

#### Box 12 A framework for macro-prudential analysis

Financial stability is an important economic policy objective.<sup>1</sup> Financial stability analysis requires a broad view on the economic environment. It draws upon a large pool of data in order to measure the condition of the macroeconomy and its sub-sectors, and it links this with information on the functioning of financial markets and the financial condition of key financial intermediaries. A comprehensive framework is especially necessary as the weight attributed to different sources of financial instability changes and new sources may appear over time.

Macro-prudential analysis is an integral part of the broader framework of financial stability analysis.<sup>2</sup> Owing to the importance of banks in financial intermediation as well as the special role they play in the economy, a large share of the data and tools developed for financial stability analysis aims at measuring the ability of the banking system to withstand shocks.

The origin of the macro-prudential analysis frameworks lies in the series of costly banking crises in the 1980s and 1990s which revealed the need to augment existing micro-prudential frameworks by analysing the conditions and risk absorption capacity of the banking system. The term “macro-prudential” was developed to distinguish this new approach from the assessment of individual institutions. The purpose of macro-prudential analysis is to assess the stability of

1 See Schinasi, G.J. (2004), “*Private Finance and Public Policy*”, IMF Working Paper 04/120.

2 See Houben, A., J. Kakes and G.J. Schinasi (2004), “*Towards a framework for financial stability*”, De Nederlandsche Bank Occasional Studies, Vol.2 (1).

the financial system as a whole and to describe the threats to it that could result from common shocks that affect either many or all financial institutions at the same time, or from shocks that could spread from one institution to another.

The need to set up a formalised macro-prudential framework is reflected in the increasing work in this field undertaken by several international institutions. As a general feature, most frameworks aim at identifying potential indicators that should be monitored on a regular basis.

### **Macro-prudential analysis of the ESCB**

The European System of Central Banks (ESCB) has been carrying out a macro-prudential analysis on a regular basis since 2000.<sup>3</sup> The analytical framework has been reflected in the statistical production of macro-prudential indicators. The set of macro-prudential indicators consists of data that gauge macroeconomic developments and forecasts, the financial conditions of households and firms, the conditions of other financial institutions, general financial market developments and the current financial condition of the banking sector. In addition, it includes a number of forward-looking indicators. These indicators aim at capturing the expected outlook for the key institutions over short to medium-term horizons using high-frequency market data. One example of such an indicator is the distance-to-default of the banking sector.

In the ESCB framework, indicators that measure actual and/or potential sources of risk are identified. These risks could stem from real economic developments such as deteriorating balance sheet conditions of households or non-financial firms. Sources of risk can also materialise through turbulent conditions in financial markets, triggered by, for instance, the failure of a major counterparty, or owing to fragilities in financial system infrastructures. After assessing the possible external macroeconomic sources of risk or financial market-related fragilities, the current condition of the banking system is assessed using backward-looking indicators – usually based on income statements and balance sheets – in order to gauge the ability of the sector to absorb disturbances. The aim of this exercise is also to capture possible internal fragilities in the sector such as inadequate provisioning, low capital buffers or otherwise insufficient risk management.

Next, the likelihood of instability in the banking sector is assessed by identifying the likely transmission channels of possible shocks to the banking system through banks' exposures to credit, interest rate, foreign exchange and other market risks. In addition, contagion risk is assessed, as there can be a risk that a liquidity crisis in one financial market segment can spread to another, thereby threatening the stability of the financial system. To take into account the fact that some plausible shocks may have a low probability of striking the financial system but would entail a high cost if they were to do so, stress testing of the impact of some plausible events on the banking sector may also be performed. Finally, banking systems' ability to withstand these shocks is assessed by estimating the expected size of the losses generated under a shock and comparing these to existing buffers in the system. Analysis of forward-looking market indicators can complement these assessments.

<sup>3</sup> See Mörttinen, L., P. Poloni, P. Sandars and J. Vesala, "The analysis of banking sector health using macro-prudential indicators", ECB Occasional Papers, forthcoming.

### **IMF Financial Soundness Indicators**

The IMF has set up a framework for macro-prudential analysis to analyse the soundness of the financial system.<sup>4</sup> As a part of this, a set of Financial Soundness Indicators has been identified for periodic monitoring to serve as a tool for enhancing crisis prevention. The set consists of a core set and an encouraged set of indicators. The core set of indicators focuses on generally available indicators relating to banks, whereas the encouraged set primarily focuses on conditions in the non-bank financial sector, the corporate and household sectors, and real estate markets. Most of the indicators identified by the IMF match the macro-prudential indicators set up by the ESCB. The IMF indicators focus on capturing the shock-absorbing buffers in the banking sector on the basis of, among other aspects, banks' capital adequacy.

<sup>4</sup> See V. Sundararajan et al. (2002), "Financial soundness indicators: analytical aspects and country practices", IMF Occasional Paper 212.