

2 Narratives of the Global Financial Crisis

“I think one of the things this country really, really needs, and still doesn’t have, is a narrative of what happened and why. What you’re seeing in the country now I think is inchoate anger. They’re just mad. They don’t really know what they’re mad about or who they’re mad on, except bankers, and apparently incompetent politicians. But it is an inchoate anger because the story is just not well understood.” (Blinder 2010)

The final report of the *National Commission on the Causes of the Financial and Economic Crisis in the United States* (Financial Crisis Inquiry Commission, or FCIC) was published in January 2011. Based on several hundred public hearings and interviews and millions of pages of emails and other documents, the commission staff examined, with particular emphasis on the role of complex derivatives and the US mortgage market, the causes of the financial crisis. It also explored why certain financial institutions had failed or might have failed without government support. The quote from US economist Alan Blinder at the beginning of this chapter was taken from an FCIC interview, and the FCIC report does in fact present a central narrative of the US financial crisis. Interestingly, four out of ten FCIC commissioners dissented from the report.²⁶ While three of these four could agree on a second narrative, one commissioner – Peter J. Wallison – published his own report, totaling three narratives of the financial crisis from the FCIC alone (Financial Crisis Inquiry Commission 2011). Another three years later, academics, finance professionals, regulators and policymakers still cannot agree on the exact roots and causes of the crisis. As one might expect, some crisis narratives pushed the window for new regulation wide open, while others blocked it up completely, suggesting that regulation had caused the crisis and emphasizing that markets should regulate themselves. As Blinder’s statement indicates, given the public anger over bank bailouts and rescue programs, it might have been best – at least from a political rationale – to blame any group for causing the crisis. However, public finger-pointing at either the rating agencies or the investment banks, or even

²⁶ Phil Angelides, Brooksley Born, Byron Georgiou, Bob Graham, Heather H. Murren, John W. Thompson signed the report; it was not supported by Keith Hennessey, Douglas Holtz-Eakin, Bill Thomas, Peter J. Wallison.

financial regulators, was neither feasible nor possible: The financial crisis of 2007ff. was just too complex to allow a simple explanation. Apparently, the 21st century financial system that broke down in 2008 had had many architects, including megabanks and gigantic insurance companies, but also national financial regulators and global policymaking elites. When the risks materialized during 2007 and 2008, the causes were so intertwined that *responsibilities were difficult to assign* (Admati and Hellwig 2013, 199).

The OCC's Martin Pfinsgraff has identified four schools of thought, each putting another narrative of the crisis center-stage. As stated by the first school, the crisis was caused by the bad behavior of banks and mortgage originators; it can accordingly be traced back to remuneration and lending practices. School number two emphasizes the role of the US government, more specifically the government-sponsored enterprises (GSEs) Fannie Mae and Freddie Mac. According to this second narrative, the GSEs not only promoted private homeownership, but actively "subsidized and encouraged lax lending practices" (Pfinssgraff 2012, 2), ultimately creating the mortgage bubble.²⁷ School number three focuses on the rating agencies, i.e. the Nationally Recognized Statistical Rating Organizations (NRSROs), blaming them for understating the risks associated with certain derivatives products. School number four redirects our focus to the role of US regulators, as they did not anticipate and prevent the crisis: According to this line of argument, each respective agency "either lacked appropriate authority, was incompetent, or both" (ibid.). As these four schools of thought focus on the behavior of the actors involved – implying that the crisis would not have happened if they had only behaved differently – we want to term all explanations that fall into Pfinssgraff's categories *behavioral narratives* of the crisis, contrasting them to the *systemic narratives* of the crisis.²⁸ As we will see, this distinction is crucial: Not only do most reform debates shift from one side of the continuum (behavioral) to the other (systemic), gradually objectivizing over time (Mayntz 2010b, 11f.). More importantly, these types of narratives have fundamentally different implications for reform. Defining frames, or setting *schemata of interpretation* in Goffman's sense (Goffmann 1974, ch. 2; Soros 2010), determines the future policy options of governments; therein, the "period of

27 In a speech in 1994, President Clinton summoned the close relationship between private homeownership and the American Dream: "Today I want to talk with you about the dream of homeownership and the larger American dream of which it is a part and what we can do together to keep the economic renewal that began 21 months ago going. [...] I think we all agree that more Americans should own their own homes, for reasons that are economic and tangible and reasons that are emotional and intangible but go to the heart of what it means to harbor, to nourish, to expand the American dream" (Clinton, 1994).

28 Soros adds a third narrative, stating that the crisis can neither be explained with behavioral nor with systemic factors, but with interpretations, dogmas or paradigms: "[I]t's the ideas or theories that guided the people [...], it's the theories adopted by both the regulators and the market participants that proved to be false. It is the Efficient Market Hypothesis and the Rational Expectations Theory" (Soros 2010).

collective questioning” following a shock or crisis provides an opportunity for policy entrepreneurs to push through their interpretation of the events (Abolafia 2005, 212).²⁹

Wallison’s dissent from the FCIC report provides a good example here, because it identifies the housing policy of the US government as it was carried out by the GSEs as the major cause of the crisis (Wallison 2013). According to Wallison’s narrative, US policy responses to the crisis are essentially misguided as they address, as he emphasizes, non-existent problems as interconnectedness, while the major problems – the GSEs – are not resolved (Interview with Peter J. Wallison, December 04, 2012, Washington; see also Scott 2012). In a different behavioral narrative, Taylor traces the crisis back to US monetary policy, blaming the Fed’s low interest rate (Taylor 2009). As a third behavioral example, Lo suggests that greed and, once the risk materialized, unbridled fear caused the financial crisis (Lo 2011, 2). And fourth, Cohan identifies Wall Street incentive structures as a main cause for the crisis (Cohan 2010). Official government reports refrain from assigning single responsibility. The de Larosi re Report, one of the most influential³⁰ crisis reports, argues that the crisis “results from the *complex interaction* of market failures, global financial and monetary imbalances, inappropriate regulation, weak supervision and poor macro-prudential oversight” (High Level Group on Financial Supervision in the EU 2009, 13, emphasis added). The UK’s Turner Review emphasizes the role of self-reinforcing system characteristics, among them financial sector growth, increased complexity, and a “misplaced reliance on sophisticated maths” (Financial Services Authority 2009, 22). The authors describe how the characteristics of the *new global financial system*, together with macroeconomic imbalances, helped to “create an unsustainable credit boom and asset price inflation” (ibid., 28). The FCIC ascribes responsibility to regulators and supervisors, as well as to corporate governance and risk management (“a key cause”); to excessive borrowing and risk-taking, to a lack of transparency, to the government (“ill prepared for the crisis”), to mortgage-lending standards, to OTC derivatives, and rating agencies (“cogs in the wheel of financial destruction”) (Financial Crisis Inquiry Commission 2011, xvff.). In these reports, human misconduct is clearly identified as a major cause of the crisis. Systemic narratives, in contrast, go without *dramatis personae*. Palmer and Maher argue, as we discuss in greater detail in section 2.2, that the crisis was a *Normal Accident* in Charles Perrow’s sense: A “result of complexity and tight coupling” and as such the “product of system characteristics that lead to unintended interactions among multiple failures at the part, component, and/or subsystem levels” (Palmer and Maher 2010, 219; Perrow 1981). To understand the

29 As Blyth argues, financial ideas provide *legitimatory frameworks* for policymaking (Blyth 2003).

30 The report recommended the establishment of the European Supervisory Authorities (ESAs) and the European Systemic Risk Board (ESRB), as well as the restructuring of the Financial Stability Forum (FSF) to the Financial Stability Board. All four recommendations have been implemented.

financial crisis of 2007ff., we accordingly have to look at the *specific characteristics of the 21st century financial system*, and how they changed over time. For obvious reasons, greed and fear do not classify as specific characteristics of the post-Bretton Woods financial system. If the recent financial crisis was indeed a systemic crisis, and we have to be careful to clearly distinguish systemic from system-wide here, our analysis has to go beyond behavioral narratives – with far-reaching implications for future financial reform.

