

How can we identify risks to macrostability?

28 February 2011



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The events of recent years have shown how weak the management of systemic risk in the global economy really is. In addition to prudential supervision of individual institutions and market participants, what is desperately needed are policies that address the stability of the system as a whole. The definition and supervision of macrostability have rapidly emerged as one of the key areas of policy development for the future. This work is, however, in its infancy, and the necessary concepts have not yet become firmly established.¹ In this article we consider the principles that should underpin the prudential supervision of macroeconomic imbalances and macrostability so that in future we can identify crises early enough to be able to minimise their spread.

¹ Galati and Moessner (2011).

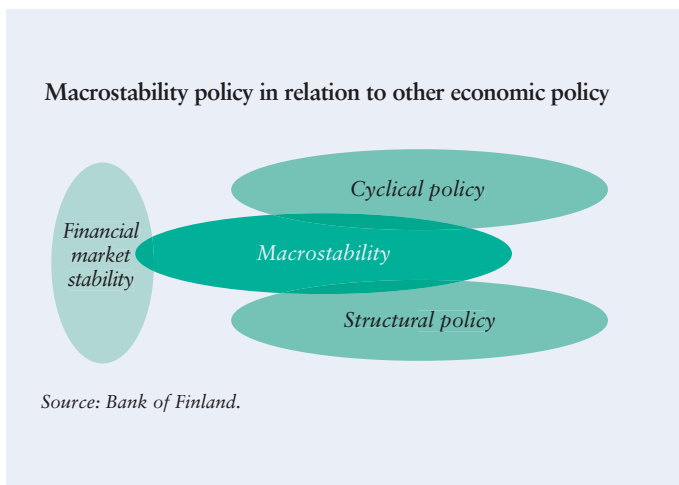
What do we mean by macrostability?

Macro-stability as a concept includes a systemic dimension that brings together areas from both the financial markets and the macroeconomy. The interface between these two fields is rather broad and encompasses a large spread of interactive and feedback mechanisms. As the aim of macrostability oversight is to prevent financial crises from arising and to minimise the GDP losses they cause when they do arise,² it combines elements from both financial market stability oversight and structural and cyclical policy. In terms of both its aims and its means, macrostability policy to some extent overlaps with supervision of the financial markets and structural and cyclical policy, but it also includes its own entirely independent dimension (Chart 1).

One of the key factors that links the financial markets and macroeconomics is financial intermediation. Financial intermediation facilitates economic growth, but it also contributes to nascent exposure mechanisms through its role in debt accumulation. Debt and its accumulation link households and businesses together under the field of macrostability. Again, debt links asset prices under macrostability via stabilisation mechanisms, wealth effects and risk bearing. It is precisely this

² For more on this see the article below by Marko Melolinna and Jukka Vauhkonen.

Chart 1.



breadth and multilayered nature of macrostability and its interactive feedback mechanisms that causes problems for the practical implementation of oversight of macrostability.

Macro-stability is the sum of stable financial markets and a balanced real economy

Although there is no precise, commonly agreed definition of macrostability, from studies on the topic³ we can derive key objectives that define the field. The aim of macrostability is to minimise systemic crises and their macroeconomic costs. As a perspective, the concept of systemicity means an approach that transcends sectoral boundaries, market boundaries and international borders.

This approach seeks to minimise systemic risks by devoting particular attention to transmission channels, joint sensitivities and vulnerabilities, and also to procyclicality in the financial system.⁴ The objectives of macroprudential policy are discussed in more detail below in the article ‘Macroprudential policy and its relationship to monetary policy’.

To achieve the objectives that constitute macrostability, we need an analysis that primarily targets the identification of systemic risks. The analysis should deal not only with present risks, but also look ahead to

potential future risks and their impacts should they materialise.

In the global financial system, the issue of risk dispersal and channels of contagion is largely a matter of preserving confidence. When confidence prevails, the system works and the network disperses risks. When there is a shock and confidence is shaken, the same network becomes a network of contagion channels. Macroprudential supervision’s primary focus should be on preventing the interactive network from becoming a vehicle of contagion.

