Amund Holmsen: The theoretical background for macroprudential policy

Speech by Mr Amund Holmsen, Executive Director of Norges Bank (Central Bank of Norway), at Norges Bank's Finance Workshop, Oslo, 9 October 2014.

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This speech does not contain any assessments of the current economic situation or policy-related statements.

Songs about financial stability are few and far between. But Odd Nordstoga has written a song about just that, entitled Lykkeliten (Happy Times)[1]: "Happiness is a time without debt, and reading the end of a book when in bed". That financial stability can be so directly associated with a feeling of happiness is an encouraging point of departure for macroprudential policy.

Nordstoga has actually turned economic theory upside down. Happiness – or utility as we economists tend to call it – is usually associated with consumption. We can borrow to finance consumption. Credit provides an opportunity to advance consumption in time. In that respect, more credit engenders more happiness – not the opposite. But after the goods have been consumed, the loan still exists. Debt creates risk in the financial system. Nordstoga may then prove to be right. A time without debt may be a happier one.

The business of banking is such that it can trigger or amplify an economic downturn. Subsequent to the financial crisis, macroprudential policy has evolved into a supplement to both traditional banking regulation and stabilisation policy. Even if individual banks comply with the applicable regulations, they can engage in herd behaviour and topple both their own business and the rest of the economy.

While traditional banking regulation seeks to restrict an individual bank's risk-taking, macroprudential measures seek to limit the risk that the financial system inflicts on the wider economy. Somewhat simplified, we can say that traditional banking regulation focuses on the risk that goes *into* banks, while macroprudential policy focuses on the risk that comes *out* of banks. The aim is to strengthen the resilience of the financial system and curb financial vulnerabilities that build up in the economy.

Since the establishment of banks some centuries ago, banking regulation has largely been the result of learning by experience. The subject field and reality have evolved hand in hand. The field of economics, like other scientific subjects, has evolved in leaps – or paradigms shifts, and the shifts have often followed in the wake of international economic breakdowns.

The world economic crisis that erupted at the end of the 1920s entailed such a breakdown, and ushered in a paradigm shift in the field of economics and in economic policy. In the US, the Glass-Steagall Act was adopted, separating commercial and investment banking. Deposit insurance was introduced and banks that managed clients' savings were subject to new restrictions. In Norway, the banking crises in the 1920s also prompted the authorities to establish a supervisory framework for commercial banks. The global economic recession paved the way for Keynes' concept of demand management and active government intervention, and the rewriting of textbooks began. After the war, universities produced a new generation of economists filled with ideas of planned economies and regulation.

The interest rate was regulated downwards to promote distributional aims. Other regulations had to be tightened to curb the consequences of distorting market prices. And new

[1] Odd Nordstoga, Lykkeliten from the album November, Universal in 2010.

regulations were then added to alleviate the consequences of the former ones. One regulation came on top of the other and so on. That was the case not only in Norway, but also in many other countries.

Detailed regulation – or fine-tuning – prevailed until the 1970s. The scale of regulation was summarised in a speech by Norges Bank Governor Knut Getz Wold at the Norwegian School of Economics in 1972: "Pursuant to the Act relating to access to regulating monetary and credit conditions of 1965, the King can decide to use a wide spectrum of instruments, such as liquidity reserves, foreign exchange reserves, supplementary reserves, investment obligation, direct lending regulation for certain credit institutions, interest rate caps on loans and issuance control in addition to reporting requirements in certain areas. All these instruments, with the exception of foreign exchange reserves and interest rate caps, have been used or are being used in practice."[2]

Milton Friedman had already predicted five years earlier that this system of managing the economy would collapse because economic policy expectations reduced the scope for pursuing the objective of permanently low unemployment. Friedman proved to be right. The Great Inflation in the 1970s and into the 1980s, combined with an economic management crisis, spurred a new paradigm shift in the field of economics. Regulations and planned economies had to give way to economic thinking guided by the central role of well-functioning markets. The shift also occurred in Norway, but it took somewhat longer than in other countries.

