RESPONSE TO A CRISIS : REGULATION

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SUMMARY OF THE PRESENTATION

Introduction

1 - The Basel accords

- Basel 1, Basel 2 , Shadow banking and procyclicality
- Basel 3 Accord

2 - The macroprudential politics

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- The indicators of the macroprudential politics

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Introduction

- During the subprime crise, three main weakness of the financial weakness have been identified as the main amplifier of the crisis, those weakness are the following:

  - *<u>The short-term financing dependence and the shadow banking system:</u>*
    - The excessive dependance of the financial systems to a short-term financing contract which can be instable, is linked to the development of the shadow banking system.

    - At the international level, there is no precise definition of the shadow banking system, due to its recent appearance and the differences between countries banking structures and systems as well as between prudential regulations (Financial stability council).

    - This system raises funds from households, companies or financial institutions, in the form of short-term liabilities comparable to deposits, like for example the emission of commercial paper or asset backed commercial paper.

Introduction

- *Leverage, procyclicality and systemic risk :*

  - The excessive growth of the debt leverage, notably due to an insufficient selection of the lenders, is often seen as one of the main amplifiers of the crisis.

  - Non-financial institutions didn't raise their debt leverage. According to Bernanke, it wasn't the case for financial institutions, and he noticed that between 2001 until 2006, the quality of the capital of many American banks has really decreased.

  - The debt leverage is procyclical, increasing during the fast period, when the trust between and lenders and borrowers are high and decreasing during a period of risk aversion, which amplify the economic and financial consequences.

Introduction

- *Regulatory and supervisory weaknesses.*

Bernanke has listed many regulatory weaknesses which has amplify the consequences of the financial crisis, those weakness are the following :

- The non-regulation of the shadow banking system, notably the SPV, the hedge funds and the non-bank financial institutions.

- The absence of regulation and supervision, has created a lack of information for the financial and monetary authority.