Stable financial markets and balanced development of the real economy are the two key factors in macrostability, the maintenance of which is also influenced by the interactive feedback mechanisms between these key factors. The expression ‘financial market stability’ is generally used in reference to the objective of securing stable and efficient financial markets. According to the Bank of Finland’s definition, this can be achieved by seeking ‘to identify risks to financial stability and contribute to the prevention of financial crises. As a means of achieving these objectives, the central bank conducts refinancing and payment operations, analyses threats to financial stability, including systemic weaknesses, and participates in systems development.’

The expression ‘real economic imbalances’, meanwhile, is used in

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³ See eg Galati and Moessner (2011).

⁴ Eg Caruana (2010).

Analyses of economic stability have been too optimistic.

reference to both external and internal imbalances in the real economy. The European Commission has described the emergence of the present macroeconomic imbalances in the following terms.⁵ Some euro area member states have accumulated large current account deficits and experienced losses in competitiveness. These trends have been closely associated with inefficient allocation of capital and labour, housing market bubbles and unsustainable levels of debt. In contrast, other member states with external surpluses have capitalised on the competitiveness of their export sectors, although their domestic demand has not kept pace. This has amplified the differences between surplus and deficit countries within the euro area, leading to the present macroeconomic imbalances.

Why the lack of success in anticipating crises?

Each crisis has its own individual features. However, recessions that threaten macrostability always exhibit certain common features that are repeated from one crisis to the next. We seek below to identify those phenomena that occur in almost every crisis. As these phenomena are repetitive, we should develop some basic developmental indicators for them that can provide an analytical foundation for examining macrostability.

⁵ European Commission (2010).

The International Monetary Fund (IMF) has a long history in monitoring imbalances. Why, then, has it not been more successful in anticipating crises or providing advance warning of an impending crisis? A review of IMF publications confirms that since the turn of the millennium the Fund has followed at least partly the correct indicators: general government finances, current accounts and competitiveness have been analysed thoroughly. The weakening of these indicators has also been reflected in the Fund's recommendations and comments. The IMF analyses have, however, been predominantly optimistic. From the 2004–2007 analyses, it is clear the Fund's confidence in market stability and health was strong. Contagion risks from the advanced economies were underestimated. The advanced economies were not included in the Fund's vulnerability exercise introduced after the Asian crisis. Other partial explanations for the Fund's failures since the turn of the millennium include the fact that everyone thought the same way, the analytical tools were inadequate and the Fund's strong faith that a financial crisis in an advanced economy was highly improbable.⁶

The considerable and overlapping influence of asset markets, the banking sector and confidence on the entire economy has

⁶ IEO (2011).

also been relatively overlooked in the IMF's analyses. Private debt has also received relatively little attention. In the case of Ireland, in particular, the country report for 2007 still stated that the risks were small. The banking sector was considered healthy, although the overheating in the housing market was well known. There was, however, little fear of a collapse in the housing market, and the likelihood of problems funnelling through to the rest of the economy was considered small.

In what, with hindsight, can be seen as the IMF's overly optimistic recommendations, the core of the problem stands out clearly: it is very hard to determine when something stops being just a potential risk and becomes an actual problem. In the cases of Spain and Greece, for example, the Fund was long aware of these countries' problems and drew attention to them as risks.

The seeds of a new crisis are always sown during a period of stability

The global economy has experienced numerous inflation crises, foreign exchange crises, banking crises and public finance crises. These have been possible because the signs of their development have not been noticed or have been underestimated.

The negative macroeconomic impacts of a crisis are greater than those of a normal recession. When a crisis hits, it is most often that case

that various imbalances have taken root in the economy that must be unravelled before the economy can return to a stable path. These imbalances will either unravel in an uncontrolled manner via a crisis, or steps can be taken to tackle them in a controlled manner before the crisis hits.

