Finance, Growth, and Stability: Lessons from the Crisis

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Abstract: This article introduces a special issue on lessons from the recent crisis on finance, growth, and stability. The papers in the special issue discuss (i) the benefits and risks of financial innovation and regulatory responses to these risks, (ii) the effect of finance and globalization on the real economy, and (iii) the role of government in providing credit guarantees. This introductory article provides a broader view on these issues and closes with ideas on the future research agenda in this field.

Keywords: Financial Development; Financial Innovation; Globalization; Government Policies

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1. Introduction

The Global Financial Crisis of 2007-9 and the on-going Eurozone crisis have shed doubts on the role of financial institutions and markets in modern market economies. There is not only a fundamental debate on the function and optimal size of financial systems in post-crisis economies, but also on their structure. Questions are raised on the role of financial innovation, the benefits and risks of financial globalization, and the role of government in the financial sector. The crisis has also sparked a regulatory reform process, which has led to tighter capital and liquidity requirements, with other dimensions, including activity restrictions and taxation, still being discussed.

This special issue comprises several papers addressing specific questions related to the Global Financial Crisis and the on-going regulatory reform process. Specifically, papers in this special issue discuss the benefits and risks of financial innovation, including CDS protection and securitization, and regulatory frameworks for them; the impact of finance and globalization on real sector outcomes; and the role of government in providing credit guarantees. The special issue contains both theoretical and empirical papers, reflecting advances in both areas for better understanding the relationship between financial innovation and deepening and economic growth and stability, as well as the role of regulation and of the government in the financial sector, in general.

The pre-crisis consensus was that market-based finance can only be good and that the expansion of the financial system, triggered by technological advances and deregulation, bears high upsides with little downside risk. However, even the pre-crisis literature documented that while the level of financial depth is positively associated with economic growth, rapid growth in credit is a reliable crisis predictor (Demirguc-Kunt and Detragiache, 2005; Kaminsky and Reinhart, 1999). And while financial innovation has contributed to the rapid expansion of financial systems around the world, with important benefits for households and enterprises, this expansion has also created new risks, most importantly tail

risks not taken into account by individual investors (Rajan, 2005). The financial crisis has helped swing the pendulum towards a rather negative view of the financial system, overemphasizing the risks of financial innovation and financial markets, in general, and calling for strong regulatory responses. Frustration about taxpayer financed bail-outs and the high economic cost of the recent crises has been channeled into calls for restraining if not downsizing the financial system.

If there is one major lesson coming out of the very different papers and out of the more recent literature on financial institutions and markets in general, it is that finance can be as much a force for economic development as the root cause of systemic crises. Often the same mechanism that helps overcome agency problems and improve resource allocation can be a source of fragility. It might be thus difficult for the financial system to settle for the Goldilocks level of financial depth, neither too cold nor too hot. While financial deepening requires risk taking and risk transformation, agency problems, herding trends, and self-enforcing cycles push market participants to take on more risks than sustainable, effectively shifting risk, which ultimately results in financial fragility (e.g., Acharya, 2009). The objective of achieving the ideal level of financial depth thus requires focusing on the incentives of all market participants and thus ultimately the regulatory framework. Critically, however, this and related research suggests that the challenge is not so much to restrain finance, but rather to harness it for the benefit of the real economy.

Incentives of key players in the financial system are important, including those of investors, borrowers, regulators and politicians. The challenge for the regulatory reform process, currently under way on both sides of the Atlantic, is thus to structure incentives in a way that private and social benefits and risks of market participants are aligned. To be more specific, the downside risks with potential losses of risk-taking decisions by financial institutions and market participants have to be internalized. This requires adjustments to both micro- and macro-prudential regulatory frameworks and a dynamic approach that adapts to new structures and risks in the financial system. However, this reform process also has to take

into account that regulators are not benevolent social planners, but face their own set of incentives and constraints (Barth, Caprio and Levine, 2012).

While the regulatory reform discussion and debate on the future structure of the financial system often focuses on high-income countries in North America and Europe, the papers in this special issue make clear that the repercussions of this discussion affect financial systems as much in the emerging and developing world. Given the strong evidence of the positive transformational effects of finance, including global finance, on economies in the developing and emerging world, even taking into account the risks of rapid deepening or opening up, the challenge is to develop institutional and regulatory frameworks that allow harnessing the potential benefits of financial deepening, rather than restraining it.

