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Financial Stability in Open Markets Economy: Holistic Approach in Economic Policy

Abstract: Financial stability does not have a precise definition. A stable financial system implies a state of institutional, regulatory and market environment in which accurate information is available and there are effective mechanisms to adequately assess the risk in transactions. In such a business environment, the return corresponds to the undertaken risk and risks are properly identified and addressed. Systemic risk includes all risks in the market, acting alone or in interaction with the associated risks that can jeopardize stability of the system. Macroprudential policy is a policy that is focused on threats that create such systemic risk. An appropriate choice of macroeconomic and prudential policies is oriented towards the creation of a financial system that is able to absorb serious disorders, prevent accumulation of systemic risk and perform basic functions of a safe and sound financial market. In open economies, especially those with the choice of more fixed exchange rate policy framework such as euroisation, monetary policy instruments become less effective and limited. In such policy constellation, financial stability maintainance becomes more important and targets not only the monetary policy but also overall macroeconomic policy stance. The institutional and legal framework aims to create the financial infrastructure that would initiate preventive actions to preserve stability and prevent the development of a crisis as the last phase of instability development.

Key Words: Financial stability, systemic risk, monetary policy, open economy, euroisation

Jel code: E44, E52, F41 and F65

1. Introduction

Financial stability is an expression that has been used more frequently in recent times, particularly over the past two decades and during the impact of the 2007 global financial and economic crisis. Orientation of monetary authorities towards financial stability points to a wider approach in policy pursuit than the political orientation towards price stability. At the same time, with the acceptance of this orientation, the cooperation and coordination with other policy-makers, supervisors and regulators has been gaining importance and aiming at systemic tackling of this broadly set objective. What affects today's national stability in the world of open borders and free financial flows is the influence of international factors, the synchronization of business cycles and a high level of cross-border flows. The state of a national economic stability cannot be viewed separately from these influences. Despite the fact that national policies, particularly in the area of financial market supervision, are governed by the principle of sovereignty in decision-making, the standardization of regulations and coordination with institutions of other countries and international bodies has been gaining importance. Also, the new financial infrastructure, particularly in Europe, shaped in the form of the *European System of Financial Supervision* (ESFS) and enforced by the *European Systemic Risk Board* (ESRB), affects a greater level of harmonization and standardization of regulatory and institutional framework on connected markets.

2. Financial stability - definition

There is no common and generally accepted definition of financial stability. This approach assumes normal functioning of a financial market to perform its functions efficiently. The orientation towards financial stability in the economic and/or monetary policy places a large emphasis on timely detection of potential threats in a financial system, in order to prevent the expanding and deepening of these vulnerabilities as early as possible. Otherwise, if this stability threshold is exceeded, the next step must be the strengthening of safeguard mechanisms (usually buffers in the form of additional capital, excess liquidity or loan loss provisions) to prevent further compromising of stability of an undertaking. The absence of the regulator's actions during these steps can bring a high level of instability in the system and develop disturbances in the market functioning which, in turn, call for the management of financial flows that now have the elements of a financial crisis. The approach is a systemic one, suggesting that the orientation is not solely on the movement of individual indicators or on individual market participants, but it also examines long-term development trends and potential

market disruptions and turmoil as well as their mutual influence. All these elements affect the accumulation of systemic risk. Systemic risk represents the overall risk in the market and reflects the state of financial stability. It consists of all relevant risks that exist in the economic system. This risk, when inadequately assessed and controlled and/or not covered by safeguard mechanisms, can jeopardize financial stability. Therefore, it shows that systemic risk, which often results from a high and inadequate lending activity accompanied by other anomalies that emerge in the financial market, could threaten financial stability.

Orientation of authorities towards financial stability affects the creation of policy objectives which both directly and indirectly summarize risks encountered by institutional and economic entities in a country in their operations. The current economic crisis shows that almost all economies have experienced increased uncertainty, a crisis and a potential deepening thereof exactly because the institutional arrangement has not created an environment that would include all necessary elements of proper management of financial risks. In this regard, the quality of financial information based on which risk management is performed is of great importance. Quality information is the prerequisite for an efficient market functioning and adequate risk assessment that would allow risk management. Based on complete and accurate information, creditors are given the opportunity to properly assess profitability of projects and identify risk levels of their investments, and thus ensure efficient allocation of financial assets. Timely reaction to the signs that could compromise rationality and efficiency in decision-making would lead to the optimized assets utilization. A financial system that contains these elements can be characterized as stable and as such it will adequately perform the function of capital allocation of overall resources and risk dispersion.

When it comes to defining financial stability, a couple of approaches have singled out. Mishkin (1999) analyzes financial stability from the perspective of changes resulting from the process of globalization and integration of financial markets. The author points out that the elements of financial stability determine the level of institutional development of an economy in terms of open borders. Schinassy (2004) emphasizes the internal nature of financial turbulences and describes financial stability as resilience to shocks originating within the financial system. Allen and Wood (2006) approach financial stability by defining it as robustness of the financial system to external shocks. They believe that financial stability is the ability of the system to absorb market disruptions resulting from international factors and that this process of adjustment does not create increased instability and disrupt the functioning of the market. Borio and Drehman (2009) observe the system's vulnerability to financial turbulence not only under the influence of smaller shocks but they also consider the phase of preventive actions where

they include activities and analysis of the situation in normal times and under the shock. These authors exclude the impact of a strong and a big shock in this approach.

A broader approach to this notion gives Corbo (2010) that says that stability of a financial system means a condition in which there are preventive mechanisms to avoid the failure of the majority of financial institutions and the ability of the financial system to absorb serious disturbances which may endanger the performance of the core functions of financial markets. The author here considers the following as the main functions of intermediation in the financial system: payments, savings, credit allocation, efforts to monitor the service users, as well as risk mitigation and provision of liquidity services.

The general approach to this issue and the defining of the situation allow for two principal approaches to the definition of financial stability: through the prism of instability and, in contrast, defining stability.

The first approach used by Ferguson (2002) embarks on the definition of financial stability as the opposite to financial instability. Financial instability is a situation where deficient market resources, which exceed deficiencies in normal circumstances, lead to enormous withdrawal of participants from financial intermediation. This consequently results in a significant loss of confidence in the ability of the financial system to protect the interests of all market participants that in turn leads to the eroding potential of the economy.

Another approach that was accepted by the European Central Bank and which was elaborated by Padoa-Schioppa (2002), starts from a positive approach to defining financial stability. He explains that financial stability is a condition in which the financial system - consisting of financial intermediaries, the market and the market infrastructure - is capable to withstand shocks and resolve financial imbalances, thereby mitigating the likelihood of disturbances in the process of financial intermediation. He makes reference to disorders that are severe enough to significantly impair the allocation of savings to profitable investment opportunities.

