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## GLOBAL FINANCIAL STABILITY ASSESSMENT

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### Abstract

This paper focuses on issues of assessment of financial system stability. The author presents basic definition and meaning of financial stability as well as the concept of instability. However, special attention is paid to measurement of financial stability. In this paper is presented the possibility of assessment of financial stability through the prism of the instability which is easier to define and quantify. In many cases, the methods for measuring and assessing financial stability rely on finding and measuring the potential sources of risk that are the causes of instability. An example such approach could be method of assessing the global financial stability which was developed by the International Monetary Fund (IMF) Staff. It take into account four broad risks and two underlying conditions as the underlying factors affecting financial stability. The result of this method is the Global Financial Stability Map GFSM, which shows (graphical representation) the periodic improvement or deterioration in global financial stability through the prism of these factors.

**Keywords:** Financial Stability, Measurement of Financial Stability, Global Financial Stability Assessment

**JEL Classification:** G15, G17

### 1. INTRODUCTION

Financial stability plays a crucial role in the financial system and the economy as a whole. Financial stability allows for efficient operating of financial markets and their bodies and institutions as well as non-financial units such as households, enterprises, and governments. So, over the last decade it has become a national and international policy

priority. It is also one of the most important goals of central banks policy and the object of the interest of many different institutions, organizations and even individuals.

Financial stability is the subject of research and analysis of many researchers, scientists, economists, who try both to define financial stability, as well as create methods of its measurement and evaluation.

The financial stability may be considered and analyzed in different dimensions - local, regional and global. Taking into account globalization processes on financial markets more and more important is issue of global financial stability. It can be starting point for many other (more detailed) analyzes and comparisons.

The theoretical aim of this paper is to present the basic principles for the assessment of financial stability at the local, regional and global levels and to identify the main trends in developing concepts of financial stability measurement. However, empirical goal is to present the assessment global financial stability in the years 2006 -2013.

## **2. THE CONCEPT AND MEANING OF FINANCIAL STABILITY**

Financial system stability is a situation when the financial system performs its functions in a continuous and efficient way, even when unexpected and adverse disturbances occur on a significant scale. The stability of the financial system is a necessary condition for ensuring sustainable economic growth (NBP (2012), p.1). The financial system is also characterised as stable in the absence of excessive volatility, stress or crisis. The European Central Bank defines the financial stability as a condition in which the financial system is capable of withstanding financial shocks (ECB (2007)). The financial system can be said to be stable if :

1. The financial system is able to transfer resources from savers to investors efficiently and smoothly.
2. Financial risks are assessed and priced reasonably and accurately and also are relatively well managed.
3. The financial system can comfortably absorb financial and real economic surprises and shocks.

If any or a combination of these features is not being maintained, then it is possible that the financial system is becoming less stable.

The safeguarding of financial stability requires identifying the main sources of risk and vulnerability as well as conditions considered as relevant for financial stability. The continuous monitoring of each factor is necessary to have a chance for keeping financial stability at the required level.

It should be noted, that very often, during the attempts of defining of financial stability, there is an explicit reference to financial instability, the converse of stability, which is more concrete and observable (Borio, Drehmann, 2009, p.4). Financial instability refers to conditions in financial markets that harm, or can harm, a performance of economy. It can be the result of shocks that appear or are transmitted throughout that system. Such instability can deteriorate the financial condition households, enterprises, and governments to the degree that the flow of finance to them becomes restricted. It can also disrupt the of the functioning particular financial institutions and markets so that they are less able to continue financing the rest of the economy.

Characteristics of the concept of financial instability requires the presentation of its sources. The immediate sources of financial instability seem to be events in broadly defined financial markets. They often originate in the banking system as a consequence of the over-extension of credit by financial institutions to particular economy sectors. Threats to financial stability may also come from such diverse sources as the default on the bonds of a distant government, the insolvency of a small, specialized, foreign exchange bank and even computer breakdown at a major bank (Chant, 2003, p.4).

