

# **Banking Consolidation in the US in the wake of the Financial Crisis of 2007-2009**

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## ABSTRACT

In my thesis I focus on the process of banking sector consolidation in the United States, and its implications for regulatory reactions to the financial crisis between 2007-2009. The leading financial institutions have been growing in size and influence since the collapse of the Bretton Woods system, and this trend did not change with the crisis - despite of these companies' immediate involvement. Why did governmental actors bail out large financial institutions, if it is likely to retain them as possible sources of systemic distress in the future? I approach this question with an institutional research taking into account the specific features of the industry, which shape the structure and the competition in banking; and assess how the authorities addressed the adverse incentives that derive from these specificities, in the wake of the financial crisis. The Dodd-Frank Act and Basel III favors macroprudential regulation, just as mainstream academics: I show its limitations, as it manifests concretely in the Basel III capital standards. I show that despite of that the systemically important banks already comply with Basel III requirements, there is no reason to accept it as a comforting solution of the too-big-to-fail problem. I identify the potential signaling power of the countercyclical capital buffer proposed to be determined by national authorities, and the disregard for correlated risk portfolios across banks as major fallacies of Basel III, that would allow banks to destabilize the financial system once again.

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## INTRODUCTION

The subprime crisis that started in 2007 has changed the relationship of the major financial institutions, the government, and the people in the US: while the bank sector has been seen as the motor of the 21<sup>st</sup> century economic model for the first world before 2007, since then its functioning has become widely regarded as pathological. The problems stemming from economic business cycles, and the systemic aspects of financial intermediation has been exhaustively discussed in the literature in the past years, as social scientists from all subfields were looking for persisting remedies for negative outcomes - bringing the new advent of Keynesian ideas about the role of state in managing the capitalist economy, while decreasing the general relevance of mathematical models in systemic questions. The health of individual banks has become decisive for economic prospects in the new wave of globalization (witnessed since the collapse of the Bretton Woods system), but it was not followed by the improvement of public oversight and transparency; a rational and commonplace demand towards the authorities is to address and control this system that depends on too-big-to-fail entities.<sup>1</sup> The seemingly small and weak policy reactions to the too-big-to-fail issue is puzzling; the structural changes prescribed by the main reform package, the Dodd-Frank Wall Street Reform and Consumer Protection Act, were so modest, that what we can actually see is that the leading banks have been let become even more enormous entities (their total managed assets increased; demonstrated by *Figure 1*), and retain their systemic importance. Of course, a complete sectoral restructuring is not necessarily the remedy – given the complex interdependencies in the standing configuration.

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<sup>1</sup> For detailed description and proposals for regulation see: Acharya, Viral, Thomas Philippon and Matthew Richardson and Nouriel Roubini. "The Financial Crisis of 2007-2009: Causes and Remedies". *Financial Markets, Institutions and Instruments* 18, no. 2 (2009): 89-137.

Some, like Reinhart and Rogoff (2009)<sup>2</sup> go that far with the extrapolation of past trends to imply that there are overall low chances for breaking with old reflexes; nevertheless, it is useful to investigate whether the same factors that recently caused complications really persist after a great shock like the 2007-2009 financial meltdown. As the chairman of the Federal Reserve said, “in the present crisis, the too-big-to-fail issue has emerged as an enormous problem” (Bernanke, 2009)<sup>3</sup>. As I will present in my thesis, banking consolidation in the US was not counteracted; rather, supervisory and regulatory measures were taken in order to increase the stability, and constrain the risk-taking of the systemically important banks.

Why did governmental actors bail out large financial institutions, if it is likely to retain them as possible sources of systemic distress in the future? Some like to refer to the dependency of the government – mainly in the form of campaign-funding - on the support of the powerful leaders of Wall Street, but this seems to be an oversimplification: it is enough to take a look at reports of Freedom House, to see that the democratic mechanisms in the US constantly rank among the best.<sup>4</sup> Moreover, it does not seem extreme to suppose that rather industry-specific factors must be at play (the main uniqueness is deriving from the central economic role of financial intermediation), if we take into consideration that - more fundamentally than any other industry - the banking system relies on networks (with external counterparties) for production, distribution, and consumption.<sup>5</sup> Its functioning is highly dependent on elusive sentiments like trust and reputation, which makes advising on market structure in the financial sector difficult.

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<sup>2</sup> Reinhart, Carmen M. and Kenneth Rogoff. *This Time is Different: Eight Centuries of Financial Folly* (Princeton, NJ: Princeton University Press, 2009).

<sup>3</sup> Bernanke, Ben. “Financial Reform to Address Systemic Risk”, speech at the Council on Foreign Relations. Available: <http://federalreserve.gov/newsevents/speech/bernanke20090310a.htm> , accessed: 04.12.2012.

<sup>4</sup> Freedom House. *Freedom of the World*. Available: <http://www.freedomhouse.org/report-types/freedom-world> , accessed: 04.20.2012.

<sup>5</sup> Claessens, Stijn. “Competition in the Financial Sector: Overview of Competition Policies”. *The World Bank Research Observer* 24, no. 1 (2009): 83-118.

We have no reason to assume in advance that all the adverse incentives deriving from the too-big-to-fail phenomenon that revealed during 2007-2009 could be corrected by the regulators, so its analysis stays actual. It can be advantageous to analyze the state of this issue after a successful stabilization, since when the turbulence calms down and the extraordinary circumstances normalize, the persisting trend reveal, and political reactions articulate. I will argue that the institutional reforms enacted to handle the systemic importance of individual Bank Holding Companies induced substantial changes in the conduct of these firms – the Dodd-Frank Act was “the toughest financial reform since the ones we created in the aftermath of the Great Depression” according to the President of the United States (Obama, 2010)<sup>6</sup>. But I will also show that no regulation should be seen as a perfect insurance against further problems with the present structure of the bank sector – opposing the statement of the US Secretary of the Treasury that the ongoing reform of Wall Street will end the too-big-to-fail policy.<sup>7</sup>

The Federal Reserve Board has announced on December 2011 that it would implement the Basel III framework, which contains a definitive leverage ratio prescription for banks.<sup>8</sup> My hypothesis is that the too-big-to-fail problem was not regulated away in the United States with Basel III, despite of the ambitious claims by politicians and academics that the implemented macroprudential policies can deal with it. I will assess whether the reform process successfully forced the major US banks (those that are subject to the yearly Comprehensive Capital Analysis

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<sup>6</sup> Obama, Barack. “Remarks by the President on Wall Street Reform”, June 25, 2010. Available: <http://www.whitehouse.gov/the-press-office/remarks-president-wall-street-reform-1> , accessed: 04.22.2012.

<sup>7</sup> Geithner, Timothy. “Hearing with Timothy Geithner”. Congressional Oversight Panel, June 22, 2010. S. HRG. 111–705. Available: <http://www.gpo.gov/fdsys/pkg/CHRG-111shrg62218/pdf/CHRG-111shrg62218.pdf> , accessed: 04.22.2012.

<sup>8</sup> Board of Governors of the Federal Reserve System. Press release, December 20, 2011. Available: <http://www.federalreserve.gov/newsevents/press/bcreg/20111220a.htm> , accessed: 04.22.2012.

and Review of the Federal Reserve)<sup>9</sup> to meet the minimum capital requirements of the Basel III process – which is considered in the literature to be effective to prevent excessive risk-taking by too-big-to-fail institutions<sup>10</sup> -, and I am intending to show the limitations of this regulatory outcome.

The literature on the problematic features of the financial system in light of the events since 2007 is ample, and many of these works call for radical reforms and a paradigm-change in capitalism.<sup>11</sup> The attractiveness to call the government to account for its actions in crises is great, but the real nature, extent, and effects of any regulatory change always remains ambiguous. I will discuss the relation between stabilizing measures and banking consolidation, and also account for the academic sentiment the US government faced regarding the banking industry at the time.<sup>12</sup> Assessing the effects of governmental actions with industrial characteristics is a novel approach to the topic, which I hope will lead to a better understanding of the perspective that the post-crisis institutional constellation offers regarding the too-big-to-fail problem. In this manner, my work is centered around the actions of the US central government and the Federal Reserve to implement lasting reforms in the wake of the crisis. I do not intend to provide a logbook of events during the crisis, which has been done by numerous authors<sup>13</sup>, and I do not aim to explain the causes of the crisis comprehensively.

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<sup>9</sup> Board of Governors of the Federal Reserve System. "Comprehensive Capital Analysis and Review: Objectives and Overview". Available: <http://www.federalreserve.gov/newsevents/press/bcreg/bcreg20110318a1.pdf>, accessed: 04.21.2012.

<sup>10</sup> Hanson, Samuel G., Anil K. Kashyap and Jeremy C. Stein. "A Macroprudential Approach to Financial Regulation". *Journal of Economic Perspectives* 25, no. 1 (2011): 23-25.

<sup>11</sup> For example Wray, Randall L. "The Rise and Fall of Money Manager Capitalism: A Minskian Approach". *Cambridge Journal of Economics* 33, no. 4 (2009): 807-828.

<sup>12</sup> Wade, Robert. "From Global Imbalances to Global Reorganisations". *Cambridge Journal of Economics* 33, no. 4 (2009): 539-562.

<sup>13</sup> See for example Lybeck, Johan A. *A Global History of the Financial Crash of 2007-2010* (Cambridge: Cambridge University Press, 2011): 29-94.



## Methodology

I am planning assess the limitations and the outcomes of the economic reform in the US during the financial crisis, backed by an institutional research; I will face the guiding principles of regulation beforehand with the regulatory reforms that emerged in the wake of the events. Results of policymakers' actions will be assessed in a dynamic way, accepting that the reactions to the financial turbulence were constrained by industrial characteristics of banking.

Theories of policy deficiencies can be classified into three groups. First, cognitive theories focus on the time horizon and mental capacities for rational action of the policy-makers when they formulate their strategies: frequent arguments are related to bounded rationality, selective memory and selective recognition, short-sightedness, the dominance of reactive behavior over initiative behavior; in short, these theories explain by referring to key actors' individual behavior.<sup>14</sup> Second, societal theories focus on the significance of class-, sector-, and interest group-relations and networks in various dimensions (including for example informational networks): most structuralist explanations belong to this tradition, but the rapidly growing and evolving literature using network analysis also belongs to this group.<sup>15</sup> Third, statist theories concentrate on the assessment the institutional characteristics of the state (strengths and weaknesses in various dimensions): institutionalist approaches have loosely delimited boundaries, so these theories can incorporate even such phenomena that may seem to belong to the first two groups, but are related to state functioning; examples include the state's ability to

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<sup>14</sup> For cognitive approaches to policy failure, see Rodrik, Dani. "Understanding Economic policy Reform". *Journal of Economic Literature* 34, no. 1 (1996): 9-41.

<sup>15</sup> For societal approaches to policy failure, see the classics of Olson, Mancur. *The Rise and Decline of Nations: Economic Growth, Stagflation, and Social Rigidities* (New Haven: Yale University Press, 1982). and Frieden, Jeffry A. *Debt, Development and Democracy* (Princeton: Princeton University Press, 1991).

manage resources, enforce the law, or act autonomously.<sup>16</sup> This latter approach seems adequate to address the policy-reactions to the too-big-to-fail phenomenon: I accept as theoretical premise that the crisis was systemic in nature, had institutional origins, and was inseparably state-related.

## Literature Review

Among others<sup>17</sup>, Brunnermeier (2009)<sup>18</sup> provides a comprehensive overview of the economic mechanisms leading up to the credit crisis, but there are also entertaining critical writings of the more politically influenced kind, such as the ones of Ferguson *et al* (2009)<sup>19 20</sup>, or the bestseller of Thomas E. Woods (2009)<sup>21</sup>. As it turns out from the works discussed in this review, a consensus emerges about the main direct causes of the meltdown, which cluster around four central problems: government subsidies for real estate finance, inconsiderately high risk-taking of financial institutions, ineffective and erroneous regulation, and the too-big-to-fail phenomenon. I focus on the latter in my thesis.

Cukierman (2011)<sup>22</sup> points out the decisive importance of making the regulatory and supervisory framework right for the future - with a positive undertone - , and Hanson *et al*

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<sup>16</sup> A remarkable example, Krueger, Anne. "Government Failures in Development". *Journal of Economic Perspectives* 4, no. 3 (1990): 9-23.

<sup>17</sup> see also Diamond, Douglas W. and Raghuram G. Rajan. "The Credit Crisis: Conjectures about Causes and Remedies". *American Economic Review* 99, no. 2 (2009): 606-610.

<sup>18</sup> Brunnermeier, Markus K. "Deciphering the Liquidity and Credit Crunch 2007-2008". *Journal of Economic Perspectives* 23, no. 1 (2009): 77-100.

<sup>19</sup> Ferguson, Thomas and Robert Johnson. "Too Big to Bail: The "Paulson Put", Presidential Politics, and the Global Financial Meltdown – Part I: From Shadow Financial Market to Shadow Bailout". *International Journal of Political Economy* 38, no. 1 (2009): 3-34.

<sup>20</sup> Ferguson, Thomas and Robert Johnson. "Too Big to Bail: The "Paulson Put", Presidential Politics, and the Global Financial Meltdown – Part II: Fatal Reversal – Single Payer and Back". *International Journal of Political Economy* 38, no. 2 (2009): 5-45.

<sup>21</sup> Woods, Thomas E. Jr. *Meltdown* (Washington, D.C.: Regnery Publishing, 2009).

<sup>22</sup> Cukierman, Alex. "Reflections on the crisis and on its lessons for regulatory reform and for central bank policies". *Journal of Financial Stability* 7 (2011): 26-37.

(2011)<sup>23</sup> outlines the prospects of a systemic (macroprudential) approach to financial regulation. When market tensions escalated, the Federal Reserve responded to the crisis with unorthodox measures, specified in detail by Cecchetti (2009)<sup>24</sup>. Whether it acted according to its mandate, or overreached it by trying to resolve the situation without government ruling is debatable, but the roles and procedures of the institution were definitely unclear, as Goodfriend (2011)<sup>25</sup> points out. The challenges that the pre-2007 conduct of banks posed to the Minskyan (FED as lender of last resort) crisis resolution is detailed by Dymski (2010).<sup>26</sup>

It is apparent from the literature that the bailout-no bailout dilemma is more complex than to allow one to have a well-founded decisive stance towards it – which is of course quite common. One typical conviction is that the imprudent actors need to bear the full consequences of their actions, as it is the only way to avoid moral hazard; some – like Samwick (2009)<sup>27</sup> - even deem this principle universally valid: for the excessive borrowers, all the owners of mortgage-backed securities (even if these were part of their pension plan), bank employees, and especially for the financial corporations, which should have been let go bankrupt unless they had just liquidity problems that were caused by the dire circumstances. Informational and professional asymmetries are simply left out from these arguments, which are not negligible.<sup>28</sup> But there are also sharply different opinions - as the ones that approach the problem from a critical social

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<sup>23</sup> Hanson, Samuel G. and Anil K. Kashyap and Jeremy C. Stein. "A Macroprudential Approach to Financial Regulation" (2011): 3-28.

