

Limiting Systemic Risks, New Principles for Regulation

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Abstract

While containing "systemic risk" is one of the most important rationales for regulating financial markets, our understanding of the sources of systemic risk have repeatedly been challenged by major episodes of financial instability. The crisis that started in the summer of 2007 has been no exception. This paper discusses how the latest global financial crisis urges analysts and regulators to rethink the origin of systemic risk beyond a narrow focus on the banking sector, beyond the "too big to fail problem", and beyond a narrow micro-prudential focus. We then discuss how these lessons should inform the regulatory response, focusing in particular on two regulatory principles: comprehensiveness and countercyclicality.

Introduction

The need to contain “systemic risk” originated by the activity of financial actors has historically been one of the primary rationales for the public intervention in the regulation of financial markets. It was in particular the experience of the banking failures of the 1930s that paved the way to an increase in the involvement of governments in the design of a large array of regulatory tools to mitigate the risk associated with banking crises. However, the definition of what financial activities and institutions generate systemic risk – and therefore what should be object of regulation – has changed radically over time. Major episodes of financial instability have usually been the trigger challenging the dominant understandings of the sources of systemic risk. The latest crisis started in the summer of 2007 has been no exception. This paper discusses how this crisis urges analysts and regulators to rethink the origin of systemic risk in the financial system. Three key lessons can be distilled from the debates triggered by the crisis. First, a focus uniquely on the banking sector misses how systemic risk is originated by a wider range of markets, instruments, and institutions that have become “systemically important”. Second, the sources of systemic risk go beyond the “too big to fail problem”, but they involve also other factors such as the degree of interconnectedness, leverage, maturity mismatches and common exposures. Third, systemic risk cannot be contained simply by ensuring the stability of individual institutions, but this must be complemented by a macro-prudential approach to financial regulation. In the second part of the paper we discuss how these lessons should inform the regulatory response. Our analysis focuses in particular on two regulatory principles: comprehensiveness and countercyclicality.

Mapping the sources of systemic risk

Historically, debates on systemic risk and regulation have focused predominantly on the banking sector. The vulnerabilities arising from the function of maturity transformation performed by banks, and the damage that a bank failure could pose to the wider economy have justified the extension of a public safety net by central banks since the end of the XIXth century. At the same time, large and rapidly growing institutions such as investment banks had before the recent global crisis remained outside the “lender of last resort” perimeter, as witnessed by the failure of Baring Bank in 1995. They also remained subject to a lighter regulatory status. In the case of other rapidly growing markets such derivative markets and institutions such as hedge funds, regulation had been delegated to the same financial industry, which has designed self-regulatory arrangements, or there has been no regulation at all. Moreover, the focus on banks as the primary source of systemic risk had wrongly (as the recent crisis showed) led regulators to regard financial innovations such as the securitization of loans and the creation of credit derivatives as enhancing the safety of the whole financial system by taking risk out of their balance sheet to package and sell it to different end investors.

This conception has received a fatal blow from the global financial crisis that has originated in the summer of 2007 from the market for securitized subprime mortgages. The escalation of the crisis has led governments to expand their safety net to a wider range of financial institutions beyond the banking sector. As the G30 Report notices, at the beginning of 2008 there were eight US financial firms whose failure could have generated significant disruption to the functioning of the financial system despite not

being commercial banks. These were Government-Sponsored Enterprises such as Freddie Mac and Fannie Mae, the world largest insurance firm (AIG), and five investment banks (G30 2009).

Moreover, most of the commercial banks that requested emergency assistance were placed at risk not only from their lending activities, but rather from their exposure to structured credit products accumulated in their proprietary trading desks or removed from their balance sheet in structured investment vehicles (SIVs). SIVs were a central component of the so-called “shadow banking system”, the complex group of institutions and vehicles performing the same kind of maturity transformation usually associated with banks between short-term liabilities and long-term assets but escaping the regulation applied to banks. The importance of unregulated off-balance sheet vehicles, instruments such as derivatives, or institutions such as hedge funds, investment banks, or money market mutual funds has increased exponentially over the last decade, to the extent that in 2007 only 25 percent of the U.S. financial system’s assets belonged to commercial banks (D’Arista and Griffith Jones 2009).

A particularly important part of the “shadow banking system” was constituted by money market mutual funds treated by investors similarly to bank deposits given their promise not to “break the buck”. When money market mutual funds could not fulfill this promise, governments had to extend programs of temporary federal insurance to these unregulated pools of capital in order to backstop a “run” on them.