The remainder of this introductory article is structured as follows. The next section discusses research on different forms of financial innovation, including their benefits and risks for credit markets and regulatory implications. Section 3 presents recent evidence on the effect of financial development and globalization on real economy outcomes. Section 4 offers a critical view of the role of governments in the financial sector. Section 5 concludes with a forward-looking view on the future research agenda. While I will discuss each of the papers in the special issue, I will not go into detail, but rather invite the readers to explore the papers.

2. Financial innovation – the bright and dark sides

The Global Financial Crisis of 2007 to 2009 has spurred widespread debates on the "bright" and "dark" sides of financial innovation. The traditional *innovation-growth view* posits that financial innovations help reduce agency costs, facilitate risk sharing, complete the market, and ultimately improve allocative efficiency and economic growth. The *innovation-fragility view*, by contrast, has identified financial innovations as the root cause of the recent Global Financial Crisis, by leading to an unprecedented credit expansion fueling a boom-bust cycle in housing prices, by engineering securities perceived to be safe but exposed to neglected risks, and by helping banks and investment banks design structured products to exploit

investors' misunderstandings of financial markets and exploit regulatory arbitrage possibilities.

A series of recent theoretical and empirical papers have addressed the benefits and risks of financial innovation. To quote just a few examples, Laeven, Levine and Michalopoulos (2009) show that financial innovation has been a driving force behind financial deepening and economic development over the past centuries, as the emergence of specialized lenders and investment banks to finance railroad expansion in the 19th century, the emergence of venture capital firms to finance high-technology firms in the 20th century, and the financing of biotech firms through pharmaceutical companies in the 21st century show. Beck et al. (2012) show that financial innovation allows economies to better exploit growth opportunities and helps especially industries relying on external finance and R&D. Dynan, Elmendorf, and Sichel (2006) suggest that financial innovation has played a key role in reducing the volatility of economic activity in the early parts of the 21st century. Focusing on a specific form of financial innovation, Norden, Silva Buston, and Wagner (2013) show that banks with larger gross positions in credit derivatives charge significantly lower corporate loan spreads.

On the other hand, several recent papers have focused on the negative aspects of financial innovation. Wagner (2007a, b) shows that financial innovation that reduces asymmetric information can actually increase risk-taking due to agency problems between bank owners and managers, or because of lower costs of fragility. Ashcraft and Santos (2009) confirm this hypothesis, showing that firms with high default risk face higher loan spreads after they become traded in the CDS market, an effect that might be driven by reduced incentives for banks to monitor these borrowers. Gennaioli, Shleifer and Vishny (2012) use a theoretical model to show how financial institutions can cater to risk-averse investors' preferences by engineering securities perceived to be safe but exposed to neglected risks, ultimately leading to fragility when these risks are exposed. Dell'Ariccia, Igan, and Laeven (2012a), Mian and Sufi (2009), and Keys et al. (2010) show empirically that securitization resulted in reduced

lending standards in the U.S. in the early 2000s in the run-up to the crisis and increased loan delinquency rates. Beck et al. (2012) show for a cross-section of countries that higher financial innovation is associated with higher risk-taking and more volatile returns of banks and resulted in higher bank losses during the crisis.

This special issue contains three theoretical papers that gauge the design and effect of specific forms of financial innovation. First, Arping (2013) focuses on protection of lenders against default risk through CDS protection and shows that the use of this instrument can have both positive and negative repercussions for credit market efficiency. Specifically, Arping embeds CDS protection into a model of corporate lending with borrower moral hazard and derives implications for credit market efficiency. On the one hand, credit default swaps insulate lenders against losses from forcing borrowers into default and liquidation. This improves the credibility of termination threats, which can have positive implications for borrower incentives and credit availability ex ante. On the other hand, lenders may abuse their enhanced bargaining power vis-a-vis borrowers and extract excessive rents in debt renegotiations. Arping shows that if this hold-up threat becomes severe, borrowers will be reluctant to agree to debt maturity designs or control rights transfers that would have been optimal in the absence of CDS protection. The introduction of CDS protection can thus tighten credit constraints and ultimately lead to a break-down of the credit market. Arping discusses several contract and policy levers that can prevent such a break-down, including disclosure requirements for CDS trades. Critically, his model shows that the benefits of financial innovation vary across borrowers with different characteristics; firms with low asset tangibility and where debt renegotiation is thus more cumbersome stand to benefit more from the use of CDS.

