Financial crisis.
Implementation of macro- and micro-prudential regulation

Orkida (Findiku) Ilollari¹⁺, Gentiana Gjino²++
¹, ² European University of Tirana, Raiffeisen Bank, Albania

Abstract:
A.

The financial crisis occurs as a result of a disorder in the financial market. It implies serious problems of unfavorable selection and moral risk, making the financial markets unable to direct efficiently the funding from depositors toward individuals and businesses with potential of productive investments. When the financial markets are not able to function efficiently the economic activity visibly decreases.

If the crises repeat periodically, it is a challenge of policy makers to review and take regulatory measures. They should not just watch the situation, but also react according to the character and the color of the actual crisis. Exchange of thoughts in recent times go through criticism of existing implemented models (almost unpredictable and accompanied with enormous costs to the population) to stabilization policies that hurt the expected profit margins and the control of pressures over prices.

The reason we try to prevent financial crises is that the social costs are invariably high and exceed the private cost to private financial institutions. We regulate to internalize these externalities in the behavior of the financial institutions. One of the most important regulatory tools used is the request for capital adequacy.

B.

The actual approach to capital adequacy is micro-prudential. Micro-prudential regulation deals with a certain bank reaction toward exogenous risks. They do not include endogenous risks and this neglects systemic implications of common behavior. Micro-prudential regulation consisting of such measures as the certification of those who work in the financial sector, regulations of what assets can be held and by whom, how the instruments are listed, traded, sold or reported, assets valuation and riskiness measures, deals with price stability and the protection of the clients of various institutions. Regulators should be careful when implementing micro-prudential regulations, especially those that respond to market value and risk measurements.

C.

It happens randomly that banks and borrowers underestimate risks in boom periods and overestimate them in crash periods. The essential problem remains risk perception from 'low' to "very high".

Macro-prudential regulation consists on narrowing this gap, forcing the banks to undertake higher risks during boom periods (i.e. to invest more capital than they evaluate as necessary), so they can support crediting during crises period by letting this capital go. Systemic stability and homogeneity of the financial system is another characteristic of the macro-prudential regulation. Common behavior, when all sell or buy at the same time, is one of the reasons the system crashes. Always the market players intend to be heterogenic, however, as we all know, as a result of a number of factors, regulations and other reasons, market players tend to act homogeneously. In this context, systemic risk is endogenous and macro-prudential regulations have to identify these endogenous processes and reinstate heterogenic behavior.

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As a conclusion, in order to prevent these crises, well defined micro- and macro-prudential need to be established. They also help on monetary policies.

¹⁺ Corresponding author: orkida.ilollari@raiffeisen.al
²++ Corresponding author: gentiana.gjino@raiffeisen.al
1. Introduction

The financial crises are major disorders of the financial market, characterized by a significant decrease of assets prices and by companies’ bankruptcy. Speaking before the U.S. Congress, Alan Greenspan, former governor of the Federal Reserve, described the mortgage financial crisis as a "loan tsunami that happens once a century."

A financial crisis occurs when an increase in asymmetric information as a result of financial market disorder causes serious problems of adverse selection and moral hazards, making financial markets incapable of channeling funds efficiently from savers to individuals and businesses with opportunities for productive investments. When financial markets fail to function efficiently, then economic activity shrinks significantly.

This is not the first international banking crisis, because the world has already seen similar ones. Some estimations rank it as the 85th. If crises repeat, it is the task of policy-makers to reconsider and undertake regulatory measures and do not just superficially see it, but react to the characters and colors of the current crisis. The last 84th crises occurred without credit default swaps and special investment tools. The reason we try to prevent financial crises, is that the costs to society are always higher and they exceed the private cost to individual financial institutions.

2. Micro-prudential regulation

One of the main regulatory tools is the usage of capital and the current trend of capital adequacy, which is also called micro-prudential. Micro-prudential regulation consists in some measures in the financial sector. The measures to be taken into consideration are:

- What assets can be held and by whom?
- How instruments are listed, traded, sold and reported?
- Measures of the value and riskiness of assets—the stability of prices and the protection of clients of the institutions.

