stability is in the process of acquiring a more distinct role in monetary policy. This can be ascribed to recognition that financial stability has consequences for future developments in inflation and output. In Norway, financial stability assessments are incorporated in the monetary policy advisory process, as Norges Bank Financial Stability contributes information, forecasts and advice in the process leading to monetary policy decisions.

[18] The results must be interpreted in the light of the strong probability that the banks will recover part of the loan in the event of bankruptcy, so that the losses will be less than indicated by the risk-weighted debt.

[19] For a discussion of the use of financial market indicators, see for example the special feature in the ECB's Financial Stability Review, December 2005. "Measurement challenges in assessing financial stability".

References

Allen, Franklin and Douglas Gale (1999): "Bubbles, crises and policy". *Oxford Review of Economic Policy* no. 15(3), pp. 9-18

Bean, Charles (2003): "Asset Prices, Financial Imbalances and Monetary Policy: Are Inflation Targets Enough?". BIS *Working Paper* no. 140

Bernanke, Ben (2002). "Asset price 'bubbles' and monetary policy". Remarks before the New York Chapter of the National Association of Business Economics, New York, 15 October

Bernanke, Ben and Mark Gertler (2001): "Should Central Banks Respond to Movements in Asset Prices?", *American Economic Review* no. 91, May, pp. 253-57

BIS (2005): *75th Annual Report.* Bank for International Settlements

Bordo, Michael and Olivier Jeanne (2002): "Monetary Policy and Asset Prices: Does 'Benign Neglect' make sense?" *IMF Working Paper* no. 2/225

Borio, Claudio (2005): "Monetary and Financial Stability: so close and yet so far?". *National Institute Economic Review* no. 192, April, pp. 84-101

Borio, Claudio and Philip Lowe (2002): "Asset prices, financial stability and monetary stability: exploring the nexus". BIS *Working Paper* no. 114

Borio, Claudio and Philip Lowe (2004): "Securing sustainable price stability: should credit come back from the wilderness?" *BIS Working Paper* no. 157

Borio, Claudio, Craig Furfine, and Philip Lowe (2001): "Procyclicality of the Financial System and Financial Stability: Issues and Policy Options". In "Marrying the Macro- and Micro-Prudential Dimensions of Financial Stability", *BIS Papers* no. 1, pp.1-57

Eklund, Trond, Kai Larsen and Eivind Bernhardsen (2001): "Model for analysing credit risk in the enterprise sector". *Economic Bulletin* 3/01, Norges Bank

Foot, Michael (2003): "Protecting Financial Stability – How good are we at it?". Speech at the University of Birmingham, 6 June. <http://www.fsa.gov.uk/
Pages/Library/Communication/Speeches/2003/sp133.shtml>

Gjedrem, Svein (2005): "The macroprudential approach to financial stability". *Economic Bulletin* 2/05, Norges Bank

Greenspan, Alan (2005): "Economic Volatility". Speech at a symposium in Jackson Hole, Wyoming, 30 August 2002.
<http://www.federalreserve.gov/boarddocs/speeches/2002/20020830/default.htm>

Gruen David, Michael Plumb and Andrew Stone (2003): "How Should Monetary Policy Respond to Asset-price Bubbles?". Research Discussion Paper 2003-11, Reserve Bank of Australia

Hoggarth, Glenn, Ricardo Reis and Victoria Saporta (2001): "Cost of banking system instability: some empirical evidence". Bank of England Financial Stability Review, Issue 10, Article 5, June

Houben, Aerdt, Jan Kakes and Garry Schinasi (2004): "Toward a Framework for Safeguarding Financial Stability". *IMF Working Paper* no. 101

Jacobsen, Dag Henning and Bjørn E. Naug (2004): "What influences the growth of household debt?" *Economic Bulletin* 3/04 Norges Bank

Jacobsen, Dag Henning and Bjørn E. Naug (2005): "What drives house prices?" *Economic Bulletin* 1/05 Norges Bank

Jacobsen, Dag Henning and Thea Birkeland Kloster (2005): "What influences the number of bankruptcies?". *Economic Bulletin* 4/05. Norges Bank

Kiyotaki, Nobuhiro and John Hardman Moore (1997): "Credit cycles". *Journal of Political Economy* no. 105, pp. 211-48

Moe, Thorvald; Jon Solheim and Bent Vale, ed. (2004): "The Norwegian Banking Crisis". *Norges Bank Occasional Papers* No. 33

Nickell, Stephen (2005): "Practical Issues in UK Monetary Policy, 2000-2005". British Academy Keynes Lecture, 20 September 2005.
<http://www.britac.ac.uk/pubs/src/_pdf/nickell.pdf>

Norges Bank (2005): *Inflation Report* 3/05 with monetary policy assessments

Norges Bank Watch (2005): *An Independent Review of Monetary Policymaking in Norway*. *Norges Bank Watch Report Series* No. 6. Centre for Monetary Economics. BI Norwegian School of Management

Qvigstad, Jan F. (2005a): "Policy-making and models at Norges Bank". *Norges Bank Staff Memo* 2005/5

Schinasi, Garry J. (2004): "Defining Financial Stability". *IMF Working Paper* no.187

Svensson, Lars E. O. (2002): "Monetary Policy and Real Stabilization". In *Rethinking Stabilization Policy, A Symposium Sponsored by the Federal Reserve Bank of Kansas City,* Jackson Hole, Wyoming, 29-31 August 2002, pp. 261-312

Syversten, Bjørne Dyre H. (2004): "How accurate are credit risk models in their predictions concerning Norwegian enterprises?" *Economic Bulletin* 4/04, Norges Bank

Trichet, Jean-Claude (2005). "Asset price bubbles and monetary policy". Mas Lecture, 8 June 2005, Singapore. <http://www.ecb.int/press/key/
date/2005/html/sp050608.en.html>

White, William (2002): "Financial markets: shock absorbers or shock creators?". Speech at the Fourth Geneva Conference on the World Economy, 10 May 2002 <http://www.bis.org/speeches/sp020510.htm>