

Post-Keynesian Financial Spaces, Places, and Flows: Geographies of Finance and Financial Crisis

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Abstract

This dissertation is a reaction to the public policy failures that culminated in, prolonged, and exacerbated the 2008 financial crisis in the United States. Between the winter of 2007 and the summer of 2009, the US private economy contracted severely. As of the summer of 2014, after a five-year recovery period, employment losses have been restored, but employment growth has not returned the US to its pre-crisis trend. This outcome is not the effect of a transient deviation that regularly happens as the economy moves through the business cycle; nor should the troubles in the US financial sector appear historically anomalous. The world's premier capitalist economy is prone to bouts of financial dysfunction. This feature is not simply a matter of the irrational exuberance of its investors, the euphoria of its speculators, or the folly of its bankers. I argue here that political-economic choices structure the distribution of financial crises at multiple scales.

Broadly speaking, I find that the effects of financial crises on growth are uneven, affected by institutional structure, and carry important ramifications for the direction of change in the provision of financial services and its regulatory system. The thesis features four empirical chapters. In the first, I perform an econometric analysis of the effects of a wide variety of financial crises on employment growth by economic sector, for a sample of countries over a thirty-year period. The final three chapters are a case study of the US experience with the 2008 banking crisis and asset market crash, focusing on the role of the banking regulatory system in allocating losses over territory, on the economic performance of metropolitan areas, and on the distribution of losses within the financial sector in two major financial centers, Los Angeles and San Francisco. I reach my conclusions by using standard methodological tools within the sub-field of economic-geography and conceptual insights from the sub-field of financial-geography.

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Your Government does not intend that the history of the past few years shall be repeated. We do not want and will not have another epidemic of bank failures.

President Franklin D. Roosevelt, 1933

Never again will America allow any insured institution operate without enough money.

President George H.W. Bush, 1989

Because of this law [Dodd-Frank], the American people will never again be asked to foot the bill for Wall Street's mistakes. ... There will be no more taxpayer-funded bailouts. Period.

President Barack H. Obama, 2010

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Nicholas Kreston
New Orleans, LA
September 2, 2014

Chapter One: Introduction

1.1 Topic and approach

This dissertation is a systematic analysis of the distributional and spatial consequences of financial crises. I place special emphasis on the institutions for resolving and allocating the costs of distress, and use change in employment by sector as a chief indicator of the distribution of that distress and the success of those resolution processes. I approach the topic, and the US experience with the 2008 financial crisis in particular, using the standard toolkit of economic-geography while also borrowing conceptual insights from related heterodox fields. This introductory chapter will explain the thematic scope of the dissertation, the relevant objects of inquiry, the choice of an economic- and financial-geographical approach, and the methodology.

The title of this dissertation emphasizes the thematic scope of the empirical chapters, reflecting four broad themes, presented in reverse order of their appearance. *Financial crisis* is the central event under investigation. The causal power of underlying transmission mechanisms, the relevant scales and entities through which they are expressed, and the factors that articulate their manifestation over space are poorly understood. The data and analysis are concerned with the location of these events in relation to financial institutional evolution, making this a project partly within the realm of the developing sub-field of *geographies of finance*. The allusion to *spaces, place, and flows* emphasizes the interest in processes of growth and change, and the concern within economic-geography especially with identifying the dynamics underlying such processes. Finally, the *post-Keynesian* orientation speaks simultaneously to the intellectual poverty of neoclassical and orthodox economic dogma in explaining the role

of finance and financial crises in economic processes, as well as the pressing need to explore and implement heterodox alternatives for the future.

An additional theme not explicitly stated in the title is that of resilience. Given the way resilience has been theorized and deployed within economic-geography (Martin 2012; Martin and Sunley 2014), this concept shares a number of features with the non-linear dynamics of financial development as described by Hyman Minsky (1982). From a stylized Minskyian perspective, economic growth occurs in discrete phases: it begins with a euphoric expansion and culminates in a financial crisis that initiates a deflationary spiral and that possibly leads to a depression or recession, and then a period of stagnation. Financial instability within the system grows during the expansionary phase, concealed by changing expectations about the future, and then is released during a crisis period. The key points are that conditions of instability are internally-generated and not necessarily exogenous, that a long-term equilibrium path of growth is not an *a priori* assumption, and there is a strong emphasis on the role of institutions in moderating instability. These points fit well with the resilience concept, and its applicability to growth and crisis is elaborated upon in the core empirical chapters.

In many ways, this dissertation serves as a response to the policy environment in which the 2008 financial crisis and the public measures devised to confront it were debated. Consider, for example, the influential book *This Time Is Different* by Carmen Reinhart and Ken Rogoff (2009b), which occupies the prime subject of the first empirical chapter here. Their argument can be summarized as such: human nature, which is unchanging, is responsible for cycles of financial boom and bust, and consequently the nature of institutional relations and of financial assets are irrelevant (Reinhart and Rogoff 2009b, xxviii–xxxiv). Their argument is supported by time-series

data of various financial crises spanning some eight centuries and over one hundred countries. Irrespective of their methodological choices and the empirical conclusions that can be drawn from their data (which are addressed in Chapter Three), this perspective of the consistency of human nature over space and time sidesteps two crucial aspects of financial crises. First, the occurrence of these events observes uneven geographic distributions, especially the clustering in time and by country, which Reinhart and Rogoff appear to ignore although their data points to this fact (compare to, for instance, Eichengreen 2002). Second, and related to that first point, these distributions are influenced in part by the institutional architecture and spatial structure of the financial system. An understanding of the *responses* to financial crises cannot fall back on arguments postulating the essence of human behavior; such a problem fits neatly within the domains of geography and institutions.

In the research papers that follow, I elaborate on the spatial distribution of financial crises at various scales. The role of institutions, including banks, government agencies, industrial relations, and types of debt relations, are weaved through the empirical content. The research endeavor seeks to support an alternative public policy space that takes seriously the design of the financial system and its interactions with the broader political-economy. As such, this dissertation has three aims:

1. To describe the distributional consequences of financial crises, with respect to the effects across various economic sectors and across various territories and scales;
2. To explain the significance of related institutional factors in structuring those distributions;
3. And, to situate these developments in the context of future prospects of growth

and stability.

These goals are accomplished through a progressive narrowing and alternating of the scale of observation. Chapter Three analyzes industrial sectors in nation-states, Chapter Four analyzes bank failures across US states in addition to the jurisdictional conflicts within the federal administration, Chapter Five compares the economic growth trajectories of metropolitan areas, and Chapter Six compares the relative growth of financial establishments within two financial centers. Each chapter begins with observations of the uneven effects of financial crises, and then attempts to explain factors responsible for that unevenness, and then remarks on their significance.

As a brief aside, I comment on a timing convention. Some authors have referred to the recent financial crisis in the US as the '2007 crisis', and others as the '2008 crisis'. It is true that in 2007, and in certain areas in 2006, prices across housing markets began to decline in the US; three banks also had failed nationwide by the end of that year. In the summer of 2008, two very large financial institutions experienced a bank run that lasted many months (Wachovia and IndyMac), the first such event in some twenty years, and investment bank Lehman Brothers declared bankruptcy in September of 2008, prompting a massive sell-off in US financial markets. A recession had begun in the fall of 2007, terminating in the summer of 2009. In the remainder of the dissertation, we refer to the events as the '2008 crisis', for the reason that the bank panic began in earnest in that year. It should be emphasized, however, that insofar as the years 2007 to 2009 represented an inflection point in US economic development, it did so to the extent that it was the materialization of financial instability that had been growing over the years leading up to the event.

Finally, I note that I have pursued the four-paper route in organizing the

dissertation. A chief benefit of this approach is that University regulations stipulate that the chapters be submitted to peer-review scientific journals, which has expanded the opportunities for high-quality feedback. Chapter Three is currently under review at *Growth and Change* (Dariusz Wójcik is co-author), Chapter Four has been submitted to *Geoforum*, Chapter Five is currently under review at *Environment and Planning A* (Dariusz Wójcik is co-author), and Chapter Six has been submitted to *Regional Studies*. One drawback of this approach is that because individual journals impose stylistic and structural limitations, the chapters display a certain degree of autonomy but also repetition: each contains its own set of research questions, literature review, and methodology. Nonetheless, the chapters retain the common thematic threads of the whole dissertation, as I will explain in the following sub-sections, and also demonstrate the progression in the scale of analysis.

1.2 What is to be explained or: the strange case of the United States

In this sub-section, I explain the research significance of the dissertation. The latter three chapters use the United States during the 2008 banking crisis as a case study. The US is a strange case, for several reasons: despite housing the most liquid, specialized, and apparently sophisticated financial markets in the world, it is frequently afflicted by financial crises. In the last thirty years, there have been, including the most recent one, two severe banking crises with associated recessions—the S&L debacle having begun in the early 1980s and not being fully resolved until the mid-1990s—as well as several sharp crashes in US equity markets and associated failures of very large financial institutions. The frequency of financial crises in the US makes it an outlier not only among its cohort of advanced capitalist countries but also relative to most of the world (Reinhart and Rogoff 2009b).

Recent studies have attempted to account for this startling frequency. In contrast to behavioralist explanations for crises, most visible in Reinhart and Rogoff (2009b), a number of scholars have focused on the political-economic foundations of crises (Calomiris and Haber 2014; Krippner 2011; Lavelle 2013). Calomiris and Haber (2014) point to bargains between populist groups and banking interests as conditioning the frequency of bank panics in the US, as opposed to comparatively much stabler Canada, which apparently insulates its banking system from populist interference. Krippner (2011) suggests that financial policy-making at the federal-level in the US has proceeded in a staccato, *ad hoc* fashion as policy-makers regularly must adjust to past decisions that had unleashed new mutations of financial activities and hence new dysfunctions that required additional solutions. The intention behind those reactive political measures has been to postpone domestic economic conflict through temporary financial palliatives, measures which more accurately can be bundled under the rubric of “financialization”. Despite the theoretical and political distance between those two works, they both stand out for the reason that they elevate the question of distributional conflict to pride of place in their histories of crisis (these works will be addressed in greater detail in Chapter Two).

As such, the US offers fertile empirical ground for the analysis of financial crises. However, the principal motivation for selecting the US and the 2008 crisis specifically can be found in Figure 1. As that Figure shows, after four years of employment growth beginning in late 2003, the US experienced a severe contraction in economic activity, resulting in the loss of all non-farm employment gains made since the end of the dot.com recession, at an estimate of over seven and a half million. After reaching a trough in early 2010, employment began to increase until, as of writing in

mid-2014, the losses from the crisis had been largely replaced. In contrast, output (gross domestic product, GDP) had by 2014 returned to trend (see Chapter Five).

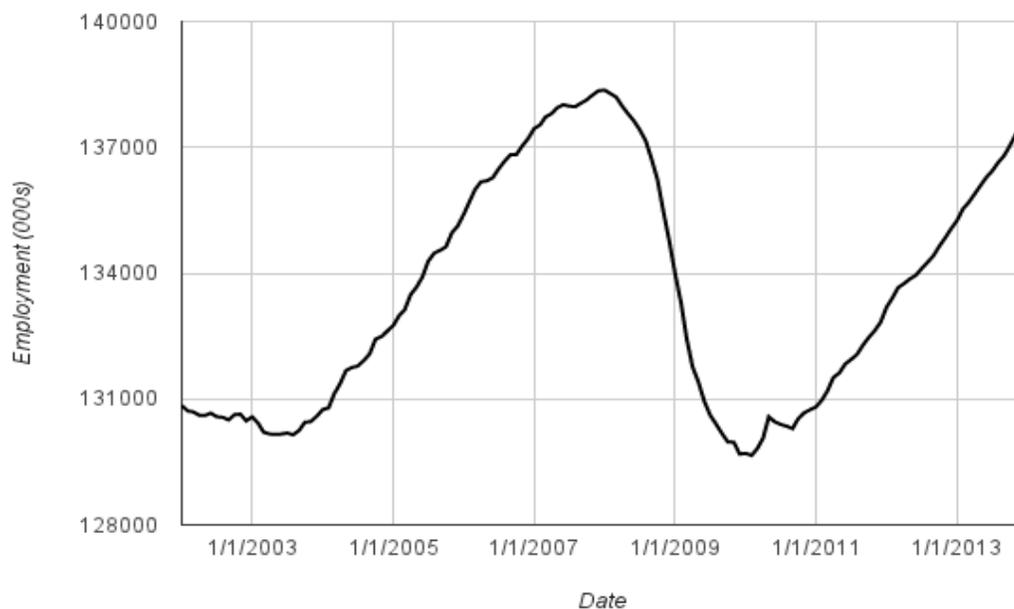


Figure 1: Total non-farm employment in the US, 2002-2012. Source: author's calculation based on data from US Department of Labor, Bureau of Labor Statistics.

Fruitful as it is to pursue the line of inquiry into whether and which structural factors are responsible and whether this stalled national performance in employment indicates a permanent revision to long-term US growth, I am more interested in the allocation of these losses over space and their potential causes. The comparison between economic sectors, states, and metropolitan areas allows me to keep within the need to incorporate an aspect of distributional conflict into the analysis of the effects of crisis.

In addition to the relative performance of sectors and territories, which convey much descriptive but little explanatory power, there is the matter of the unique institutional structure of the US financial system. Chapter Two takes this matter up in greater detail, however it should suffice at this point to mention that besides the most liquid and sophisticated financial markets, the US also possesses a banking and

regulatory system that reflects many overlapping and competing geographies. These include the banking system itself (commercial banks, savings institutions, and credit unions), the banking regulatory system at the state level, the banking regulatory system at the federal level, capital market intermediaries and their regulatory systems, and, perhaps most problematically, the ambiguous, so-called “shadow”, or unregulated, nonbank financial system, which has since the early 1990s extended a greater proportion of credit than have deposit money banks. The 2008 crisis was both a market failure and a regulatory failure, and it is wholly appropriate to question how these arrangements may have contributed to the uneven concentration of financial distress across the US.

To engage in a project based on the employment dynamics and financial landscape of the US is both timely and necessary, as there have been relatively few case studies of the 2008 banking crisis and associated recession as they affected the US, even within geography. A burgeoning body of work has emerged on the geography of crises and recessions in the United Kingdom (Champion and Townsend 2013; Dawley et al. 2014; Fingleton, Garretsen, and Martin 2012; Gardiner et al. 2013; Hincks, Webb, and Wong 2013; Hutton and Lee 2012; Townsend and Champion 2014; Simmie and Martin 2010; Sensier and Artis 2014), much centered on the concept of resilience, and an equally substantial body has developed on the origins and effects of the 2008 banking crisis in the UK as well (Martin 2011; Marshall 2013b; Marshall et al. 2012; Wainwright 2009; Wainwright 2010). In the rare instances where the geography, whether explicitly or coincidentally, of the US economy in recession and through the 2008 crisis has been studied (Mian and Sufi 2010; Mian, Rao, and Sufi 2013), the focus rarely falls on economic sector performance or at sub-national scales, and rarely is employment the object of study, although there are some notable exceptions (Gabe,

Florida, and Mellander 2013; Gabe and Florida 2013; Mian and Sufi 2014; Rickman and Guettabi forthcoming; Wójcik 2012; Wójcik 2013b).

The strange case of the US applies to two separate situations. First, the financial system of the US, with its high predilection towards financial crises, and, second, the absence of geographically-sensitive and empirically-driven research on its encounters with financial crises, particularly most recently. This is the context in which a third notable feature of the US case—the drastic decline in employment and its slow recovery—has unfolded. As such, there are many practical benefits of the research contained here, in that the research is able to address a number of gaps in the empirical literature.

1.3 Theory and intellectual agenda

1.3.1 Theoretical approaches to the object of study

In this sub-section, I situate the research here in relation to projects within economic- and financial-geography that were ongoing or arose in response to the 2008 crisis, in addition to elaborating on other important theoretical positions on the issue of financial crises, and how these influence the methodological approach. A first point is to define the central object of study, financial crises.

Financial crises are a genre of adverse shocks that affect economic, political, and social life. Generally, the rapid change in the value of financial assets, such as bonds, commodities, currencies, equities, money, or real estate, indicates a financial crisis (Kindleberger 2000). Manifestations of financial crises may include the failure of financial companies, such as banks, brokerages, and insurance houses, as well as the bankruptcy of non-financial businesses and households, and government default. Within economics, different scholarly traditions accept different events and mechanisms as

valid manifestations of financial crisis conditions. For instance, the monetarist school sees a financial crisis fulfilled only in the event of a decline in the money supply, which carries the potential to initiate a depression (Friedman and Schwartz 1963). In the Marxian tradition, an accumulation crisis may be triggered by the falling rate of profit, speculation, or fictitious capital (Harvey 2006). In these schematics finance tends to remain a veil over productive forces, eschewing the co-constitutive relations between finance and the productive realm, and thus limiting its explanatory power. Some post-Keynesian traditions, grounded in the work of Joseph Schumpeter (1939) on business cycles, accept a collapse in asset prices, default and insolvency of firms, deflation, disinflation, and foreign exchange disruptions as characteristics of financial crises (Kindleberger 2000; Minsky 1982).

Contemporary debates over the causes of financial crises are divided over the role of capital flows and financial innovation. For Mishkin (2008), financial globalization does not guarantee inevitable cycles of lending booms and crashes. Neoclassical accounts would argue that unfettered transnational flows of capital yield more efficient outcomes, while critics would argue that capital account liberalization increases global and macroeconomic volatility and hence the likelihood of crisis (Eichengreen 2002; Eichengreen 2003; Rajan 2011; Strange 1997). Similarly, financial innovation—the development of new credit, debt, and securities products such as options, derivatives, and futures; techniques to increase liquidity, such as securitization; the creation of secondary markets—thrives in the wake of liberalization, with advocates arguing that innovation does not cause excess volatility and that government intervention into capital markets is unwarranted (Miller 1991). Others have demonstrated that financial innovation threatens the profitability of financial firms,

encourages risk-taking, introduces additional information asymmetries to financial transactions, and subverts regulatory controls (Gorton 2012), pointing undeniably to the destabilizing effects of innovation (Minsky 2008).

The long history of scholarship on financial crises means that the research here crosses through many academic spaces. However, conceptually it is anchored on one hand in an economic-geography approach and on the other a financial-geography approach. The former “is concerned with the spatial configuration of firms, industries, and nations within the emerging global economy” (Clark et al. 2003, vii). Contemporary scholarly work addresses issues of globalization, regional growth and decline, and economic restructuring. Financial crises are clearly a central albeit highly specific phenomena in each of these issues, and my interest in economic sectoral growth responses at various scales is one manifestation of how an economic-geography perspective structures this research.

Beyond the role of finance in economic growth, I am also interested in the independent development of financial institutions and the institutions that regulate them, and how such organizations manage the volatility and destruction associated with crises. This interest is situated closer to the growing subfield of financial-geography, which takes as its central objects of study “financial centres, capital flows between [them], and the channels and networks that collect, organize, and manage information about those flows” (Clark and Wójcik 2007, 164; see also Clark 2005). Financial crises may be viewed as a particular case of disruption of these flows and as challenging the integrity of the existing network of financial centers. In essence, the geographies of finance project involves mapping the institutional evolution of finance, and the 2008 crisis opened a window of opportunity in expanding its mission (Engelen and Faulconbridge

2009; Lee et al. 2009).

In pursuing these alternative theoretical and conceptual influences, my intention is not to analyze specifically the intellectual failings of the mainstream economics, which has been accomplished elsewhere (Castells, Caraça, and Cardoso 2012; Engelen et al. 2011; Mirowski 2013; Roitman 2013). However, the geographies of finance project is an appropriate vehicle for a critical analysis of the 2008 crisis in light of the failure of the mainstream. Geographies of finance is distinctive for its antagonistic position relative to orthodox financial economics, particularly the efficient markets hypothesis of Eugene Fama (1970). Beyond its critical stance, the sub-discipline is notable for its ability to engage with scholars in related fields, such as institutionalists (for instance, La Porta et al. 1998), sociologists and city systems analysts (Sassen 2001), behavioral economics and finance (see Clark 2011), and, obviously, economic-geography. The literature within geographies on finance concerning the transmission of financial crises over space, however, is less developed (with some exceptions; see Clark and Wójcik 2001; Martin 2011).

The need to build up the financial-geography literature on financial crises is acute given that neoclassical economists have constructed a substantial intellectual project over the past decades around the problem of resolving financial crises (Claessens et al. 2014). The standard procedure of the International Monetary Fund (IMF), World Bank, and consortia of wealthy governments for combating these crises involves an aggressive two-pronged strategy: emergency balance sheet support for insolvent private financial companies, drawn from the public purse, at the time of crisis, and structural reforms afterwards aimed at rectifying the resulting fiscal distress of the state. Even though many leading economists were caught off guard by the 2008 crisis, many were

nonetheless prepared to advocate for and administer its supposed antidote in the form of a recapitalization of the financial sector and budgetary austerity. One of my intentions here is to examine the effects of the 2008 crisis explicitly through the perspective of the impact of the recapitalization policy. As Mirowski (2013, 15) notes, the 2008 crisis was a “political watershed,” characterized chiefly in intellectual terms by the astounding resilience of the economic orthodoxy and the suppression of alternative lines of thought and action.

In terms of my intellectual agenda, the original findings of the research contained in this dissertation follow in the tradition of and make contributions to four groups of scholarship within economic- and financial-geography. First is the group of research texts by geographers scattered over quite a long period that document the locational patterns of recent financial crises involving US financial institutions (Beverstock and Doel 2001; Martin 2011; Warf 1996; Warf and Cox 1995; Warf and Cox 1996). Second is the more recent burst of scholarship that is organized thematically around the concept of resilience (Martin 2012; Martin and Sunley 2014). Third is the scholarship on employment dynamics of the financial services industry and financial centers (Engelen and Grote 2009; Sassen 2001; Wójcik 2010), and which occasionally takes financial crises as a case study of employment behavior (Beverstock and Doel 2001; Wójcik 2013b). The fourth consists of the advocacy for a turn to the study of finance as a means of writing the geography of contemporary capitalism (Clark 2005; Clark and Wójcik 2007; French, Leyshon, and Wainwright 2011; Pike and Pollard 2010). In the remainder of this section, I discuss some of the more specific points within the literature on geography of financial crises that have influenced the direction of the research in the following chapters.

1.3.2 Recent scholarship on the geography of financial crises

An early academic geography response to the 2008 crisis was a special issue of the *Journal of Economic Geography* in 2009. In the introduction to that issue, Engelen and Faulconbridge (2009) made an exhortation to practitioners in the sub-field not to let the credit crisis be “geography's 'next missed boat'” (ibid, 588), and they identified three problematics that had long been central to financial geography and that should serve as the basis for continued analysis of the crisis and beyond: productivism, epochal transitions, and rationality. Their argument was that the credit crisis appeared to validate much of the theoretical approaches within the financial-geography subfield, and their appeal for work centered on finance seems to have been mainly directed towards scholars in economic-geography in general.

In the conclusion of that issue, Lee et al. (2009) made specific recommendations for future empirical investigation on the 2008 crisis. Essentially, they called for “a new map of finance and state power to be drawn” (ibid, 734). Such an exercise would map the geopolitical consequences of underwriting the recovery, the geography of asset creation and destruction, and regulatory geographies of the global financial system (ibid, 740).

From the outset, financial-geographers took the credit crisis as an opportunity to validate and invigorate existing lines of research within the field. Indeed, the apprehension among geographers, tangible in the papers just mentioned, that the mission of financial-geography would be co-opted and perverted from its original purpose is based on past experience with the New Economic Geography (Martin 1999; Wójcik 2009). It is plainly obvious that economists in the mainstream did not anticipate the crisis (and its appearance in housing markets especially), yet it appears that the crisis has

failed to catalyze the necessary sociological reforms among orthodox schools of economic thought to make them viable contributors to public policy in the interest of the wider public (Mirowski 2013; Wójcik, Kreston, and McGill 2013). Consequently, expanding and deepening the body of work within financial-geography has tended to view the financial crisis through extant frames.

This stance is further embodied by the analysis by French, Leyshon, and Thrift (2009), which located the origins of the crisis in four spaces: international financial centers, particularly London and New York; geographies of money; the recycling of surpluses and relations of debt, especially between the US and China; and, the financial media (which may appear to be redundant, as the financial media predominately are located in financial centers). These are topics that have long histories of debate within the field. Yet, on the subject of the crisis as a phase transition for the larger economy, these authors suggested that “we are entering a new financial epoch” (French, Leyshon, and Thrift 2009, 288), on the basis of three facts. First, the US investment banking model appeared to be “irrevocably broken” (ibid); second, the state response to financial market distress represented “a body blow to the ideological purity of ... neoliberal financialization” (ibid, 289); and third, the problems from the failure of securitization techniques would prove to be “complex, intractable, and costly” (ibid).

Reports of the demise of the investment banking model, including its ideological edifice and the securitization industry, were an exaggeration. No doubt, leading investment banks are now bank holding companies, which places them under the purview of the Board of Governors of the Federal Reserve. However, Wójcik (2012) has argued that the investment banking model has persisted in key ways. Additionally, Wójcik (2012; 2013b) has demonstrated that the geographies that support this complex

stretch beyond international financial centers to interstitial spaces, namely offshore centers, and continues to be facilitated by sectors outside of traditional finance, particularly firms providing advanced business services. It is clear that comprehending the survival of much of the financial services industry (including securitization techniques) requires a greater attention to the changes within finance as well as its economic, political, and industrial support structure.

Martin (2011) similarly seeks to extend the scope of inquiry into the origins and aftermath of crisis to new geographical venues, below the global scale. Martin's (2011) paper was an important step for financial-geography because it recognized how limited the geographical understanding of financial bubbles and crises was. Specifically citing Charles Kindleberger's (2000) work on speculative bubbles, Martin (2011, 590) argues that "such studies have little to say on why financial bubbles develop when and where they do, and even less about how they unfold over space as well as time." This comment harkens back to the critical point earlier in this chapter in reference to the deficiencies of many behavioralist accounts of crises. Rather than invoking time-invariant patterns of human behavior, a more tractable entry point into mapping the geographies of asset bubbles is in the location and structure of the organizations that orchestrate the production of financial assets and that incorporate these assets into circuits of value.

Such an orientation is important because it recognizes that instances of financial asset appreciation and crises related to them are not only an example of the speculative euphoria or 'irrational exuberance' of crowds (Shiller 2001). Rather, crises are, in part, manufactured. Another way of stating this is that financial crises are not events that happen *to* banking systems and financial markets, but rather are events that are expressed *through* them, and, in most cases, *because of* them. That is, financial

companies and actors face distress due to their operational decisions and the design of the financial system. As Calomiris and Haber (2014, 3-4) argue, a bank will fail when two necessary conditions are fulfilled: that bank is undercapitalized, and its (high-risk/speculative) portfolio of assets becomes nonperforming¹. Both of these conditions reflect regulatory and market incentives as well as the quality of management, and specifically the technologies and strategies of risk management, which are inherently, strongly spatial processes (Aalbers 2009a; Beaverstock and Doel 2001; Wainwright 2012).

This idea that the 'where' and 'when' of crisis might be determined by the location of organizations engaging in specific types of activities, and that their activities fall broadly within a market and regulatory environment, resonates with the financial instability hypothesis of Hyman Minsky (1982). Minsky's theory of endogenously-generated instability incorporates an accounting framework, institutional relationships, and models of human behavior and decision-making under conditions of uncertainty. After the bank panic in 2008, Minsky's hypothesis took on new popularity given its clear resonance with the turmoils, yet many of these applications tended to remain with a global perspective and tended to neglect sub-national and regional spaces (Martin 2011; Marshall et al. 2012; Wainwright 2012). Nonetheless, Minsky's formulation of how the investment process can cause dysfunction between financial firms and businesses exhibits considerable conceptual flexibility, by way of its reliance on the concepts of balance sheet relations and margins of safety in addition to its emphasis on the design and oversight of the financial system. This flexibility allows a Minskyian perspective to be reformulated for the case of the housing bubble and the relations

1 Two potential reasons why failure results from the nonperformance of a portfolio of assets are the accumulation of loan losses but also from an inability to refinance outstanding debts. Calomiris and Haber (2014) tend to emphasize the former.

between types of households and financial institutions (Dymski 2010; Kregel 2008).

Within these theoretical and conceptual parameters, the research contained here aims to contribute to the still-underdeveloped geography of financial bubbles and crises. In light of the paucity of empirically-driven research that considers the role of geography in causing bubbles and crises, for the US particularly, the approach here begins with observations of uneven economic activity. Chapter Three merges two datasets—one of employment and the other of financial crises—to create an original time-series cross-sectional dataset, and then conducts statistical analysis to introduce the quantitative problematic. Chapter Four narrows the focus to the 2008 crisis in the US, analyzing the locational patterns of bank failures and of capital disbursements under the federal bailout program. Chapter Five creates an original dataset for 351 US metropolitan areas, merging data on employment, output, and economic and financial indicators. The final chapter creates a dataset on employment within the financial sector (NAICS 52) for Los Angeles and San Francisco, at the county-level.

The next section describes the structure of the dissertation and the contribution of the research using these original datasets.

1.4 Structure and methodology

The dissertation includes seven chapters, including this introduction. The following chapter contextualizes the occurrence of financial crises in the US by discussing the space economy of US finance and its governing institutions, followed by the four core empirical chapters that have been submitted to peer-review journals for publication. A final chapter concludes with a summary of the contributions and limitations of the dissertation, and makes recommendations for future research.

Chapter Two presents a review of relevant literature on the topic of financial

crises in the US since the 1980s. The chapter has two objectives. First, it provides an appropriate introduction to the topic by describing three instances of financial distress in the US, namely the S&L crisis during the 1980s and early 1990s, the failure of Long Term Capital Management in 1998, and the housing bubble and financial sector restructuring in the decade leading up to the 2008 crisis. This chapter avoids discussing the particulars of the 2008 crisis as Chapters Four through Six contain this material. The second objective is to advance the general argument that institutional and spatial relations between the financial system, the state, and the economy are relevant factors in the frequency and distribution of the benefits and burdens of financial crises.

Chapter Two begins with an analysis of the theory of the political origins of banking crises by Calomiris and Haber (2014) and Krippner's (2011) theory of financialization as inadvertent political strategy. These works share a commitment to understanding the problem of credit allocation as a political process. I take up this assumption as well, and review the geography and history of the US financial sector over the last three decades. I pay special attention to the changes in regulatory oversight, the legislative reforms, and the changing competitive environment within financial services. In doing so, my analysis resonates with the approach of Krippner (2011) in that I privilege the notion that financialization of the economy—in this case, referring to the removal of domestic controls on interest rates, the opening of the economy to international capital flows, and an accommodative monetary policy—has created conditions more conducive to financial instability.

Chapter Three examines the impact of financial crises on employment using data for 32 countries between 1975 and 2005. There are two elements to this chapter. First is a exploration of the robustness of the financial crisis dataset linked to the publication of

This Time Is Different (Reinhart and Rogoff 2009); the downloadable dataset extends back to the 19th century for a large sample of countries, with the years of six types of financial crises coded for the presence or not of those crises. In this case, the limiting factor is locating a matching cross-section time-series of employment. In light of the popularity of the findings in the book as well as the methodological problems identified in other work by those authors, which is closely related to their research on the sovereign debt problems arising from financial crises (Herndon, Ash, and Pollin 2013), this is not a trivial exercise. We include an alternative dataset on financial crises from the International Monetary Fund (IMF) as a comparison (Laeven and Valencia 2013), and discuss some of the problems inherent to an undertaking of this sort, specifically related to identifying adequate thresholds of decline in value of financial assets that can deduce conditions of crisis from them. A simple comparison shows that the online data from Reinhart and Rogoff (2009) overemphasize the frequency of crises. The use of the alternative dataset does not necessarily contradict in all cases the findings from the econometric analysis.

The second element of this chapter is to determine which types of financial crises produce effects in various sectors. Depending on the choice of crisis dataset, some crises appear worse than others. From the Reinhart and Rogoff (2009) data, asset price crashes (“market” crises) imply uniformly negative effects across sectors, although the magnitude of the coefficients varies. Banking crises followed market crises in terms of their effect on many sectors. From the Laeven and Valencia (2013) data, which included only so-called “systemic” crises, the effects of currency crises and sovereign debt episodes affected a greater number of sectors than banking. One of the caveats to these findings is that the regression technique can only produce average effects, and therefore

any application of these findings must be situated within specific country case studies in order to be meaningful for policy.

As mentioned, the greatest difficulty in attempting a test as performed in Chapter Three is constructing an adequate cross-section time-series of employment; the greatest shortcoming of that chapter is that the employment dataset used extends only up to 2005. The next three chapters focus on events occurring mainly after 2005, and in each chapter the central focus is on the effects of the 2008 banking panic, while the secondary focus falls to the turmoils of US housing markets. Chapter Four, in effect, takes up from the point where Chapter Two ends, explaining the structure of the financial oversight and administrative apparatus of the federal government on the eve of the 2008 crisis and how this apparatus was an relevant factor in the different distributions of bank failures and institutions receiving capital under the Troubled Asset Relief Program.

The chapter has three research questions: first, at the state-level, were the distributions of failures and rescues in fact different and independent; second, why did these programs display such independence; and third, what have been the consequences of these patterns of intervention for the level of consolidation and concentration in the banking sector? The analysis finds that where bank failures reflect patterns of underlying economic and financial distress concentrated in the western, southwestern, and southeastern areas of the country, the rescues observed a more eastward focus. I characterize these patterns as a reflection of the ongoing transformation of regulatory space, with Treasury and the Federal Reserve gaining in terms of oversight authority relative to FDIC. In the near term, the level of consolidation in the banking sector has increased, but a majority of this consolidation was not from failures. At the same time,

the population of bank holding companies (BHCs) has continued to expand, and I suggest that these entities are the legal vehicles that will be important in the construction of regulatory space and financial markets in the future.

Chapter Five moves to the scale of the metropolitan statistical area (MSA). This chapter evaluates the comparative change in employment and output of 358 MSAs over the recession, from 2007 to 2009, and a two-year post crisis recovery period. The methodology employs cluster analytical techniques to group the metropolitan areas according to their capacity to withstand the economic shock and to recover following the crisis. Framing the problem of uneven metropolitan growth using the resilience perspective, an assumption is that there are economic and financial characteristics of metropolitan areas that structure their exposure to financial instability.

There are two research questions: first, which metropolitan areas performed best and worst during the crisis; and, second, to what extent is it possible to attribute the growth differences to the indicators of financial distress and economic characteristics? The cluster analysis divides the sample into five groups. The best performing group shares the following characteristics: they exhibit lower sectoral diversity than on average and lower rates of high-cost purchase loans (our indicator of subprime mortgages) than all other groups on average. The worst performing group similarly are less economically diverse, but demonstrate the highest average rates of subprime mortgages as well as the rate of failures among banks. To evaluate the significance of these variables, we estimated a basic ordinary least squares regression, which suggested that much of the variance in uneven growth patterns remains unexplained. However, we found that the subprime mortgage distribution and metrics for economic diversity and specialization in finance, insurance, and real estate employment were statistically

significant and produced negative effects on growth during the recession. Their explanatory power diminished during the post-crisis phase. We recommend further research along the lines of sources of financial distress as they vary between metropolitan areas as well as greater attention to their sectoral specializations.

