Introduction

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The objective of this volume is to offer an updated and systematic discussion of the relationship between central banks, financial regulation and supervision after the financial crisis. The current crisis has raised important questions about:

1. the compatibility of monetary and financial stability and consequently

2. the changing face of central banking, as well as

3. the architecture of financial regulation and supervision.

Before the crisis, in the past two decades, changes in the financial landscape and architecture were characterized by two distinctive features: consolidation and specialization.

Supervisory regimes can be classified as follows: the vertical (silos) model, which follows the boundaries of the financial system in different business sectors, and where every sector is supervised by a different agency; the horizontal (peaks) model, which follows the difference among the public goals of regulation, and where every goal is supervised by a different authority; and the unified (integrated) model, where a single authority supervises the entire financial system in pursuing all public goals.

On one hand, reforms of institutional settings were driven by a general trend to reduce the number of supervisory and regulatory agencies, to reach the unified model – unknown before 1986 – or the vertical model. In both models financial supervisors have specialized themselves with a well-defined mission.

On the other hand, the trend towards specialization has become particularly evident, if we observe the route that the major central banks have followed. The central banks with full responsibility for monetary stability – the Federal Reserve System (Fed), the European

Central Bank (ECB), the Bank of England, the Bank of Japan – did not have full responsibility of financial stability. This does not mean that these central banks are not concerned with financial stability, but it is generally dealt with from a macro-economic perspective only in function of their primary mission, i.e., preserving monetary stability. Among the central banks which do not have full responsibility for monetary policy, such as those in the countries belonging to the euro zone, the most prudent banks have chosen or will choose the route of specialization in vigilance: the cases of Czech Republic, Finland, Ireland, the Netherlands and the Slovak Republic, for example, can be looked at. In general, it has been noted that the national central banks in the euro zone have become increasingly financially stable agencies.

After the crisis, the concern for the stability of the banking and financial industry has caused renewed attention to the architecture of the supervisory and regulatory regimes and the role of the central banks. Policymakers in all countries have wondered and are still wondering whether to reshape their supervisory and regulatory regimes. New proposals to reform these regimes have already been enacted both in the European Union and in the United States. In both cases the consolidation process seems to be stopped, with an increased involvement of the main central banks, i.e., the European Central Bank and the Federal Reserve System, at the same time, using the new territory of macro-prudential supervision. However, the responsibility for micro-prudential supervision is less clearly settled, including the issues of the lead supervisor and burden sharing.

Therefore the topic is in an interesting state of flux. The aim of the book will be to shed light on both the economics and political economy of central banking and financial supervision and regulation to understand where, why and how reforms of financial supervisory and regulatory structure and the role of the central banks can be designed and implemented.

Part I Central Banking, Regulation and Supervision

In Chapter 1, Francesco Giavazzi and Alberto Giovannini argue that financial systems are inherently fragile because of their very function, which makes them valuable: liquidity transformation. Regulatory reforms can strengthen the financial system and decrease the risk of liquidity crises, but they cannot eliminate it completely. This leaves monetary policy with a very important task. In a framework that recognizes the interactions between monetary policy and liquidity transformation, optimal monetary policy would consist of a modified Taylor rule, in which the real interest rate reacts to the possibility of liquidity crises and recognizes the possibility that liquidity transformation may get subsidized. Failure to recognize this point risks leading the economy into a low interest rate trap: low interest rates induce too much risk taking and increase the probability of crises. These crises, in turn, require low interest rates to keep the financial system alive. Raising interest rates becomes extremely difficult in a severely weakened financial system. Therefore, monetary authorities remain stuck in a low interest rate trap. They consider this a reasonable description of the situation we have experienced throughout the past decade.

Athanasios Orphanides provides a policymaker's perspective on some lessons from the recent financial crisis in Chapter 2. He focuses on questions in three areas. First, what lessons can be drawn regarding the institutional framework for monetary policy? Has the experience changed the pre-crisis consensus that monetary policy is best performed by an independent central bank focused on achieving and maintaining price stability? Second, what lessons can be drawn regarding the monetary policy strategy that should be followed by a central bank? How activist should a central bank be in dampening macro-economic fluctuations? Should the 'output gap' serve as an important policy guide? Are there lessons regarding the stability-oriented approach followed by the ECB? How activist should a central bank be in tackling perceived asset price misalignments? Third, is monetary policy pursuing price stability enough to ensure overall stability in the economy? Or is there room for improvement regarding how central banks can contribute to financial stability? Should the role of monetary policy be seen as completely separate from the broader institutional environment governing financial markets and institutions in our economy? Or would greater central bank involvement in regulation and supervision pertaining to credit and finance allow better management of overall economic stability?