<sup>24</sup> Cecchetti, Stephen G. "Crisis and Responses: The Federal Reserve in the Early Stages of the Financial Crisis". *Journal of Economic Perspectives* 23, no. 1 (2009): 51-75.

<sup>25</sup> Goodfriend, Marvin. "Central Banking in the Credit Turmoil: An Assessment of Federal Reserve Practice". *Journal of Monetary Economics* 58 (2011): 1-12.

<sup>26</sup> Dymski, Gary A. "Why the Subprime Crisis is Different: A Minskyan Approach". *Cambridge Journal of Economics* 34, no. 2 (2010): 239-255.

<sup>27</sup> Samwick, Andrew A. "Moral Hazard in the Policy Response to the 2008 Financial Market Meltdown". *CATO Journal* 29, no. 1 (2009): 131-139.

<sup>28</sup> Lohmann, Suzanne. "Representative Government and Special Interest Politics". *Journal of Theoretical Politics* 15, no. 3 (2003): 299-319.

theory perspective - which can make sense among the given circumstances, but still do not tell the full story: according to Palma (2009), well-connected rent-seeking classes have managed to subjugate the masses of the society, which he tries to support by pointing out the enormous wealth-differentials, and the huge concentration of wealth and power in the hands of a few in today's US. As the argument goes, the financial crisis was caused by the short-sighted and excessive greed of rentier classes, which tried to transform capitalism with the neo-liberal agenda to a system that serves entirely their interests.<sup>29</sup> He sees the solution in significantly more extensive state-level coordination; but the treatment of the financial crisis as a symptom of societal crisis and a fundamental systemic crisis of capitalism hints an anti-capitalist stance, from which the author seems to over-exaggerate the unsustainability of the current world order.

That a few financial firms gained uncircumventable structural power has not been objected forcefully by the public for long decades. Actually, the industrial logic of the sector – its profitability – is persistently linked to the continuously significant concentration of the sector that begun in the 1980s, according to the validity-checks of Market Power and Efficiency Structure paradigms by Tregenna (2009); this trend may have benefited the growth rate of the entire US economy.<sup>30</sup> Greater market power of banks in general cannot be regarded as obviously harmful in itself: the analysis of Berger *et al* shows using data on 8235 banks in 23 developed countries that banks with higher degree of market power tend to have less risk exposure<sup>31</sup>, and competitiveness is not dependent on the level of concentration according to the literature reviewed recently by

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<sup>29</sup> Palma, José Gabriel. "The Revenge of the Market on the Rentiers. Why Neo-liberal Reports of the End of History Turned Out to be Premature". *Cambridge Journal of Economics* 33, no. 4 (2009): 829-869.

<sup>30</sup> Tregenna, Fiona. "The Fat Years: The Structure and Profitability of the US Banking Sector in the Pre-crisis Period". *Cambridge Journal of Economics* 33, no. 4 (2009): 609-632.

<sup>31</sup> Berger, Allen N., Leora F. Klapper and Rima Turk-Ariss. "Bank Competition and Financial Stability". *Journal of Financial Services Research* 35, no. 2 (2009): 99-118.

Claessens (2009) in the World Bank Research Observer.<sup>32</sup> But my inquiry stops at the analysis of the trajectory set by banking sector properties for policy-making between 2007 and 2011; the in-detail assessment of sectoral profitability, efficiency, and perspectives is out of the scope of my project. Also, I am interested in the changes in the regulatory framework for the institutions that became Bank Holding Companies – the “shadow banking sector” falls out of the scope of my work, as I do not expect these arrangements to have systemic importance that could justify their bail-out from tax money.

### Structure

In the first chapter, I will present the motives behind the persistent consolidation trend in the US bank sector before 2007-2009. First, I will present the pre-crisis consolidation trend to highlight the path-dependent challenge the industrial structure means for reforming Wall Street. Second, I will introduce the most salient features of the too-big-to-fail phenomenon, with an outlook to competitive implications. Third, the relationship between competition, concentration, and stability in the Financial Sector will be presented, based on recent empirical findings.

In the second chapter, I will briefly discuss the salient measures taken by the Federal Reserve and the US Department of the Treasury related to the too-big-to-fail problem during 2007-2009, and present their contribution to banking mergers and acquisitions in market turbulence. Regulatory reactions of in the US follow, centered around the Dodd-Frank Wall Street reform and Consumer Protection Act – but only the parts related to the changing role of systemically important financial institutions. Lastly, I will assess the scope for radical reform of the financial system, set against the broad economic model of the United States.

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<sup>32</sup> Claessens, Stijn. “Competition in the Financial Sector: Overview of Competition Policies”. (2009): 83-118.

In the third chapter, the details and the intention of the mainstream proposals for macroprudential regulation will be outlined, and I will interpret what these imply for the structure of the banking sector. In the second part of this chapter, I will assess what the Basel III means for financial institutions. I connect the realization of Basel III capital requirements to the first two chapters, and I compare the equity-asset ratio (leverage) of the 19 most asset-rich Bank Holding Companies in 2011 to the 2019 Basel III capital requirements, to see how far banks got by the end of 2011 with the implementation of the allegedly crisis-proof capital requirements. In the third part of this final chapter, I will discuss what one can realistically expect from macroprudential actions, and if the signs of paradigm-change can be seen. In the fourth, closing part of Chapter 3, I will connect the currents and trends of preceding chapters, and I am aiming to show why Basel III reforms should not be regarded as final solution for the too-big-to-fail problem.

## CHAPTER 1. TRENDS AND INCENTIVES IN BANKING

### *1.1 Pre-crisis Consolidation*

Banking consolidation and deregulation simultaneously intensified since the 1970s: the collapse of the Bretton Woods system removed global constraints on financial flows, and financial firms could incrementally extend their activities to new locations, and to more sophisticated activities – supported by a legislative paradigm-change. Until the 1980s, US cross-state branching and ownership restrictions have been relaxed on a state-by-state basis; they were abolished by federal law only in 1994 by the Riegle-Neal Interstate Banking and Branching Efficiency Act (effective as of 1997). It is fashionable to call this process pathological in the wake of the financial crisis, but a well-founded verdict should be based on the changes in efficiency, and on the consequent real economy effects: as long known from Schumpeter (1951), efficient financial systems foster entrepreneurial activity and innovation, therefore allows for faster growth.<sup>33</sup> For the period between 1976 and 1996, Strahan (2003) finds empirical support for faster state-level economic growth, increased entrepreneurial activity, and declining volatility in the economic business cycle after deregulation of branching and interstate banking, accompanied by the decline in the market share of small banks.<sup>34</sup> A forceful argument of the critics of financial deregulation does not question the efficiency-gains, but rather refers to the polarization of income-distribution in the post-Bretton Woods era. Beck *et al* (2010) recently investigated empirically the impact of bank deregulation on income distribution – over the period

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<sup>33</sup> Schumpeter, Joseph. *The Theory of Economic Development: An inquiry into Profits, Capital, Interest, and the Business Cycle*. (Oxford: Oxford University Press, 1951).

<sup>34</sup> Strahan, Philip E. "The Real Effects of U.S. Banking Deregulation". *Federal Reserve Bank of St. Louis Review* 85, no. 4 (2003): 111-128.

1976 to 2006 -, and found that the removal of intrastate branching restrictions significantly increased the incomes in the lower half of the income distribution: branch deregulation actually lowered inequalities, moreover deregulation explained 60% of the variation of inequality after controlling for state and year fixed effects.<sup>35</sup> These findings imply that efficiency- and income-considerations should not be treated as contradictory in this case: as the removal of restrictions broke local banking monopolies, banking has become more efficient despite of the decrease in the number of banks (*Figure 2*), and allowed the relatively poor to ameliorate their situation.

Information and communications technology progress may have given the initial push for unidirectional deregulation and consolidation, but the prolonged period without major crises - accompanied by fundamentally undisturbed Gross Domestic Product growth (*Figure 3*), increasing sectoral efficiency, and the mentioned income-related consequences - have certainly affirmed political actors in their belief that financial deregulation is a universally positive trend. The Gramm-Leach-Bliley Financial Services Modernization Act of 1999 removed the ultimate barrier ahead unconstrained consolidation in the financial sector: it repealed the Glass-Steagall Act of 1933 ordering the separation of commercial banking, investment banking, and insurance businesses.<sup>36</sup> Non-bank financial institutions and subsidiaries of banks could remain exempt from serious regulatory scrutiny afterwards, which is the most salient proof for the prevailing tendentious belief among policymakers that letting the sector to regulate itself is their best available option – propagated in the first place by Alan Greenspan, the Chairman of the Federal Reserve between 1987 and 2006.<sup>37</sup> In 2004, the Securities and Exchange Commission (SEC) relaxed the net capital rule, making possible for investment banks to increase their leverage;

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<sup>35</sup> Beck, Thorsten, Ross Levine, and Alexey Levkov. "Big Bad Banks? The Winners and Losers from Bank Deregulation in the United States". *The Journal of Finance* 65, no. 5 (2010): 1637-1667.

<sup>36</sup> Gramm-Leach-Bliley Financial Services Modernization Act. Public Law 106 – 102. Available: <http://www.gpo.gov/fdsys/pkg/PLAW-106publ102/content-detail.html> , accessed: 05.02.2012.

<sup>37</sup> Greenspan, Alan. *The Age of Turbulence: Adventures in a New World* (New York: Penguin Press, 2007).



allowing them to boost their exposure to high-yield securities. The analysis of Tregenna (2009) pointed out that the concentration of commercial banks during the period between 1994 and 2005 increased the profitability of the sector to historically unprecedented heights, and implies that the market power of individual banks may have reached a level that allowed the sector to operate with oligopolistic pricing schemes, while efficiency-gains from a more concentrated market structure have diminished.<sup>38</sup> Based on the above empirical findings, it is possible that the deregulation of financial institutions, and especially the Gramm-Leach-Bliley Act has gone too far; the financial crisis of 2007-2009 provides the most conspicuous arguments for this claim. Deposit insurance scheme and effective regulation that could prevent banks from running overly risky operations has been balanced under the Glass-Steagall Act for decades, effectively avoiding moral hazard – some say so effectively, that its success contributed to its own undoing by letting everyone forget how important this piece of regulatory act is.<sup>39</sup> However, universal banking has been present in Europe for over a hundred years, functioning without major disruptions that would have led policy-makers to separate commercial banking from investment banking – only accompanied with substantial public oversight.<sup>40</sup> But with the increasing complexity of instruments, banks have become their own regulators in the US, and capacities of supervisory agencies have been kept at modest levels – which could be feasible only with the consent of the Congress and the White House.

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<sup>38</sup> Tregenna, Fiona. "The Fat Years: The Structure and Profitability of the US Banking Sector in the Pre-crisis Period" (2009): 609-632.

<sup>39</sup> Moss, David A. "An Ounce of Prevention: Financial Regulation, Moral Hazard, and the End of "Too Big To Fail"". In: Glauber, Robert R., Thomas J. Healey and Roger B. Porter. (eds.) *New Directions in Financial Services Regulation* (Cambridge, MA: The MIT Press, 2010): 99-102.

<sup>40</sup> Morrison, Alan D. "Systemic Risks and the 'Too-Big-To-Fail' Problem". *Oxford Review of Economic Policy* 27, no. 3 (2011): 505.

## 1.2 *Too Big to Fail*

The too-big-to-fail denotation refers to companies that gained central market position in an industry, which is significant for the national economy: they attract political interest and support, so they can maintain their activity regardless of their momentary financial situation. The dimension that can make a company so important that the government would not let it go bankrupt, and rather make the potentially unpopular choice to bail out a private venture at the cost of the community can vary case by case. The status depends on the macroeconomic significance of the industry, market share of the company, the risk of contagion to other segments of the economy, the correlation of risks in the industry, and the overall condition of the economy or the industry; and after all, political judgment. The complexity and dynamism of the environment makes it difficult to decide whether the existence of a particular financial institution is essential for economic stability or not, but size defined as total assets under management seems to be an agreeable proxy: it is sensible to assume that banks have more impact on others the more assets they control.<sup>41</sup> Banking is highly dependent on counterparties: even the nearest competitors are among the counterparties, therefore optimally maintaining the health of the entire industry – preferably with as much continuity among members as possible – is among the objectives of each financial institution. This means that some of the defining preconditions of running a bank successfully are industry-wide goods, and when considering the centrality of banking in any economic activity, in the end goods with great importance for the wider public. The latter implies that competition is not beneficial to the extent that ends with the bankruptcy of a major player, and also that the companies in the sector have common public interests: to prevent the fallout of the least successful of the leaders, and to negotiate as favorable conditions for the industry as they

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<sup>41</sup> Moosa, Imad A. *The Myth of Too Big to Fail* (New York: Palgrave Macmillan, 2010): 109-123.

can. The universal growth-enhancing effect of good practices in banking puts them in a forceful bargaining position towards any government concerned with macroeconomic conditions, which paves the way for their acceptance as systemically important, strategic, therefore inviolable.<sup>42</sup> By itself, this privileged image acts as an incentive to grow big enough to become a member of the club: it comes with an implicit insurance from the government that the company will be bailed out when it runs into trouble – and this encourages risk-taking and short-termism. Too-big-to-fail policies create moral hazard: the benefits of taking riskier bets (both directly and by concealing it with creative accounting practices) are private, but losses can be made public. Bail-outs can be financed either from diverting tax money from other community-funded tasks, from printing money and raising inflationary pressure, or from running budget deficits that will weigh on future generations – neither of these is popular. It has to be noted that systemically important corporations are alien to the theory of efficient free markets pioneered by Adam Smith (1776), therefore policy actions aiming to level out the playing field – be it regulation or competition policy – should not be regarded as unnecessary interventionism on the outset.<sup>43</sup> But strategic market power comes with political lobby-power, which can enable those who benefit from externalizing risks to veto any regulation that would damage their interests. However, in a downturn, when too-big-to-fail policies are applied extensively, and unpopularity places great pressure on political actors to eliminate such privileges, there is also a risk of excessive governmental intervention.