The final chapter narrows the focus to two financial centers, Los Angeles and San Francisco, and to establishments within the financial sector specifically. The time frame is longer than in previous chapters, spanning from 2005 to 2011, and utilizes shift-share analysis and location quotients to determine specialization and growth patterns within the financial sector in addition to a data on the structure of banking markets in these areas. California in general provides an apt laboratory for the study of the 2008 crisis given the magnitude of speculative activity in its housing and the troubles in its banking markets (Bardhan and Walker 2011). The choice of Los Angeles and San Francisco provides an opportunity to examine the dynamics of major financial centers that share many institutional characteristics (a state banking regulatory system and other political factors, for instance), but that simultaneously extends the literature on financial centers beyond New York.

The chapter is organized around three research questions: first, what were the patterns of growth and change within financial sector establishments over the period; second, how did depositor behavior, mergers-and-acquisitions of failed banks, and government investment program contribute to consolidation activity; and, finally, to what extent did these temporary structural advantages contribute to the resilience of these financial centers? The chief conclusion is that, given the contraction in economic activity, while there was not always a growth advantage there was a structural advantage to the two financial sectors, first for Los Angeles and San Francisco MSAs relative to

California, and second for their main counties relative to adjacent areas. The evidence for this includes growth of credit intermediaries in Los Angeles, stable specializations in credit and other sectors in Los Angeles and San Francisco, the overwhelmingly concentration of bank office and deposit expansion in these areas, greater retention of failed bank assets in Los Angeles, and a greater relative allocation of government capital. However, it is important to note that the consolidation advantage stems in no small part from the federal preference to execute macro-prudential policy through very large banks. Not only were regional disparities worsened by these processes, but the lower rates of profitability in banking suggest their limited efficacy.

In the final chapter, I offer concluding comments. The conclusion begins by restating the objectives, the motivation for the inquiry, and how the dissertation fits methodologically and conceptually with approaches to financial crises in economic- and financial-geography. There are five subsequent sections. In the restatement of findings, I summarize the empirical findings according to the nature of the evidence they provide—that the spatial effects of crises are uneven, the response to crises is spatially uneven, and that the 2008 crisis has led to greater consolidation and concentration in banking and financial markets. The next section discusses the limitations of the approach, particularly pertaining to the limits to employment and financial crises as the objects of study. That section is followed by an analysis of the contributions to the academic literature, and then the implications for policy, in particular to oversight of the financial sector, recapitalization as stability policy, and the need to make employment growth and recovery more central to policy-making. In the final section, I offer recommendations for future research.

1.5 Summary

The objectives of this dissertation are: to describe the distributional consequences of financial crises; to explain the significance of institutional factors in structuring those distribution; and, to situate these development in the context of future prospects for growth and stability. Such a project falls within a loose confederation of economic- and financial-geographical work, and it is deliberately positioned as a reaction against the prevailing wisdom in North America and Europe about appropriate responses to 2008 financial crisis. Hitherto, these debates routinely have belabored the pratfalls of high levels of public debt, the continued virtues of liberalized financial markets, and the necessity of minimal state interference in those markets, while consistently undervaluing the plight of jobless workers, indebted householders, and young people facing an uncertain future. It is difficult, to the say the least, to engage in debates about the lessons of past experiences with financial crises when standard bearers of such academic efforts—Carmen Reinhart and Ken Rogoff (2009) in *This Time Is Different*—make assertions that financial crises are fundamentally apolitical and hence independent of institutional characteristics. Reducing the mechanisms of financial crises to the human predilection towards self-delusion serves as an effective barrier to meaningful public debate about a financial system that serves the public.

The remaining chapters attempt to carry forward the idea that financial crises are the result of political-economic choices, and certainly the way that these crises unfold over space is an example of this phenomena. In the next chapter, I present the necessary background information to this problem. A description of the institutional and spatial characteristics of US financial markets establishes the proposition that financial crises happen through particular organizations in particular spaces as a result of the way

decisions in those organizations are made, specifically about how credit is to be allocated. After establishing this broad-level geography and history for the case of the US, Chapter Three introduces the problematic of financial crises and employment. Chapters Four through Six present the series of case studies for the US experience during the 2008 crisis.

Each of the chapters here presents original empirical research. Each chapter is founded on a core quantitative base, and despite their individual tailoring for separate academic journals within the field of geography, together they present a coherent narrative. These investigations generate a new set of questions that can form the foundation for a next stage in research on the innate instability and volatility of the financial sector and the appropriate constraints on the credit allocation process, risk management procedures, and legislative and organizational frameworks that are necessary for managing that instability in the future. Any research undertaking on the matter of financial crises would do well to consider their consequences as their causes, and would do well to recall Susan Strange's (1976, 339) motivating question in her study of the international financial system: "Cui bono?" or "Who benefits?" This question in many ways has served as a reliable guide when devising the following chapters.

Chapter Two: Restructuring and instability in the US financial system since 1980

2.1 Introduction

John Kenneth Galbraith (1994, 13) once suggested that the first factor in supporting the tendency of speculative euphoria was the “extreme brevity of the financial memory.” Perhaps an overlooked instance of this amnesia can also be found within academic texts. It is fairly common when reading papers about the 2008 crisis to see authors begin with a refrain that follows a variation on the formula: “The 2008 crisis was the worst financial crisis since the Great Depression.” What makes sentences like this somewhat jarring is that it overlooks the S&L debacle of the 1980s and 1990s. The S&L crisis was one part of a long, radical, and sometimes unintentional restructuring of the US financial system, and the dysfunctions that erupted in 2008 owe much of their form to the market and regulatory structures that emerged out of that crisis period. This chapter provides a brief survey of the organizational, legal, and spatial foundations of financial crises in the US since the 1980s. Specifically, I discuss how three periods—the S&L debacle, the failure of Long Term Capital Management in 1998, and the housing bubble and 2008 crisis—evolved out of the changing space economy of financial services as well as the institutional arrangements that supported those geographies.

In addition to the descriptive content, I advance an argument that is developed throughout the dissertation. Namely, financial crises are manufactured to the extent that political-economic choices—historical, institutional, and political in addition to economic factors—determine their frequency and their geographical distribution. A

corollary to this argument is the Minskyian (2008) insight that the financial structure itself is a source of fragility, as institutional changes encourage the development of new intermediaries and alternative financing channels. In order to understand why the US is more prone to financial crises and why it tends to concentrate their devastating effects to economic growth in certain locations, it is necessary to explore how its regulatory and market structures contain and channel its speculative impulses. To that end, this chapter presents a cohesive narrative of financial sector development over the last three decades that also provides a comparison between the three important episodes of financial distress.

Analyses of the S&L crisis and the failure of LTCM as they relate to the current predicament in the US financial system have not received the academic treatment they deserve, even though they provide a number of valuable insights. Certainly, during the S&L debacle there were no output or employment losses on the scale of either the Great Depression or the 2008 crisis. Yet it stands to reason that in many ways the institutional response to the 2008 crisis was made possible by the experience and aftermath of the S&L crisis and LTCM. Gorton (2012) similarly has demonstrated the importance of viewing the 2008 crisis through the contemporary financial history of the US, particularly the evolution of bank credit products, capital markets, and innovations such as money markets and derivatives.

At the same time, the S&L and 2008 crises share a number of important features that set them apart from the financial crisis associated with the Great Depression. Both post-1980 crises occurred within a system of federally-guaranteed depositor insurance, itself the result of the legislative reforms of the New Deal. Both of the post-1980 crises were linked to instances of speculative overbuilding of commercial and residential real

estate; during the Great Depression, distress was largely concentrated among agricultural communities. The volatility of the S&L and 2008 crises were exacerbated by financial liberalization, which opened the US economy to global capital flows derived from the recycling of surpluses. Finally, the problem of very large financial institutions—thus soliciting the need for the “too-big-to-fail” policies—was far more acute during the S&L and 2008 crises, the examples for each being the failure and bailout of Continental Illinois in 1984 and the failure of Lehman Brothers and then bailouts of Bank of America, Citigroup, and many other institutions during the fall of 2008. Essentially, the S&L and 2008 crises serve as book-ends of the three decade-long experiment in financial liberalization in the US, an experiment characterized by the progressive obliteration of geographical controls on finance and the remaking of the financial landscape.

This chapter makes important contributions to the dissertation. First, it provides the necessary historical background to the problems discussed in Chapters Four through Six. In the interest of coherence, the financial geography and history of the US is collected here rather than dispersed through the remaining chapters. Second, the narrative of financial instability contained here is necessary because it establishes one of the main problematics that the dissertation seeks to tackle: the importance of institutional factors in structuring the distribution of financial distress. Furthermore, the chapter aims to demonstrate the need to readjust the appropriate time frames for studying financial crises. In doing so, a survey of the thirty year period beginning around 1980 shows that current problems in the US are not new. The “too-big-to-fail” problem, federal bailouts of financial institutions and recapitalization of the financial sector, and resolution procedures for failed depository institutions were already built

into the institutional memory and the structure of the system itself when the 2008 crisis began.

The rest of the chapter proceeds as follows. In the next section, I discuss in greater detail the arguments of Calomiris and Haber (2014) and Krippner (2011) regarding the distributional politics at the heart of the US financial sector. Following that, I present an analysis of the S&L debacle, including the role of liberalization reforms and the refashioning of the US regulatory administrative apparatus and the competitive environment for financial services. The next section situates the case of LTCM in its context of the boom in US equities markets during the 1990s and the additional reforms to the financial sector following the end of the S&L crisis. The final analytical section discusses the financial markets reforms after the corporate scandals of the early 2000s as well as the changes in the mortgage industry.

2.2 The politics of credit allocation

This section views financial crises from the perspective of how the government and the banking sector organize the allocation of credit in society. The conceptual approaches taken by Strange (1997) and Kindleberger (2000) are useful starting points for understanding the interaction between domestic priorities for credit allocation and the prerogatives of international financial markets. Susan Strange (1997) was an early advocate of situating the international financial system and the problem of credit access as central to understanding how the world works. She stressed that free financial markets are inherently dysfunctional, and argued that the removal of interest rate controls was not an inevitable development; in fact, Strange viewed their deregulation as an error that signaled US abdication of responsibility in managing global financial markets. Strange's (1997) analysis of the global financial system emphasizes that

financial liberalization is the most important process affecting the credit allocation process in the contemporary period. Kindleberger (2000) likewise documents how credit supply growth and volatility of international capital flows are crucial processes in financial history.

The two works that are the main concern of this section make the matter of credit—the institutions responsible for managing it, and the pace of its growth—the central theme of their narratives. The basic argument in Calomiris and Haber (2014, 3; 6-7) is that financial crises and the under-allocation of credit are related problems that stem from how the “fundamental political institutions” of a society structure incentives within the financial sector. They argue that a nation's banking system will reflect how its political institutions distribute political power. Calomiris and Haber (*ibid*, 12) describe this situation as the “Game of Bank Bargains,” and give three examples of the conflicts of interest between the government and its oversight of the banking system. First, the government simultaneously regulates and receives financing from banks. Second, the government enforces debt contracts between creditors and debtors, but also relies on these debtors for popular political support. And third, the government manages the bank failure resolution process and so allocates costs among competing groups, which again raises the problem of garnering political support without alienating constituents. The main actors in this schematic fall into one of three groups: the government, creditors, and debtors.

While each of these conflicts of interest are regulated by laws and technical criteria, those processes, in turn, are outcomes of political bargaining. They offer the example of the Great Depression and New Deal financial regulatory architecture, which they characterize as evidence of a political bargain between agrarian populists and

bankers (Calomiris and Haber 2014, 57–58). New Deal financial legislation created a system of unit banks supported by federal deposit insurance, with limits on competition embodied in a number of state and federal restrictions on intra- and interstate branching prohibitions as well as separations between commercial and investment banking. An additional pillar of the New Deal financial system was the home mortgage financing system, with savings and loans (S&L), or thrift, institutions the primary vehicle for providing those debt contracts and with federal controls on the cost of credit, such as in Regulation Q (Calomiris and Haber 2014, 194).

Calomiris and Haber extend their model beyond the US to Canada, Mexico, and Brazil, and begin their analysis at each country's initial colonial foundation. A debilitating flaw in their analysis of the US, however, is when they attempt to apply the model of the populist-banker coalition to the case of the 1990s and 2000s subprime situation. They argue that the embodiment of that coalition during that period can be seen in the trade-off between the mega-bank mergers and community group support for the Community Reinvestment Act (CRA) of 1977 (Calomiris and Haber 2014, 207–208). Not wanting to overemphasize the effects of high-risk CRA loans, they then attribute the decline in underwriting standards to the behavior of the government-sponsored entities (GSE), Freddie Mac and Fannie Mae. For example:

We cannot emphasize this fact strongly enough: when Fannie and Freddie agreed to purchase loans that required only a 3 percent down payment, no documentation of income or employment, and a far-from-perfect credit score, they changed the risk calculus of millions of American families, not just the urban poor. (Calomiris and Haber 2014, 211)

Criticism of this position has been well-developed (Financial Crisis Inquiry

Commission 2011), but it is worth reiterating some key points. First, the “urban poor” were not the only Americans who were at risk of receiving exploitative subprime loans. Rather, the two key demographics of serious concern in the subprime crisis are customers who received exploitative loans that they could not possibly pay back, *and* the lenders who offered those terms, in many instances as part of a fraud. Second, a bubble in commercial real estate property developed in concert with the rise in residential property, and commercial property was not subject to CRA mandates (Levitin and Wachter 2013). Any explanation for declining credit underwriting standards must be generalizable to both commercial and residential property markets. Third, a supply-side explanation points to the role of securitization, not by the GSEs but rather among private-label originators, who pioneered the “originate-and-distribute” model of mortgages (Berndt and Gupta 2009; Dymski 2010; Martin 2011). Private-label securitization (for example, mortgage-backed securities, MBS) surged from roughly 25 percent of the market in 2003 (when the annual volume of the MBS market stood at \$300 billion) to almost 60 percent only three years later in 2006 (when the annual volume had increased to \$800 billion), after which it collapsed (Levitin and Wachter 2012, 1193). Finally, the worst performing mortgage loans were those originated in 2006 and 2007, at the end of the mortgage boom (Demyanyk and Hemert 2011), coinciding with the heightened activity of private mortgage intermediaries and securitizers.

As such, the argument that underwriting standards were gradually diminished as a consequence of political pressure from community groups does not hold up under scrutiny into the nature of the mortgage bubble. This is not to say that the diagram of conflicts of interest between government, the financial sector, and social actors who

may bestow democratic, political legitimacy is invalid. Rather, it must be taken in another direction for the case of contemporary US finance.

Krippner (2011) similarly makes the credit allocation process central to her historical analysis and acknowledges that the government manages this process with an eye towards containing distributional conflict between economic and social groups. Krippner begins her argument by first reversing the traditional narrative of financial deregulation leading to crises. Instead, deregulation was deployed in response to financial crises, in this case inflation and slowing economic growth.

For example, Krippner argues that inflationary pressures, capital shortages, and financial innovations beginning in the 1960s rendered the existing, compartmentalized New Deal financial system obsolete. There were two responses to the failure of the system to allocate credit without provoking conflict. First, through the 1970s and 1980s, interest rates were deregulated, shifting responsibility to markets that then distributed credit on the basis of price and not availability. Measures to this end included the legalization of NOW deposit accounts, the legalization of money market accounts, and the repeal of Regulation Q ceilings on savings accounts. These measures lifted internal controls on the domestic flow of credit, yet they were unable to fully relieve the stress on the housing finance sector, namely the thrift industry. Thrifts began to fail in 1980, and these would continue until the early-1990s.

The second response to rising dysfunction in the credit allocation process was the lifting of controls on the inflow of capital to the US. The internal reforms did not manage to stall inflationary pressures, and by the time President Reagan began his administration, budget deficits and the expansion of domestic credit threatened a release of inflationary pressures (Krippner 2011, 85). The solution came in 1983 in the form of

Japanese Treasury bill purchases (ibid, 94). When the Board of Governors of the Federal Reserve under Chairman Volcker raised interest rates to pursue disinflation, the unintended consequence was to draw foreign savings into US capital markets. There were two additional benefits: inflation was lowered and the government could continue to defer budget austerity (ibid, 96).

These are the historical processes that established the foundation for a financialized economy: abundant credit from domestic deregulation; unrestrained foreign capital inflows; and, monetary policy that followed market imperatives (ibid, 142). In this way, Krippner offers an alternative reading of why the US became more prone to bouts of speculative euphoria. From this perspective, the S&L crisis in particular appears to have been a casualty of the radical liberalization of the financial sector. The underlying purpose, Krippner argues, of liberalization was a method of transferring responsibility for economic management from the state to markets, given the inability of the state to combat inflation.

Using insights from these structural frameworks, there is now recourse to explanations of financial crises that embed speculative euphoria within political-economy. Speculative euphoria may be one of the most outward displays of US financial capitalism, yet it is essential to recognize as well the deeper components of the system and the intentions behind them (Konings 2011). The following sections present a narrative of US financial development that provide material against which to further evaluate the utility of the conclusions of the above authors.

2.3 American banking and finance through the S&L debacle

2.3.1 The S&L crisis

The S&L debacle, in terms of the timing and location of the financial company failures across US states, might more accurately be viewed as a series of regional crises. The instigators of this series of crises were, first, the long-running inflationary conditions that undermined the viability of the housing finance system, and, second, a deregulatory push in the early 1980s to reform the thrift industry. The previous section has already elaborated on the effects of rising inflation. Here, I briefly discuss the two pieces of legislation that preceded the crisis and then describe the role of regional financial structure in determining the location of crisis. I then move on to the institutional response to these crises and the changes that response made possible in the financial landscape.

The disintermediation arising from capital outflows due to interest rate volatility and financial innovations posed a threat to the solvency of thrifts as early as 1979. Solvency was further challenged with the Depository Institutions Deregulation and Monetary Control Act (DIDMCA) of 1980, which partially relaxed interest rate ceilings, and the more catastrophic Garn-St. Germain Depository Institutions Act of 1982, which fully removed interest rate ceilings on S&Ls, relaxed lending restrictions, and increased depository insurance limits. Warf and Cox (1996, 138) argue that the chief effects were increased supply of investment capital and real estate speculation. An additional effect was to introduce greater competition between S&Ls and commercial banks.

There were three peaks in the failures between 1980 and 1994: first in 1982, then in 1988, and then in 1990 (Warf and Cox 1996). In 1984, the FDIC seized

Continental Illinois, which failed when petroleum producers based in Oklahoma defaulted on loans from a counterparty of Continental Illinois, and the government initiated a bailout. This publicized failure set much of the tone of Congressional action through the remainder of the crisis, as will be discussed below. Notably, Continental Illinois was not an S&L, but a commercial bank organized as a BHC.

Savings institutions failures were concentrated in the southwestern and western states, particularly Texas, as well as Louisiana, Oklahoma, New Mexico, Colorado, and Arizona. Notably, Warf and Cox (1996) find that local economic structure—particularly in relation to the construction sector—as well as mortgage delinquency rates are significant determinants of the distribution of S&L failures, however this is not the case for commercial bank failures during the period. Rather, commercial banks were better poised to take advantage of the removal of geographic barriers to lending, while S&Ls remained embedded in local economies (Warf and Cox 1995). Even by early 1990, commercial banking had taken on a multi-state, regional character and the concentration of assets had increased substantially since 1980 (Lord 1992). The level of distress among savings institutions was compounded by recourse to junk bonds (that market for which collapsed late in the 1980s), the stock market crash in 1987, and then the recessionary period following it.

2.3.2 The legislative response

By 1987, the height of the S&L debacle, the Congressional appetite for deregulatory action seen during the late 1970s and early 1980s had evaporated, and attention was turned to managing the on-going distress. Congress passed a number of key measures in reaction to the events. First was the Competitive Equality Banking Act (CEBA) of 1987. This Act was motivated in part by the growing burden of deposit

liabilities of the Federal Savings and Loan Insurance Corporation (FSLIC), and authorized emergency financing for its depository fund. Besides recapitalizing FSLIC, CEBA also added a new resolution mechanism to the FDIC's repertoire, the bridge-bank. In this event, as opposed to shuttering a failed bank or organizing its sale to a solvent institution, FDIC transfers the assets and deposits of the failed institution into a temporary nationally-chartered bank that is operated in receivership by FDIC. This solution was designed specifically for the case of very large institutions, where shuttering the bank would prove disruptive to the market or a buyer could not be readily identified.

Two years later, the Congress passed the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) of 1989. FIRREA transferred the supervisory authority over the savings and loan industry (state-chartered institutions) from FSLIC, which was abolished, to FDIC. At this point, the severity of the S&L crisis was a matter of public fact. The Act created two special insurance funds for savings associations and for banks, reorganized federal agencies for housing finance and thrift oversight (creating the Office of Thrift Supervision, OTS, to manage savings associations chartered by the federal government), and formed a temporary Resolution Trust Corporation (RTC) to further administer the resolution of failed S&Ls and their assets. The next year, the Crime Control Act of 1990 expanded FDIC enforcement authority against financial institutions, as well as augmenting criminal statutes to address the epidemic of fraud among failing S&Ls.

A final measure aimed at reforming the system of federal oversight of state-chartered institutions was the Federal Deposit Insurance Corporation Improvement Act (FDICIA) of 1991. At this point, the deposit liabilities now even of the FDIC had begun

to exceed the fiscal capacity of that agency, and Congress authorized a recapitalization of one its funds and permitted FDIC to borrow from Treasury. More importantly, the Act was a strong response against the mounting costs of resolving failed institutions. It made three additional, significant stipulations. First, the Act mandated that FDIC pursue prompt corrective action and, second, do so by means of the method of least cost resolution (LCR). That is, when considering how to wind-down failing institutions, the Act intended that FDIC act immediately and objectively in minimizing the costs to the depository insurance fund, by evaluating the costs of each type of transaction. The Act did contain a systemic risk exception, which permitted FDIC to forego a LCR calculation if, only on recommendation of the Federal Reserve and FDIC Board of Governors as well as by determination of Treasury Secretary and the President, it was determined that the institution posed a systemic risk to the financial system. The final important stipulation in the Act was the transition to a risk-based formula (risk to the depository insurance fund) for assessing insurance premiums on bank deposits.

The bridge-bank mechanism, the LCR, and risk-based insurance premiums could be interpreted as codification in FDIC policy of wariness over the prospect of “too-big-to-fail” intervention. In other words, one way of interpreting these legislative reforms is that Congress was acutely aware of how large and complex institutions could rapidly deplete the insurance fund and sought ways to insulate the fund from the need for future recapitalizations. Another, although not mutually exclusive, interpretation is that these reforms expressed the prevailing ideology of competitive markets, applied to the banking sector. The mandates under FIRREA that the RTC contract with the private sector where available in discharging its duties of asset management and sale is one example of this turn to markets by the government.

There are at least two lessons of the S&L bailout episode that are relevant. First, it is clear that the success of the government response would bear directly on its perception by the public to manage national economic affairs. Congress attempted to impose a number of restrictions on the resolution mechanisms (such as the RTC) that were subsequently undermined by other administrative mechanisms (such as the OTS) (MacDonald 1992, 142). The criteria for success between Congress—minimizing costs but also implementing social policy—and the administration—maintaining the viability of a market-based approach to industry regulation—were very different, and these battles were played out across the banking sector. Second, a number of gains to the housing and home financing coalition through the legislation managing the S&L bailout, not least of all that the costs of resolution be transferred as much as possible to the private sector and thrifts. MacDonald (1992) describes in detail how the federal administration opposed concessions to consumer and housing advocates, and how the coalition of these populist interests relied to a large extent on the crisis atmosphere and near-uniformly negative view of the thrift industry for these gains.

2.3.3 The competitive environment after the S&L debacle

The parallels and reversals between the S&L bailout episode and the 2008 crisis call for a much deeper academic treatment and comparison, which is beyond the purview of this chapter and dissertation. My concern is to survey the changing institutional and spatial conditions of the banking industry. The next stage in the evolution of the industry was a round of post-crisis consolidation. At year end in 1984, there were 3,418 savings institutions and 14,483 commercial banks in the US. By 1994, the end of the S&L crisis, those figures were 2,152 and 10,432². Much of this decrease

2 Figures retrieved from FDIC website: <http://www2.fdic.gov/hsob/HSOBRpt.asp>

can be attributed to government-imposed closures or sales, however the crisis itself as well as Congressional action had established favorable conditions for further, unassisted mergers and acquisitions.

In addition to the concentration of macroeconomic distress in thrifts and the collapse in their asset values, a consequence of many of the reforms described above was the creation of a buyer's market for thrift assets. FIRREA, for instance, further lowered the value of the thrift charter by imposing new capital requirements (via OTS) and a qualified thrift lender test (in order to borrow from the Federal Home Loan Bank) on federal savings associations.

By 1994, the deregulation pendulum had swung back towards the dismantling of the New Deal financial regulatory architecture. In that year the Riegle-Neal Interstate Banking and Branching Efficiency Act permitted bank holding companies (BHCs) to acquire banks in any state beginning in 1995 and allowed interstate mergers between banks beginning in 1997. Two ramifications of channeling mergers and acquisitions activity through BHCs are that, first, responsibility for bank oversight began to shift to the Board of Governors of the Federal Reserve, who regulate BHCs. The Board, under Riegle-Neal, was also charged with approving a significant portion of M&A activity as well as monitoring the effects of that activity on market competition. And second, when a BHC faces distress, it goes through regular bankruptcy proceedings, not a special resolution process (although its chartered banking subsidiaries would be seized by FDIC if it did face distress).

Over the next half decade, with federal controls on geographic expansion and M&A activity removed, the large surviving commercial banks reshaped the banking landscape. There were four characteristics of the new landscape. These were: first, a

shift in strategic focus to upscale retail banking markets; second, a transition to automated processing and evaluation of creditworthiness made possible through new technological developments; third, a decline in the branch as the decision-making center for extending credit products, in line with the first two patterns; and, finally, a greater emphasis on income from non-interest fee generation (Leyshon and Pollard 2000). The subsequent retreat of formal banking institutions from minority areas and smaller banking markets had predictable effects of lowering growth prospects, increasing the cost of credit, and contributing to the influx of nontraditional, nonbank lenders in those areas (Dymski 1999; Dymski and Veitch 1996; Graves 2003; Pollard 1996).

The final pillar of New Deal controls on domestic banking—the separation between commercial banking, investment banking, and insurance activities—was formally rescinded in the Gramm-Leach-Bliley Act of 1999, touched off by the decision of the Federal Reserve in 1998 to permit the merger of Citicorp and Travelers. At this point, the universal banking model would be pursued by large commercial banks under the purview of the Federal Reserve, financed through Wall Street-arranged deals, and evaluated according to expectations determined by securities analysts of US equities markets. The next section takes up the issue of how the new financial landscape manifested across the US metropolitan hierarchy, its consequences for economic growth, its encounter with the financial and corporate crises and of early 2000s, and its strategies for managing those events.

2.4 Instability during the Great Moderation

The previous section reviewed the reformulation of the federal bank supervisory and failure resolution programs and subsequent changing landscape of retail intermediaries following the S&L crisis. In this section, I discuss the emergence of new

financial intermediaries, their locational patterns, and the effect of the failures and crisis of the late 1990s. The crises of this period—including the Asian Crisis of 1997 and the Russian Crisis in 1998—were manifested most severely in the US in the failure of the hedge fund LTCM in 1998. That failure was a very mild expression of destructive conditions elsewhere across the globe, and as such did not compel the same public or political reaction against the liberalization project that happened during the S&L.

2.4.1 Growth of financial and nonbank intermediaries in global cities

Concomitant with the removal of New Deal controls on capital was the growth of intermediaries to service these new cross-regional and international flows of capital. Within the formal banking sector, these new intermediaries often took the form of financial conglomerates, either BHCs or financial holding companies (FHCs), the latter electing to engage in securities underwriting, insurance underwriting, and merchant banking in addition to owning chartered bank subsidiaries. Many of these new companies were propelled by speculative Wall Street capital (Dymski 1999), which had been fueling M&A activity in a number of sectors throughout the 1990s stock market boom, forming conglomerates in telecommunications and media, for example (Engelen et al. 2011), as well as speculation in new technology stock issues. Consolidation impulses via M&A activity affected the structure of US capital markets as well. Led by the expansion programs of NASDAQ and the New York Stock Exchange (NYSE) both headquartered in New York, regional stock exchanges began merging in order to compete with the electronic networks and stock and commodity exchanges in New York, and, to a lesser extent, Chicago.

Financial markets, not financial institutions, became the locus of financial activity in this period, coordinating business lending, corporate governance, and

influencing the locational imperatives of corporations (Clark 2000; Sassen 2001). Equities market, in particular, experienced a bull market, with gains in output, employment and income accruing mainly to the three global US cities, New York, Chicago, and Los Angeles (Abu-Lughod 1999; Warf and Cox 2000). As the stock market took on central importance in the central sites of the emerging globalized, financialized economy, traditional banks began a gradual relocation of headquarters and operations out of these financial centers (Davis and Mizruchi 1999). Securities firms and employment grew rapidly in their place (Warf 2000; Wójcik 2010).

In an era where financial trading became increasingly ubiquitous and supposedly locationally footloose precipitating an 'end of geography' (O'Brien 1992), agglomeration and network economics remained important for the geography of the production of financial assets (Clark 2002). Once the dynamic processes of increasing returns to scale—in the case of financial centers, these refers to liquidity—takes hold in international financial centers like New York and London, such centers develop a competitive advantage relative to other areas in the national urban hierarchy, and even international hierarchy. From the demand-side, network effects from connections and complementarities between financial centers further influence the hierarchy of financial centers (Taylor 2004). The primary arbiters of these processes are firms specializing in advanced business services (ABS), including financial firms. Contra Sassen (2001), global cities do not liberate corporate headquarters from locating in these centers, instead the concentration of stock market and ABS intermediaries compounds the benefits to co-location (Wójcik 2010; Wójcik 2011).

2.4.2 International financial centers and the financial crises of the 1990s

These structural characteristics of global financial markets and of national

financial hierarchies are important because they are part of the geography that make financial crises, and their transmission between financial centers and between countries, possible. Beaverstock and Doel (2001) have argued that the geographical distribution of financial intermediaries represents a “missing geography” that explains how financial crises are generated and allocated through the global financial system. The way that financial intermediaries, particularly investment banks, hedge funds, and pension funds, construct their balance sheets is an essential determinant of systemic instability. Beaverstock and Doel (2001) conclude, for example, that because North American and European intermediaries had diversified their capital structure to hold assets scattered across the globe, they were better positioned relative to Asian banks, whose balance sheets were more deeply embedded in their respective national economies. In most instances, as Beaverstock and Doel (2001) show, rationalization programs of investment banks matched their balance sheet exposure to emerging markets undergoing distress, with US institutions preserving employment in US centers at the expense of their operations in Asian centers.

This is part of the spatial context in which the crises of the mid- to late-1990s unfolded. International financial centers are truly volatility centers, due to their concentration of investment banks and related intermediaries. The level of distress that will be expressed in those centers will vary in part according to the extent to which those intermediaries hold assets in areas demonstrating structural weaknesses as well as the profit calculus for remaining in those markets during periods of instability and in the mid-term. This argument is certainly plausible; however, the protection afforded from balance sheet diversification is limited. There are additional destabilizing influences from both international financial centers and their host ABS firms. For example,

narratives of market performance by the financial press varies between international financial centers due to the way that expectations about the future are constructed and circulated (Clark and Wójcik 2001; Clark, Thrift, and Tickell 2004). Yet another example is the degree to which a financial firm is leveraged and undertakes speculation.

This problem of speculation and leverage can be further elaborated upon using the case of Long-Term Capital Management (LTCM). LTCM was a hedge fund founded in 1994 whose primary business was to book high-stakes trades, in many cases using derivatives products, through techniques of currency and interest rate arbitrage. At the time of its failure, its portfolio consisted of highly illiquid positions that had been developed by sophisticated computer programs, influenced by statistical and theoretical models of two Nobel prize winners (Myron Scholes and Robert Merton, who also sat on the board of directors). Counterparties at the time of its failure included many leading Wall Street and European investment banks and other major banks and financial institutions. The case of LTCM is important for purposes here for two reasons. First, it was the only failure of a major US financial institution during the international financial crises of the late 1990s. LTCM had become entangled in both the Asian crisis and Russian default in 1998 through its speculative positions on currencies and securities, although it was those trades involving the latter region that finally pushed the company into near-default. Second, LTCM was the recipient of an emergency recapitalization that prevented its outright failure (the firm was eventually dismantled).

The timeline of boom and bust for LTCM has been well established (Lowenstein 2001). Key insights from its failure are that, first, a financial institution can pose an existential threats to the financial system through its speculative positions and through its counterparty obligations (a Minskyian precept). And second, the mere

prospect of its failure catalyzed the Federal Reserve to organize an emergency recapitalization by a consortium of LTCM creditors. Several creditors of LTCM, including its clearing agent Bear Stearns, were unwilling to extend support to LTCM irrespective of its default risk, however the Federal Reserve eventually pressured many of LTCM's creditors to extend the emergency liquidity.

The lessons learned regarding the US experience with financial crises are unambiguous. First, the Federal Reserve, in its capacity as lender-of-last-resort, contained by way of (private sector) bailout what otherwise could have easily escalated into a larger financial crisis in the US, from counterparty exposure. Second, the response of the Federal Reserve was largely *ad hoc*; there was no precedent for this sort of intervention by the Federal Reserve into financial markets in the contemporary period. Third, a highly leveraged firm could successfully be resolved in an orderly fashion. And finally, the Federal Reserve and Wall Street embraced derivatives, the hitherto esoteric instrument of leverage, despite their obvious potential to cause financial catastrophe. Stated differently, these points could be taken to indicate that financial booms in the era of open capital markets characterized by the use of complex, new financial innovations would not necessarily precipitate a financial crisis.

The 1990s economic boom, carried to a large extent by the “irrational exuberance” (Shiller 2001) in US equities markets, came to a spectacular end in the NASDAQ crash beginning in 2000 and the associated recession. The accounting frauds and insolvencies of Enron, Worldcom, Tyco, and other US corporate giants are an additional reminder of the excesses of the period. The financial service industry, however, emerged from the 2000-2001 recession relatively unscathed, just as it had avoided any serious trouble from the LTCM episode. The institutional and spatial

patterns that had almost brought forth a financial crisis in the US in 1998 were in place: the intertwined balance sheets of major banks and nonbank, alternative financial institutions; the growing concentration of the securities industry in New York; the increasing use of and experimentation with advanced securities products; the leading role of nonbank and securities firms in the allocation of credit; and, the tacit political bargains between the Federal Reserve and Wall Street establishments.

2.5 Instability expressed: the housing bubble and 2008 crisis

Warf and Cox (1996) and Martin (2011) have stressed that regional economic and financial structures are as much cause as they are consequence of financial crises. In this section, I will discuss the interactions between property and mortgage markets, the banking sector, other financial market intermediaries, and regulatory bodies. I will emphasize their regional dimensions and hence infer some of the relevant spatial structural factors that contributed to the financial crises. In doing so, the goal is to be able to synthesize insights pertaining to the political bargains that undergird financial crises, while situating those bargains and their associated institutional relationships in their geographical context.

2.5.1 The regulatory and competitive environment leading up the 2008 crash

Within the financial sector, there are three broad groups: banks, nonbanks, and regulatory agencies. The previous sections have described the processes and events that led to the emergence of very large banking institutions as well as nature of the public guarantees supporting them. Many of these public guarantees were delivered in the form of accommodative monetary policy (Krippner 2011), however there were a number of legislative reforms and administrative rules promulgated that altered the strategic

considerations for balance sheets construction and leverage among the financial conglomerates (both inside and outside the boundaries of traditional banking).