In Chapter 3 Alex Cukierman discusses the problems exposed by the global financial crisis in the areas of financial regulation and supervision and possible solutions. He describes and evaluates current proposals regarding the role of the central bank as a systemic regulator, the pros and cons of locating financial supervision in the central bank, and the conflicts and synergies that such an arrangement entails. Once a crisis erupts, central bank liquidity injections constitute a first line of defense. But in the longer term these injections create a trade-off between price and financial stability, and may compromise central bank independence. Problems exposed by the crisis include the growth of a poorly regulated shadow financial system, a short horizon in executive compensation packages and consequent adverse incentive effects, the too-big-to-fail problem, procyclicality in the behavior of financial institutions, conflicts of interest in the rating agencies industry and the trade-off between the scope of intermediation through securitization and transparency in the valuation of assets. He also discusses international dimensions including international cooperation in regulatory reform and the scope for limiting exchange rate variability. The conclusion points out inherent difficulties in distinguishing ex ante between a fundamentals based expansion and a ‘bubble’.

According to Rob Nijskens and Sylvester Eijffinger’s Chapter 4, banking regulation has proven to be inadequate in guarding systemic stability in the recent financial crisis. Central banks have provided liquidity and ministries of finance have set up rescue programs to restore confidence and stability. Using a model of a systemic bank suffering from liquidity shocks, they find that the unregulated bank keeps too much liquidity and takes excessive risk compared to the social optimum. A Lender of Last Resort can alleviate the liquidity problem, but induces moral hazard. Therefore, they introduce a fiscal authority that is able to bail out the bank by injecting capital. The fiscal authority faces a trade-off. When it imposes strict bailout conditions, investment increases but moral hazard ensues. Milder bailout conditions reduce excessive risk taking at the expense of investment. This resembles the current situation on financial markets, in which banks take less risk but also provide less credit to the economy.

In Chapter 5, Pierre Siklos states that the events since the financial crisis of 2007–2009 are likely to increase the breadth and scope of central bank responsibilities. Since the individuals responsible for running both institutions are unelected, there should be, going forward, more effort devoted to measuring the overall quality of the monetary authorities. To this end, he proposes an index of central bank governance derived from an existing index of central bank transparency. The proposed indexes, however, represent only the first step. Many improvements that can be made to the measures are introduced in this chapter. In particular, any improved index of central bank governance will have to consider how institutional quality is influenced by how well monetary authorities coordinate their actions with other regulatory institutions, both domestic and international. One way to hold monetary authorities as reasonably accountable as possible is to ask how well central banks are governed. It is with this in mind that he argues that we need to go beyond indicators of central bank independence and transparency and think in terms of indicators of central bank governance. Such indicators are commonplace for other governmental institutions. It is high time the same indicators are applied to central banks.

Pierre Boyer and Jorge Ponce analyze in Chapter 6 whether or not central banks should be in charge of micro-prudential, as well as of macro-prudential supervision. They discuss this question, which is at the core of current reform efforts on the fields of banking supervision. Their analysis builds on a recent strand of the literature that considers the effects of different supervisory arrangements on the incentives of bank supervisors under the threat of being captured by bankers. They argue that, while there are good reasons for central banks to conduct macro-prudential supervision, it is socially optimal that another supervisor conducts micro-prudential supervision. Their results suggest that policy makers in many countries would like to reconsider the current trend toward the concentration of supervisory powers into central banks because the monopoly in information acquisition may be a curse when regulatory capture is a concern.

In Chapter 7, Yiwei Fang, Iftekhar Hasan and Loretta Mester conduct an empirical analysis of the institutional structure and effectiveness of central banks during the financial crisis. Their main focus is to investigate how central bank independency, transparency, and supervisory regimes affect their policy effectiveness, measured by inflation, exchange rate volatility, GDP growth, unemployment rates, and non-performing loans. They also examine governor characteristics such as term length and prior working experience and relate them to central bank performance. Preliminary findings from cross-country comparison show that central bank independency, transparency, and financial supervision are significantly correlated with the policy effectiveness during the financial crisis. Moreover, governor characteristics also play an important role. First of all, the financial crisis can be thought of as ‘exogenous shocks’, which to a great extent reduces the endogeneity concern of potential reserve causality from economic performance to central bank structure. Secondly, the financial crisis hit almost every country, thereby allowing us to conduct a cross-country comparison among central banks with varying institutional characteristics. Lastly and most importantly, in the financial crisis when the global economy was suffering from increased unemployment and low GDP growth, central banks were more vulnerable to the political pressure and became deeply involved in government-led efforts to rescue the economies.