Regulation by itself cannot be expected to make any economic sector well-functioning, without the existence of a positive competition. The nature of competition is rooted in the economic structure, which forms rules of conduct in the industry; with reference to Porter's five

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<sup>42</sup> Goldberg, Linda S. "Understanding Banking Sector Globalization". *IMF Staff Papers* 56, no. 1 (2009): 187-189.

<sup>43</sup> Smith, Adam. *An Inquiry into the Nature and Causes of the Wealth of Nations* (London: W. Strahan and T. Cadell, 1776).

forces framework, competition is driven by rivalry among existing firms, but its character is defined by the rules set by the external environment.<sup>44</sup> Cost-competition is determinant in banking probably more than in any other industry, since in the end what they originally compete in – price of capital - lacks differentiability. This can explain the long-term trend of consolidation in the industry even before the Gramm-Leach-Bliley Act: this type of competition favors those who can access capital with too-big-to-fail discount due to lower risk-perception of lenders of the bank, ensuring constant advantage for systemically important financial institutions. Banks can make a difference in the ways they allocate capital: they have almost infinite options even with the same value at risk (VaR) level, but this does not mean that all banks actually compete in this dimension. Systemically important banks have incentives to choose asset portfolios with greater correlation of returns: they are more likely to be able to externalize losses if all the major players are in trouble together; while they enjoy reliably high revenues during upswings just by swimming with the current, and investing in the most popular assets.<sup>45</sup> This sounds very similar to the case in the US: the entire financial system has become over-exposed to price changes in one single asset market; firms competed rather in their operations related to the housing market.

### ***1.3 Competition, Concentration, and Stability in the Financial Sector***

The relationship between bank sector concentration and competition is straightforward in the literature: cross-national empirical results confirm that there is no significant relation between the level of concentration and competition in banking, therefore they should be assessed

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<sup>44</sup> Porter, Michael E. *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. (New York: Free Press, 1998): 3-4.

<sup>45</sup> Acharya, Viral V. "A Theory of systemic Risk and Design of Prudential Bank Regulation". *Journal of Financial Stability* 5 (2009): 224-255.

separately.<sup>46</sup> This finding gets empirical support time after time, but still a number of researchers have found a commonality between the two: countries with more concentrated, and more competitive banking systems are less likely to experience systemic crises; and crises become less frequent – therefore more competition and more concentrated banking system means more stability.<sup>47</sup> It is clear that even highly concentrated sectors can be competitive, but in light of the too-big-to-fail policies, it seems counter-intuitive that more concentrated banking sectors are less likely to have crises; direct coordination and efficient information flow between the government and private financial institutions in certain countries could be an explanation for this, proceeding from the structural differences between Liberal Market Economy (LME), and Coordinated Market Economy (CME) models.<sup>48</sup> In any case, a consensus seems to emerge that across a large number of countries, a more concentrated banking system means more stability, and less risk-taking by individual banks; furthermore, the pioneer study of Beck *et al* (2006) have revealed that fewer regulatory restrictions on banks reduce banking system fragility, as they controlled for commercial bank regulatory policies, national institutions affecting competition, macroeconomic conditions, and shocks for the economy.<sup>49</sup> Regarding competition, the above mentioned studies all deny the “race to the bottom” effect telling that intense competition motivates elevated risk-taking, and leads to financial crises. But this latter establishment has been questioned recently by some studies that came up with empirical evidence pointing to the opposite direction; consequentially, these suggest that there exists an inevitable tradeoff between competition and

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<sup>46</sup> Claessens, Stijn and Luc Laeven. “What Drives Bank Competition? Some International Evidence”. *Journal of Money, Credit and Banking* 36, no. 3 (2004): 563-583.

<sup>47</sup> Chiak, Martin, Klaus Schaeck and Simon Wolfe. “Are Competitive Banking Systems More Stable?”. *Journal of Money, Credit and Banking* 41, no. 4 (2009): 711-734.

<sup>48</sup> Hall, Peter A. and David Soskice. *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage* (Oxford: Oxford University Press, 2001).

<sup>49</sup> Beck, Thorsten, Asli Demirgüç-Kunt and Ross Levine. “Bank Concentration, Competition, and Crises: First Results”. *Journal of Banking & Finance* 30 (2006): 1581-1603.

stability in commercial banking, and individual banks need to have market power so they can build up buffers against crises, thus maintain a satisfactory level of systemic stability. The narrative expects the realization of the latter causality with the higher franchise value of institutions that enjoy notable market power: if they fear that they will lose their distinguished status and reputation if they get involved in dubious ventures, they will make more risk-averse decisions.<sup>50</sup> In the wake of the financial crisis of 2007-2009, research aiming to clarify the relation between competition and financial stability in banking is timely, as it is apparent that competition policy and regulatory policy should be realigned in a way that can serve financial sustainability more effectively. But as equally well-formulated studies of the relationship between competition and stability or excessive risk-taking yields different results for different samples and time periods, it is difficult to give clear-cut recommendations. If there is a chance that there is a tradeoff between the two, regulatory efforts should be made to avert potentially destructive trends that emerge in a competitive environment, and maintain an optimal balance between the two – although it seems naïve to think that informational asymmetries, principal-agent problems, adverse incentives, and all the externalities that can emerge as side-effects of competition can be regulated away.<sup>51</sup> In the remainder of my thesis, I center my inquiry around the regulatory implications of the too-big-to-fail policy and systemic stability, which I expect to result in more direct conclusions regarding the post-crisis trends in banking.

#### ***1.4 Conclusion***

Banking consolidation has been facilitated by authorities less obsessed with control over financial arrangements than they were before, in the Bretton Woods system. The chapter presents

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<sup>50</sup> Berger, Allen N., Leona F. Klapper and Rima Turk-Ariss. "Bank Competition and Financial Stability". (2009): 99-118.

<sup>51</sup> Vives, Xavier. "Competition Policy in Banking". *Oxford Review of Economic Policy* 27, no. 3 (2011): 479-497.

that business-related, technology-specific reserves in banking such as unutilized economies of scale and scope convinced political actors to give greater freedom to private arrangements in finance by the 1980s, when regulators began to follow suit – giving way to an economic system built on self-reliance: the liberal market economy (LME) institutional environment. But this political economy model originated in the classic of Adam Smith presupposes fierce competition among equals, which is not present in the banking sector, technologically determined to care about the health of counterparties. The chapter shows that when this industry is populated with firms holding implicit guarantees for bailout, the high probability of this favorable governmental intervention makes competition ambiguous, as too-big-to-fail actors will have incentive to correlate their exposure to the same high-return assets. Industrial specificity and the waiving of the threat of going bankrupt creates moral hazard, that should be counteracted by the regulator.

## CHAPTER 2. BANKING AND THE FINANCIAL CRISIS

### *2.1 Consolidation in Trouble*

Financial innovations that disguised the adverse trends that undermined the financial system are exhaustively documented in the literature, just as the Federal Reserve's (FED) repeated federal funds rate-cuts, interbank credit-injections, short-term bank loans with relaxed collateral-requirements, and Treasury bond swap facilities as investors begun to drop mortgage-based assets from their portfolios and the collateral effects of the resulting price-decline started to materialize.<sup>52</sup> It is common knowledge that the rearrangement of the US financial sector begun with the loss of confidence in the solvency of Bear Sterns; the most leveraged investment bank specialized in the origination and distribution of mortgage-backed securities, of which a considerable amount was on its own balance sheet. The FED's reaction to the troubles of Bear Sterns have been at least controversial: it granted a \$30 billion low-interest loan to JPMorgan Chase in March 2008 to buy Bear Sterns at an already heavily discounted price (not even collateralized by its own, but with Bear Sterns' assets); for \$10 per share - less than a tenth of the price a year before - adding up to a \$1.2 billion deal, which was still five times higher than the original agreement on \$2 per share (\$236 million in total). The deal was closed on June 2, 2008.<sup>53</sup> For the Federal Reserve, the \$30 billion non-recourse loan must have seemed to be a low price to pay to prevent fire-sales, an extreme increase in the perception of counterparty risk, and the

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<sup>52</sup> Detailed in Cecchetti, Stephen G. "Crisis and Responses: The Federal Reserve in the Early Stages of the Financial Crisis" (2009): 51-75.

<sup>53</sup> Dash, Eric and Landon Thomas Jr. "Seeking Fast Deal, JPMorgan Quintuples Bear Stearns Bid". *The New York Times* March 25, 2008. Available: [http://www.nytimes.com/2008/03/25/business/25bear.html?\\_r=1](http://www.nytimes.com/2008/03/25/business/25bear.html?_r=1) , accessed : 05.04.2012.



resulting breakdown of credit markets; but this intervention had two far-reaching signal-effects for market-participants. It affirmed the markets that the FED is ready to act as the lender of last resort on the one hand, and outlined its preferred way to handle troubled financial firms that are considered too big – or too interconnected - to fail on the other. Markets regarded it as the model for further potential calamities, and although this assistance successfully prevented the outbreak of a panic, the implicit governmental insurance for the sector removed the incentives to reverse troublesome practices that involved extraordinary risk-taking at too-big-to-fail institutions. After all, it has been confirmed that the worst thing that could happen to major financial firms is that they will be forced to merge deals, funded and assisted by the FED – with its authority to lend “to individuals, partnerships, and corporations provided that a supermajority of the FED’s Board of Governors determines that “unusual and exigent conditions” exist and the reserve banks hold that credit is not available from the private sector” (Reinhart, 2011); even without the approval of the US government.<sup>54</sup> The Housing and Economic Recovery Act of July 2008 now officially guaranteed the Treasury support for Fannie Mae and Freddie Mac - the over-leveraged and over-exposed government-sponsored mammoth-enterprises in the residential mortgage business –, which further strengthened the notion that the federal governmental actors will handle the problems, and pay the bill if needed.<sup>55</sup> But when Lehman Brothers reached the edge of the cliff, despite of it was taken for granted, the government refused to arrange the survival of the investment bank the way it did for Bear Sterns: the investment bank had to file for bankruptcy protection on September 15, 2008. This time the realization that the “heads I win, tails the government bails me out” attitude cannot be permitted to prevail forever, must have dominated

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<sup>54</sup> Reinhart, Vincent. "A Year of Living Dangerously: The Management of the Financial Crisis in 2008". *Journal of Economic Perspectives* 25, no. 1 (2011): 78.

<sup>55</sup> Housing and Economic Recovery Act of 2008. Public Law 110-289, Available: <http://www.gpo.gov/fdsys/pkg/PLAW-110publ289/content-detail.html> , accessed: 05.04.2012.

the contagion- and too-big-to-fail considerations, and policy-makers insisted that insolvencies like this can be evaded only after overreaching financial reform, but not within the effective legal boundaries:

The Lehman failure provides at least two important lessons. First, we must eliminate the gaps in our financial regulatory framework that allow large, complex, interconnected firms like Lehman to operate without robust consolidated supervision. In September 2008, no government agency had sufficient authority to compel Lehman to operate in a safe and sound manner and in a way that did not pose dangers to the broader financial system. Second, to avoid having to choose in the future between bailing out a failing, systemically critical firm or allowing its disorderly bankruptcy, we need a new resolution regime, analogous to that already established for failing banks. Such a regime would both protect our economy and improve market discipline by ensuring that the failing firm's shareholders and creditors take losses and its management is replaced. (Bernanke, 2010)<sup>56</sup>

Before the panic had begun, Merrill Lynch agreed to give up its autonomy, and sold itself to Bank of America for \$50 billion - a reasonable price for an ailing firm, on the eve of the greatest financial crisis in the US since 1929-36, especially considering that both parties knew by then that the financial sector in on the verge of a major turnaround.<sup>57</sup> The panic induced by the Lehman-bankruptcy, and the precarious future of AIG - the largest US insurance company acting as counterparty for credit default swaps – swept through global markets, and froze credit markets; no one knew how much its counterparty is exposed to toxic assets, and who will be the next to announce insolvency (*Figure 4*). Liquidity problems and bank runs went hand-in-hand, giving the upper hand to the relatively cautiously managed banks, that could start to buy up their competitors – with governmental assistance. The Emergency Economic Stabilization Act of October 2008, and the connecting Troubled Asset Relief Program (TARP) only facilitated

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<sup>56</sup> Bernanke, Ben. "Lessons from the failure of Lehman Brothers". Testimony Before the Committee on Financial Services, U.S. House of Representatives, Washington, D.C. April 20, 2010. Available: <http://www.federalreserve.gov/newsevents/testimony/bernanke20100420a.htm> , accessed: 05.04.2012.

<sup>57</sup> Sorkin, Andrew Ross. "Lehman Files for Bankruptcy; Merrill is Sold ". *The New York Times* September 14, 2008. Available: [http://www.nytimes.com/2008/09/15/business/15lehman.html?\\_r=1&hp&oref=slogin](http://www.nytimes.com/2008/09/15/business/15lehman.html?_r=1&hp&oref=slogin) , accessed : 05.04.2012.

consolidation: the Treasury was authorized to take over up \$700 billion worth assets from banks, and to make capital injections directly.<sup>58</sup> Citigroup, JPMorgan Chase, and Wells Fargo Bank have been recapitalized with \$25 billion each; Bank of America got \$15 billion; Goldman Sachs, Merrill Lynch and Morgan Stanley received \$10 billion each; Bank of New York Mellon got \$2 billion, and State Street Bank got \$2 billion from the program. Shortly, Citigroup and Bank of America each drew an additional \$20 billion from TARP funds.<sup>59</sup> The ways how TARP-funds were allowed to be used were loosely defined, leading to a situation in which even well-capitalized institutions could benefit from access to taxpayers' money: they could use it to decrease the share of risky assets on their balance sheets, but it also freed up resources that could be used to improve their market position – adding to the unpopularity of the program.<sup>60</sup> Of the fourteen largest banks by deposits in 2007 five disappeared, and the remaining could continue their operations as Bank Holding Companies. Among the highest value deals, Washington Mutual was sold to JPMorgan Chase with the assistance of the Federal Debt Insurance Corporation on September 24, 2008 for \$1.9 billion; Wachovia Bank was bought by Wells Fargo Bank for \$15.1 billion on October 12, 2008.<sup>61</sup> The safety net the market presumed prior to the Lehman-bankruptcy was reinstituted, but the prior confidence in the capacity of the government to manage the subprime crisis effectively has disappeared. Confidence started to return only after the stress-testing of the 19 Bank Holding Companies with the most assets under management in February 2009, showing that the majority of the largest banks already had or could easily raise enough capital to weather out even the worst scenario tested. This success of the Supervisory

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<sup>58</sup> Emergency Economic Stabilization Act of 2008. Public Law 110-343. Available: <http://www.gpo.gov/fdsys/pkg/PLAW-110publ343/content-detail.html> , accessed: 05.04.2012.