One example is the the Commodities Futures Modernization Act (CFMA) of 2000. The CFMA restricted the Commodities Future Trading Commission from regulating derivatives as futures, but also did not permit the treatment of derivatives as securities, which would have brought their supervision under the authority of the Securities Exchange Commission (SEC). Notably, a special exemption for energy derivatives trading would be indicted later as contributing to the accounting fraud perpetrated by Enron. Volume in the over-the-counter derivatives market expanded by leaps and bounds.

A second example was an SEC program introduced in 2004 called Consolidated Supervised Entities (CSE). The CSE was a voluntary regulation program aimed at the largest investment banks. The program presented a trade-off. Participants would accept SEC oversight of their parent holding companies (prior to that point, the SEC only had oversight capacity of the broker-dealer units inside those companies), and in exchange these investment banks would be able to structure their regulatory capital according to the capital adequacy requirements consistent with those for BHCs. The reason this was attractive to those investment banks was that it afforded them the potential to increase leverage by accumulating mortgage-backed securities (MBS), as BHC capital reporting standards, in turn, were modeled on the protocol set out in the Basel II accords. As such, the CSE program rescinded previous SEC mandates for regulatory capital, and created incentives for the acquisition on investment bank balance sheets of a specific form of high-leverage products that received favorable regulatory treatment. In addition, in the year before, the SEC had expanded the range of collateral permitted for broker-dealers

when pledging capital used to collateralize securities borrowings from its customers.

The range of capital in that SEC order also included MBS.

The trade-off between wider oversight authority from the SEC and the potential for greater leverage (and the investment banks did indeed take advantage of that possibility by taking on substantial quantities of MBS products) suggests that there was not a wholesale retreat of the government from financial market oversight. From Congress as well, legislation approved during the period included the Public Company Accounting Reform and Investor Protection Act (Sarbanes-Oxley) in 2002, the Fair and Accurate Credit Transaction Act in 2003, the Bankruptcy Abuse Prevention and Consumer Protection Act of 2005, and the Credit Rating Agency Reform Act in 2006. The first and most well-known of these pieces of legislation was the response to the massive corporate accounting scandals during and after the dot.com bubble, an explicit recognition of the failure of self-regulation among auditors and securities analysts. The second of these was an attempt to address the problem of identity theft and ensure better access to personal credit histories. The third contained a set of reforms to the bankruptcy code that included a stricter means test and imposed new reporting requirements and penalties; the bill essentially increased the costs and difficulty of discharging debts. The fourth was an unsuccessful attempt to increase competition in the credit rating industry. As such, there was at least an awareness of some of the problems of fraud and dysfunction in the financial sector during the housing bubble. This attention was not directed towards what would be one of the principal sources of dysfunction beginning in 2007, the home equity, refinancing, and secondary mortgage industries, and some of the measures described above may have in fact made the crisis worse.

Consequently, the risk management and regulatory compliance strategies of the

leading financial conglomerates were reoriented towards securitized mortgage products. Regulatory action served to homogenize bank balance sheets, further compounded by the fact that action taken by individual banks in increasing leverage hence liquidity and insolvency risk tends to affect its competitor banks throughout the system (Alves, Dymski, and De Paula 2008). These institutions—commercial and investment banks—were moving each other, moving financial markets, and being moved by changing regulatory incentives towards greater instability. One of the consequences was to feed substantial amounts of capital into real estate markets, setting in motion processes that would erode underwriting standards and risk management practices at all levels of the financial sector (Levitin and Wachter 2012).

Much of the edifice of securitization was coordinated from securities centers, primarily located in the northeast of the country (Wójcik 2011). Over the course of the housing bubble up to 2007 at least, securities employment gradually dispersed to new centers, while simultaneously become increasingly concentrated in central areas (the central counties of Boston, Chicago, New York, and San Francisco, for instance). As such, one important spatial dimension of the 2008 crisis, which has been emphasized often in the literature (French, Leyshon, and Thrift 2009; Wójcik 2013b), is the role of financial or securities centers. In these centers, financial elites, financial firms, and their supporting networks of ABS activity devised competitive strategies, coordinated the deregulatory agenda, and developed the media narratives legitimating their practices (Clark, Thrift, and Tickell 2004; Clark and Wójcik 2001). The example of financial centers also points to the structural weaknesses in the US economy during this time. The leading US metropolitan areas demonstrated more than any other regional entity the polarizing tendency of the economy during this period, the widening gap between

business and financial services workers at the upper end of the income distribution and retail, entertainment, hospitality services and construction workers at the lower end (Sassen 2001).

2.5.2 Industrial change in the mortgage industry and the housing bubble

A second spatial dimension of the 2008 crisis also reflected the regional-unevenness of structural weaknesses in the US economy: the housing bubble. Goodman and Thibodeau (2008) point to five reasons behind the increase in homeownership between 1999 and 2005: the low interest rate environment; changing demographics favoring single households; diminished wealth constraint for homeownership attributable to changes in mortgage markets; expansion in the subprime mortgage market; and, expansion in the home-equity mortgage market. Before discussing the reasons that the growth in housing evolved into an asset price bubble in certain regions, it is important to discuss some of the changes in the mortgage industry during the preceding period.

The destruction of many thrifts during the S&L debacle left an opening in the US mortgage market. Nondepository financial companies stepped in to fill the gap, with new entities emerging that specialized in home equity refinancing, home-purchase loans, subprime mortgages, and secondary mortgage market intermediaries. This is not to say that depository institutions withdrew from mortgage markets; quite the contrary. Commercial banks remained important players in advancing mortgage products to middle-class borrowers. In addition, a defining feature of the housing bubble and the contemporary form of US mortgage finance was the originate-and-distribute model, where mortgage originators sell mortgages to secondary market intermediaries (Dymski 2010; Purnanandam 2011). This is a primary channel connecting the financial

conglomerates, who loaded their balance sheets with MBS products, to household balance sheets. It is also clear that mortgage originators exercised poor due diligence through an over-reliance on computerized evaluation techniques to gauge creditworthiness, while also systematically targeting vulnerable consumers of these products on the basis of race and class (Dymski 2009; Rugh and Massey 2010; Wyly et al. 2009).

The subprime industry is implicated in many ways in the 2008 crisis (Shiller 2008), not exclusively from the rise in the number of loans provided to borrowers with low creditworthiness, low collateral, and unsteady income streams. Importantly, many 'prime' borrowers became subprime when real estate markets collapsed, the recession beginning in 2007, and the credit crunch beginning in 2008 put further downward pressure on incomes by increasing joblessness. Subprime mortgage markets served an important purpose in the home mortgage system. Besides providing loans to borrowers with histories of default as well as to those seeking mortgages for substandard homes, a fully functioning subprime and home refinancing industry is crucial to depository institutions seeking to offload once 'prime' mortgages that those institutions were unwilling to modify or forbear. When the subprime markets collapsed, depository institutions no longer had recourse to subprime lenders who were willing or able to refinance the increasing quantities of distressed mortgages, leaving foreclosure as one of the few viable, however destructive, options as long as depository institutions were unwilling to renegotiate the terms of debts.

There are strong regional and sub-metropolitan aspects of the housing bubble. It is clear that the house price appreciation was not shared evenly between the US states and major US metropolitan areas (Goodman and Thibodeau 2008; Martin 2011), which

can be attributed to supply constraints, the degree to which there was speculative home construction, and economic growth in general. However, these prices, in turn, are not necessarily adequate indicators of the subsequent levels of economic distress. Rather, Mian and Sufi (2014) and Mian, Rao, and Sufi (2013) point to household leverage, which they argue is a reliable indicator of the resulting economic slump at the county level. Instances of speculative overbuilding, mainly in western, southwestern, and southeastern areas of the country, as well as problems of access to affordable housing, growing indebtedness, and poverty were likely to structure the housing bubble differently according to various regional attributes. The significance of various factors will vary depending on the geographical scale at which observations are made.

2.6 Summary

The 2008 crises came at the end of a long national experiment in financial liberalization, which in many ways was intended to combat the inflationary problems of the economy and to deflect political criticism from the state to market. At the beginning of this chapter, I outlined the analytical schematic in Calomiris and Haber (2014), which suggests that the structure of banking in a country will reflect its fundamental political institutions. Such a perspective is revealing about the source of political legitimacy in the era of financialization; that is, financial markets, not public interests (see also Eichengreen 2002). In their analysis of the US, Calomiris and Haber (2014) rely on a division between populist interests, the financial sector, and the government in their diagram of the innate financial instability that accompanies certain political arrangements. I have already demonstrated how the application of their schematic fails in the example of the 2008 crisis. Indeed, rather than demonstrating that the 2008 crisis was the result of a political union between community activists and mega-bank

proponents formed in the early 1990s, my narrative has emphasized that populist interest groups were vehement opponents of the bailout during the S&L debacle and that large bank mergers during the 1990s arose out the resurgence of the financial liberalization reform program enacted by the Congress and facilitated by the Federal Reserve.

This chapter has described the history and geography of the changes in the financial landscape, as a way of placing the institutional changes in fuller context and providing a basis for the remainder of the dissertation. After establishing a problematic in the first analytical section, the literature review proceeded chronologically, moving from the S&L debacle, to the LTCM failure, to the foundations of the 2008 crisis. Chapters Four through Six will take up from this point. A secondary purpose of this chapter was to advance an argument that addresses why bouts of speculative euphoria can lead to varying frequencies of financial crises at the country level and over time. For this reason, we invoked the analyses of Calomiris and Haber (2014) and Krippner (2011), two narratives that object to a consideration of speculative euphoria absent a grounding in political-economy.

These analyses raised a number of points that should precede investigation into the causes of financial crises, namely: what are the fundamental political institutions of a society where financial crises are common (or uncommon); from which sectors and regions does a state derive its political legitimacy, and how do the bargains between the state and those regions contribute to the way the financial system operates? In the case of the US, it seems that the answers to these questions are bound up with the the processes of liberalization and the reformation of the financial sector following the end of the New Deal controls and out of the debris from the S&L crisis.

Additionally, I have attempted to underscore the importance of a fuller cross-

comparison of the S&L debacle, the LTCM episode, and the 2008 crisis. Tentatively, there are at least five lessons from their comparison. First, the episodes should not be treated as separate, independent events. The problems that we confront today in the banking sector and financial markets are very much the cumulative effect of a series of decisions by the national legislature, regulatory agencies, and financial firms. Yet, at the same time, these three episodes should also not be taken as the only determining factors of the evolution of the financial landscape. I have not dedicated much space here to the changes wrought by new technological innovations, the jurisdictional arbitrage among US states in attracting financial companies, or the role played by international capital flows, for example.

Second, it is important to recognize the heterogeneity of the actors. Within the government, the Congress and Administration face different constituencies, while regulatory agencies often are at odds when their missions encroach on others' jurisdictions (see Chapter Four). Third, the location of these various entities also matters. Besides the distributive consequences, financial crises are formed and tackled in specific institutional and regional contexts. The example of the integration of US regional housing markets and financial conglomerates during the 2008 crisis provided by geographers is a key example (Aalbers 2009a; Aalbers 2009b; Wainwright 2009; Wainwright 2012).

The fourth and fifth lessons are more pragmatic. Namely, the S&L crisis and LTCM failure provide the necessary background to understanding how in 2008 the Congress authorized a substantial injection of capital into financial markets and financial institutions on the basis that the system itself would fail. The “too-big-to-fail” phenomenon first appeared with the distress of Continental Illinois, and instigated such

an overwhelmingly negative public reaction that for a short moment, community groups were mobilized and able to implement progressive housing policy with the support of the Congress. As such, the S&L crisis and 2008 crisis should provide researchers with sufficient empirical material to advance hypotheses concerning how interest groups in the present and future may overcome the sociological and geographical barriers to implementing meaningful reform of the financial system. Finally, the comparison of these events shows that we must temper our expectations about the time it will take to reform the financial sector. After all, it took roughly half a century in order for the Congress in 1933 to adopt federal deposit insurance after initial agitation for it. The financial sector that delivered the 2008 crisis to the world had been evolving for over thirty years and did so in concert with significant legislative changes.

At the very least, it is clear that speculative euphoria unfolds in an institutional environment. It matters which organizations are carried away by such impulses, the location of these entities, and the assets by which they intoxicate themselves.

Chapter Three: Resilience of economic sectors to financial crises

3.1 Introduction

There is no shortage of competing theories for the origins of financial crises. The institutionalist school explains crises as the result of poor governance: countries with inadequate controls on populist or absolutist impulses, captured judiciaries, weak property rights regimes, and incompetent tax authorities suffer poor economic outcomes, including a greater likelihood for financial crisis (Acemoglu and Robinson 2012; Calomiris and Haber 2014). A financial-historical view, often disposed to human behavioral interpretations, explains crises as the result of speculative euphoria, banker complacency, and general financial folly (Kindleberger 2000; Minsky 2008; Reinhart and Rogoff 2009b; Shiller 2001). Such theories present testable hypotheses on the cross-country distribution of crises, however they do not speak to the *intra*-national, cross-sectoral distribution of crises. In this article, we test the response of employment in nine domestic economic sectors to a variety of financial crises in an sample of 32 countries spanning the years 1975 to 2005.

The chief objective is to investigate the content of the Reinhart and Rogoff (2009b) dataset on financial crises. The first research question is preoccupied with methodological robustness: to what extent can this financial crisis dataset be used to identify the distribution of employment losses? In doing so, we explore the conceptual problems inherent to a project of this kind, producing some recommendations and cautions for future work. The second research question comes from the empirical

concern: what sort of financial crises matter for employment losses?

The findings pertaining to our interest in research design suggest that financial crises in Reinhart and Rogoff (2009) are overemphasized, in comparison to databases on “systemic” crises available in an alternative database (Laeven and Valencia 2013, or 'IMF'). Future research should observe the following recommendations: systemic crises should be isolated from non-systemic ones; researcher should defer to the highest thresholds in determining a crisis event; the start year of a crisis is more useful for documenting ill effects than crisis duration; type of crisis is more significant than number of simultaneous crises; and, tests of robustness with alternative series are essential. We present two key points related to the empirical question. First, systemic crises in general have clear negative effects on multiple sectors. Second, using the systemic crisis database from the IMF source, we determined that the effects of banking crises were worse, in terms of magnitude and duration, than currency or sovereign default crises. We emphasize that results of such tests must be situated within specific country case studies to be meaningful for further policy application.

The next section reviews the relevant literature. We then discuss methodology and the data sources. The empirical results follow, first as a descriptive survey of the frequency and distribution of employment growth and financial crises, then econometric results from the effects of crises on total employment, and then the results for the effects of crises on employment by sector. The final section concludes, remarking on the implications of the findings for empirical work and methodology and discusses the importance of historical and geographical context.

3.2 The relationship between financial development and crises

Theories of financial development pivot around the concept of varying

dependence of firms on the need for external financing (Cetorelli and Gambera 2001; Rajan and Zingales 1998). Financial markets can amplify industrial development through superior financing relative to those in less financially-developed countries, or they can constrain growth by tightening credit available for long-term investment (Aghion et al. 2010; Kroszner, Laeven, and Klingebiel 2007). Eatwell and Taylor (2000) argue that global financial market integration can undermine real investment through retained earnings as well, by introducing greater volatility in interest rates, affecting more highly-leveraged companies, and through “contagion,” the complex and often unknowable cross-border liabilities and debt relations between companies, financial intermediaries, investors, and states.

Financial markets are a mixed blessing: the comparative advantages that accompany increased liquidity are weighed against the propensity towards dysfunction. This propensity, however, is unevenly distributed globally. Calomiris and Haber (2014, 482) conclude, for instance, that high liquidity risk, banking system externalities, and asset bubbles on their own are insufficient to cause banking crises. Rather, they are the outcome of political bargaining processes, which in turn are historically- and geographically-specific. Similarly, Eichengreen (2002, 5) points to the increased frequency of balance-of-payment problems in developing countries as arising from simultaneous political democratization and financial liberalization, a situation where it is “hard for governments to subordinate domestic policies to external balance.” With new historical databases of crises, institutionalist hypotheses concerning the political causes of crises can be tested to a high degree of statistical significance, as well as documenting the typical output losses.

In their global history of financial crises, Reinhart and Rogoff (2009) describe

five types: currency (or, balance-of-payment), inflation, market, banking, and sovereign debt. The first three are observed when quantitative thresholds are met. The relevant forms of a currency crisis are either when the annual depreciation against an anchor currency, like the US dollar, is greater than 15 percent, or when a much-depreciated earlier currency in circulation is replaced (another type refers to coin content before 1913). An inflation crisis occurs when the annual inflation rate exceeds 20 percent. A market crisis is defined as a “Kindleberger-type”/international financial crisis event, meeting a 25 percent decline in real equity prices (Reinhart and Rogoff 2009, 250). These are reasonable thresholds, but not necessarily stringent; some have set the threshold as high as 40 percent in determining long-term damage from inflation crises (Bruno and Easterly 1998), while others have found much lower rates can impact growth in the short-term (Khan and Senhadji 2001).

The nature of banking crises and sovereign defaults precludes definition on the basis of specific thresholds, but instead are defined by events. Sovereign defaults are of two types: 'external' or 'domestic'. An external default occurs when a government fails to “meet a principal or interest payment on a due date” including “instances in which rescheduled debt is ultimately extinguished in terms less favorable than the original obligation” (Reinhart and Rogoff 2009, 11). A domestic default is the same situation but also involves the imposition of some form of capital control or de-dollarization, or as they describe, “freezing of bank deposits and/or forcible conversions of such deposits from dollars to local currency” (ibid).

Banking crises are not readily quantifiable because stickiness in the value of bank balance sheets and the nature of credit and debt instruments means there is no underlying price or asset that manifests stability or shock (Laeven and Valencia 2013).

These crises are characterized as one of two types: bank runs leading to government intervention, or intervention in the absence of a run (Reinhart and Rogoff 2009, 8-11). Alternative definitions are equally unclear as to the necessary actors and actions. For an event to qualify as a panic, Calomiris and Gorton (1991) suggest simply that many banks face a sudden increase in demand for redemption of their debts, introducing the contrast between illiquidity and insolvency problems. Laeven and Valencia (2013) suggest two somewhat different criteria from Reinhart and Rogoff: significant financial distress in the banking sector, and government intervention in response to bank losses. A banking crisis is in essence a profitability crisis. By their reckoning, a crisis may involve significant distress without intervention.

In light of the historical scholarship on financial crises (Cassis 2011; Kindleberger 2000) and parallel database projects (Caprio and Klingebiel 1996; Laeven and Valencia 2013), the above definitions by Reinhart and Rogoff require considerable justification on their part. We briefly outline three pertinent qualifications. First is that a single episode of a “financial” crisis may actually span multiple types. Recessions typically precede crises, which might lead to a banking crisis and then balance-of-payment problems, in what Kaminsky and Reinhart (1999) label “the twin crises,” and which eventually may lead to sovereign default through declining tax revenues and the costs of fiscal policy response (Honohan and Klingebiel 2003).

Whether or not multiple types of crises will occur simultaneously may depend on the second point: is the crisis “systemic”? A systemic crisis is supposedly existential; without intervention, the financial system faces collapse (Calomiris and Haber 2014, 4; Laeven and Valencia 2013, 228). Demirgüç-Kunt and Detragiache (1998) define four indicators of a systemic crisis related to banking, which inform Laeven and Valencia's

definition: extensive depositor runs; emergency government action; the fiscal cost of intervention was at least 2 percent of GDP; and/or, non-performing loans reached at least 10 percent of bank assets. Systemic crises, too, involve debates about which forms of policy action signal a systemic event, given that the fact of intervention is a defining feature of this class.

Finally, none of the crises described above mention a crisis of deflation or disinflation (Minsky 2008). We allude here to the question as to whether the type and nature of crises afflicting a financial system changes with its increasing maturity and specialization. If developing countries are disproportionately affected by a combination of long-lasting balance-of-payment, banking, inflationary, and fiscal problems, then it may be the case that developed countries, with deeply liquid financial markets, may eventually face long-lasting deflationary problems, such as Japan since the 1990s or the United States since 2008. This sort of environment can be captured to some extent by the conditions that fulfill banking or market crises, yet it reflects the bias in the literature in examining developing countries (a bias that unfortunately continues here, as the dataset extends only to 2005, missing the continuing financial problems in the North Atlantic countries).

3.2.1 The distributional consequences of financial crises

In the short-term, change in employment depends on the interactions between *inter alia* demographic change, consumer preferences, the savings rate, and the expected return on investment. These behaviors, in turn, are sensitive to changes in the financial sector, particularly its periodic dysfunctions. The resilience of countries to crises in terms of output losses is well-established in the empirical literature (Cerra and Saxena 2005; Cerra and Saxena 2008; Kroszner, Laeven, and Klingebiel 2007). Importantly,

such studies have argued that financial crises have effects on growth independent of recessionary downturns (Dell’Ariccia, Detragiache, and Rajan 2008). Similarly, the diminishing volatility in employment growth, in the US and OECD countries at least, is not necessarily a function of economic restructuring, as Stock and Watson (2003, 165–9, 182) demonstrate that volatility decreased even in construction and manufacturing during the postwar period.

In volatility terms, sectors exhibit unique responses to recessionary shocks. A study of recessionary cyclicalities of sector employment in the US found that most sectors responded contemporaneously and were pro-cyclical, with slight response lags, although construction, the most vulnerable followed by manufacturing and transportation/utilities, demonstrated twice the volatility of cyclical GDP movements versus the relatively sedate service sectors (Stock and Watson 1999, 15–17). A study of European countries echoes these findings, with transport equipment, electronics, construction, and fuels, chemicals, rubber and plastic products as most sensitive sub-sectors to business cycles, followed by services, while agriculture and mining and energy appear to fluctuate independently (Groot et al. 2011, 449–50). In a study of OECD business cycle volatility, Da-Rocha and Restuccia (2006) argue that larger shares of agriculture employment are associated with greater fluctuations in aggregate output during recessions. Even countries with the most sophisticated financial systems exhibit differential responses to employment shocks at the sector level.

The expected reaction of economic sectors to crises depends on how the characteristics of the various crises affect the financing requirements and balance sheet exposure of the average firm of each sector. Financing requirements involve several elements: is the sector capital- or labor-intensive? How sensitive is the sector to interest

rate swings? Balance sheet exposure refers to whether the average firm holds substantial paper or financial assets (including property leases) relative to physical assets, whether its liabilities are denominated in foreign currency, and if the firm has recourse to exports. We anticipate that banking, currency, and market crises will produce the worst effects across sectors, as these events are more situated in the private sector (in contrast to sovereign defaults), whereas inflation crises, though they degrade quality of life, do not tend to result in widespread private sector insolvencies or illiquidity problems.

A sector that relies on periodic re-financing of industrial equipment, capital goods, and other large fixed costs is at a greater risk when adverse economic conditions arise, and especially in the case of a banking sector in crisis (Minsky 2008), or, in the case that creditors are foreign, if a currency crisis has disrupted foreign exchange markets. Export-oriented sectors, such as resource extraction or commodity-production, may be able to avoid some of these problems by benefiting from a more favorable exchange rate, however this must balance out any foreign debt obligations on their balance sheets. We expect that sectors with these financing arrangements will demonstrate lower resilience to crises. In contrast, labor-intensive sectors, namely lower-cost services sectors, might respond positively to price or currency devaluations, however these in turn are balanced against any resulting deflationary environment that lowers wages and income.

A final point is the performance of financial intermediaries. A banking or market crisis almost invariably involves many financial company failures, and these should entail workforce rationalizations in the short-term. However, the variety of available government response options, including nationalization and forced mergers-and-acquisitions, may buffer the sector against short- or mid-term reductions in employment.

The behavior of this sector is of particular interest for our purposes, as it is regularly implicated in the origins of crises.

3.3 A resilience model and data

To test the response behavior of sectors in the event of financial crises, we extend one of the methods deployed by Fingleton, Garrestsen, and Martin (2012). One of their two resilience models uses a 'seemingly unrelated regression' (SUR) on a panel of UK regional total employment growth rates, organized with dummy variables for recession and recovery, the latter defined as the duration of time between recessions. An advantage of using the SUR is the increased efficiency of modeling multiple equations simultaneously as units share an unobserved error component, such as country effects.

Their first regression is based on Friedman's (1993) 'plucking model', initially developed to model the business cycle. This model assumes a steady state of growth over time, and though recessions exert a temporary drag on growth ('plucking' the line of growth downwards), growth eventually returns to trend, without the possibility of permanent effects that shift the trend-line. An alternative interpretation of resilience entertains the possibility of multiple equilibria, drawing on evolutionary concepts such as hysteresis and adaptation (Martin 2012).

Hassink (2010) has argued that equilibrium is unhelpful as economies are in a constant state of change, and resilience in general falls short of accounting for the institutional and cultural dimensions of regions. Martin (2012) does not preclude a single equilibrium view from demonstrating discernible patterns in reaction and recovery behavior of regions to shocks. As Pental, Foster, and Cowell (2010, 73) discuss, the single equilibrium view is a "legitimate metaphor" as long as the phenomena under study follow some observed equilibrium, for which output,

population, and employment certainly qualify, so its use here is warranted.

This makes the SUR appropriate for our purposes as well. Our panel includes growth rates of nine sectors in 32 countries from 1975 to 2005 (a list of countries is available in the Appendix). Some countries do not have observations for the final years, however the *xtsur* module in STATA allows the data to be modeled as an unbalanced panel SUR, fitting a multiple equation model—an equation for each sector—whose errors terms (country effects) are related (Biørn 2004; Nguyen 2008). The basic equation for each sector is specified as:

$$Y_{it} = \beta_{1it} \text{Crisis years} + \beta_{2it} \text{Recovery period} + \beta_{3it} \text{Technical recession years} + \epsilon_{it} \quad (1)$$

where: growth Y of sector-country i at time t is regressed on three dummies. As each sector-country experiences financial crises simultaneously, the model increases efficiency by modeling a system of equations and treating the error terms as contemporaneously correlated between each equation, in the form of unobserved country random effects. As the SUR requires multiple equations, it is impossible to calculate the effects of crises on total employment growth, which can be achieved with a more simple fixed or random effects regression.

We regress employment growth rates on three independent variables that are shared across the equations: a dummy indicating financial crisis; a dummy indicating the recovery period after a crisis; and, a dummy for non-financial recession periods. Whereas the crisis year dummies are drawn directly from external datasets, recovery periods were improvised. These years may be up to three years after a crisis and do not include crisis years. If a crisis of one type is followed quickly by a crisis of the same type, the years between these crises are considered a recovery period, hence may be one, two, or three years in duration. The non-financial or technical recession dummy controls

for omitted variable bias. A negative annual GDP growth rate indicates a recession, and, as recessions and financial crises often occur together, the dummy includes only those recessions that occur independently of financial crises.

The methodology is operationalized by merging two datasets. The first comes from the Groningen Growth and Development Centre and includes employment figures for ten sectors in African, American, Asian, and European countries (Timmer and de Vries 2011; de Vries, Timmer, and de Vries 2013)³. We did not include data from the tenth sector, government, as this was only partially available for most countries. We selected observations for 32 countries beginning in 1975 until 2005, when the dataset terminates. This time period coincides with the post-Bretton Woods international financial system, allowing us to exclude crises related to the gold standard, and also with the period of the so-called “Great Moderation” (Stock and Watson 1999). The sectors are divided according to the International Standard Industrial Classification Revision 3.1. The employment dataset contains nine private sector divisions: agriculture; mining, manufacturing; public utilities (electricity, gas, water); construction; trade services (retail and wholesale trade, and hotels and restaurants); transport services (transportation, storage, and communications); personal services (sanitation, recreation, cultural, private households); and, advanced business services (financial intermediation, real estate, and business services, or 'ABS'). This collection allows a stylized, conjectural interpretation of average performance based on the financing requirements and quality of balance sheets outlined above.

The second dataset accompanies Reinhart and Rogoff's (2009) publication⁴. Their data for banking, currency, inflation, sovereign debt (separating domestic from

3 Available online: <http://www.rug.nl/research/ggdc/data/10-sector-database> [Last accessed: April 17, April]

4 Available: online <http://www.reinhartandrogoff.com/data> [Last accessed: April 17, 2014]

external defaults), and stock market crashes are incorporated into our panel data. Data for market crises are not available for all countries in the sample (Bolivia, Costa Rica, Ghana, and Taiwan).

A criticism of Reinhart and Rogoff (2009) is that their definitions interpret too liberally the thresholds for certain crises (Calomiris and Haber 2014, 24). As a test of robustness, we also included financial crisis dummies from a dataset constructed by Laeven and Valencia (2013) (hereafter referred to as 'IMF'). The chief differences between this dataset and that of Reinhart and Rogoff (2009) is that, first, the crises in the former reflect only “systemic” crises, and, second, that the dummies in the former only refer to the start year of the crisis, whereas the dummies in the latter represent the duration of the crisis. No data for Taiwan is not available in the IMF dataset. We elaborate on the differences between the datasets and the empirical implications in the next section.

3.4 Financial crises and employment growth

Table One contains the average annual growth rates of total, manufacturing, and ABS employment, for the full study period and at ten-year intervals. We also have presented the rates according to OECD membership, macro-region, and legal family, which are used as controls.

We consider the manufacturing and ABS sectors the most important for our study, as manufacturing is capital-intensive, commodity-producing, and export-driven, while the ABS sector houses financial intermediaries. For all countries, average annual ABS growth surpassed both total and manufacturing employment, and this pattern holds across all divisions and periods. At no point was average annual ABS growth among these classes negative, whereas for total and manufacturing employment in OECD,

European, and the countries of Scandinavian legal origin (including only Denmark and Sweden), average growth in these sectors was consistently negative.

Among the macro-regions, average annual ABS growth was greatest in African countries and lowest in European countries. For all areas, ABS growth was greatest from 1985 to 1994. In African, Asian, and European countries, average manufacturing growth steadily declined with each passing decade interval, although for the Americas the 1985-1994 period saw greater ABS growth than the previous period. Europe witnessed a steadily decreasing average rate of contraction in total and manufacturing employment with each period, while for all other regions, the final period saw lower average growth than the starting period.

These movements reflect important events and secular trends in economic and financial development and globalization. For instance, the middle period in Europe contains the foundations of continental-wide trade and financial liberalization under initiatives leading to the formation of the European Union, while for countries with English common law origins, such as the United Kingdom and United States, that period contains major deregulatory action, like the Big Bang in the City of London.

		Average annual growth rate			
	Period	Obs.	Total	Manuf.	ABS
Full sample	1975-2005	954	2.00%	1.63%	5.54%
	1975-1984	320	2.09%	2.11%	5.53%
	1985-1994	320	2.16%	2.17%	6.39%
	1995-2005	314	1.74%	0.60%	4.69%
OECD	1975-2005	319	0.82%	-0.76%	4.07%
	1975-1984	100	0.29%	-1.16%	3.98%
	1985-1994	102	0.80%	-0.35%	4.42%
	1995-2005	117	1.27%	-0.78%	3.83%
Non-OECD	1975-2005	635	2.59%	2.84%	6.28%
	1975-1984	220	2.90%	3.60%	6.24%
	1985-1994	218	2.79%	3.35%	7.31%
	1995-2005	197	2.02%	1.42%	5.20%
Africa	1975-2005	179	2.45%	2.45%	7.07%
	1975-1984	60	2.56%	3.47%	7.07%
	1985-1994	60	2.75%	2.10%	8.17%
	1995-2005	59	2.04%	1.77%	5.95%
Americas	1975-2005	298	2.49%	1.81%	5.54%
	1975-1984	100	2.80%	2.08%	5.75%
	1985-1994	100	2.57%	2.80%	6.19%
	1995-2005	98	2.09%	0.53%	4.68%
Asia	1975-2005	267	2.36%	3.05%	6.02%
	1975-1984	90	2.89%	4.11%	5.80%
	1985-1994	90	2.67%	3.98%	7.48%
	1995-2005	87	1.49%	0.99%	4.74%
Europe	1975-2005	210	0.45%	-1.12%	3.63%
	1975-1984	70	-0.37%	-1.59%	3.55%
	1985-1994	70	0.40%	-1.00%	3.75%
	1995-2005	70	1.31%	-0.77%	3.58%
English	1975-2005	328	2.29%	2.31%	5.91%
	1975-1984	110	2.57%	2.90%	5.51%
	1985-1994	110	2.35%	2.46%	7.31%
	1995-2005	108	1.94%	1.56%	4.88%
French/Spanish	1975-2005	478	2.13%	1.59%	5.38%
	1975-1984	160	2.04%	1.66%	5.21%
	1985-1994	160	2.38%	2.65%	5.96%
	1995-2005	158	1.96%	0.43%	4.97%
Scandinavian	1975-2005	60	-0.02%	-1.23%	3.12%
	1975-1984	20	-0.15%	-0.76%	3.46%
	1985-1994	20	-0.41%	-1.46%	2.54%
	1995-2005	20	0.50%	-1.46%	3.37%
German	1975-2005	88	1.58%	1.30%	6.70%
	1975-1984	30	2.07%	3.51%	8.68%
	1985-1994	30	2.01%	0.93%	7.86%
	1995-2005	28	0.61%	-0.68%	3.33%

Table 1: Average annual growth rates in total, manufacturing, and ABS employment by period and macro-regional grouping. Source: calculations based on Timmer and de Vries (2011) and de Vries et al (2013).

Pairing the frequency of financial crises with these employment trends does not

fully explain the patterns. The expectation is that periods of financial stability are more conducive to economic growth. Figure Two displays the number of countries experiencing a crisis at a given year, based on Reinhart and Rogoff. Currency, inflation, and sovereign debt crises reached peaks in the mid-1980s before gradually tapering off over time. Banking crises demonstrate a U-shaped pattern, clustering in the early and mid-1980s and then in the late 1980s and early 1990s, separated by a six-year period where less than seven countries experienced banking distress in a given year. Market crashes appeared to be increasing in frequency, peaking during the Asian crisis and the dot.com debacle, and then dropping to almost zero after 2002. More importantly, for the majority of the study period (26 years of 30), over half of the countries in the sample were experiencing some kind of crisis, as the final graph shows. By Reinhart and Rogoff's account, financial crises are ubiquitous.