The regulators should be careful concerning how the micro-prudential rules will be applied, especially to those responding to market of the value and riskiness.

Micro-prudential regulation examines the responses of a specific bank to exogenous risks. It does not incorporate endogenous risk and it neglects the systemic implications.

In the traditional approach to micro-prudential regulation, a matrix has been taken into consideration, with the probability of a credit in loss, on one axis, from low to high. Regulators say that financial firms must analyze their assets using this matrix and dispose of those assets where there is a high probability of loss. This is a bit ridiculous. Any bank that is willingly holding assets that will deliver a large loss does not need regulation; it loses its banking license. The real problem is not that banks willingly hold assets that they know will deliver a large loss with a high probability and are simply waiting for the regulator to tell them they cannot, because those assets become “toxic”.

**Key words**: financial crisis, macro-, micro-prudential regulation, risk management, systemic stability, systemic risk.

**Key terms**: 
*Micro–prudential regulation* deals with the response of a certain bank toward exogenous risks. It doesn’t include endogenous risk and it neglects the systemic implications of common behavior. 
*Macro–prudential regulation* deals with systemic stability and the homogeneity of the financial system.

**JEL codes**: G01, G21.
However, when this occurs the regulatory matrix is useless. This implies that the bank now has to sell the asset and in fact, these rules have to become standards, every regulated institution has to sell the same asset at the same time, bringing its price to collapse towards zero and making banks short of capital.

This in turn forces banks to sell other assets previously held for their low correlation with the original problem asset, causing asset correlations to rise, giving the impression that risk has raised further and causing banks to sell more assets.

This loss in spiral shape was an attribute of credit markets in 2007-2008 the management crisis, of the long term capital management crisis of 1998, of the East Asian crisis of 1998, of the stock market crash of 1987 and of other modern financial crises.

Paradoxically, the micro-prudential rule can turn a bad situation into a worse one. Responding to the crisis though, some argue that banks were not following micro-prudential rules strongly enough and so these rules must be intensified and made more complete. The spread of micro-prudential rules can weaken the systemic elasticity.

The best solution from a systemic perspective to the problem causing assets to turn ‘toxic’ is that: the firms that have financed these assets with short-term liabilities should certainly mark them down and the other firms who have approached long-term liabilities should be able to consider if the assets are now fair value at the marked-down price and if they should buy. Instead, the spread of micro-prudential rules (non-banks) like insurance firms and funds have the tendency to lead to everyone being a seller at the same time.

Regulators must be careful about the application of micro-prudential rules, especially those on responding to market measures of value and risk, and ensure that they do not artificially create homogeneous behavior. It happens often that during the booms of banks, the borrowers underestimate risks and when the crash comes, they overestimate risks. An essential problem is the big alteration in risk perceptions, from “too low” to “too high”.

The purpose of macro-prudential regulation is to narrow this gap by forcing banks to commit the highest risks than they think they do in the boom – by putting aside more capital than they think they need and try to support lending.

### 3. Macro-prudential regulation

After the last financial crisis, the term "macro-prudential” has developed to be very significant and useful in the financial system. Although the term has been used far before the crisis, its meaning remains unknown. The origin of the term dates back to the late 1970s, under the context of international bank lending. International efforts to reinforce the financial system have been focused on the improvement of macro-prudential orientation of regulatory and supervisory framework, explicitly an expanded focus on the financial system as a whole and its connection with the macro-economy.

Supervision of financial and macroeconomic stability in long-term periods requires the adoption of structures of macro-prudential referents which are set up precisely as a helpful element in the adaptation and improvement of the methods of monetary policy that are working well even nowadays.