What caused the financial crisis? and *Why did the risks materialize in 2007 and 2008?* are two closely related, yet crucially different questions that ought to be discussed in this context. While the first refers to the structural weaknesses that facilitate a financial crisis, the second relates to the trigger that sets into motion a chain reaction that culminates in a system-wide crisis. According to the systemic narratives of the crisis, the breakdown was *triggered* by Lehman's collapse, but it was not *caused* by the investment banks' risky business or high bonuses. Analyzing the events of 2008, Bernanke defined triggers as "the particular events or factors that touched off the crisis" and structural weaknesses as the vulnerabilities "in the financial system and in regulation and supervision that propagated and amplified the initial shocks" (Bernanke 2010c, 1). As the Lehman collapse demonstrated, a systemic crisis is most likely triggered by the *paradox yet possible failure of a too big to fail institution*, but "threats to financial stability involve many institutions simultaneously and typically affect the system as a whole" (Bisias et al. 2012, 16). Triggers are random: Given a certain set of structural weaknesses, other endogenous or even exogenous events could set off the exact same developments.³¹ As we show on the following pages, traders' typing errors and trading algorithms do also qualify as triggers, as they could potentially set off a chain reaction that leads to a financial breakdown. Policymakers obviously cannot eliminate all triggers, which is why we should best focus on the structural weaknesses of the system (see Perrow 2007). As we will see in section 2.1, the crisis has given rise to a debate about *micro- and macroprudential supervision and regulation*. Microprudential supervision and regulation focus on the safety and soundness of institutions that might, once they fail, trigger a systemic crisis. Macroprudential supervision and regulation ensure the stability of the system as a whole. While the microprudential reform agenda is challenging to implement but relatively clear in terms of means and ends, designing an effective macroprudential framework remains a difficult task. The Bank of Italy has recently warned that "in spite of the progress made, our understanding of MAP [macroprudential policy, EB] tools and their impact on the financial system and the

31 In 2008, the bankruptcy of Lehman Brothers provided the trigger. If it had not been Lehman Brothers, other endogenous events – the breakdown of a hedge fund or a money market fund – might have led to the exact same chain reaction, not to mention the wide variety of possible exogenous shocks to the financial system that did not play a role in 2008, but will in the future, such as terrorist attacks or natural disasters.

real economy remains very incomplete” (Panetta 2013, 1). In the following sections, we look at the crisis as a turning point, both in terms of broader economic beliefs and regulatory paradigms: Not only could we, as a result of the global financial and economic crisis, observe a paradigm shift from deregulation to reregulation from 2008 onwards, but also has the reform debate put macroprudential supervision and regulation back on the policymaking agenda. This brings us to the issue of systemic risk, which is at the heart of the macroprudential reform debate. As we will see, the debate is not only shaped by behavioral and systemic narratives of the crisis: Different understandings of systemic risk compete to explain what happened in 2008. More specifically, we seek to juxtapose economic and political concepts of systemic risk to ultimately provide a comprehensive, politico-economic approach (see Willke, Becker and Rostásy 2013).

2.1 From 1980 to 2010: Dominant Beliefs and Paradigm Shifts

Two terms that constantly reoccur in the crisis debate are *groupthink* and *herding behavior*. When it became apparent in September 2008 that the US government would not rescue Lehman, trust evaporated, banks stopped to lend to each other, markets froze, and mark-to-market accounting became essentially impossible for certain securities.³² Heterogeneous investors became a homogeneous crowd.³³ But groupthink and herding behavior did also play a major and, in the context of this book, even more important role in *financial governance*. When Stiglitz provocatively wrote that market fundamentalism was “for a quarter of century the prevailing religion of the West” (Stiglitz 2009a, 346), he referred to groupthink in the academic, economic and, most importantly, *political system*. Many crisis narratives start in the 1980s and explain the crisis with a neo-liberal zeitgeist, a laissez-fair belief that less financial regulation was good for the economy and for society (see for example Campbell 2010; Mayntz 2010b; Vanoli 2010).³⁴ The British Academy,

32 An interesting strand of research examines the role of heterogeneous beliefs in financial markets. Based on Harrison and Kreps, it can be argued that investors buy stocks because they believe that other investors will overestimate their value in the future (Harrison and Kreps 1978, 323; see also Xiong 2013, for an overview on the link between bubbles, crises and heterogeneous beliefs).

33 Research indicates that investor behavior is in fact not as heterogeneous as one might think. MacKenzie, in his analysis of the LTCM collapse in 1998, argues that market participants copy the (assumed) trading strategy of successful funds – a fact that exacerbates problems in the market once a major institution struggles (MacKenzie 2005).

34 The report of the FCIC criticizes that “[t]he sentries were not at their posts, in no small part due to the widely accepted faith in the self-correcting nature of the markets and the ability of financial institutions to effectively police themselves. More than 30 years of deregulation and reliance on self-regulation by financial institutions, championed by former Federal Reserve chairman Alan Greenspan and others, supported by successive administrations and Congresses, and actively pushed by the

in a letter to the British queen, described how “politicians of all types were charmed by the market” (British Academy 2009, 2; see also Reed 2010).³⁵ A deep-rooted belief that government was the problem, not the solution (Reagan 1981), had led to a remarkable decade of financial deregulation (Perrow 2010, 315), or at least reregulation (Campbell 2010) – a trend that might well have continued if the crisis would not have put an abrupt end to it.³⁶ Former chairperson of the Federal Deposit Insurance Corporation (FDIC or the Corporation) Sheila Bair describes how European governments and fellow US regulators pushed for the implementation of the industry-friendly Basel II capital requirements in the US against the conviction of the FDIC (Bair 2012a) in the years prior to the crisis. As late as 2006, New York’s Michael Bloomberg and Charles E. Schumer advocated, along the lines of the UK’s Financial Services Authority (FSA, abolished in 2013), a more collaborative and solution-oriented, principles-based financial regulation. They argued that, competing with London, “New York cannot afford to lose its place as the global leader in financial services. We have to carefully redefine this balance of innovation and regulation. That is what we seek to do over the next several months” (Schumer and Bloomberg 2006). The underlying *clash of innovation and regulation* is a crucial point in the reform debate: The quote reflects “a broader contemporary social and political conversation that really sees innovation as ultimately beneficial, really important, not something that regulation should be getting in the way of” (Ford 2013; see also Siddique 2010). The IMF came to a similar conclusion:

A strong belief by many policymakers in the efficiency of financial markets undercut a realistic appraisal of financial stability. Even as academic research increasingly began to question the efficient markets theory, policymakers tended to ignore the implications for systemic stability of financial market imperfections [...]. *Financial development and innovation were viewed as beneficial*, increasing access to credit and leading to an ever more efficient allocation of risks across the system. [...]. Regulation and supervision were

powerful financial industry at every turn, had stripped away key safeguards, which could have helped avoid catastrophe” (Financial Crisis Inquiry Commission 2011, xviii).

35 McCarty et al. speak of the *political bubble* that aided and amplified the market bubble (McCarty, Poole and Rosenthal 2013, 14).

36 Yet, some financial experts argue that the crisis was caused by overregulation (Interview with Peter J. Wallison, December 04, 2012, Washington). They do in fact have a point: The assumption that financial markets have been deregulated at large is certainly a strong oversimplification (Calomiris 2010). To start with, certain areas – such as traditional banking, including deposit taking and lending – were strongly regulated. The overall number of supervisors and regulators per bank in the US and the UK, as well as the extent and complexity of global rules and regulations, indeed indicates that the regulatory burden in certain areas has increased. Other market areas, such as the OTC derivatives market, were not regulated at all. This *dark market* (Born 2009) grew massively during the pre-crisis years. Light-touch regulation does accordingly not imply the absence of financial supervision and regulation; it rather alludes to policymakers’ fundamental ignorance towards emerging risks in the financial system.

increasingly light-touch and reliant on self-correcting market forces. (International Monetary Fund 2010, 7, emphasis added)

The global financial crisis marks a break with laissez-fair regulation, at least in its strong form. It challenged the common belief that financial innovation is per se beneficial (Blinder 2010). Deutsche Bank, under broad-based public scrutiny and interest, announced plans for a cultural turnaround (including changes in its remuneration practices and its capital base, see Deutsche Bank 2012a), and Joseph Stiglitz declared that the crisis would mean for market fundamentalism “what the fall of the Berlin Wall was to communism” (Stiglitz 2008). Yet, while many argue that the crisis “paved the way for a less market-friendly, more stability-oriented, approach” (Ferran 2012a, 14), we still cannot be sure whether the financial crisis will, in the long run, change global financial governance fundamentally: “what paradigm should replace the old is still unclear, although the contours of the new conventional wisdom are becoming clearer” (Black 2012, 4).³⁷ What we do know is that the crisis has brought macroprudential supervision and regulation back on the policymaking agenda.