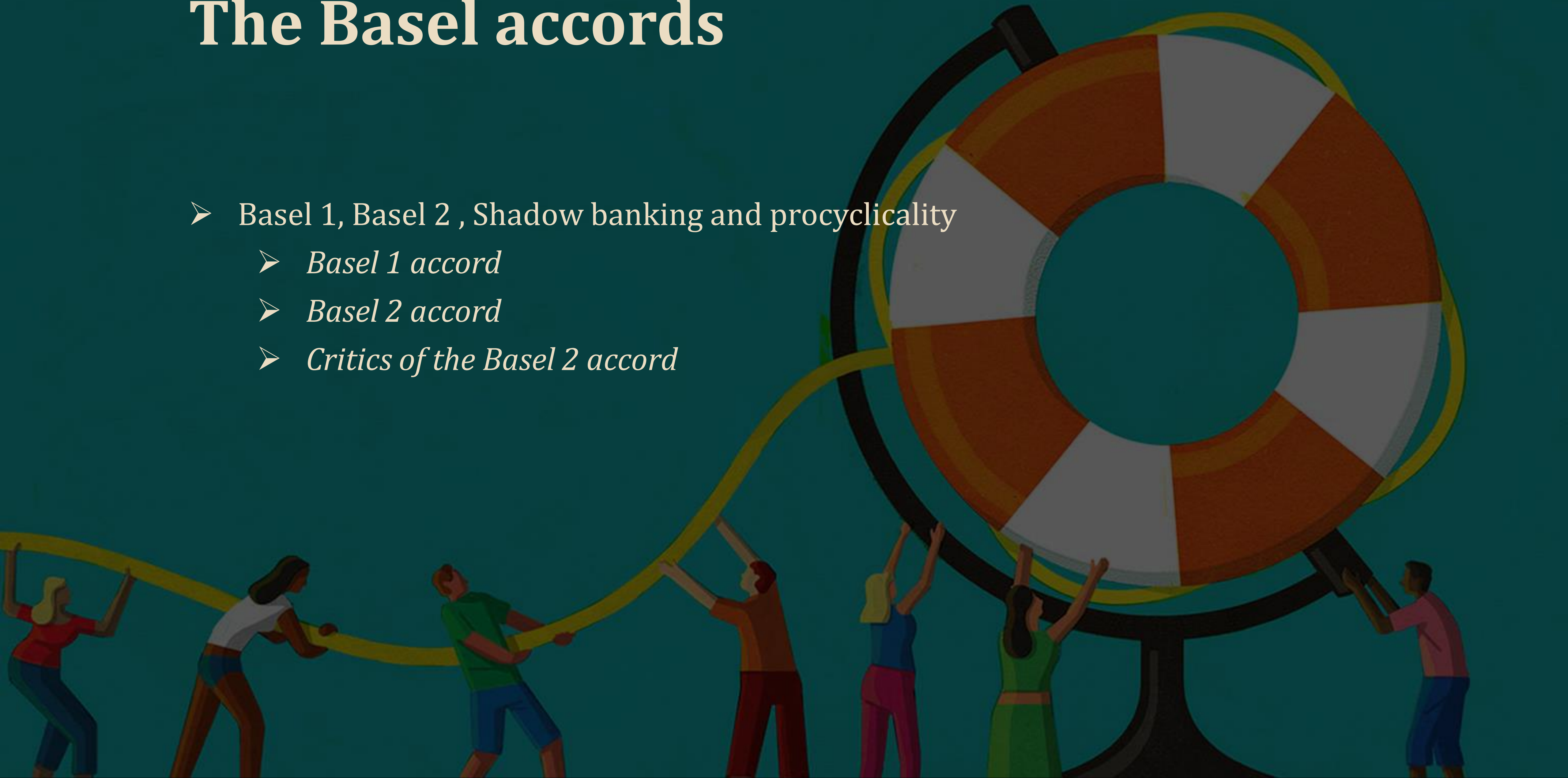
- The supervision of the financial system has focused on micro prudential i.e., the financial institutions took one by one and not in a macroprudential perspective.

- In the United-State, the regulation and the supervision of the financial system were spread between many different agencies.

THE BASEL ACCORDS

The Basel accords

- Basel 1, Basel 2 , Shadow banking and procyclicality
  - *Basel 1 accord*
  - *Basel 2 accord*
  - *Critics of the Basel 2 accord*



Basel 1, Basel 2 , Shadow banking and procyclicality

- <u>Basel 1 accord</u>
  - *In order to limit the risk, take by banks in such a way that ensure their solvability, the monetary authorities of the countries with a well-developed banking system have set some accord between themselves, in 1988.*
  - *Then the Basel 1 accord has defined a norm of solvability, which is the Cooke ratios.*
  - *The equity eligible into the numerator include the social capital, the reserves which constitute capital equity of category 1 (tiers 1), but also elements of indefinite maturity debt as well as additional reserves which constitute the additional capital equity (tiers 2).*

Basel 1, Basel 2 , Shadow banking and procyclicality

- *Since 1996,they also have included over-additional equity (tiers 3).*

- *However, the Cooke ratio had several inadequacies (insensitivity to risk , incentives for regulatory arbitrage, poor risk selection and poorly controlled use of securitization).*

- *These inadequacies can be explained by the following fact below :*

Basel 1, Basel 2 , Shadow banking and procyclicality

- *The regulation was only focused on the credit risk, the operational risk being ignored, and the market risk was introduced in partial way in 1996.*
- *Moreover, the credit risk was considered with a global vision, so totally disconnected to the individual risk of default .*
- *So, the Basel 1 accord was offering the possibility of regulation arbitration, which may create a credit crunch in a period of economic cycle trough.*