The unprecedented emergency support that governments and central banks provided to these institutions during the financial crisis requires a radical redefinition of what financial instruments, markets, or institutions creates systemic risk, and should therefore be the target of regulation (BIS 2009).

Analysts seeking to map systemic risk have often focused on the size of financial institutions as the primary determinant of the systemic risk they pose – what is often referred to as “too big to fail” problem. Tarashev, Borio and Tsatsaronis (2009) have correctly argued that the systemic risk created by financial institutions increases more than proportionally with their (relative) size.

However, the crisis has highlighted how size remains too crude a measure of systemic risk. First of all, size of an institution’s balance sheet does not take into account the activities that remain off-balance-sheet, such as SIV, but that during the crisis have represented a primary source of risk for the banking system. Second, episodes such as the banking crisis in Iceland have suggested that the size of a financial institutions must be viewed in relation to the size of a country’s financial markets since certain financial institutions could exceed a home country government’s support capacity (G30 2009). Third, size as an indicator of systemic risk is insufficient because, as the Geneva Report has argued, financial institutions could be “not individually systemic, but may become so when they move together as a group (or herd)” (Geneva Report 2009). A clear example of this distinction is the case of hedge funds. In 1998, the rescue of the US hedge fund Long-Term Capital Management orchestrated by the Federal Reserve was justified by the size reached by its balance sheet and the damages that its collapse would have created for its bank counterparties. On the contrary, during the recent global crisis no hedge fund was sufficiently big to individually create systemic risk. However, the simultaneous deleveraging by many hedge funds after the collapse of Lehman Brothers created systemic risk by amplifying the collapse in securities prices in a procyclical way.

The systemic disruption caused during the crisis by financial institutions whose size was not regarded as of systemic importance shows that while the size of a financial institution certainly is an important determinant of systemic risk, it is not the only one.

The crisis provides several clear examples of this. First, the emergency support provided by the US Federal Reserve to the US investment bank Bear Stearns in March 2008 was justified not because the bank was “too big too fail”, but rather “too interconnected to fail”. The significance of the “too interconnected to fail” problem has been amplified in the decade preceding the crisis by the intensification of ties linking different financial institutions that go well beyond the simple interbank market, such as the participation in derivative markets, guarantees, underwriting of credit default swaps, and prime brokerage services (Geneva Report 2009).

The scale of leverage being employed is another determinant of the systemic relevance of financial institutions. In the decade preceding the outbreak of the crisis, leverage in the US financial sector as percent of GDP almost doubled, reaching the figure of 113.8 percent of GDP (D’Arista and Griffith-Jones 2009). Leverage was often pushed up not only directly through formal debt, but also indirectly through the use of derivatives and structured credit products which contain “embedded leverage”. Leverage also built up outside the balance sheet of banks and the standard measures of bank leverage through highly leveraged SIVs (FSA 2009). It is now clear that this leverage certainly increased the vulnerability of the financial system and heightened the scale and the severity of the credit collapse in the fall of 2008.

The short-term borrowing with which this excessive leverage has been funded has represented another source of systemic risk during the crisis. In the period before the crisis, deposit-taking banks and off-balance sheet vehicles have come to increasingly rely on short-term liabilities from the wholesale markets to fund long term to maturity assets. This was described as a way to reduce risk by providing alternative sources of funding, as these markets were regarded as an alternative and safe source of funding. The liquidity crunch that followed the collapse of Lehman Brothers has showed how these changing patterns of maturity transformation had created system-wide liquidity risk. As the Geneva Report argues, during the crisis maturity mismatches have created systemic risk through different mechanisms, such as the risk that margins and haircuts will increase, the risk that it will be impossible to roll over short-term borrowing, and risk that depositors or equity holders rush to withdraw their funds (Geneva Report 2009).

A final driver of systemic risk is the exposure of different financial institutions to common risk factors (see Tarashev, Borio and Tsatsaronis 2009). In the initial part of the financial crisis, the banking sector has suffered from its common exposure to exogenous risk factors, such as securitized assets originated from the US housing market. At the same time, the fallout of the crisis has revealed how the balance sheets of financial firms is vulnerable also to the common exposure to dynamics that are not uniquely external shocks exogenous to the financial system, but could also be endogenous to the same financial markets. The endogeneity of common risk factors has been amplified by the increased role of current price-based measures of risk and value, such as the use of mark-to-market valuation of assets or the over-reliance on credit rating agencies in investment rules, in setting capital requirements under Basel II, or to calculate the level of collateral

posted in derivative contracts. The reliance on current market prices has amplified the intrinsic procyclical nature of financial markets, amplifying the credit expansion and encouraging financial institutions to take more risk in the period preceding the crisis.

