

In view of the indictment of ‘light touch’ financial regulation that was further derailed by regulatory capture and of the perverse incentives given to financial institutions by Basel I and Basel II, discuss what sort of regulatory reform can fix the financial system.

EC247 Financial Instruments and Capital Markets

Term Paper

Simona Maslauskaite (1104722)

Department of Economics, University of Essex

Word count: 3018

1/18/2013

1. Introduction

The Global Financial Crises (GFC) exposed serious shortcomings of financial regulation that led to the collapse of major banks and to the significant economic contractions all around the world. The crises proved financial regulation being "light touch" as it relied on mistaken assumptions about the stability of the financial system and enabled banks to leverage with thin levels of regulatory capital. The poor performance of the regulation was further amplified by regulatory capture that significantly reduced market discipline and enhanced moral hazard. Not to mention the perverse incentives provided by Basel I and Basel II that gave rise to securitization and shadow banking - the great financial innovation that finally led to the severe 2007 financial meltdown.

The purpose of this paper is to discuss the main inadequacies of financial regulation, briefly described above, that led to the 2007 financial crises and to propose possible regulatory reforms that would repair financial system and would make the future crisis less likely. The paper consists of six parts. Part 2 describes "light touch" financial regulation that focuses on the micro-prudential framework and flawed risk-based capital requirements. The paper discusses regulatory capture that gave rise to the "too big to fail" doctrine in Part 3. The perverse incentives provided by Basel Accords and the development of securitization are presented in Part 4. Part 5 proposes regulatory reforms that would overcome the limitations of financial regulation while Part 6 summarises the main points and ends the paper.

2. "Light Touch" Financial Regulation

The Micro-prudential Framework

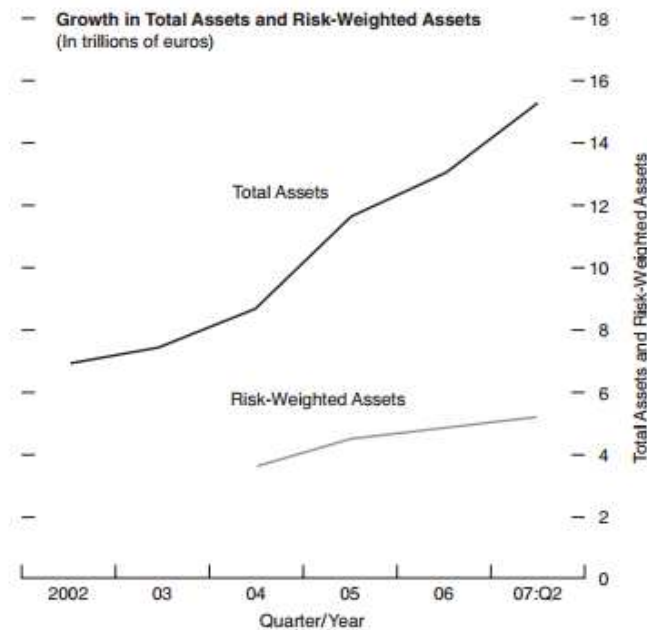
Before the GFC the regulatory emphasis was on the micro-prudential framework that focuses on an individual financial institution (FI) rather than on the financial system as a whole. The

micro-prudential regulatory approach suffers from the fallacy of composition assuming that regulations that ensures the safety of an individual entity also ensures the safety of the whole system. From the micro-prudential perspective of Basel II, credit risk transfer (CRT) from banks' balance sheets makes banks and so the entire financial system safe. However, it led to the highly clustered network of the credit default swaps (CDS) market with increasing systemic and counterparty risk arising from the excessive concentration of market share among a few players that became too interconnected to fail in a sense that a failure of any of these players could trigger financial contagion and push the whole financial system into collapse. Unfortunately, before 2007 financial meltdown, there was a significant shortfall of developed quantitative instruments for holistic visualization of the financial system and for the analysis of systemic risk (Markose *et al.*, 2012).

Risk Weighting

Procyclicality that arises from the risk weights based calculation of regulatory capital is another major problem of Basel regulation. In a boom volatility and risk are low and so is the required level of capital whereas when a boom ends volatility and risk increase substantially and so does the required level of capital. That is known as the paradox of volatility. Therefore, risk weights do not reflect risk properly and capital required was severely underestimated during the real estate bubble.

The figure below compares the growth in risk-weighted assets with total assets: while banks' balance sheets grew twofold, the level of risk weighted assets and so the regulatory capital increased very slightly. As discussed above, risk weights did not reflect risk correctly and incentivized a substantial accumulation of capital-light assets on banks' balance sheets. Consequently, FI were severely undercapitalized and those with the highest levels of "low-risk" investments experienced the largest losses during the GFC.