Another tool for credit risk management is the securitization of loans. While the pooling and sale of loans by financial institutions has a long history, the amounts involved in this market exploded in the years leading up to the Global Financial Crisis (reaching $10.24 trillion in the

United States and $2.25 trillion in Europe as of the 2nd quarter of 2008)[1] and, as already discussed, the securitization of sub-prime loans is often quoted as a critical factor in the boom-bust cycle of the 2000s in the U.S. Critics point to incentive distortions caused by securitization, resulting in lower origination standards and quality of monitoring. Using a model where banks play an active role in monitoring borrowers, Cerasi and Rochet (2013) analyze the impact of securitization on bankers' incentives across different macroeconomic scenarios. They show that securitization can be part of the optimal financing scheme for banks, provided banks retain an equity tranche in the sold loans to maintain proper incentives. In economic downturns, however, securitization should be restricted. The implementation of the optimal solvency scheme is achieved by setting appropriate capital charges through a form of capital insurance, protecting the value of bank capital in downturns, while providing additional liquidity in upturns. The critical policy take away from their analysis is thus that securitization should be regulated differently across the business cycle.

One critical issue in securitization has been whether lenders should be forced to retain an economic interest in the securitized assets. The lack of proper screening and monitoring by lenders in the run-up to the Global Financial Crisis has often been explained with the fact that lenders did not retain any interest. Current regulatory reform suggestions therefore include regulations to force issuers to retain an economic interest in the securitization products they issue. Specifically, legislation on securitizations in the EU and the U.S. will require arrangers of securitizations to hold 5% of the securitizations they sell. However, it is not only the size of retained exposure, but also the risk profile that matters as shown by Kisser and Kiff (2013). The authors compare the retention of equity and mezzanine tranches and show that loan screening activity is maximized when the loan originating bank retains the equity tranche. However, in case capital structure irrelevance does not hold, resulting in a wedge between the cost of equity and debt, a profit maximizing bank is likely to favor retention of the less risky mezzanine tranche. From a regulator's perspective this is a problem because the

[1] Data are from the ESF Securitization Data Report Q2.

implied loan screening activity is substantially lower in this case. The wedge between banks' and regulator's incentives is even wider the costlier the due diligence, the higher the loan profitability, and the more positive the economic outlook.

In summary, these three papers show that financial innovation, including CDS and securitization, is a double-edged sword, with important benefits for both banks and borrowers, but also distorting incentives of lenders, which can ultimately result in financial fragility. Smart and dynamic regulation of these forms of innovation is called for.

3. Finance, globalization, and the real economy

A large and by now well established literature has shown the critical importance of the financial system for economic growth. What started with simple cross-country regressions, as used by King and Levine (1993), has developed into a large literature using an array of different techniques to look beyond correlation and controlling for biases arising from endogeneity and omitted variables. Specifically, using instrumental variable approaches, difference-in-difference approaches that consider the differential impact of finance on specific sectors and thus point to a smoking gun, explorations of specific regulatory changes that led to financial deepening in individual countries, and micro- level approaches using firm-level data have provided the same result: financial deepening is a critical part of the overall development process of a country (see Levine, 2005 for an overview).

More recent research, however, has pointed to important non-linearities in the relationship between finance and growth. There is evidence that the effect of financial development is strongest among middle-income countries, whereas other work finds a declining effect of finance and growth as countries grow richer.[2] More recently, Arcand, Berkes, and Panizza (2012) find that the finance and growth relationship turns negative for high-income countries, identifying a value of 110 percent private credit to GDP as an approximate turning point, with

[2] Rioja and Valev (2004a, 2004b), andAghion, Howitt, and Mayer-Foulkes (2005), and Philippon and Reshef (2013).

the negative relationship between finance and growth turning significant at around 150 percent private credit to GDP, levels reached by some high-income countries in the 2000s. Notably, most of these countries were hit hardest by the Global Financial Crisis.