Academics and policymakers agree that financial regulation and supervision in the pre-crisis decades had a dangerously *narrow microprudential focus* (see for example Hanson, Kashyap, and Stein 2011; The Warwick Commission 2009; High Level Group on Financial Supervision in the EU 2009). The assessment of financial risk was limited to the individual risk of financial institutions, rather than the institutions’ collective risk (Acharya, Cooley, et al. 2010a), therefore completely ignoring the “systemic implications of common behaviour” (The Warwick Commission 2009, 12). The microprudential focus of financial regulation, which was particularly dominant in Basel I and II, can be traced back to two underlying beliefs: Firstly, that the financial system would be safe and sound if only each financial institution was safe and sound (Gai 2013, 2) – a belief that is, as we will argue in the proceeding section, naïve from a systems perspective. Secondly, that due to superior data, information and knowledge, the financial institutions themselves were best suited to evaluate the risks resulting from their books (Tarullo 2008), forming the basis of Basel II’s internal ratings-based approach (IRB). As we will argue in greater detail in chapter five, it is certainly true that financial institutions have a *data, information, and knowledge lead over regulators*. However, this does not imply, as the crisis has convincingly demonstrated, that they are in fact the better risk managers. Ultimately, Basel II was never fully implemented in the US, as the crisis events revealed that it did not sufficiently address systemic risk and

37 The US Dodd-Frank Act that was signed into law in 2010 is still not fully implemented. As Coffee emphasizes, once a law is signed and the agencies take over from Congress to write the detailed rules, “the public’s attention turns elsewhere and business interest groups reestablish their usual dominance over the technical process of policy implementation” (Coffee 2012, 310).

had to be revised (Acharya, Pedersen, et al. 2010; Bair 2012a). Exemplary for many, Bernanke called for a policy change, stating that regulators and supervisors should augment the “traditional microprudential, or firm-specific, methods of oversight with a more macroprudential, or systemwide, approach that should help us better anticipate and mitigate broader threats to financial stability” (Bernanke 2009b).

Reinhart and Rogoff argue convincingly that certain types of financial crises share a similar logic and reoccur regularly throughout the centuries (Reinhart and Rogoff 2009). The Dutch tulipmania of the 1630s (see Garber 1989) and the recent US housing bubble do in fact have some things in common. Yet, it is not only the crises that reoccur, but also the ensuing policy discourses. Even though Mayntz terms the post-crisis focus on macroprudential supervision the “most innovative change” (Mayntz 2012, 16) in financial governance, the concept has in fact been, just as the issue of systemic risk, a topic of debate in policymaking and academia for some time. As stated by Turner and Clement, it can be traced back to the Basel Committee discussions at the Bank for International Settlements (BIS) in 1979 (P. Turner 2010; Clement 2010):

Prudential measures are primarily concerned with sound banking practice and the protection of depositors at the level of the individual bank. Much work has been done in this area – which could be described as the ‘micro-prudential’ aspect of banking supervision. [...] However, this micro-prudential aspect may need to be matched by prudential considerations with a wider perspective. This ‘macro-prudential’ approach considers problems that bear upon the market as a whole as distinct from an individual bank, and which may not be obvious at the micro-prudential level. (BIS Archives 7.18(15))

The macroprudential problems pointed out in the BIS paper – a fast growth of the overall market, the underestimation of tail-risk, and the banks’ misperception of liquidity and funding risks – could be well observed in the crisis of 2007ff.. Twenty years later, the Group of Seven established the Financial Stability Forum (FSF) to integrate both perspectives and address systemic risk. A report to the BIS by Hans Tietmeyer, then President of the German central bank (*Deutsche Bundesbank*), identified the three major challenges of the time, all of which came back on the policymaking agenda during the crisis of 2007ff.:

There are three aspects to this: firstly, overcoming the separate treatment of micro-prudential and macro-prudential issues; secondly, bringing together the major international institutions and key national authorities involved in financial sector stability [...]. [...] strengthened efforts are necessary to help identify incipient vulnerabilities in national and international financial systems and concerted procedures are needed for a better understanding of

the sources of systemic risk and to formulate effective financial, regulatory and supervisory policies to mitigate them. (Tietmeyer 1999, 2f.)

The FSF did not live up to its expectations. In 2010 it was transformed into the Financial Stability Board (FSB) and received a new mandate and new resources to mitigate systemic risk and enhance macroprudential supervision (see chapter four of this book). Will this time be different? It appears that experts did in fact express their concerns during the 1980s and 1990s, but given the wide-spread neo-liberal beliefs of the time, the policy responses were rare and largely ineffective (Helleiner 2010a). As we argue in chapter five and six, data, information and knowledge asymmetries might have also played a major role. This time, the policy responses are far-reaching, at least on paper. Whether they really mark a turning point is, as we will see throughout this book, not yet clear: Dodd-Frank has been signed but not yet fully implemented – and the devil of financial reform lies in the complex and highly technical details. As Admati and Hellwig argue with regard to global risk weights for banks: “the financial crisis showed that Basel II was flawed. Basel III attempts to correct some of the flaws in Basel II, but it has not changed the overall approach” (Admati and Hellwig 2013, 183).

2.2 A Pre- and Post-Crisis Understanding of Systemic Risk

While the US Financial Stability Oversight Council is mandated to monitor and address systemic risk, the Office of Financial Research has the task of collecting the data required to fulfill this mandate. Some warn that the term systemic risk “is widely used, but [...] difficult to define and quantify” (International Monetary Fund 2009, 113), yet the OFR staff argues that to manage systemic risk, one has to be able to measure it (Bisias et al. 2012; see also Office of Financial Research 2013a). Bisias et al. provide a recent overview of systemic risk analytics. Even though they endeavor to measure systemic risk, the OFR researchers warn that “a single consensus measure of systemic risk may neither be possible nor desirable” as it “invites a blindsided surprise from some unforeseen or newly emerging crisis mechanism” (Bisias et al. 2012, 2). As we showed in the context of micro- and macroprudential supervision, a narrow focus on certain aspects of systemic risk, for instance on TBTF institutions, would in fact bear huge risks. The OFR is responsible for data and information collection on systemic risk in the US, and it is mandated to advise the federal agencies on related issues; the described dilemma is therefore not a theoretical one, but of a very practical nature. Beginning with the pre-crisis understanding of systemic risk, and turning to the financial crisis of 2007ff. that is widely perceived as *the systemic financial crisis*, the current chapter discusses economic and political perspectives on systemic risk to ultimately

integrate both into a political-economic concept of systemic risk. Whether systemic risk can in fact be measured or not is, as we will see, a central question.

Even though systemic risk was not a widely discussed phenomenon in political science prior to the crisis, policymakers and regulators were well aware of systemic risk before 2008. In 2004, during his tenure as President of the New York Fed, Timothy Geithner stated:

Although we have a rich history of banking crises in our past, and have watched other countries confront such crises more recently, it's been some time since we've experienced the prospect or the reality of a systemically significant bank failure in this country. It is important that knowledge among practitioners of this art of bank resolution does not fade with time and is not dulled by the comfort of the relative stability and financial resilience we have been fortunate enough to enjoy over the past decade and more. (Geithner 2004)

He identified six changes in the market structure with an implication for systemic risk: First, the increased importance of a small number of very large financial institutions – a development that has been reinforced by the mergers and acquisitions of the recent financial crisis. Second and third, Geithner named the increased importance of nonbank financial institutions (such as money market funds and hedge funds) and central clearing and settlement structures. Fourth, he referred to the growth of US government-sponsored enterprises that could be observed during the lead-up to the crisis, Fannie Mae and Freddie Mac. Fifth, Geithner mentioned a more complex risk and compliance management, and sixth, the overall increase of global financial integration. As he emphasized, these changes made the financial system *stronger and weaker* at the same time (ibid.). While the identified characteristics decrease the possibility of a severe crisis, they increase the severity of a crisis when it occurs – a phenomenon that is described as the *robust-yet-fragile tendency* of complex financial systems (Gai 2013, 10f.) and can also be observed in the context of high-risk technologies. Regulators did not take into account how these new and interlocking features had fundamentally changed the nature of the global financial system, and slowly transferred it from a loosely to a tightly coupled system (see Bookstaber 2007; International Organization of Securities Commissions 2011).³⁸ While economic actors can hardly be blamed for not anticipating and understanding these mechanisms, policymakers have to face

38 According to Willke and Willke, a tightly coupled financial system differs from a loosely coupled financial system in (1) the nature of the relations and interdependencies between the system components, the blurring boundaries between (2) nation states and national economic systems and (3) between formerly separated business models that leads to the re-emergence of financial conglomerates, (4) the influence of actors like rating agencies, and finally the increased homogeneity of (5) paradigms and economic assumptions, as well as (6) risk strategies (Willke and Willke 2012, 42).

the question of why they could not protect financial stability (*the Fed*) and social welfare (*the government*).