Trends in Bank Assets, Nature of Assets, and Leverage

Source: International Monetary Fund (2008).

The figure is taken from the book by Acharya *et al.* (2009, page 95).

Credit Rating Agencies (CRA)

Under Basel II, the level of regulatory capital depends on risk weights that are determined by CRA that do not have the expertise to rate and assess the risk of innovative financial instruments such as collateralized debt obligations (CDO) and CDO². Moreover, the conflict of interest arising from the "issuer pays" model significantly reduced independency of CRA through the fee incentives: as an issuer can choose a CRA, it will always choose the one that gives the highest ratings (Acharya *et al.*, 2009) and as a CRA receives the fee from an issuer, it is incentivized to inflate its ratings in order to maximize profit. Therefore, ratings were highly overestimated, as proved by massive downgrades during the GFC, and allowed banks to further economise on regulatory capital.

Regulation of CDS Market

The further capital relief was given to assets with CDS cover. However, only banks were required to hold the certain amount of regulatory capital while about 49% of CDS sellers were outside the regulatory boundary (Markose *et al.*, 2012). Consequently, they took excessive risk with thin levels of capital and when the trouble brewed were unable to meet their obligations. For example, at the end of 2007 mono-lines capital base was \$20 bn while their insurance guarantees amounted to \$2.3 tn that implies the leverage of 115 (Markose *et al.*, 2012). Clearly, unregulated CDS market with the excessive concentration of risk was too weak to provide effective credit risk guarantees for a large number of assets created by FI that sought to economize on regulatory capital.

Internal Ratings-based (IRB) Approach for Regulatory Capital Calculation

More surprisingly, regulators, that are supposed to control FI, enabled them to set their own levels of regulatory capital. Sophisticated banks were allowed to use their own IRB models to calculate the amount of capital they need to hold. Chair of FDIC, Sheila Bair, compares IRB approach with "a football match where each player has his own set of rules" (Bair, 2007 Risk Management and Allocation Conference, as quoted in Blundell-Wignall *et al.*, *The Subprime Crisis: Causal Distortions and Regulatory Reform*, page 97). As risk inputs are subjective, these models can be easily manipulated to reduce the level of capital required. It gave big banks a comparative advantage over the small ones and a possibility to further expand their loan portfolio.

3. Regulatory Capture

Regulatory capture occurs when regulators, that are supposed to regulate financial industry, starts to act in favour of it. As argued by Moosa (2010), the problem is strongly related to the

movement of financial sector employees to governments and vice versa that strengthen the political power of FI. Captured governments have been loosening financial regulation while also providing financial support when a trouble brewed. That sustained the growth of financial sector and gave rise to "too big to fail" (TBTF) and "too interconnected to fail" (TITF) FI that are the source of systemic risk.

Big and highly interconnected FI have had a strong political power since the GFC. Exploiting the threat of disastrous consequences their failure may have on the financial system, FI managed to obtain numerous bailouts from governments that, having saved financial industry, themselves face large budget deficits and insolvency risk. It is so called TBTF or TITF doctrine that states that big and strongly interconnected FI are so systemically important that they cannot be allowed to fail. The implicit guarantees from governments create moral hazard and reduce market discipline. Rescuing FI from their own mistakes does not give them incentives to make themselves sound and to play responsibly (Moosa, 2010). Conversely, it helps to further expand their market share by taking excessive risk and to generate even more systemic risk. In addition, smaller banks are incentivized to increase their systematic importance and are even willing to pay to obtain TBTF/TITF status in order to receive taxpayers' money in trouble.

4. Basel I and Basel II - Perverse Incentives

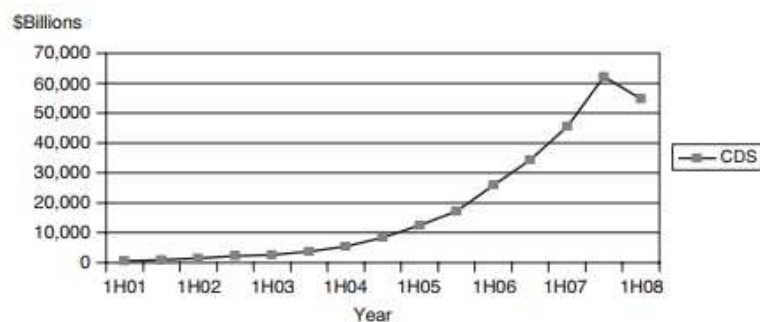
Basel I and Remote Securitization - Stage 1 of Shadow Banking