There are many organizations that deal with financial stability. They observe and lead research in area factors affecting financial stability in particular countries, regions and in the whole world. They also publish reports containing results of financial stability assessment. The main organization working to foster and secure global financial stability is International Monetary Fund (IMF). The IMF is an organization of 188 countries which acts as a lender of last resort for members in financial difficult situations, e.g. currency crisis, problems in balance of payment and debt default. The example of such organization acting at regional level is the European Financial Stability Facility (EFSF), The EFSF is an organization whose objective is to keep financial stability of Europe's monetary union by providing financial help

to euro area Member States if necessary. The EFSF acting on the basis of a precautionary programme is authorised to issue bonds or other debt instruments on the market to raise the funds which are necessary to provide loans to countries with financial troubles and intervene in the debt primary market and in the debt secondary markets. This organization can also finance recapitalisations of financial institutions through loans to governments including in non-programme countries. At national level, the problem of financial stability is monitored by central banks and the other financial authorities. These types of organizations as well as governments of many countries act to keep financial stability (limit financial instability) through a variety of policy measures, for example:

- preventive anticipatory measures taken to reduce the potential costs of financial instability by making it less likely to occur or by minimizing the damage when it does occur (e.g. legal infrastructure applying to financial transactions, the framework of prudential regulation of banks and other financial institutions, risk-proofing measures for the clearing and settlement arrangements for payments, securities, and foreign exchange, and the provision of deposit insurance).
- measures that can be taken to reverse or overcome the severity of financial instability as it is occurring (e.g. possibility of the central bank as a lender-of-last-resort )
- remedial measures that are used to minimize the costs arising from financial instability after it has occurred (e.g. restructuring distressed institutions through recapitalization, mergers with healthy institutions, and the installation of new management).

Maintaining stability and efforts to achieve it requires continuous assessment and measurement of financial stability.

### **3. MEASURE OF FINANCIAL STABILITY**

Financial stability is difficult to define and even more difficult to measure. Measure of financial stability is not easy because of interdependence and the complex and complicated interactions of different elements of the financial system among themselves.

In literature there are many suggestions how to measure financial stability by using different parameters which describe particular segments in terms of their financial and economical situation, possibilities of development as well as signalling properties. These sectors and their parameters are (Gadanecz, Jayaram, 2009, p.367-370):

1. Real Economy - GDP growth, Fiscal position of government, Inflation
2. Corporate sector - Total debt to equity, Earnings to interest and principal expenses, Net foreign exchange, exposure to equity, Corporate defaults
3. Household sector - Household assets (financial, real estate), Household debt, Household income (labour income, savings income), Household consumption, Household debt service and principal payments
4. External sector - exchange rates (Real), Foreign exchange reserves, Current account/capital flows, Maturity/currency mismatches,
5. Financial sector - Monetary aggregates, interest rates (real), Growth in bank credit, Bank leverage ratios, Capital adequacy, Liquidity ratio, Standalone bank credit ratings, Sectoral/regional concentration,
6. Financial markets - Change in Equity Indices, Corporate bond spreads, Market liquidity, Volatility, House prices.

But it should be noted, that described parameters are not very widespread in practice.

Central banks have their own tools and techniques to analyze financial stability, which can help them in assessing and quantifying the impact of particular risks in the given sectors - mainly banking sector, household sectors and ultimately on the real economy. The example could be EBC, which as it's the case at other central banks, analyzing financial stability uses three elements (Vítor Constâncio, 2012, p.):

- an identification of important sources of system-wide vulnerabilities based on an analysis of the individual and collective strength of the different parts of the financial system – institutions, markets and infrastructures;
- an assessment of the potential costs – to the real economy (cost of future financial distress). The costs of financial instability result from the negative impact that an unstable financial sector has on the economy, because functions performed by the financial sector are key importance to economic growth.
- methodologies examining network fragilities (instability) and contagion.

ECB use two sets of indicators to identification of potential sources of systemic risk:

- indicators characterise the current state of financial stress in the financial system, which are like “thermometers” of the level of tension in the financial system.
- early warning indicators, which strive to predict vulnerable states of the financial system.