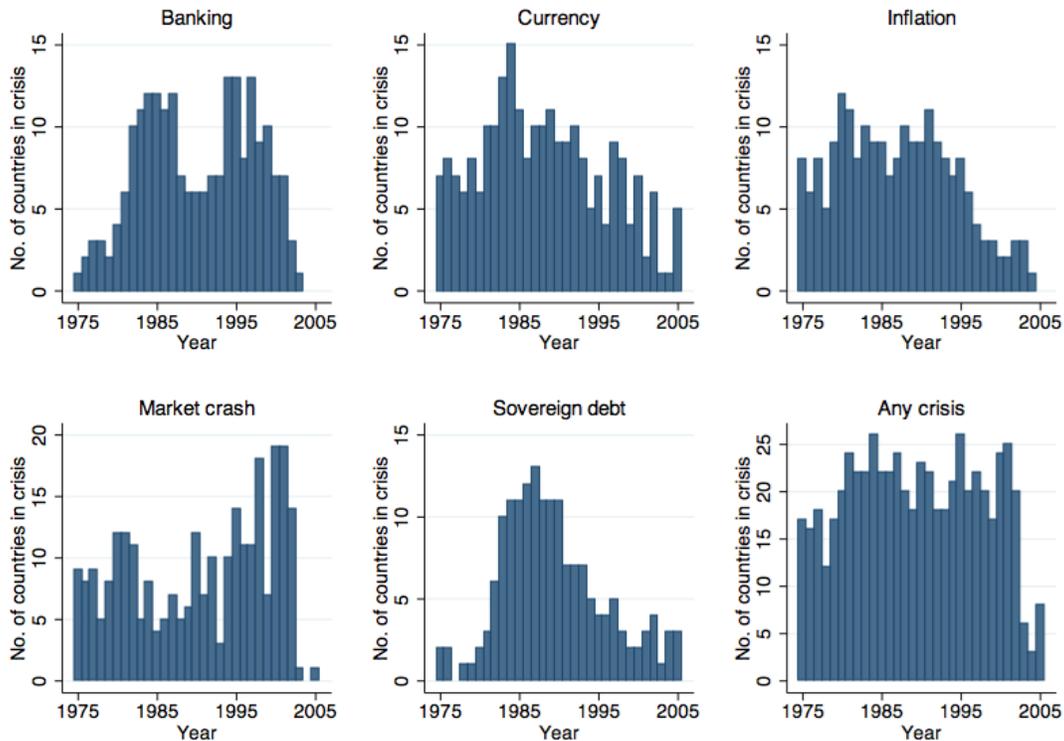


Figure 2: Number of countries in crisis by crisis over time. Source: calculations based on Reinhart and Rogoff (2009b). Note: see text for explanation of labels on y-axis.

Figure Three displays the data for banking, currency, and sovereign debt crises drawn from IMF, and crises appear much less common. As mentioned, their data are for the start year of systemic crises, which involve catastrophic failures of a country's financial and fiscal systems, as opposed to Reinhart and Rogoff's, where the failure of a single large financial institution in some cases can count as a crisis. Similarly, Reinhart and Rogoff take an expansive view of what constitutes a sovereign debt crisis, by including instances of debt renegotiation and rescheduling. All the crises are clustered in the early 1980s and the mid-1990s. In 1983, 12 countries in the sample (=37.5%) were in some form of crisis, and this was the most number of countries in distress over this period.

Both datasets exhibit a clustering effect by time period, which to a large extent

coincides with the periodization of employment growth above. If financial instability generates lower economic activity, then these data would imply that growth during the 1985-1994 period would have been greater than the other two periods. This is the case for the African countries and countries of French/Spanish legal origin, which span almost all of the Americas and many European countries, as Table 1 records.

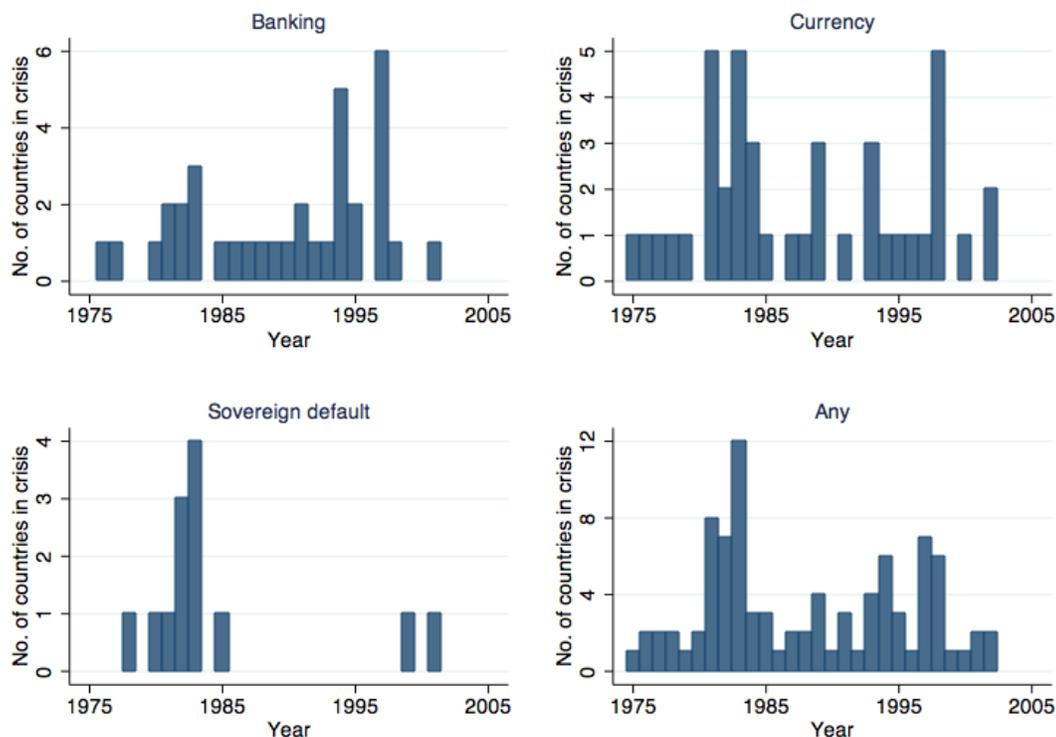


Figure 3: Number of countries in crisis by crisis over time (IMF). Source: calculations based on Laeven and Valencia (2013). Note: see text for explanation of labels on y-axis.

In Figure Four, the number of crises by observation-year are aggregated by macro-region, based on the statistics for the Reinhart and Rogoff data. Countries in the Americas spent more time in crisis before 1995 than any other macro-region, and in the subsequent period spent in the aggregate almost an equal number of years in crisis as Asian countries, which experienced the infamous series of regional financial and fiscal disruptions beginning in 1997. The chart also shows that types of crises are clustered

geographically. For instance, besides having the countries with the fewest and shortest crises, no European country defaulted on its debt, and after 1994 only saw market crashes and currency crises. Inflation crises and sovereign debt defaults are mostly restricted to American and African countries, and these have long durations.

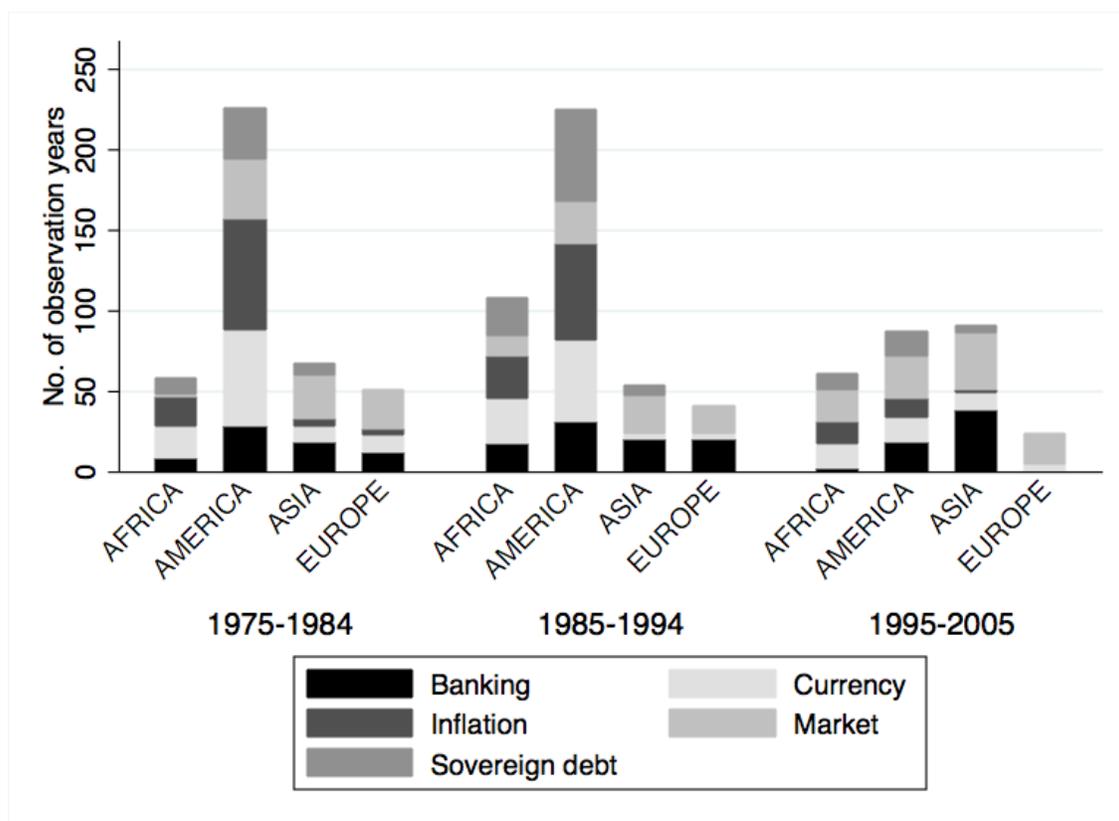


Figure 4: Number of crisis observation-years by macro-region over time (R&R). Source: Calculations based on Reinhart and Rogoff (2009). Note: see text for explanation of labels on y-axis.

Figure Five displays the equivalent figures from IMF. American countries maintain their status as most afflicted by crises, while European countries have on net the lowest frequency. Interpreting the IMF dataset as including only catastrophic financial crises suggests that such events occur in a ratio of ten to twenty percent of the Reinhart and Rogoff variety. Neither dataset reveal any noticeable trend towards banking, currency, or sovereign defaults becoming less common over time, however inflation crises do seem to be diminishing in length and frequency. Figure Two A

suggests that market crises continue to happen regularly across each macro-region and period, although notably have becoming more common in African countries, which paradoxically may be a signal of their increasing financial development as capital markets are established and become more liquid.

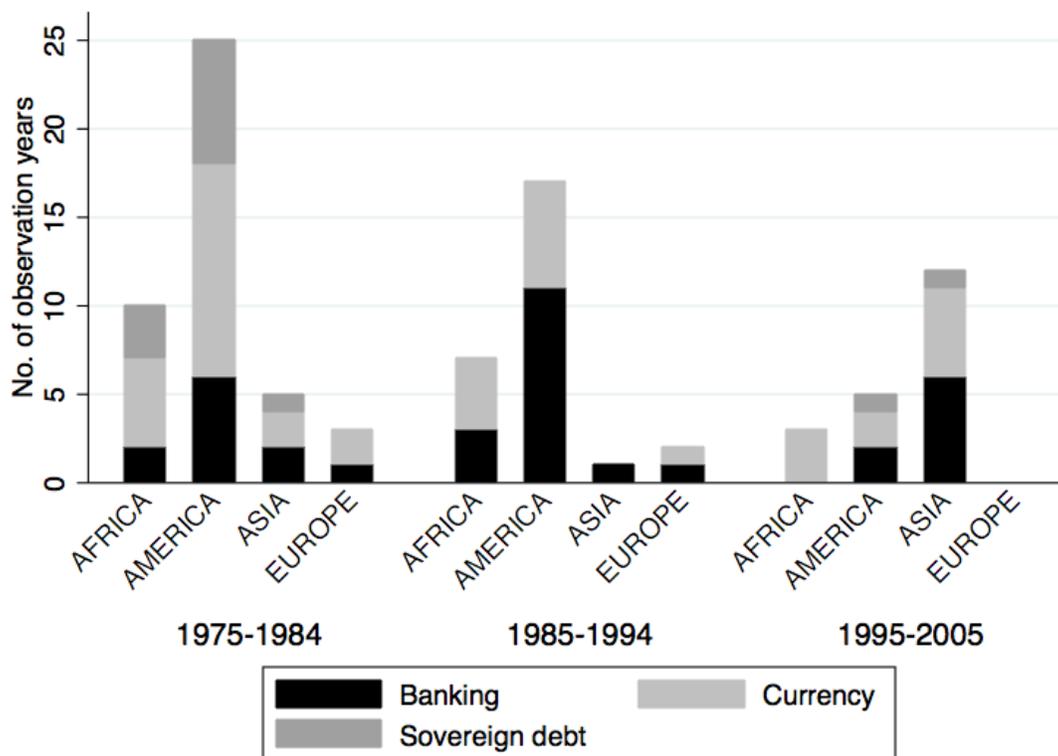


Figure 5: Number of crisis observation-years by macro-region over time (IMF). Source: Calculations based on Laeven and Valencia (2013). Note: see text for explanation of labels on y-axis.

Against the evolution of employment, which responds in the short-term to interactions between supply and demand factors but much manifests in the long-term the international division of labor, the variation in financial crises reflects specific geographical and historical circumstances. Banking crises and market crashes exhibit regularity, and, as more areas of the world develop more specialized financial intermediaries and open their economies to global capital, may become more frequent. Inflation and sovereign defaults were mainly clustered in American and African

countries and before 1995. Currency crises, which tend to covary with banking and sovereign debt defaults (Kaminsky and Reinhart 1999), are becoming less frequent, although those associated with systemic dysfunctions do not appear to be becoming less frequent.

3.4 Resilience of total employment growth to financial crises

The descriptive statistics above seem to caution against reading financial crises in their various guises as anomalous. The majority of those three decades was spent in crisis, although much of this was not of a systemic nature. The purpose of this section is to situate the types of financial crises within employment dynamics, extending the literature on the distributional consequences of these events.

The first results come from a set of fixed and random effects regressions to test whether any type of financial crisis and the number of simultaneous crises have an effect on total employment growth (Table Two). Model 1 contains variables for any crisis, their recovery periods, and technical recession, while models 2-4 replicate 1 but contain controls for supra-national groupings. While the magnitudes change incrementally, the sign and significance of the crisis variables do not change—they remain negative and significant at the 0.001 percent level. Though statistically insignificant, the sign of the recession variable is correct. The controls indicate that OECD membership, location in Europe, and Scandinavian legal families are significant.

	(1)	(2)	(3)	(4)
	Robust cross-sectional time-series with fixed effect	Robust cross-section time-series with random effects	Robust cross-section time-series with random effects	Robust cross-section time-series with random effects
crisis year	-0.0132*** (-4.78)	-0.0126*** (-4.47)	-0.0129*** (-4.72)	-0.0121*** (-4.65)
recovery year	-0.00834*** (-3.74)	-0.00812*** (-3.47)	-0.00800*** (-3.40)	-0.00802*** (-3.62)
recession	-0.0153 (-2.01)	-0.0162* (-2.20)	-0.0161* (-2.18)	-0.0154* (-1.99)
oecd		-0.0202*** (-7.08)		
1b.geog			0 (.)	
2.geog			-0.00132 (-0.40)	
3.geog			-0.00598 (-1.48)	
4.geog			-0.0245*** (-9.17)	
1b.legal				0 (.)
2.legal				-0.00232 (-0.58)
3.legal				-0.0244*** (-8.31)
4.legal				-0.0140* (-2.33)
constant	0.0291*** (14.07)	0.0355*** (12.59)	0.0363*** (11.62)	0.0323*** (9.93)
N	954	954	954	954
T-statistics in parentheses				
* p<0.05, ** p<0.01, *** p<0.001				

Table 2: The resilience of total employment to financial crises based on Reinhart and Rogoff data. Source: calculations based on Timmer and de Vries (2011), de Vries et al (2013), and Reinhart and Rogoff (2009). Note: supranational groups include geographical region and legal family, as described in text.

We also performed these regressions for the number of simultaneous crises, repeating all of these models using the IMF data, and they do not contradict the findings derived from the Reinhart and Rogoff dummies⁵. Indeed, the controls remain significant,

⁵ Available from the authors on request.

while no regression determined that the number of simultaneous crises had an effect on total employment. The most important conclusions so far are that financial crises do, in fact, exert a drag on growth and this effect can be observed beyond the immediate crisis years.

The results from a panel SUR for two sectors—the ABS sector and all other sectors (non-ABS)—are presented in Tables Three (for Reinhart and Rogoff) and Four (for IMF). The results are displayed as standardized beta coefficients; the independent variables have been standardized such that their variances are 1. The coefficients can be interpreted as indicating the standard deviations by which the dependent variable will change with each standard deviation increase in the predictor. For non-ABS sectors, technical recessions have a significant negative effect on employment growth, however only banking crises and market crashes register significant negative effects on growth. The magnitude of market crisis is twice the size of that of banking crises, and their adverse impact on growth continues in the subsequent post-crisis years. The dummies from IMF reveal a significant negative effect on non-ABS growth from recessions and currency crises, although in the recovery period following such crises, growth rebounds.

For the ABS sector, only market crises have significant negative variables, which again extends beyond crisis years into recovery years. The IMF crisis dummies, on the other hand, display a significant negative impact during all types of crisis, and the magnitudes are close approximates. There are lasting effects on employment growth past the immediate years of banking crises.

There are two key lessons from these preliminary models. First, technical recessions are sometimes important: the ABS sector does not seem responsive to downturns in the business cycle, however the constant negative coefficients for the

remainder of the economy justifies their continued inclusion as a control. Second, it is already apparent that crises manifest differently depending on sector. The next set of models disaggregates employment growth into the full complement of sectors.

	(1)	(2)	(3)	(4)	(5)
	Banking	Currency	Inflation	Market	Sovereign debt
non-abs					
recession	-0.081***	-0.084***	-0.080***	-0.091***	-0.076***
crisis year	-0.062**	-0.062**	0.003	-0.126***	0.100***
recovery year	-0.028	-0.025	0.041*	-0.130***	0.027
abs					
recession	-0.018	-0.019	-0.015	-0.028	-0.019
crisis year	-0.022	-0.003	0.075**	-0.084***	0.017
recovery year	-0.008	0.045*	0.101***	-0.099***	0.063**
N	954	954	954	836	954

Note: Standardized beta coefficients
* p<0.05, ** p<0.01, *** p<0.001

Table 3: The resilience of ABS and non-ABS employment to financial crises using Reinhart and Rogoff-based dates. Source: as above.

	(1)	(2)	(3)
	Banking	Currency	Sovereign debt
nonABS			
recession	-0.143***	-0.171***	-0.156***
crisis year	0.026	-0.120***	-0.098***
recovery year	-0.065***	0.095***	0.027
ABS			
recession	0.006	0.001	0.009
crisis year	-0.044*	-0.048*	-0.046*
recovery year	-0.032	0.032	-0.033
N	924	924	924

Note: Standardized beta coefficients
* p<0.05, ** p<0.01, *** p<0.001

Table 4: The resilience of ABS and non-ABS employment to financial crises using IMF-based dates. Source: calculations based on Timmer and de Vries (2011), de Vries et al (2013), and Laven and Valencia (2013).

3.5 Resilience of growth in economic sectors to financial crises

Table Five presents the standardized beta coefficients from the panel SUR for all sectors for each of the five crises described by Reinhart and Rogoff (2009). As each model was estimated according to crisis and the errors are for random country effects, we will discuss each crisis in turn. We first attempt to justify the observations produced by the Reinhart and Rogoff dummies, which can be interpreted as resilience of growth to the duration of financial instability, before sharing the results from the check on robustness.

Banking crises produced the greatest number of significant negative coefficients, specifically for agriculture, manufacturing, utilities, and ABS. The magnitude was greatest for agriculture, in excess of the effect of recessions, and lowest for utilities. Five sectors recorded negative coefficients during the recovery period, with mining, trade, and transport services added to agriculture and manufacturing. Again, the negative effect remained large for agriculture, roughly equal to the crisis years. The three sectors that reported significant positive coefficients during recovery were construction, personal services (which was also positive and significant during crisis years), and ABS.

Banking crises requires two conditions to be fulfilled: undercapitalization and high leverage in the financial sector (Calomiris and Haber 2014). While inadequate prudence reflects poor market and/or governmental oversight incentives, the quality of loans speaks to a sectoral distribution as well. For example, during the Great Depression in the United States, agricultural land prices inflated and subsequently collapsed, concentrating the deflationary crisis in rural areas (Alston, Grove, and Wheelock 1994). In contrast, during the S&L debacle, distress was primarily located in commercial and mortgage real estate in the urban south and west parts of the United States (Warf and

Cox 1996). The locus of banking crises moves in tandem with economic development and urbanization, so is regulated to an extent by the returns to land development.

	(1)	(2)	(3)	(4)	(5)
	Banking	Currency	Inflation	Market	Sovereign debt
agriculture					
recession	-0.066**	-0.051*	-0.063**	-0.284***	-0.060**
crisis year	-0.244***	-0.051*	0.041	-0.393***	0.146***
recovery year	-0.191***	0.028	-0.021	-0.477***	0.087***
mining					
recession	-0.049***	-0.038***	-0.042***	-0.079***	-0.039***
crisis year	0.003	0.085***	0.052***	-0.076***	0.086***
recovery year	-0.045***	-0.020***	-0.024***	-0.129***	0.019**
manufacturing					
recession	-0.142**	-0.100	-0.128*	-0.148***	-0.095
crisis year	-0.232***	-0.012	0.010	-0.290***	0.156***
recovery year	-0.203***	-0.011	0.040	-0.277***	-0.107*
utilities					
recession	0.006	0.008	0.007	0.000	0.003
crisis year	-0.039***	0.008	0.012*	-0.052***	0.050***
recovery year	-0.010*	-0.011**	-0.023***	-0.053***	0.069***
construction					
recession	-0.067	-0.080*	-0.094*	-0.067***	-0.063
crisis year	-0.032	0.161***	0.004	-0.064***	0.212***
recovery year	-0.011	-0.055	0.182***	-0.135***	0.186***
trade services					
recession	-0.037	-0.044	-0.039	-0.014	-0.039
crisis year	-0.014	0.271***	0.291***	-0.059**	0.285***
recovery year	0.029	0.281***	0.093**	-0.009	0.261***
transport services					
recession	0.003	-0.007	-0.003	-0.060	0.006
crisis year	0.014	0.155***	0.135***	-0.109**	0.296***
recovery year	0.091***	0.128***	0.109***	-0.113**	0.235***
abs					
recession	0.042***	0.030*	0.044***	0.042***	0.028*
crisis year	-0.046***	0.267***	0.326***	-0.037**	0.357***
recovery year	0.091***	0.261***	0.246***	-0.040**	0.421***
N	939	939	939	821	939

Note: Standardized beta coefficients
 * p<0.05, ** p<0.01, *** p<0.001

Table 5: Resilience of economic sectors to financial crises based on Reinhart and Rogoff dates. Source: calculations based on Timmer and de Vries (2011), de Vries et al (2013), and Reinhart and Rogoff (2009)

This plausibly explains the poor performance of agriculture, while the behavior

of manufacturing and utilities might reflect the diminished liquidity associated with banking crises and hence the problems that arise from higher costs of lending and rolling over debt, a problem especially in these capital-intensive sectors with high leverage. The negative growth in ABS is intuitive, as bank crises involve bank failures and rationalization of the sector from government-orchestrated mergers and acquisitions and the destruction of high-risk and unprofitable companies. The positive growth following crises might reflect the privileged position of banks and government policies that typically follow banking crises to restore profitability and stability to the sector.

In currency crises, agriculture—the perennial loser during most financial crises—was the only sector to register a significant negative coefficient. Trade, personal, and advanced business services showed positive and significant coefficients, as did mining (an export-oriented sector), utilities (typically associated with government-ownership or monopoly control), and construction, which is not exposed to depreciations in currency. Currency debasement lowers labor costs relative to other countries, and the lower production costs boost exports, which would explain the performance of labor-intensive sectors, especially mining.

Rapid capital outflows that precede these crises will disproportionately affect firms whose liabilities are denominated in foreign currency, which may be most applicable in the case among manufacturers, whose coefficient was negative though statistically insignificant. Nonetheless, currency crises are more complicated than banking crises due to the involvement of foreign capital flows, the trade and government deficit, and the suite of possible governmental responses to remedy the balance-of-payment problems.

Though the hallmarks of a currency crisis—devaluation and capital outflows—

appear to generate employment growth, there are two important caveats. First, recall that these crises are clustered temporally and spatially, and their average duration is quite long. As such, these dummies capture both the immediate response to crisis in addition to the resulting period of distress related to the high costs of imports. Second, and related to this previous point, the rising costs of imports lowers the standard of living, and subsequent wage depression and growth in services do not necessarily add to rising welfare or national productivity. As such, in the short term, any positive growth from an increase in exports are likely offset by the mid- or long-term effects of capital outflows and poverty.

Inflation crises closely mirror the coefficients for currency crises. Again, mining experienced positive effects during and negative effects after such episodes. The services sectors appear to benefit from employment inflows, ostensibly out of the agricultural and manufacturing sectors. Construction, too, demonstrates significant and positive growth following inflationary periods, and it is large magnitude as well.

Like currency crises, very high inflation debases the currency, diverting capital out of financial and into physical assets. Inflation makes it easier for debtors to discharge debts, while degrading the purchasing power of wage income and savings. However, it is difficult to generalize from these findings for the same reason as for currency crises: the inflationary episodes described by this sample refer to a small collection of countries, namely in South America, over long stretches of time. In addition, the 20 percent threshold may not be sufficient to isolate hyperinflation episodes, an important distinction given the mixed record of output growth in countries where inflation was high, but not enough to qualify as hyperinflation (Bruno and Easterly 1998). The pattern observed here seems to be that instances of high inflation

drive growth out of agriculture and manufacturing towards services.

Market crises, which meet a decline of 25 percent in real equity prices, are also unevenly distributed, affecting agriculture, manufacturing, and utilities—which so far have borne the brunt of negative effects—negatively in both crisis and recovery years, while mining and construction grow during but not after these crisis, and ABS grew during and through such crises.

That financial intermediaries would continue to grow and in fact benefit in employment terms from such calamities is perverse, and not intuitive. The financial failures that usually accompany market crashes would suggest that employment in this sector would be sensitive to these events. In addition, these findings do not reflect the same historical and geographical circumstances of the previous crises. Rather, unlike the other crises, the descriptive statistics in Figures One and Two suggested that market crashes remain as or are becoming more frequent with time and over space. The dummies for these crises also do not occur across multiple consecutive years. Consequently, the effects of these crises ostensibly are restricted to a more discrete set of events, that is the start-years deflationary episodes. The 25 percent threshold for these crises, as has been the case for previous crises, may be casting the net too widely.

If we accept the 25 percent threshold as the making of a catastrophic market crash, then there are three plausible explanations for the high resilience of the ABS sector. The first two relate to reallocation of labor within the sector. First, the ABS sector as defined by the data includes finance, insurance, real estate, and other business and professional services. If these sub-sectors are not closely coupled, such that related occupations such as law, accounting, computer, and media, demonstrate varying cyclicity and little co-movement, then it is possible that despite failures within

financial services, growth in other sectors does not similarly decrease but increases as the demand for business services responds to growing uncertainty in the economy. Second, employment in financial services may not in fact decrease on net, rather rationalizations in high-cost financial centers may be countered by growth in lower cost peripheries. Finally, it may be the case that financial services respond positively to market distress in the short-term and that rationalizations in the sector are rapidly replaced. The assumption that failures and mass firings in finance attend the spectacular market crashes may be incorrect, and perhaps the experience of places like the United States (Ho 2009) during market crashes are an anomaly.

The final crisis is sovereign debt default, which includes government defaults on both domestic and foreign creditors. No sector reported a significant negative coefficient during the crisis year, although manufacturing and transport services reported negative coefficients in recovery years.

Beyond the methodological concerns and historical circumstances outlined already in the case of currency and inflation crises that may also apply to this data, there is a conceptual explanation for this behavior. The crucial determinant of whether employment grows or contracts during a crisis is in whose balance sheets are affected. The widespread negative effects of a banking crises are distributed widely across the private sector—households, businesses, and financial firms. Currency and inflation crises have a more restricted distribution, notably affecting those balance sheets with liabilities to foreign creditors. If the crisis does not trigger insolvencies by disrupting the ability of households, businesses, and financial firms to validate previous obligations and initiate new positions, and if these entities may roll over their debts, then failures, deflation, and contraction are not the necessary outcome. The sovereign may renege on

its debts without precipitating private sector insolvencies. Indeed, the fact that a sovereign defaults on its debts does not always imply its insolvency, nor that the default was unexpected and reflective of underlying fiscal imprudence (Drelichman and Voth 2014).

3.5.1 Robustness check

This section examines how the findings above are affected if an alternative dataset on financial crisis is used. The SUR models were replicated using the IMF-based dates to produce new coefficient estimates, providing an alternative set of coefficients estimated using the same model and controls, including the recession indicator. The IMF dummies serve as a test of robustness with some qualifications. First, as discussed earlier, the data refer only to the start date of the crisis. These data, then, offer a more refined test of resilience as they focus on whether an immediate response was triggered with the onset of financial crisis. Three-year recovery variables (constructed as described in the methodology) are included following these crises, and these dummies, too, are more refined as they can determine whether growth returned to trend immediately after a crisis.

Second, only systemic crises are counted in these data, so crises are fewer, isolating the more exceptional cases. Besides the many discrepancies in timing, the data from Laeven and Valencia contain only three instances where a crisis appeared there but not in the Reinhart and Rogoff data, and there were all currency crises: Italy in 1981; and, Nigeria in 1983 and 1997.

Finally, there are no dummies for inflation or market crashes in the IMF set. The coefficients are displayed in Table Five. A dummy for non-financial/technical recessions was also included, again only for years in which a recession occurred without

a contemporaneous financial crisis. The following analysis takes each crisis in turn.

Two key points emerge from the banking crisis regressions. First, where the recession variable produced significant negative coefficients, the magnitudes were greater than those from the crisis years. This pattern is much clearer in this set of regressions than in the Reinhart and Rogoff data, which arises in the latter partly due to the high frequency of crises and so lower incidence of non-financial technical recessions. This suggests that the effects of financial crises are comparatively less adverse than standard movements of the business cycles. Second, fewer sectors were found to have significant and negative reactions to banking crises. Coefficients for only one sector reversed its sign, for utilities during crisis, from negative to positive, and in this case the recovery year coefficient was almost equal and negative. As such, while the IMF data do not cast doubt on the Reinhart and Rogoff figures, as banking crises are accompanied by long-lasting negative effects, they do temper expectations by showing that the effects of banking crises are subordinate to recessionary declines.

The initial year of currency crises appears to be more destructive than banking. Five sectors reported significant negative effects, of which only agriculture registered negative effects in the Reinhart and Rogoff data. The remaining four were manufacturing, mining, construction, and trade services, of which the last three actually had signs reversed from the coefficients produced using the Reinhart and Rogoff data. Mining, manufacturing, and trade services appear to be more resilient than agriculture, which continued to contract following these currencies while the others had returned to positive growth. Personal services and ABS also displayed a positive significant effect during recoveries. Only transport services appeared to grow during these crises.

	(1)	(2)	(3)
	Banking	Currency	Sovereign debt
agriculture			
recession	-0.168***	-0.101***	-0.154***
crisis year	-0.116***	0.018	-0.041
recovery year	-0.071**	-0.006	0.044
mining			
recession	-0.035***	-0.032***	-0.038***
crisis year	0.021***	-0.014*	0.031***
recovery year	0.008	0.046***	0.053***
manufacturing			
recession	-0.290***	-0.242***	-0.174**
crisis year	-0.032	-0.234***	-0.045
recovery year	-0.037	0.052	-0.149**
utilities			
recession	-0.021***	-0.014**	-0.014**
crisis year	-0.002	0.006	0.017***
recovery year	-0.038***	-0.005	-0.005
construction			
recession	-0.214***	-0.182***	-0.201***
crisis year	0.138***	-0.290***	-0.203***
recovery year	0.062	-0.053	-0.176***
trade services			
recession	0.024	-0.075*	-0.089**
crisis year	0.099**	-0.055	-0.104***
recovery year	-0.059*	0.047	0.003
transport services			
recession	0.002	-0.039**	-0.030*
crisis year	-0.006	-0.047***	-0.118***
recovery year	0.014	0.057***	-0.022
abs			
recession	0.147***	0.115***	0.182***
crisis year	-0.143***	0.015	-0.041**
recovery year	0.043***	0.197***	-0.067***
N	909	909	909

Note: Standardized beta coefficients

* p<0.05, ** p<0.01, *** p<0.001

Table 6: Resilience of economic sectors to financial crises based on IMF dates. Source: calculations based on Timmer and de Vries (2011), de Vries et al (2013), and Laven and Valencia (2013)

More coefficients for sovereign debt crises were also significant and negative, a departure from the Reinhart and Rogoff findings, with agriculture, manufacturing, construction, and trade services showing negative effects. Mining and utilities, as

before, had a positive and significant coefficient. The IMF data also suggest that recovery from these crises is more difficult, with manufacturing and construction not returning to positive growth, however this distress again is concentrated by sector, as mining and utilities did record positive growth after avoiding any immediate reaction.

Importantly, the ABS coefficients were not significant and positive as they were in many of the regressions derived from Reinhart and Rogoff data. This obviates the need to apologize for the unseemly employment gains of the financial sector, although these data are not as significant as before.

In the final section, we elaborate on the empirical and methodological implications of our findings and discuss the importance of context in parsing historical financial crisis data.

3.6 Outline for a geography of financial crises

The primary rationale here was to exercise the financial crisis dataset of Reinhart and Rogoff. Our basic empirical findings support prior research that has stipulated that financial crises produce output losses beyond those of associated recessions, while demonstrating that sectors respond differently depending on the type of crisis. The typology of crises was inherited from the Reinhart and Rogoff data, and we have underlined a number of methodological and conceptual issues that we argue prevent the dataset from fully representing the variations between countries and over time in exposure to these crises. Our inclusion of an alternative financial crisis dataset seems to support our limited empirical conclusions while also stressing the problems of the variable-based approach to financial geography and history. In the remainder of this section, we discuss the methodological implications of our contribution before elaborating on the distributional matters that the empirical results highlight.

A pressing question is: are the financial crisis data correct? This is not a trivial concern as prior, highly-publicized, policy-relevant research from Reinhart and Rogoff (2010) has been found to contain serious errors, exclusions, and failures (Herndon, Ash, and Pollin 2013). Comparing the frequencies of their crises with alternative data (Laeven and Valencia 2013) showed that there is some truth to criticism that Reinhart and Rogoff (2009) have overemphasized the frequencies of these crises, conflating systemic crises with minor disruptions. A potential counterargument to this claim is that the Reinhart and Rogoff data represent the *duration* of a crisis. At the very least, in keeping the critical threshold low for banking and currency crises in particular, their approach contributes to the normalization of “crisis” as a discrete and pervasive condition in financial, social, and political life (Castells, Caraça, and Cardoso 2012). Systemic crises are much rarer, and using dummies for these events are as, if not more, conclusive about the adverse effects of financial crises on sectoral employment.

We recommend that future research using coded variables for financial crises approach their sources with skepticism, and include where possible alternative series. In fact, the discrepancies between comparable datasets may be more illuminating than their content in isolation; if not attributable to coding error, differences between similar datasets serve as an important reminder of the tenuousness of definitions of crises, urging equal attention to specific country experiences. There are certainly benefits to distinguishing between crises of catastrophic potential and less destructive financial disruptions, yet it is not possible in the Reinhart and Rogoff (2009b) dataset to determine these differences without detailed knowledge of country histories.