The US banks that had been harnessed in the 1930s were freed up. The trend gradually pervaded Europe. The freeing up of the banking sector was a bit too abrupt for many and banking crises again made their appearance in western countries, not least here in the Nordic countries. The big picture is nonetheless one of a long period of stable growth and low inflation from the 1990s and into the 2000s. At the same time, debt levels rose in many countries.

Deregulation fuelled the flow of capital across borders. Banking regulation had to be coordinated at an international level. The Basel regulatory framework came into place towards the end of the 1980s and represented a breakthrough. But the regulations would prove to be too weak. The next version, Basel II, came in 2004 and was more extensive and refined, but also contained a source of the instability that ensued, at least in Europe. The new framework allowed the denominator of the capital adequacy ratio to shrink if the banks themselves estimated loss probability as low. And they did. The reported capital ratio could rise without increasing the real capital base.

The financial crisis of 2008 was the biggest global economic setback since the 1930s. The banking sector had contributed to fuelling the economic upturn in the years leading up to the crisis, but triggered and amplified the downturn. The financial crisis brought with it a fiscal crisis in many countries, following the exact pattern of earlier crises as described by Reinhart and Rogoff.[3] Euro area GDP is still below the pre-crisis level, and in some countries far below that level.

The course of history should then be that we are now facing a new paradigm shift in the field of economics. So far, the Basel II framework has been replaced by Basel III. That is something, but can hardly be called a paradigm shift. That does not, however, exclude the possibility that greater concepts are in the making. It is food for thought that paradigm shifts –

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[2] Getz Wold, Knut, "Norges Banks samarbeid med statsmaktene, bankene og utlandet" (Norges Bank's cooperation with the government authorities, banks and abroad), Kristofer Lehmkuhl Lecture, 1972.

[3] Reinhart, Carmen M. and Kenneth S. Rogoff, "This Time is Different: Eight Centuries of Financial Folly", Princeton, New Jersey, Princeton University Press 2009.

as described by Thomas Kuhn – do not come about because the defenders of old truths see the light, but rather because they eventually die.[4]

If we take a closer look at the Basel III framework, there are still signs of innovation. Macroprudential policy is a new element of the framework, aimed at containing systemic risk in banks and financial institutions. For the first time, international banking regulation includes requirements grounded in the interplay between the banking sector and the rest of the economy.

We must acknowledge that in the run-up to a financial crisis, the authorities, banks and other economic agents often confuse good times with normal times. Strong growth in real estate prices, credit and tax revenues are perceived as normal. Statistical filtering methods confirm that trend growth is high and that debt growth is sustainable. *This time is different.*

We should know better – because we have fairly extensive knowledge about the economic background leading to financial crises. Analyses, including our own, show that a rapid accumulation of debt almost always precedes a financial crisis. Empirical studies document that high debt growth increases the probability of a crisis and results in a deeper crisis.[5] Debt is at the core of all financial crises. Real estate prices also rise rapidly ahead of a crisis. And it is warning signal when banks have to run to securities markets to finance growth faster than deposits alone allow them to do. Systemic risk increases when imbalances build up. Macroprudential policy is designed to address the systematic features of financial crises, strengthen bank resilience and curb the probability of a crisis. Policy rules and transparency are aimed at avoiding complacency in good times. For example, the Basel III framework specifies that the ratio of credit to GDP should be a conditioning variable when setting the level of the countercyclical capital buffer for banks. The authorities must explain and justify their actions, or their inaction.

If banking regulation is to be effective, not only must we be able to identify imbalances that are building up, but we must also understand the interaction between banks and other economic agents and how systemic risk arises. Lessons from the 1960s and 1970s showed that detailed regulation was not very effective. If we are to intervene in the markets, we must understand how the market functions and why the market cannot be left to its own devices. This provides a basis for regulating markets and insight into regulatory effects.

From the textbooks we are well aware of the ingredients of market failure – or the preconditions for regulating markets. Environmental economics is often used as an example. If a polluter does not bear the costs it inflicts on others, a fee should be imposed on the polluter. The financial system is also exposed to such external effects, which we could perhaps call pollution.

The external effects can be classified by the resulting symptom; excessive risk or excessive credit.