<sup>59</sup> Lybeck, Johan A. *A Global History of the Financial Crash of 2007-2010* (2011): 265-266.

<sup>60</sup> Mishkin, Frederic S. "Over the Cliff: From the Subprime to the Global Financial Crisis". *Journal of Economic Perspectives* 25, no. 1 (2011): 54-56.

<sup>61</sup> Lybeck, Johan A. *A Global History of the Financial Crash of 2007-2010* (2011): 132-137.

Capital Assessment Program also signaled that there is constructive cooperation between the Treasury, the FED, the Federal Deposit Insurance Corporation, and the Office of the Comptroller of the Currency; regaining some of their reputation lost because only running after the events with massive delays.<sup>62</sup>

## ***2.2 Regulatory Actions***

To counteract the adversities in the economic system that led to the crisis of 2007-2009, the Senate and the House of Representatives of the USA in Congress assembled a formidable Act, driven by the ambition - as the preamble states - “To promote the financial stability of the United States by improving accountability and transparency in the financial system, to end “too big to fail”, to protect the American taxpayer by ending bailouts, to protect consumers from abusive financial services practices, and for other purposes” (Dodd-Frank Wall Street Reform and Consumer Protection Act, 2010).<sup>63</sup> Still, it is rather a collection of regulatory principles for the authorities, which implies that there must have been a serious disorder in the functioning of the governmental bodies, if a distinct Act was needed to clarify the responsibilities of principally the same agencies that are supposed to serve financial stability - the primary aim of the Act stated in the preamble - regardless of the business cycle. This format also indicates that the authors imagine the reform of Wall Street from above, through regulation supervised by the same agencies the Act aims to reconfigure. There are very few concrete technicalities in the document, so it is not very clear how it would like to settle the too-big-to-fail problem; in principle, a newly created Financial Stability Oversight Council will identify such companies, make proposals for

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<sup>62</sup> Board of Governors of the Federal Reserve System. “The Supervisory Capital Assessment Program: Overview and Results”. May 7, 2009. Available: <http://www.federalreserve.gov/bankinfo/scap.htm>, accessed: 05.15.2012.

<sup>63</sup> Dodd-Frank Wall Street Reform and Consumer Protection Act. H. R. 4173. Available: <http://www.gpo.gov/fdsys/pkg/BILLS-111hr4173enr/pdf/BILLS-111hr4173enr.pdf>, accessed: 05.12.2012.

regulation, and the Federal Reserve Board will have the authority to take action. Under Title 1, Bank Holding Companies with assets of more than \$50 billion are distinguished from the rest, and may become subject to (i) risk based capital requirements and leverage limits, (ii) liquidity requirements, (iii) overall risk management requirements, (iv) resolution plan and credit exposure report requirements, and (v) concentration limits. Also, (i) a contingent capital requirement, (ii) enhanced public disclosures, (iii) short-term debt limits, and (iv) other prudential standards will apply when the FED Board of Governors determines as appropriate.<sup>64</sup> In principle, systemically risky institutions will have to maintain at least a 15 to 1 leverage ratio after including off-balance-sheet activities, but the FED Board of Governors is authorized to impose additional, preferably countercyclical capital requirements on banks, as detailed under Title VI of the Act.<sup>65</sup> Stress tests will have to be conducted at least annually, moreover systemically important financial institutions are required to prepare credit exposure reports and plans for their own resolution: action plans for even the worst scenarios are expected to discourage imprudent behavior by clarifying its consequences for all parties. Authorities have to be informed about the structure of assets, liabilities, ownership, and also about contractual obligations, collaterals, counterparties, and cross-guarantees, or any information the FED and the Federal Deposit Insurance Corporation jointly require.<sup>66</sup> The Dodd-Frank Act amends the Bank Holding Company Act of 1956 with new limitations of scale for the US banking sector: it prohibits any consolidation that would create an entity with more than 10 percent of the aggregate consolidated liabilities of all financial companies, unless it serves the acquisition of a bank in default or in danger of default, or the Federal Deposit Insurance Corporation assists to it, or the changes in the liabilities is

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<sup>64</sup> Ibid: Sec. 165. "Enhanced supervision and prudential standards for nonbank financial companies supervised by the Board of Governors and certain bank holding companies".

<sup>65</sup> Ibid: Sec. 616. "Regulations regarding capital levels".

<sup>66</sup> Ibid: Sec. 165. "Enhanced supervision and prudential standards for nonbank financial companies supervised by the Board of Governors and certain bank holding companies".

insubstantial.<sup>67</sup> Scale expansion is further constrained with an interstate merger provision: the combined deposits cannot exceed 10 percent of the total deposits held by insured depository institutions in the United States.<sup>68</sup> The Dodd-Frank Act would limit also the scope of banking as the infamous Volcker rule advises: the Act intends to constrain own account – proprietary – trading, and ban banks from investing in or sponsoring hedge funds and private equity funds.<sup>69</sup> It is unclear how exactly or within what timeframe these changes should materialize, just as their impact on banking and on broader economic activity: implementation is not well elaborated in the Act, therefore most details will depend on the discretion of the empowered regulatory authorities, while others will be subject to political considerations. It is still possible that in the absence of rule-based constraints to the resolution of troubled banks, the new authorities given by Dodd-Frank may end up institutionalizing bailouts.<sup>70</sup> What certainly follows from the word of the Act is that public agents intend to play a greater role in the shaping the of the financial system, while the concrete outcomes depend mainly on political and intellectual capabilities and climate.

### ***2.3 Need for Radical Financial Reform?***

Governmental bailout has become the norm when a leading Bank Holding Company indicated that it has run into trouble, since it was advocated as the best available option for containing the recession and preventing even greater systemic breakdown. But it was clear for the public from the outset that these agreements came with uneven benefits: one way or another, bailouts have been made at the expense of the public, still the terms did not force banks to alter their systemically dangerous routines that led to the meltdown – which has induced

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<sup>67</sup> Ibid. Sec. 622. "Concentration limits on large financial firms".

<sup>68</sup> Ibid. Sec. 623. "Interstate merger transactions".

<sup>69</sup> Ibid. Sec. 619. "Prohibitions on proprietary trading and certain relationships with hedge funds and private equity funds".

<sup>70</sup> Calomiris, Charles W. "Incentive-Robust Financial Reform". *Cato Journal* 31, no. 3 (2011): 574-576.

extensive popular and academic dissatisfaction with the effective arrangements. High pre-crisis profits and managerial bonuses – now seen as excessive, realized at the expense of the uninvolved - have fueled further the sentiment that the incentives of the financial architecture that emerged since the 1970s can lead to nowhere but to crises. Short-sightedness, greed, dominance of over-optimistic perceptions and market sentiment over fundamentals, fabrication of financial results, cronyism, abuse of informational advantages and influence are oft-mentioned fallacies that can gain ground in the “neoliberal” money manager capitalism, allegedly coded in the rules of the game: in the principles of risk management, in the compensation system, in the institutional framework, the structure of the sector, and above all in the industry- and elite-wide network of interests. The loudest structuralist proposals for systemic corrections are shockingly extreme: with the words of Crotty, many would like to see “a combination of aggressive financial regulation coordinated across national markets as well as nationalization of financial institutions where appropriate” (Crotty, 2009); it is difficult not to hear out the crying out for a more centrally coordinated economy-wide allocative mechanism.<sup>71</sup> Indeed, Hyman Minsky’s Keynesian reading of economic cycles that explains financial instability with uncertainty, competition and fear - and sees the resolution in the extension of lender of last resort facilities and sizeable government intervention - has become so widely accepted for understanding and managing the 2007-2009 crisis, that such interventionist actions are actually followed in the US, even if these do not promise much for a system where banks are not even the primary originators of credit.<sup>72</sup> The above logic, stemming from the increased desirability of having a stable financial system after a major shock, echoes Karl Polanyi’s (1944) argument about the conflict between the operation of free markets and the human need for stability; but the years since the crisis – as I will show in the

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<sup>71</sup> Crotty, James. “Structural Causes of the Global Financial Crisis: A Critical Assessment of the ‘New Financial Architecture’”. *Cambridge Journal of Economics* 33, no. 4 (2009): 577.

<sup>72</sup> Dymski, Gary A. “Why the Subprime Crisis is Different: A Minskyan Approach”. (2010): 239-255.

following chapters – did not bring the demise of “money manager capitalism” at all, as some predicted.<sup>73</sup> What is unarguably true is only that an essential precondition of the *laissez-faire* paradigm advocated by Alan Greenspan has been violated: individual firms have become so important that they cannot be let go bankrupt any more, which indeed signals the essential need for more systemic regulatory oversight. It is sensible to argue for decreasing the role of greed at systemically important corporations. But whether this demand will really lead closer the economy of the United States to the Coordinated Market Economy (CME) model outlined by the Varieties of Capitalism (VoC) theory – which is “all about taming the “unruly restlessness of the model capitalist actor” (Streeck, 2009)<sup>74</sup>” (Bohle and Greskovits, 2009)<sup>75</sup> - remains to be seen. The complementariness between industrial relations, education, corporate governance, innovation, and principal-agent relations highlighted by the VoC framework points out the unlikelihood of radical changes in the coordination mechanism that emerged since the 1970s, and propels against making hasty conclusions about the future. This point can be demonstrated intuitively with managerial remuneration, which is one of the main domains for criticism after the crisis; greed, as a source of destructive incentives. Shareholder-tradition instead of stakeholder-tradition of corporate management in the United States has wide-reaching institutional implications for industrial relations, corporate finance, labor market, and knowledge transfer. Corporate law in the US discourages block-holdings of equity, cross-ownership, strategic ownership, and favors highly liquid minority shareholding traded on stock exchanges – resulting in greater autonomy for top management. Higher managerial responsibilities come with higher personal stakes in decisions;

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<sup>73</sup> Polanyi, Karl. *The Great Transformation. The Political and Economic Origins of Our Time* (Boston: Beacon Press, 1944).

<sup>74</sup> Streeck, Wolfgang. *Re-Forming Capitalism. Institutional Change in the German Political Economy* (Oxford: Oxford University Press, 2009): 256.

<sup>75</sup> Bohle, Dorothee and Bela Greskovits. “Varieties of Capitalism and Capitalism « tout court »”. *Archives Europeennes de Sociologie* 50 (2009): 373.



managers have to optimize according to the interests of shareholders, because if they are not convinced, owners sell their stakes instantly, and damage the value of the company. Remuneration has to compensate for the dynamism and the high responsibilities, moreover the transferrable nature of managerial talent is also likely to inflate salaries. This tradition is unlikely to change in the near future, at least not that much to reflect popular disapproval of generous paychecks of bank executives. But complementing incentives for shareholder value maximization with incentives to care about systemic risk would be sensible: if they only maximize their earnings from equity options, they will always favor a more uncertain option with the same mean expected return over an option offering a safe payoff, when a certain portion of the risk is shared with competitors and taxpayers.<sup>76</sup> This aspect shows that the introduction of a regulatory framework that can reduce opportunities to profit from externalities is the challenge to be taken in the wake of the crisis, which should still be compatible with the long-standing tradition of capitalism in the United States.

## 2.4 Conclusion

The severe financial crisis that started in 2007 propelled the central monetary authority to step in and act as lender of last resort, and to start bailing out troubled financial institutions it considered systemically important. This outcome follows from the features outlined in Chapter 1; only when the authorities realized that they are not well suited to constrain the too-big-to-fail problem within the effective regulatory framework, they decided to break the expectations that fuelled moral hazard by denying help for Lehman Brothers – inducing a panic that altered the housing market crisis for a system-wide financial crisis. This event draws attention to the

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<sup>76</sup> Goodhart, Charles A. E. "Is a Less Procyclical Financial System an Achievable Goal?" In: Asli Demirgüç-Kunt, Douglas D. Evanoff and George G. Kaufman (eds.) *The International Financial Crisis: Have the Rules of Finance Changed* (New Jersey: World Scientific, 2011): 274-275, 280-281.

importance of expectations in determining the behavior in financial markets. The reversal of the above sudden, improvised determination as a reaction to the panic, opened the way to a government-assisted wave of consolidation, creating even more influential entities. The popular, political, and intellectual climate demanded institutional solution to the disruptions caused by systemically important financial firms, but only a lengthy set of principles were enacted with the Dodd-Frank Act; the concrete changes continue to depend on momentary political considerations, within the outlined principles. It is clear that Keynesian-type safety nets would only fuel moral hazard incentives, depress markets with promising greater interventionism, and consequently try to force the stakeholder model on the banking sector in a country that does not have the complementary institutions – all in the name of predictability. The job is the reduction of externalities, which is not analogous with increased governmental grandfathering: incentives should be transformed for private actors, so they approximate those in a competitive liberal market economy.