There are three final methodological points. First, the use of a systemic crisis database providing only the start year of crisis accords quite well with the resilience

approach of quantifying the immediate reactions of the dependent variable and then its post-crisis behavior. The Reinhart and Rogoff (2009b) data does not separate individual crisis episodes in their dataset, so that the presence of annual dummies often presents long stretches of time as being a crisis, when by stricter criteria these long periods would be characterized by short, severe moments of distress. Again, this can be overcome through a close reading of country histories, but this level of scrutiny was beyond our remit here. Second, the issue of joint crises and the transitions from recession, to banking crisis, to balance-of-payment, to fiscal crises—in whatever direction and combination—are an important direction for study, however this is a topic that should be reserved for individual case histories or comparison of small samples. Annual coded data, as explained, does not serve this question well as financial crises can develop rapidly, obscuring the chronology. For that reason, we treated each crisis separately as they were coded in the data. Finally, the issue of joint crises raises a related problem of whether the set of crises covered by Reinhart and Rogoff are the *right* crises. As stated, deflationary and disinflationary episodes, in theory, pose more obvious threats to growth (Minsky 2008). As part of future work on financial crises, a fuller taxonomy of financial dysfunctions would clarify what sort of events should command the attention of researchers concerned with growth at the macro-level.

The second set of questions then, of a conceptual nature, is: what sort of crises should preoccupy public policy, and what should be the terms of these debates? Our contribution has recommended that, first, systemic crises must be isolated, however even these events have varying sectoral imprints based on type (banking, currency, or sovereign debt). Second, we note that, using the IMF figures, banking crises appeared to have the worst effects during crisis years and that these continued into recovery periods.

Coefficients for currency crises, in contrast, were of lower magnitudes and rarely continued into the recovery period. Given the destructive and widespread impact of banking crises, these events merit continued attention.

At a broad level, the results stress that sub-national distributional matters arising from crises need to be explained, particularly inter-sectoral relations. We have speculated on two forms of these relations: financing needs and balance sheet composition, however the literature reviewed has also pointed to the relationships between the financial sector and government supervisory agencies in how burdens and benefits are allocated during periods of crisis. The limits to institutionalist, variable-based approaches to these questions notwithstanding, cross-country time series comparisons, taking into account the cautions above, that merge financial crisis data with employment figures and data on institutional factors capturing the quality of government oversight and employment and welfare protections would advance our thinking on the subject.

We do not mean for our results here to be understood as universally applicable, rather we acknowledge the explanatory constraints of research into cross-national comparisons of financial trends that lacks grounding in the peculiarities of time and place (Bell, Johnston, and Jones 2014). We emphasize two points in conclusion. First, financial crises are important, but the criteria for such events must be restrictive before being applied meaningfully in research and in the formation of public policy. Second, sectors respond differently to these events, and the resulting externalities constitute a matter of public policy concern. In addition to checks for robustness and attention to the criteria of financial crises, conclusions from empirical work in the style here should be balanced against specific country studies.

Chapter Four: Geographies of financial stability: bank failures and rescues in the United States during the Great Recession

“Dear George: Remember, no man is a failure who has friends.”
Clarence to George Bailey, *It's a Wonderful Life* (1947)

4.1 Introduction

In the American holiday film *It's a Wonderful Life*, a depressed banker, George Bailey, has become entangled in charges of bank fraud and considers ending his life. An angel, Clarence, is sent to show George how he has changed the lives of the people in his small home town for the better. Having rescued George, Clarence leaves the note reproduced in the epigraph. Taken out of context, the note captures one of the popular, conspiratorial narratives of the 2008 financial crisis in the United States: bankers have friends in high places. Yet despite a number of government loan and investment programs made available for US financial markets after the crisis, even within the banking sector some organizations benefited more than others. The chief objective of this chapter is to investigate how the geography and institutional structure of the US banking sector have been affected by the government intervention into financial markets during the 2008 crisis.

Much attention has been devoted to the role of the Federal Reserve during the crisis and recovery (Adolph 2013; Clark 2014; Lavelle 2013), given its setting interest rates near zero, regular asset purchases, and forward guidance. However, an equally important and visible feature of the crisis outside of asset markets was the remedial

action on the part of the federal government with respect to individual banks. The Federal Deposit Insurance Corporation (FDIC) resolution process of failing banks and the Treasury's Troubled Asset Relief Program (TARP) were two functionally-similar programs—designed to maintain the stability of the financial system—with remarkably different geographies as well as political and economic consequences, that together touched on almost the entire banking sector.

Despite similar intentions, the differences in form between the programs are crucial. FDIC is a mechanism for transferring property rights from insolvent to solvent organizations, involving seizure of failing bank assets and a competitive auction. By contrast, TARP was a direct cash subsidy. Where FDIC is financed through levies imposed on member banks, TARP was an emergency Congressional authorization, initially of \$700 billion. Where shareholders are wiped out in the event of an FDIC takeover and sale, capital injections under TARP were specifically mandated to occur at the level of the bank holding company (BHC), allowing executives and boards to determine the application of government funds. It will be some time before the full effects of these programs on local and national banking market structures are known, however our analysis offers some preliminary points.

There are three research questions. First, did the two interventions observe different locational patterns? A subsidiary point is how these patterns accord with the distribution of burdens associated with the recession, for instance as described by Martin (2010). Second, why did the programs observe such different locational patterns? This question requires an inquiry into the nature of financial regulatory space: the administrative agencies responsible for intervention and the spatial biases arising from their organizational structure and bureaucratic culture. Finally, what have been the

consequences of intervention for patterns of consolidation and concentration in the banking sector?

The analysis takes place at the level of the US state as opposed to metropolitan for the reason that states retain charter and supervisory authority over large parts of the banking sector. The analysis produces five empirical points. The first two concern the spatial structure of the 2008 crisis. First, bank failures followed the patterns of underlying distress, which correspond to foreclosures, unemployment, and the subprime problems at the state-level (Martin 2010). Second, organizations receiving government capital under TARP (the Capital Purchase Program, CPP, specifically) followed an alternative distribution, demonstrating a more eastward focus. Third, these distributions reflect an ongoing transformation of regulatory space, with the development of a greater role for Treasury and Federal Reserve, often at the expense of FDIC. Fourth, the crisis contributed to consolidation within the insured banking sector, with one-third of the mergers-and-acquisitions during the crisis attributed to outright failures. Finally, the bank holding company (BHC) community has continued to expand, incrementally during the crisis years and most notably after 2011, aided by the Treasury preference for implementing policy through these entities.

Some preliminary caveats and definitions are in order. The populations of banks and BHCs are not equivalents: many of the country's banks are managed within a BHC structure, and almost all US banking assets are contained within the BHC universe (Avraham, Selvaggi, and Vickery 2012). As such, the sample here refers to two different but overlapping groupings of financial intermediaries as they relate to their regulatory environment. The FDIC resolution program applies to depository institutions such as commercial banks and savings institutions, but not credit unions. These can be stand-

alone (“unit”) banks or banks with branch networks, and the determination of their primary financial regulator depends on their charter, which is discussed below. The TARP was available to BHCs, which are supervised primarily by the Federal Reserve, and these entities may own multiple depository institutions that in turn are regulated by other financial regulators. BHCs may also own subsidiary BHCs, however TARP was available only to the highest-level company, which are termed “top-tier BHCs” (and these are the statistics reported here).

The next section reviews the literature on the geography of banking crises in addition to the problem of national spatial economic policies. Following that, we present the data and methodology. The first empirical section analyzes the locational patterns of the FDIC failure resolutions (from 2007 to 2012) and disbursements under TARP (when the program was active from 2008 to 2010). The next section attempts to explain these distributions with reference to the spatial biases of the administrative agencies. A final empirical section discusses the effects of the consolidation and change in US banking markets. In the discussion section, we situate these developments within the institutional evolution of the banking system and its regulatory systems, and then summarize our findings with suggestions for future research.

4.2 Bank failures and the regulatory response

Musson (2010) has argued that the application of national spending programs is spatially uneven for two reasons: the demand for spending differs over space, and the allocation system itself. The FDIC resolution system is not a spending program, however Musson's insight offers a useful framework for understanding the spatial biases of national administrative agencies. The first part of this section describes the factors that affect the “demand” for government intervention into banking. The second part

outlines the factors for the allocation system, and the third part briefly summarizes the relevant actors involved in US federal financial stability.

4.2.1 The spatial distribution of failures and distress

The proximate cause of a bank failure is closure by its chartering authority—either a federal or state agency—based on the determination that the institution is insolvent or illiquid. Two conditions satisfy insolvency: first, the institution is undercapitalized, and, second, its loan and investment portfolio becomes nonperforming (Calomiris and Haber 2014, 3–4). A portfolio becomes nonperforming as losses from risky loans accumulate and the cost of rolling over debt rises. Illiquidity is a situation where the institution cannot immediately meet its prior contractual cash obligations, usually related to creditor withdrawal pressures (ibid, 26).

The relationship between bank failures and local economic conditions suggests that failures are derivative of underlying distress. During the Great Depression, bank failures were concentrated in rural states, and were especially high in those agricultural areas that had experienced a boom in land prices (Alston, Grove, and Wheelock 1994; Calomiris and Mason 2003; White 1984). During the S&L episode, Warf and Cox (1996) found that the location of saving institution failures was closely related to states with high residential mortgage delinquency rates, although not commercial real estate vacancies. Mortgage market collapse is not the only reason that banks face distress, and other factors include reliance on wholesale funding sources, accounting fraud, securities holdings, and exposure to non-residential property loans. For instance, using commercial bank failures among states, Warf and Cox (1995) reasoned against an effect from local economic conditions, expressed in location quotients, but emphasized the importance of local instances of speculative overbuilding (see also Amos 1992 and

Breitel 2000).

Martin (2011) provides an important benchmark of economic distress in the US during the Great Recession for comparing our maps of financial distress and stability. Martin's analysis points to high correlations between local incidence of foreclosures, subprime mortgage origination, and unemployment, all of which are disproportionately located in metropolitan areas, but also evident in sub-national clusters, such as in western, south-eastern, and midwestern states.

Nation-wide branch networks offer a potential counterweight to local distress manifesting in failures among unit banks. Canada, for instance, in the absence of historical restrictions on intra- and interstate banking as in the US, has avoided banking crises (since the 19th century) due to the ability of its large banks to deploy deposits and capital out of troubled regions (Calomiris and Haber 2014). The downside of consolidated banking is the potential for aggravating regional inequalities through credit rationing, branch rationalization, and other adverse effects that arise from the decisional distance implicit in network banking (Alessandrini, Presbitero, and Zazzaro 2009b; de Haas and van Lelyveld 2014; Presbitero, Udell, and Zazzaro 2014).

4.2.2 Organizational decision-making and spatial economic policy

Clark (1992) has argued that a cause of varying national responses to similar economic problems can be found in the historical origins of regulatory institutions. Similarly, our claim that interventions are inherently spatial is inspired by studies of the governance of economic development and welfare specifically, which have demonstrated a material shift in recent decades from government policies aimed at correcting spatial disparities to those that exacerbate them (Hamnett and Butler 2011; Hamnett 2009; Musson 2010; Pike and Tomaney 2009).

Conceptual models of bureaucratic decision-making (Allison and Zelikow 1999; Halperin and Clapp 2006; Wilson 2000) can be used to support the claim that organizational culture is a relevant economic factor structuring the distribution of distress. Lavelle (2013) has applied Allison and Zelikow's model to a case study of the regulatory causes of the 2008 crisis, however the novelty here is in attention to the *spatial ramifications* not necessarily of causes but of bureaucratic *reactions* to the crisis.

The organizational models raise four vital points concerning regulatory behavior over space. First, they raise the problem of a “national interest”, which is the ever-elusive product of intra-governmental interaction and negotiation (Halperin and Clapp 2006, 24). Halperin and Clapp (2006) explain how the understanding of this interest by each participant—in this case, federal financial regulators—influences their subsequent stance regarding the willingness to be involved in policy and to deploy organizational resources. Related approaches to this problem of decision-making at the executive level have focused on the effects of career ambitions and expertise on central bank policy (Adolph 2013; Clark 2014).

Second, relevant participants can be defined according to their missions, capabilities, and routines. Slightly different is the “organizational essence”, referring to the “view held by the dominant group of what its missions and capabilities *should* be” (own emphasis) (Halperin and Clapp 2006, 27). This normative concept introduces the motivating goal of an organization: to gain influence in support of its ideological view that it is the best judge of the national interest. Where the first point concerns behavior of principals, this second point speaks to the broader culture of an agency in addition to its historical origins and mandate.

Third, the decision-making process is filtered by information gathered, analyzed,

and provided by the organization. Defining the scale of the problem is itself an output of existing organizational capabilities, which is structured by the above propositions.

Finally, and related to this third point, is that what can be done about a problem also depends on the existing organizational capabilities. These are two particularly relevant insights given that the prevailing assumption of public financial leaders in 2008 was that the necessary tools to resolve the crisis as they understood it did not exist at the time, necessitating TARP (see, as an example, the memoirs of the FDIC chairman at the time, in Bair 2012, 118).

Allison and Zelikow (1999, 217) comment that “... political leaders who sit atop governmental organizations do make major decisions about *which* organizations shall play out *what* programs *where*” (original emphasis). Whether or not Allison and Zelikow have ascribed more geographical awareness and intention to decision-makers than they possess is less important than the reality that decisions about organizational responses are essentially spatial decisions. Intentions of leaders withheld, the significance of which organizations carry out their programs matters for two reasons: first, policy objectives of agencies differ such that the 'where' may already be determined by technical and legal requirements, and, second, biases are inbuilt to policy programs through the standard operating procedures and information collection processes, indirectly favoring institutions and locations over others.

4.2.3 Financial stability policy in the US

The three governors of financial stability in the US are the Federal Reserve, FDIC, and Treasury. In terms of bank oversight authority, the Office of Comptroller of the Currency (OCC, an independent office in the Treasury) charters and supervises national commercial banks. Prior to 2011 when it merged with OCC, the Office of

Thrift Supervision (OTS, also in Treasury) chartered and regulated national savings institutions. The FDIC joins individual state agencies in supervising banks and savings institutions that the states have chartered, but acts as secondary or back-up regulator for all banks as FDIC is the sole deposit insurer. Some state-chartered institutions elect to become members of the Federal Reserve system, gaining access to the discount window, for example, and these institutions then are jointly supervised by the Federal Reserve, FDIC, and state agency. All federal regulators are headquartered in Washington, DC, but are “dispersed bureaucracies” (Wilson 1989, 167), in that they maintain regional offices in major cities to monitor their target entities.

Legislation created FDIC in 1933 at the height of the bank panics of the Great Depression, although agitation for federal depository insurance predates the New Deal by over fifty years. FDIC was one part of a New Deal platform that gave expression to long-standing rural and agricultural concerns over concentrated industrial and financial interests (Prasad 2013; White 1984). The Act that created the FDIC also imposed interstate branching restrictions and separated commercial and investment bank activities. As such, the FDIC sits between desires to maintain individual states' representation in the banking system, populist anxiety over consolidated economic power, and federal demands for a mechanism to maintain national financial stability. FDIC took on renewed importance in the 1990s when its counterpart for thrift institutions was liquidated by Congress following the S&L crisis, and responsibilities for deposit insurance and supervision of state-chartered savings institutions were transferred to FDIC.

By contrast, TARP has a brief legislative and administrative history. In the fall of 2008, Treasury Secretary Paulson led a lobbying effort for an asset buying program

for several weeks before Congress finally passed emergency legislation. Testifying to the Senate on September 23, Paulson asked, in order to avoid further financial failures and a collapse in lending, that Congress approve a “program to remove troubled assets from the system” (Paulson 2008). Inability to pass a first version of the bill had resulted in the largest single-day drop in history—some 778 points—in the Dow Jones Industrial Average, on September 29. Congress intended the Act to protect the values of homes, college funds, retirement accounts, life savings, preserve homeownership, promote job growth, and maximize returns to the taxpayer (US Congress 2008). It granted authority to establish TARP and “purchase ... troubled assets from any financial institution, on such terms and conditions as are determined by the Secretary” (ibid, 6). Effectively, Congress endowed Treasury with temporary lender-of-last-resort capabilities, granting substantial funds and broad discretionary powers.

4.3 Data and Methodology

The first and third research questions can be addressed through quantitative methods, while the second is best approached from a qualitative perspective.

For the first and third questions, the data are historical time-series of bank failures and assistances available from FDIC and recipients of TARP funds from the Treasury transaction reports⁶. The FDIC data include information on institution name and other identifying information, headquarters location, failure date, transaction type, charter, total deposits and assets as of the call report issued prior to closure, and estimated losses as of December 31, 2012. Estimated losses are measured as the difference between the amount disbursed from the insurance fund and the amount recovered from liquidation of the failed bank. We include failures from 2007 through

⁶ <http://www.treasury.gov/initiatives/financial-stability/reports/Pages/TARP-Investment-Program-Transaction-Reports.aspx> [Last accessed: March 17, 2014]

2012.

The Treasury report from which data here was drawn is dated February 19, 2014. It contains figures for nine sub-programs contained within TARP, including the Capital Purchase Program (CPP) that is our concern. Hereafter, we use TARP and CPP interchangeably but the referent sample is only those institutions that received CPP funds. The Treasury data concern the transactions only, including institution name, location of BHC headquarters, date of purchases, investment type, investment amount, outstanding investment, total cash back (income less expenses), investment status, shares purchased and average price, realized loss, gains, and warrant proceeds.

The dollar figures in the FDIC and Treasury datasets are difficult to compare because of their functional differences. The estimated losses incurred by the FDIC when resolving failed institutions relate to different resolution strategies: the closure of the bank, which involves directly paying off insured depositors; reorganizing the bank as a government-owned bridge bank and temporarily running it until a buyer is found (with additional administrative costs); and, entering into loss share agreements with acquiring institutions, due to the risks of the troubled loan portfolio of the failed institution. For these reasons, we use assets of failed banks as the chief indicator of the geography of distress. In contrast, as BHCs may own a portfolio of depository institutions across the country hence exhibiting varying degrees of instability within the organization, the TARP disbursements should not be interpreted as a separate geography of distress. Instead, we use TARP disbursements, rather than assets of BHCs, to represent an alternative geography of stability. As the TARP disbursement were made on the basis of reported assets, disbursement already contain the necessary information on organization size.

Data for total number of financial institutions and total bank assets was accessed from FDIC statistics on depository institutions⁷. Data for top-tier BHCs was retrieved from the peer group average reports from the Federal Financial Institutions Examination Council (FFIEC) for the fourth quarter of the relevant years⁸.

To determine the change in concentration levels in banking markets, we use a simple Herfindahl index:

$$C = \sum_{i=1}^N s_i^2 \quad (1)$$

where: i refers to the geographical units (states); N is the total number of geographical units (=51); and s is each unit's share of the relevant variable of the total for all units. In our case, we create this index using as the denominator of the s variable the total number of banks, BHCs, and their assets for all states for the years 2007 and 2012. The index ranges from $1/N$ to 1, where the units are states (=51) and the market as the whole is the US.

Regarding the second research question, we relied on three types of texts to construct our narrative of the 2008 crisis and governmental response. The first are memoirs and public comments by regulators. The memoirs specifically are by FDIC chairman Sheila Bair, the special inspector general (SIG) of TARP Neil Barofsky, and Treasury Secretary Henry Paulson. We also consulted 2009 congressional testimony by Henry Paulson. The second group of texts were statutes and procedural documents, including the TARP legislation and the form involved in the application process (the TARP transaction reports could also be considered a part of this genre). The final group are official audits and reports by independent government inspectors, namely the office

7 <http://www2.fdic.gov/sdi/main.asp> [Last accessed March 24, 2012]

8 http://www.ffiec.gov/nicpubweb/content/BHCPRRPT/BHCPR_Peer.htm#pagetop [Last accessed May 7, 2014]

of SIGTARP.

4.4 The distribution of financial distress and stability

This section determines whether the two programs observed separate geographical distributions, beginning with descriptive statistics and then the largest failures and TARP distributions

The contrast in populations of banks and BHCs sets up several striking features of the banking crisis and intervention (Table Seven). Of the nearly 1,500 acquired or merged institutions over the period, failures account for just under one third of consolidation activity. Total failures from 2007 to 2012 represent 5.47% of the 2007 population, and assets of such banks were 5.13% of total bank sector assets in 2007. In contrast, between 2008 and 2010 (when authorization for TARP expired), 705 BHCs received TARP funding. That is, the number of rescued top-tier BHCs was almost three quarters the number of top-tiers BHCs existing in 2007. This figure is made even more striking when considering that the government capital disbursement represented only 1.51% of BHC total assets. In addition, of that amount, \$125 billion was provided to nine of the largest US financial institutions, leaving \$78 billion to be allocated among less than 700 companies, for an average of \$111 million per BHC. Despite the program membership, in relative terms the TARP intervention was small enough that it had a minor effect on recapitalization of the BCH sector as a whole, ignoring the private sector capitalizations that preceded TARP. Yet the average figure masks the uneven geographical spread of this capital.

Commercial banks and savings associations				
	2007		2012	
	Count	Assets (\$000s)	Count	Assets (\$000s)
Total	8516	12,931,768,473	7071	14,378,288,097
Mean	166.98	253,564,088	138.65	281,927,218
SD	153.29	462,376,781	128.98	564,417,600
Min.	6	1,722,488	5	1,882,079
Max	670	2,184,707,692	562	2,625,184,197

Bank Holding Companies				
	2007		2012	
	Count	Assets (\$000s)	Count	Assets (\$000s)
Total	951	13,449,536,987	1132	18,063,665,787
Mean	18.65	263,716,412	22.20	354,189,525
SD	16.18	837,107,700	20.21	1,097,468,015
Min.	0	0	1	1,160,107
Max	74	5,410,137,515	94	7,428,001,188

Failed commercial banks (2007 to 2012)			
	Count	Assets (\$000s)	Est. losses
			(000s)
Total	465	663,963,240	83,970,452
Mean	9.12	13,018,887	1,646,479
SD	16.79	46,344,770	3,790,076
Min.	0	0	0
Max	85	315,507,926	21,240,332

Beneficiaries of Capital Purchase Program (2008-2010)		
	Disbursements	
	Count	(\$000s)
Total	705	203,559,726
Mean	13.82	3,991,367
SD	13.33	12,469,481
Min.	0	0

Table 7: Descriptive statistics for US financial institutions and government interventions. Source: data retrieved from FDIC, FFIEC, and US Treasury online (see Section 4.3). Note: commercial banking statistics independently reported from bank holding company statistics. These are the full universe of organizations, not simply failed organizations.

The twenty largest failures and TARP disbursements are displayed in Tables Eight and Nine. Washington Mutual (WaMu) was the largest failure on record during the 2008 crisis, however it did not draw on FDIC depository insurance funds because it

had been in competitive negotiations with potential buyers for some time prior its failure. The FDIC had been monitoring the deteriorating position of WaMu since March of 2008 and that summer press reports of its dire accounts had caused a substantial outflow of deposits and a crash in the stock price. By Friday, September 19, officials perceived WaMu to be insolvent (Paulson 2013, 269). The FDIC completed a secret auction of WaMu to JP Morgan Chase on September 25, and OTS and FDIC closed the bank that day. While WaMu's regulatory/banking identity placed its residence in Nevada, its traditional home had been Seattle, seat of its corporate headquarters.

IndyMac, the second largest financial failure during the 2008 crisis, was similarly a west coast-based thrift that was regulated primarily by the OTS and had also suffered a run in the summer of 2008, after a US Senator publicly aired worries that the institution was about to fail. The high cost to FDIC of IndyMac was a combination of the decline in franchise value due to the chaotic run on the bank as well as the large amounts of uninsured deposits at the bank. The inability to find a buyer for IndyMac until almost a year after it was shuttered incurred additional administrative costs as the bank was operated in receivership (as a government-owned bank) in addition to the more considerable costs necessary to transform the portfolio of nonperforming mortgages prior to sale.

Of the twenty largest failures, ten were savings institutions, which means that their charter was granted by either the OTS, so operating as a federal thrift or savings bank (FSB), or by a state. The FDIC served as a back-up regulator given its exposure as insurer of these entities. Of the 465 failures, 57 were savings banks and 18 were savings associations. In 2007, FDIC insured 478 savings institutions, revealing an organizationally-clustered incidence of distress. Within this group of twenty, the cohort

with the next costliest failures was nationally-chartered commercial banks, followed by state-chartered nonmember banks.

<u>Institution Name</u>	<u>Location</u>	<u>Total Deposits</u> <u>(\$M)</u>	<u>Total Assets</u> <u>(\$M)</u>	<u>Est. DIF Loss</u> <u>(\$M)</u>	<u>Charter Class</u>
Washington Mutual Bank (2008)	Henderson, NV	188,261	307,022	0	SB
IndyMac Bank, FSB (2008)	Pasadena, CA	18,942	30,699	13,214	SB
Colonial Bank (2009)	Montgomery, AL	20,020	25,455	4,509	NM
Guaranty Bank (2009)	Austin, TX	11,984	13,464	1,156	SB
BankUnited, FSB (2009)	Coral Gables, FL	8,776	13,111	5,947	SB
Downey Savings & Loan Assoc., SA (2008)	Newport Beach, CA	9,653	12,779	571	SA
AmTrust Bank (2009)	Cleveland, OH	8,559	11,439	2,972	SA
United Commercial Bank (2009)	San Francisco, CA	6,938	10,895	1,213	NM
California National Bank (2009)	Los Angeles, CA	6,145	7,781	678	N
Corus Bank, NA (2009)	Chicago, IL	7,061	7,003	655	N
First Federal Bank of California, FSB (2009)	Santa Monica, CA	4,539	6,144	82	SB
Franklin Bank, SSB (2008)	Houston, TX	3,693	5,089	824	SB
Park National Bank (2009)	Chicago, IL	3,717	4,681	358	N
Silverton Bank, NA (2009)	Atlanta, GA	3,315	4,157	717	N
Imperial Capital Bank (2009)	La Jolla, CA	2,822	4,047	504	NM
PFF Bank and Trust (2008)	Pomona, CA	2,394	3,715	389	SA
La Jolla Bank, FSB (2010)	La Jolla, CA	2,799	3,646	840	SB
San Diego National Bank (2009)	San Diego, CA	2,892	3,595	285	N
First National Bank of Nevada (2008)	Reno, NV	3,038	3,411	802	N
Riverside National Bank of Florida (2010)	Fort Pierce, FL	2,725	3,394	169	N

Note. Deposits, assets, and estimated losses in millions of dollars (as of June 2012).

Table 8: Largest financial failures during the Great Recession (2007-2012) by size.

Source: data retrieved from FDIC online (see Section 4.3). Note: year of failure in parentheses following name of bank.

In addition to organizational concentration, large failures are also predominantly located in California, for a total of nine. With the exception of AmTrust Bank of Cleveland and two banks in Chicago, the largest bank failures during the 2008 crisis were located in either west coast or southern states.

The ten largest failures represented roughly \$439.1 billion in total assets as of June 2012, which means that these institutions accounted for almost two thirds of all assets of failed institutions during the crisis. These same institutions, however, only accounted for roughly 36.2% of the estimated losses to the FDIC depository funds. This disparity might relate to the different strategies available to the FDIC in resolving

institutions and their variable costs.

The twenty institutions to receive the most CPP funds are recorded in Table Nine. Eight of the original nine institutions called to Washington on October 13 are listed here, Merrill Lynch having been acquired by Bank of America (the amounts from CPP to Merrill Lynch are included in the number for Bank of America). As a group, these institutions received \$125 billion, just under two thirds of total CPP disbursements. In the case that the amounts returned were greater than disbursed, the increase can be attributed to interest and dividend payments, growth in value of equity stakes, or fees paid to repurchase stock warrants.

Organizations headquartered in New York prevail among these twenty, totaling seven institutions. Institutions that are most distant from New York are Wells Fargo and US Bancorp in Minneapolis and CoAmerica in Dallas. Besides location information, the data release from Treasury are almost exclusively financial accounting. It does not, however, disclose the reported total risk-weighted assets of the institutions, although it states the amount of shares purchased and their price. Treasury's cash flow method, focusing on the difference between funds disbursed and returned, has the disadvantage of obscuring the actual costs of offering below-market financing (Veronesi and Zingales 2010). As more than one CEO at the Treasury meeting of October 13 remarked, CPP was “cheap capital” (Paulson 2013, 434).

The chief feature of the distribution of both failures and rescues is their spatial concentration, and these concentrations seem to be on opposite sides of the country: failures in California and rescues in New York. However, given the uneven spread of financial institutions and their assets across states, these lists of largest failures and rescues do not capture the extent to which the banking crisis affected individual states.

Figures Six and Seven present choropleth maps for this purpose (Alaska and Hawaii are not displayed).

Figure Six interprets state-wide distress as the proportion of failed banks to the size of the FDIC-insured banking sector at the end of 2007, which reflects the number of banks headquartered in that state, not number of operating institutions. The map reveals that states with the most dysfunctional banking systems were either on the west coast/south west or the southeast. In these areas, over eight percent of the banking system required FDIC seizure and sale. In Arizona, Florida, Georgia, and Nevada, over 20% of the banks in those states required such action. In contrast, the New England states had almost no failures, while Texas, one of the largest of the continental states, saw less than one and a half percent of its banks fail, a stark contrast to its performance during the S&L debacle (Warf and Cox 1995, 1996).

<u>Institution Name</u>	<u>Location</u>	<u>Total CPP Investments (\$M)</u>	<u>Amount Returned (\$M)</u>	<u>Year Funds Returned</u>
Bank of America	Charlotte, NC	25,000	26,600	2009
JPMorgan Chase & Co.	New York, NY	25,000	26,731	2009
Citigroup, Inc	New York, NY	25,000	32,839	2010
Wells Fargo & Co.	Minneapolis, MN	25,000	27,281	2009
Goldman Sachs Group, Inc	New York, NY	10,000	11,418	2009
Morgan Stanley	New York, NY	10,000	11,268	2009
The PNC Financial Services Group, Inc	Pittsburgh, PA	7,579	8,321	2010
US Bancorp	Minneapolis, MN	6,599	6,933	2009
Suntrust Banks, Inc	Atlanta, GA	4,850	5,448	2011
Capital One Financial Group	McLean, VA	3,555	3,807	2009
Regions Financial Corporation	Birmingham, AL	3,500	4,138	2012
Fifth Third Bancorp	Cincinnati, OH	3,408	4,044	2011
The Hartford Financial Services Group, Inc	Hartford, CT	3,400	4,236	2010
American Express Company	New York, NY	3,389	3,803	2009
BB&T Corp	Winston-Salem, NC	3,134	3,293	2009
Bank of New York Mellon	New York, NY	3,000	3,231	2009
KeyCorp	Cleveland, OH	2,500	2,867	2011
CIT Group, Inc	New York, NY	2,330	44	2010
Comerica, Inc	Dallas, TX	2,250	2,582	2010
State Street Corporation	Boston, MA	2,000	2,124	2009

Note: investment, amount returned, and difference in millions of dollars (as of 2014)

Table 9: Largest recipients of Capital Purchase Program (CPP) investments by total investment amount. Source: data retrieved from US Treasury online (see Section 4.3).

Figure Seven further emphasizes the concentration of distress in the west and south, and stability in the northeast. The banking sectors in California and Florida were most troubled, with 22.91 and 23.89 percent of bank sector assets having been seized by FDIC and sold to other institutions.

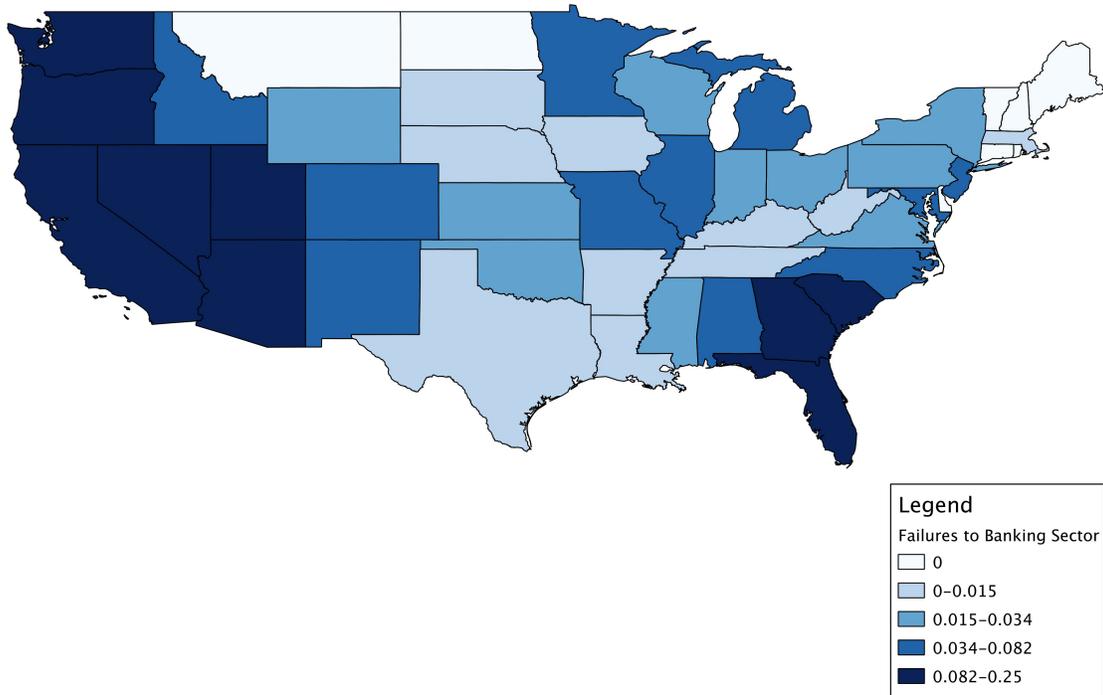


Figure 6: Ratio of bank failures to banks headquartered by state. Source: calculations based on FDIC data. Note: failures are represented as a ratio.

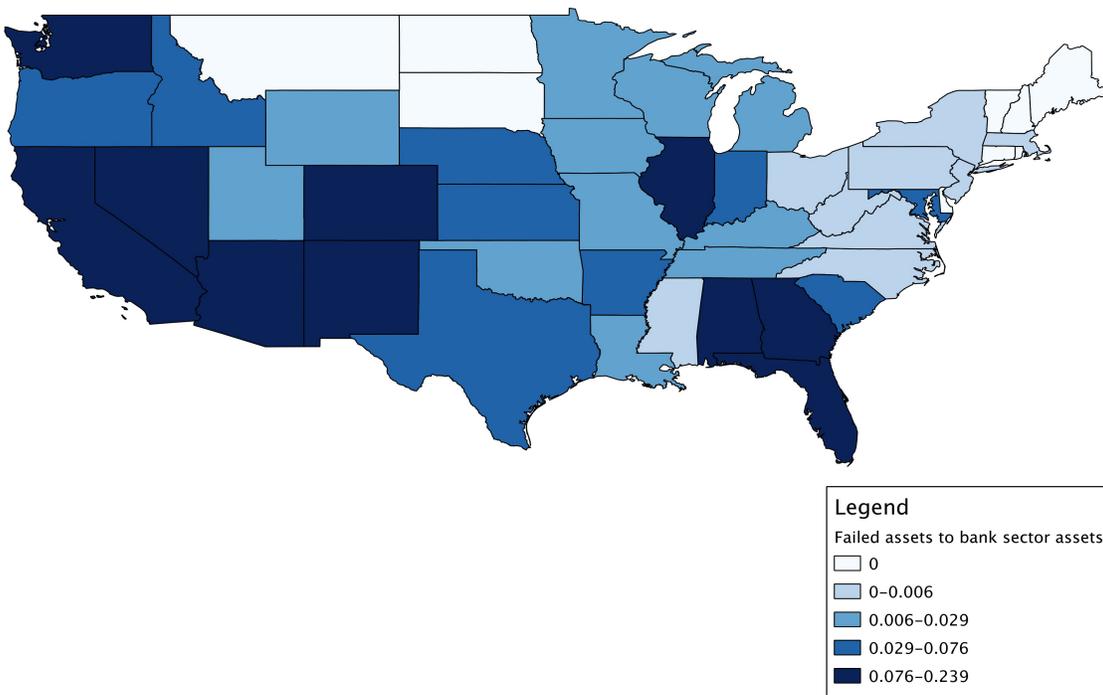


Figure 7: Ratio of failed bank assets to total banking sector assets by state. Source: as above. Note: failures are represented as a ratio.