Many central banks have attempted to capture conditions of financial stability through various indicators of financial system vulnerabilities. Most analysts and researchers concentrate on the risks and vulnerabilities of the financial system as these are relatively easy to understand and quantify. Central banks and the other institutions using some key indicators try to assess the risk to financial stability. Results of these research are published by these institutions financial stability reports.

It should be stressed, that there are ongoing efforts to develop synthetic indices to capture multidimensional economic phenomena, like financial stability, which are difficult to quantify. These type of measures are derived from aggregating different basic indicators and they could indicate the degree of financial fragility (V. C. Morris, 2011, p.38-42). The approach to the development of these measures of financial system stability has changed over the years from micro-prudential to macro-prudential dimensions of financial stability. The focus has shifted to a broader system-wide assessment of risks to the financial markets, institutions and infrastructure. In addition, due to the progressive globalization more and more attention is paid to global financial stability.

#### **4. THE IMF GLOBAL FINANCIAL STABILITY ASSESSMENT IN THE YEAR 2006-2013**

Since April 2007 the IMF has been publishing Global Financial Stability Map in their Global Financial Stability Reports. The map presents a schematic presentation of key underlying conditions and risk factors that affect stability. This map shows how global financial stability has changed. The overall level of risk (Macroeconomic Risks, Emergin Market Risks, Credit Risks, Market and Liquidity Risks) and conditions (Monetary and Financial, Risk appetite) are reflected in the positioning of points along the axis (ten points scale). The map shows how each element supports or undermines financial stability at present

and at the previous time. This map is prepared two times a year: in September or October and in April. The closer to the center, the lower the risk or better conditions.

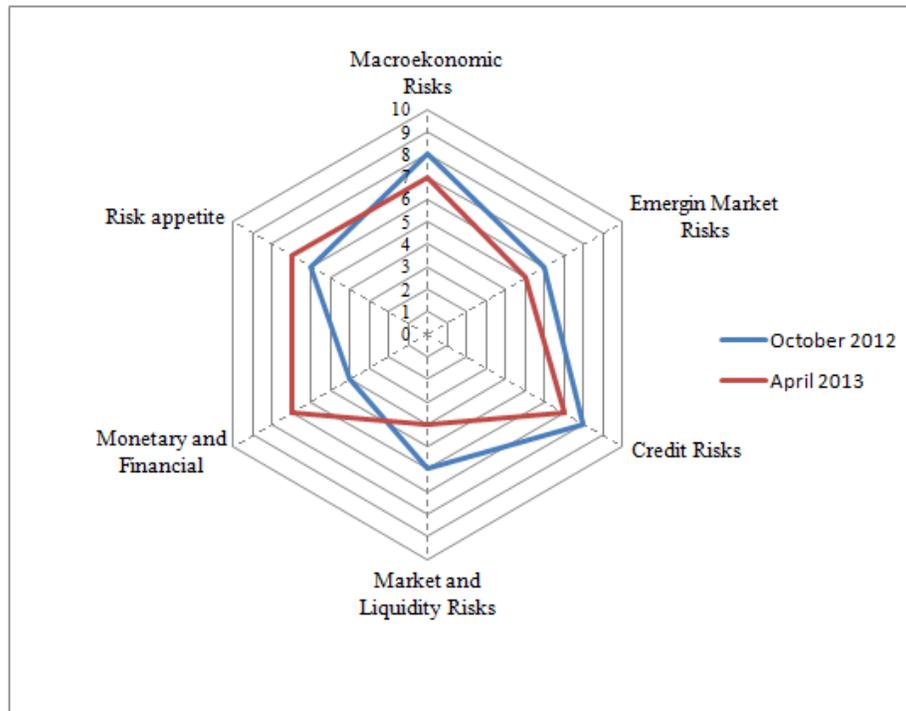


Figure 1. The example of last Global Financial Stability Map (April 2013)  
Source: IMF

Each parameter presented in the Figure 1. is effect of using special methodology developed by IMF staff. Table 1. presents the main indicators which are taken into account during the process of creation of Global Financial Stability Map.