Basel I marked the development of remote securitization via special purpose vehicles and the "originate and distribute" model that allowed banks to overcome restrictions for the loan portfolio expansion imposed by the size of deposit base. By selling long maturity loans and by releasing capital through securitization banks raised funds for further lending. Basel I strongly incentivized banks to shift their securities off balance sheet to unregulated special

purpose entities (SPE) because they were not required to hold capital against off balance sheet assets but only against the credit and liquidity enhancements supplied to SPE that were subject to much lower capital charges (Acharya *et al.*, 2009). Overall, this regulatory capital arbitrage enabled banks to expand their loan portfolio by 50% and to reduce capital to asset ratio from 9.8% to approximately 5.3%. (Markose *et al.*, 2012)

Basel II and Synthetic Securitization - Stage 2 of Shadow Banking

Basel II encouraged the development of synthetic securitization and external ratings based assessment of risk that enabled banks to reduce the minimum regulatory capital from 4% to just 1.6% on residential mortgages (Markose *et al.*, 2012). In synthetic securitization the underlying exposures are retained on banks' balance sheets while the credit risk is transferred to the third parties using credit derivatives, 98% of which were CDS (Markose *et al.*, 2012). Surprisingly, synthetic securitization was entirely in compliance with regulation. Basel II itself promotes ratings based assessment of risk, that failed to reflect risk properly as discussed above, and CRT as the best way to reduce risk capital. Banks were strongly incentivized to maximise their exposure to triple-A rated residential mortgage-backed securities, often produced from risky subprime mortgages, and to obtain CDS cover for their assets from triple-A insurers to significantly economize on regulatory capital. Consequently, there had been a massive growth of CDS market with the high concentration of risk among triple-A insurance providers. The graph below represents the explosion of CDS market from \$631 billion in 2001 to \$56.4 trillion in 2008. As Markose *et al.* (2012) explains, banks substituted the default risk of assets for the counterparty risk of unregulated insurers (eg. AIG).



Notional Amount of Outstanding Credit Default Swaps (CDSs)
 (\$ Amounts in Billions)
 Source: International Swaps and Derivatives Association (ISDA).

The graph is taken from the book by Acharya *et al.* (2009, page 237)

5. Regulatory Reform

The Macro-prudential Framework

Financial regulation should consider not only the stability and safety of an individual FI but also of the financial system as a whole. Macro-prudential supervision, that has been insufficient, should be enhanced and should analyse and monitor systemic risk, perform system-wide stress testing and study financial networks to ensure the robustness of the financial system. As Haldane (2009) recommends, regulators should consider the soundness of financial networks as an indicator of success.

For this purpose, Markose *et al.* (2012) propose the Agent-based Computational Economics (ACE) method for the digital modelling of financial networks and system-wide stress testing. Agents in ACE models embody real world entities in simulated environments that may be imitations of the financial sector with prevailing market conditions and complex interconnections (Markose *et al.*, 2012). These models allow to monitor on balance and off balances sheets activities of FI in response to regulatory changes and/or changed market circumstances. Therefore, they are particularly useful for detecting perverse incentives and regulatory arbitrage possibilities. Furthermore, unlike pre-specified econometric equations

based on past data, the ACE models enable regulators to study the causality of financial contagion ruled by balance sheet interconnections of FI and identify and penalize super-spreaders - the source of systemic risk.

Regulating Systemic Risk

A super-spreader tax should be imposed on systematically important financial intermediaries (SIFI) according to their systemic importance. As the firms that pollute are taxed for the negative environmental externality they cause, SIFI should be taxed for the adverse consequences their failure may have on the financial system. As suggested by Markose *et al.* (2012) the tax should be based on the Systemic Risk Ratio (SRR) that evaluates the damage caused by a single FI in terms of the core capital lost collectively by the entire financial system. The SSR could be easily calculated using ACE simulation platforms and stress tests. The tax would incentivize FI to reduce their scale of operations and interconnectedness in order to reduce their systemic importance and tax burden. Tax revenue could be used to create the super-spreader fund for the future bailouts or capital injections to the financial sector, part of the fund could be used to support budget deficits. However, the taxation should apply not only to banks, but also to non-bank SIFI like mono-lines and insurance companies (eg. AIG) to ensure the robustness of the financial system.

Regulatory Capture

To overcome regulatory capture, financial regulation should be based on pre-specified rules leaving little discretion to regulators and enhancing their independence (Brunnermeier *et al.*, 2009). In addition, the movement of personnel from financial sector to governments and vice versa should be limited to reduce the political power of FI and to eliminate incentives to benefit financial sector.