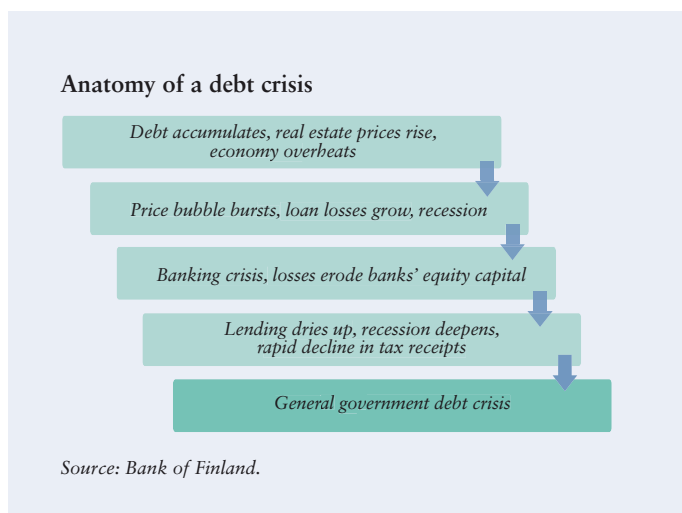
Viewed historically, it is highly unlikely that the crisis in recent years could have been unravelled before it broke. According to Reinhart and Rogoff (2009) it is typical of the period immediately preceding a crisis that people assume things will go differently this time. Crises are expected to hit somewhere else and affect other people. This is, in fact, a core symptom of the growth of macroprudential risks, as its effects are felt simultaneously in many key areas of macrostability. It is a case of overoptimistic expectations regarding emerging trends.

At both micro and macro levels, overoptimistic expectations cause problematic behaviour, as they lead to destabilising allocation decisions in the economy. The typical pre-crisis features in different sectors are as follows.

In the **real economy**, a stable growth environment, moderate inflation and low interest rates create expectations of stable growth. The level of vulnerability is increased if there is an innovation (technical development, financial system innovation, geographical switch in

In a crisis, imbalances that have taken root in the economy unravel in an uncontrolled manner.

Chart 2.



the focus of growth) whose real pace of growth is hard to assess. In a situation of stability, there is a greater likelihood that misplaced expectations will lead to growth potential being overestimated, leading to excessive risks and mistakes in allocating capital.

For **households and businesses**, overoptimistic expectations of a stable economic outlook and economic growth can lead to overly positive estimates of future income flows. This can lead to inefficient investments and overindebtedness, while also fuelling a rise in asset prices.

On the **financial markets**, overoptimistic expectations influence the allocation of capital, the acceptance and pricing of risk and the level of asset prices. Changes on the financial markets impact via financial intermediation both on the real economy and on households and businesses.

Thus, it could be argued that **expectations indicators** occupy a key position among the various indicators of macrostability.

The connection between banking crises and sovereign debt crises

Historically, the highest economic costs are in relation to crises that involve both the financial markets and the real economy at the same time.⁷ Analyses of warning signals have, however, almost without exception concentrated only on the separate analysis of risks to financial market stability or to macroeconomic stability. In previous crises, the **interactive feedback mechanisms** of relevance to macrostability have remained unanalysed. In a global system, the interaction between different actors and the channels of risk communication are many and varied. The force of a crisis is fundamentally influenced by the number of communication channels and feedback mechanisms: the more numerous and varied these channels and mechanisms are, the more channels of contagion and feedback loops there are. This affects the

⁷ Reinhart and Rogoff (2009) have estimated the real economic impacts of serious financial market crises. According to their study, during recessions involving a banking crisis, unemployment rises an average 7%, output contracts an average 9% and the real level of government debt grows exceptionally strongly. According to Reinhart and Rogoff, the growth in the level of government debt is not due solely to the costs of saving the banking system; another highly significant factor is the provision of a fiscal policy stimulus at a time of declining tax revenues.

cumulative force of crises and makes it harder to manage them.

Banking crises often precede a crisis in general government finances and are themselves often preceded by strong growth in private debt (Chart 2).⁸ This phenomenon has been repeated many times in economic history, and it also happened this time.

Private debt growth a special feature of the recent crisis

Growth in private debt is one of the factors whose significance is often underestimated on the eve of a crisis. The trend of debt and its accumulation in an economy links the financial markets and the intermediation of market funding as key factors in macrostability.

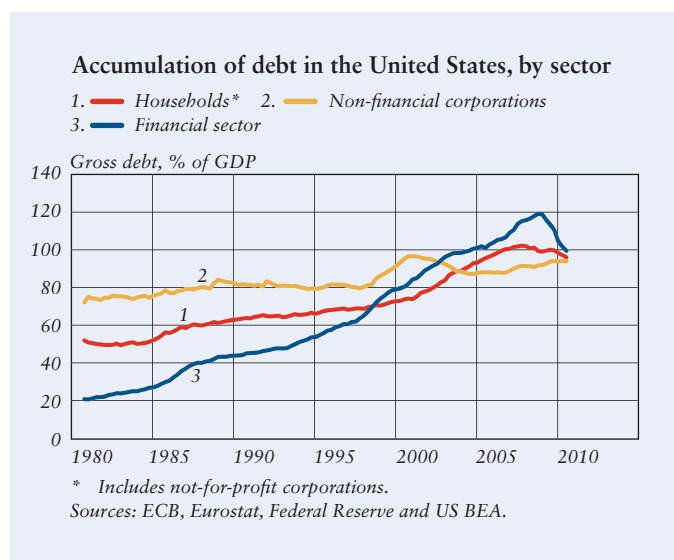
Growth in the level of debt relative to GDP or to disposable income unquestionably increases the vulnerability of the system, and large changes in these ratios are considered to be a sign of disturbance.