Basel 1, Basel 2 , Shadow banking and procyclicality

- <u>The Basel 2 accord</u>

  The system of Basel 2 has 3 interdependent pilar

  - *<u>The first pilar:</u>*
  - *Define the minimum requirement of a financial institution capital equity.*
  - *In comparison to Basel 1 accord, the first pilar of Basel 2 increase the sensibility of regulatory capital to their effective risk which includes the credit risk, the operational risk and the market risk.*
  - *For each risk, there is an estimated amount of money in order to absorb loses that may occur for the bank, in a certain horizon (1 years for the credit risk) and with a certain probability*

Basel 1, Basel 2 , Shadow banking and procyclicality

- <u>The second pilar :</u>
- *Define the essential principle of the prudential supervision. The prudential regulator has to analysis the risk profile of banks by comparing his analyzes with the risk profile analyze the bank provide.*

- *Basel 2 has the goal, to promote the stress test realized by the financial institutions*

Basel 1, Basel 2 , Shadow banking and procyclicality

- *The third pilar is about the increase of the market discipline. This pilar is based on the best financial communication of banks about their risk and their securitization operations.*

Basel 1, Basel 2 , Shadow banking and procyclicality

- <u>Critics of the Basel 2 accord</u>

  - *The straight link introduced by Basel 2 between the capital requirement and the risk take by banks, has installed the believing that this new accord could have procyclical effect. The procyclicality refer to the dynamic relationship between the financial sector and the real economy. These interactions tend to amplify the fluctuations of the economic cycle and create financial instability (Financial Stability forum,2009).*

The Basel accords

- **The Basel 3 accord**
  - *The solvability ratio*
  - *The leverage ratio*
  - *The liquidity ratio*

The Basel 3 accord

- <u>The solvability ratio:</u>

$$\frac{Social\ capital + reserves + non\ distruted\ result + eligible\ interest - deductions}{Credit\ risk + market\ risk + operational\ risk} \geq 4{,}5\%\ (+2{,}5\%\ of\ \ conservation\ cushion)$$

The Basel 3 accord

- *The deductions are constituted by the financial participations, intangible asset and asset of deferred tax.*

- *Moreover, this ratio has introduced the following 2 point:*
  - *<u>increase of the qualitative requirement :</u>*

  The crisis has shown that the credit loose have been hedge by the non-distributed benefits and not by the hybrid assets like the contingent capital asset.

The Basel 3 accord

- *Increase of the quantitative requirement:*
- *The banks are prompted to maintain a CET1 ratio between 1% to 7%, whereas in Basel 2 this ratio was fixed at 2%. Afterward, the banks will have to respect some additional requirement , that are the following:*
- *Countercyclical cushion :This a requirement, of capital, which increase when the economic cycle is in a peak level and decrease when cycle is in a trough level*
- *Systemic overload :This an additional capital requirement, define individually in order to consider the systemic risk and the moral risk, linked to systemic institutions.*

The Basel 3 accord

- Leverage ratios:
  - *During the period before the crisis many bank had a solid tiers 1 ratios (weighted by their risk), whereas at the same time they use to have a huge leverage effect in their balance sheet.*
  - *The leverage has a procyclical impact, which has played an important role during the crisis.*
  - *These considerations had led the Basel Committee to introduce a leverage effect of 3%.*

The Basel 3 accord

- *The leverage ratio is defined as:*

$$leverage\ ratio = \frac{capital\ equity\ of\ category\ 1\ (tiers\ 1)}{total\ of\ expositions\ (balance\ sheet + off, balance\ sheet)} \geq 3\%$$

The Basel 3 accord

- <u>The liquidity ratio:</u>

  - *<u>The liquidity coverage ratios</u>:*

  - *This is a short-term ratio, define as :*

$$LCR = \frac{oustanding\ asset\ of\ high\ quality}{total\ net\ cash\ outflows\ over\ 30\ days} \geq 100\%$$

  - *In the numerators we have the asset that can be sold easily.*

  - *In the denominator we have the amount of money, that the bank would have to finance in a period of stress*