## CHAPTER 3. MACROPRUDENTIAL REGULATION AS REMEDY?

### *3.1 Macprudential Trends*

Prudential regulatory failure was one of the major policy deficiencies leading to the escalation of the financial crisis, among the monetary policy mistake of keeping the federal funds rate inconsiderately low, the subsidization of mortgage risk by misconceived social policy, and corporate governance problems: it manifested itself through moral hazard issues, namely the reliance of regulators on the assessments of credit rating agencies which were interested in rating-inflation, and the too-big-to-fail problem.<sup>77</sup> It is not surprising that keeping regulatory discipline for complex institutions is difficult, and the employees of governmental organizations will always likely to lag behind happenings: it seems to be forgot that this undefeated insight was the central motive behind privatization of risk-assessment duties (to credit rating agencies and financial firms themselves); and it even seemed to work very well for decades, until 2007. It is fair to expect from the authorities after the crisis-experience to create institutions that can effectively eliminate moral hazard-incentives, even if this necessitates constraining regulatory interference with private arrangements. Of course, this solution may seem controversial, when one recalls that the most likely candidates for the job have recently failed to recognize major adverse tendencies, and let the housing bubble – a conventional asset-price bubble - grow to a systemic financial crisis. But it is also clear from the reasoning in the previous chapter that returning to the predominance of self-regulation is not reconcilable with the socially acceptable level of financial

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<sup>77</sup> Calomiris, Charles W. "Origins of the Subprime Crisis". In: Asli Demirgüç-Kunt, Douglas D. Evanoff and George G. Kaufman (eds.) *The International Financial Crisis: Have the Rules of Finance Changed* (New Jersey: World Scientific, 2011): 73-92.

stability. Since it has become an accepted pretension after the collapse of Lehman Brothers that the most interconnected bank holding companies cannot be let go bankrupt, it seems reasonable to begin the regulatory reform with correcting the firm-centered, microprudential methods. But if one has to name the most oft-mentioned lesson from the recent crisis, it is that there may be more risk present in the financial system as a whole, than at its individual participants: this calls for a fundamentally new approach to regulation that can decrease systemic risk. There are a few simple proposals for making financial firms internalize more of their risks. Among frequently mentioned possible methods to discipline banks with systemic importance is the breakup of big banks; but its proponents seem to overlook that interconnectedness matters more than size. Another is the limitation of the functions that a single institution can serve, as the Glass-Steagall Act did; but it is apparent that this would also be insufficient, if one considers that Lehman Brothers would not have had to change a thing in its business model even if the Glass-Steagall Act was still in force. The more sophisticated theories emphasize the need for a macroprudential approach to regulation, stressing the importance of capital requirements for containing socially subsidized risk-taking: higher capital requirements – therefore lower leverage – could provide a thicker buffer for losses on the one hand, and more equity-finance instead of short-term debt finance would decrease moral hazard incentives maintained by debt-insurance and bailout-expectations on the other. According to Hanson and Kashyap (2011), a beneficial side-effect of raising capital requirements is that it would reduce the cost-of-capital competition among the most asset-rich financial firms: their empirical survey shows that competition in this dimension has led to higher and more uniform levels of leverage at major firms in the US, as short-term borrowing was cheaper than equity finance due to deposit insurance and implicit bailout-promises.<sup>78</sup>

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<sup>78</sup> Hanson, Samuel G. and Anil K. Kashyap and Jeremy C. Stein. "A Macroprudential Approach to Financial Regulation". (2011): 3-28.

The feasibility of the macroprudential approach makes it very attractive: by raising capital requirements, the current structure and function of Bank Holding Companies can be maintained, while banks would internalize more of the risks that accompany their operations, and end up with a cyclically more flexible, therefore more stable liability structure. However, determining the share of equity capital (Tier 1) in the liabilities of a bank that is sufficient for a systemically more sustainable operation of the financial sector represents the greatest challenge for regulators. The Federal Reserve, the Office of the Comptroller of the Currency, the Office of Thrift Supervision and the Federal Deposit Insurance Corporation agreed in 2007 to implement the international Basel II banking standards<sup>79</sup>, which aims to make capital allocation risk-sensitive, to standardize the measurement of banks' interest rate-, credit-, and operational risk, and to improve transparency with risk disclosure requirements.<sup>80</sup> This was undoubtedly an important advancement towards setting universal international prudential regulatory standards, but the procyclicality embedded in the Basel II framework proved to be inadequate for mapping out risks that are not directly attributable to individual banks: capital requirements under Basel II are calculated based on fair value accounting, which uses current profitability, volatility, and correlation for determining risks. When a crisis strikes in and uncertainties about the future radically increase, suddenly banks suffer great decreases in profitability, volatility skyrockets, and price correlations recede from past tendencies; together breaking the continuity in the indicated level of risk.<sup>81</sup> Returning to the ways of the more blunt risk-classification and level capital requirements of Basel I though should not be the direction of change: risk-sensitive

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<sup>79</sup> Board of Governors of the Federal Reserve System. "Banking Agencies Reach Agreement on Basel II Implementation". Press release 20 July, 2007. Available: <http://www.federalreserve.gov/newsevents/press/bcreg/20070720a.htm> , accessed: 05.07.2012.

<sup>80</sup> Basel Committee on Banking Supervision. *International Convergence of Capital Measurement and Capital Standards* (Basel: Bank for International Settlements, 2004). ISBN: 92-9131-669-5.

<sup>81</sup> Goodhart, Charles A. E. "Is a Less Procyclical Financial System an Achievable Goal?" (2011): 271-272.

capital-allocation and regulation of Basel II may be even more procyclical than its predecessor unless time-variable risks can be incorporated, but any method that would make the principles of capital allocation less justifiable in the name of more stability would certainly worsen macroeconomic outlooks. Moreover, any scheme for setting capital requirements that keeps them constant throughout the business cycle is inevitably procyclical: banks lose capital when the share of defaulting loans increase in their portfolio, therefore they cut back lending, and by doing so they deepen the recession.<sup>82</sup> Of course, the predictability of future events, and of the frequency of economic business cycles is highly precarious; therefore mark-to-market measures will continue to provide the most objective reference points, but this does not mean that exaggerative asset price increases and excessive credit expansion cannot be recognized and treated as warning signs. Economists at the Bank for International Settlements have elaborated early warning indicators with the latter two main variables, which proved to be historically successful in signaling banking system distress in advance – in the United States as well.<sup>83</sup> The limitations of early warning indicators, vector autoregression simulations and macroeconomic stress tests have to be admitted – most importantly that these all use past or present data for extrapolation<sup>84</sup> – but what they are intended for is clear: these techniques are meant to induce counter-cyclical measures when excessive risks seem to build up, which is the decisive factor for having a financial system less exposed to severe crises.

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<sup>82</sup> Calomiris, Charles W. "Financial Innovation, Regulation, and Reform". *Cato Journal* 29, no. 1 (2009): 80.

<sup>83</sup> Borio, Claudio and Mathias Drehmann. "Assessing the Risk of Banking Crises – Revisited". *BIS Quarterly Review*, March 2009 (2009). Available: [http://www.bis.org/publ/qtrpdf/r\\_qt0903e.htm](http://www.bis.org/publ/qtrpdf/r_qt0903e.htm) , accessed: 05.08.2012.

<sup>84</sup> Detailed in: Borio, Claudio and Mathias Drehmann. "Financial Instability and Macroeconomics: Bridging the Gulf". In: Asli Demirgüç-Kunt, Douglas D. Evanoff and George G. Kaufman (eds.) *The International Financial Crisis: Have the Rules of Finance Changed* (New Jersey: World Scientific, 2011): 242-256.

### 3.2 *Implementation of Countercyclical Measures*

#### 3.2.1 Basel III Capital Requirements

The Basel Committee on Banking Supervision (BCBS), consisting of the senior representatives of bank supervisory authorities and central banks from the most influential countries of the world, announced the Basel III financial reform proposal aimed to “strengthen global capital and liquidity rules with the goal of promoting a more resilient banking sector” (Bank for International Settlements, 2011).<sup>85</sup> The work is positioned to meet the dual purpose of correcting the adversities in the Basel II framework – mainly deriving from its procyclicality, that has been known even before the crisis –, and incorporating the knowledge gained from the experience of the financial crisis. The main areas covered by Basel III include the improvement of risk management techniques and governance, strengthening transparency and disclosure obligations of banks, and dealing with the resolution of systemically important banks. As too-big-to-fail banks engage in transnational transactions in high volume, an international symposium like the Basel Committee is the adequate venue for introducing effective new regulation for these companies. Reforms in Basel III build on the three pillars of Basel II - risk-based capital requirement rules, risk management and supervision, and rulings for market discipline and transparency –, however the fundamental reforms to achieve the appointed goals are centered around the first pillar: more counter-cyclical capital requirements, and new global liquidity standards (*Table 1*). Since Basel III is not a completely new stand-alone framework, but rather the improvement of Basel II and its revisions, BCBS monitors in a timely manner the extent to which each member fulfills certain stages of the Basel process: according to the latest progress

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<sup>85</sup> Bank for International Settlements. “Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems”. December 2010, revised June 2011 (2011), ISBN: 92-9131-859-0: 1. I refer to this source throughout the sub-chapter.

report, as of the end of March 2012 regulatory institutions in the USA still do not comply fully with Basel II directives regarding credit risk and operational risk-management rules, but it is acknowledged that banks have made significant progress. The USA is also behind in the implementation of market risk capital requirements, moreover authorities are only at the stage of assessing the compatibility of Basel III with the Dodd-Frank regulatory reform legislation; not even a draft has been published on their part.<sup>86</sup>

In particular, regulator of each BCBS member country should have the legal authority to oblige banks to hold at least 4.5% of risk-weighted assets in Tier 1 common equity at all times (raised from 2%), 6% of risk-weighted assets in any form of Tier 1 capital at all times (raised from 4%), while total capital (Tier 1 and Tier 2) should correspond to at least 8% of risk-weighted assets.<sup>87</sup> Similarities to previous stages of the Basel process are apparent regarding the fixed ratios, but this time the BCBS made efforts to counter the procyclicality of capital requirements (meaning less mandatory capital held in upturn, more capital held in downfall - alongside increasing risks and higher cost of capital).

A new capital conservation buffer ensures in the Basel III framework that banks set aside capital above the regulatory minimum during normal times, that can be utilized in downturn: an additional 2.5% of risk-weighted assets should be covered with Tier 1 common equity for this purpose. The regulator should have mandate to make banks which fall below the prescribed ratio retain their earnings, instead of paying dividends and bonuses, or making new investments in riskier assets. All the above measures are straightforward, universal (leave no opportunity for geographical arbitrage), and are likely to contribute to the stability of the financial system.

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<sup>86</sup> Bank for International Settlements. "Progress Report on Basel III Implementation". April 2012 (2012), ISBN 92-9131-113-8.

<sup>87</sup> Capital-categories are defined in: Bank for International Settlements. "Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems" (2011): 12-29.



There is an additional variable component of Basel III minimum capital requirements, aimed to decrease the procyclical incentives of the Basel framework; a countercyclical buffer set between 0 and 2.5% of risk weighted assets (in Tier 1 common equity), to be accumulated in extraordinarily favorable times, when governments assume that the economic business cycle is near to its high point: “[n]ational authorities will monitor credit growth and other indicators that may signal a build up of system-wide risk and make assessments of whether credit growth is excessive and is leading to the build up of system-wide risk” (Bank for International Settlements, 2011).<sup>88</sup> It is obvious when is the economy in recession, but as discussed later in this chapter, determining the peaks and valleys of the business cycle is problematic – especially when national authorities try to do it. Why would they be better at predicting the path of the business cycle than the more generously paid private actors? Moreover, which reasonable governmental actor would signal to voters and investors that the end of economic growth is near, in consequence redirect capital to other countries, and induce self-fulfilling asset depreciation? The BCBS seems to neglect that not only banks, but national economies also have incentives to do what they can in order to push down borrowing costs: to lower debt service on national debt, and to support economic activity in its jurisdiction. One can argue that since a firm’s funding cost does not depend on its capital structure - as the first proposition of the Miller-Modigliani theorem says<sup>89</sup> -, a higher share of common equity in the liability structure of banks will not raise their cost-of-capital, unless one form of funding permits the externalization of some risks that emerge from the way the capital was utilized – for instance through a too-big-to-fail insurance for lenders.<sup>90</sup> It

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<sup>88</sup> Ibid.: 57.

<sup>89</sup> Miller, Merton H. and Franco Modigliani. “The Cost of Capital, Corporation Finance and the Theory of Investment”. *American Economic Review* 48, no. 3 (1958): 261-279.

<sup>90</sup> Admati, A. R., DeMarzo, P. M., Hellwig, M. F., and Pfleiderer, P. C. “Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity is not Expensive”, Working Paper No. 86, Rock Center for

follows from the previous logic that equity-holders should bear more of the risks that have been deflected towards taxpayers, thus attenuate the subsidization of too-big-to-fail banks' cost of capital. Still, the possibility that markets may interpret the authorities' decision to increase the countercyclical capital requirement as a signal for sell-off, authorities will be reluctant to take action, especially if they are – rightly - not fully confident their predictive capacities.

To decrease moral hazard incentives of too-big-to-fail banks, in addition to Basel III rules, the Basel Committee proposed that systemically important financial institutions accumulate an additional 1 to 2.5% Tier 1 common equity in order to make them have a higher loss-absorbency capacity, and maybe one extra percent on top of that for market leaders to discourage their expansion (*Table 1*). The latter is implicitly built on the premise that higher common equity capital ratio will increase capital cost, and indicates that the Committee expects interest rate discounts for too-big-to-fail banks on their debt to prevail even after the implementation of Basel III. If they are right, major banks will continue to have competitive advantage over smaller banks, projecting further consolidation in the sector – not through mergers between systemically important banks seen during the crisis, but rather through endogenous growth, small bank acquisitions by systemically important ones, mergers among small banks, and small bank failures. Systemically important banks' cost-advantage makes non-unique banks' operation unsustainable on the long run, incentivizing them to expand.

### 3.2.2 Compliance with Basel III

Members of BCBS have agreed in a lengthy implementation of Basel III rules, setting out full implementation only by January, 2019; with yearly approximation of the final capital

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Corporate Governance, Stanford University, CA. (2010). Available:  
[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1669704](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1669704) , accessed: 05.20.2012.

requirements discussed above (minimum requirement yearly changes detailed in *Table 2*). For 2011 and 2012 only the usual supervisory monitoring of leverage ratios and observation of liquidity is planned; the first year the BCBS sets out a target for is 2013.

In this section, I will assess whether the nineteen US Bank Holding Companies with the most total assets under management (contributing to 75.34% of the sum of consolidated commercial bank, thrift institution and credit union assets)<sup>91</sup> comply with Basel III standards prescribed by 2019. These nineteen financial institutions are used as proxy for systemically important financial institutions. I will use institution-level data from the Bank Holding Company Performance Reports of the National Information Center, maintained by the Federal Financial Institutions Examination Council and the Federal Reserve Board.<sup>92</sup> I will use aggregated industry data from the 2011 annual report of the Federal Financial Institutions Examination Council.<sup>93</sup> Both sources are relying on the fully consolidated 2011 year financial statements of financial institutions. Total assets and capital ratios of the nineteen banks surveyed are included in *Table 3*.