Although the fact that excessive indebtedness increases instability is not disputed, there can be a problem in recognising what level of debt is actually excessive, identifying precisely where the debt is and quantifying the attached risks. This was the key problem in the most recent financial market crisis. Securitisation caused a rapid expansion in the amount of liquidity in the

financial system. It also increased the wealth effects on households, as it allowed housing wealth to be transformed into a flow of income to boost consumption. The amount of liquidity in the markets fostered a rapid increase in the debt ratio, which was visible especially as growth in household and financial sector debt.

The key factors that facilitate an increase in the debt ratio are abundant liquidity and a rise in the price of assets eligible as collateral. A rapid rise in real estate prices links via collateral values to a sustained rise in valuations, although the price trend of other assets also has an effect on debt accumulation (or a change in the funding structure). Without exception, behind a growing level of debt there will also always be low interest rates, positive expectations and a plentiful supply of finance.

Chart 3.



⁸ Reinhart and Rogoff (2010).

Banking crises contaminate general government finances through a number of different mechanisms

The connection between the banking crisis and the accumulation of public debt is not limited simply to the costs of guaranteeing loans. Because in many countries the banking system occupies the key role in financial intermediation, its problems lead to a general slowing of growth across the economy as a whole. The channels of contagion are:

1. A banking crisis causes a slowing in the pace of growth in the global economy. In most cases this will hit exports and undermine the ability of the public sector in emerging economies to service their foreign debt.
2. Weak economic growth will often lead to lower prices for raw materials, and this, too, will weaken the ability of emerging economies to service their debt.
3. A banking crisis will often lead to a rapid drying up of lending, or at the least to a tightening of the terms and conditions of lending.
4. A banking crisis will often contaminate other sectors of the economy, as it will reduce willingness to take risks throughout the economy.
5. A banking crisis in one country can also reduce the level of confidence in another.⁹

⁹ Eg Reinhart and Rogoff (2009).

6. The considerable GDP share of the banking sector can, in the worst case, pose an immediate threat to the entire national economy.

Of the above list, only number 2 is of no significance in the present crisis. All the other channels of contagion can also cause a sovereign debt crisis in an advanced economy if there is a sufficiently severe loss of confidence.

Possible portents of a dangerous twin crisis

History has shown that it is surprisingly difficult to anticipate a crisis. Even when the portents of a developing crisis are recognised, for some reason the risks are most often underestimated.

In order to nip crises in the bud, the processes of monitoring, supervision and decision-making have to be in good order. It is essential to monitor the correct issues, and this must be coupled with an ability to recognise an imbalanced situation as it arises. The policy toolbox must also be in good order, and we must be able to take determined steps in good time.

Based on the lessons of history, the portents of a twin banking sector and public finance crisis threatening the balanced development of the economy are often visible well in advance. Oversight of macrostability should therefore focus on development trends that indicate the growing probability of a twin crisis. The indicators to be

developed for this work should be able to reveal the cumulative development of imbalances.

The symptoms of **unsustainable general government debt** are the following factors, which have preceded several of the crises seen to date:

1. A disproportionately large foreign debt. A large foreign debt ratio exposes a government to refinancing risks such as changes in risk tolerance and financing costs.
2. Short funding maturity. The simultaneous maturity of several loans makes a government vulnerable to financial disturbances. The significance of public debt maturity to crises in general government finances has not yet been researched to any significant degree, because short-term public debt is a relatively new phenomenon (began to emerge in the 1970s and 1980s).
3. A banking crisis. During a banking crisis developed economies are vulnerable to the crisis spreading via the capital markets and international trade.
4. Strongly correlated capital movements. This means the flow of capital into the same investments in the same geographical areas.
5. The potential materialisation of 'hidden debt', eg via a variety of guarantee arrangements.¹⁰

¹⁰ For more on this topic see eg Reinhart and Rogoff (2010).