There are many more pre-crisis analyses of systemic risk, among them a report on *Global Institutions, National Supervision and Systemic Risk* from the Group of Thirty (1997), defining systemic risk as “the sudden, unanticipated event that would damage the financial system to such an extent that economic activity in the wider economy would suffer”, and arguing that to “qualify as systemic, shocks must reverberate through and threaten the financial system, not just some small part of it” (ibid., 3). Here, a crisis is misleadingly labeled as *systemic* if it affects large parts of the financial system. In a European Central Bank working paper, De Bandt and Hartmann anticipated the events of 2008; focusing on the risk resulting from TBTF institutions, they defined systemic risk as the risk that a systemic event triggers an initial shock, leading to the failure of one or more institutions, “although they have been fundamentally solvent *ex ante*, or if the market(s) affected in later rounds also crash and would not have done so without the initial shock” (De Bandt and Hartmann 2000, 10). In view of these systemic risk assessments, it would be outright wrong to say that the relevant policymakers and supervisors were not aware of systemic risk. Against the background of the financial crises in Russia, East Asia and Brazil, they drew a picture that came quite close to what happened in 2007ff.. The issue even made it, as Tsingou puts it, “onto the front pages of newspapers” (Tsingou 2007). However, policymakers obviously underestimated the depth and breadth of a truly systemic financial crisis on the one hand and its impact on the political system on the other. Reinhart and Rogoff (2009) explain this underestimation of risks with a *this time is different* bias: Policymakers believed that financial innovation – mostly in the area of securitization – had made the financial system significantly safer. As Reinhart and Rogoff indicate, financial crises are typically preceded by a wrong sense of security, both within the market and at the side of policymakers and supervisors. This was certainly the case in the lead-up to the crisis of 2007ff.. Even more importantly, policymakers and regulators saw that fundamental changes were underway, but did not take into account how they increased systemic risk.

The financial crisis of 2007ff. led to a re-definition of systemic risk. Accounting for the depth and breadth of the recent crisis, the International Risk Governance Council (IRGC) determined that

systemic risks typically span *more than one country* and *more than one sector* of the economy. They are *not under the control* of any one organization, but affect and must be addressed by many stakeholders at once. [...] Systemic risks may be relatively low in frequency, but they have broad ramifications for human health, safety and security, the environment, economic well-being and the fabric of societies. (International Risk Governance Council 2010, 9)

As claimed by the IRGC, systemic crises – in the area of finance, but also in other areas such as health or infrastructure – do not only affect the broader economy: They affect society as a whole. As such, systemic crises require political intervention. As we could well observe in 2008, in systemic financial crises governments enter the stage shortly after the financial drama unfolds to rescue the economy in a *deus ex machina* manner. They step in to avert that “the failure of a particular quantum of institutions will result in a socially unacceptable macroeconomic contraction” (Levitin 2011, 446). According to Levitin, a systemic crisis not only affects the whole system – as the Group of Thirty definition says – in fact, it is “the risk of socially unbearable macroeconomic consequences of micro-economic failures” (ibid.) that characterizes a systemic crisis. As Levitin’s definition reflects, and as we will discuss in the following subsections, the financial crisis of 2007ff. forcefully demonstrated that there is a *political and societal aspect to systemic risk* (Willke, Becker, and Rostásy 2013).

2.2.1 *A Systems Theory Perspective on Systemic Risk*

Since the onset of the financial crisis, the number of scientific contributions dealing with systemic risk has skyrocketed. While there was only limited literature on systemic risk in political science up to 2008, finance and economics had started to deal increasingly with the subject in the 1990s (Greenspan 1995, 1). In finance research, *systematic* or *systemic risk* traditionally refers to undiversifiable risk, market risk or aggregated risk (Dichev 1998; Hansen 2013).³⁹ Against this background, it is clear why – when the financial crisis hit and quickly spread from the United States to Europe – some observers spoke of systematic risk and some of systemic risk, resulting in a “great deal of confusion about what types of risk are truly ‘systemic’” (Schwarcz 2008, 196). While we gladly leave it to finance scholars to discuss adequate definitions of systematic risk, we argue that the debate about systemic risk should take into account basic findings from systems theory: Systemic risk encompasses more than *threatening the whole financial system*, or *system-wide*, meaning that “it involved the entire financial system in the United States, and in Europe, not so much in Asia, but in the United States” (Interview with Peter J. Wallison, December 04, 2012, Washington). As we argue, it instead refers to the risks that result from the normal, yet dangerous operational mode of a complex and tightly coupled system.

39 To name just a few papers: In 1972, Hamada discussed the effect of a firm’s capital structure on the systematic risk of common stocks. Twelve years later, Mandelker and Rhee evaluated the impact of leverage on the systematic risk of common stock (1984); and in the late 1990s, Dichev (1998) asked in an article in the *Journal of Finance* whether the risk of bankruptcy was a systematic risk. Hansen defines systematic risks as “macroeconomic or aggregate risks that cannot be avoided through diversification” (Hansen 2013, 4).

To illustrate its basic dynamics, academics and policymakers have compared the financial crisis of 2007ff. to natural disasters, epidemics, and technical breakdowns. Haldane, for example, makes such a comparison between the crisis and the SARS epidemic in China in 2002 (Haldane 2009).⁴⁰ Palmer and Maher draw on Perrow's *Normal Accident Theory* to explain the crisis (Palmer and Maher 2010; Perrow, in his case study, examined an accident at the US nuclear power station Three Mile Island, see Perrow 1984).⁴¹ What the breakdown at Three Mile Island, SARS and the financial crisis have in common is that they occurred in complex systems that exist in various contexts, including biologic, ecologic, social, engineered and geopolitical contexts (International Risk Governance Council 2010). As we will discuss in greater detail on the following pages, ecologic and economic systems have in common that they are "by nature unpredictable accumulations of effects, breachings of threshold values, suddenly occurring irreversibilities, and uncontrollable disasters" (Luhmann 2008, 186). Put simply, complex systems consist of parts interacting in a non-simple way and are characterized by the fact that their whole is more than the sum of their parts (Simon 1962, 468). Microprudential supervision, which focuses on the safety and soundness of individual banks, is therefore unable to draw a reliable picture of the state of a system.

Complex systems are constituted by a large number of autonomous, interacting actors and therefore difficult, if not impossible, to govern. While these interacting actors are mutually coupled and adaptive towards each other, their interactions are usually non-linear (Helbing 2010; Schwarcz 2009). *Non-linearity* in the context of complex systems means that simple cause-effect relationships do not exist (International Risk Governance Council 2010, 14). Complex systems can be distinguished from linear systems due to (1) their *higher number of interconnections*, (2) their *types of connections* (common mode relationships, branching relationships, and feedback loops), and (3) the degree to which these relationships and interactions are *comprehensible and predictable* by the people who operate them (Palmer and Maher 2010, 222f.; Senge 1996).⁴² Palmer and Maher argue that, other than loosely coupled systems, tightly coupled systems such as the current financial system are characterized by a low degree of *resilience*: First, their performance standards tend to be high – meaning that if standards are not met, the system fails completely instead of performing at an inferior rate. Second,

40 SARS stands for Severe Acute Respiratory Syndrome.

41 Perrow himself argues that the financial crisis was not a natural accident but rooted, in line with the behavioral narratives at the beginning of this chapter, in human misconduct (Perrow 2010).

42 We can conclude that the financial system has evolved from a linear to a complex system as it became increasingly interconnected, and as securitization and financial integration changed the nature of financial connections within the system. Financial system complexity – including the complexity of products and financial institutions – will be discussed at-length in chapter three.

design requirements are rigid: “If unexpected contingencies arise, there is little opportunity to modify the system’s design” (Palmer and Maher 2010, 226). Third, tightly coupled systems have a low degree of redundancy, meaning that the entire system fails if a part of it fails. And fourth, when a certain tipping point is reached, the system unwinds “quickly and inexorably” (ibid.), leaving operators with no opportunity to intervene (Bookstaber 2007). These characteristics of complex systems lead to what Eigen and Winkler term “irreversible ‘once-and-for-all’ decisions” (Eigen and Winkler 1981, 229). As already indicated, such complex systems are *robust yet fragile*.