All Bank Holding Companies in the sample but one already exceed the minimum common equity capital ratio, all meet the minimum Tier 1 capital ratio, and only two of them do not hold the amount of total capital required by Basel III, by 2019 – all after adding the capital conservation buffer. Placing these results next to the historical simulation of Varotto (2011) suggesting that with the capital ratios dictated by Basel III, banks could have weathered out every crisis between 1921 and 2009 could bestow us with great tranquility.<sup>94</sup>

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<sup>91</sup> As of December 31, 2011. Calculated based on data from the National Information Center. “Bank Holding Company Performance Reports” (2011). Available: <http://www.ffiec.gov/nicpubweb/nicweb/top50form.aspx> , accessed: 05.21.2012.

<sup>92</sup> Ibid.

<sup>93</sup> Federal Financial Institutions Examination Council. *Annual Report 2011*. data as of: December 31, 2011. Available: <http://www.ffiec.gov/PDF/annrpt11.pdf> , accessed: 05.21.2012.

<sup>94</sup> Varotto, Simone. “Stress Testing Credit Risk: The Great Depression Scenario”. *Journal of Banking & Finance* (2011, forthcoming). doi:10.1016/j.jbankfin.2011.10.001.

### 3.3 A New Approach to Macroeconomics?

That the great freedom allowed for financial firms in choosing their exposure to risk ended in a systemic breakdown, induced popular discontent with the work of financial professionals, and the economist profession as a whole; primarily for creating and supporting a system no one could see through as a whole. From another perspective, it is possible that overconfidence in the universal real world validity of dynamic stochastic general equilibrium models may have led to false complacency among the savants of complex analytical methodologies, as once the limiting premises were precisely laid down, the variation in the unaddressed factors have been often disregarded. Both the voices of overconfidence in one's knowledge, and the voices attempting to discredit the use of general equilibrium models on the basis that they cannot map out every possibility the future can bring, are highly exaggerative in their nature; and this divide in the evaluation of the profession is perfect for creating camps for and against "money manager capitalism". A common feature in the above exaggerations is their advocates' goal to achieve a predictable future: basically the demand for the accuracy of an engineer in planning – only regarding social phenomena. The debate on its feasibility is anything but new: the predictability of future events with indicators that would have worked in retrospect, or by simply understanding social dynamics, has been the basis of some of the most infamous academic debates in social sciences, in reference to various kinds of extraordinary events.<sup>95</sup> It is always a sensible proposition to intensify the interaction between disciplines and make economic modeling more heterodox – which inevitably leads to greater complexity (with all its advantages and disadvantages). Difficulties with this direction start when the premise of rational expectations

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<sup>95</sup> For example, on the predictability of revolutions in the world: Goldstone, Jack A. "Why We Could (and Should) Have Foreseen the Revolutions of 1989-1991 in the USSR and Eastern Europe". In: Keddie, Nikki R. (ed). *Debating Revolutions* (New York: New York University Press, 1995): 39-76. Versus: Keddie, Nikki R. "Response to Goldstone" in: Keddie, Nikki R. (ed). *Debating Revolutions* (New York: New York University Press, 1995): 65-76.

has to be relaxed to get closer to reality, when this premise is the precondition of any calculation; to look for reliable patterns in multidimensional systems (like national economies) with possibly irrational actors may be an exercise in futility. The very likely possibility adds to this that even if individual agents act rationally, in aggregate those same actions are irrational, and potentially destructive. After all, bankers and broker dealers are accused with greediness, selfishness, the result of which was that they only cared about the maximization of their companies' share price – which is completely rational on the firm level, but it still turned out to be irrational on the systemic level. That systemic, macroprudential approach to regulation could become the mainstream advised panacea for financial instability should be seen in light of its above outlined limits: the central position of behavioral factors in economic decisions ensures that modeling with systemic pretension will be precariously founded, unless it manages to convincingly incorporate behavioral analogies. Market stability is supported by well-functioning institutional arrangements and behavioral conventions that maintain normal conditions for long time periods, but adjustment to new information and panics generate sizeable deviations from former rules of price-setting: the price vector can be regarded as a psychological construct, “subject to the potential for discrete and unpredictable shifts, both because of revision of expectations and because of revision of confidence in expectations” (Dow, 2011).<sup>96</sup> How could we expect economists to anticipate all the uncertainties, and panic- or overconfidence-generating novelties that can come from any segment of the interconnected, multi-dependent world? It would be clearly unrealistic to expect anything like this from any model – be it based on micro-foundations or on state-of-the-art structural general equilibrium simulations -, even if most recent advancements in network-analysis and graph-theory are promising for quantitative macroeconomic analyses of dynamic adjustments.

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<sup>96</sup> Dow, Sheila C. "Cognition, market sentiment and financial instability". *Cambridge Journal of Economics* 35, no. 2 (2011): 237.

Structures, states and mechanisms shaped by social interactions are all constantly in change, therefore the most one can do is to accept certain constraints of models to have pinned-down reference points just as up to the present, but continue to look for what these limitations mean for the real-world validity (robustness) of the model.<sup>97</sup> Still, this is far from the ambition of the ardent supporters of macroprudential regulation to determine where we are in the macroeconomic business cycle. When is economic growth, leverage, or an asset price so excessive, that we can state with great confidence that we are close to the peak in the macroeconomic cycle? It is enough to mention the 3.14% average GDP growth rate in the United States between 1998 and 2006<sup>98</sup> (*Figure 3*) which is decent but not excessive, or asset-to-equity ratio of Lehman Brothers and Merrill Lynch that were not higher at the end of the same period than at the starting point (*Figure 5*) to see that finding the right reference point for determining our place in the business cycle is not as obvious as the theorists of macroprudential regulation prefer to present. Some authors go that far to start wondering why “warnings” – certain selective similarities to previous crises, the doomsday-predictions of a few economists who publish shocking theories for the living, increasing ignorance of Keynesian theory at universities - were not followed by policy responses, and they ascribe this to pretensions limited only by their imagination: the “cult” of quantification, the “ideology” of free markets, or personal stakes and interests of academics and bureaucrats as a group.<sup>99</sup> Along this “new economic philosophy”, the mission of turning around the suspected fallacies of “money manager capitalism” can validate almost any sort of interventionism, from the nationalization of banks and subsidization of strategic corporations, to

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<sup>97</sup> Caballero, Ricardo J. “Macroeconomics after the Crisis: Time to deal with the Pretense-of-Knowledge Syndrome”. *Journal of Economic Perspectives* 24, no. 4 (2010): 92-101.

<sup>98</sup> OECD. “National Accounts Statistics: Aggregate National Accounts” (2012). Available: <http://www.oecd-ilibrary.org/content/datacollection/na-data-en> , Accessed: 05.23.2012.

<sup>99</sup> Hodgson, Geoffrey M. “The great crash of 2008 and the reform of economics”. *Cambridge Journal of Economics* 36, no. 2 (2009): 1211-1215.

spending a year's GDP on demand-promotion, even at the price of historically high budget deficits; disregarding that "it is perhaps the worst thing that may happen to any free society, if a government lapses into a series of unplanned and unintended interventions, which just multiply themselves like viruses and spread without anybody intentionally spreading them" (Csaba, 2009)<sup>100</sup>. For this reason, it is sensible to plan ahead, be prepared for shifts in the business cycle, and make the necessary adjustments to contain bubbles, but over-confidence in regulators' capacity to manage it can easily lead back to improvised governmental interventions as soon as something unexpected happens that macroeconomic models do not predict. It follows from the above outlined limitations that flattening the economic business cycle and stabilizing the economy for decades is likely to be an illusion: aggressive financial regulation and extremely high countercyclical capital requirements may easily turn out to be unmanageable given the difficulties to recognize real threats.

### ***3.4 Challenges for Basel III***

Macroprudential regulation is the answer of governmental leaders and academics for the popular dissatisfaction with the recent, unequivocally severe downfall in the economic business cycle; an essentially inevitable feature of market economies. The preceding prolonged upswing was accompanied, moreover fuelled with the notion that "now we know better" – primarily based on the confidence in financial engineering, and the belief that corporate level risk-analysis covers all contingencies. Predictive models unavoidably rely on historical data and the assumption of rational behavior on the level of analysis, which is now shifted from firm to systemic – but still

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<sup>100</sup> Csaba, Laszlo. "Unintended Consequences of Crisis Management". *Zeitschrift für Staats- und Europawissenschaften* 7, nos 3-4 (2009): 454-455.

no economic model can deal with uncertain events.<sup>101</sup> Therefore, in addition to the expectation-altering potential of capital requirements adjusted according to the national regulator's idea pointed out in this chapter, over-confidence in the validity of these visions is likely to recreate the pretense of having a predictable financial system. Only now those entities are the trustees of this confidence, who steadily lag behind private actors in reacting to trends, even regarding Basel III: as I have shown, banks responding to market- and shareholder pressures already comply with the Basel III capital requirements, while governmental entities have not even started discussing the official implementation of these rules. Albeit the Dodd-Frank Act only outlined the principles that will govern financial markets, its certain but unspecific implementation has sent disciplinary signals for private actors, who hastily fulfilled the most specific soon-to-be-effective regulatory prescript; minimum capital requirements of Basel III. This outcome supports the insight that signals sent by official entities can be just as effective as concrete rulings, which should have been thought of by the Basel Committee when it elaborated the mechanism for adjusting the countercyclical capital buffer.

Regulatory provisions of the Dodd-Frank Act and Basel III such as high and contingent capital requirements, size and scope limitations, and living wills may act against too-big-to-fail advantages to some extent, but the implicit expectation of the Basel Committee that too-big-to-fail banks will continue to have cost-of-capital advantage over the rest is instructive.

It is clear that the Basel III framework was not formulated with concern for aligned risk-taking behavior in the banking sector, and it does not introduce any steps to avert the accumulation of correlated asset-portfolios across banks – neglecting that the financial crisis of 2007-2009 evolved from the real estate market crisis of the US. Linear weighting of exposure of

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<sup>101</sup> Presented in detail in: Knight, Frank H. *Risk, Uncertainty, and Profit* (Boston, MA: Hart, Schaffner & Marx; Houghton Mifflin Co., 1921).



individual borrowers to risk assumes portfolio-invariance in a framework that is intended to address systemic risk, while as some have proposed, it would be possible to levy quadratic capital requirement penalty on those who diverge from a systemically – and probably globally - diversified portfolio.<sup>102</sup> The consensus agreement in the literature that more concentrated banking sector makes crises less frequent can be correct, but when portfolio risks are correlated, banks suffer together, causing so severe disruptions that seriously question the sustainability of the entire financial system. The latter reasoning echoes the infamous pre-crisis statement of Chuck Prince, the CEO of Citigroup: “When the music stops, in terms of liquidity, things will be complicated. But as long as the music is playing, you’ve got to get up and dance. We’re still dancing.” (Nakamoto, 2007).<sup>103</sup> That a bank leader does not try to decrease the bank’s extensive exposure to an asset class that he considers problematic is irrational with normal competition: it means that the collective interest of the sector dominates individual struggle for survival. This very special competition in the front-line of the sector with no constraints on asset portfolio-correlation across banks makes Basel III regulation - strengthening the liability side of the balance sheet - ineffective against the too-big-to-fail phenomenon. Building capital buffers against crises, and decreasing benefits from cost-of-capital discounts are salutary in this regard, but Basel III does nothing to prevent Bank Holding Companies from riding the next asset price wave together, and wait for bail-out when the bubble bursts. The continuous consolidation in the banking sector of the United States should be seen in this light, with regulation again lagging behind the options of private ventures.

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<sup>102</sup> Atkinson, Paul and Adrian Blundell-Wignall. “Banking Beyond Basel III: Necessary Solutions for Capital and Liquidity”. *OECD Journal: Financial Market Trends* 2010, no. 1 (2010): 20.

<sup>103</sup> In an interview by Nakamoto, Michiyo and David Wighton. “Citigroup Chief Stays Bullish on Buy-Outs”. *Financial Times* July 9, 2007 (2007). Available: <http://www.ft.com/intl/cms/s/0/80e2987a-2e50-11dc-821c-0000779fd2ac.html> , accessed: 05.22.2012.

### ***3.5 Conclusion***

The chapter shows that macroprudential measures promoted by the Dodd-Frank Act, and concretized by the Basel III framework did not propose such burdens on US Bank Holding Companies they would have been reluctant to fulfill: almost all systemically important banks have managed to comply with its minimum capital requirements long before the 2019 deadline. This is an example on how regulatory signals alone can achieve the appointed goal, by altering the expectations of market participants. It is also instructive that despite of the verbal determination of political actors to regulate the financial system, the realization of the most refined disciplinal step can be accredited to market pressures. This could still be accepted as a great success, if the new rules were convincingly effective in counteracting socially adverse incentives in the sector. The latest Basel framework took an important step ahead from its previous versions by recognizing the procyclical nature of minimum capital rules; but this does not mean that national authorities will be able and willing to adjust the countercyclical capital buffer adequately according to the state of the economic business cycle – this would require predictive economic modeling with necessarily unrealistic assumptions, but now not just for single asset markets, but for the complete complexity and dynamism of national economies. The bigger problem with believing that complying with Basel III rules make banks crisis-proof is apparent when one reflects back to the origin of the 2007-2009 crisis: systemically important banks' correlated exposure to a highly rewarding, therefore high risk asset class. The Basel Committee did nothing to incentivize portfolio-diversification; their overly narrow focus on liabilities makes the pretension that Basel III is sufficient to prevent too-big-to-fail banks from collectively benefiting from their special status at a later time false.

## CONCLUSION

The recent shift in the economic business cycle has drawn attention to the deficiencies of financial regulation, necessitated by competitive specificities of financial intermediation. The importance of counterparties' health for individual banks diverts competition in this industry from the textbook model of competing in liberal market economy, but this does not mean that authorities would be better at their management. The bail-outs during the crisis followed from the general disregard of the authorities for the basic industrial characteristics of banking, which facilitated for systemically important financial institutions to deflect from the competition of equals before the collapse. The improvised refusal of assistance from Lehman Brothers was nothing less than the complete denial of this long-standing governmental deficiency; deeming a major financial intermediary just as dispensable as any other imprudent corporation, when the usual rules of the game made markets price in governmental bail-outs was a costly deviance from the pattern, that was corrected immediately – but already too late. Institutionalized solutions were in need. I argue that considering the absence of complimentary institutions of coordinated market economies in the United States, introducing greater public involvement in corporate affairs corresponding to the stakeholder approach is less feasible than aligning institutionalized regulation with industrial characteristics – which is followed by the regulatory direction set out in the Dodd-Frank Act. A central element of the macroprudential regulation favored by the Dodd-Frank Act was concretized by the Basel Committee, when it introduced specific contingent capital requirements to the most recent framework of the Basel process. Basel III is supposed to constrain banks to more prudential risk-taking, but as I show, it has major deficiencies in disciplining too-big-to-fail financial institutions. The main problem is not with its

implementation: its capital requirements have been satisfied early by most systemically important banks in the US.