Regardless of the approach, the analysis of financial stability should aim at identifying threats to financial system stability from all segments in order to allow undisturbed economic activity. Adequate policy actions and prioritization are made on the basis of analysis of the state of economic activity, particularly with regard to the financial market functioning. Policies aimed at preserving stability focus on timely strengthening of resilience and creation of buffers to mitigate

instabilities. Incorporation of prevention and crisis actions in the financial market means that the situation in the economy is analyzed in all circumstances: in normal times, in the conditions of exposure to growing uncertainties, and in crisis times. Priorities serving as the basis for the analysis of the financial system vulnerabilities are influencing factors that could induce a liquidity or a solvency crisis, reinforce macroeconomic shocks and their transmission from the real to the financial sector flows and vice versa.

This approach aims at early prevention of negative phenomena in order to put an end to the expanding and deepening of these vulnerabilities. Otherwise, once this threshold of stability is exceeded, the next step must be the strengthening of safeguards (usually buffers in the form of additional capital, excess liquidity or loan loss provisions) so that the financial system stability is not further compromised. The lack of built-in control mechanisms in the regulatory system, as a form of preventive acting, could bring a high level of uncertainty in the financial system. Due to strong interconnections among market participants, gaps in the preventive stage spill over among them, leading to overreacting and mistrust. This condition is characterized by a high degree of instability and this state of the economy requires management, but now with the elements of a financial crisis. The approach is systemic, suggesting that the orientation is not only towards considering the movement of individual indicators or individual market participants, but also on examining the overall impact and long-term growth trend. Also, this approach involves consideration of potential dysfunctions and gaps in the institutional and regulatory solutions, a distorted pricing mechanism, the occurrence of misinformation and wrong signals in the market, as well as mutual influence of these anomalies. All these factors affect the accumulation of systemic risk.

3. Systemic risk as the main source of vulnerability creation in the financial system of an open economy

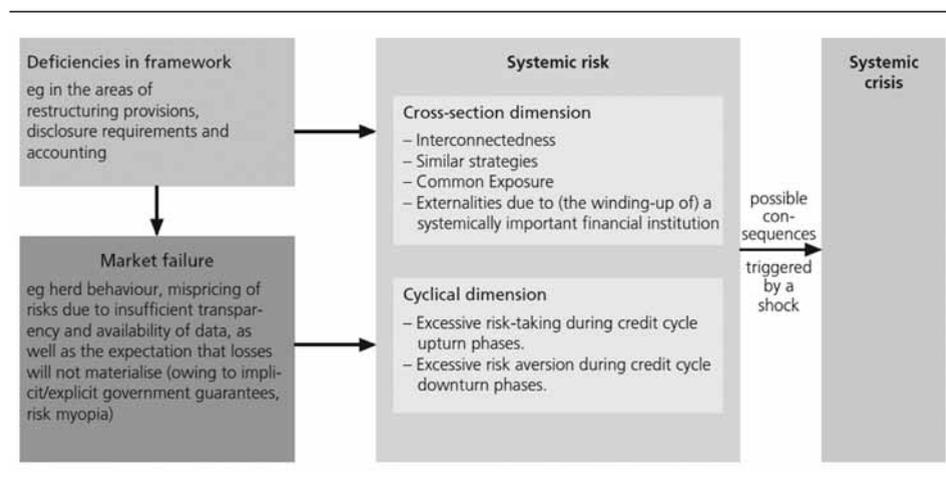
Systemic risk represents overall risk in the market and reflects the state of financial stability. It consists of all relevant risks that exist in the economic system: risks in the banking / financial system, fiscal area, the real economy and their interaction as well. Systemic risk may arise from two sources of defects. The Deutsche Bundesbank (2011, p. 76) indicates that these are: (1) deficiencies or gaps in the regulatory framework, and (2) deficiencies and/or anomalies in the market itself. When we speak of deficiencies or legal gaps in the regulatory framework, we imply mechanisms that regulate business risks, provide proper

assessment and protection against risk materialization, and reduce the asymmetry in information with a view to efficient management and risk dispersion.

Institutional and regulatory gaps or inconsistencies in the implementation of regulations may occur in the areas such as: (1) criteria for the classification of assets and the consequent loss provisioning, (2) requirements for business restructuring, (3) transparency requirements in data and information disclosures. Also, deficiencies or improper application of accounting standards may reduce the quality of risk assessment.

Another source of systemic risk is market failure. The most serious financial stability disturbances can derive from herd behaviour of market participants, inadequate assessment and mispricing of risks due to reduced business transparency and data availability. Also, market rationality is reduced by reckless behaviour and expectations of participants that the risk will not materialise because of “overestimation” of certain types of security such as direct government guarantees or various forms of government or other guarantee schemes.

Figure 1: Systemic risk



Source: Deutsche Bundesbank, Financial Stability Review (2011, p. 76)

What is important to emphasize when analysing systemic risk is the existence of two dimensions: a cross-section dimension and a cyclical dimension, as indicated in the Financial Stability Review of the Deutsche (2011 p. 76). The first dimension arises from interconnections between market participants, similar strategies and/or exposure to potential negative events. When there is greater and

stronger interconnection between market participants, the spillover of negative effects will also be greater and stronger. To that end, in small and open economies where there is a large overlapping of business and property of market participants, this may lead to a domino effect. This effect implies that instability of one entity can threaten stability of other entities, as a chain reaction. This phenomenon is extremely important in the identification of systemically important financial institutions, especially today when we have extensive multinational financial conglomerates that can significantly disturb not only the stability of one market, but also induce a domino effect. The other dimension that could emphasize and deepen the impact of certain events in the market is the cyclical component. If there is a cyclic behaviour of market participants, it can reduce rationality and efficiency, that is, lead to excessive risk-taking in boom times and to reduction or even suspension of lending activity in times of contraction. Both phenomena cause problems in the real economy. Monitoring and analysis of both these channels of influence as well as of anomalies that may occur due to regulatory or market failures provide a framework for pursuing policy aimed at systemic risk. This policy strives to prevent the accumulation of inefficiencies that could lead to a crisis. It is this framework that becomes the domain of policy action with broader macro approach and which transfers the focus from the level of supervision and control of one participant or one objective to the entire system. This policy is nowadays most commonly referred to as macroprudential policy.

4. Macroprudential policy – policy of preserving financial stability

Same as with financial stability, there is no precise definition of macroprudential policy either.