Lucia Dalla Pellegrina, Donato Masciandaro and Rosaria Vega Pansini empirically investigate whether central bank independence and the monetary policy setting can influence the likelihood that policymakers assign banking supervision to central banks in Chapter 8. They find that, with the condition of the government being benevolent, higher central bank operational freedom (economic independence) is associated with a reduced degree of supervisory powers. They motivate this with the possibility that governments fear the risk of a discretionary misuse of monetary tools. However, it turns out that having tight monetary policy goals (a specific form of political independence) becomes a commitment device mitigating the risk of discretion and increases the odds of central bank involvement in supervision. Their study suggests that central bank independence can be relevant not only for the alleged beneficial effects on macroeconomic variables, but also in influencing policymakers’ decisions in terms of banking supervision. From the policymakers’ point of view, the involvement of the central bank in macro-prudential supervision means greater potential benefits in terms of information. They can also presume that the potential costs of central bank involvement are smaller compared to those related to micro-prudential supervision. In other words, the separation between micro- and macro-prudential supervision can be used to reduce the arguments against central bank involvement.

In Chapter 9, Benjamin Born, Michael Ehrmann and Marcel Fratzscher focus on the new challenges for central banks in terms of communicating about macro-prudential supervision. With regard to the role of communication in enhancing the effectiveness of macro-prudential policy, they differentiate between communication during 'normal' times and during times of crisis. In the former, it is important to be transparent about the aims of the central bank, the processes at work, and the instruments that the central bank will use. In this fashion, the central bank can affect the incentives of economic agents, and thus contribute to crisis prevention. Communication during 'normal' times should, in their view, be very much in line with the principles of monetary policy communication, which typically stress the importance of clarity, transparency and predictability. This will also help in making the central bank accountable. In contrast, during times of crisis, there might well be legitimate limits to transparency, as central bank communications which are too transparent could possibly destabilize the financial system, e.g. by triggering bank runs. They show that both communication instruments exert effects on a broad set of financial markets, and that these instruments do so in a very different way. For instance, Financial Stability Reports tend to reduce volatility in financial markets on release dates, whereas speeches and interviews tend to increase it. This underlines the importance of choosing a careful communication strategy on macro-prudential policy which should be adopted over time and across countries, as there is clearly no one size fits all solution.

Jaromír Baxa, Roman Horváth, and Bořek Vašíček investigate the empirical relationship between monetary policy rules and financial stress in Chapter 10. They examine whether and how main central banks responded to episodes of financial stress over the last three decades and employ a new methodology for monetary policy rules estimation, which allows for time-varying response coefficients and corrects for endogeneity. This flexible framework applied to the US, UK, Australia, Canada and Sweden together with a new financial stress dataset developed by the International Monetary Fund (IMF). This dataset does not only test whether the central banks responded to financial stress, but it also detects the periods and types of stress that were the most worrying for monetary authorities and quantifies the intensity of policy response. Their findings suggest that central banks often change policy rates: mainly decreasing rates in the face of high financial stress. However, the size of a policy response varies substantially over time as well as across countries, with the 2008–2009 financial crisis being the period of the most severe and generalized response. With regards to the specific components of financial stress, most central banks seemed to respond to stock market stress and bank stress, while exchange rate stress is found to drive the reaction of central banks only in more open economies.

Part II The Architecture of Regulation and Supervision

According to Charles Goodhart in Chapter 12, financial regulation has always been a-theoretical, a pragmatic response by practical officials and concerned politicians to immediate problems, following the dictum that 'We must not let that happen again'. When the Basel Committee on Banking Supervision was established in 1974–75 to handle some of the emerging problems of global finance and cross-border banking, the modus operandi then developed was to hold a round-table discussion of current practice in each member state with the objective of trying to reach an agreement on which practice was 'best', and then to harmonize on that. Little or no attempt was made to go back to first principles, and to start by asking why there should be a call for regulation on banking – whether purely domestic or cross-border – in the first place. The current financial crisis has forced a fundamental reconsideration of financial regulation; and rightly so since much of the focus, and the effects, of the existing system were badly designed, with its concentration on individual, rather than systemic, risk and its procyclicality. In response, we now have a ferment of new ideas, many touched upon here. A great deal of further work needs to be done to discern which of these ideas are good and which less so.