In sum, it is possible to condensate the lessons from the financial crisis about the origin of systemic risk in the financial markets into three main points. First, prudential regulation cannot focus exclusively on the banking system since other financial institutions have become of systemic importance. Second, as the head of the BIS Jaime Caruana has recently acknowledged, “systemically important institutions are not the same as too big to fail” (quoted in Jenkins 2009). It is important to recognize how the sources of systemic risk go beyond the size of financial institutions, but they involve also other factors (e.g. the degree of interconnectedness, leverage, maturity mismatches and common exposures). Third, the crisis has taught that it is not possible to ensure the stability of the financial system simply by ensuring the stability of individual institutions. The narrow focus on the safety of individual institutions is not effecting in restraining the build up of those sources of systemic risk described above during the upswing that preceded the crisis (Geneva Report 2009).

The case for comprehensive regulation

Given these three lessons from the crisis on the nature of systemic risk, what principles should inform reforms in the regulation of financial markets?

The inadequacy of regulatory approaches seeking only to ensure the safety of individual institutions (micro-prudential regulation) has triggered an important shift in the regulatory approach. The most important regulatory bodies have converged around the concept that the focus of regulation is needs to include those factors that affect the stability of the financial system as a whole, what is often referred to as macro-prudential regulation. As the G20 Working Group 1 has argued, “This overarching theme is the need to supplement microprudential regulation with a more system-wide macroprudential approach which is designed to identify and mitigate the build-up of systemic vulnerabilities arising from excess liquidity, leverage, risk-taking and systemic concentrations across the financial system” (G20 WG1 2009).

In particular, as the crisis has broadened the range of financial activities, instruments, and markets that have requested emergency bailouts, it has created a clear rationale to extend the perimeter of financial regulation to incorporate all these segments of financial markets. The failure to appropriately regulate these institutions, markets and instruments would inevitably result in greater moral hazard in the future.

The G20 has thus called for greater collection of data on markets and institutions deemed to be systemically important and for the development of common metrics to measure systemic risk.

This represents a significant challenge, given the multiplicity of sources of systemic risk described above, and the difficulty in defining ex-ante what institutions, markets, and instruments are of “systemic importance”. For example, institutions such as Bear Stearns would not have been defined as a systemically important before the crisis. The same attempt to rigidly define what institutions or activities are systemically relevant could create incentives for financial actors to shift the business into sectors that are not considered yet systemically relevant, in a form of regulatory arbitrage. In order to

mitigate the risk that regulators will be constantly fighting “the last war”, it is crucial that that regulation is comprehensive, emphasizing functions and activities of financial institutions instead of their legal status (D’Arista and Griffith-Jones 2009, Geneva Report 2009). It is encouraging that the G20 and the Financial Stability Forum have pledged to periodically review the boundaries of the regulatory framework in light of developments in the financial markets and expand the perimeter of regulation to incorporate new sources of risk. At the same time, there is a significant danger that the appetite for this kind of revision will decrease as the catalyst moment for financial reforms triggered by the crisis comes to an end.

Consistent with the principle of comprehensive regulation is the idea that different institutions should be imposed different layers of regulation according to their contribution to systemic risk. Within the international regulatory debates, the idea of imposing a “systemic risk capital charge” upon those institutions of greater systemic relevance is gaining momentum. For instance, the U.S. Treasury has recently called for higher capital requirements for “bank and non-bank financial firms that pose a threat to financial stability due to their combination of size, leverage, interconnectedness and liquidity risk and for systemically risky exposures” (US Treasury 2009). The Financial Stability Board has also stated the intention to reduce the moral hazard risk and the economic damage associated with “too big and too complex to fail” institutions through the imposition of “additional capital, liquidity and other prudential requirements as well as other measures to reduce the complexity of group structures and, where appropriate, encourage stand-alone subsidiaries” (FSB 2009).

Proposals have also been advanced to reduce the systemic risk created by maturity mismatches. For example, the Geneva Report and the Warwick Report suggested increasing capital requirements by a multiple linked to maturity mismatches.

However, in order for regulation to be comprehensive, registration and disclosure requirements should be extended to all financial institutions, in particular those that lend or invest other people’s money. This means that the perimeter of financial regulation need to include also those institutions and vehicles that are not individually systemically relevant but whose collective impact could be a source of systemic risk, such as off-balance sheet vehicles and hedge funds. It is only by ensuring adequate levels of transparency in every corner of the financial markets that it is possible to assess the build-up of systemic risk and to identify where new sources of risks could emerge.