As far as TBTF/TITF doctrine is concerned, a super-spreaders tax would significantly contribute to the reduction of the moral hazard problem. The tax would make it expensive for FI to become TBTF/TITF and would provide the right incentives as discussed in the previous section.

Regulatory Capital Requirements

Risk-based capital requirements as well as the reduction of regulatory capital for assets with CDS cover should be discontinued. As discussed earlier in the paper, risk-weights are procyclical and fail to reflect risk properly while the weakness of the clustered CDS network undermines the ability of CDS market to provide credit risk mitigation. FI should be allowed to obtain CDS cover but without any capital reliefs. Consequently, FI would be disincentivized to engage in synthetic securitization and to accumulate capital-light assets that reduce the diversity of their balance sheets.

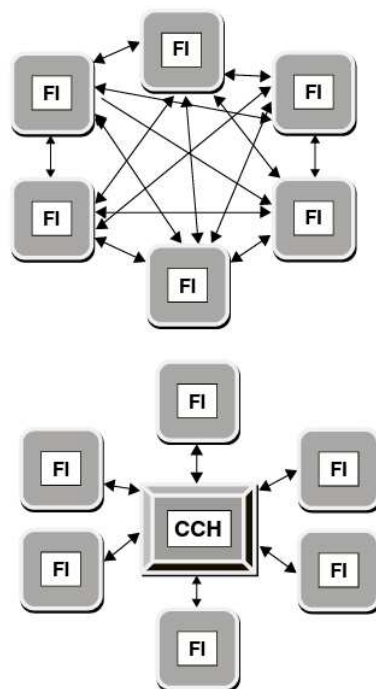
As Mossa (2012) suggests, we should get back to simple liquidity and leverage ratios as the determinants of regulatory capital. He argues that unlike the risk-based capital calculations, that can be easily gamed, liquidity and leverage ratios are more objective and easier to understand. Moreover, they provide incentives for FI to enhance their liquidity and reduce leverage to economize on regulatory capital. In the absence of risk weights, CRA and biased ratings would also be removed from the centre of regulation. Again, the same set of rules should apply to both bank and non-bank SIFI, (eg. AIG) without any exemptions (eg. IRB approach) to ensure the robustness of the financial system and to mitigate counterparty risk.

Derivatives Markets

Without the capital reduction provided for the assets with CDS cover, FI would not be encouraged to massively engage in CDS market and the network should become less

complex. However, a Central Clearinghouse (CCH) that guarantees every trade should be introduced into systemically important derivatives markets to improve the transparency of networks and to mitigate counterparty risk. In addition, a CCH would also provide regulatory bodies with information necessary for mapping and monitoring financial networks.

The figure below compares two structures of financial markets: over-the-counter (OTC) above and with a CCH below. In OTC market each FI has a bilateral relationship with another FI and only direct counterparties are known whereas when a CCH is introduced, each FI in the market has a bilateral relationship with a CCH that ensures full transparency of the network (Acharya *et al.*, 2009). Naturally, for the reform to be effective, a CCH itself should be financially sound and stable. Moreover, as Haldane (2009) suggests, "netting off" of gross claims could also be adopted to further improve the transparency and decomposability of financial networks.



Over-the-Counter Market versus Central Clearinghouse

The figure is taken from the book by Acharya *et al.* (2009, page 245)

Financial Innovation

As argued by Mossa (2010), financial innovation that was widely used to expand banks' loan portfolios and to create excessive leverage should be regulated and obscure financial instruments that are hard to assess or understand should be outlawed. As Markose (2012) suggest, the financial equivalent of the Food and Drug Agency should be introduced to test and license new financial instruments. However, the assessment of financial innovation should be ruled-based to avoid regulatory capture.

6. Conclusion

The paper described serious loopholes of financial regulation that led to the 2007 financial crises and proposed regulatory reforms that would help to restore the stability of the financial system and to prevent the future financial meltdown.

Regulators should focus more on the macro-prudential framework to monitor and analyse systemic risk and financial contagion. In order to mitigate systemic risk, a super-spreader tax should be imposed on SIFI according to their SRR that would give financial intermediaries right incentives to reduce their contribution to the systemic risk and would reduce the moral hazard problem. Risk-weights should be replaced by more objective liquidity and leverage ratios as the determinants of regulatory capital. Moreover, systemically important derivatives markets should be moved to a CCH while financial innovation should be seriously tested and licensed. I strongly believe, that these reforms, if implemented, would significantly enhance financial regulation and would fix the financial system.

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