In Figure Nine, the allocation of CPP funds relative to the 2007 stock of BHC assets demonstrates a more eastward-bias than does the allocation of capital recipients, however we do not witness the same level of consecutive clustering as in the previous Figures. Populous areas—Minnesota, Wisconsin, Georgia, Virginia, Maryland, and Pennsylvania—are in the top tier of receiving institutions. Most notable is the contrast with California, whose institutions collectively received capital totaling less than one percent of the 2007 stock, yet was also the site of such remarkable distress. Partly this figure remains low because the distribution to Wells Fargo was not recorded to its California subsidiary in the Treasury accounting, but to the Minneapolis unit, whereas the FFIEC data detailing BHC assets refers to the Wells Fargo unit in San Francisco. If the \$25 billion to Wells Fargo were registered in California, then the ratio of TARP funding to BHC stock in 2007 in California would be over 3.5%, placing it in the top quantile. If the \$575 billion consolidated assets of Wells Fargo in California in 2007 were excluded from the total BHC stock for that year, then the ratio would be over 1.3%, placing the state in the second highest quantile⁹. These adjustments more accurately reflect a level of distress among BHCs in California that expresses the degree to which its financial sector as a whole had become dysfunctional due to the collapse in its real estate and labor markets. These four maps represent the independence of locational patterns of the FDIC and Treasury approaches to financial stability.

⁹ Conversely, if the Wells Fargo amounts are removed from the Minnesota totals, then the ratio of TARP funds to BHC stock in 2007 would be roughly 2.5%, significantly less than the 11.5% with the inclusion of Wells Fargo, but still comparatively high nonetheless.

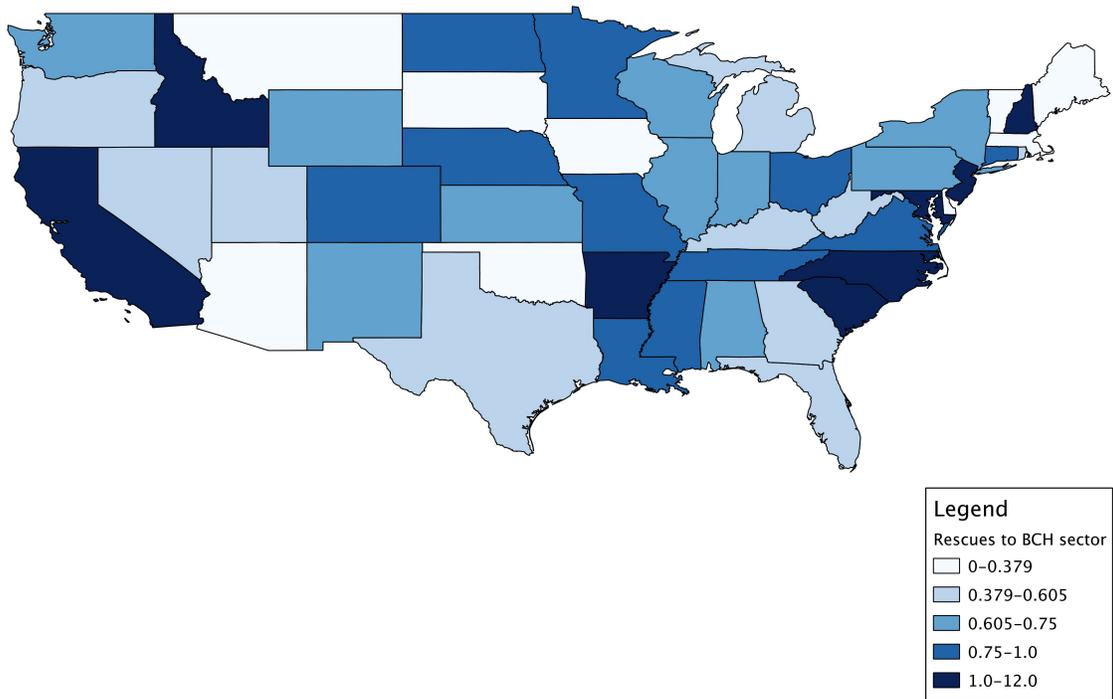


Figure 8: Ratio of rescued BHCs to BHCs headquartered by state. Source: calculations based on FFIEC and US Treasury data. Note: failures are represented as a ratio.

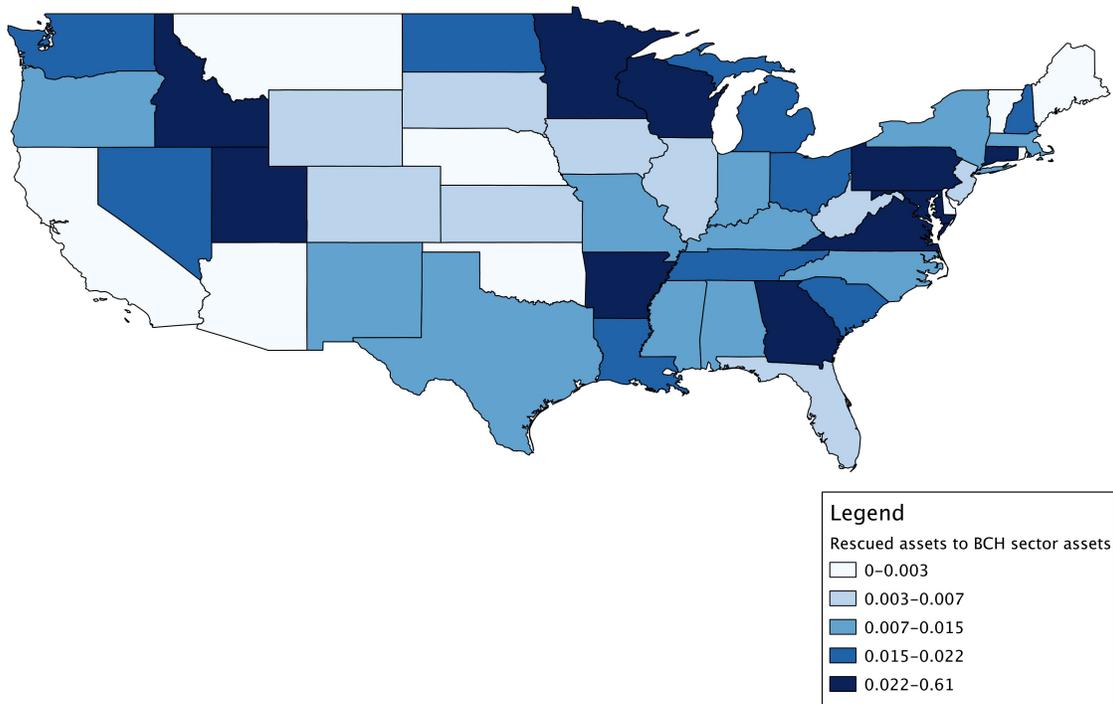


Figure 9: Ratio of rescued BHC assets to total BHC assets by headquartered state. Source: calculations based on FFIEC and US Treasury data.

4.5 Spatial biases in federal financial stability policy

To outline the spatial biases inherent to federal financial stability policy, this section first addresses the FDIC and then Treasury and TARP, focusing on governance arrangements, organizational essence, and organizational procedures and outputs, including information-gathering capabilities.

4.5.1 The FDIC and bank resolutions

When it comes to enforcing federal soundness and capitalization regulations, FDIC acts in concert variously with state agencies and OCC (and OTS). FDIC is governed by an executive board, with five regional divisions. Prior to and during the 2008 crisis, the executive board consisted of the FDIC chairman, two FDIC officers, the Comptroller of the Currency, and OTS director (now director of Consumer Financial Protection Bureau). The former three undergo presidential nomination and Senate confirmation in order to serve on the FDIC board, and while the latter two are *ex officio* members, as directors of independent agencies they also are nominated and confirmed by the president and Senate. On the recommendation of state agencies, this council ratifies and sets the date of a state-chartered bank closure. On the recommendation of the OCC (and, before 2011, OTS), said council does the same for nationally-chartered institutions.

FDIC has monopoly jurisdiction over resolving bank failures, meaning it is the only agency empowered to seize banks and their assets. It finances resolution by levying fees on deposits of all banks, which forms a depository insurance fund, out of which it covers payments to insured depositors when a bank fails as well as administrative costs from winding down failed institutions.

The depository insurance fund is accompanied by a number of statutory controls on FDIC operations not faced by other regulators. For instance, FDIC is legally required to pursue the “least cost” resolution method for failed institutions (Kaufman 2006), which structures its bidding process and limits expenditures on failures. As deposit insurer hence creditor of supervised banks, FDIC has incentives in organizing the sale of an institution before other creditors learn of its distressed state, which would destroy franchise value and increase the cost of the auction.

By statute, every year FDIC must project the expected cost of future failures and set aside reserves to meet a target fund size, which is a legally-mandated ratio of insured deposits to reserves. Insurance premium assessments are based on these projections, setting an upper limit on assessments and providing Congress with a way of managing the FDIC budget by changing the allowed ratio. In 2009, FDIC funds guaranteeing deposits had diminished substantially due to the failures, the strains of financing a temporary guarantee for uninsured business accounts (part of TARP), and the growth in deposits resulting from the flight to safety. The nature of an FDIC resolution of a failing bank, as such, depends as much on the capacity of the insurance fund as it does on uncontrollable external factors, such as whether a run is triggered or whether a buyer can be identified for a failed institution.

Irrespective of its position relative to other financial regulators in enforcing safety and soundness, because the FDIC has no charter authority, is funded through mandatory levies reflective of deposit amounts, and its overriding imperative is the preservation of the insurance fund, it relies less on maintaining positive relations with major financial institutions than the OCC or OTS, although it relies more on positive inter-agency relations to execute its mission. FDIC chairman during the 2008 crisis,

Sheila Bair (2012, 76), comments on the fiscal and sociological origins of regulatory capture of its peers:

The other problem with [Washington Mutual] was its too-close relationship with its primary regulator, the OTS. Having lost two of its three major charters (Countrywide and Golden West) to national banks that were regulated by the OCC, I feared that OTS would work to prevent an acquisition of WaMu to preserve its one remaining major charter.

An under-appreciated variable during the 2008 crisis affecting the pace of bank closures and whether key institutions would face disciplinary action at all was the interaction between the merger-and-acquisition activity and changing jurisdictional boundaries, prestige, budgets, and authority of pertinent regulators. In addition to the lack of formal legal remedies to wind down very large institutions, this factor continues to serve as a sizable bulwark against efforts to limit size and operations of large banks.

This short description of the FDIC bureaucratic structure raises three relevant features of its potential spatial biases. First, its target entities are more numerous than the portfolio of national institutions overseen by the OCC and OTS, and FDIC has no bearing on the growth of its portfolio (it can only limit the number of banks in the extreme case of bank failure). Second, through its recourse to state agencies, its own regional network, and its access to other federal agencies, there are fewer problems of spatial biases arising from executive preference or organization culture involved in deciding to close a bank. Indeed, the process is determined to a large extent by technical and legislative requirements, although there is room to maneuver as regards timing the closure (which, as the cases of IndyMac and Washington Mutual has shown, has an impact on market integrity) and determining the auction process, which carries market structure implications. And third, due to the above factors, and the large distribution of banks and the many state banking authorities it interacts with, the agency is more

insulated from parochial interests and industry groups than OCC or OTS. Its conception of the “national interest” in this case arguably reflects a view of the US banking sector where individual states and small banks play influential roles in the composition of the community.

4.5.2 The Treasury and TARP

The creation of TARP left open the possibility that this national program of public investment would benefit a more restricted set of institutions and territories. This sub-section details the governance of TARP within Treasury, its origins and deployment as related to the organizational essence, and its organizational outputs and procedures.

After the president signed the authorizing legislation on October 3, Paulson writes in his memoirs that, as of October 7, “the market was deteriorating so quickly that the asset-buying program could not get under way fast enough to help” (Paulson 2013, 337). He then reports (*ibid*, 339):

... I watched the Europeans warily. We thought they might turn to a wave of defensive actions, including guarantees, not only for depositors but for unsecured bank borrowings. With fear rampant, such guarantees might help restore confidence in their banks, but they would put our banks at a disadvantage unless we did something similar.

Paulson's own defensive actions in lobbying Congress for TARP were driven as much by concerns of deteriorating US global financial competitive advantage as by a desire to fully commit the capital injections effort before an upswell of negative political feedback. Paulson writes, “I knew that we needed to get money out through [TARP] faster, before banks, responding to rising political pressure over their lending, compensation, and foreclosure mitigation practices, refused TARP money at all” (Paulson 2013, 379).

A further example illustrates the decision-making environment within which

TARP was devised and executed. The first disbursement through TARP was to nine very large financial institutions: Bank of America, Bank of New York Mellon, Citigroup, Goldman Sachs, JP Morgan Chase, Morgan Stanley, State Street, Morgan Stanley, and Wells Fargo. The chief executives of these institutions were called to a meeting on October 13 with Bair, Paulson, Bernanke, and Geithner, where they were briefed on the government's intention to inject capital into their institutions (totaling \$125 billion) and to guarantee newly issued debt.

A report by SIGTARP (2009b) reveals three important points about the selection of these nine institutions. First, they were selected because of the “types of services they provide to consumers and businesses,” namely both commercial banking and securities intermediation, and for “their collective importance” to the US financial system (ibid, 14). Second, the report emphasizes that officials at the NY Fed “played a key role in developing [CPP] and selecting the nine initial institutions” (ibid). In her recounting of the meeting, Bair states that FDIC was not consulted on which institutions were to be selected nor the amounts, and reveals that Geithner as well as the Comptroller of the Currency were responsible for these decisions (Bair 2012, 114–119).

Finally, the SIGTARP report questions the rationale of investing in those nine. Specifically, comments by Paulson the next day repeated that these institutions were “healthy” and capital injections would allow them to increase lending (SIGTARP 2009b, 30). As the report points out, two of these institutions—Bank of America and Citigroup—would require significant additional investments from other TARP vehicles, while Merrill Lynch was at the time of the meeting being acquired by Bank of America. Of the remaining eight original institutions, only three were headquartered (that is, the corporate home of their bank holding company) outside of New York: Bank of America,

Wells Fargo, and State Street.

After the initial disbursement of \$125 billion, Treasury implemented an application process and invited all other financial institutions to apply. The application guidelines¹⁰ stipulated that capital purchases would occur at the “highest-tier holding company” (p. 2 of application form). A bank would submit an application that was first screened by its regulator and then forwarded to Treasury if it was “healthy” (Paulson 2013, 379). Then, “a team of bank examiners hired from the regulators received each application before making a recommendation to Treasury's TARP investment committee” (ibid). In Paulson's memoirs, there is no discussion at any point of the full composition of this investment committee nor whether he was a member. Finally, Paulson states, “if we [Treasury] had questions about a bank's viability, we sent the application to a peer review council comprising senior representatives from all four regulators—the Fed, FDIC, OCC, and OTS—to decide whether the institution should receive funds” (Paulson 2013, 380).

Neil Barofsky (2012, 104), director of SIGTARP, writes:

Treasury required the smaller bank applications to demonstrate that they had enough loss-absorbing capital to qualify for TARP funds. When a bank failed to meet Treasury's standard, Treasury either encouraged the bank to withdraw its application or gave it 'conditional approval', which allowed the bank to receive TARP funds only after it raised a specified amount of private capital.

This description of TARP brings to the fore three key points regarding its inherent spatial biases. First, the global competitive advantage of US financial institutions was a primary concern of the principals. The national interest here was defined in terms of competitiveness, not safety and soundness. Second, making purchases at the BHC level belies the preoccupation of Treasury officials with market

¹⁰ <http://www.treasury.gov/initiatives/financial-stability/programs/investment-programs/cpp/Documents/application-guidelines.pdf> [Last accessed March 14, 2014]

metrics of prices and earnings. The program was ultimately framed through the calculus of shareholders and bank management, not higher-order creditors of these institutions.

Finally, the principals were demonstrably aware of the political sensitivities of such a program, and their response to legitimize the program was to enact it with due haste. There seems to be little remorse for the rapid disregard for the original intention of the program as justified to the public, an endeavor to remove distressed assets from financial markets. These sentiments speak to the allocative procedures, in this case the *ad hoc* application of existing administrative powers to implement a direct cash subsidy program without precedent and guided by prior ideological commitments and organizational culture that decided its representation of the national interests was valid and right.

4.6 Banking markets before and after the 2008 crisis

Having established the distribution of interventions and described the allocation system that structured them, this section analyzes the impact of the programs on US banking markets, comparing the level of concentration in 2007 and 2012. First, the following figures display simple choropleth maps of the distribution of banks and BHCs and their assets by state in five quantiles as of the end of 2007, to further illuminate the “demand” side for intervention.

The ten states with the most number of banks headquarters (either state- or nationally-chartered) are either one of the most populous states or are located in the midwest (Figure Ten). The next tier of states are located primarily in the northeast. The human population does not explain these patterns, and the legacy of intrastate branch restrictions and the preference for unit banks in rural, agricultural areas in the midwest are a plausible explanation (White 1982).

The distribution of total assets in the commercial banking sector accords slightly better with the distribution of the population (Figure Eleven), however Texas, Florida, and Georgia no longer are situated in the top tier, while Nevada, South Dakota, and North Carolina are. The presence of these seeming outliers can be easily accounted for: Nevada is the regulatory home to Credit One Bank, which operates the major national credit card company; South Dakota is regulatory home to the main credit card and lending division of Citibank; and North Carolina is the headquarters to Bank of America.

Headquarters of top-tier BHCs follow banks closely (Figure Twelve), with seven of the same states that are in the top ten for number of banks also in the top ten for BHCs. However, Pennsylvania, New York, and Massachusetts now are among this top group, these states encompassing the major financial centers of the east coast. Iowa, Missouri, and Illinois remain in this top group as well. States with the largest stocks of BHC assets, like bank assets, are predominantly located in the eastern portion of the

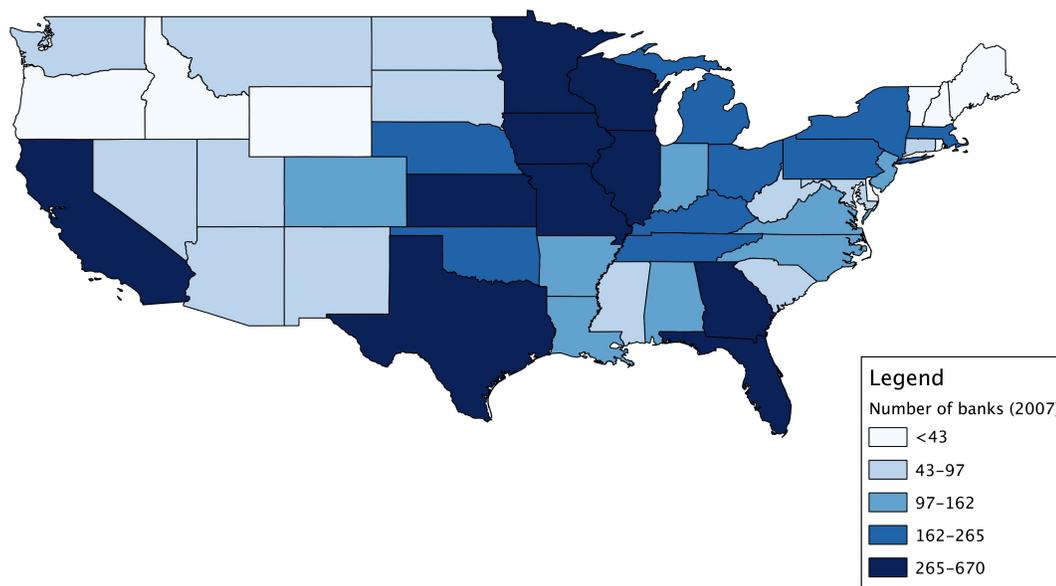


Figure 10: Number of commercial banks and savings associations headquartered by state, 2007. Source: calculations based on FDIC data. country, while states with the lowest continue to fall in the rural western and prairie

states (Figure Thirteen).

It is obvious that the populations of banks and BHCs are not static. The 2008 crisis was a period of restructuring in the industry on two fronts: the rise in merger-and-acquisition activity from government-arranged deals but also from willfully entered deals, as a consequence of decreasing banking profitability. However, there may also have been market structure effects from the Treasury stipulation that TARP be disbursed at the highest level of BHC.

Table Ten displays a time-series for the number of top-tier BHCs, for the fifty states and DC only. The data are also disaggregated according to institution size by assets. The figures show that the number of BHCs increased incrementally until a significant jump in 2011, when the total increased by over one hundred. Before then, the largest year-by-year increase was from 2008 to 2009, of 43 institutions. The majority of this growth came in the Peer 4 grouping of mid-sized banks, however from 2007 to 2008, there was movement between groupings as well, particularly from Peer 5 to Peer 4, and possibly Peer 4 to Peer 3. Given most TARP distributions did not begin until after 2008, it is clear that these companies already had solicited private capital in anticipation of applying for TARP financing. While the BHC population did not change drastically, its expansion in both assets and numbers does not suggest increasing consolidation of ownership among BHCs, but perhaps the transition of remaining non-BHC organized banks into BHC status.

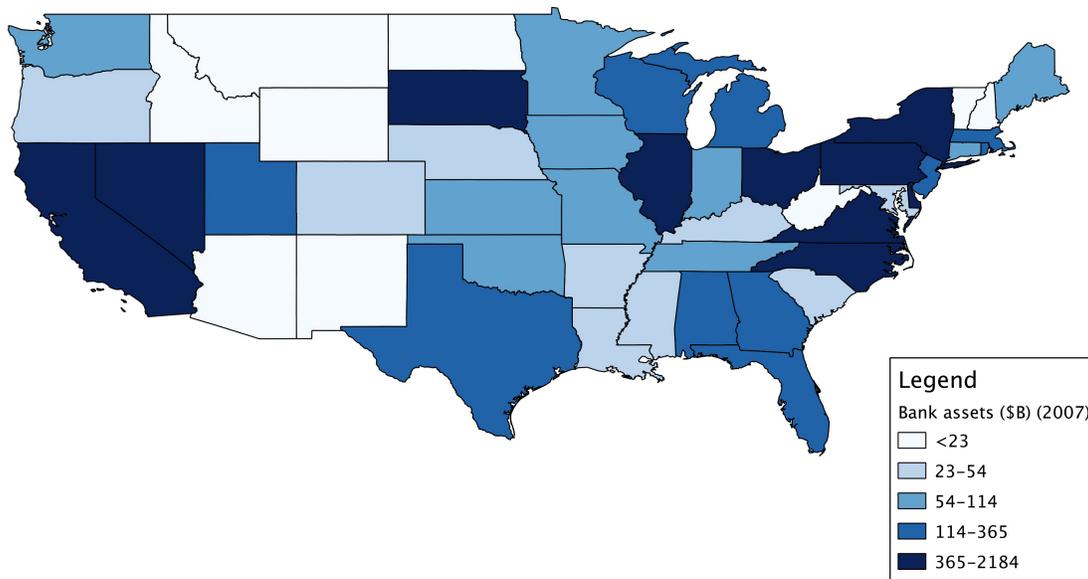


Figure 11: Bank (commercial banks and savings associations) assets by headquarter state, 2007, in billions of dollars. Source: calculations based on FDIC data.

Table Ten also records the number of FDIC-insured depository institutions in the United States (states and DC). The decline in number of institutions in absolute terms is substantial, with several hundred fewer institutions each year. By 2012, the number of depository institutions had diminished by 1445, or 16.97% of the population in 2007.

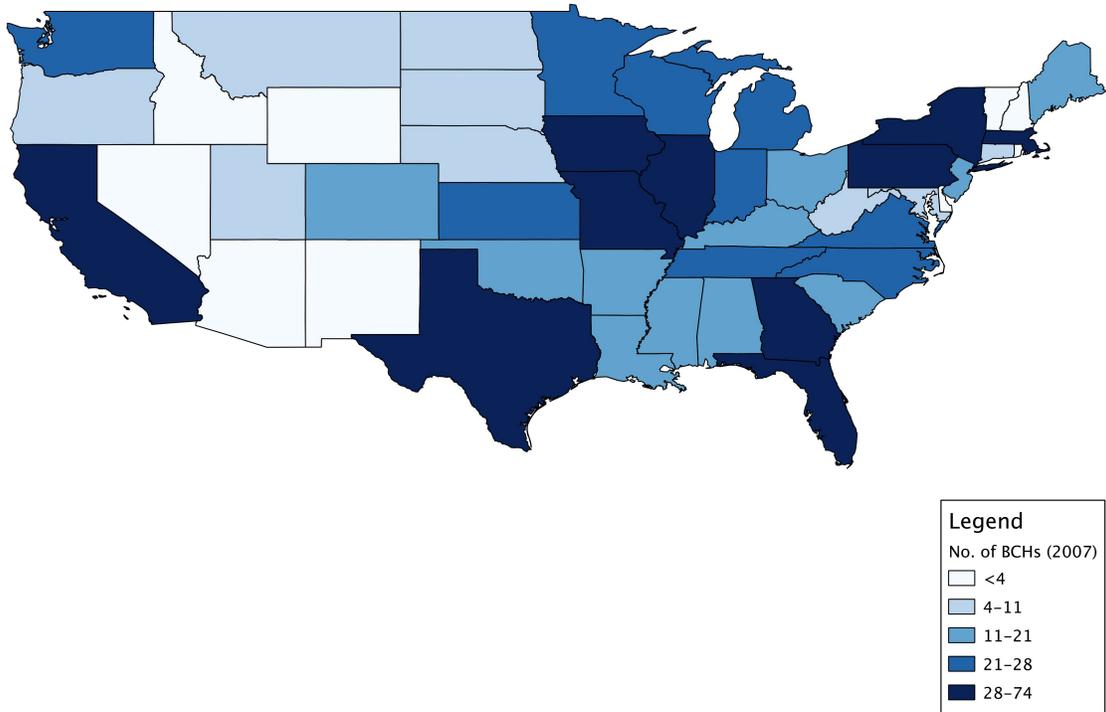


Figure 12: Number of bank holding companies headquarters by state, 2007. Source: calculations based on FFIEC data.

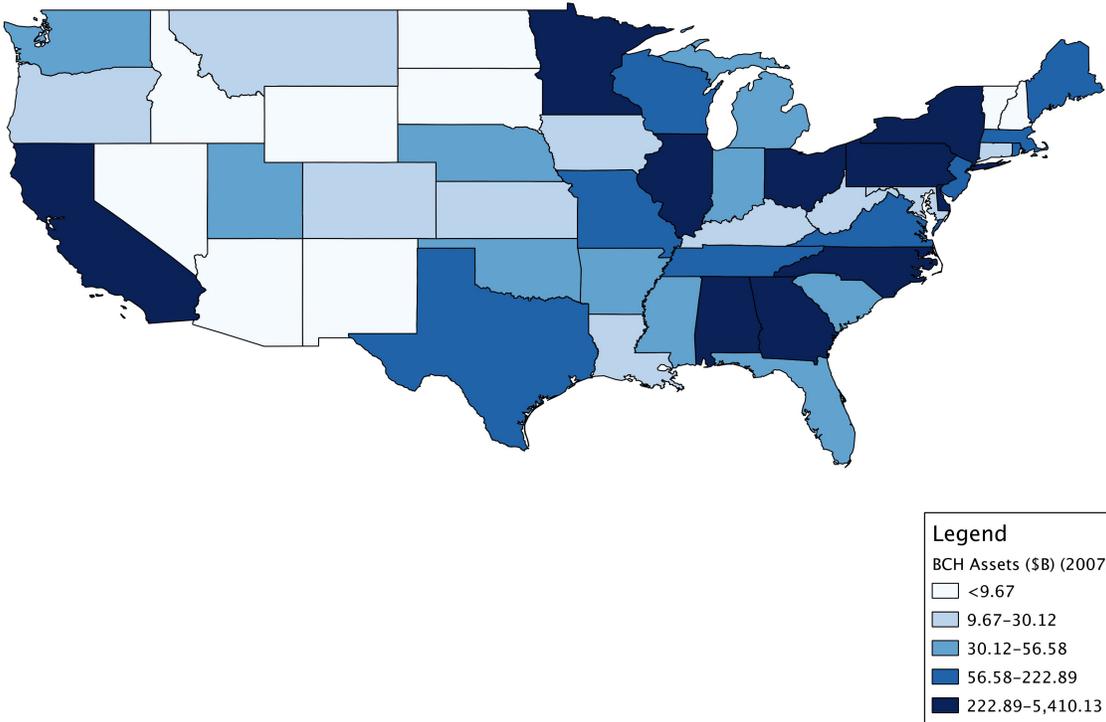


Figure 13: Bank holding company assets by headquarter state in billions of dollars, 2007. Source: calculations based on FFIEC data.

Table Eleven displays the results from the concentration indexes. The two features are the levels and changes in levels of concentration. The concentration of assets of BHCs registers the largest coefficients, while the coefficients for number of banks and BHCs are almost equal. The concentration of BHC assets likely reflects the strong centripetal forces of the securities markets in New York, however this does not appear to affect the physical location of headquarters.

		<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>
Bank Holding Companies	Total	951	961	1004	998	1009	1132
	Peer 1 (>\$10B)	63	65	73	68	67	87
	Peer 2 (\$3B-10B)	90	86	87	83	89	115
	Peer 3 (\$1B-3B)	272	292	295	297	303	351
	Peer 4 (\$500M-1B)	406	414	439	438	451	485
	Peer 5 (<\$500M)	101	87	93	91	80	73
	Peer 9 (Atypical)	19	17	17	21	19	21
Depository institutions	Total	8516	8288	7995	7644	7344	7071

Table 10: Number of BHCs and banks, 2007-2012. Source: data retrieved from FDIC and FFIEC. Note: peer groups refer to the size range in assets of bank holding companies.

Concerning change in levels, the concentration of headquarters of both banks and BHCs increased, however the processes behind each change are different. As demonstrated before, the number of FDIC-insured banks diminished considerably, and the failure portion of this contraction was concentrated in western and southeastern states. The number of BHCs expanded, and our analysis suggested as well that this expansion was clustered as well. For example, states with the greatest increase in absolute terms of BHCs included Arkansas, Massachusetts, Missouri, New Jersey, New York, Ohio, Pennsylvania, and Texas. Many of these areas already had large populations in 2007.

While the concentration of bank assets also increased, reflecting the

consolidation patterns above, concentration of BHC assets decreased. One possible explanation that fits with prior results and our narrative is that the growing popularity of BHCs (including from the Treasury stipulation for TARP) as a governance form accounts for this decrease. Additionally, the TARP disbursements—even for the very large institutions—represented a small portion of the overall increase in assets among BHCs. As such, the high spatial concentration of TARP disbursements—as this is already biased heavily towards New York—does not necessarily identify the growth in assets of BHCs.

	FDIC-insured banks		BHCs	
	Count	Assets	Count	Assets
2007	0.0358	0.0835	0.0341	0.2133
2012	0.0362	0.0967	0.0355	0.2042

Table 11: Herfindahl concentration indexes for number and assets of banks and BHCs.

Source: calculations based on FDIC and FFIEC data.

4.7 Geographies of financial stability: discussion and implications

Once a crisis has begun, its origins notwithstanding, we should not treat its manifestation over space as *fait accompli*, especially when extraordinary measures like TARP become available. In many ways, the government response to financial distress was one of the most tangible manifestations of the 2008 crisis, and the FDIC and Treasury actions make this a *very geographical response to crisis* (French, Leysnon, and Thrift 2009). In the remainder of this section we will discuss the implications of institutional form and organization size in the banking system for federal financial stability policy, and implications of the federal responses for future financial instability.

A crucial assumption of the preceding analysis has been that headquarter

location conveys proximity-based burdens and benefits. In the case of unit and regional banks, the material impact of bank insolvency and resulting merger-and-acquisition activity have been documented in terms of diminished local development and welfare, less competitive market structure, and lower credit availability (Dymski and Veitch 1996; Garmaise and Moskowitz 2006). Local bank profitability fluctuates in tandem with local economic conditions, and the correlation between the figures above for the state-level distribution of failures with the Martin's (2010) findings on unemployment, subprime mortgages, and foreclosures appear to be high.

This assumption also may hold in the case of top-tier BHCs, although the material impacts are less straightforward due to the management relationships between insured banks and BHCs. Presumably, top-tier BHCs control multiple banks that may or may not have branch structures, in addition to nonbank intermediaries. Banks represent one part of a diversified investment portfolio evaluated according to risk and return considerations. In this case, previous studies of home bias and decisional distance in the rationalization patterns of large, national financial companies give an indication as to how distress will be addressed within the company structure, that is, ultimately benefiting units proximate to the headquarters at the expense of peripheral ones (Alessandrini, Presbitero, and Zazzaro 2009a; Presbitero, Udell, and Zazzaro 2014).

However, a BHC structure complicates such a conclusion for three reasons. First, it is not entirely clear where the core and peripheries of a BHC organization are. Business decisions pertaining to loan quality, capitalization, and other strategic considerations may be diffused throughout the office network. Second, and related to this first point, we have already noted several instances where headquarter location and locational identity of firms differs depending on the reporting regulator. This variation

reflects the interaction between regulatory arbitrage on the firm-side and jurisdictional competition on the supervisory-side, as divisions of BHCs register in different jurisdictions to take advantage of cost-saving measures (by locating back-office operations in midwest cities, for instance) as well as converting charter and corporate forms to benefit from more permissive supervision. Finally, the wide latitude to institutions receiving TARP financing allowed diversity in how those funds were operationalized, including lending but also securities purchases, contributions to capital reserves, and mergers-and-acquisition activity (SIGTARP 2009a). Until future studies investigate individual cases of banks and BHCs, the most defensible conclusion as per the potential material impact of the government capital program is in the ways it has contributed to the ongoing transformation of financial regulatory space.

The FDIC and TARP policies represent a form of “accidental regional development policy” (French, Lai, and Leyshon 2010, 77), a situation where national policies disproportionately benefit or burden some regions over others. We have argued as well that these programs are a form of 'accidental industrial organization policy', as they favored certain organizational forms (BHCs) over others, and as such introduced incentives for institutional change. These incentives have their roots in longstanding battles over jurisdictional competition, regulatory capture, and regulatory arbitrage. Yet as an innovation to restore steadily eroding US banking sector profitability (by allowing income generation from nonbank activities), BHCs have pushed the banking sector towards unstable financing arrangements. For example, TARP-receiving institutions were characterized by greater-than-average holdings of higher-order securities products like derivatives and greater use of wholesale markets (Bayazitova and Shivdasani 2012). The expectation that a more diversified set of income-generating activities available to

financial intermediaries (possible under a BHC structure) would ensure lower risks was invalidated by the lack of formalized recourse to standardized and democratically-accountable techniques of supervision and intervention, a regulatory failure that has been made clear in the aftermath of the 2008 crisis.