The IMF (2011, p.3) points out that macroprudential policy becomes a policy that seeks to limit the spread of systemic risk or financial risk in the system. Its task is to identify all potential vulnerabilities that could increase systemic risk and thus jeopardize financial stability. Consequently, systemic risk is the backbone of macroprudential policy actions. Institutional solution regarding the selection of the competent institutions to be entrusted with the preservation of financial stability depends on the country. Several solutions in selecting the institution responsible for the implementation of this policy single out:

- A central bank;
- A separate body, usually a Financial Stability Council;
- Ministry of Finance;
- Banking sector supervisor/regulator;

- Integrated supervisors/regulators of the financial system and other types of institutions.

The IMF (2011) conducted a study on institutional arrangements regarding the choice of institutions for the implementation of macroprudential policy and came to a conclusion that this mandate is often given to central banks, then there is the institutional arrangement in the form of a financial stability council, as well as a local standing group responsible for the identification of systemic risk that could jeopardize stability.

Regardless of the jurisdiction over this policy, it implies a broader approach rather than a mere focus by one institution. The approach is systemic with a view to considering the development of all potential threats.

In 2010, the competent authorities in Montenegro opted for the solution in the form of setting up a separate body, the Financial Stability Council¹ that is to deal with the preservation of the financial system stability.

4.1. Macroprudential framework elements

In addition to the development of negative effects generated from the local environment, international developments have become more important. International impact of economic trends becomes an additional factor affecting the stability of economy in open and integrated markets so transmission channels must also be included in the analyses and identification of potential threats and detection of systemic events that can disturb stability. The figure 2 provides an overview of macroprudential policy framework and policy interdependence.

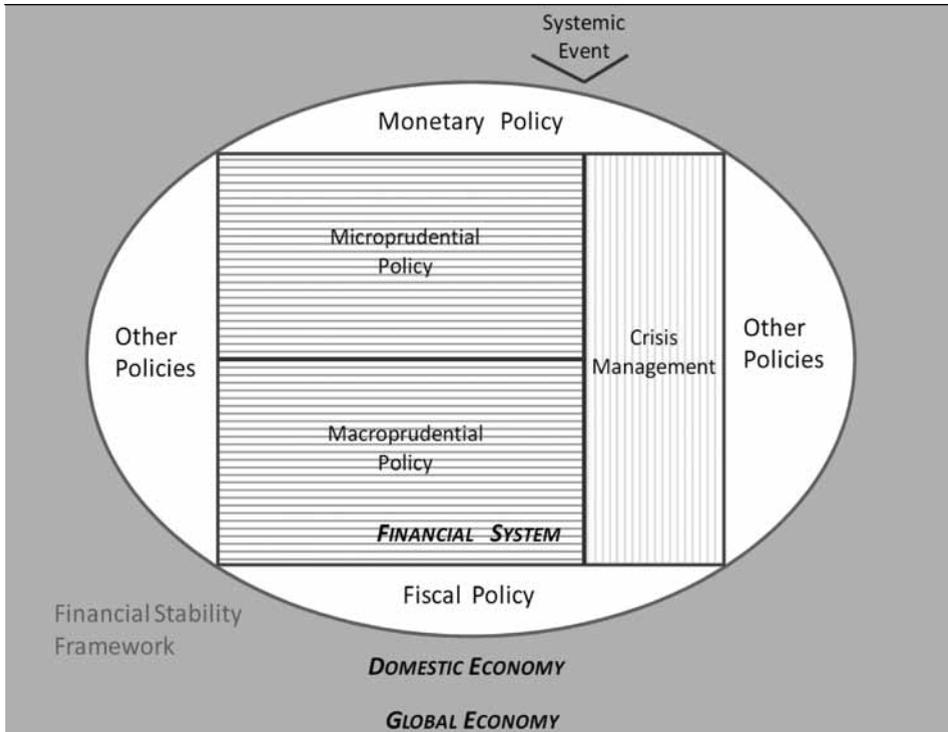
Spillover of uncertainties and inadequate assessment of financial, market and operational risks in all of these areas can jeopardize financial stability. Also, political stability strongly determines the level of financial stability.

Accordingly, the policy of preserving financial stability should be considered from several aspects in order to identify all sources of its endangerment. The focus of economic policy must be placed on this objective. This approach entails a continuous monitoring of all changes in economic factors and the creation of such solutions that will encourage a sound and safe financial sector, a competitive business environment stimulating growth of the economy and living standard.

¹ Financial Stability Council Law (OGM 44/10)

Only under such conditions can a by long-term economic, and consequently financial, stability be achieved.

Figure 2: Macroprudential framework: policy interdependence



Source: IMF (2011, p. 9)

Monitoring and analysis of financial stability include assessing macroeconomic conditions, soundness of financial institutions and markets, the financial system oversight, and the financial infrastructure in order to identify vulnerabilities in the financial system and the manner of managing thereof. The course of action and policy are subject to the assessment of the level of financial stability. Actions to be taken in order to preserve stability can remain at the level of prevention (when the financial system is within stability limits), necessitate corrective actions (when approaching instability) or enter into crisis resolution process (when the system is faced with instability and requires a prompt and concerted action aimed at eliminating the causes of instability).

When seen from this angle, macroprudential policy has been increasingly equated with the policy of creation and preservation of financial stability. This is a policy of regulation of the financial market participants from macro perspective of the system and/or observing the system as a whole. Micro supervision remains at the level of individual participants. The accent is put on standards and prudential measures to create an incentive and stable environment to allow for smooth mediation and protection of market participants.

4.2. Scope and elements of macroprudential policy

A definition with all elements of macroprudential policy was given in the 2011 Progress Report by three institutions relevant for this topic: the International Monetary Fund (IMF), the Bank for International Settlements (BIS) and the Financial Stability Board (FSB). At the meeting of the G20 ministers of finance and central bank governors, macroprudential policy was defined as a policy aimed at curbing systemic risk or systemic risk contagion, thus limiting the frequency of deviations in providing key financial services which may have serious consequences on real economy. According to this definition, there are two key elements:

- First, prevention of financial imbalances build-up and building defence mechanisms for taking rapid and severe action in preventing the development of recessive influences and effects on real economy.
- Second, identification and addressing common exposures, risk concentration, linkages and interdependencies of individual events which may be the source of contagion and spillover. The focus is put on anything that may jeopardise the functioning of the system as a whole.