Barry Eichengreen discusses eight out-of-the-box ideas about the international financial architecture in Chapter 13. Some of these are even further out of the box than others. They fall under three headings: measures to buttress financial stability, steps to smooth the operation of the international monetary system, and reforms of the IMF. He admits that none of these ideas will be adopted in the short term, but they are the kind of things that policy makers should be pondering once they move beyond the current crisis. His out-of-the-box ideas are:

1. countercyclical IMF capital charges;
2. a price-based scarce currency clause;
3. convertible Special Drawing Rights (SDRs);
4. global Glass-Steagall-like restrictions;
5. a global systemic risk facility;

6. a multilateral insolvency trust for international banks;
7. a World Financial Organization (WFO) and
8. a thorough reform of IMF governance in order to enhance its legitimacy and accountability.

For out-of-the-box ideas to have legs, they must be accompanied by a roadmap for how to get from here to there in the space of, say, ten years. It is clear that reform of IMF governance is a prerequisite for many of the other ambitious ideas entailing a role for the Fund. Without meaningful governance reform, emerging market members would not agree to a significant expansion of the IMF's resources and implement these out-of-the-box ideas.

In Chapter 14, Gerard Caprio analyzes the role of countercyclical regulatory requirements in improving safe and sound banking. Most explanations of the financial crisis of 2007–2009 emphasize the role of the preceding boom in real estate and asset markets in a variety of advanced countries. As a result, an idea that is gaining support among various groups is how to make Basel III or any regulatory regime less procyclical. He addresses the rationale for and likely contribution of such policies. Making provisioning (or capital) requirements countercyclical is one potential way of addressing procyclicality, and accordingly it looks at the efforts of the authorities in Spain and Colombia, two countries in which countercyclical provisioning has been tried, to see what the track record has been. As explained there, these experiments have been at best too recent and limited to carry much weight, but they are much less favorable for supporting this practice than is commonly admitted. Finally, he discusses his concerns and implementation issues with countercyclical capital or provisioning requirements, including why their impact might be expected to be limited, and concludes with recommendations for developing country officials who want to learn how to make their financial systems less exposed to crises.

Martin Čihák and Alexander Tieman conduct an empirical analysis of the quality of financial sector regulation and supervision around the world in Chapter 15. Unlike studies that collect and analyze data on regulation and supervision 'on the books', their study also analyzes available information on supervisory implementation, making use of data from IMF-World Bank assessments of compliance with international standards and codes. Incorporating supervisory implementation into the study provides an improved means of assessing countries' regulatory systems. They find, among other things, that countries' regulatory frameworks score, on average, one notch below full compliance with the standards (on a four-notch scale). The analysis suggests that financial supervisory systems in high-income economies are generally of higher quality than those in medium- or low-income economies. However, supervision in high-income countries also faces bigger challenges, as they are characterized by more complex financial systems. On balance, therefore, their research cautions that despite the higher grades obtained by high-income countries, the supervisory knowledge about the financial strength of their institutions may not be higher than that of low- or middle-income countries. Indeed, the developments in the global financial system in late 2007 and early 2008 suggest that the higher quality of supervisory systems in high-income countries may not have been sufficient given the complexity of their financial systems.

Donato Masciandaro and Marc Quintyn give an overview of the worldwide trends, causes and effects during the 1998–2008 period in reforming the financial supervision architecture and the role of the central bank in Chapter 16. Today policymakers in all countries, shaken by the financial crisis of 2007–2008, are carefully reconsidering the features of their supervisory architecture. Over the last ten years the financial supervision architecture and the role of the central bank in supervision therein has undergone radical transformation. In the wake of the 2007–08 financial crisis, more countries are considering reforms, while others, who went through a round of reforms, are looking at the architecture once again. They review the insights gained by the literature on this topic and, based on updated information on 102 countries for the 1998–2008 period, they address three questions:

(a) Which main features are reshaping the supervisory architecture?,

(b) What explains the increasing diversity of the institutional settings? and

(c) What are the effects so far of the changing face of banking and financial supervisory regimes on the quality of regulation and supervision?