6. An enhanced role for new and strongly growing emerging economies participating in the international financial system.

Meanwhile, the key early warning signals¹¹ of **banking crises** include the following trends common to many crises:

1. Real exchange rates ('competitiveness indicators').
2. Real housing prices.
3. Short-term capital inflows relative to GDP.
4. Current account relative to investments.
5. Share prices.

For many of these variables it is possible to calculate threshold values

¹¹ Reinhart and Rogoff (2009); Goldstein, Kaminsky and Reinhart (2000).

Chart 4.

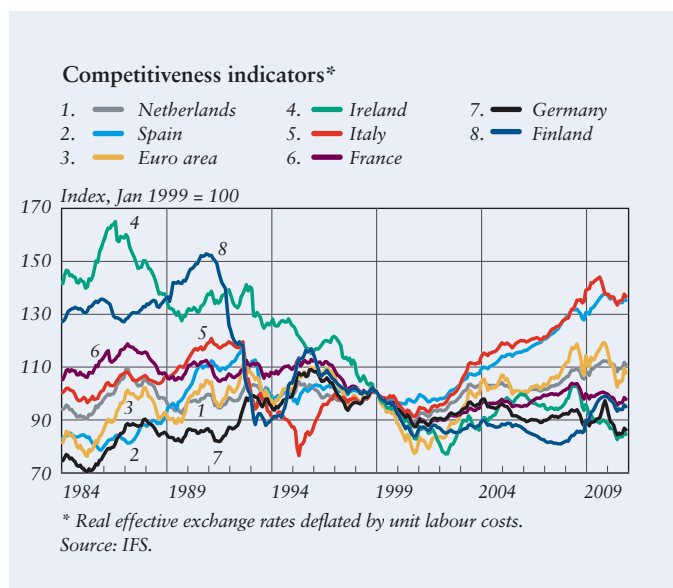
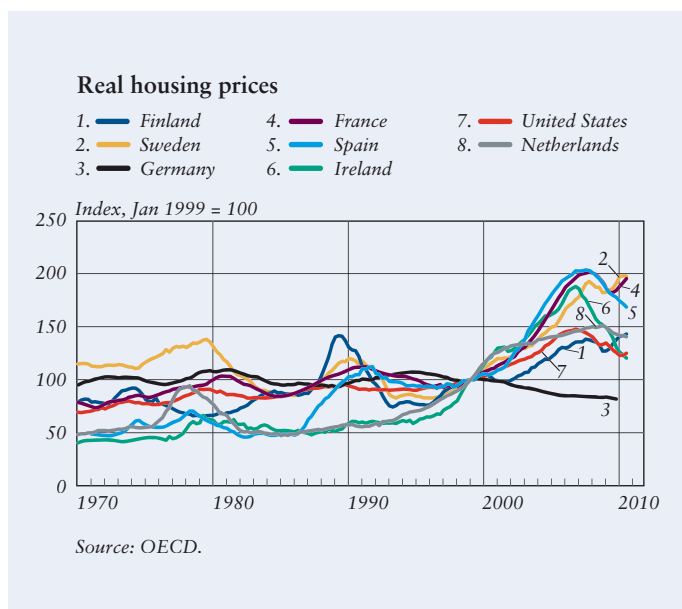


Chart 5.



and examine how well the variables have foreshadowed banking and exchange rate crises. Early warning signals are calculated as deviations from historical averages. Threshold values are selected in such a way that the noise-to-signal ratio is reduced to a minimum, i.e. the proportion of noise in the early warning signal is minimised.

A list of early warning signals of exchange rate crises would look almost identical to the above list. The most important signal is real exchange rates. The second most important signal is a banking crisis, followed by current account relative to GDP, share prices, exports and the M2 monetary aggregate relative to international reserves.

A substantial and sustained decline in a country's real exchange

rate relative to its competitors has in previous crises been the best indicator that the components of a crisis are gathering. Competitiveness and changes thereto indicate the level of sustainable debt accumulation. A decline in competitiveness reduces the long-term optimal level of debt accumulation.