The Basel 3 accord

- *The net stable funding ratios*:

The NSFR is a long-term ratios (1 year horizon), which is used to deter the banks to bypass the LCR by financing their liquid asset with capital maturing just over 30 days. This ratio is defined as :

$$NSFR = \frac{Amount\ of\ available\ stable\ funding}{Amount\ of\ required\ stable\ funding} > 100\%$$

The Basel 3 accord

In addition to the management norm that have been imposed to the institutions in an individual manner, by considering their economic environment as given, the subprime crisis has highlighted the necessity of a macroprudential approach, which consider the interactions between financial institutions, and their impact into the real economy, notably in a situation where a systemic risk exists.

The macroprudential politics

The macroprudential politics

- The role of the macroprudential politics
  - *Endogeneity of the financial risk*
  - *The necessity of a global approach*
  - *The regulations flaws*

The role of the macroprudential politics

- <u>Endogeneity of the financial risk:</u>

For fifteen years, the economic literature has established the evidence that financial risk was endogenous due to their interactions with the macroeconomics dynamics. So, economists have recognized that credit was endogenous and not exogenous as it was supposed by the micro prudential analysis .

The role of the macroprudential politics

- The necessity of a global approach:

    - *During the crisis it has appeared that, many financial risks who seems to be independent from each other, were in reality correlated.*

    - *These commonalities has highlighted the fact that financial institutions are interconnected by each and if one wants to have a good measure of this systemic risk, we have to take into the whole financial systems.*

The role of the macroprudential politics

- <u>The regulations flaws:</u>

  - *Some aspect of the regulation can be procyclical.*

  - *Afterward, it is important to protect the regulations authority against the risk to be taken as hostage by the financial systems.*

The macroprudential politics

- **The indicators of the macroprudential politics**
  - *Indicators of the financial cycle*
  - *Measure of the systemic risk*
    - *Indicators design for measuring institutions systemic risk*
    - *Indicators design for measuring interbank networks*
    - *Composite indicators*
  - ***The stress test***
    - *The stress test that "top down" or "bottom up"*
    - *The macroeconomics stress test*

The indicators of the macroprudential politics

➢ <u>Indicators of the financial cycle:</u>

- *The first family of indicators use in the setting of macroprudential policy are composed of combined indicators or individual indicators*

- *The main indicator that was proposed by the IMF, is the ratios Credit/GDP.*

- *The study of jorda (2011), suggest to use the Harding and Pagan method, which a is an improved version of the Bry-Boschan method rather than using the hodrick Prescott method.*