There are several not exclusive explanations for such non-linearities as put forward by the recent literature and partly informed by the recent crisis. First, the Lucas critique might apply to standard measures of financial development, in the sense that turning this indicator into a policy variable distorts and ultimately eliminates the relationship between finance and growth. Second, the measures of financial depth and intermediation the literature has been using might be simply too crude to capture quality improvements at high levels of financial development. In addition, the financial sector has gradually extended its scope beyond the traditional activity of intermediation towards so-called "non-intermediation" financial activities (Demirgüc-Kunt and Huizinga, 2010). As a result, the usual measures of intermediation services have become less and less congruent with the reality of modern financial systems. Third, some argue that the reason for the non-linearity of the finance-growth relationship might be that financial development helps catch up to the productivity frontier, but has limited or no growth effect for countries that are close or at the frontier (Aghion, Howitt and Mayer-Foulkes, 2005). We would thus not expect any growth effect from further financial deepening in high-income countries. A fourth reason for non-linearities might lie in the beneficiary of the credit as argued by Beck et al. (2012), who explore the differential growth effects of enterprise and household credit. Consistent with theory they find that the growth effect of financial deepening comes through enterprise rather than household credit. Most of the financial deepening in high-income countries has come through additional household lending, which thus might explain the insignificant finance-growth relationship across high-income countries. Fifth, the financial system might actually grow too large relative to the real economy if it extracts excessively high informational rents and in this way attracts too much young talent towards the financial industry (Bolton, Santos and Scheinkman, 2011; Philippon, 2010).

Beck, Degryse and Kneer (2013) offer another reason for a non-linear if not even negative relationship between finance and growth in high-income countries. Specifically, they explore empirically two different concepts of the financial system – the financial system as facilitator for the rest of the economy versus the financial system as a growth sector in itself, which also performs non-intermediation activities – and their relationship with GDP per capita growth and volatility. Based on a sample of 77 countries for the period 1980-2007, they find that intermediation activities increase growth and reduce volatility in the long run. An expansion of the financial sectors along other dimensions has no long-run effect on real sector outcomes. Over shorter time horizons a large financial sector stimulates growth at the cost of higher volatility in high-income countries. Notwithstanding, intermediation activities stabilize the economy in the medium run especially in low-income countries and enhance growth in the long-run in these countries. While the authors' analysis is tentative and does not address issues of endogeneity, it adds to the on-going debate on the role of the financial system in post-crisis economies on both sides of the Atlantic.

Another important and related debate is that on globalization of financial services. Economists and policymakers alike have for a long time debated the benefits and risks of financial globalization. The experience of the Global Financial Crisis has further added to this debate. Advocates of financial integration stress the benefits, including access to additional external resources available for capital-poor developing countries and improvements in resource allocation and risk-sharing possibilities (Fischer, 1998; Summer, 2000). Critics point to the volatility of capital flows, which ultimately undermines financial and economic stability on the national and global level (Rodrik, 1998; Stiglitz, 2002). The empirical evidence has not provided unambiguous evidence. On the one hand, several cross-country studies (e.g., Bekaert, Harvey and Lundblad, 2005, Quinn and Toyoda, 2008 and Henry, 2000) have documented a positive relationship between financial openness and growth. On the other hand, Grilli and Milesi-Ferretti (1995) find no significant relationship. One of the reasons for these contradicting findings relates to different measures of financial openness used as well as different methodologies. There are also contradictory findings on the

relationship between openness/globalization and volatility. Popov (2011) finds a positive effect of financial integration on growth volatility, while Bekaert, Harvey and Lundblad (2006) find a negative relationship.

Di Nicolo and Juvenal (2013) distinguish between financial integration and globalization, where the former is defined as how close a financial market excess returns are to an equally weighted global market excess return, whereas the latter is captured by a measure in the growth of external assets and liabilities relative to GDP, and examine their respective impact on several dimensions of real activity. Using data for 48 advanced and emerging market economies during 1985-2009, the authors show that both advances in financial integration and globalization are associated with higher growth, lower growth volatility, and lower probabilities of severe declines in real activity, with the positive impact of financial integration enhanced by improvements in corporate governance. They thus find no evidence of a trade-off between advances in financial integration, globalization, and macroeconomic stability.