A strong, sustained increase in real housing prices has historically been a good indicator of a build-up of imbalances and increased probability of a crisis. Housing prices have developed in a very similar manner in both advanced and emerging economies that have drifted into a banking crisis, although almost all other financial sector variables have been more volatile in emerging economies (Chart 5).

Short-term capital inflows have also historically indicated emerging crises. The same applies to the current account trend relative to investments and a strong bull market in share prices.

With the contemporary global financial system, however, it is worth asking if the monitoring of financial intermediation should be extended beyond the banking sector to a greater degree than is the case at present. It can hardly be appropriate to monitor only the connection between the real economy and banking crises, when financial intermediation in the economy happens to an increasing degree via market-based channels. Banks' own funding is also

A good indicator of an impending crisis should have the following properties.

Indicators as alarm signals

The primary function of an indicator is to serve as an alarm signal and tool. Their fundamental purpose can be considered to be to indicate the existence of problems and draw attention to specific phenomena in good time. Once this is done, the phenomenon will always need to be analysed in more depth to enable identification of what the problem really is.

Indicators should reveal slow changes

Indicators should also be able to reveal slow changes in fundamental structures that could pose a risk to stability if taken too far. Any exceptionally large change relative to the historical record, or exceptional acceleration in the pace of growth or increase in a ratio, should awaken interest in studying the phenomenon more closely.

Indicators should be future-oriented

Developing genuinely future-oriented indicators presents something of a problem. From the perspective of macroprudential supervision, this is just the type of indicator that is needed, as the resulting alarm signals

would come early enough to give supervisors and regulators time to respond and to find a solution to the problem using the tools at their disposal. The problem with the currently available tools is the relative slowness of impact that can be achieved with them.

Indicators can be simple

The more complicated an indicator is, the more sensitive it will be to various changes, eg in parameters. Therefore, very simple indicators can give information on the development of risks of equal value to that provided by more structurally complex indicators.

Indicators should be easy to interpret: threshold values

The use of indicators is, however, not without its problems. The first of these relates to how to interpret the signals they give. We must decide when an indicator can be considered to be giving an alarm signal that necessitates action. For this, we need to decide on threshold values. This involves a number of challenges. One is where the threshold should be located. Should we seek to minimise the chance that an imbalance will go unnoticed, or would placing the threshold too low lead to the indicator sounding

the alarm too easily, thereby undermining confidence in the value of the signal? On the other hand, how damaging would it be if the threshold values were set too high, whereby the indicators would not provide frequent enough signals of developing risks? Another key question is whether the same threshold values can be applied in all countries without adjustment or whether each country should have its own threshold values. Moreover, should the selected values change over time?

Indicators should facilitate the next step: action

There are also problems in deciding what action should be taken. When the alarm bells ring, how should we react? It is scarcely necessary to take major steps in response to a single alarm signal, but there could be cause to analyse some particular issue a bit more closely. On the other hand, simultaneous alarms from a number of different signals would be strong evidence of accumulating risks and could even indicate the need for a rapid response. We can, however, consider the basic purpose of an indicator to be drawing attention to a possible need for more precise analysis.

strongly reliant on market funding rather than the traditional process of funding via the accumulation of deposits. Country-specific differences in financial intermediation must, however, be taken into account when considering channels of contagion. In future, the proportion and significance of market funding in financial intermediation could grow further if banking regulation is further tightened.

Desirable properties of crisis indicators

The elaboration of indicators that can warn of impending crises is challenging, because every crisis brings about a reorientation of research into such indicators. The components of the latest crisis always become the primary focus of research. In developing indicators, however, it is worth remembering the entire history of crises and all the possible causes of instability. Some of these may reoccur if the regulatory framework is not updated to restrict the possibility of crises.

It is important to select for monitoring variables whose trends have previously been observed to foreshadow instability. The trouble is that, although the problems may appear to be the same, their form could have changed. Although it is known that debt cycles are dangerous, securitisation was not immediately recognised as fostering a strong debt cycle. We need to be able

to recognise the precise form the factor of instability takes.

Every crisis and every period of economic history also has its own individual features. It is vital to get a sense of these contemporary forces of change, which means the set of indicators must have a certain flexibility vis-à-vis new phenomena. Because the indicators change with time, the structure of monitoring is vital. It is important how the indicators are monitored – not just what is monitored.