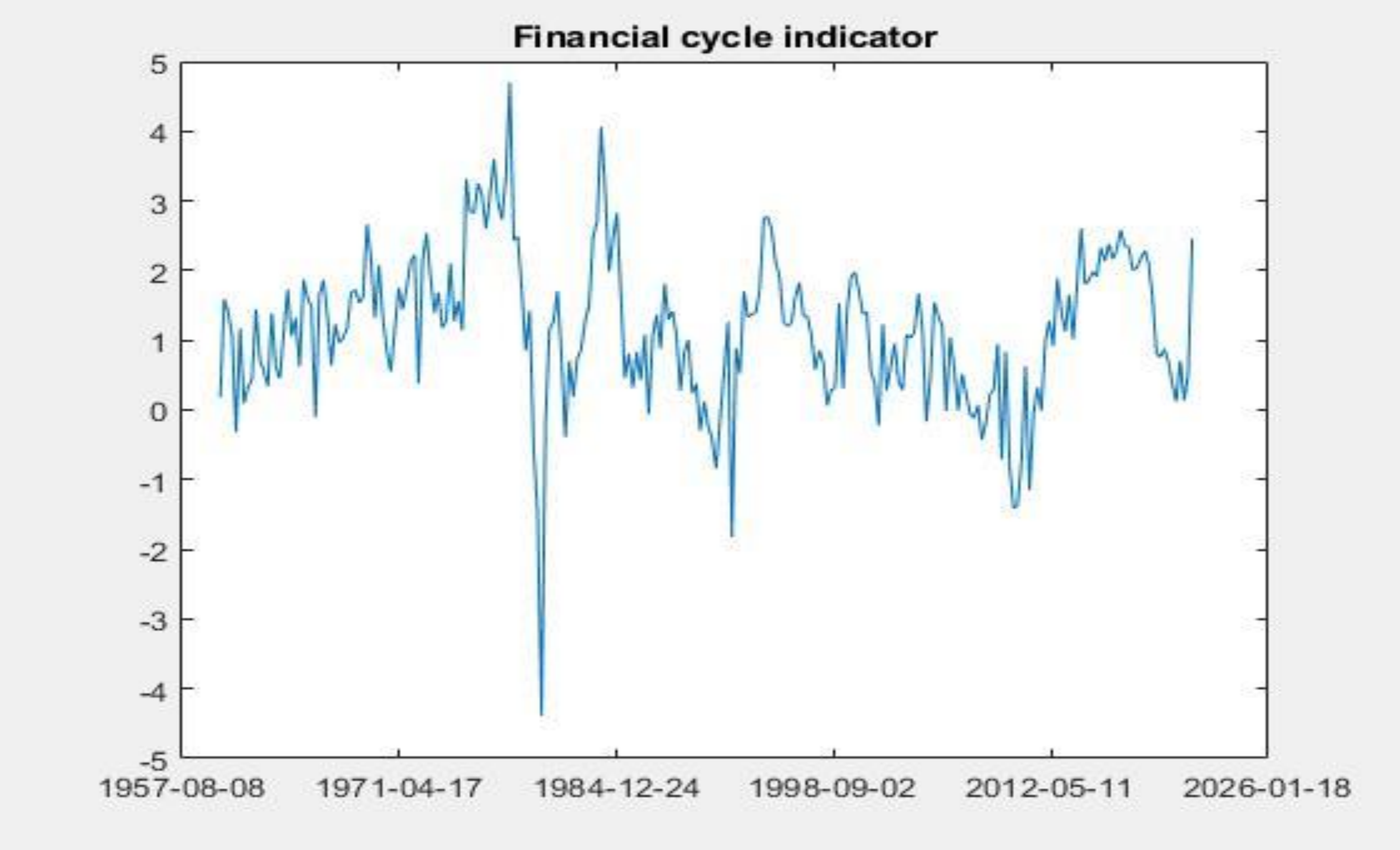
The indicators of the macroprudential politics

- *I have taken the quarterly US GDP and The quarterly credit unions (consumers credit,asset,transactions) between 1960/01/01 to 2021/04/01. Then I have computed this indicator (credit/GDP).*

- *https://fred.stlouisfed.org/series/BOGZ1FA473066000Q*

- *https://fred.stlouisfed.org/series/GDP*

THE INDICATORS OF THE MACROPRUDENTIAL POLITICS



The indicators of the macroprudential politics

- <u>Measure of the systemic risk:</u>
    - *<u>Indicators design for measuring institutions systemic risk:</u>*

- *Among these indicators a distinction has to be made between the indicators that measure the "**systemic fragility**" and the indicator that measure the "**systemic importance** ".*

- *By measuring the "systemic fragility" Acharya et al (2012), have extended the notion of expected shortfall to calculate the marginal expected shortfall.*

- *Then the idea of the marginal expected shortfall has been combined with the method proposed by Brownlees an Engle (2012) to create the SRISK indicator. This indicators is available in the website of the New-York University.*
- *https://vlab.stern.nyu.edu/*

The indicators of the macroprudential politics

- *<u>Indicators design for measuring interbank networks:</u>*

  The indicators that measure the systemic risk in the interbank network, are in general based on descriptive topology of the network or measures the degree of contagion. The study proposed by Gouriéroux and al (2012) has proposed a methodology to distinguish the direct effect of a solvability cost and contagion. They have shown that some interbank network are resilient to some a certain type of choc.