In summary, the empirical evidence of these two and related papers underlines the importance of financial intermediation and integration for real sector outcomes. This line of research has also shown, however, that different concepts of financial intermediation and integration and the corresponding measurements can imply different relationships with the real economy. It has also become increasingly clear that there are important interaction effects between financial development and financial integration, with financial integration fostering the development of a domestic financial system – one of the collateral benefits stressed by Kose et al. (2009) – while a well developed financial system is at the same time a pre-condition for an economy to benefit from financial integration (Alfaro et al., 2004).

4. The Role of the Government

The recent crises have also put the role of government at the center of the debate. While there has been a growing "pro-market" consensus before the crisis that governments should focus

on providing the necessary legal and regulatory frameworks for financial institutions and markets to flourish, the experience of the crisis, with governments nationalizing failing banks and providing widespread guarantees, has reopened the possibility of much more activist governments.

A previous special issue of the Journal of Financial Stability has addressed the issue of partial credit guarantees (Volume 6, issue 1, 2010). As documented by Beck, Klapper and Mendoza (2010), such schemes are widespread across the developing and developed world, although there is little rigorous evidence yet on their effectiveness in deepening financial systems and in their optimal design. In this special issue, Anginer, de la Torre and Ize (2013) analyze different justifications for the government to step into the market and offer such credit guarantee schemes. They first dismiss several common justifications, including principal-agent frictions or un-internalized externalities in an environment of risk neutrality. On the other hand, where risk is purely idiosyncratic—and thus in principle diversifiable in the market—government guarantees can be justified if private lenders are risk averse and because of the state's comparative advantage over markets in resolving the collective action frictions that hinder risk spreading. To exploit this advantage in a sustainable manner, however, the providers of such guarantee schemes, typically development banks or agencies, have to price their guarantees fairly, crowd in the private sector, and reduce their excessive risk aversion. This in return requires addressing governance deficiencies present in many development banks around the globe, as well as addressing challenges of risk management.

Credit guarantees are obviously only one, though very important, area of engagement for activist governments. By moving beyond macroeconomic management and providing the institutional and regulatory framework for financial institutions and markets towards providing services and products that could be – in principle – provided by the market, governments move onto "thin ice". On the one hand, ample experience across the developing and the developed world has shown that governments more often fail than succeed in providing financial services in a sustainable manner; on the other hand, market failures as

discussed above create space for a positive role for governments in building markets. Put differently, the risk of government failure on the one side and market failure on the other side provide only a small opening for the ship of government interventions into the financial system to sail through successfully.[3]

5. Looking forward

The recent crisis has raised substantial questions about the role of finance in modern market economies. This special issue includes six papers that address several fundamental issues in financial development and innovation and speak to the on-going regulatory reform debate. They show the benefits and risks of financial innovation and the importance of financial intermediation and globalization for real sector outcomes and discuss the role of government.

In this concluding section, I provide several thoughts on the research agenda going forward. Specifically, I would like to focus on five areas of policy relevant research. First, what is the optimal size and structure of the financial system? Given recent evidence that financial sector deepening might actually have a negative effect on growth beyond a certain threshold and the evidence of fragility risks stemming from rapidly expanding financial systems, determining the "Goldilocks" level and structure of financial system is a first-order question for policy makers in both developed and developing economies. This question relates both to benchmarking exercises that relate the level and growth in financial depth indicators across countries to a synthetic benchmark as to the banking crisis prediction literature (Barajas et al., 2013; Dell'Arriccia et al., 2012b). This question also relates to structure of financial system, i.e., the prominence of banks, capital markets, contractual savings institutions, and non-regulated shadow banks within a financial system, as to the interaction of these different segments. Is there an optimal structure in terms of the relative importance of these different segments, in terms of both growth and stability benefits? Is there an optimal degree of integration between banks and markets and an optimal degree of risk transformation through

[3] See de la Torre, Gozzi and Schmukler (2006) for examples of such activist government intervention to address market failures in Latin America.

the financial system? Can the financial system expand to a size where it turns into a drag onto the real economy by pulling out talent and resources? These are very policy relevant questions, as they relate to the question of activity restrictions imposed on banks, as recently suggested by the Vickers and Liikanen Commissions and implemented through the Volcker rule. This debate also relates to the question whether taxation or other policy levers should be used to prevent the financial system from expanding too rapidly.