The 21st century financial system is also characterized by its high degree of *reciprocity* – meaning that traders and investors base their decisions on their observations of other traders’ and investors’ observations (Knorr-Cetina and Bruegger 2002, 925ff.). In such an environment, “investors make their investment decisions by anticipating what other investors will do” (Schwarcz 2009, 234). The interactions between the system elements, and again this is especially the case in the financial system, “need not be direct or physical; they can involve sharing of information, or even be indirect” (OECD Global Science Forum 2009, 6). As we saw during 2008, financial institutions do not need to be directly linked via contracts to interact. Distrust and rumors proved to be sufficient to bring financial intermediation to a halt, and they exacerbated the self-reinforcing dynamics that are a central feature of all complex systems. *Emergence* is another important feature of complex systems (Willke, Becker, and Rostásy 2013, ch. 2.1.1). Emergent properties are novel patterns that cannot be explained by the characteristics of the system elements, but only by their interaction (OECD Global Science Forum 2009, 6). As a result of such properties, complex systems evolve in dynamic, probabilistic and non-predictable ways (Helbing 2010, 3; see also Hayek 2007 [1967]). Extreme events, termed fat-tail events or *Black Swans*, occur much more frequently in complex systems than a normal distribution would indicate (Taleb 2007). Systems thinking teaches us that breakdowns of complex systems, including the financial system, are in fact not only likely – instead, “the completely normal, regular operational mode of the system, as it is, can lead to the self-destruction of the system” (Willke, Becker, and Rostásy 2013, 15). While endogenous and exogenous events bear the potential to trigger systemic financial crises, one should be aware that – as the OFR emphasizes – “even absent external shocks, financial activity can generate threats to financial stability” (Office of Financial Research 2012a, 2). Systemic crises will accordingly happen again, and financial governance will not be able to prevent them. When Greenspan defined systemic risk as “some sort of significant financial system disruption”, he added that “one observer might use the term ‘market failure’ to describe what another would deem to have been a market outcome that was natural” (Greenspan 1995, 7). Even though the argument was made in a different context, it holds true from a systems theory perspective. In

complex systems, small changes might have a strong effect, while major changes might have no effects (Helbing 2010, 9). *Fat finger errors* provide a good example here. They are defined as “a typographical error supposedly caused by hitting the wrong key, or by making mistakes when inputting a quantity into a computer” (Financial Times 2013). The initial error might be small – adding an additional zero to a number – but the consequences can be enormous. A fat finger error at the Japanese brokering firm Mizuho Securities in 2005 triggered chaos at the Tokyo Stock Exchange, as an “unnamed and, presumably, shortly to be unemployed broker managed to sell shares worth £1.6bn in a local recruitment agency which, itself, carried only a market value of little more than £50m” (McCurry 2005). The trader had intended to sell one share at 610,000 yen, when he accidentally sold 610,000 shares at one yen a piece, loosing more than 200 million US dollars (Miller 2006). With the rise of automated and high-frequency trading, such fat finger errors have become a very serious problem. Supported by algorithms, traders have fewer opportunities to make mistakes – yet *the few mistakes they make have a much greater impact*. Automatic trades executed by computers at huge volumes and at very high speed add to the complexity of the trades; when a fat finger error occurs in this environment, it triggers erroneous trades that cascade through the system and trigger other erroneous trades until they are finally stopped.

But complex systems do not need external triggers to break down. A software-update at Knight Capital Group, which was one of the largest HFT companies in the US before it collapsed in 2012, triggered what is now known as the *Knightmare*: In August 2012, one of Knight’s trading algorithms started to sell at low and buy at high prices both at large volume and high speed, effectively loosing the difference in price (Philips 2012). What had happened? As it is impossible to simulate complex systems, new algorithms cannot be tested under real conditions.⁴³ When operating in such systems, they may interact with other algorithms in ways that cannot be predicted. As the SEC found out, Knight Capital had forgotten to delete or deactivate an older algorithm from its trading software several years ago; then, one of the company’s technicians failed to copy a new algorithm on one of the company’s servers in 2012 (Securities and Exchange Commission 2013a). A few days later, Knight received orders that activated the older algorithm on the single server which lacked the new algorithm and that server began to execute false orders at high speed. Knight lost more than 450 million US dollars in 45 minutes, and was quickly sold before it could collapse. According to the SEC’s Gregg Berman, high-frequency trading has blurred the distinction between fat finger errors and events caused by dysfunctional software. Addressing both, exchanges and brokers have installed what Berman terms “kill switches” – firewalls or automated trading stops

43 As Weber states, “no marriage of economics, computer science, and physics is anywhere close to being able to create a complete model of real financial markets” (Weber 2012, 691).

that reduce the damage resulting from trading errors (Berman 2013). Yet, they have not managed to prevent them completely.

What distinguishes the financial system from other complex systems is the impact of behavior that is specifically human – including fear and panic, reciprocity and information-driven shifts – making the system even harder to predict and more difficult to govern. Allan Mendelowitz, who is a member of the group of financial experts that has successfully lobbied Congress to establish the Office of Financial Research – CE-NIF – identifies major overlaps between weather forecasting on the one hand and financial market supervision on the other.⁴⁴ According to Mendelowitz, the unpredictability of the financial system roots in a lack of granulated financial data, just as it has been the case with weather forecasts in the past.

When I was a child broadcast news and newspapers always included weather forecasts. However, everybody used to joke about how the forecasts were worthless because their predictions were rarely correct. Today, when you look at weather forecasting the situation has been transformed, you find incredibly good forecasts. Why do we now have such good forecasts? Over the past 50 years the science of weather forecasting has changed dramatically. Weather forecasters have created algorithmic models of weather patterns that surround the earth and these models are fed with a constant and massive stream of data from airborne sensors, satellite observations, and ground station monitoring equipment from all over the globe. (Interview with Allan Mendelowitz, December 03, 2012, Washington)⁴⁵

Mendelowitz envisions a financial market where much more data are collected and aggregated by a central federal agency, and where these aggregated data provide regulators with a reliable *financial market forecast*. And there is a certain truth to his argument: Weather data have indeed become much more accurate and broad over the last decades, while financial market data were, at least up to and during the financial crisis, of low quality and reach.⁴⁶ However, even high-quality weather forecasts do not enable meteorologists to improve the weather, and it is highly unlikely that financial market data will enable policymakers and regulators to prevent systemic crises. Besides, economic systems are shaped by humans – while

44 CE-NIF stands for Committee to Establish the National Institute of Finance. The group of financial experts lobbied Senator Jack Reed to include the OFR in Dodd-Frank and was ultimately successful (Interview with Allan Mendelowitz, December 03, 2012, Washington).

45 Minor amendments were made by the interviewee to the quotes presented in the book. The original arguments being made were fully maintained.

46 In the 1960s, six percent of the forecasts in Germany deviated more than five degrees Celsius from the actual temperature. In the 1990s, this number had shrunk to 0.6 percent (Deutscher Wetterdienst 2009).

winds and clouds do not care about rumors, financial markets do. A financial crisis warning, contrary to a storm warning, might well emerge into a self-fulfilling prophecy. The OFR researchers are well aware of these problems: “In an ideal world”, they argue, “systemic monitoring would work like the National Weather Service, providing sufficiently advance notice of hurricanes for authorities and participants to intervene by pre-positioning staff and resources, minimizing exposures, and planning for the impending event and immediate aftermath” – yet, they conclude that it “may be too much to hope for in the case of financial stability” (Bisias et al. 2012, 21).

2.2.2 *A Politico-Economic Approach to Systemic Risk*

According to a joint publication by the IMF, the BIS and the FSB, a systemic crisis is “(i) caused by an impairment of all or parts of the financial system; and (ii) has the potential to have serious negative consequences for the real economy” (International Monetary Fund, Bank for International Settlements, and Financial Stability Board 2009, 5f.). Like most definitions, these institutions describe systemic crises and systemic risk as financial and economic phenomena, and accordingly invite us to assess systemic risk in numeric terms. The OFR, which is at the forefront of systemic risk analytics, argues along similar lines. In a recently published paper, OFR researchers conclude that to identify and address systemic risk, supervisors and regulators need the respective data and models: “The starting point for all of these directives is the accurate and timely measurement of systemic risk. The truism that ‘one cannot manage what one does not measure’ is especially compelling for financial stability” (Bisias et al. 2012, 1). Gai, in a paper published after the OFR survey, classifies episodes as systemic crises where *more than five percent of the system default* (Gai 2013, 21), or where a minimum of *ten percent of the banking system engages in hoarding*, meaning that the banks stop their lending activities on the interbank market (ibid., 39).