The indicators of the macroprudential politics

- <u>*Composite indicators :*</u>

- *This category of systemic risk indicators considers many dimensions at the same time, including the financial market disequilibrium.*

- *At the European central bank, Hollo and al (2012) have created the composite indicator of systemic stress (CISS indicator).*

- *Billio et Al measure the systemic risk by the contagion between banks, insurance institutions and speculative funds, evaluated by using a granger causality test on the returns of these 3 sectors.*

The indicators of the macroprudential politics

- <u>The stress test:</u>

The stress test is the third type of indicators used in the triggering of macroprudential policy. The stress test tends to put into evidence the weakness, by measuring the reaction of the financial institutions to a big realistic choc. To achieve this macroprudential purpose, some modalities of the stress test have been designed.

The indicators of the macroprudential politics

- *The stress test that "top down" or "bottom up"*
    - *The top-down stress test are those that are realized by the supervisor and the bottom-up stress test bottom up are the test that are realized by the financial institutions.*
    - *The test realized by the financial institutions are more detailed but heterogenous.*
    - *The stress test realized by the regulator are homogenous, but they aren't more precise*

The indicators of the macroprudential politics

- ***The macroeconomics stress test:***

  There are two categories of macroeconomic stress test, the first category tend to measure the sensibility of the balance sheet and income statement of a financial institutions in a horizon 1 or 2 years. The second category tend to measure the effect of a mono-factor choc in a very short-term horizon.

Conclusion

- *In this presentation we have seen the Basel 1 and the Basel 2 accords, and their limits to prevent the financial crisis. These limits were fulfilled by the Basel 3 accord which news approach, like the leverage and liquidity ratios.*
- *Afterward, we have justified the role of the macroprudential politics. Then, we have described the indicators used by the financial authority in the set-up of the macroprudential politics.*

THANK FOR YOUR ATTENTION

Reference

- *Ben S. Bernanke, 2009. "Financial reform to address systemic risk: a speech at the Council on Foreign Relations, Washington, D.C., March 10, 2009," Speech 448, Board of Governors of the Federal Reserve System (U.S.).*
- *Ben S. Bernanke, 2005.The global saving glut and the U.S. current account deficit, a speech at the Sandridge Lecture, Virginia Association of Economics, Richmond, Virginia, March 10, 2005.*
- *Ben S. Bernanke, September 2, 2010, Financial Crisis Inquiry Commission, Board of Governors of the Federal Reserve System.*
- *Gerhard Bry & Charlotte Boschan,* ***Cyclical Analysis of Time Series: Selected Procedures and Computer Programs.***
- *Gourieroux, C. & Heam, J.C. & Monfort, A., 2012. "Bilateral Exposures and Systemic Solvency Risk," Working papers 414, Banque de France.*
- *Lars Peter Hansen, Challenges in Identifying and Measuring Systemic Risk ;Becker Friedman Institute for Research in Economics Working Paper No. 2012-012.*
- *Kremer, Manfred & Lo Duca, Marco & Holló, Dániel, 2012. "CISS - a composite indicator of systemic stress in the financial system," Working Paper Series 1426, European Central Bank.*
- *Monica Billio, Mila Getmansky, Andrew W. Lo, and Loriana Pelizzon, Measuring Systemic Risk in the Finance and Insurance Sectors , MIT Sloan School Working Paper 4774-10 3/17/2010*
- *O Jorda,2011 Discussion of" Anchoring Countercyclical Capital Buffers: The Role of Credit Aggregates“, International Journal of Central Banking*
- ***Viral Acharya, Robert Engle, Matthew Richardson*** *14 March 2012,* ***Capital shortfall: A new approach to ranking and regulating systemic risks ,*** *The American Economic Review.*