The same report provides an overview of available tools used by the authorities in charge of preservation of financial stability. This mandate is usually the responsibility of central banks, given the function they perform in the area of supervision and the regulation of banking system and lately more and more of the entire financial system. According to institutions in charge of the implementation of recommendations of the Report, unlike microprudential policy, macroprudential policy is pursued at the system level via the following available alternatives:

1. Tools used to address potential threats to financial stability arising from excessive credit expansion, asset price boom particularly in the real estate market. The following tools may be used for diminishing this threat: dynamic capital buffers, dynamic provisions, prescribing the ratio between

- debt value and collateral, i.e. loan-to-value ratio (LTV) and the ratio between the annuity and income of the client, i.e. debt service-to-income ratio (DTI). To the same end, these tools may also be used for prescribing limitations as well as the terms and conditions for sources of financing and wholesale funding by prescribing the debt ceiling and structure.
2. Tools used to address the key linkages and potential channels of transmission of risk into systemic risk is connected with the leverage level, such as capital tools and/or maturity mismatch of funds and sources, through prescribing market and funding liquidity tools in the area of liquidity facilities. These tools can be used in cases of potential excessive borrowing and high exposure of financial institutions in the internal market, e.g. by prescribing risk weights or limits on intra-financial system exposures.
 3. Tools used to mitigate structural vulnerabilities in the system and limit instability spillover in time of negative shocks, by increasing the additional loan loss provision requirements as well as by creating individual exit strategies and support tools at the micro level.

Since macroprudential policy addresses the preservation i.e. achievement of the appropriate level of financial stability, macroeconomic stability is indirectly generated at the same time. This stability provides positive background for economic growth. This policy focuses on minimising and managing systemic risk, crisis prevention, and maintaining the stability of flows. Capital flows liberalisation has created a potential spillover threat of the so called financial market defects jeopardising financial stability that is generated from the external environment. Negative external effects are tied to the transmission of unreliable signals from one market to another. The asymmetry occurring against the background of poor national economic performance leads to the spillover among the property owners in the market, creating extra profits for participants but also inefficiencies in the system as a whole. The results of these transactions most often lead to the creation of asset price bubbles and asset price inflation, as explained by Schwartz (2002). This results in zero sum game. Unlike the weights of goods included in the calculation of the retail price basket which is taken as an indicator of price stability, the share of growth in these prices is not adequately represented in the calculation of the financial stability aggregates. The recent crisis which resulted in the global economic crisis pointed to inefficiency arising from the asymmetry between the information and asset price inflation.

The spillover of assets into the hands of a small number of market participants leads to a more prominent social disintegration, as often criticized by anti-globalists.

The domino effect of instabilities and uncertainties in the economy that is transferred from the financial to other sectors of the economy (real, fiscal, external) in turn affects the financial sphere. Via the communicating vessels system this instability is potentially transferred further beyond boundaries of national economy, especially in case of countries closely tied by trade and/or doing business in the region, causing even more uncertainty by destabilising the region. The appearance of inefficiencies in the financial market resulting in asymmetric information indicates that market prices hold excess information in comparison to the values of those prices arising from economic fundamentals. The consequential speculative transactions contribute to inadequate allocation of risk and capital, which further create imbalances and result in inefficiencies.

From the aspect of financial stability and its balance with policy efficiency, it is important to separate events which are kept at the noise level, i.e. at the level of turbulences which have no influence on the system stability, from signals which have a stronger influence and generate the vulnerability spiral. Efficient supervision becomes increasingly important at this stage of prevention. Crisis development prevention and uncertainty diminishing mechanisms must be developed within the regulatory framework and be parts of the institutional solution for the moderation of systemic risk. The first line of defence is when the institutions in charge of oversight and supervision of those market segments take timely actions to prevent the development of instabilities. In addition to the institutional guarantee which determines the breakpoint at which these events become signals, the level of market perfection and the quality of information additionally contribute to the development of the situation. Regulatory bodies, each within their authority and powers, should create such legal frameworks and introduce policies aimed at minimising the uncontrolled risk effects and minimising the information asymmetry. Mechanisms of control of all risks in the system, e.g. legal, financial and operational risks should aim at early warning in order to keep the system within the stability boundaries, aiming to prevent autonomous development of negative occurrences in the system. Otherwise, individual risks could escalate and threaten the entire system stability.

4.3. Macroprudential policy framework

In open economies, the financial system is also open and internationally integrated. This feature of the system requires an open approach to financial stability policymaking. Hannoun (2010) claims that the approach to financial stability needs to be based on the following elements: the system-wide focus, countercy-

clical policies, symmetric policies, policy based on a long time horizon, and the holistic approach.

The experience of the liquidity crisis has shown that the approach to financial stability needs to be wider, i.e. system-wide, in order to continually analyse the interaction of trends and influencing factors appearing and developing in the financial and real sectors. Supervision of individual institutions is very important for creating a unit comprised of good components. However, we must not disregard the system as a single framework, given that the crisis has shown that interaction and spillover are exactly the factors to be analysed in order to get a broader perspective of the sources and potential threats to stability of the financial and economic systems of the country.

Economic policies, created by competent authorities need to be countercyclical. This will ensure timely building up of buffers in good times that can be run down in bad times. In addition, this potentially strengthens the resilience and reduces the possibility of uncontrolled adjustments at times of stress. Simultaneously, economic policies must be symmetric, responding during the boom and bust phases of financial and business cycles. Reaction symmetry, i.e. timely measures implemented during the boom phase is of key importance for the prevention of bubbles. Inertia in prevention and leaning on policy of dealing with the consequences of (potential) bubble bursting are very expensive solutions.

Approach to policymaking should be based on a long time horizon. This is the only approach that takes into account lags between the build-up of systemic risk and its materialisation. Certain risks which need not be of systemic importance in the short-term may become triggers of financial instability over time and through continual build-up.

In addition, the approach to policies should be holistic, reflecting the need to harmonise the objectives with other policies. Macroprudential, monetary and fiscal policies must be complementary in terms of priorities, otherwise, none of these policies itself would be sufficient to achieve stability. Conflicting objectives and a lack of policy coordination swiftly create room for risk generation. Table 1 shows different possibilities of the pursuit of policy focused on financial stability.