Such quantitative approaches are convincing in their basic simplicity. In view of the binary model of systemic risk introduced in chapter one, the idea that a systemic crisis alarm goes off at the US Treasury when ten percent of the banking system engage in hording, or when a financial institution with a defined number of counterparties threatens to fail, and then – and only then – the government steps in to rescue the economy, is compelling. And yet two factors make this scenario highly unlikely. The first lies in the *difficulty of defining specific yet comprehensive indicators* of systemic risk. Anabtawi and Schwarcz define systemic risk as “the risk that a localized adverse shock, such as the collapse of a firm or market, will have repercussions that negatively impact the broader economy” (Anabtawi and Schwarcz 2011, 2). We then have to ask when to speak of a negative impact on the broader economy, and whether the trigger could be any firm or any market or if it

must have a certain size.⁴⁷ Gai's model therefore includes a specific quantitative assumption to differentiate between non-systemic and systemic financial crises (Gai 2013). Yet, when we get to systemic risk measurements, systems thinking teaches us that in complex systems, minor changes might have huge effects, while major changes might have no or small effects, increasing the likelihood of both false-positive and false-negative alarms. Countless, non-linear financial actors interact in unpredictable ways and the system's emergent properties make it impossible to extrapolate future from past sources of systemic risk. Taleb accordingly argues that such risks – tail risks as he terms them – cannot be measured: “the rarer the event, the harder it is to compute its probability – yet the rarer the event, the larger the consequences” (Taleb 2012b, 2). The second, widely underestimated difficulty lies in the *nature of the decision*: When the US Treasury steps in to save a failing institution or sector, it *ultimately follows a political, not an economic rationale*. How else are we able to explain that the US government rescued the small investment bank Bear Stearns, but did not rescue the much bigger investment bank Lehman Brothers?⁴⁸ Besides, we have to keep in mind that the US government not only acted to lessen the severity of the financial crisis, but also accepted partial responsibility for contributing to systemic risk. Today, it is widely agreed that “there was market failure, but there was also government failure” (Stiglitz 2009b, 17; see also Barofsky 2013), both before and throughout the crisis. For obvious reasons, politics are difficult to include in systemic risk models. And yet, in their *Survey of Systemic Risk Analytics*, Bisias and his OFR colleagues provide an overview over 31 quantitative systemic risk measures (Bisias et al. 2012). However, even though they clearly see systemic risk as an economic phenomenon, the OFR researchers come to the conclusion that – given the complexity and dimensionality of the phenomenon, as well as the constant changes induced by what they term *political, institutional and cultural* factors – the OFR is “unlikely to ever develop a single measure of systemic risk; [...] multiple measures must be used to piece together a coherent, albeit incomplete, view of possible threats to financial stability” (ibid., 28).

The events of 2007 and 2008 do indeed indicate that political and societal arguments play a major role in government responses to a financial crisis. As their impact is not only difficult, but rather impossible to model, the explanatory power of merely economic definitions and models of systemic risk must be limited. Levitin therefore argues that

47 Looking at Reinhart and Rogoff's (2009) comparative analysis of financial crises, one can conclude that their work is merely definitional: Global financial crises, especially as opposed to regional financial crises, are not given, but have to be defined as such. What appears to be objective is in fact ridden with prerequisites. Besides, systemic risk appears to be difficult to model in quantitative terms – Hansen provides an overview of the challenges to quantitative systemic risk modeling from an econometric viewpoint (Hansen 2013).

48 As we show in the following chapter, the US government provided a different explanation.

systemic risk is not quantifiable in economic terms. In some circumstances, a 1% increase in the cost of capital or unemployment might be a sufficient macroeconomic impact to make an individual firm's failure pose a systemic risk; in other situations, the threshold might be a 10% increase. While systemic risk is about individual firms' failure having broader economic consequences, what makes such consequences systemic or not is ultimately *a valuation driven by social norms and political culture*. Systemic risk is ultimately *a political, rather than an economic, matter*. (Levitin 2011, 451, emphasis added; see also Clark and Large 2011, 41f.)

In view of the shortcomings of a merely economic framework, it is important to look at both approaches to systemic risk – the economic and the political – to finally integrate them into a comprehensive, politico-economic concept that takes into account not only the global nature of systemic risk, the political and economic developments contributing to it, but also its consequences for society.⁴⁹ Here, Levitin's argument is crucial, as it takes into account the role of the government in systemic financial crises, as well as its societal dimension. We cannot say whether Bear Stearns, AIG and the GSEs were truly systemic; but the US government decided that they were. Policymaking and regulation therefore did not only set the stage for the crisis; rather they are at the heart of systemic risk.

In an interview, President George W. Bush described his decision to support the AIG and GSEs' bailouts. He put the crucial events of September 2008 into the broader historical context that shaped the crisis perception of economic policymakers in the US and Europe (see Pauly 2009); his account also illustrates the political logic of systemic risk:

I was in the Roosevelt Room and Chairman Bernanke and Secretary Paulson, after a month of every weekend where they're calling, saying, we got to do this for AIG, or this for Fannie and Freddie, came in and said, the financial markets are completely frozen and if we don't do something about it, it is conceivable we will see a depression greater than the Great Depression. So I analyzed that and *decided I didn't want to be the President during a depression greater than the Great Depression*, or the beginning of a

⁴⁹ Interestingly, even scholars who admit that the crisis had its root in policymaking argue that systemic risk is, in its core, an economic phenomenon. In one of our interviews, Acharya argued exemplarily: "I would say in the end it's an economic phenomenon [...]. But it could be caused by political processes. So there have been historical crises that probably were not always deeply rooted in political failures or regulating failures. But there have been many crises also where it is the case that, you know, governments have asked financial sectors to do more, to try to stimulate housing at all costs. So, I would say very often political problems are sufficient to cause a systemic crisis. [...]. But it's not a necessary condition, I think it would easily get a financial crisis that is probably not rooted in any political failures" (Interview with Viral Acharya, November 28, 2012 New York).

depression greater than the Great Depression. (Bush 2008, emphasis added)⁵⁰

After the AIG and GSEs' rescues, the team of government officials around US Secretary of the Treasury Hank Paulson hoped that Congress would be willing to support the 700 billion US dollar Troubled Asset Relief Program (TARP). As we will discuss in greater detail in chapter four, the political mood that prevailed before Lehman collapsed had been quite different: Back then, against the background of the Bear Stearns rescue, the government felt it could not step in and rescue another investment bank, even though it must be assumed that it knew about the potential ramifications resulting from a Lehman bankruptcy (McDade 2010). In the binary model of systemic risk that we introduced at the beginning of this book, we distinguished between the political and economic costs of a systemic financial crisis. As we see now, another distinction has to be made between the economic and political arguments for and against a government intervention.

This brings us back to the question of whether governments actually have a choice to either rescue a failing SIFI or not, the latter implying that they are essentially hijacked by TBTF institutions. The analysis so far indicates that every systemic crisis is declared political at one point in time. The following quotes support this argument:

It's hard for me to imagine any government in place [...] that would have been able to say: ok, there is this crisis happening, but it's not the business of politics. (Interview with Philip Wallach, December 04, 2012, Washington)

Now, of course, when you have a systemic crisis inevitably you constantly need to backstop the system in some form or the other. Backstopping the system requires a fiscal coordinator for that. And so it inevitably becomes some political issue, becomes relevant at that point. (Interview with Viral Acharya, November 28, 2012, New York)

I went home that night [after voting for the TARP rescue program, EB] and my wife told me she had never before seen me quite look that way, just in

50 In his interview with the FCIC, Taylor challenges this fear of a second Great Depression. He argues that there is no "credible story that we would have had a Great Depression without the interventions. I just don't see that at all. [...] One of the things I found most of concern in terms of public policy is [...] the kind of behind-closed-doors discussion about Great Depression [...] that, you know, the run up to the hill and saying that 'If you don't do this, it's going to be Armageddon and we'll have riots in the streets and whatever was said, I think without people knowing about it. I remember at that time various politicians, Senators asking me 'What do you think about this claim that there is Armageddon?' – and I said 'I don't know, no one said that to me, where are you getting that from?'" (Taylor 2010). This strengthens our argument that policymakers and regulators just did not know or understand what was happening, and in accordance with the model presented in chapter one, they felt they had to rescue most institutions.

terms of how overwhelming and scary it was [...]. Often when facing such a difficult moment, I will, just for myself, I won't usually share it, write down 'why vote for this', 'why not vote for this', and I remember at the top of it I wrote 'the best vote I've ever cast, and the worst vote I've ever cast'. You just knew you had to do it. (Brown 2013)

The described political logic of systemic risk is a largely underestimated factor. The US government was ultimately able to contain the crisis, but we have to keep in mind that some states with particularly large banking sectors in relation to GDP would not have weathered the financial crisis if they had not received the support of the IMF and the EU – among them Ireland and Iceland. Systemic financial crises challenge the sovereignty of the nation states, as they reveal a fundamental incongruence between global SIFIs on the one hand, and nationally limited policy options on the other. Confronted with systemic risks, nation states “fall prey to the fallacy of sovereignty”, being “semi-sovereign at best” (Willke, Becker, and Rostásy 2013, 44; see also Streeck 2013, 20f.).