In Chapter 11, Sylvester Eijffinger in his second contribution to this volume discusses defining and measuring systemic risk. With the planned implementation of the European Systemic Risk Board (ESRB) in 2011, European authorities are trying to identify and avoid future financial crises before they start. The ESRB chaired by the President of the ECB will have to deal with the macro-prudential supervision of the financial sector in the European Union and is mandated to detect 'systemic risks'. However, the ECB does not have a clear concept of systemic risk itself and even in academia no generally accepted definition exists. He stresses the conceptual issues of systemic risk, stressing that the ESRB's tasks will be risk detection, risk assessment and ultimately issuing risk warnings. First, the different definitions of systemic risk are discussed, to be able to pinpoint the common components of systemic risk. Then he moves to risk detection and assessment, for which accurate 'early-warning indicators' should be developed together with the gathering of appropriate data. Finally, he argues that this new way of defining and measuring systemic risk should be translated into new ESRB policy, taking into account that the indicators can and should be refined over time.

In their second contribution to this volume in Chapter 17 Donato Masciandaro and Marc Quintyn, this time with co-author Maria Nieto, discuss the measuring convergence in the new European System of Financial Supervisors (ESFS). In June 2009 a new financial supervisory framework for the European Union was endorsed, consisting of a macro-prudential pillar and a micro-prudential pillar. The latter is composed of a Steering Committee, three supranational supervisory authorities (ESAs) and a network of national supervisory authorities at the bottom, de facto establishing a complex, multiple principals, multiple agents network. The ESAs will have far-reaching powers vis-à-vis the national supervisory authorities. However, the latter will also retain their full powers with respect to the oversight of the domestic financial system. Intertwined in this network of European and national supervisors are also the existing home-host supervisor relations, as well as the supervisory colleges, in charge of the oversight of cross-border institutions. So the emerging structure is a complex, multiple principals, multiple agents web, which, in order to produce efficient and effective supervision, needs to be governed by incentive-compatible arrangements. This paper focuses on the network of national agencies. Starting from an analysis of supervisory architectures and governance arrangements, they assess to what extent lack of convergence could undermine efficient and effective supervision. Their main conclusion is that harmonization of governance arrangements towards best practice would better align supervisors' incentive structures and hence be beneficial to the quality of supervision.

Marcelo Rezende empirically investigates in Chapter 18 how joint supervisors examine financial institutions, in particular state banks. He studies what determines whether federal and state supervisors examine state banks independently or together. The results suggest that supervisors coordinate examinations in order to support states with lower budgets and capabilities and more banks to supervise. He finds that states with larger budgets examine more banks independently, that they accommodate changes in the number of banks mostly through the number of examinations with a federal supervisor and that, when examining banks together, state banking departments that have earned quality accreditation are more likely to write conclusion reports separately from federal supervisors. The results also indicate that regulation impacts supervision by changing the characteristics of banks. Independent examinations decrease with branch deregulation, which is consistent with the facts that this reform consolidated banks within fewer independent firms and that state and federal supervisors are more likely to examine large and complex institutions together.

In the last contribution to this volume Jakob de Haan and Fabian Amtenbrink discuss the role of credit rating agencies (CRAs) in general and particularly during the financial crisis. They argue that CRAs play a crucial role in the global financial system as it is currently organized. This role is not limited to the elimination of an information asymmetry in favor of investors that readily take over the advice provided by CRAs in the form of credit rating. It actually extends to the fulfillment of a quasi-regulatory and thus public function in determining capital requirements for financial institutions, a crucial aspect of the prudential supervision and thus ultimately of financial stability as such. What is more, CRAs do not only cast a judgment on the creditworthiness of companies, such as financial institutions and their financial products, but also on states. The current euro zone crisis highlights the vast implications which a sovereign downgrading can have not only in the financial markets but also for the respective state itself. The recent financial crisis highlights that assigning such a key role to CRAs bears considerable risks, when not accompanied by an adequate regulatory framework. Certainly in the past, the business model of CRAs left room for conflicts of interest, while their rating methodologies remained opaque and arguably ill-suited for the application to the complex structured financial products that currently make such a large portion of the rating business of CRAs. Moreover, a large concentration in the rating business has left little or no room for new CRAs with other business models and rating methods to enter the market.

Conclusion

The relationships between central banking on one hand and financial regulation and supervision on the other hand must heed the lessons of the financial crisis. Everybody agrees about this issue. But how?