Table 1: Available alternatives to fostering and preserving financial stability

Available policy	Objective	Instrument
Prudential policy: Microprudential	Limit distress of individual institutions	Capital quantity/structure quality; leverage ratio (debt to capital ratio)
Prudential policy: Macroprudential	Limit system-wide distress	Countercyclical capital requirements
Monetary policy	Price stability	Reference interest rate, open market operations
	Liquidity management	Collateral policies; interest on reserves in the system
	Address cyclical imbalances	Reference interest rate, reserve requirement policy, reserve creation policy
Fiscal policy	Influence the aggregate demand	Taxes, foster automatic policy stabilisers, countercyclical (discretionary) approach
	Build up buffers in good times to be run down in bad times	Reduce public debt levels, introduce taxes/levies on financial transactions
Capital transactions policy	Reduce currency mismatch	Open FX position supervision, impose limitations on certain FX assets and transactions
Infrastructure policies	Strengthen the financial system infrastructure resilience	Insist on stock exchange trade of all financial instruments

Source: Hannoun (2010), adapted

If such a wide approach is included in the financial stability framework, the micro-approach, i.e. supervision of individual institutions in the financial market will still have a rather significant role. Taking of simultaneous and synchronised activities on both levels results in the achievement of stability at the system level as well as at individual level.

5. Monetary policy challenges in the modern era of open economies

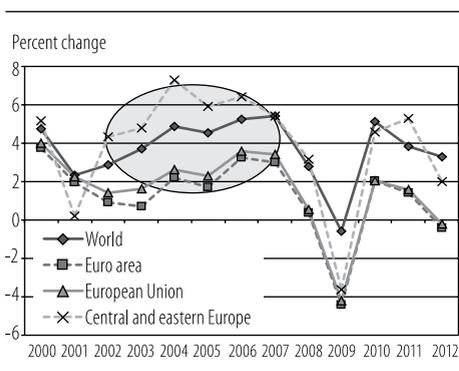
Financial crises we have witnessed over the past 30 years support the claim that regardless of positive achievements, imperfections of economic policymakers and global market developments and integration leave room for strong influence of shocks on the financial system stability. These events urge the synchronisation and merging of economic cycles in global as well as in regional terms. At the same, these developments generate permanent need for constant re-examination of objectives of policies which create system stability. Monetary policy is just one of them. The choice of monetary policy objectives depends on numerous factors and long-term orientations. Žugić and Fabris (2010) indicate that differences in

objectives can be explained as differences in the environment in which a central bank pursues monetary policy. Clearly, “fine tuning” instruments will generate better results in well-developed markets such as those of advanced countries than in underdeveloped ones often seen in developing countries. The most important differences which may affect the defining of objectives and pursuit of monetary policy refer to a country’s size, market openness, FX regime, development and implementation of prudential regulations, economic policymakers’ credibility, central bank’s independence, the level of economic development, potential inflation events from the past, presence of currency substitution (formal or informal), etc. The choice of fiscal policy comes as a cause and effect of monetary policy choices. These policies are interinfluential and require consistency in application with a view to securing confidence of market participants. It is unlikely that either of those two policies will be efficient and sustainable in terms of development unless their objectives and policies are synchronised. High interdependence between monetary and fiscal policies determines the quality of money. The countries which, regardless of pursuing good monetary policies, still sit on a “fiscal time bomb”, as Richard W. Rahnu (2011) describes the European fiscal circumstances, sooner or later also face monetary policy challenges.

In addition, Boivin et al. (2011) stated that the quality of monetary policy transmission channels is being increasingly re-examined. In this regard, they claim that channels of policy transmission via asset prices (e.g. real estate and equity prices) and credit-based channels are becoming increasingly important in comparison to traditional interest rate-based channels. Mishkin (2011) also discusses the new era and the challenges before the monetary policy. He focuses on five monetary policy pursuit lessons arising from the current global economic crisis. First, he claims that the current developments in the financial sector via the so-called financial frictions affect the economic flows far more than was anticipated. This element requires the revision of inputs of the general equilibrium models in the area of economic theory as well as in practical policy pursuit in central banks. The second lesson states that the macroeconomic environment in the crisis period cannot be presented as a linear function i.e. that in the crisis period there is a significant non-linearity in the flows taken as optimal monetary theory variables. This is supported by the Lehman Brothers bankruptcy in the final quarter of 2008, which has set off a spiral of distress in financial and real sectors without being recognised as a threat by the policymakers. The indicators used in decision-making were highly non-linear. A decline in the value of assets (in particular real estates and shares), which followed the financial bubble burst and caused the impairment of collaterals in the banking sector, resulted in a non-linear lending activity decline. Credit contraction induced recession in economic activity. These flows further caused a decline in fiscal revenues and generated other imbalances.

Beside the assumption of linear development of events, the assumption of high probability that events will go as scheduled is also undermined. Such an assumption includes symmetric movement of influences, with the possibility of error distributed only in the tails of the distribution. Experience shows that the shock effect and risk accumulation are far more complex and that these movements do not fully support such a distribution. The third Mishkin lesson claims that the zero lower bound is more problematic than realized. The author supports this thesis with the failure of quantitative monetary easing, applied by mostly all central banks in order to achieve countercyclicality via interest rates and/or providing liquidity for banks. Practice has shown that regardless of a significant interest rate reduction, there has been no expected recovery of aggregate demand after central bank interventions. Nevertheless, there is no dilemma whether a central bank should intervene using available instruments or not, but the issue of shock and non-linearity in transmission is far more complex than could be comprehended by the assumptions used in models. The fourth lesson is that costs of cleaning up after a financial crisis are very high. Beside the costs of recovery from the crisis, the calculation of the total loss of income should cover costs arising from the loss of growth expected during the sluggish recovery after the crisis,

Figure 3 - Gross domestic product, constant prices, selected country groups² (aggregate data)



Source: International Monetary Fund (2013), World Economic Outlook Database (as of October 2012)

fiscal adjustments in dealing with the consequences, as well as costs arising from monetary or fiscal policy efforts aimed at preserving and securing the system stability in the future. The fifth lesson, which in a way summarizes all the above, is that the recent crisis has shown that the combination of price stability and low income fluctuation are insufficient to attain financial stability.

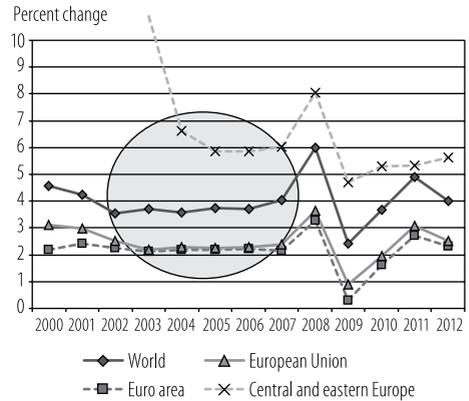
Regardless of the period of stability as per official parameters, in particular the price stability and income all over the world, the low risk premium created in this environment has induced the over-indebtedness in all sectors and huge credit risk accumulation.

² CEE Composed of 14 countries: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, Kosovo, Latvia, Lithuania, FYR Macedonia, Montenegro, Poland, Romania, Serbia, and Turkey

Excessive risk taking did not reflect on price stability and GDP levels which would send signals to monetary and economic policymakers and make them change the course of their policies.