Monitoring of macrostability in practice

The practical work of monitoring macrostability requires a monitoring system that extends over aspects of both the macroeconomy and the financial markets as well as their transmission channels. Based on an examination of factors that threaten macrostability, we can name three key components in the development of instability: overoptimistic expectations, debt accumulation and changes in financial intermediation.

Each of these components incorporates both real economic variables and indicators that can be classed as belonging to the field of the financial markets (Chart 6).

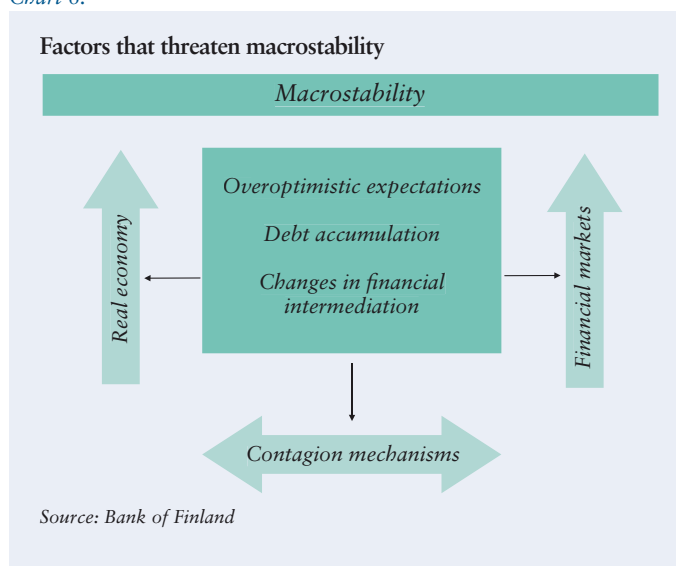
Bad allocation decisions by economic agents are always based on **overoptimistic expectations**. Such decisions destabilise the structures of the economy in terms of both the real economy and the financial markets.

Indicators of overoptimistic expectations exist in both the real economy and the financial markets. In the real economy, overoptimistic expectations can lead to excessive debt burdens relative to income or yield prospects and inflated expectations regarding asset price rises, which in turn contribute to the development of asset price bubbles. Overoptimistic expectations can also lead to substantial pay rises and undermine competitiveness if they are not matched by improvements in productivity. On the financial markets, meanwhile, overoptimistic expectations are reflected in the low pricing of risk and abundant liquidity.

Quantifying overoptimistic expectations presents a challenge. They always arise against a background of stable development in the real economy, which in itself already justifies such things as low prices for credit risk and confidence in economic growth. The difficult question is when precisely the expectations become overoptimistic and unsustainable.

Under the earlier approach, identifying the expansive cycle behind a financial crisis would have been extremely difficult, as the real economy and the financial markets were examined in isolation. When monitoring macrostability, it is possible to combine the messages of the separate indicators, and this can aid interpretation. The risk of expansive expectations grows when a

Chart 6.



stable real economic environment coincides with sustained exceptionally positive private sector expectations, low pricing of risk on the financial markets, strongly rising asset prices and abundant liquidity. The greater the number of indicators suggesting an unstable trajectory, the more likely it is that expectations have entered an expansive state that threatens macrostability.

Another factor harmful to macrostability is **debt accumulation**. As is well known, uncontrolled growth in private sector debt is a contributory factor in the genesis of banking crises, which in turn undermine the stability of the public finances. Factors that contribute to debt accumulation, besides overoptimistic expectations, include wealth effects, rising collateral values and abundant liquidity.

The third key factor with implications for macrostability is **financial intermediation**. Both positive and negative financial intermediation shocks reduce macrostability. Excessive liquidity and credit expansion overheat asset prices, cause inappropriate allocation of resources, lead to uncontrolled growth in debt and can very easily cause distortions in the pricing of risk. Negative shocks hamper refinancing and funding procurement and lead to a contraction in credit market activities, thereby undermining the prospects for real economic growth.

In a bank-centred financial system in which the alternative sources of funding are limited, instability in the banking system inflicts a strong shock on the real economy via the process of financial intermediation. Instability and shocks in the real economy, in turn, impact

strongly on the financial markets, eg affecting debt-servicing ability via their impacts on employment and collateral values. The changes in risk profiles caused by recession and shocks will, for their part, have a comprehensive impact on the intermediation and channelling of finance in the economy.

Keywords: macrostability, macroeconomic imbalance, overoptimistic expectations, debt accumulation

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