The impressing thing about this crisis given the commentary is that it was not caused by banks throwing hand grenades of ‘toxic’ assets into unsuspecting crowds and running as far away from them as possible; it was caused by banks throwing hand grenades of ‘toxic’ assets into crowds that did not suspect anything and compete as far as possible from them, because they did not think they were ‘toxic’. In fact, they compiled complex special purpose tools to get more exposure to them than their capital adequacy requirements would allow. On the contrary, a macro-prudential approach to regulation considers the systemic implications of the collective behavior of financial firms.

An important feature of macro-prudentially regulation and financial stability is the heterogeneity of the financial system; homogeneous behavior, where everyone sells or buys at the same time.

In general the participants of the market were initially supposed to be heterogeneous but due to a various number of factors, regulatory or not, they were leaded to homogeneity. From this point of view,
the systemic risk is endogenous and macro-prudential regulation is about identifying those endogenous processes that turn heterogeneity into homogeneity and make the financial system more fragile.

4. The differences of macro- and micro-prudential perspectives

According to Borio (2003)\(^1\) the macro- and micro-prudential perspectives change towards their objectives and their understanding about the nature of risk.

The traditional micro-prudential regulation aims to increase the security and stability of the individual financial institutions compared to macro-prudential regulation that is most focused in the welfare of the financial system as a whole.

Further, the risk has been supposed to be exogenous under the micro-prudential perspective, in the supposed meaning of a "potential shock" causing a financial crisis that originates beyond the financial system behavior.

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On the other hand, macro-prudential approach admits that the risk factors can be configured and endogenous, in other word with a systemic occurrence.

In accordance with this argumentation, macro-prudential policy is addressed to individual financial institutions, markets and their common exposure to risk economic factors. It is also focused in the "pro-cyclical" behavior of the financial system in the effort to promote its stability.

5. Implementation of counter-cyclical regulation

There is a growing consensus that the most important manifestation of market failure in banking and financial markets through the decades is pro-cyclicity. The credit mistake is made during the boom and this is very obvious. A rapid increase in loan portfolios is tightly associated with an increase in non-performing loans. Loans given during booms have a higher probability of being default than those made in periods of slow credit growth. The collateral requirements are often relaxed in good times as collateral prices rise and tightened in bad periods.

There is an agreement of Basel II and Financial Reporting Standards which consists in an additional pro-cyclical impact over the capital required by banks, reinforcing further the natural tendency of banks for pro-cyclically loans. Counter-cyclical bank regulation can be introduced, through banks’ provisions or

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\(^1\) Borio, C. (2003). Towards a macro-prudential framework for financial supervision and regulation? BIS working Papers No 128, February
through their capital. It is important that this is done through simple rules, so regulators cannot stay calm in boom times, when they can become over-enthusiastic in booms.

Introducing counter-cyclical bank provisions has already been implemented in Spain and Portugal some time ago, and has demonstrated this is feasible and in accordance with Basel rules. The Spanish dynamic provision system requires higher provisions when credit grows more than the historical average, relating provisioning to the credit cycle. According to this system, provisions built up during an improvement accumulated in a fund which is called ‘statistical provisions’ but can be considered ‘macro-prudential provisions’ can go up to a slump to cover loan losses.

This opposes the financial cycle as it discourages the excessive lending in booms and strengthens the banks in bad times. Counter-cyclical rules are related to the changes in the credit exposure of financial institutions. In particular, financial institutions could be asked to increase provisions when there is excessive growth of credit compared to a benchmark in lending toward sectors subject to cyclical fluctuations.

In fact India adopted counter-cyclical provisioning requirements for lending in the housing market similarly to the Spanish case. An alternative approach for counter-cyclical bank regulation through provisions is by means of capital. Charles Goodhart and Avinash Persaud have presented a specific proposal: increasing capital requirements by a ratio linked to recent growth of total banks’ assets.

This provides a clear and simple rule for taking into consideration counter-cyclical regulation and can be easily implemented. In this proposal, each bank should have a basic allowance for asset growth, linked to macro-economic variables, such as inflation and the economic growth rate in long terms. The growth above the basic allowance during the past year would have a 50 percent weight; growth during the year before that would have a 25 percent weight and so on until 100 percent is approximated. Regulatory capital adequacy requirements could be raised by 0.33 percent for each 1 percent growth in bank asset values.