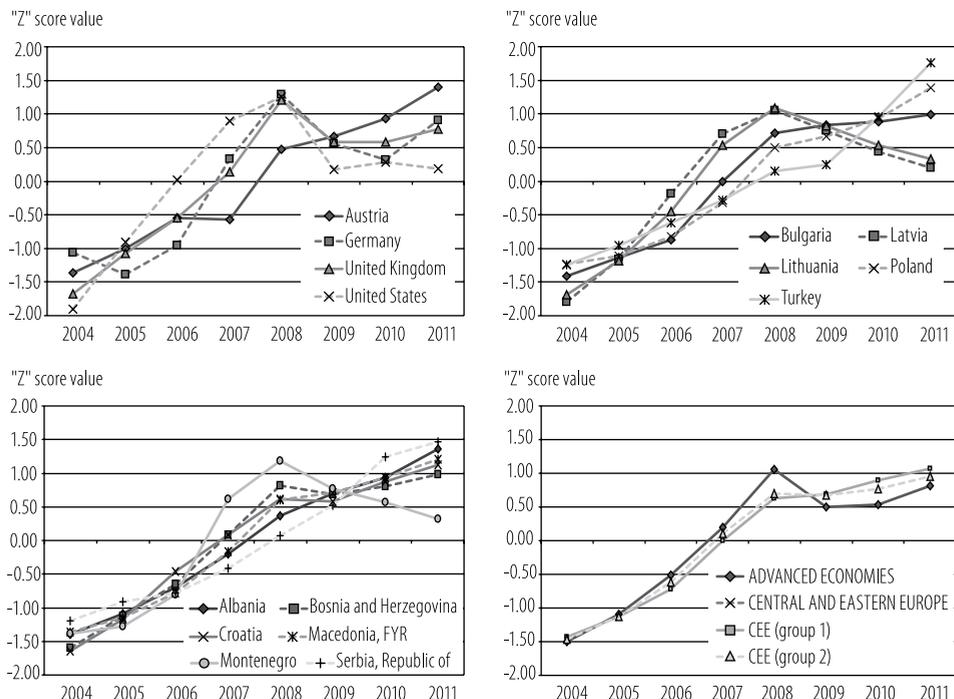
The absence of timely responses in this period resulted in build-up of inefficiencies in companies' operations, risks in banks' and companies' balance sheets which turned into losses once the crisis started. Credit boom led to the creation of real estate bubbles, vulnerabilities and extreme financial uncertainty.

Figure 4 - Inflation, average consumer prices, selected country groups (aggregate data)



Source: International Monetary Fund (2013), World Economic Outlook Database (as of October 2012)

Figure 5: Commercial banks: Outstanding Loans, Selected³ Advanced and Emerging Countries, (adjusted for standard deviation)⁴



Source: International Monetary Fund (2012), Financial Access Survey (FAS)

Financial stability at all levels turned out to be far more vulnerable than expected, starting from the micro-level, i.e. individual companies failing to bear the burden of high debt they assumed, all the way to the aggregate, national and global levels of connected markets. Inefficiencies were generated first in the financial market and then spilled over to the real economy, pointing to the necessity of regulatory policy revision in the aim of reduction of negative incentives and market anomalies. In addition, the inappropriate treatment and assessment of risks by creditors financing these activities as well as by debtors taking the

³ CEE group 1 - Composed of countries: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, Kosovo, Latvia, Lithuania, FYR Macedonia, Montenegro, Poland, Romania, Serbia, and Turkey; CEE group 2 - Composed of 14 countries: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, Kosovo, Latvia, Lithuania, FYR Macedonia, Montenegro, Poland, Romania, Serbia, and Turkey

⁴ "Z" score value of levels in national currency.

risks, pointed to significant weakening of fiscal restrictions which reduced the efficiency of resources allocation.

6. Monetary policy and macroeconomic adjustment regarding the choice of fixed exchange rate

The choice of moving towards the higher level of exchange rates fixing at choosing FX policies is in fact the monetary authorities' response to situations of inherited strong price instability and high lack of confidence in market participant's national currency. Via the exchange rate anchor, the competent authorities primarily achieve price stability, influencing thus the overall economic stability. Such monetary policy course is seen in all the new states created after the disintegration of Yugoslavia, whether they chose currency board, pegged/fixed exchange rate arrangements, formal euroisation or even in those with independent monetary policy but still having high level of unofficial euroisation. Among the FX and monetary policy solutions available in 1999, Montenegro's competent authorities ultimately opted for currency substitution. This choice shaped the development of the entire economic, institutional and regulatory framework based on this backbone.

The introduction of a foreign currency as a legal tender, limited monetary policy and the non-issuing central bank in the system have generated benefits as well as drawbacks over the 14-year transition period. Monetary policy restrictions regarding the necessity of using monetary policy with a view to fine tuning with international economic trends, the lack of seigniorage and limited lender-of-last-resort possibilities are usually listed as this choice's limitations, while the permanent orientation towards maintaining low inflation, increased business transparency, reduction of transaction costs, central bank independence and higher foreign capital inflow induced by such environment, are singled out as the drawbacks of this choice.

However, this decision, at same time, has necessitated a commitment to sound fiscal policies and a legal and institutional framework which encourages private-sector activities, competitiveness, innovations and productivity. With the euro as the sole legal tender, policymakers are precluded from using inflation and currency depreciation as instruments to (i) reduce the real burden of (local currency-denominated) public debt; (ii) offset wage increases in excess of productivity growth; and/or (iii) boost international competitiveness. With euro as the domestic currency, policymakers will need to put focus squarely on structural reforms that would address the root causes of fiscal imbalances and macroeco-

conomic misalignments. Otherwise, as any other dollarized or euroised economy, without a strong and sustainable fiscal policy with limited monetary policy Montenegro could risk economic stagnation.

Intuitively, such monetary policy can be compared to monetary policy pursued under the pure gold standard. This choice also included imposing limitations upon the monetary policy pursuit and indicated the restricted possibility of the Central Bank's intervention in times of international monetary oscillations and the necessity of adaptation to such conditions.

With a view to identifying similarities, we can use the requirements which countries needed to meet in order to be allowed to use the Gold Standard regime in choosing monetary policy.