The seemingly innocuous decision to make capital purchases at the highest level of a BHC carried with it a host of spatial and organizational consequences. It also demonstrated, first, that there was no unified or unproblematic definition at the federal level of a national interest in financial stability, at least in practice. Second, it demonstrated how the federal government can encourage a regulatory race-to-the-bottom, by elevating the integrity of BHCs above other considerations, and induce institutional change through an indirect industrial organization policy. Third, in further bestowing legitimacy upon the BHC form, the TARP policy reinforced a vision of the relative hierarchy of financial regulators. Beyond moments of crises, regulatory agencies take radically opposed approaches to matters of safety and soundness, well-documented by FDIC chairman Sheila Bair (2012), for instance, in the case of the Basel II and III negotiations, approval for mergers-and-acquisitions, and regulatory guidance on commercial real estate lending and nontraditional mortgages. As such, the continued viability, and indeed post-crisis growth, of BHCs as legal and accounting vehicles for the banking sector reinforces the position of the Federal Reserve as bank regulator, whose techniques and internal processes are not as transparent or accountable to Congress as are those of FDIC.

Previous maps of the 2008 financial crisis understandably invest most attention in the turmoils in housing markets, emphasizing its uneven distribution at all relevant scales of analysis. Having established in the literature review and narrative the empirical

relevance of the geographical scope of two of the programs of the federal response, the empirical analysis determined that the programs followed independent locational patterns. Our narrative of the 2008 crisis emphasized that the goal of financial stability was a collective effort of many organizations who competed over jurisdictional boundaries, the nature of the federal effort to contain the crisis, and the division of responsibilities between them.

Focusing on distress among banks and BHCs has extended the empirical literature on the distributional consequences of the 2008 crisis in three ways. First, we have identified separate geographies of the 2008 crisis: bank failures, in number and size, correspond to the underlying landscape of distress, whereas the government capital program demonstrated a separate, more eastward focus. Second, we have identified two features of the changing market structure of the banking sector that merit continued attention in future studies. The consolidation of insured banks has occurred simultaneously as BHCs have increased in number and size. Finally, our analytical focus on the financial regulatory environment has sought to move beyond concepts of regulatory capture and arbitrage to include the problem of jurisdictional competition at the federal level. The transformation of financial regulatory spaces—particularly the consequences this transformation carries for the weakening of democratic controls on banking oversight—is an integral dimension of the historical evolution of the financial sector.

An analysis of responses to financial crises is a significantly underdeveloped literature compared to those that analyze origins. We have not dedicated much space here to the client politics of regulation. Financial regulators have well-defined and well-funded constituencies, and different political environments are the products of the

degree to which the tasks of an agency can be and are shaped by external interests (Wilson 1989, 75-6). There are empirically-rich opportunities for researchers interested in the spatial dimensions of each of these categories as applied to the financial system in the US, and indeed this is an empirically-relevant task as well. The BHC structure would be an apt object around which to focus such research, and there is already a project underway to document and explore the spaces that facilitate this genre of corporate form (Wójcik 2013a), bringing together themes of jurisdictional arbitrage, institutional change, and financial instability.

Chapter Five: Resilience of US metropolitan areas to the 2008 financial crisis

5.1 Introduction

The collapse in property markets beginning in 2006 and the banking panic in the summer of 2008 marked a phase transition for the US economy. According to the Minskyian (1982) schematic, the economic expansion of the previous decade masked growing financial instability, as investors pursued higher returns from riskier markets, especially in the housing sector. Following the crisis has been a period of stagnation, with the return to a higher growth environment partly contingent on the successful resolution of the financial distress. Financial intermediaries provided the architecture for the extraction of higher than average returns over space, for instance in the form of securitization of subprime mortgages. At the zip code- and county-level, the distribution of household distress from the inability to service cash flows from mortgages and other consumers debts predicts to a large extent the collapse in income and activity following the crisis (Immergluck 2009; Mian and Sufi 2009). However, there has been little research to date on how metropolitan areas have fared over the recession, and the association between economic change and the level of financial distress at that scale. The purpose of this research is to address that gap.

The metropolitan scale offers a meso-level venue for investigating the distributional consequences of the financial crisis. By framing the problem of uneven growth with the theme of resilience, we speculate that certain metropolitan economic and financial characteristics structure the risk of financial crises and recessions

differently among those areas, but also endow those areas with varying capacity to adjust to changing conditions. Our first objective is to identify distinct trajectories of crisis and recovery, and our second objective is to determine the extent to which we can associate these divergent trajectories with the economic and financial profile of a metropolitan area, using as a special example bank instability and subprime mortgage markets.

Our objectives are operationalized in the following research questions. First, which areas performed best and worst during the crisis? We approach this question using cluster analysis, dividing the sample of US metropolitan statistical areas (MSAs) into groups based on their ratios of employment and GMP in 2011 to 2007. Second, to what extent can we attribute divergent growth outcomes to the indicators of metropolitan financial integrity, principally the status of subprime households' balance sheets? Generally, this question aims to evaluate how the failure of financing channels, the destruction of household wealth, collapse in consumer spending, and the lower willingness, ability, or availability to incur new debt may have acted as a source of distress in the recession or as a barrier to recovery in the post-crisis period.

The cluster analysis divides the sample into five groups, on the basis of their performance over the recession—here measured as the ability of an MSA to recover lost activity. The best-performing group was characterized by lower than average levels of economic diversity, and low rates of subprime and modified mortgages among households. The worst-performing cluster was also characterized by lower than average levels of economic diversity, but had the highest average rates of bank failures and subprime mortgages and mortgages modified under a federal program. Regarding the extent to which these divergent characteristics can be attributed to the subprime markets,

however, we find that most variation in the change in growth remains unaccounted for in regression models. Cluster methods are best suited for generating hypotheses, and our findings suggest continued attention on two topics: deeper analysis of the variation in household debts, wealth, and consumer vulnerability between urban areas; and, a more thorough profiling of metropolitan areas on the basis of their sector specializations in order to determine which sectors and combinations of sectors managed to retain and expand the metropolitan-based workforce.

In the following section, we review the concept of resilience and outline the structural characteristics of metropolitan areas that will be used to analyze the clusters created based on economic growth trajectories. Then we describe our methodology for the cluster analysis and the sources of the descriptive variables. The first analytical section establishes the benchmark for economic performance among MSAs over the recession and post-crisis periods, and the second analytical section presents and analyzes the results from the cluster technique. A final analytical section further remarks on the financial characteristics of MSAs. In the conclusion, we offer recommendations for future research.

5.2 Growth, recession, and resilience in metropolitan areas

The concept of resilience has developed a following in economic-geography, bringing with it some polarizing tendencies. Proponents argue that irrespective of its conceptual fuzziness, “...resilience [reaction and adjustment of regions to shocks] is part of the process of geographically uneven economic evolution and development, and should be theorized and analysed as such” (Martin and Sunley 2014, 37), while many of its critics hesitate over its normative implications (Bristow 2010; MacKinnon and Derickson 2013). Additionally, invoking resilience as a theme or conceptual frame as it

has come to be deployed in economic-geography seems to involve implicit assumptions not only about what elements of a region are at risk and react to disturbances (and therefore what phenomena merit investigation), but also about whether a region even contains the ability—in terms of its internal resources, its material base and institutions—to extricate itself from certain types of adverse events.

Martin (2012) considers two main definitions of resilience that involve distinct methodological applications: engineering-based and ecological-, adaptive- or evolutionary-based definitions. The central assumption of the first is that the core economic resources of an area observe a long-run equilibrium, hence disturbances to the growth process will eventually be corrected as part of the innate order of the system. In this case, possible avenues for determining resilience involve measuring the pace of the return to trend and the magnitude of divergence or convergence between regions (Fingleton, Garretsen, and Martin 2012). However, econometric experiments have identified instances where economic shocks, including financial crises (Cerra and Saxena 2008; Reinhart and Rogoff 2009a), have been incorporated into long-term growth processes in the form of downward revisions to trend, evidence of permanent, hysteretic effects (Doran and Fingleton 2013; Fingleton and Palombi 2013). The possibility of a permanent change in long-run growth trajectories points to the second definition of a resilience, where multiple equilibria exist. Turok (2014, 751–2) has summarized the difference between the two definitions as such: the first is concerned with outcomes (what phenomena was resilient to what disturbance), while the second is concerned with processes (how do areas adapt their structures to constantly fluctuating economic conditions).

In light of the debates around the validity of using resilience (and which

interpretation of it), we make a number of points going forward. First, we evaluate resilience of an MSA as ratios of economic activity in 2011 to 2007. On the face of it, this metric bears most resemblance to engineering-based definitions, whose origins are typically traced to Holling (1973) and which Martin (2012) argues has a corollary in Friedman's (1993) 'plucking model' of the business cycle. Asking whether or not MSAs have returned to their pre-crisis levels of employment and output does not necessarily imply, however, that we accept the dogmatic view that crises and recessions are transient deviations that do not produce permanent shifts in long-run growth potential of various regions. Indeed, standard schematics of a financial asset boom involve discrete phase transitions as households or businesses enter into new debt and cash flows arrangements with creditors, and then as these arrangements transition from stable to unstable based on changing expectations (see, for example, Minsky 1982).

Second, following the discussion of Pendall et al (2010), who argue that an assumption of long-run equilibrium may be valid in the case of employment and output, we identify metropolitan employment and GDP in addition to the financial crisis and recession as the objects of inquiry—the former two the objects of disturbance, and the latter two the form taken by the disturbance. An alternative, and equally desirable outcome variable might be metropolitan income (Chapple and Lester 2010), however our choice of analyzing employment and output coincides with perception that the post-crisis period has been a 'jobless recovery'. A focus on the restoration or not of employment activity is one way of evaluating the applicability of that claim across a broad sample of metropolitan areas.

Finally, the MSA is an appropriate territory for comparing resilience. Unlike the neighborhood, zip-code, or county (Aalbers 2009a; Immergluck 2009; Mian and Sufi

2009), the MSA—as an agglomeration of many counties based on the central city pattern—is a natural venue for discussing the role of urban diseconomies, market potential, economic diversity, and the role of regional specializations (embodied, for example, in industrial districts or global cities). As Chapple et al. (2004) suggest, economic vulnerability may lie more accurately in the bundle of goods and services produced, workforce skills, and the suite of localization externalities that bind activity in place. The specialization/diversity links to growth have been tested extensively (Essletzbichler 2007; Glaeser et al. 1992; Glaeser, Scheinkman, and Schleifer 1995; Quigley 1998), yet at this point it may be more useful to not treat specialization and diversity as opposite extremes of a single index (Duranton and Puga 2000).

Rather, a territory may be simultaneously specialized and diversified, a situation that Glaeser (2005) argues applies to the case of Boston. The distinguishing trait in this respect, according to Glaeser (2005), is the absence of a single dominant industry. In this case, identifying particular industries, which demonstrate varying sensitivity to economic shocks (Groot et al. 2011), or industrial clusters is as important as measuring the level of diversity. For instance, Evans and Karecha (2013) pinpoint the resilience of Munich in its mix of innovative clusters and governance systems, while Hill et al. (2012) present evidence from US metropolitan areas that manufacturing employment hinders resistance to shocks. One type of industrial “cluster” that may demonstrate a particular form of resilience to financial crises is the “global city” (Sassen 2001) or financial centers more generally (Beverstock and Doel 2001; Wójcik 2010). The degree to which a financial center will experience employment or output losses in the event of a crisis depends on the operational strategies—the exposure of balance sheets to areas of distress, for example—of its financial intermediaries, such as investment banks.

Despite the significant level of distress manifested by US investment banks and other top-tier financial intermediaries during the crisis, Wójcik (2012) has argued that the government intervention into the financial sector during 2008 sustained employment and profitability until at least 2009, when layoffs began in earnest. We include an indicator for FIRE employment presence as a test of how this specific industrial specialization may have structured metropolitan resilience over the study period.

Additionally, the MSA-scale may also be appropriate for evaluating regional financial integrity. Walks (2013) proposes the idea of an “urban debtscape,” or the social and spatial outcomes of indebtedness and relations of credit that capture macro-economic processes like financialization at the city-level. Just as these financial relations of indebtedness can generate divergent outcomes within a city (Aalbers 2006; Dymski and Veitch 1996; Wyly et al. 2009), these uneven relations are also evident between cities (Aalbers 2009b; Wainwright 2012), perhaps ultimately reflecting the imperatives of global capital markets and their sites in global cities (Sassen 2009; Wójcik 2013b). Part of the power of resilience as a concept rests in comparison, and our analysis is implicitly framed as an exploration of resilience in terms of the structural relations within and between metropolitan areas.

Three variables are used to describe a metropolitan financial profile: high-cost mortgage loans, bank failures, and mortgages modified under a federal program. This selection addresses three shortcomings in the literature. First, in contrast to the S&L crisis (Warf and Cox 1995; Warf and Cox 1996) and the United Kingdom during the 2008 crisis (Marshall et al. 2012; Marshall 2013a), there has been little analysis of the spatial patterns of the 2008 bank panic and subsequent government response in the United States. Second, explanations of local and metropolitan decline for this period

tend to invoke the housing bubble and the regional factors behind home price appreciation, such as amenities (Martin 2011; Carruthers and Mulligan 2012; Delmelle and Thill 2014; Rickman and Guettabi forthcoming). Such studies are useful as time-series housing prices are widely available for most metropolitan areas and serve as a justifiable proxy for wealth, however prices do not represent any kind of underlying, ongoing social relation, as do debts, for instance. Though asset prices may become unhinged due to irrational exuberance and mis-pricing, the credit environment speaks of material obligations in a wider social and political-economic context.

Finally, there has generally been little comparative work on economic performance over the 2007-2009 recession using US metropolitan areas, a notable exception being Gabe and Florida (2013), who also used cluster analysis. Their research raises an interesting point about the nature of the housing bubble collapse and recovery, as it was distributed across the US. First, although new housing development in the years leading up to 2006 demonstrated a significant and negative impact on employment, activity in the construction sector on its own is not responsible for the distribution of the recession. Rather, the regional pattern of the recession can be explained by a specific combination of construction, retail, and hospitality employment—chief components of what Florida (2010) has called a “great growth illusion”—that services a specific vision of American homeownership. Those findings are an important reminder to consider the role of particular economic or industrial arrangements in structuring recessionary losses over space.

5.3 Methodology and data

We use hierarchical cluster analysis to identify individual types of growth trajectories among the sample of MSAs (Everitt et al. 2011). Using Ward's method as

the criteria for dividing the sample allows us to avoid deciding *a priori* the number of clusters. This method starts with all observations in their own cluster, and then at each step merges two clusters to form a larger one. Ward's method uses analysis of variance to determine the distance between clusters, minimizing at each step the sum of squares of a given pair of clusters, therefore maximizing internal homogeneity. The Calinski-Harabasz pseudo-F index provides the clustering stop rule to help identify an optimal number of clusters (Caliński and Harabasz 1974). Similar studies attempting to cluster regional data have also invoked hierarchical techniques with the Ward method (Gabe and Florida 2013; Kronthaler 2005).

Our clustering process is based on two variables: the ratios of total employment and of GMP in 2011 to 2007 for each MSA. The pseudo-F-statistic was greatest in the three- and five-cluster solutions, and we selected the five-cluster solution for the reason that a larger number offers greater diversity in the possible trajectories.

The regional economic accounts data of the Bureau of Economic Analysis (BEA) provide annual gross domestic (metropolitan) product (GMP) data at the MSA-level (in millions of current dollars), and is available online¹¹. Employment data was drawn from the US Census online depository¹² of the *County Business Patterns* for the years 2007, 2009, and 2011. Using this data, we created variables for economic diversity and FIRE specialization. For the former, a regional distinctiveness index (RDI) described in Markusen and Schrock (2006) captures the degree to which a metropolitan economic profile deviates from the national average. Using the two-digit NAICS employment data for 19 sectors (excluding public administration and 'other' due to widespread suppressed data), the equation can be specified as:

11 <http://www.bea.gov/regional/>

12 <http://www.census.gov/econ/cbp/index.html>

$$RDI_j = \sum_i \frac{|e_{ij}/e_j - E_i/E| * 100}{2} \quad (1)$$

where: e is local employment, E national employment, and i aggregates NAICS codes 52 (finance and insurance) and 53 (real estate) for each location j .

The range falls between 0 and 100, higher scores indicating greater deviation from the cohort. Although the RDI expresses the relative imbalance of economic activity in favor of specialization in fewer industries, it cannot be used to determine to which sectors the imbalance may be attributed. As with any specialization metric, the trade-off is between its comparative power and reductionism, and at the two-digit level of industrial aggregation this index paints specialization in broad strokes.

For FIRE specialization, we used a location quotient, which can be expressed as such:

$$LQ_{ij} = \frac{\left(\frac{e_{ij}}{e_j}\right)}{\left(\frac{E_i}{E}\right)} \quad (2)$$

The equation uses the same notations as equation (1).

There are three final variables that indicate different aspects of the financial integrity of an MSA: bank failure rate, subprime mortgage rate, and mortgage modification rate. To determine the failure rate, we took the number of bank failures in an MSA resolved by the FDIC between 2008 and 2010 as a share of the number of banks headquartered in that MSA as of the end of 2007. These data were retrieved from two segments of the FDIC website, the first being the reports on failures and assistance transactions¹³ and the second the list of institutions by location¹⁴.

The subprime mortgage rate represents the number of high-cost home purchase

¹³ <http://www2.fdic.gov/hsob/SelectRpt.asp?EntryTyp=30>

¹⁴ <http://www2.fdic.gov/idasp/main.asp>

loans issued between 2004 and 2006 as a percentage of all households in 2010. High-cost refers to an interest rate where the spread between the annual rate of the loan and corresponding Treasury yield exceeds three percentage points. The data for this variable were collected by the Federal Financial Institutions Examination Council (FFIEC)¹⁵ and were accessed online.¹⁶ Additionally, the mortgage modification rate is the number of modifications (reductions in principal) completed under the auspices of the US Treasury's Home Affordable Modification Plan (HAMP). These data were retrieved from the Treasury website on financial stability, using the report of December 2011¹⁷. The base population of households that was used to convert both the subprime mortgage and mortgage modification variables into ratios was taken from the FFIEC dataset.

5.4 Robustness and resilience of US metropolitan areas to the 2008 crisis

A first step in determining metropolitan resilience is to establish benchmarks for economic performance. Using the average of the MSA sample excludes the quarter of US economic activity contained within non-metropolitan and micropolitan areas, so we first present the national totals. Figure Fourteen displays the path of total employment and GDP in the US, with these indicators indexed to 2007. This can be interpreted as a measure of resilience. According to the NBER, the official beginning of the recent recession was the final quarter of 2007, ending in the middle of 2009. We adopt this timing, delineating 2007-2009 as the “crisis” or recessionary period, and 2009-2011 as the nominal “recovery” period. Over the crisis period, US employment declined by 5.05 percent and GDP by 0.43 percent. Over the recovery period, employment declined by 0.95 percent while GDP increased by 7.74 percent. Figure Fourteen shows that GDP

15 The Urban Institute provides an in-depth discussion of the dataset, its collection, and methodology, available online: http://www.urban.org/UploadedPDF/1001247_hdma.pdf

16 http://www.foreclosure-response.org/maps_and_data/hmda_data.html

17 <http://www.treasury.gov/initiatives/financial-stability/reports/Pages/HAMP-Report.aspx>

appears to be resilient in the technical sense of having “bounced-back” to trend by 2011 (Martin 2012), while employment remains depressed from its peak between 2007-2008.

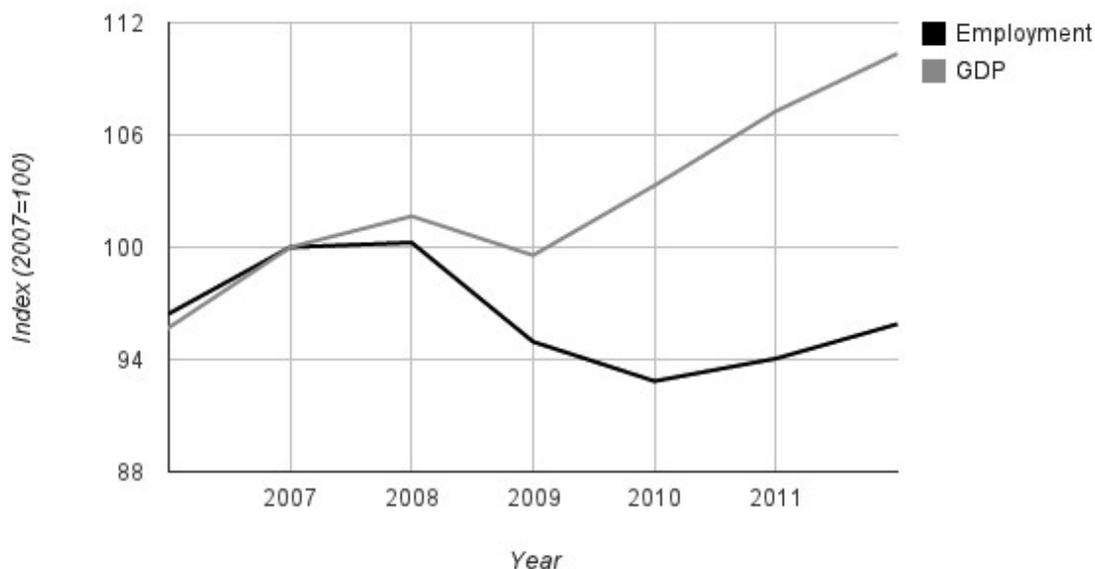


Figure 14: Total employment and GDP normalized to the year 2007. Source: author's calculations.

Figures Fifteen and Sixteen display the differential growth performance that led to the uneven outcomes we seek to explain. In Figure Fifteen, change in total employment over the recession is plotted against change in GMP for the MSAs in our sample, each MSA weighted by its total employment in 2007. The US averages are indicated by lines on the x- and y-axes, and the position of an MSA relative to these plot-lines is one way of reading relative robustness: those MSAs located in the upper right quadrant can be considered robust, while those in the lower left quadrant can be considered non-robust. It appears that most areas fall in the robust category. MSAs in the upper left—the rarest grouping—demonstrate robustness in employment, having experienced employment growth greater than the US average, but a contraction in GMP worse than the US average. The opposite situation holds for those areas located in the lower right.

The range of change in metropolitan growth during the crisis appears to be quite

high. Regarding change in GMP, most areas fall in the range of -15 and 15 percent, and for employment, between -15 and 5 percent. By contrast, commensurate figures for change in the recovery period in Figure Two B show most MSAs fall between -5 and 20 percent for GMP, and between -5 and 5 percent for employment. There are also more outliers in terms of positive growth for both GMP and employment during the recovery, and these tend to be relatively small areas in term of their total employment base.

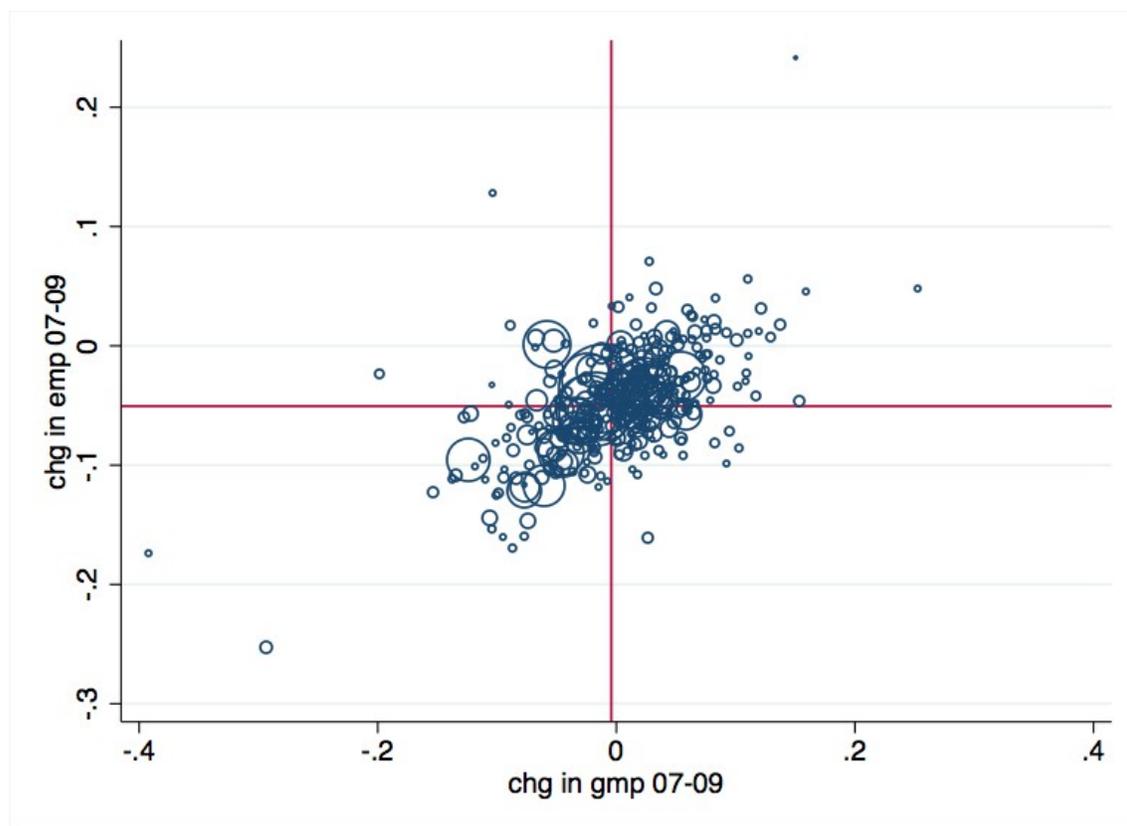


Figure 15: Change in employment and GMP by metropolitan size, 2007-2009. Source: author's calculations. Note: Change in employment between 2007 and 2009 is displayed on y-axis and change in GMP between 2007 and 2009 displayed on x-axis.

Table Twelve contains the descriptive statistics for the independent and dependent variables used in our study. One of the most important points is that roughly four years after the beginning or two years after the end of the recession, metropolitan economies remained 94 percent of their starting size—a jobless recovery indeed, however, according to Richman and Guettari (forthcoming) the decline in employment

was relatively greater in nonmetropolitan areas. These losses and slow gains can be attributed to the rapid downsizing of the workforce following the deflation of the housing bubble, as well as structural factors, which may have provided a floor to further losses, such as the 2008 stimulus package, as well as emergency financing to the auto industry and financial sector.

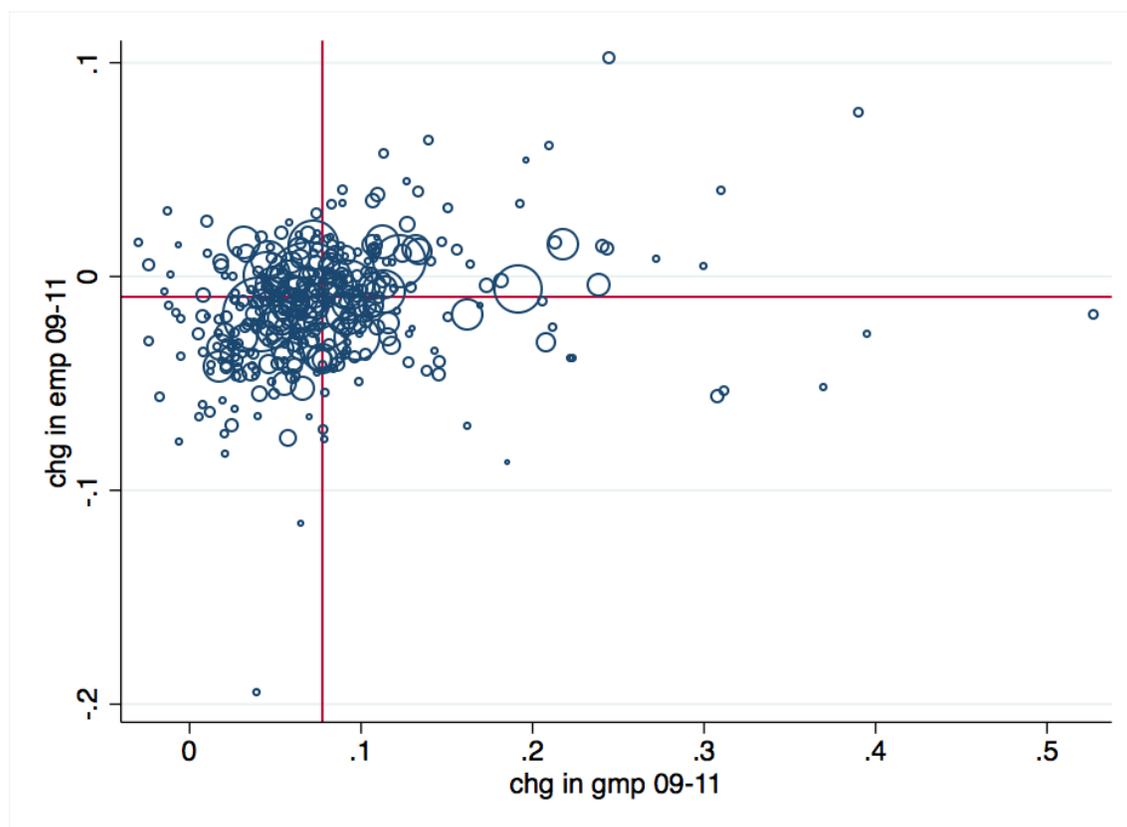


Figure 16: Change in employment and GMP by metropolitan size, 2009-2011. Source: author's calculations. Note: Change in employment between 2009 and 2011 is displayed on y-axis and change in GMP between 2009 and 2011 displayed on x-axis.

An equally important point is the financial element of the 2008 crisis and recession, as reported in the bank failure, subprime mortgage, and mortgage modification rates. Approximately five percent of banks chartered in metropolitan areas failed between 2008 and 2010, however the variation among MSAs is quite large, with all banks headquartered failing in some areas (Carson City, NV; Flagstaff, AZ; Greenville, NC; Merced, CA; and, Wilmington, NC). In contrast, subprime (high-cost

purchase loans) mortgages affected on average two percent of metropolitan households, with much lower variation and a maximum of only six percent (in Riverside-San Bernardino, CA). The number of mortgages modified under HAMP also affected a relatively small portion of households, with a maximum of three percent (again in Riverside-San Bernardino; in fact, eight of the top ten MSAs with the highest ratio of mortgage modifications are located in California, joined by Miami-Fort Lauderdale, FL, and Las Vegas-Paradise, NV).

The next section first presents the five clusters and analyses their regional distribution, and then seeks to advance some possible explanations for the varying economic performance by comparing the mean statistics for the relevant variables.

5.5 Growth and distress through and after the 2008 crisis

5.5.1 Mapping metropolitan resilience

The results of the cluster analysis are displayed in Figure Seventeen. The worst performing cluster is the second group, and the best is cluster group five. The main distinction between clusters four and five is that group five has the highest GMP ratios, although half of this sample registered an employment ratio less than unity. Table Thirteen records the mean employment and GMP ratios for these clusters in addition to the nine Census divisions of the states. By including the ratios according to the Census divisions, we emphasize the regional dimension of the recession: MSAs in the West South Central states (Texas, Arkansas, Louisiana, and Oklahoma) had the highest averages for employment and GMP, demonstrating the greatest average robustness and/or resilience, whereas those in the East North Central states (Michigan, Wisconsin, Illinois, and Ohio) demonstrated the lowest.

<u>Variable</u>	<u>Description</u>	<u>Obs</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Min</u>	<u>Max</u>
Employment ratio	Ratio of employment in 2011 to employment in 2007	358	93.90%	5.00%	78.22%	113.27%
GMP ratio	Ratio of GMP in 2011 to 2007	358	108.35%	8.46%	83.44%	148.57%
Chg in employment, 07-09	Percent change in employment between 2007 and 2009	358	-4.70%	4.58%	-25.34%	24.10%
Chg in employment, 09-11	Percent change in employment between 2009 and 2011	358	-1.46%	2.85%	-19.48%	10.19%
Chg in GMP, 07-09	Percent change in GMP between 2007 and 2009	358	0.29%	6.29%	-39.08%	25.37%
Chg in GMP, 09-11	Percent change in GMP between 2009 and 2011	358	8.13%	6.64%	-2.95%	52.72%
FIRE	Location quotient for FIRE employment in 2007	358	0.598	0.314	0.000	3.760
RDI	Regional distinctiveness index in 2007	358	14.302	5.060	3.998	40.276
Bank failure rate	Percent of locally- (within the metropolitan area) headquartered banks that failed from 2008 and 2010	358	4.70%	14.18%	0.00%	100.00%
Subprime mortgage rate	Number of households between 2004 and 2006 carrying a subprime mortgage as a percent of total households in 2010	358	2.21%	0.94%	0.45%	6.10%
HAMP modifications rate	Number of households receiving a HAMP modification between 2009 and 2011 as a share of total households in 2010	358	0.53%	0.51%	0.03%	3.13%
Employment	Total employment as of 2007	358	287,197	664,710	10,825	7,671,171

Table 12: Descriptive statistics for metropolitan sample. Source: author's calculations from data gathered from Bureau of Economic Analysis, *County Business Patterns*, FDIC, FFIEC, Treasury, and Urban Institute sources (see section 5.3). Note: these definitions remain unchanged in subsequent tables in this chapter.

The best- and worst-performing MSAs are unevenly apportioned by the Census divisions. MSAs in cluster five are located in either West North Central, South Atlantic, West South Central, or Pacific states. MSAs in cluster two are located in either Middle Atlantic, East North Central, South Atlantic, Mountain, or Pacific states. Despite this unevenness, the regional distribution of MSAs does not fully explain the pattern of the economic contraction following the financial crisis and recession.