For example, if bank assets grew 21 percent above the growth allowance, the minimum capital requirements would rise from 7 percent to 15 percent. Knowing that credit cycles tend to be national, the application of counter-cyclical regulations needs to be on a host country. This would serve by adding an obvious improvement. The existing framework of macro-prudential banking regulation was insufficient and was recognized as such by commentators for a certain period.

We are not against micro-prudential regulation in itself since we believe supervisors have an important role in consumer protection issue and protecting the tax payer from abuse of the implicit government insurance. Aside from the absence of macro-prudential regulation, we note that zeitgeist on the boom time, ‘government bad, markets good’, impacted the quality of micro-prudential regulation. Supervisors were sufficiently ambitious in their surveillance of banks. So, the last mentioned should make sure they understood exactly how a bank earns its profits and if they understood that fully, and are aware of the amount and type of risk a bank is taking to earn those profits. It is often said that endogenous risks that destroy the financial system often relate to a badly-considered application of micro-prudential regulation.

6. Regulation of funding and liquidity

Imagine two banks have the same possessions. One finances expensive assets, using deposits from their base deposit and the other finances cheap assets by the daily borrowing. Previously, the bank regulations did not make a difference between these two kinds of banks. The markets did not distinguish between the two banks even when they thought that in the short-term financing the bank was more ‘efficient’ given that its financing was cheaper.

Northern Rock which financed 120% mortgages with short-term borrowing in capital markets had a higher rating in the stock market than HSBC which relied much more on deposits to finance the assets. The predominant prospect was that risk was natural in the asset, not its financing, however we can see today that these two banks are truly different and that the risk of the asset reflects a combination of the liquidity of the asset and the liquidity of the financing.
The minimum financing liquidity is back on the table for discussions at the Basel Committee on Banking Supervision and at the Financial Stability Board. The U.K. amongst others has already announced that new liquidity requirements will necessitate banks to clutch more capital. A manner has been set in which capital could be used to disincentive maturity mismatches.

In a financial crisis the liquidity of assets falls as the maturity of financing contracts, which brings a bank to put aside capital for liquidity using existing measures of the liquidity of assets and liabilities. The implication is that for regulatory purposes the liquidity definition of assets could be fixed into two camps (liquid and illiquid) and the capital requirement could be different in different times.

The liquidity based on the capital adequacy requirement can be multiplied by a factor that is reflected in mismatch of the degree of maturity between pools of assets and pools of funding. Assets that the central bank does not consider suitable for posting of liquidity will be supposed to have a fixed ‘liquidity maturity’ of 2 years. If this amount of assets was financed by a quantity of two-year deposits, there might not be any liquidity risk.

7. Regulation of instruments and markets

The crisis and the dysfunction of wholesale markets in complex instruments have raised the issue that complex instruments have to be faced with regulations. These must be micro-prudential issues. Complexity is often connected to other problems. Products might be complex to try the evasion of regulations or taxes ‘mis-sell’ to uninformed buyers. The evasion of the regulation and taxes and mis-selling with the complex that simple products are illegal in most juridical cases. These laws must be enforced and implemented. Supervisors should be authorized to look at all instruments of the markets and, if they believe that their use or growth raises systemic issues, require quick regulation. The contracts for instruments that are made complex to cheat consumers should be non-implemented by the authorities. This should push sellers to ensure buyers understand the instruments they use. Regulators should be able to block the implementation of the deceptive instruments before any buyers have any losses.

Nonetheless the fault regulation lines remains with systemic risk for consumer protection. The risk is created by trying to match simple assets to complex liabilities. In some cases, individuals do not have access to assets and instruments of abundant complexity. A retail investor can buy today a simple product and that is an instrument that tracks the capital index. Management charges for these products are minor and transparent. The value of the instrument is transparent and reported regularly.