The case for countercyclical regulationⁱ

A second principle that should inform financial regulation in light of the lessons of the financial crisis is the need for regulation to “lean against the wind”. What is referred to as “counter-cyclical regulation” implies to use regulatory tools to tame the tendency inherent in the financial markets of excessive risk-taking and financial activity in good times, followed by insufficient risk-taking and financial activity during the downturn. In the decade before the crisis, only a few academics and officials within the Bank for International Settlement and the UN Economic Commission for Latin America and the Caribbean had championed this principle (for a review, see Griffith-Jones, Ocampo, and Ortiz 2009). Indeed, the severity of the crisis has generated an unprecedented support for counter-cyclical regulation among national policymakers in both Europe and the US as

well as international regulatory bodies such as the Basel Committee and the Financial Stability Forum. While the consensus around the principle is strong, uncertainties or disagreements remain around the specifics on how to implement it.

Looking for models of countercyclical regulatory policies, policymakers and academics have focused primarily on the Spanish dynamic provisioning system. This system, introduced by the Banco de Espana in June 2000, required during economic booms provisions higher than recognized by standard ‘incurred loss’ accounting. The buffer accumulated in the upswing could then be used to meet some of the losses from the downturn (for a review see Saurina 2009).

While this system increased the resilience of the Spanish banking system to the crisis, it is not flawless. Commentators have pointed out that the Spanish dynamic provisioning would have been unable to counter the subprime mortgage bubble, since this system was unable to deter credit growth and the emergence of a housing bubble in Spain. Moreover, the system applies uniquely to banking books instead of trading books where banks registered most of their losses. Complementary mechanisms to introduce countercyclical regulation are thus needed to complement the Spanish dynamic provisioning. There is also the additional issue of consistency of dynamic provisioning with existing accounting standards; however, this problem may be alleviated by a dialogue between regulators and accounting setting bodies

The Basel Committee and the Financial Stability Forum have endorsed in principle the introduction of countercyclical capital adequacy requirements, together with a complementary leverage ratio restricting total assets to capital. Other reports (e.g. Turner Review, UN Stiglitz Report) have also suggested additional countercyclical regulatory measures, such as reducing the use of mark-to-market accounting standards or varying loans to value ratios with the credit cycle in order to preempt the build up of asset bubbles.

Other issues remain unresolved beside what regulatory instruments should be used to “lean against the wind”. First, should national regulators be granted the discretion to judge at what point regulatory requirements need to be tightened or loosened, or should counter-cyclical policies be designed under a formula-driven system? A formula-driven system would have the advantage of shielding regulators from domestic pressures opposing tighter regulatory policies during an upswing. Second, what indicators should be used to assess when policies need to be tightened or loosened? The BIS 2009 Annual report analyzes three possible variables suggested in the literature: credit spreads, change in real credit, and a composite indicator that combines credit/GDP ratio and real asset prices (BIS 2009).

Third, should counter-cyclical regulation be extended to other institutions and markets beyond the banking system? Limiting counter-cyclical regulation to the banking sector would create incentives to shift transactions and risk to the shadow-banking system. In order to avoid this regulatory arbitrage, it would be desirable to apply counter-cyclical regulation also to non-banking financial institutions, such as hedge funds and investment banks, and to different markets, such as OTC derivatives (BIS 2009, UN 2009, D’Arista and Griffith-Jones 2009). For instance, collateral and margin requirements for over the counter derivatives could be not just adjusted over the cycle so they do not decline in booms, as suggested by the Financial Stability Forum in the 2009 Report on “Addressing Pro-cyclicality of the Financial System” (FSF 2009), but, beyond that, they could actually

rise during the upswing.

Finally, one of major tensions revolves around the division of responsibilities between the national and international level in the design and implementation of countercyclical policies. Since asset price cycles differ from country to country, several reports have stressed how countercyclical policies must be implemented nationally by host countries. At the same time, a fundamental tension remains between the collective interest that each country has to avoid pro-cyclical excesses to occur in other countries and the individual interest in not constraining excessively their domestic banks during the upswing for competitive reasons (White 2009). This represents a collective action problem which creates room for regulatory arbitrage. Therefore, while the implementation of countercyclical measures needs to remain tailored to the different national macroeconomic conditions, criteria for implementing these measures must be coordinated internationally through precise and formula-driven criteria.

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ⁱ This section draws largely upon Griffith-Jones, Ocampo, and Ortiz 2009