A second question relates to the optimal design of regulatory and supervisory systems and their interaction with the governance of financial institutions. While the effect of individual regulatory reforms has been explored, including the effects of capital and liquidity requirements, security market taxation, compensation policies, and governance structures (see Allen, Beck and Carletti, 2013 for an overview), their interaction has been less of a focus. There might be important interaction effects of changes in different regulatory policies, however. As shown by Laeven and Levine (2009), for example, the effect of higher capital requirements can have different effect on banks' risk taking, depending on the ownership structure of banks. Beck, de Jonghe and Schepens (2013) show that regulatory reforms have an important impact on the relationship between bank competition and stability. Regulatory reforms might therefore have different effects across countries depending on the structure of the financial system and the overall regulatory and supervisory structure. Institutional structures are another important issue, i.e., the debate on whether responsibilities for regulation and supervision should be housed at the central bank and whether there should be a unified regulator or specialized regulators for different segments of the financial system has been revived by the crisis (see Ioannidou, 2005; Boyer and Ponce, 2012). Finally, which institutions and markets should be within and outside the regulatory perimeter? Can the financial safety net be restricted to institutions inside this perimeter?

Third, the issue of financial integration and globalization needs further attention. While there is increasing evidence – as also presented in this special issue – of their benefits, the recent crisis has clearly shown that integration to global financial markets exposes economies to

contagion risks. One specific area, for which this has been documented, is cross-border banking. Among others, Popov and Udell (2012) and de Haas and Lelyveld (2014) show that foreign banks have propagated shocks from their home into host countries, while Kalemli-Ozcan, Papaioannou and Perri (2013) show that financial shocks such as the Global Financial Crisis lead to a synchronization of business cycles across countries. On the other hand, there is also evidence that cross-border banking has positive effects for host economies, in terms of financial deepening and in mitigating the impact of local economic shocks (Claessens and van Horen, 2014; de Haas and Lelyveld, 2014) The question is therefore not so much on whether to limit or expand financial integration, but how to harness its benefits. This refers both to macroeconomic management of capital flows as to cross-border cooperation on bank regulation and supervision. It raises the issue of macroprudential regulation as an additional prudential tool, as well as how to move international cooperation on the supervision of large multi-national banks beyond memorandums of understanding and colleges of supervisors, which have shown their limited usefulness during the crisis (Beck and Wagner, 2013).

Fourth, the global financial crisis has resulted in a spur of theoretical and empirical research on financial innovation. Given that derivatives, such as CDS and CDOs, were at the core of the crisis and given on-going discussion on how to regulate financial innovation, more research in this area, both on the bank- and client-level, but also on the aggregate level, is called for. Gauging financial innovation's effects on both the real economy (with potential benefits but also potential costs) and the repercussions of new products and securities for stability or fragility of individual financial institutions or the whole banking or financial system is important. Beyond establishing the benefits and risks of financial innovation, it is important to also understand the optimal regulatory response to such innovation. Given the dynamic character of financial innovation, this will most likely require a constant adaptation of regulations. As a final remark, let me say that financial innovation should be understood very broadly. While the focus in developed countries has been on derivatives and trading mechanisms, financial innovation in developing countries takes the form of new financial

products for previously unbanked population segments (e.g., transaction accounts, commitment savings product and rainfall insurance) and new delivery channels to reach out these segments (e.g., agency banking and mobile phone banking).

A final area of future policy relevant research is the role of government in the financial system and the interaction between politics and finance. While the pre-crisis consensus was one of minimal government interference in the financial system and of reliance on markets, market participants, and self-regulation, the crisis has reminded us of the importance of market failures in finance. However, experience from both developed and developing markets has shown that government officials are rarely competent bankers and financiers and that governments rarely maximize social welfare but rather represent the interests of their electorates or special interest groups. There is thus a fine line between the necessary role of the government as arbiter and provider of the basic financial infrastructure and the government as interested party and possibly even player in the financial system. Understanding the politics of financial sector reform and designing safeguards against political interference and political capture in the financial system is thus critical.

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