Based on Luhmann's argument that politics is “a self-referentially closed system, and whatever it declares to be political is thereby political” (Luhmann 2008, 160f.), we argue that the crisis became a political issue the moment the US government bailed out Bear Stearns. Conversely this means that a crisis might be defined as systemic for political reasons, but in fact be a minor financial or economic crisis. Looking at the bailouts that took place in other industries and countries over the last decades, one might very well ask whether those rescues addressed mere liquidity problems, or followed a political rationale.⁵¹

With regard to the role of the US government in causing the crisis, Robert Jenkins – member of the Financial Policy Committee of the Bank of England – made an interesting observation:

I have not heard many bankers accept blame for the crisis but quite a few within the regulatory ranks have acknowledged their failings. But for avoidance of doubt, let me say it here and now: the regulatory establishment blew it! We messed up in two ways: first we misjudged the breadth and depth of the risks that many banks were running. Second, we misjudged bankers' ability to judge and manage those risks. [...] How could we have been so dumb as to believe that bankers were so smart? Both groups belong to the human race and the human race is hubris hungry and error prone. (R. Jenkins 2012, 4f.)

We should keep his second argument in mind when we get to the issue of data, information, and knowledge asymmetries and the resulting policy implications. For

51 In October 2009, the German Financial Times reported that FC Schalke 04, a German football club, would be bailed out by its hometown Gelsenkirchen because it was systemically relevant for the region; Cyprus was deemed to be systemically relevant for the Euro zone. Many more examples could be found.

now, we stay with the question implicitly raised by Jenkins whether both regulators and regulatees should take responsibility for the crisis. Interestingly, the point is not whether Wall Street and the City of London had their part in causing the crisis – as we will see in chapter three, financial institutions deliberately increased financial complexity in order to circumvent regulation – it is whether one can blame financial institutions, or their employees, for not anticipating or mitigating the crisis.⁵² The US government and the Federal Reserve Bank are in a fundamentally different position: They are responsible for *social welfare* and *financial stability* respectively, and evaluated against their mandates, they failed. As Andreas Lehnert of the Federal Reserve Board put it in one of our interviews, “an interesting and novel definition of a systemic crisis would be one that sort of puts in jeopardy the credibility of the existing regulatory regime” (Interview with Andreas Lehnert, December 05, 2012, Washington).

2.2.3 *A Short Excursus on the LTCM Rescue of 1998*

Even though the FSOC designates systemically important institutions, it is difficult to safely conclude or preclude the systemic relevance of a financial institution before its litmus test, which is its actual breakdown. As we will discuss in greater detail in chapter four, the Council has developed a set of criteria to determine the systemic relevance of a financial institution and designated a first set of nonbank financial companies and financial market utilities as systemically important. These institutions are assumed to present a threat to the stability of the US financial system when failing.

Apparently, bailed-out Bear Stearns was not the first US financial institution that was perceived by the government as being TBTF. In 1998, the nearing collapse of the hedge fund Long-Term Capital Management L.P. (LTCM) prompted the US government to act: The New York Fed arranged a private bailout, meaning a 3.5 billion dollar recapitalization, by a consortium of banks (Spiro 1998).⁵³ Their direct exposure to LTCM was smaller than their share in the bailout, but the participants feared that the fund’s collapse would induce much higher costs. Put differently,

⁵² Financial institutions have been blamed for their wrongdoings, yet the number of prosecutions fell short of people’s expectations (Rakoff 2014; Barrett 2013).

⁵³ Davidoff and Zaring have convincingly argued that to respond to the crisis of 2007ff., the US government “has been doing deals – the sorts of deals that it usually leaves to the private sector” (Davidoff and Zaring 2009, 466), a fact that they explain with the investment banking background of central government officials, including Treasury Secretary Paulson. Interestingly, deal-making also played a major role in 1998, and the government officials involved – among them Robert Rubin as US Secretary of the Treasury – were also veteran dealmakers.

public officials and market experts⁵⁴ believed that an LTCM bankruptcy would trigger a systemic crisis:

Had the failure of LTCM triggered the seizing up of markets, substantial damage could have been inflicted on many market participants, including some not directly involved with the firm, and could have potentially impaired the economies of many nations, including our own. (Greenspan 1998)

LTCM had heavily invested in interest rate derivatives. Its collapse was triggered by the Russian financial crisis: When Russia defaulted on its external debt, the liquidity of the highly leveraged hedge fund quickly evaporated.⁵⁵ The basic mechanisms that caused the crisis of 2007ff. – pro-cyclical capital requirements and counterparty collateral calls, both resulting in an asset price downward spiral, could be well observed in 1998. In addition, the fear of an LTCM collapse froze markets where LTCM was expected to hold larger positions (MacKenzie 2005, 75). As claimed by one participant of the bailout meeting at the New York Fed, the group of central and investment bankers discussed “systemic risk issues” (Spiro 1998). Rumors spread that Lehman Brothers was in effect bankrupt (MacKenzie 2005). The Fed believed that, had the consortium not rescued LTCM, “this could have had a widespread, adverse, systemic impact on the financial system” (Born 2009). As claimed by Brooksley Born, the LTCM case was in effect a “mini-2008”: It revealed the contagion risk resulting from OTC derivatives. It demonstrated the fragility of highly-leveraged institutions (ibid.), and it showed that sophisticated diversification and securitization could not eliminate market risk.⁵⁶ LTCM was renowned not only for its outstanding success, but also for its illustrious board of directors: Robert C. Merton and Myron S. Scholes, who had received the Nobel Prize in Economic Sciences in 1997 for their method to determine the value of derivatives, were both on the board. Yet, LTCM could not outsmart the market. Some have argued that an LTCM collapse would have had a self-healing effect on the financial system as “it might have been better to have experienced a milder version of a downturn in 1998 than the more severe version of 10 years later” (Cowen 2008; see also Reinert and

54 Bear Stearns was the only member of the group that did not participate. Whether it did not expect that an LTCM collapse would trigger a systemic crisis, or whether it simply chose to free ride, cannot be said in hindsight.

55 MacKenzie argues that, even though the crisis was triggered by the Russian default, it was caused by the fact that the success of LTCM had motivated other investors to imitate the hedge fund's portfolio, a behavior that ultimately resulted in a “superportfolio” of overlapping positions: “Sales by some holders of the superportfolio moved prices against others, leading to a cascade of self-reinforcing adverse price movements” (MacKenzie 2005, 65).

56 The LTCM collapse also led to the creation of the Financial Stability Forum, the predecessor of the FSB that was established in 2010 (Black 2012, 8; cf. Moschella 2012 – other than Black, Moschella traces the creation of the FSF back to the Asian Financial Crisis).

Reinert 2006). Some even suggest that the New York Fed, when it prevented the risks related to high leverage, short-term funding, OTC derivatives and mark-to-market accounting from materializing, paved the way for a much more devastating crisis in 2007ff. (Taleb 2012a). The Mexican and the Asian financial crisis had been contained. LTCM was rescued. The market was, after all, under control.