Moral hazard arises when a bank's owners take a big gamble with creditors' money. While the owners might earn a huge profit by investing depositors' savings, depositors will never earn more than the interest on their deposits. As long as the owner takes the upside and the depositor is left with the downside, the bank has an incentive to take greater risk than socially desirable. The distortion is amplified by deposit guarantees or public guarantees. When many banks or big banks play moral hazard, risk in the financial system becomes excessive.

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[4] Thomas Kuhn uses in his book The Structure of Scientific Revolutions (1962) this statement from Max Plancks Scientific Autobiography and Other Papers (1949).

[5] Jorda, Oscar, Moritz Schularick, and Alan M. Taylor, "When Credit Bites Back", Journal of Money, Credit and Banking, 2013, 45, pp 3–28.

Contagion effects between banks can also lead to a vulnerable financial system. Banks lend each other money in interbank markets and can become more closely intertwined than is socially desirable. Losses at one bank can spread through the system, creating a domino effect. The contagion effect can also be indirect. When a bank has to sell assets to redeem debt, the value of equivalent assets of other banks decline, as many experienced during the financial crisis. Individual banks do not have an incentive to take into account a fall in value that it inflicts on its counterparties. Contagion effects are externalities between banks that can lead to a situation where the risk in the financial system becomes greater than the sum of what individual banks believe their risk to be. Over the past years, I have travelled around the country and visited many savings banks in Norway, and without exception they report that risk management has improved considerably at their banks. That is no doubt true, but I cannot without a doubt conclude on that basis that systemic risk has been fully eliminated.

Herd behaviour amplifies risk in the financial system. The more banks' portfolios are alike, the more they are exposed to indirect contagion through a fall in the market value of their portfolios. When banks have similar portfolios, they are also vulnerable to the same external shocks. The banking system as a whole becomes vulnerable. The assumption that banks are intertwined and alike can lead to problems spreading between banks through expectations alone. If depositors see problems in one bank, they will run to their own bank and withdraw their funds before it is too late. Paradoxically, banks become more alike when they apply the same diversification strategies. The savings banks I mentioned may have become more alike if they are using the same risk management systems.

That banks become more similar may also be a sought-after result on the part of banks. They may want to move in herd. When many banks encounter problems at the same time, history shows that the authorities have little recourse other than to help them. In that case, being different brings little gain. When they are all in the same boat, bank executives can easily argue that the problems were not self-inflicted. However, the loss associated with being different is considerable if a bank is alone in encountering problems. The result is that banks engage in herd behaviour and the risk in the financial system becomes excessive.

So far I have spoken about how various forms of market failure in the banking system lead to systemic risk that is higher than what is socially optimal. The level of credit in the economy may also become excessive. The economy then becomes vulnerable. The reason is external effects between banks and the wider economy.

Loan collateral can give rise to such external effects. One reason banks demand collateral is because they do not have complete information about loan applicants. The collateral value is a security and a restriction on the amount that can be borrowed. When overall credit increases, the value of residential and non-residential property rises. Other economic agents experience a rise in their own collateral values, which they then use to borrow more. But rapid credit growth increases the risk of a deep economic downturn. The interaction can go into reverse. Borrowers that have to sell the collateral to deleverage, push down the collateral values of other borrowers. Profitable projects no longer receive funding and the real economic costs may prove substantial. Individual borrowers do not take into account how collateral values will affect other economic agents, or in other words do not take into account the increased systemic risk they inflict on others. The parallel with environmental economics fits well here. When pollution has no cost, it becomes excessive.

In addition to the contagion effects through loan collateral, costs may arise from the market failure that occurs in a crisis when some economic agents deleverage substantially and the real interest rate cannot be set sufficiently low to underpin aggregate demand for goods and services among other economic agents. This theory seems to fit well with the situation in the US and Europe after the financial crisis, where it has been difficult to set policy rates below zero. The result is amplification of the real economic costs associated with a financial crisis. Individual borrowers do not take into account that more credit during good times increases the risk that the economy ends up in such a situation.

The theory can be briefly summarised. The financial system left to its own devices creates excessive debt and excessive risk in upturns and insufficient credit in downturns, giving rise to credit cycles that amplify fluctuations in the economy. That is the background for macroprudential policy of banks. Regulation should be tightened during goods times and relaxed during bad times.