Bordo (1984) systemized the rules of gold standard application in the following six components:

1. gold (precious metals) was an ideal monetary standard, domestically and internationally, because of its unique qualities both as a standard of value and a medium of exchange. Nationally, this required the fixing of the price of gold (parity) in national currency as well as free conversion of money into gold and vice-versa, at the same price;
2. Hume's balance of payment adjustment or the so called price-specie-flow mechanism explained by Krugman and Obstfeld (2009) as an automatic mechanism of external balance. Equilibrium must be achieved through inflow/outflow of international reserves, i.e. gold. In theory, this mechanism requires the elimination of cross-border restrictions on the import/export of gold and, consequently, capital. The mechanism functions in such a way that it enables gold flows to automatically affect an increase or a decline in the nation's money supply in the market. In addition, these money supply flows automatically affect an increase or a decline in interest rates due to the gold inflow/outflow in the economies trading at the same time. Pegging a national currency emission to gold reserves brings full coverage of the currency with gold;
3. The "law of one price" is the rule which included the existence of price arbitrage in the market and that a potential profit surplus arising from difference in prices is to be eliminated through trade. This required a tolerable deviation from the prices of traded commodities to be within transportation costs;

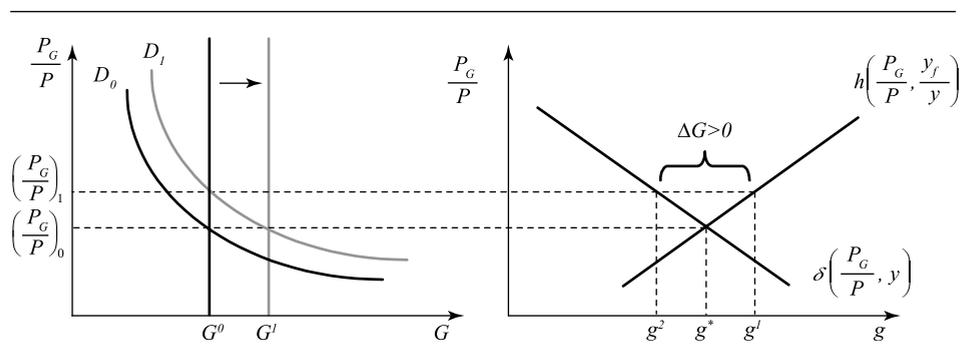
4. the role of (short-term) capital and gold flows necessary for the balance-of-payments adjustment arose from the previous two automatic mechanisms;
5. in case of a sudden short-term capital outflow (liquidity crisis) caused by the outflow of gold, central banks should freely lend funds, but at high interest rates (the so-called Bagehot's rule⁵). In this way, the role of central banks becomes to encourage, not hamper the functioning of automatic adjustment; and
6. the author pointed to the reforms which had to be implemented in order to maintain the stability of the price of gold so that it could serve the purposes of foreign exchange. In case there the price of gold deviated from the fixed parity, the central bank's role was to intervene in the market and restore the price of gold as soon as possible. The formation of the price of gold at the global level, in the long-term, was meant to be dependent on offer and demand for this commodity.

In the interpretation of the assumption that the amount of gold is replaced with the amount of euros in the euroised economy we may conclude: (1) that the euro is an ideal international monetary standard; (2) that there is an automatic balance-of-payment adjustment; (3) that the compliance with the law-of-one price is not complete because unlike gold, trade with capital (euros) is also determined by the assessed risk of the two countries. Therefore, transaction costs of such trade can be seen through the difference in the two countries' interest rates, and in the case of a euroised economy, dominantly determined by country risk level. The fourth rule is equalised with the second one. (5) a central bank may lend funds to a limited extent, and a potential last-resort response in such cases is often linked to high costs. Euro stability (7) is regarded as the monetary policy objective at the EU level.

Ickes (2006, 2009) presented these assumptions as a formulae. He used the example of two countries.

⁵ Walter Bagehot, the English writer and publicist, considered in the sphere of monetary economy as the creator of the "lender-of-last-resort" function and whose instructions for monetary policy pursuit state that central banks, as the lenders of last resort, should freely lend funds but at a high interest rate.

Figure 6: Establishing external equilibrium in the open market, balanced through the function of inflow and outflow of euros in the country



Source: Ickes (2009)

If gold were to be replaced by the amount of euros here, *the left-hand figure would show:*

“G” euro supply limited by physical ownership;

“D” euro demand that is in a negative correlation with the price of euro “PG”, i.e. the interest rate;

“ $\frac{P_G}{P}$ ” represents the relative prices ratio;

The right-hand figure:

The function of the inflow of euros equals the function of visible and invisible export, and domestic economy’s income and transfers represented by the function

$h\left(\frac{P_G}{P}, \frac{y_f}{y}\right)$ of the exchange rate and income in the two countries;

Considering that the exchange rate was eliminated with the introduction of euroisation, the function of the inflow of euro depends on the economic activities in the two countries.

Function of the outflow of euro equals the function of visible and invisible import and domestic economy’s income and transfers represented by the function

$\delta\left(\frac{P_G}{P}, y\right)$ of the exchange rate and domestic income. Same as with imports, the exchange rate was eliminated with euroisation.

$\Delta G = TB$ (trade balance) surplus in the trade balance is followed by the collection in euros (on various bases) and inflow of euros in the country and vice-versa.

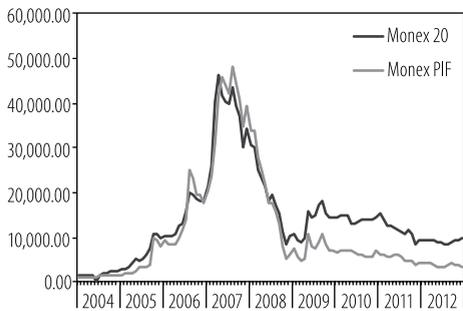
The right-hand figure represents the balancing in the external market through the export function. A country's export function is represented by the function of the inflow of euro while the import function is shown with the function of the euro outflow. In this case, the net euro supply depends on the country's volume of visible and invisible foreign trade, i.e. it equals the trade balance. Trade is in the function of relative prices $\frac{P_G}{P}$ and the income of the two countries involved in trade (y_f , i.e. y^* and y).

$$\Delta G = TB = h\left(\frac{P_G}{P}, y^*\right) - \delta f\left(\frac{P_G}{P}, y\right) \quad (1)$$

However, the balance of payment also has a component of financial account, therefore the balancing may also be achieved via these channels and reduce the achievement of balancing effect strictly via goods and services turnover in euros. It was in this exact situation that the deviations from the equilibrium prices occurred in the market. The balance of visible and invisible flows and the offer of euro was not synchronised due to the high foreign inflow in equity and debt flows. Obviously, the monetary authorities were not able to halt the decline in the money supply by increasing the interest rate or withdrawing the money supply (the euro) from circulation by sterilising it through other instruments, while in a situation when fiscal policy had no countercyclical effect, automatic adjustment occurred in the market through the creation of further external imbalances and the prices surged in response to the increased money demand. In addition, a pressure was put on the prices of property (real estate and securities), which induced the creation of price bubbles. The surge of market prices led to a high risk accumulation as seen in the increased gap between the assessed and taken risks in transactions due to the defects which have caused the asset bubbles creation.