The CFTC's Brooksley Born, who had warned her fellow regulators about the threats posed by increasingly opaque financial markets, was reaffirmed by the LTCM crisis that policymakers and regulators just did not know enough about these markets. Yet, despite the LTCM collapse, US regulators and policymakers did not feel the need to address the systemic risks resulting from interconnectedness, contagion, and complexity:

None of us, none of the regulators had known until Long-Term Capital Management phoned the Federal Reserve Bank of New York to say they were on the verge of collapse. Why? Because we didn't have any information about the market. [...] – *So LTCM happens, and for a brief period there is this eagerness to regulate... but it very quickly evaporates. Why?* – Because everything was all right. Because all the big banks did step in and solve the problem by taking over LTCM and incurring losses themselves. But they protected the fabric of the economy. And Congress was told by the over-the-counter derivatives dealers, by some of the other regulators, that this was an anomaly, this was not indicative of dangers in the market. And I think any consideration of regulation probably came and went within a few days, because it was less than a month later that Congress passed a statute saying that the CFTC could take no regulatory action in the over-the-counter derivatives market for the next six months. (Born 2009)

What we do not know is whether the US government would have bailed out the hedge fund absent a private solution. What we can assume is that the successful deal-making attempts by the Fed did supposedly shape the government response to the financial crisis of 2007ff..

2.3 Entering the Stage of 21st Century Financial Folly

Financial crises come and go. They have many faces and, like cats, they have many lives (Bhagwati 1998, 10). Crises are usually preceded by a strong belief that this time is different (Reinhart and Rogoff 2009), that skilled people with sophisticated models can outsmart the system. Then, another crisis comes and reminds us of the fragility of the financial system, opening up a window of opportunity for financial reform. Reports are written and agencies installed. But the bad memories fade away quickly and reforms have to be pushed through before “collective amnesia about the causes and consequences of the financial crisis” (Barr 2013) takes over and the

window closes again (Geithner 2011). Hubris, collapse, downturn and reform could all be well observed in the context of the financial crisis of 2007ff.. The ensuing question is: Was this just another financial crisis, or was the crisis different when compared to past crises? One of our interview partners captured the debate quite well when he described how “nobody wonders if there is a difference in size. I guess the question is: Is there a difference in kind?” (Interview with Philip Wallach, December 4, 2012, Washington).

In our interviews, market experts explained how mistakes made by regulators (Interview with Viral Acharya, November 28, 2012, New York), political ideology (Interview with Allan Mendelowitz, December 03, 2012, Washington), the US housing policy (Interview with Peter J. Wallison, December 04, 2012, Washington) and complex securitization (Interview with Rainer Stollhoff, August 14, 2013, Berlin) distinguished the recent crisis from past crises. As we argued in this chapter, the various crisis narratives are still competing for the *prerogative of interpretation*. Lehnert states that systemic crises happen periodically, the last one in the US being the Great Depression, but that no such crisis “had ever happened to the set of institutions and regulators that existed in 2007. So from their experience, it was totally outside” (Interview with Andreas Lehnert, December 05, 2012, Washington). While we assume that all of these factors did play a role, and that the recent crisis was in fact outside the experience of financial regulators, we want to argue that there was a fundamental difference in kind, which was the *systemic nature* of the crisis. Again, we have to be careful to distinguish systemic from system-wide.

In 1907, a century before the start of the current financial crisis, the US banking system had stood at the brink of collapse once before. Back then a group of bankers under the lead of financier J.P. Morgan rescued the US economy. One might conclude that financial crises do not necessarily have to be solved by governments, and this is certainly true. Comparing the 1907 and 2007 crises, one can identify a number of intriguing parallels. However, following Bruner’s analysis, there are three important differences between the two: *higher complexity, faster speed and greater scale*. Systemic crises exceed the capacities of private actors:

The complexity of markets today is magnitudes higher than a century ago. We have subprime loans that even the experts aren’t sure how to value. We have trading positions [...] which the exposure is not clear. And we have the institutions themselves that are so complicated that it’s hard to tell who among them is solvent and who is failing. (Bruner 2008; see also Markowitz 2010)

During the recent crisis, the US government stepped in as a lender of last resort. This time, no private player was in the position to stop the contagion. The financial crisis of 2007ff. demonstrated that “someone has to be in a position to bail out troubled banks that have the potential to destabilize entire markets” (Pauly 2009,

958). When a financial institution threatens to fail, and its government decides that the institution is systemically important – meaning that a default would have *socially unbearable consequences* – the government steps in and arranges a rescue. According to Levitin, systemic risk is a political phenomenon because it is ultimately about the *allocation of losses*. Whether the government acts as a *dealmaker*, as it was the case when LTCM collapsed in 1998, or as *lender of last resort*, depends on the nature of the systemic event, as well as on the willingness and ability of other private actors to support a fellow institution. What is central is that whenever the government decides to bail the failing institution out, it is the taxpayer who bears the losses.⁵⁷ Therefore, systemic risk has to ultimately be perceived in political and societal terms. As emphasized by Willke et al., “there is no systemic crisis as long as the political system does not perceive and define a given situation as *politically* unbearable because the social impact of the crisis cannot be accepted *politically*” (Willke, Becker, and Rostásy 2013, 94f.). With TBTF looming large, the *resolution of systemically important institutions* must be the starting point for a comprehensive concept of systemic risk, and we will further discuss it in the following chapter. As Lehnert emphasizes, there are two types of crises, and the financial crisis of 2007ff. clearly falls into the second category. The first group includes crises that are manageable because regulators have formally or informally planned for them; the second group comprises crises “that simply by the nature of the things that happen in the crisis call into question the legitimacy of the entire regulatory apparatus as it exists” (Interview with Andreas Lehnert, December 05, 2012, Washington). In 2008, the failure of a systemically important institution was an incident not formally planned for. In the US, the crisis clearly called into question the legitimacy of the US Office of Thrift Supervision (OTS). It had had disproportionate close ties to its regulatees and was abolished in 2011. Other bodies, among them the US Treasury via the FSOC and the OFR, were able to expand their mandates. The US government was ultimately able to contain the crisis, yet the European crisis lingers on, with uncertain consequences for political cohesion and legitimacy.

The major challenge is that the next crisis will most likely differ from the last one. Janet L. Yellen, in her interview with the FCIC, expressed her fear that regulators might not be able to prevent another global crisis.

I am hopeful we can do a better job. I feel it's critically important to try to ramp up what we do. You know, the next financial crisis will be something completely different. And will we have the ability to spot it? And of course there is always an incentive for the dangerous activity to migrate into some new spot that is not where we're looking. This is really hard. I believe we are

57 Reinhart and Rogoff show that the bailout itself is not that costly; it is the subsequent economic downturn that leads to massive increases in public debt (Reinhart and Rogoff 2009).

highly motivated to do a better job. Not to let anything like this happen again. (Yellen 2010)

The financial system evolves at rapid pace, and the risks it poses apparently evolve in tandem. Its continuing transformation to a global, complex, tightly coupled system did not go unnoticed. In 1995, Robert Merton described “revolutionary changes in the structure of the world’s financial markets and institutions and in our understanding of how to use them to provide new investment opportunities and ways of managing risk” (Merton 1995, 462). A perceived need for better macroprudential supervision led to the establishment of the FSF. Brooksley Born, reassured by the collapse of LTCM, called for better data and information on the largely unknown OTC derivatives market (Born 2009). But the FSF was considered largely ineffective, and Born’s warnings were incompatible with the common thinking of the time. Among the problems revealed by the crisis of 2007ff., the *common thinking among policymaking and market elites* is most central (Shiller 2010). In hindsight, it is difficult to believe that doubts were expressed but largely ignored (Tett 2010; D. Baker 2010). As Willke and Willke emphasize, the incomprehensibility of the financial system is “less dangerous when actors understand their inability to (fully) understand [...] complex systems. It is most dangerous when people, in particular professionals, disregard their ignorance and feel certain about the systems they are dealing with” (Willke and Willke 2012, 48f.).

What else can we learn? Distinguishing between the behavioral and the systemic narratives of the crisis, and focusing on the latter, is crucial. Regulators cannot possibly eliminate all triggers, and as long as the structural weaknesses of the system remain, we are continually on the verge of another systemic crisis. The crisis also demonstrated that policymakers and regulators provided the soil for systemic risks to grow “by allowing – even encouraging – the system to become more complex and tightly coupled” (Guillén and Suárez 2010, 267; see also Admati and Hellwig 2013).⁵⁸ As we will see in the following chapter, financial complexity increased at high speed and on various levels.

⁵⁸ Willke et al. provide a long (but non-exhaustive) list of the government decisions that increased financial complexity, providing the ground for the crisis. It includes the decision by the US government to replace the Glass-Steagall Act with the Gramm-Leach-Bliley Act in 1999, to repeal the uptick-rule from 1938 which had forbidden certain types of short selling, the decision not to regulate the shadow banking system, including certain derivatives and for instance the money market fund industry, as well as the decision not to monitor and clear over-the-counter derivatives (Willke, Becker, and Rostásy 2013, ch. 4.2).

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