But this is a highly risky asset for many people, especially elderly people, because the capital index does not counterbalance their financial liabilities: the cost of their mortgage, pension, health care, etc. Certainly, at times of general unemployment, the value of asset falls exactly at the time when a typical individual’s net liabilities increase.

We can imagine a product that delivers financial insurance for an aged person alongside the potential expenditures they he may have in the future and rises in value when the individual’s liabilities rise. It will be significantly complex, illiquid, a derivative instrument, but it would be low risk for an elderly buyer.

Sometimes complexity may not be bad. Similar issues arise with the idea that we have to define ‘safe’ and ‘risky’ products to sanction the first and prohibit the second. This is decent intention, but a wrong one as well. Our key focus should not be instruments, they are fluid, easily created and abandoned.

Most of complex instruments are in fact packages of simple instruments put together to make them cheaper than buying each of them distinctly. The essential problem with the dishonest notion good and bad, safe or risky instruments is that risk is less a function of the instrument and more a function of behavior.

Declaring assets ‘risky’ or ‘safe’ will change behavior in an opposing way. The complexity of illiquid instruments can be used in a safe manner and a simple one, liquid instruments like mortgage can be used in an unsafe manner. We need to regulate risky behavior, mostly by limiting through capital requirements or otherwise the incompatibility between risk taking and risk capacity.
8. Starting the implementation of micro- and macro-prudential measures in Albania

Central and Eastern European countries have several common features in their economic and financial structures. They were affected by the same crisis at the same time. Economies of Central and Eastern European countries are characterized by the same pattern of development and share similar hitches. These countries benefited from large inflows of capital, mainly in the form of foreign direct investment, remittances, and external financing. Banks originated from Western Europe penetrated our financial system, subsequently increasing financial intermediation and facilitating capital inflows. This process headed to rapid credit growth and economic growth based on consumer-oriented model. While the inflation generally was kept under control, imbalances and financial weaknesses have been growing in the form of fast growth of real estate prices and balance sheet exposure to foreign currency liquidity.

During the 2008 crisis Albania was confronted with a lack of liquidity as a consequence of the withdrawal of deposits, as well as lower levels of remittances and foreign direct investment. Balance sheets were affected by problems associated with the lack of liquidity and exchange rate depreciation, which was later reflected negatively on consume and investment. Given this retrenchment of the economy, the natural instinct of macroeconomic policies is undertaking countercyclical measures in the form of expansionary monetary and fiscal policies. In fact the countries that experienced lower macroeconomic and financial imbalances were in a better position to undertake countercyclical policies, and in fact they turned out to be the countries that over crossed earlier the effects of the crisis.

Albania was not faced with banks bankruptcy or with capital injections from the government side, also quickly changed the course of the trust crisis and its negative impacts in the financial system.

A minor economic growth has been experienced, even though at a slower pace and the inflationary expectations has been managed to be kept anchored. The apprehension of the banking system in general was that:
1. Many gaps were being created in a short period and the Albanian economy seemed to be experiencing what would later be called the “risk taking channel”.
2. Observations showed that the banking sector was miscalculating risks. The high concentration in certain sectors or clients indicated the lack of a proper risk analysis and risk management by banks, while lending to uncovered borrowers in a flexible exchange rate regime seemed an issue potentially related with moral hazard.

The first concern was handled by increasing the exchange of information and facilitating the dialogue between monetary policy, financial stability and bank supervision. Typically, monetary policy responsibility extends from the lowest point to the highest one of the business cycle. For this reason, the possibility that monetary policy forget about financial stability is tangible.

Hence, it is crucial that supervisors of financial stability should be involved in the monetary policy decision-making process. Thus, the monetary policy of the Bank of Albania is not only focused on the discussion of macro effects, but also in the discussion of the micro effects of decision-making.

The second concern was handled through the establishment of more stringent measures in macro-prudential regulations and by strengthening “at the place-supervision” of second level banks.