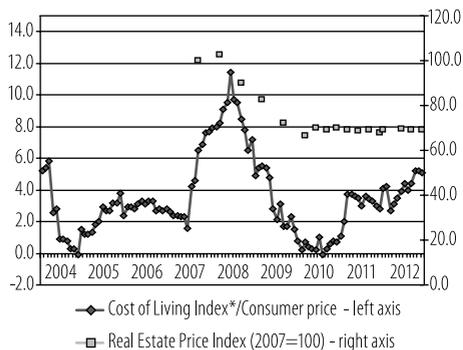
The interpretation of specific features of Montenegro's economy and monetary policy background could relate to the Dornbusch's overshooting monetary model (Dornbusch, R. 1980) – which indicates that the increase in money supply, occurring as a result of transfers (foreign inflow) will affect the product – consumption relation. This model points to a conclusion that the issues arising from the balance of payment are in fact monetary issues, as well as that the shortcomings or excesses arising from these transactions equal the flow of excess money demand in the economy, which may be of use when analysing money flows and the role of money in the Montenegrin economy.

Figure 7: Capital market Indexes (2004-2012)



Source: Central bank of Montenegro (2013), statistics from web site

Figure 8: Inflation in Montenegro (2004 -2012)



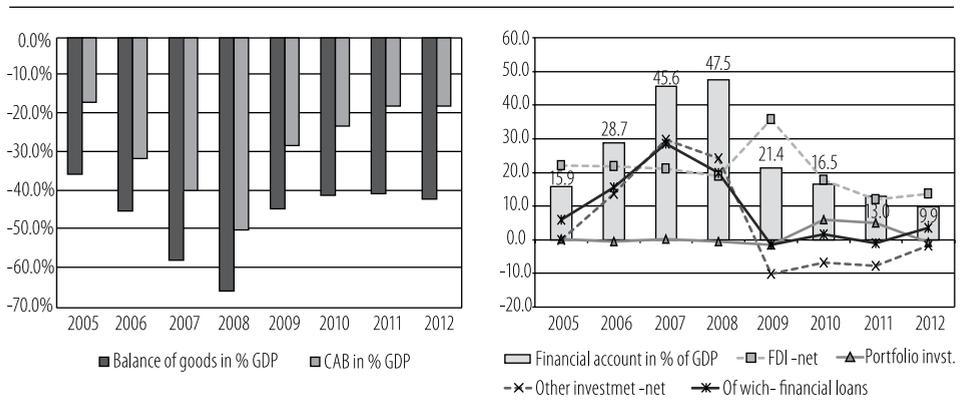
Source: Central bank of Montenegro (2013), statistics from web site

Representation of these flows can be identified in Montenegro’s growth model over the past eight years.

The situation in Montenegro’s economy in the pre-crisis period has significantly contributed to the intensity and dynamics of the impact in the post-crisis period.

The growth model of Montenegro’s economy during the eight-year period was based on a significant inflow of foreign capital which was additionally actuated by credit expansion leading to an unrealistic increase in asset prices (real estate and shares).

Capital inflow recorded in financial account led to deterioration of the current account deficit and directing of a part of direct foreign investments in non-productive sectors not oriented to exports, ultimately leading to a further increase in domestic demand and consumption, negative contribution to net exports and pressure on prices.

Figure 9: External position: Current and financial account (2005 -2012)

Source: Central Bank of Montenegro (2012), statistics from web site

This model has not been sustainable in a long term.

Two price bubbles (real estate and capital market) additionally generated growth based more on consumption than on investments in the real economy. Investments were mainly based on credit indebtedness with banks, while banks, led by economic optimism, imprudently perceived risks and approved loans against insufficient collateral. Overheating has also been experienced in the banking sector. Enormous – three digit rates of growth in assets, loans and deposits - indicated potential problems in the future.

Enormous vulnerabilities accumulated during this period of expansion and authorities had limited instruments at disposal to strengthen macroeconomic policies and create mechanisms for mitigating the crisis effects which, under the influence of the global crisis, have been developing in Montenegro as well.

7. Conclusion

Growth model in developing countries should have ensured a uniform and unstoppable progress of the financial sectors and result in the development of the remainder of the economies.

A stable privately-owned financial system, the implementation of international regulations and standards, and price stability were considered drivers of eco-

economic growth and stability safeguards. However, the possibility of market defects which were not included in the analysis of the stability indicators were neglected, yet they are considered the roots of today's problems. Increase in other asset prices, together with the lack of productivity and efficiency in corporate businesses and the growth model based on consumption led to the accumulation of inefficiencies and risks that materialised with the crisis outbreak as big losses in all sectors. Monetary policy alone was not able to deal with these imbalances. Procyclical fiscal policy, inadequate structure of GDP creation and rigidity of the labour market contributed to inefficient allocation of excess liquidity, which existed in the market at the time, and prevention of economic growth, leading instead to overheating and price bubble burst.

Even before the crisis, Levine (2004) had pointed to a dilemma whether finances lead to growth and if so, in what way? He pointed that finances promote economic growth by increasing efficiency of capital allocation and not just simple increase in investments. This financial system's contribution to economic growth Levin extends after the crisis: "Financial regulation is not just about preventing crises; it is also about cultivating financial systems that provide growth-promoting services." In such a business environment, the inflow of foreign capital will be more efficiently allocated and risk dispersion will be adequate.

The resulting conclusion from the analysis of indicators in the selected regions and Montenegro is that non-productive incentives yield non-productive result in the long-term. In order to diminish such incentives, policy-oriented regulation should encourage the allocation of resources aimed at entrepreneurial ideas and discourage the financing of projects with potential uncovered contingent expenses. A financial system aimed at development and stability stimulates both economic growth and national development. With a view to minimizing legal risk in the creation of regulations, the focus is put not only on the prevention of instability but also on the creation of a sustainable growth policy based on competition, productivity, innovation and overall entrepreneurial development. Such a selection of economic policy also contributes to the creation of a stable financial system that spirals into growth incentives. Financial stability, as a macroeconomic reality, arises from stability and viability of entities pursuing business in such a market. Through the prism of macroeconomic stability this approach treats financial stability as a public good that becomes either direct or indirect objective of economic policies.

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