Table 1. Global Financial Stability Map Indicators

<b>Macroeconomic Risks</b>	<b>Economic activity</b>	<b>Inflation</b>	<b>Sovereign credit</b>	
	World economic outlook global growth risk G3 confidence indices OECD lend indicators Implied global trade growth	Global breakeven inflation rates	Mature market sovereign CDS spread	
<b>Emergin Market Risks</b>	<b>Sovereigns</b>	<b>Private sector credit growth</b>	<b>Inflation</b>	<b>Corporate sector</b>
	Fundamental EMBIG spread Sovereign credit quality	GDP- weighed credit growth	Median inflation volatility	Corporate spreads
<b>Credit Risks</b>	<b>Corporate sector</b>	<b>banking sector</b>	<b>household sector</b>	
	Global corporate bond index spread  Credit quality composition of corporate bond index Speculative-grade corporate default rate forecast	Banking stability index	Consumer and mortgage loan delinquencies  Hausehold balance stress test	
<b>Market and Liquidity Risks</b>	<b>Market positioning</b>	<b>Equity valuations</b>	<b>Volatilities</b>	<b>Funding and liquidity</b>
	Hedge funds estimated leverage Net noncommercial position in futures markets Common component of asset return	World implied equity risk premia	Composite volatility measure	Funding and market liquidity index
<b>Monetary and Financial Conditions</b>	<b>Monetary condition</b>	<b>Financial conditions</b>	<b>Lending conditions</b>	
	G7 real short rates, G3 excess liquidity Growth in ofical reserves	Financial conditions index	G3 lending conditions	
<b>Risk appetite</b>	<b>Investor survey</b>	<b>Institutional allocations</b>	<b>Emergin market assets</b>	<b>Relative assets return</b>
	Merill Lynch investor risk appetite survey	State Street investor confidence index	Emergin markets fund flows	global risk appetite indeks

Source: IMF

Macroeconomic risks influence financial stability through three elements:

- The global growth outlook
- Inflation/deflation risk which can destabilize fixed-income markets and impact real debt burdens
- Sovereign risk which results from unsustainable fiscal paths, and rising debt burdens and which can be a significant source of financial instability.

Emerging market risks are closely related to macroeconomic risks but they focus only on emerging markets. Indicators of credit risks attempt to capture risks in both banking and nonbanking systems (in household sector and corporate sector). Risks financial institutions are assessed using models based on credit derivatives while pressures in corporate debt markets are captured using delinquency rates and expected defaults. Market risks assess the potential for increased pricing risks, while liquidity risks measure stress in funding markets and liquidity conditions in secondary markets. Monetary and financial conditions show the stance of monetary policy and the cost and availability of funding. Measures include short-term real interest rates, as well as estimates of excess liquidity. The willingness and capacity of banks to lend is a key input as is the market-based indicator of financial conditions. Risk appetite measures the investors willingness to increase the risk.

The concepts used to describe risks and conditions in Global Financial Stability Map are broad and can serve as a starting point for a deeper analysis of risks that influence global financial stability. The analysis of Global Financial Stability Maps parameters from several periods allows also to analyze financial stability in longer periods, to find some trends and interdependence among factors affecting financial stability.