First, it does not address the industry-specific adverse incentives behind the systemically destabilizing behavior of bankers: asset-side portfolio risk correlation across banks is not penalized by Basel III, neglecting that this is how the subprime crisis could evolve to a global financial crisis. The events of the crisis reinforced the knowingly too-big-to-fail financial institutions, which can continue to over-invest themselves in asset price bubbles up until the enthusiasm lasts. The continuingly high likelihood of bail-outs when needed, complemented with the technological features of banking inherently acts towards higher concentration in the sector.

Second, the countercyclical buffer will be adjusted by national authorities under Basel III, who are supposed to define the status of their economies in the macroeconomic business cycle. This is problematic because this would require highly sophisticated economic models that should be able to incorporate the complexity and dynamism of an entire national economy – which given the discussed limitations of predictive models, is unlikely to work as it should. The real issue with asking banks to hold a little more or a little less Tier 1 common equity than they really should if the model worked perfectly is not its direct effect, but the wrong signal it may send to the investors of the country. No reasonable governmental actor would risk to signal that the business cycle is close to its peak based on an possibly wrong, historical model – therefore the most likely outcome will be the wide-spread omission of this countercyclical feature. Too-big-to-fail banks benefit from the resulting lower equity capital ratios the most, as borrowing is cheaper for them than equity due to the implicit bail-out promises (decreasing the probability of default even with taking higher risks). As they face lower borrowing costs than small banks, this advantage continues to substantially incline the playing field towards them in an industry where

the competition is fundamentally cost-competition: this way support consolidation, and make the operation of non-unique small banks unsustainable on the long run.

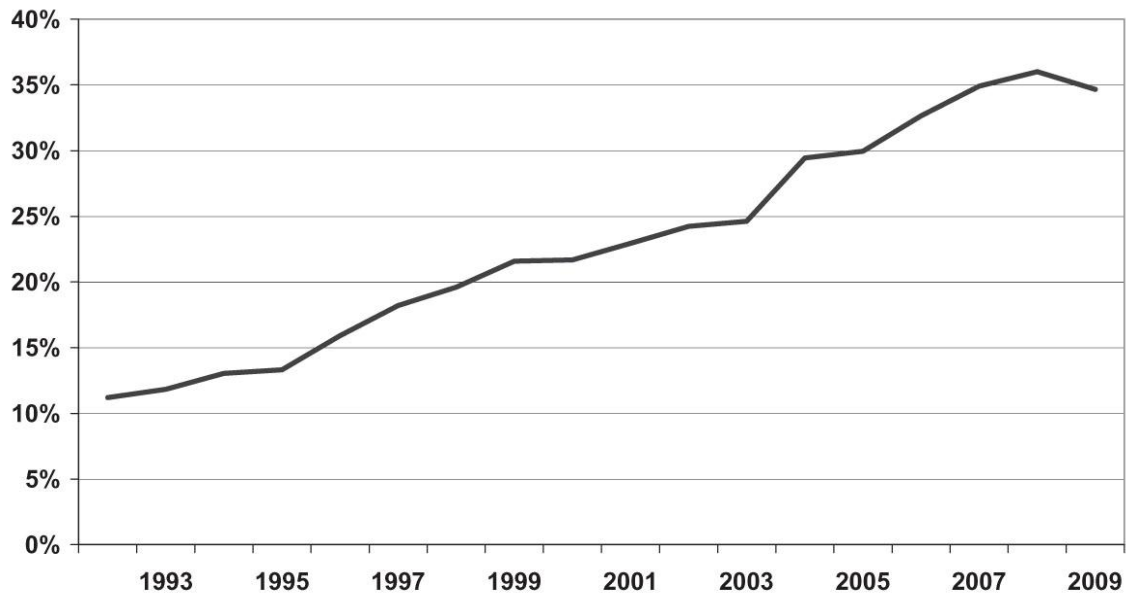
Systemically important financial institutions can evolve in any market – the question is how their self-fortifying market power can be contained, so their decisions do not lead to unsustainable tendencies. Proceeding from the text of the Dodd-Frank Act, it seems to be clear for the authorities by now that reconciling the incentives of bankers with macroeconomic interests instead with only sector- and shareholder interests can be effective, but the first concrete step after the crisis towards regulation with macroeconomic attention – Basel III - omits fundamental risks with systemically important banks. Hopefully not overconfidence in its ability to make banks capable to weather out any contingency when complying with these rules will be its effect, but its improvement will be the direction taken by the Basel Committee. My hypothesis that that the too-big-to-fail problem was not regulated away in the United States with Basel III is confirmed, but there is room for making the framework more effective in countering the systemically disadvantageous incentives.

My findings explicate why the bail-out of systemically important financial institutions should not be deemed as a decision completely at the discretion of authorities: past trends mark out the regulatory trajectory for governmental oversight, while sectoral structure and the nature of competition narrows down the scope for change. The combination of these factors is singularly useful for the assessment of policy reactions to the financial crisis, which although has been exhaustively discussed in the literature, oftentimes has been simplified to the battle of camps for and against distinctive ways of economic modeling. I highlight that despite of the unanimous demand for it, the predictability of future outcomes is bounded, therefore instability is implicit in the expectations towards others' actions. It follows from the latter that signals can be just as effective as direct rulings; and this establishment makes my work fundamentally different from

the mainstream arguments considering radical governmental interventionism to be a necessity. As a complete novelty, I can support the validity of my point with the Basel III capital requirements and its most important subjects in the epicenter of the crisis. My findings imply with a positive undertone that even if legislation lags behind the events, authorities can still influence markets through signals, if they have a definite program to achieve their goals.

## APPENDIX

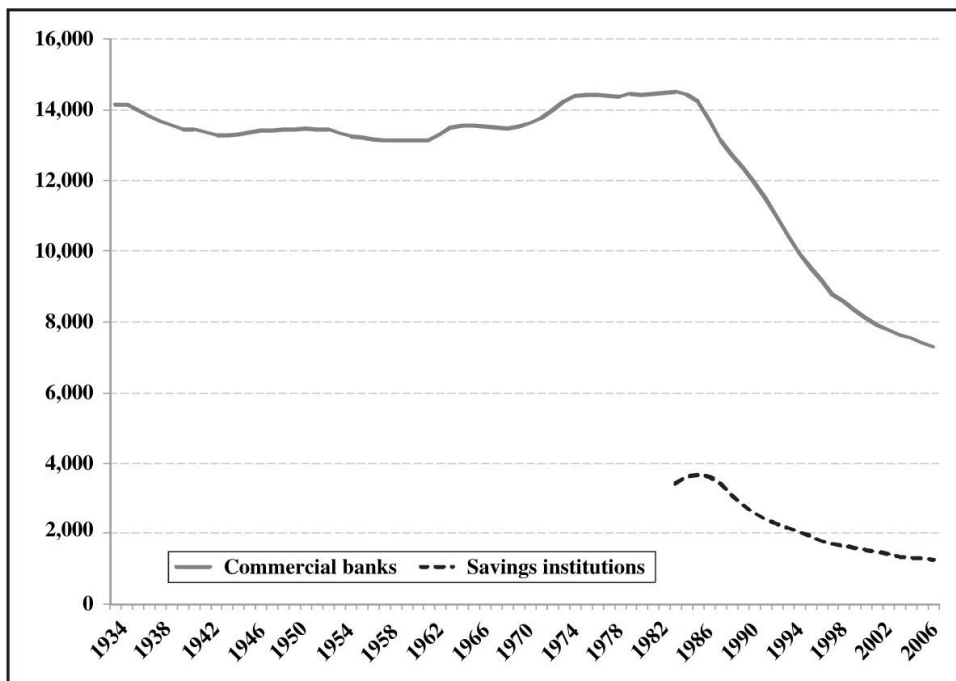
Figure 1. Market Share of the Five Largest Depository Institutions as a Percentage of Total Assets.



Note: <sup>a</sup>The merger of Wells Fargo and Wachovia is accounted for from 2008.  
Sources: FDIC and Federal Reserve.

Source: Vives, Xavier. "Competition Policy in Banking". *Oxford Review of Economic Policy* 27, no. 3 (2011): 482.

Figure 2. The Number of Banks and Savings Institutions in the United States, 1934 – 2007.



**Fig. 1.** Number of commercial banks and savings institutions, 1934–2007.

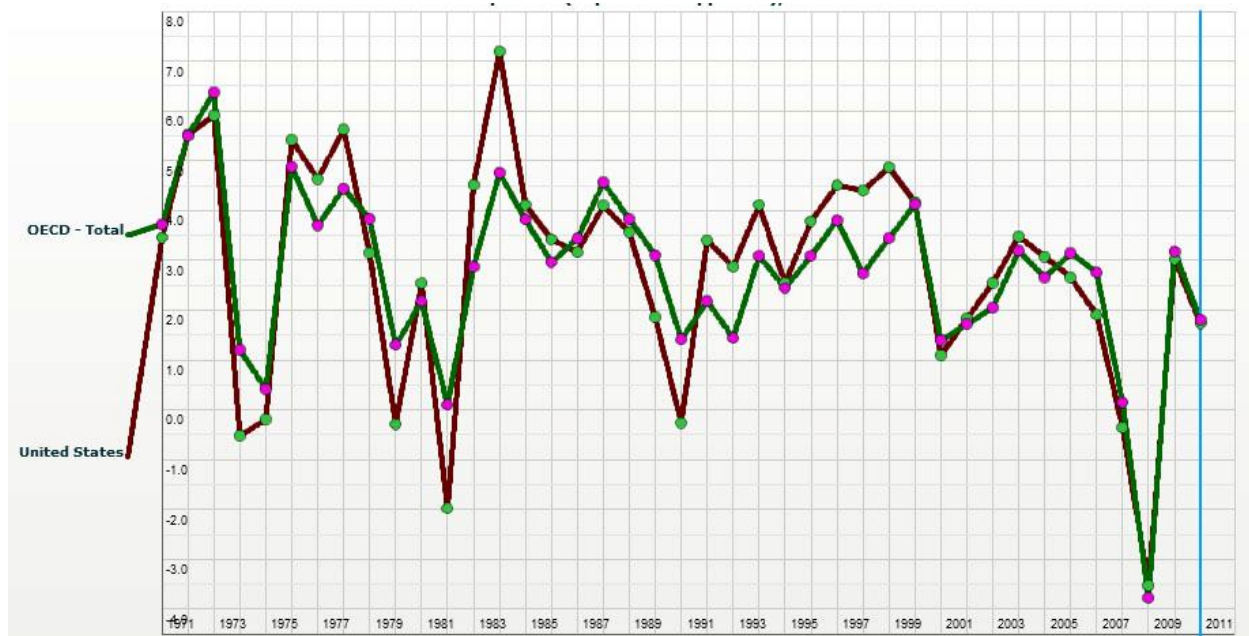
*The following institutional definitions apply to all data presented in this section: (i) commercial banks includes the following groups of banks in the continental US operating under licenses issued by the Treasury or by state banking authorities: national banks, state-chartered commercial banks, loan and trust companies, stock savings banks, private banks under state supervision, and industrial banks. (ii) FDIC-insured savings institutions includes all institutions insured by either the Bank Insurance Fund (BIF) or the Savings Association Insurance Fund (SAIF) that operate under state or federal banking codes applicable to thrift institutions.*

Source: FDIC data.

Source: Tregenna, Fiona. "The Fat Years: The Structure and Profitability of the US Banking Sector in the Pre-crisis Period" (2009): 612.

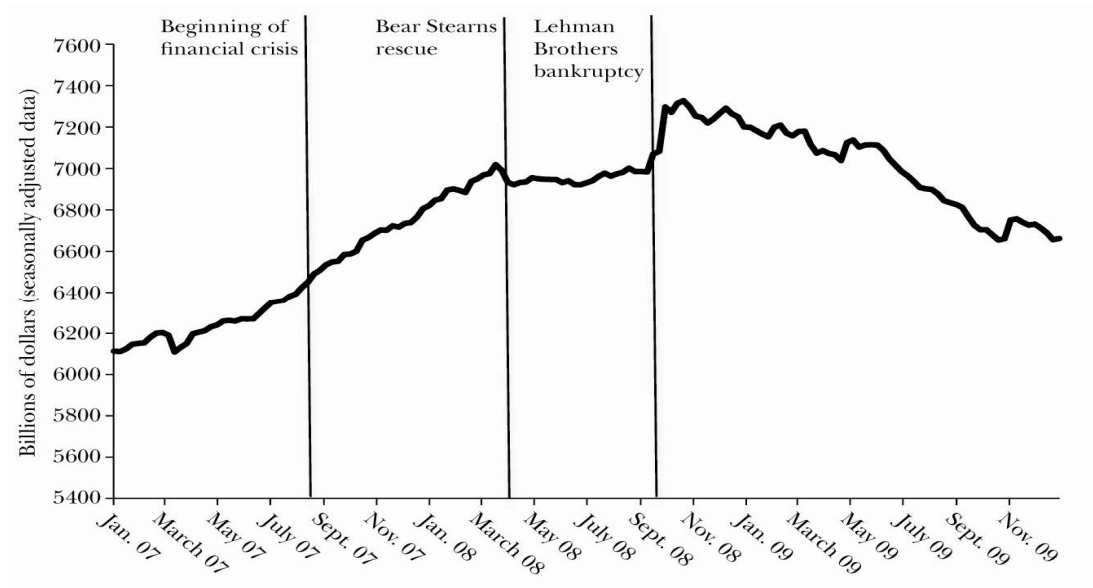


Figure 3. Annual GDP Volume Growth in the US and OECD Average.



Source: OECD. "National Accounts Statistics: Aggregate National Accounts" (2012). Available: <http://www.oecd-ilibrary.org/content/datacollection/na-data-en> , Accessed: 05.23.2012.

Figure 4. Bank Lending in the US, 2007-2009.