As we already stressed above the most interesting innovation to have taken place over the last decade is the split between responsibility for monetary policy and responsibility for micro supervision, assigning each function to a different regulatory actor. In a country the central bank should be the only lender of last resort and the sole monetary policy authority. Consequently, at least in normal times, three key features of modern central banking can be identified: the central bank should focus mainly on maintaining price stability; the central bank should be politically independent from the government and at the same time accountable and transparent; the central bank should be operationally independent in influencing interest rates as well as bank reserves to safeguard monetary stability.

The extraordinary times of the crisis confirmed that monetary policy and micro supervision should be separated, given that expected disadvantages have outweighed expected advantages. Those who still favor the coupling of the two policy monopolies within the central bank object that there are significant benefits in terms of information. But there are other ways to improve information flows, beyond such coupling.

On the other hand, the coupling of the micro supervision function with the monetary function poses certain dangers. There is the risk of distorting the behavior of financial intermediaries, by augmenting their propensity to risk. When the controller is the same actor that can save you by printing money, the moral hazard is likely to increase. There is a further risk in terms of central bank behavior, which can turn into an all-powerful bureaucracy, with related consequences.

The coupling of micro supervision and monetary policy tends to not keep banks, the central bank and the political system at arm's length from each other, with all the consequent risks. These risks are more relevant today, if one thinks how much tighter the relations between these agents have become in the wake of the financial crisis. Both micro supervisory policy and monetary policy must be managed by independent authorities: independent from banks, government, and their own bureaucratic appetites. The trend away from having micro supervision done inside the central bank should be completed.

Still the architecture of central banks should follow to ensure that the government of money not be subjected to either the vagaries of the electoral cycle or political ideology. The expressions 'independence' and 'accountability' have entered everyday language, but they need to be given more significant meaning. It is crucial to guarantee the correct perimeter of the triangle of power linking the central bank to banks and the political system, particularly if two of the corners are already so close to each other, after the extensive bailouts.

At the same time the crisis reminded us that in extraordinary times the central banks are still expected to utilize their policy instruments to safeguard the systemic stability of the financial system. The implications of the role of the central banks in maintaining financial stability concern its abilities in facing the potential tradeoffs that can occur in terms of goals, institutional relationships and instruments.

Our general suggestion is that future effectiveness of the central banking architecture will depend on its ability to ensure the consistency between the central bank actions in normal times – when the main goal is monetary stability – and extraordinary times – when the need is to rebuild public trust in financial stability. The central bank should be free to set the right policy instruments from time to time, so they are accountable and transparent, but not dependent or captured in any case.

In order to face banking panics and maintain financial stability, the central bank can be in the position to implement both conventional and non conventional policies. These policies can have implications on both the dimension and the riskiness of the central bank balance sheet. In a financially unstable environment the central bank may need to lend to anyone and to be the sole judge of whether the credit conditions – including collateral – are acceptable. Consequently, central bank policies may have potentially fiscal consequences, given that any negative payoffs ultimately must be funded by the fiscal authority. During the crisis the monetary and fiscal decisions become temporarily more intertwined. It is crucial that the institutional design avoids the risks that such temporary interactions produce permanent effects on central bank independence, accountability and transparency. The solution of the trading off between fiscal and monetary considerations will crucially depend on the different institutional solutions which characterize the relationships between the central bank, the government and the legislative bodies country by country. It is clear, for example, that the different position of the Anglo-Saxon central banks – the Fed and the BoE – compared to the ECB will be likely to matter.

This conclusion raises important and novel questions about how to manage the crucial differences in monetary policy strategies during normal and extraordinary times – i.e., unusual and exigent circumstances – as well as their consequences in central bank institutional design. In this respect at least three intertwined questions are today on the table. First, should the potential tradeoff between monetary stability and financial stability be explicitly considered and eventually disciplined in the central bank goal setting? In other words, should the central bank be made the explicit macro prudential regulator? Second, should central banks be independent, accountable and transparent following different procedures? Third, in order to prevent credit-based bubbles, should the central bank operational setting be enriched, possibly though regulatory instruments?

This handbook cannot have definite answers, but we have tried to offer robust frameworks and results to orientate future research. Now we are where the Ancient Romans called *Terra Incognita* (‘Unknown Land’), or *Hic Sunt Leones* (‘Here Are Lions’). Let us share the hope of the Medieval cartographers by offering maps to be used for avoiding nasty meetings!

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