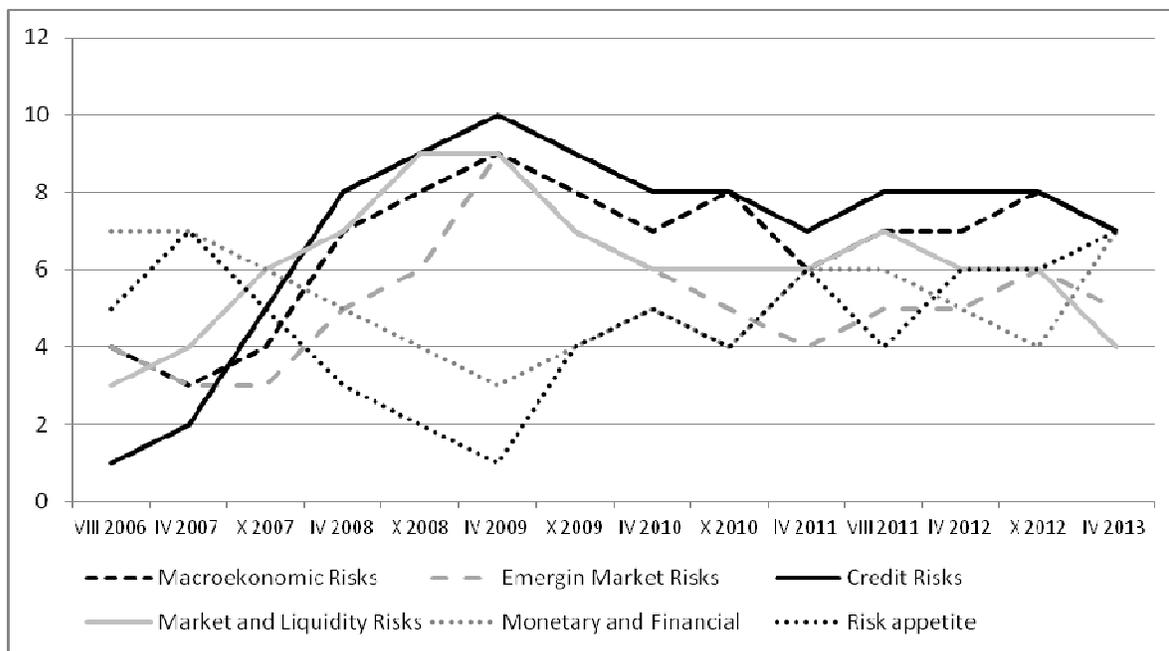


Figure 2. Elements of Global Financial Stability Maps (in ten points scale) in the years of 2006-2013

Source: Own work on the basis of IMF Data

During the period of prosperity in the global economy and at financial markets tend to increase their value (positive tendency for financial stability). The deterioration in conditions in the global economy and financial markets resulted in the reversal of positive four broad risks tend towards low values, while two underlying conditions trends in all types of risks and conditions. However, a deeper analysis of each of the elements of the Map indicates the detail reasons of financial stability threat in subsequent years.

In the analyzed period, the greatest threats to financial stability emerged in 2009. In that year were the adverse feedback between the financial system and the real economy. Also systemic risks were high. The situation in the global financial system was very serious, because the crisis broadened to households, corporations, and the banking sectors in both advanced and emerging market countries. There was a decrease of economic activity that caused negative results for banks' balance sheets. Credit growth was slowing. Emerging market risks have risen significantly and capital flows to them was reduced. Through the few years commercial real estate markets were continuing to weaken in both the United States and Europe. The global credit crisis seemed to be deep and long lasting.

In the next years the situation was improving. There was a slow recovery. Risks to global financial stability have declined especially due to improvements in macroeconomic performance in advanced economies and good prospects for emerging markets. Is it an ongoing process? Crisis risks in many national markets have subsided, but weaknesses remain. Still, structural weaknesses and vulnerabilities in the euro area pose significant downside risks for financial stability as well as banking system risks still remain high.

## **7. CONCLUSION**

Today's world requires special kind of management of financial stability at each level: national, regional and global. Most analyses in the area of financial stability are realized through the prism of various kinds of risks and threats in financial systems. This way, the first stage of this management should be identification and assessment - the main sources of risk and vulnerability. All participants of financial systems should be aware of these risks.

In the world should be developed and implemented the idea of standardized measures and assessment of financial stability. This would facilitate the comparison of financial stability on local markets and also would help to streamline and improve the measurement of global financial stability. Assessment of global financial stability may provide a basis for further analysis and comparisons at a regional and national level. Thus, concept of assessment of global financial stability should be also continued and improved.

The presented assessment of global financial stability in the years of 2006-2013, demonstrates its usefulness in many areas. This assessment can be used by financial market participants (investors) to make investment decisions. It is also an important source of information for non-financial businesses and households with respect to their financial security. Pointing to the most serious threat (risks), it also gives important signals for governments and other regulatory bodies. They should use their competences to conduct proper policy for financial stability.

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