Source: Mishkin, Frederic S. "Over the Cliff: From the Subprime to the Global Financial Crisis". *Journal of Economic Perspectives* 25, no. 1 (2011): 58. Original source: FRED database, Federal Reserve Bank of St. Louis, and Federal Reserve Board of Governors.

Figure 5. Asset to Equity Ratios of Selected Investment Banks.

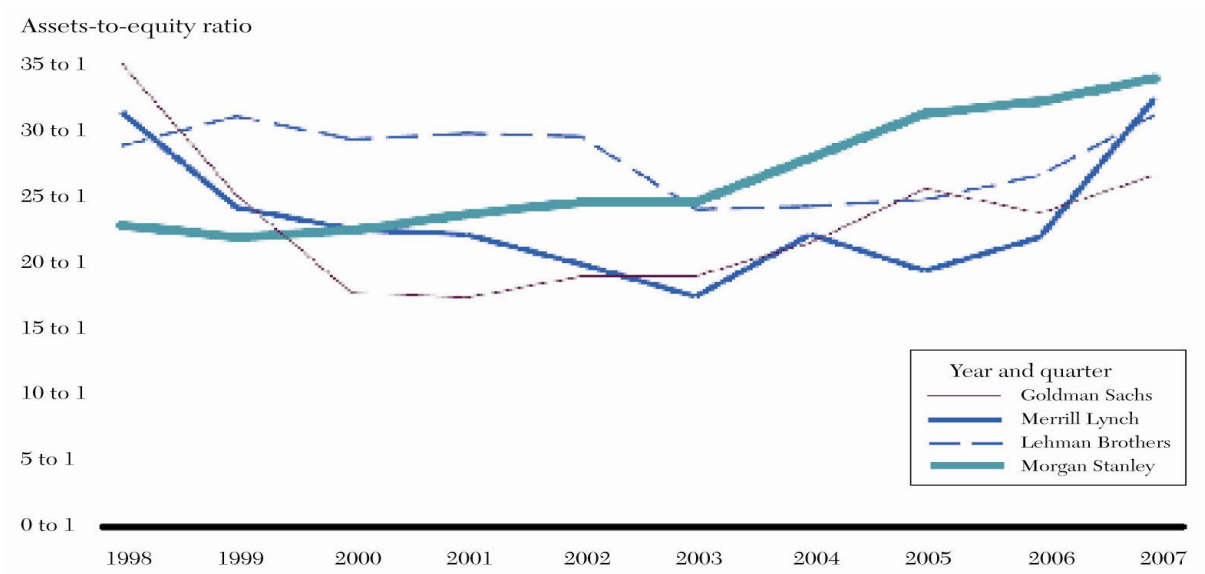


Figure 1. Ratio of Total Assets to Equity for Four Broker-Dealer Holding Companies from 1998 to 2007  
 Source: U.S. Government Accountability Office Report GAO-09-739 (2009, figure 6).

Source: Lo, Andrew W. "Reading About the Financial Crisis: A Twenty-One-Book Review". *Journal of Economic Literature* 50, no. 1 (2012): 153.

Table 1. The structure of Basel III.

## Basel Committee on Banking Supervision reforms - Basel III

Strengthens microprudential regulation and supervision, and adds a macroprudential overlay that includes capital buffers.

| Capital  |  |   |   |  | Liquidity   |
|--|--|---|---|--|---|
| Pillar 1   | Risk coverage  | Containing leverage   | Pillar 2  | Pillar 3   |   |
| <b>Capital</b>   |  |   | <b>Risk management and supervision</b>  | <b>Market discipline</b>   |   |
| <p><b>Quality and level of capital</b><br/>Greater focus on common equity. The minimum will be raised to 4.5% of risk-weighted assets, after deductions.</p> <p><b>Capital loss absorption at the point of non-viability</b><br/>Contractual terms of capital instruments will include a clause that allows – at the discretion of the relevant authority – write-off or conversion to common shares if the bank is judged to be non-viable. This principle increases the contribution of the private sector to resolving future banking crises and thereby reduces moral hazard.</p> <p><b>Capital conservation buffer</b><br/>Comprising common equity of 2.5% of risk-weighted assets, bringing the total common equity standard to 7%. Constraint on a bank's discretionary distributions will be imposed when banks fall into the buffer range.</p> <p><b>Countercyclical buffer</b><br/>Imposed within a range of 0-2.5% comprising common equity, when authorities judge credit growth is resulting in an unacceptable build up of systematic risk.</p> | <p><b>Securitisations</b><br/>Strengthens the capital treatment for certain complex securitisations. Requires banks to conduct more rigorous credit analyses of externally rated securitisation exposures.</p> <p><b>Trading book</b><br/>Significantly higher capital for trading and derivatives activities, as well as complex securitisations held in the trading book. Introduction of a stressed value-at-risk framework to help mitigate procyclicality. A capital charge for incremental risk that estimates the default and migration risks of unsecured credit products and takes liquidity into account.</p> <p><b>Counterparty credit risk</b><br/>Substantial strengthening of the counterparty credit risk framework. Includes: more stringent requirements for measuring exposure; capital incentives for banks to use central counterparties for derivatives; and higher capital for inter-financial sector exposures.</p> <p><b>Bank exposures to central counterparties (CCPs)</b><br/>The Committee has proposed that trade exposures to a qualifying CCP will receive a 2% risk weight and default fund exposures to a qualifying CCP will be capitalised according to a risk-based method that consistently and simply estimates risk arising from such default fund.</p> | <p><b>Leverage ratio</b><br/>A non-risk-based leverage ratio that includes off-balance sheet exposures will serve as a backstop to the risk-based capital requirement. Also helps contain system wide build up of leverage.</p> | <p><b>Supplemental Pillar 2 requirements.</b><br/>Address firm-wide governance and risk management; capturing the risk of off-balance sheet exposures and securitisation activities; managing risk concentrations; providing incentives for banks to better manage risk and returns over the long term; sound compensation practices; stress testing; accounting standards for financial instruments; corporate governance; and supervisory colleges.</p> | <p><b>Revised Pillar 3 disclosures requirements</b><br/>The requirements introduced relate to securitisation exposures and sponsorship of off-balance sheet vehicles. Enhanced disclosures on the detail of the components of regulatory capital and their reconciliation to the reported accounts will be required, including a comprehensive explanation of how a bank calculates its regulatory capital ratios.</p> | <p><b>Global liquidity standard and supervisory monitoring</b></p> <p><b>Liquidity coverage ratio</b><br/>The liquidity coverage ratio (LCR) will require banks to have sufficient high-quality liquid assets to withstand a 30-day stressed funding scenario that is specified by supervisors.</p> <p><b>Net stable funding ratio</b><br/>The net stable funding ratio (NSFR) is a longer-term structural ratio designed to address liquidity mismatches. It covers the entire balance sheet and provides incentives for banks to use stable sources of funding.</p> <p><b>Principles for Sound Liquidity Risk Management and Supervision</b><br/>The Committee's 2008 guidance <i>Principles for Sound Liquidity Risk Management and Supervision</i> takes account of lessons learned during the crisis and is based on a fundamental review of sound practices for managing liquidity risk in banking organisations.</p> <p><b>Supervisory monitoring</b><br/>The liquidity framework includes a common set of monitoring metrics to assist supervisors in identifying and analysing liquidity risk trends at both the bank and system-wide level.</p> |
| <b>All Banks</b>   |  |   |   |  |   |
| <b>SIFIs</b>   |  |   |   |  | <p>In addition to meeting the Basel III requirements, global systemically important financial institutions (SIFIs) must have higher loss absorbency capacity to reflect the greater risks that they pose to the financial system. The Committee has developed a methodology that includes both quantitative indicators and qualitative elements to identify global systemically important banks (SIBs). The additional loss absorbency requirements are to be met with a progressive Common Equity Tier 1 (CET1) capital requirement ranging from 1% to 2.5%, depending on a bank's systemic importance. For banks facing the highest SIB surcharge, an additional loss absorbency of 1% could be applied as a disincentive to increase materially their global systemic importance in the future. A consultative document was published in cooperation with the Financial Stability Board, which is coordinating the overall set of measures to reduce the moral hazard posed by global SIFIs.</p>   |

Source: Bank for International Settlements. "Summary Table" (2012). Available: <http://www.bis.org/bcbas/basel3/b3summarytable.pdf>, accessed: 05.21.2012

Table 2. Basel III phase-in arrangements.

(shading indicates transition periods - all dates are as of 1 January)

|   | 2011                            | 2012                   | 2013   | 2014  | 2015                             | 2016   | 2017  | 2018                             | As of<br>1 January<br>2019 |
|---|---------------------------------|------------------------|--|---|----------------------------------|--------|-------|----------------------------------|----------------------------|
| Leverage Ratio  |                                 | Supervisory monitoring |  | Parallel run<br>1 Jan 2013 – 1 Jan 2017<br>Disclosure starts 1 Jan 2015 |                                  |        |       | Migration to<br>Pillar 1         |                            |
| Minimum Common Equity Capital Ratio   |                                 |                        | 3.5%   | 4.0%  | 4.5%                             | 4.5%   | 4.5%  | 4.5%                             | 4.5%                       |
| Capital Conservation Buffer   |                                 |                        |  |   |                                  | 0.625% | 1.25% | 1.875%                           | 2.50%                      |
| Minimum common equity plus capital<br>conservation buffer   |                                 |                        | 3.5%   | 4.0%  | 4.5%                             | 5.125% | 5.75% | 6.375%                           | 7.0%                       |
| Phase-in of deductions from CET1<br>(including amounts exceeding the limit for<br>DTAs, MSRs and financials ) |                                 |                        |  | 20%   | 40%                              | 60%    | 80%   | 100%                             | 100%                       |
| Minimum Tier 1 Capital  |                                 |                        | 4.5%   | 5.5%  | 6.0%                             | 6.0%   | 6.0%  | 6.0%                             | 6.0%                       |
| Minimum Total Capital   |                                 |                        | 8.0%   | 8.0%  | 8.0%                             | 8.0%   | 8.0%  | 8.0%                             | 8.0%                       |
| Minimum Total Capital plus conservation<br>buffer   |                                 |                        | 8.0%   | 8.0%  | 8.0%                             | 8.625% | 9.25% | 9.875%                           | 10.5%                      |
| Capital instruments that no longer qualify<br>as non-core Tier 1 capital or Tier 2 capital                    |                                 |                        | Phased out over 10 year horizon beginning 2013 |   |                                  |        |       |                                  |                            |
| Liquidity coverage ratio  | Observation<br>period<br>begins |                        |  |   | Introduce<br>minimum<br>standard |        |       |                                  |                            |
| Net stable funding ratio  | Observation<br>period<br>begins |                        |  |   |                                  |        |       | Introduce<br>minimum<br>standard |                            |

Source: Bank for International Settlements. "Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems" (2011): Annex 4

Table 3. Assets and Capital Ratios of the Nineteen Bank Holding Companies with the Most Assets Under Management (as of December 31, 2011).

|       | Bank Holding Company                                    | Total Assets<br>(USD) | Tier 1 Common<br>Equity Capital<br>(%) | Tier 1<br>Capital<br>(%) | Total<br>Capital<br>(%) |
|-------|---|-----------------------|--|--------------------------|-------------------------|
| 1     | <u>JPMORGAN CHASE &amp; CO.</u>                         | 2 265 792 000         | 10.15                                  | 12.31                    | 15.4                    |
| 2     | <u>BANK OF AMERICA<br/>CORPORATION</u>                  | 2 136 577 907         | 9.89                                   | 12.4                     | 16.75                   |
| 3     | <u>CITIGROUP INC.</u>                                   | 1 873 878 000         | 11.86                                  | 13.55                    | 16.99                   |
| 4     | <u>WELLS FARGO &amp;<br/>COMPANY</u>                    | 1 313 867 000         | 9.42                                   | 11.33                    | 14.76                   |
| 5     | <u>GOLDMAN SACHS<br/>GROUP, INC., THE</u>               | 923 718 000           | 13.13                                  | 13.84                    | 16.88                   |
| 6     | <u>METLIFE, INC.</u>                                    | 799 625 102           | 9.39                                   | 9.98                     | 10.25                   |
| 7     | <u>MORGAN STANLEY</u>                                   | 749 898 000           | 13.11                                  | 16.28                    | 17.5                    |
| 8     | <u>U.S. BANCORP</u>                                     | 340 122 000           | 8.56                                   | 10.75                    | 13.29                   |
| 9     | <u>HSBC NORTH AMERICA<br/>HOLDINGS INC.</u>             | 331 402 982           | 13.45                                  | 15.73                    | 24.56                   |
| 10    | <u>BANK OF NEW YORK<br/>MELLON CORPORATION,<br/>THE</u> | 325 793 000           | 13.46                                  | 15.05                    | 17.05                   |
| 11    | <u>PNC FINANCIAL<br/>SERVICES GROUP, INC.,<br/>THE</u>  | 271 407 158           | 10.31                                  | 12.6                     | 15.84                   |
| 12    | <u>STATE STREET<br/>CORPORATION</u>                     | 216 435 818           | 16.84                                  | 18.84                    | 20.5                    |
| 13    | <u>CAPITAL ONE FINANCIAL<br/>CORPORATION</u>            | 206 103 658           | 9.67                                   | 12.01                    | 14.86                   |
| 14    | <u>TD BANK US HOLDING<br/>COMPANY</u>                   | 201 057 066           | 5.71                                   | 6.33                     | 7.73                    |
| 15    | <u>ALLY FINANCIAL INC.</u>                              | 184 059 000           | 7.66                                   | 13.71                    | 14.75                   |
| 16    | <u>SUNTRUST BANKS, INC.</u>                             | 176 900 103           | 9.23                                   | 10.9                     | 13.67                   |
| 17    | <u>BB&amp;T CORPORATION</u>                             | 174 579 294           | 9.74                                   | 12.46                    | 15.7                    |
| 18    | <u>AMERICAN EXPRESS<br/>COMPANY</u>                     | 152 273 000           | 12.31                                  | 12.31                    | 14.29                   |
| 19    | <u>RBS CITIZENS FINANCIAL<br/>GROUP, INC.</u>           | 129 810 542           | 13.34                                  | 13.85                    | 15.11                   |
| TOTAL |   | 12 773 299 630        |  |                          |                         |

Source: National Information Center. "Bank Holding Company Performance Reports" (2011): 14 , Available: <http://www.ffiec.gov/nicpubweb/nicweb/top50form.aspx> , accessed: 05.21.2012.

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