The mechanisms I have described are not new or unfamiliar. But it is only in recent years that researchers have managed to incorporate banking behaviour and economic policy in a dynamic general equilibrium model. These are the same type of models we use in the conduct of monetary policy. These models are also useful for macroprudential policy because we must understand both what is happening in the financial system and the real economy – simultaneously. Important advances have been made in modelling systemic risk and how various instruments can be used. This will help us in our thinking – for example in distinguishing between credit growth that is good and credit growth that is bad. So, even though theory lags behind reality to some extent, it is useful. Perhaps we can draw a parallel to Isaac Newton. The force of gravity as a phenomenon was hardly unknown before he formulated his theories, but they nevertheless proved to be very useful.

A number of macroprudential instruments can be applied. In Norway, Finanstilsynet (Financial Supervisory Authority of Norway) has tightened the guidelines for sound residential mortgage lending. The risk weights for the capital banks must hold for residential mortgage loans have been adjusted upwards. Liquidity buffer requirements for banks are in the pipeline and stable funding and leverage ratio requirements will be introduced. The Ministry of Finance has implemented a systemic risk buffer for banks and the biggest banks are required to hold additional capital. Norges Bank gives advice to the Ministry of Finance on the size of the countercyclical capital buffer for banks.

Many other countries have applied macroprudential measures. The institutional framework and the formulation of the measures vary. Macroprudential policy will by its nature vary across countries. The credit cycle and systemic risk vary over time and across countries. That being the case, neither banks nor other economic agents should be surprised that macroprudential policy in Norway differs from that of surrounding countries.

In many countries, the central bank has a prominent role in macroprudential policy. Monetary policy objectives and macroprudential objectives are not the same. Monetary policy is aimed at securing low and stable inflation and is the first line of defence against cyclical fluctuations. Macroprudential policy is aimed at strengthening the resilience of the financial system and curbing financial vulnerabilities that build up in the economy over time.

Macroprudential policy and monetary policy nevertheless share many features. In Norges Bank, we can build on the experience of monetary policy when providing advice on the size of the countercyclical capital buffer for banks. Both macroprudential policy and monetary policy must be based on an assessment of the state of the Norwegian economy and developments in credit, inflation, output and employment. The buffer works through banks, as does monetary policy. The analysis of the capital buffer therefore has much in common with the analysis we perform when setting the key policy rate. In our monetary policy analysis, we must assess whether output and employment lie above or below their long-term trends; in our financial stability analysis, we must assess whether credit lies above or below its long-term trend. Both policy areas must give weight to the risk of a build-up of financial imbalances.

The communication of monetary policy also offers some lessons. Whereas monetary policy was previously veiled in secrecy, we are now open about our view of the likely future interest rate path. The theoretical foundation for transparency builds on the notion that prices are sticky. Adjusting prices goes smoother if central banks' response pattern is known. Market participants then have a solid basis for forming expectations about future interest rates.

The same line of reasoning may be valid with regard to transparency about our advice on the countercyclical capital buffer. It takes time for banks to adapt to changes in capital

requirements. A predictable policy will facilitate the adjustment process. The size of the friction is difficult to assess. Banks tend to restrict themselves to a very limited number when they present their options for increasing capital ratios. If banks choose to raise new equity capital, the adjustment process will be considerably faster. Irrespectively, we believe that predictability will facilitate adjustment.

> "Happiness is a time without debt
> and reading the end of a book when in bed
> Happiness is ours in a prosperous nation
> with a just appropriate level of inflation» Odd Nordstoga sings on."

Nordstoga reminds us that happiness is not only about little debt, but also the other areas of Norges Bank's operations. A prosperous nation is also dependent on the sound management of the Government Pension Fund Global, which is operated by Norges Bank Investment Management. An appropriate level of inflation is also the objective of monetary policy. We call it inflation targeting. By just appropriate we mean that inflation should be not too high, nor too low.

A balanced economic policy must first be in place in order to provide a sound basis for financial stability. Macroprudential policy can then make an important contribution to reducing the sizeable costs associated with financial crises.