Through these regulatory and supervisory interventions it was intended to: improve the governance and transparency of commercial banks, strengthen risk assessment and the strategies for its restraint, improve of capital adequacy and liquidity ratio, and reduce the exposure to credit risk arising from uncovered borrowers in foreign currency or greedy practices followed by the commercial banks.

The concrete measures taken by the Bank of Albania were:
• Establishment of new quantitative limits for calculating, supervising and reporting of large exposures of banks to mother banks and related entities.

• Setting lower limits to large exposures of banks in order to better diversify the risk arising from the concentration of banks' investments in international financial markets.
• Internal control as an integral part of banks' governance should cover every part of the bank, in order to prevent the rise and development of unwelcome risks.
• Standardization of information that banks and branches of foreign banks should give about the main activity of banks, their organization and management, and their financial performance, risk management and accounting policies.
• Paying special attention even to transparency regarding banking and financial products and services offered. New legal requirements standardize the manner and form of providing information to customers about products and services offered by them.

Bank of Albania injected abundant liquidity in local currency in the interbank market, simultaneously strengthening banking supervision and cooperation with foreign supervisory authorities of these banks.

A specific development that needs to be mentioned is the increased deposit insurance limit, measure which marked a turning point in the crisis of public trust in the banking system and in the problems associated with liquidity in this system. From a narrow perspective focused on the principal objective of prices stability, obviously, the focus of the monetary policy was undertaking expansionary measures.

Nevertheless, the Albanian economy benefited macroeconomic stimulus in the form of fiscal expansion. This countercyclical policy became possible as a result of the previous work to consolidate the fiscal position and anchor macroeconomic policies and public expectations. So the first lesson to be learned from the supervisory authorities’ of getting out of crisis was following counter-cyclical policy, which would allow for braver measures in times of crisis. In the short term, central banks possess the necessary tools to achieve two objectives: the base interest rate over refinancing operations; macro-prudential policy at system level; and micro-prudential supervision of commercial banks.

The availability of two objectives and at least two instruments should allow an optimal mix of policies. Each time we face significant economic problems with potential adverse impacts on the system, and then the focus moves towards financial stability. It is presumed that the first and foremost task of a central bank is to ensure the integrity of the currency and of the banking system.

9. Conclusions

The last financial crisis has affected the importance of effective systemic risk measurement, which remains a key factor in macro-prudential and regulatory policies. For this reason, the measurement of systemic risk can touch the identification and evaluation of threats to financial stability.

The term "macro-prudential" has risen from virtual obscurity to an astonishing importance, especially after the recent financial crisis. Since its origins in the late 1970s, the term has always defined apprehensions about the stability of the financial system and its connection with macro-economy.

At the same time, the specific focus of these concerns has changed over time. Concerns have been successfully interconnected to excessive lending to developing countries, as well as the impact of financial innovation and the development of capital markets, the impact of the regulation on "procyclicality" of the financial system, as well as the implications of the failure of important systemic institutions.

Over time, continuous efforts have been made to clarify the meaning of the term macro-prudentially. This term refers to the use of prudential tools with a clear objective to promote the stability of the financial system as a whole and not necessarily to individual institutions within it. Macro-prudential surveillance policies are strategic instruments to ensure financial stability, "in fact they can reduce" the repetition of systemic risks and structural weaknesses. Macro-prudential instruments include the integral requirements and capital accumulation in a liquidity indicators provisions perspective and careful appraisal of the collateral.
A central bank cannot avoid its responsibility for maintaining financial stability, although it is not defined as a specific term. The experience of Albania as a country with a developing economy shows that price stability and financial stability are prerequisites for each other.

Regarding macro-prudential policies, the need for the development of specific anchors was argued, which would make the objective of financial stability more reliable, more transparent and therefore more accessible.

Measurement of financial stability or instability can be a hard process, but this should not discourage us from trying to accomplish it.

10. References