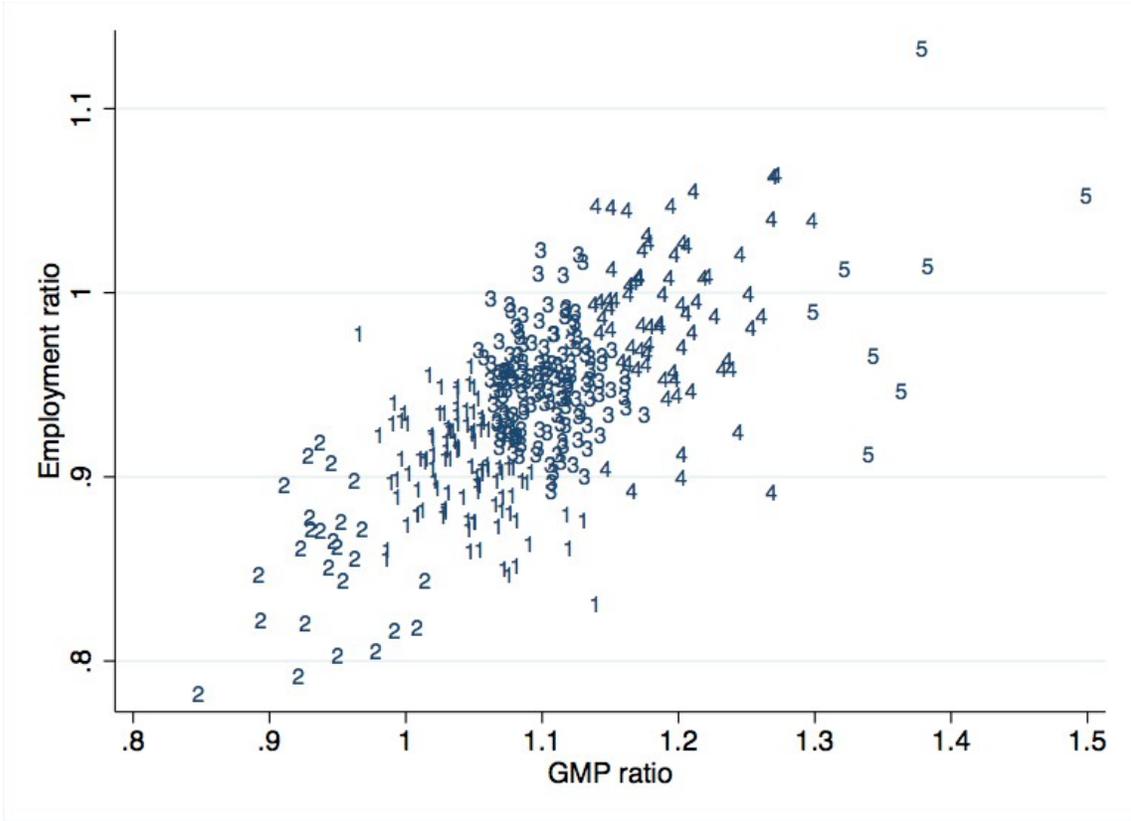


Figure 17: Ratios of employment and GMP by cluster group. Source: author's calculations. Note: Employment (and GMP) ratios are the ratio of employment (GMP) in 2011 to employment (GMP) in 2007. Note: see Table 12 for definitions and section 5.3 for sources.

Table Fourteen contains the mean statistics for the other descriptive variables for the MSA clusters, allowing some generalizations about the capacity of various types of metropolitan areas to weather the 2008 crisis. MSAs in the second cluster—with the lowest average performance in employment and GMP terms—tended to have low FIRE

concentrations but high levels of economic specialization, as well as the highest average rates of bank failures and household distress. These areas were also quite small, with an average of 112,786 persons employed in 2007. The largest MSA in this group was Las Vegas, followed by Reno, NV.

		Mean	
	No.	Emp. ratio	GMP ratio
USA		0.94	1.07
MSAs	358	0.94	1.08
MSA Cluster			
1	105	0.91	1.03
2	26	0.85	0.93
3	148	0.95	1.09
4	71	0.99	1.18
5	8	1.00	1.35
Census Division			
New England	15	0.95	1.06
Middle Atlantic	31	0.96	1.09
E N Central	63	0.92	1.05
W N Central	26	0.97	1.12
S Atlantic	73	0.93	1.07
E S Central	29	0.93	1.09
W S Central	42	0.99	1.16
Mountain	34	0.92	1.06
Pacific	45	0.92	1.07

Table 13: Average metropolitan employment and GMP ratios by cluster and Census division. Note: see Table 12 for definitions and section 5.3 for sources.

The eight MSAs in cluster five, which experienced the greatest expansion in GMP of the full sample of MSAs over the crisis and recession, are among the smallest in the sample. These areas were: Bellingham, WA; Fargo, ND; Hinesville, GA; Lafayette, LA; Beaumont, TX (the largest MSA in this group, with employment of 134,765 persons in 2007); Midland, TX; Elizabethtown, KY; and Jacksonville, NC. These MSAs tended also to have low FIRE concentrations, but a level of sector diversity

that was only slightly lower than for the full sample. The bank failure rate of this group was the second highest for all the clusters, however more importantly this group had the lowest subprime mortgage and mortgage modification rates.

A choropleth map showing the distribution of clusters is displayed in Figure Eighteen. The distribution of MSAs across the country is uneven, with most MSAs located in one of four broad areas: the southeast coast (California); the Gulf Coast (Texas to Florida); the Great Lakes area (corresponding to one census division), and the northeast coast. In addition, the map emphasizes that the territorial size of MSAs is dissimilar. The map highlights three points that qualify the statistics of metropolitan performance by census division discussed above. First, some states performed uniformly well or at least on average with the US (these states are mainly located in the middle of the country) while some performed uniformly poorly (namely Arizona and Florida).

Second, there was, however, considerable variation within many states. These states—such as Oregon, California, Illinois, North Carolina, Virginia, and Pennsylvania—are large in both population and area, and geographically and demographically heterogenous. Together, these points suggest that there is some clustering of metropolitan performance at a regional level, not necessarily the US state but not necessarily the census division either. Figure Eighteen is a reminder of the scale and boundary problems associated with the MSA, and it is clear that there are deeper currents that compose the spatial distribution of economic distress independent of the state jurisdiction.

Cluster	No.	Emp. ratio	GMP ratio	Change in Employment		Change in GMP		Independent variables					Employment (2007)	GMP (2007) (\$000s)
				07-09	09-11	07-09	09-11	FIRE	RDI	Bank failure rate	Subprime mortgage rate	HAMP modifications		
1	105	0.91	1.03	-7.19%	-2.43%	-2.42%	5.46%	0.57	14.57	5.59%	2.48%	0.65%	291,686	34,265
2	26	0.85	0.93	-11.63%	-3.14%	-11.22%	5.27%	0.45	19.77	11.64%	2.77%	0.81%	112,786	11,801
3	148	0.95	1.09	-3.78%	-1.17%	1.75%	7.14%	0.68	12.81	3.21%	2.03%	0.36%	369,312	44,862
4	71	0.99	1.18	-1.23%	0.08%	4.46%	13.37%	0.53	14.88	3.81%	2.04%	0.25%	197,282	26,226
5	8	1.00	1.35	2.81%	-2.13%	9.20%	24.38%	0.49	15.42	6.25%	1.97%	0.15%	73,988	9,201
All MSAs	358	0.94	1.08	-4.70%	-1.46%	0.29%	8.13%	0.60	14.30	4.70%	2.21%	0.45%	287,197	34,860

Table 14: Descriptive statistics of cluster groups. Note: see Table 12 for definitions and section 5.3 for sources.

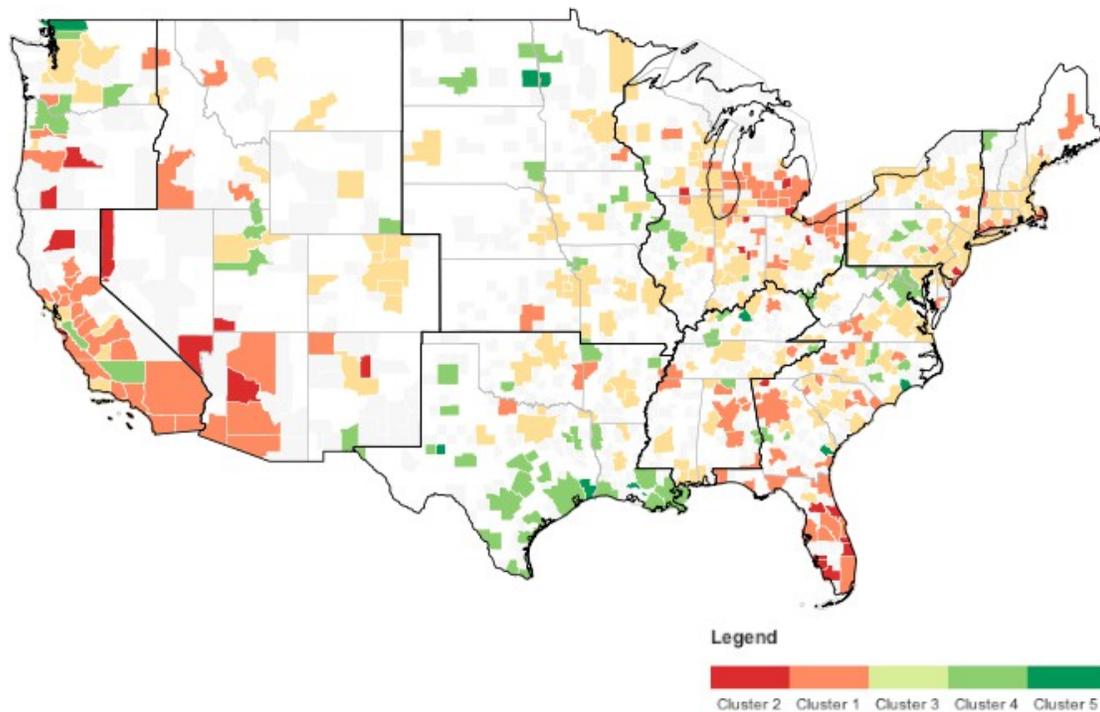


Figure 18: Metropolitan areas by cluster group. Note: see Table 12 for definitions and section 5.3 for sources.

5.5.2 Exploring the significance of structural and institutional factors

The two characteristics of MSA performance we wish to highlight are growth trajectories and the sources of financial and economic distress. Growth trajectories can be explained first as whether an MSA was robust and then whether it was resilient; each may have separate causes. The most notable feature of Table Thirteen above is that all cluster groups had improved averages in the second period for both change in employment and in GMP, yet for cluster two the change was incremental (-11.63% in the first period, and -11.22% in the second). While all other cluster groups could be characterized as somewhat resilient in this respect, this characterization is not applicable in the case of the worst-performing MSAs. As such, in addition to having to explain why MSAs display varying levels of robustness to the crisis, we must also account for the factors that are stalling recovery for the worst affected MSAs.

One way to explore this problem of delayed recovery with our data is a basic OLS regression. Using the FIRE, RDI, bank failure rate, subprime mortgage rate, mortgage modification rate, and level of total employment in 2007 as the independent variables. All variables were transformed logarithmically in order to standardize the coefficients. We tested whether these factors entailed statistically significant effects on change in employment and GMP for each of the periods, and the sign of the coefficients for each period. The equation can be specified as:

$$Y_i = a + b_1 \ln(FIRE) + b_2 \ln(RDI) + b_3 \ln(Bank\ failure\ rate) + b_4 \ln(Subprime\ mortgage\ rate) + b_5 \ln(HAMP) + b_6 \ln(Total\ employment) + b_7(Census\ region)$$

where: Y refers to either change in employment or GDP, and b_1 through b_6 represent the independent variables described in the methodology. A dummy is also included for the Census region to which each metropolitan area belongs, of which there are nine. Table A2 in the Appendix lists the membership of each Census region by state.

Table Fifteen presents the OLS estimates. The first and most revealing point from all regressions is that the r -squared statistic is quite low for both the recessionary and post-recessionary periods. The majority of variation among MSA economic performance remains unexplained, however in the case of regressions (1) and (2) it is notable that the r -squared declined by over half between the two periods. The second important point concerns the statistical significance of each variable. In the regressions with change in employment as the dependent variable, the FIRE and total employment variables were always significant, while the subprime and RDI variables lost their significance in the test of the post-recession sample.

The third, related point concerns the sign of the coefficients. Both FIRE specialization and size reversed their signs between the periods, with FIRE

concentration exerting a negative effect on the growth rate of employment and size exerting a positive effect. The coefficient for the subprime mortgage variable remained negative, however the coefficient itself decreased and lost significance. Again, given its significance and the low *r*-squared, the explanatory power of the severity of the subprime mortgage crisis is limited to the recession years.

In regressions (4) and (5), the dependent variable is change in GMP for the appropriate time period. The sign and strength of the coefficients are largely the same, with some exceptions. The coefficients for the recessionary period for economic diversity and total size are larger, while FIRE specialization is not statistically significant; the *r*-squared is commensurate with the regression for change in employment. For the post-recession period, only FIRE specialization is statistically significant (at the ten percent level), and, again, the *r*-squared has collapsed, although by much less.

The regression results give some insight into the issue of diverging growth trajectories and sources of distress. The less robust MSAs owe part of the downward pressure in their economic growth during the crisis to the concentration of subprime mortgages, as well as to low sectoral diversification and urban diseconomies. In terms of post-crisis growth, factors that may be responsible for stalled growth include the subprime mortgage concentrations in addition to the greater FIRE specialization, yet their contribution is marginal. However, regional differences are also evident. For example, the expected mean difference in employment growth during the financial crisis period (following equation 1) between metropolitan areas in one of the East North Central states (Great Lakes) and other areas is about -0.264 percent, all other predictor variables held constant. In contrast, the expected mean difference for metropolitan areas

in a West South Central state is about 0.232 percent.

	(1)	(2)	(3)	(4)	(5)	(6)
	Change in employment 07-09	Change in employment 09-11	Change in employment 09-11	Change in GMP 07-09	Change in GMP 09-11	Change in GMP 09-11
Ln(Subprime)	-0.236*** (-4.47)	-0.072 (-1.23)	-0.080 (-1.09)	-0.261*** (-4.84)	-0.031 (-0.55)	0.079 (1.14)
Ln(Fail rate)	-0.029 (-0.50)	-0.041 (-0.64)	-0.040 (-0.63)	-0.08 (-1.37)	0.073 (1.18)	0.068 (1.11)
Ln(RDI)	-0.159* (-2.45)	0.078 (1.08)	0.077 (1.06)	-0.246*** (-3.72)	0.035 (0.51)	0.049 (0.71)
Ln(FIRE)	0.127* (2.24)	-0.113+ (-1.79)	-0.112+ (-1.77)	0.083 (1.42)	-0.112+ (-1.83)	-0.120* (-1.99)
Ln(Total size)	-0.180* (-2.48)	0.173* (2.14)	0.168* (1.99)	-0.269*** (-3.63)	0.116 (1.49)	0.181* (2.23)
Ln(HAMP)			0.017 (0.18)			-0.237** (-2.65)
Mid-Atlantic region	-0.034 (-0.44)	0.159+ (1.86)	0.162+ (1.86)	0.047 (0.61)	0.045 (0.55)	0.003 (0.03)
E N Central region	-0.264** (-2.73)	0.13 (1.21)	0.135 (1.22)	-0.237* (-2.40)	0.265* (2.56)	0.192+ (1.80)
W N Central region	0.055 (0.74)	0.051 (0.62)	0.057 (0.64)	0.055 (0.72)	0.164* (2.05)	0.083 (0.97)
S Atlantic region	-0.1 (-0.99)	0.036 (0.32)	0.040 (0.34)	0.114 (1.11)	0.031 (0.28)	-0.026 (-0.24)
E S Central region	-0.046 (-0.58)	0.024 (0.27)	0.030 (0.32)	0.075 (0.94)	0.059 (0.70)	-0.023 (-0.26)
W S Central region	0.232** (2.68)	0.216* (2.25)	0.226* (2.03)	0.135 (1.53)	0.446*** (4.81)	0.302** (2.83)
Mountain region	-0.047 (-0.58)	-0.117 (-1.29)	-0.115 (-1.27)	-0.009 (-0.11)	0.067 (0.77)	0.044 (0.50)
Pacific region	-0.167+ (-1.88)	0.012 (0.13)	0.012 (0.12)	-0.037 (-0.40)	0.147 (1.55)	0.159+ (1.68)
Observations	358	358	358	358	358	358
R-squared	0.284	0.116	0.117	0.255	0.178	0.194

Standardized beta coefficients; t statistics in parentheses
 + p<0.10 * p<0.05 ** p<0.01 *** p<0.001

Table 15: OLS regression coefficients for metropolitan resilience. Note: see Table 12 for definitions and section 5.3 for sources. Predictor variables in beneath regression number at top of table.

5.6 A geography of metropolitan recovery to the 2008 crisis

We have attempted to discern some of the causes of uneven metropolitan growth patterns following the 2008 financial crisis and recession. These causes likely differ between broad categories of metropolitan areas. We have posited that one potential cause of this unevenness is the state of household balance sheets, assuming that the amount and quality of debt creates constraints on the recovery process and that regional and local structural factors are responsible for distributing such debts differently within and between metropolitan areas. We included a variable for a special class of debt—subprime mortgages—which were marketed overwhelmingly to the most vulnerable groups of consumers of financial services. In this final analytical section, we continue the analysis of divergent growth trajectories, the sources of distress, and the barriers to recovery with a discussion of the role played by the federal measures implemented to restore balance sheets during the crisis and recovery.

5.6.1 Consumer vulnerability and metropolitan recovery

Our choice of high-cost home purchase loans as a proxy for household financial distress speaks to the change in position that subprime markets took over the last decade relative to other consumer financial markets. Subprime mortgage markets served as both a refinancing mechanism and a market for home purchase loans. Following the collapse in home prices in 2006 and the onset of the recession in 2007, many borrowers, both subprime and even 'prime', were pushed into distress as the initially favorable terms of mortgages expired, interest rates rose, home prices declined, and home equity began to disintegrate. Depository institutions were faced with mounting nonperforming loans that could not be offloaded into the subprime market for modification as that market, too,

began to unravel. The unwillingness of lending institutions to forbear or modify the terms of loans imposed serious hardships on borrowers, and consequently the dysfunction in financial markets evolved into a foreclosure crisis. As such, the principal spaces over which the 2008 crisis unfolded were the balance sheets of homeowners and those of financial institutions.

The costs borne by the public of resolving the financial distress arising from the subprime crisis and the bank panic of 2008 have been exceptional, exceeding the costs from the bank failures during the S&L crisis (Curry and Shibut 2000). The primary administrative vehicle for resolving this distress among banks and households was the TARP authorization, executed by the US Treasury. This solution to untenable private debt burdens, however, was lopsided: the proportion of capital dedicated to recapitalizing the financial sector constituted the bulk of disbursements under TARP, while capital channeled to households in order to relieve mortgage burdens and prevent foreclosures constituted a fraction of total available funds (see Chapter Four here). For instance, the workhorse of Treasury efforts on mortgage relief was HAMP. As of April 2013, approximately \$4.5 billion had been allocated out of TARP for the purposes of HAMP modifications (SIGTARP 2013). As a point of reference, the initial disbursement in the fall of 2008 from TARP to nine very large financial institutions totaled \$125 billion. As of May 2014¹⁸, HAMP had completed just over two million modifications (reductions in monthly first-lien mortgage payments), resulting in principal reductions of roughly \$14.2 billion for homeowners. As a further test of the effect of household balance sheets on economic recovery, we included a variable for the number of permanent modifications achieved under the HAMP program (as a share of total

18 <http://www.treasury.gov/initiatives/financial-stability/reports/Documents/May%202014%20MHA%20Report%20Final.pdf>

households) per metropolitan area as of December 2011 in the third and sixth regressions in Table Three (for change in employment and in GMP during 2009-2011)

The distribution of these principal reductions might explain part of the recovery pattern. Ostensibly, mortgage modification would entail relief of financial distress, as households receiving modified terms face lower future payments. It is possible that such relief, by freeing up income, might be directed towards amortizing other consumer debts or perhaps even spending. Conversely, those reductions represent losses imposed on financial sector balance sheets. The HAMP variable and the subprime mortgage variable share a correlation coefficient of 0.5335, which suggests that most areas with a severe subprime problem were also the primary beneficiaries of the HAMP action, although much variance remains unexplained. For change in GMP, the coefficient for HAMP reported in Table Three is statistically significant, comparatively large, and raises the *r*-squared statistics. It are also negative, and changes the sign of the subprime mortgage variable to positive (but still statistically insignificant).

It seems that in MSAs with many HAMP modifications, growth remained depressed. This could also reflect the problem of high re-default rates of modified mortgages under HAMP (SIGTARP 2013): the program was ineffective in stemming foreclosures in areas affected by the subprime crisis. It may be more appropriate to read the HAMP variable as an additional indicator of household distress, except for the post-crisis period, rather than balance sheet relief. We stress the point that, as emphasized by the low *r*-squared, these variables capture only a small portion of the demographic profile of the metropolitan landscape, given our decision to focus on a narrow housing market (see, for instance, Watkins 2001 for a discussion of the scale problems associated with housing markets). As such, while the subprime crisis certainly created a

number of barriers and constraints in the metropolitan recovery process by depressing consumption and destroying wealth, a majority of distress that appears to be stalling post-crisis employment growth originated outside the balance sheets of the most vulnerable (subprime) households. Nonetheless, it is obvious that the solutions undertaken to resolve that vulnerability have been inadequate and indeed continue to exert a drag on economic growth.

5.6.2 The relation between resilience and economic diversity: the case of the FIRE sector

Our findings suggest that an important direction for continued analysis of the causes of the uneven recovery is the relationship between the destruction of wealth and loss of income across various communities and how those communities are structured and situated financially within the metropolitan area. We have managed with the cluster analysis to identify the outlier groups, those MSAs embodying the extreme cases. Low-performing areas are relatively small in size, exhibit low levels of sector diversity, and experienced significant distress—at least, they recorded the highest average levels of the sample—both among households and the banking sector. In contrast, high-performing areas are, on average, smaller, somewhat more diversified economically, and display much lower levels of distress among households. Across all five clusters, the most consistent pattern among our variables was that gradually worsening growth outcomes were associated with increasingly larger subprime mortgage and HAMP concentrations. However, there was also an interesting pattern evident in the RDI figures: MSAs with middling economic outcomes were generally most diverse, while specialization increased as outcomes both worsened and improved. This pattern, in turn, suggests that there is an opportunity to determine how specific economic and industrial

specializations and configurations have moderated employment and GMP activity through the recession and recovery, much like the recent work of Gabe and Florida (2013) that pointed to the destructive combination of construction, housing, and retail services growth.

That the worst- and best-performing clusters demonstrated comparatively low levels of economic sector diversity may indicate that a U-shaped relationship exists between resilience and metropolitan economic diversity. Again, it is important to clarify what information is conveyed by our indicator for diversity. The RDI reveals the extent to which a region deviates from the national average in terms of the weighting of sectors in their economy. The RDI will rise (decline) as fewer (more) sectors constitute a greater portion of activity. The U-shaped relationship is likely shaped by how a metropolitan economy combines groups of sectors, given the varying financial stability of industries (see Chapter Three). As already stated, a drawback of such an index is that it is impossible to determine to which sectors the lower diversity can be attributed. Including the FIRE specialization metric was a means of testing this hypothesis.

Like the RDI, the LQ for FIRE describes economic activity in broad strokes. The indicator has limitations: it only reveals overrepresentation of employment without describing its functional relations. That is, the FIRE LQ groups international financial centers (as indicated by employment specialization), such as New York, with provincial financial centers, such as Des Moines, IA. French, Leyshon, and Thrift (2009, 293) have argued that provincial financial centers would likely underperform international financial centers during the financial crisis, as the former are more likely to undergo back office rationalization programs in times of macroeconomic distress (see also Landier, Nair, and Wulf 2009). Such hypotheses cannot be tested here; instead, the

focus falls to comparing financial centers (New York and Des Moines alike) with non-financial peripheries.

The regression analysis in Table Fifteen found that specialization in FIRE employment produced positive effects on change in employment during the crisis, but the sign reversed in the post-crisis period. This finding fits with Wójcik's (2012) insight that US investment banks staved off layoffs until 2009, yet the government supports to the financial system seem to have been exhausted after then. Another interpretation is that specialization in finance may crowd out employment growth in other sectors, as financial centers tend to display a polarized labor structure of financial and business services on one end and retail, entertainment, and lower value-added services on the other. As the financial sector remained depressed and dysfunctional during this period, co-agglomerated industries that rely on the income produced by workers in financial services might similarly have remained depressed.

Future research on metropolitan growth should consider the effect of economic diversity and specializations for the reason that the unique institutional and sociological features of industrial districts or global cities allocate earnings, and hence structure who takes on what kind of debt, in specific ways. The economic profile of a metropolitan area—its cash flow relations such as wages, taxes, interest payments—will, at least in broad terms, reflect the economic security of its workers. That security has much to do with the volatility of employment in various sectors, such as government, health, and education services on the more insulated side and manufacturing, construction, and even financial services on the less stable side. As such, economic diversity and specialization, and particular types of industrial and economic agglomerations, are a relevant factor not only for their implications for the volatility of employment but also for their sociological

characteristics that determine how earnings are allocated and the different types of financial arrangements they may push their workers into and make available.

5.7 Conclusion and directions for future research

In summary, the first research question here asked which MSAs outperformed and which underperformed in terms of employment and GMP growth over the course of the crisis and recovery period. We divided our sample into five clusters based on the extent to which total employment and GMP had recovered relative to their initial values in 2007. The most striking pattern was the inverse and time-dependent relationship between growth and the accumulation of high-cost mortgages among households. The second research question asked how much of the variation in metropolitan growth outcomes could be attributed to these mortgages. A simple OLS regression found low predictive power of those models, although the sign of the variable for subprime mortgages was correct and statistically significant. A lesson from that set of regressions is a caution not to overestimate the effect of the distress among subprime households on prospects for *metropolitan growth*. That being said, it is worth emphasizing that it was the fact that such mortgages had been issued in such amounts and subsequently securitized and packaged into complex products that were widely held among high-end financial intermediaries that a banking crisis erupted in the first place.

Cluster analysis is best suited for generating hypotheses, and we have elaborated on at least two hypotheses that merit continued attention. First, based on the insights from the high-cost mortgage and HAMP variables, we suggest that the debts and financial relations more generally of various demographic groups will have varying effects on growth in the aggregate, and these effects are likely to be time-sensitive. Specifically, the contribution of debts and incomes of some groups may be particularly

relevant during periods of contraction and others during periods of recovery. The ability and willingness of households to undertake consumption spending, for businesses to undertake investment, or for the government to make transfers will matter at different times, but within these broad sectors there are also important differences in terms of quality and nature of debt-financed activity, as we have demonstrated in the case of subprime borrowers. Second, there is room to explore how different types of industrial specializations, as well as economic diversity, affect the robustness and resilience of their territorial configurations to financial downturns. This can be justified in part from the nature of cash-flow relations but also from prior interest in the field.

Chapter Six: Financial specialization and the 2008 crisis: the case of Los Angeles and San Francisco

6.1 Introduction

This chapter offers a retrospective on the federal policy of supporting large banking institutions during the 2008 crisis, with a focus on the manifestation of this support in two financial centers. We analyze the growth and change of financial sub-sectors in Los Angeles and San Francisco from 2005 to 2011, the period encompassing the mortgage boom, the financial crisis, and its nominal recovery. These two areas are special cases: they are the major financial centers on the west coast of the United States (US), making them potential mediators of capital flows between Pacific rim countries, the western NAFTA territories, and domestic capital markets and decision-making centers in the northeast. The cities and California more generally also suffered heavily during the 2008 crisis and ensuing recession, so the geography and historical period afford an opportunity to examine the changing locational dynamics of financial intermediaries during alternating periods of stability and instability.

Our focus on large banks fits with recent renewed interest in the politics and efficacy of federal policies during the crisis period, touched off by the publication of memoirs by Treasury Secretary Timothy Geithner (2014). So far, debates about consolidation and concentration in the banking sector have been framed in the language of “too-big-to-fail” and related macro-prudential concerns. The wider geography of the banking sector, for the most part, remains peripheral to these debates, despite its explanatory power.

Growth during a financial crisis can be viewed as a zero- or negative-sum game, however there are important distributional mechanisms at work: as the financial sector undergoes consolidation, existing regional specializations and institutions may condition that activity over space. Three research questions set up our investigation of these phenomena. First, what were the patterns of growth and change within the financial sector in the study areas over the period? Our second question seeks to identify some potential mechanisms that affect consolidation and concentration, using the banking sector as a case study: How did depositor behavior, mergers-and-acquisitions of failed banks, and the government investment program contribute to consolidation activity? Finally, we reframe the problem of uneven growth in stability terms. We ask: To what extent did these temporary structural advantages contribute to the resilience of these financial centers? This final question approaches the success of the government intervention by appealing to two less common perspectives in contemporary debates surrounding the 2008 crisis: regional disparities and profitability in the banking sector.

We find that there was indeed a structural advantage to the two metropolitan areas and their core areas especially (Los Angeles and San Francisco counties) during and after the 2008 crisis. The material gains from this advantage were highly localized, evident in five key observations: a growth advantage in credit in Los Angeles county after the crisis; a stable or growing number of specializations in credit and other sectors in Los Angeles and San Francisco counties; concentration of bank office and deposits expansion in the two metropolitan areas; a greater retention of failed bank assets in Los Angeles as opposed to transfer to other areas; and a greater relative allocation of government investment. The consolidation advantage that emerged from these mechanisms cannot be separated from the federal preference to execute stability policy

through large commercial banks, justified by the government preoccupation to preserve lending. Finally, we argue that in addition to making regional disparities worse, the federal program was limited in efficacy because it ignored the reality of lending in the US, which relies on shadow intermediaries. We argue that this ignorance manifests in lower rates of profitability for the sector.

The rest of the chapter is structured as follows. The next section reviews the literature on patterns of growth and change in financial centers. That is followed by the data and methodology. Two empirical sections follow, the first describing the observed patterns in growth and change between and within the two financial centers, and the second identifying the specialization patterns and mechanisms that have contributed to their change over the period. A final analytic section discusses the quantitative findings in terms of stability and resilience, and demonstrates how these findings are significant for evaluating the efficacy of the federal program from a supply-side perspective. The final section summarizes our findings and recommends how our research can be extended.

6.2 Literature review

Our case study into the distributional consequences of the 2008 financial crisis within Los Angeles and San Francisco draws on two strands of research within economic geography. The first strand of relevant research is the study of how areas respond to adverse economic events, such as recessions but more topically financial crises. In geography, much of this recent literature is organized around the concept of resilience, particularly the work of Ron Martin (2012). The concept has migrated from physical scientific fields, where its application mostly relates to evaluating the mechanics of change in systems responding to exogenous events. Martin and others

(Martin 2012; Martin 2010; Simmie and Martin 2010; Fingleton, Garretsen, and Martin 2012) have spent considerable effort interpreting resilience for very specific use within evolutionary economic geography. The concept as it is commonly understood in geography can be divided into two broad categories: engineering- and ecological-based definitions. The former more narrowly focuses on the nature of change in the economic resources of an area, such as the pace at which the growth rates of employment or output return to trend and whether these rates lead to convergence between areas (Fingleton, Garretsen, and Martin 2012), for example. A crucial assumption is that the underlying phenomena follow an equilibrium. A chief difference with the ecological definition is the possibility in the latter that the phenomena observe multiple equilibria, and so the sources of hysteretic effects become important.

The two definitions lend themselves to different types of empirical analysis. The first has been operationalized using statistical techniques to gauge differences in response to and recovery from recessions and crises between areas (Fingleton, Garretsen, and Martin 2012; Fingleton and Palombi 2013; Kreston and Wójcik 2013a) and between sectors (Kreston and Wójcik 2013b). The second—which we adopt here—invokes the role of institutions, both organizations and rules-of-the-game, as being the key to how an area can adapt to economic change, particularly in the long-run (Glaeser 2005; Glaeser 2011; Campanella 2006). We repeat two relevant insights of Martin's (2012) to this institutional perspective. First: “Whether the creative aspects of this process outweigh the destructive is, of course, a vital issue” (ibid, 11). And second: “The specific policies adopted by the central government ... will condition the scope for and form of firm behaviour differently in different regions” (ibid, 13). Previous research on responses to financial crises has argued that the choice of organizations—both

regulatory agencies and their targets in private markets—through which to execute government policy has the effect of unevenly distributing gains and losses between US states (Kreston 2014). We extend this hypothesis by examining how specific rules and policies affected the stability and integrity of economic activity at the sub-metropolitan scale.

Where the first strand of research narrows the analytical focus to the problems of uneven growth and change and the role of institutions in those processes, the second strand of research underscores the importance of looking at financial centers specifically. Financial crises are a further specific form of shock that unevenly affect financial centers due to the concentration of financial intermediaries. The 2008 crisis involved both a banking crisis (a significant decline in profitability of banks that led to insolvencies and that in turn required government intervention) as well as a depreciation in asset markets; these involve different financing channels, allow a different scope for government action, and affect organizations differently than, for instance, a crisis of inflation or sovereign debt. The literature can be divided according to whether their motivation is to understand how losses are distributed between or within financial centers.

Wójcik (2013b) has argued that financial centers, and London and New York in particular, are sites where financial crises originate, on three grounds: centers feed irrational exuberance (see also Clark and Wójcik 2001); are the decision-making centers of the shadow banking system; and, house the advocates of financial deregulation. Wójcik (2013, 2748) raises an important point about agency in this regard, as 'financial centers' are a conceptual abstraction. More specifically, financial centers are agglomerations of financial and professional services firms (Taylor 2004), especially

investment banks (Wójcik 2013a) and other financial market intermediaries (Sassen 2001). There are two important implications here. First, these studies argue that advanced business services firms are a chief indicator of integrity, stability, and significance of a financial center. Second, a lesson of both Sassen's global city and Taylor's world city network hypotheses is that the composition of a financial center—its specializations in advanced business services—will structure its position in the value chain of financial production relative to other financial centers. In this sense, financial centers, by way of their firms, compete with as well as complement each other; the key is whether their firms can retain, reproduce, and develop the skills and competencies that are demanded by the changing calculus of global capital markets, which ultimately determines the continued viability of a center (Engelen 2007; Engelen and Grote 2009; Grote 2008).

Investment banks and other financial intermediaries also regulate the health of a financial center during financial crises. Beaverstock and Doel (2001) describe how banks are embedded in distant economies by way of debt relations and asset holdings, such that the collapse in fortunes of peripheral areas can cause employment fluctuations in financial centers as banks downsize or relocate. Diminished lending by Japanese banks in the US during the collapse in Japanese property markets in the 1990s is an example of this phenomena (Peek and Rosengren 1997; Peek and Rosengren 2000). Individual bank strategies—organizational structure, client networks, portfolio diversification—for managing territorial risks constitute an under-appreciated geography that sustains the global financial architecture (Alessandrini, Presbitero, and Zazzaro 2009b; Marshall et al. 2012; Wainwright 2012). In order to understand what happens within a financial center, it is vital to consider the strategies, specializations,

and market exposure of its population of financial intermediaries.

In the case study that follows, we focus on commercial banks and savings institutions and less on investment banks for three reasons. First, the geography and history of US banking since the 1980s has been the gradual mismanagement and rendering obsolete of US savings institutions (Dymski 1999; Warf and Cox 1996). Most of the regulatory and market transformations in the US banking sector can be traced directly to the problems of these specific institutions. This trend can be related to a broader pattern of the tensions between peripheral banking markets and institutions and central ones. For instance, Marshall (2013a) has argued in the case of England that the 2008 financial crisis accelerated long-term, on-going processes of centralization in the financial sector. Among the pressures towards consolidation there were the concentration of failures among peripheral financial institutions (in both locational and sectoral terms), the incentives for such institutions to convert to banks, and heightened competitive pressures. Similar pressures existed in the US, with a concentration of failures among savings institutions in the west and southeast of the country, incentives for financial institutions to convert into bank holding companies, and other competitive pressures emanating from federal policies. In this article, we take up Marshall's (2013, 473) call for “further analysis of the pressures encouraging the deepening organisational and spatial centralisation of the financial sector.”

Second, the financing channel most responsible for the dysfunctions in 2008 was securitization of property claims (Martin 2011). While investment banks manage the upper reaches of this value chain, the chartered, regulated commercial banking and savings institution sectors were mediators between investment banks and the sites of mortgage origination. Minsky's (2008) point about hierarchical banking systems is

particularly relevant here. Theoretically, in a hierarchical banking system characterized by banks acting as lenders-of-last-resort to nonbank intermediaries, nonbank institutions can exert income stress on banks. Additionally, it is clear that in such a system risks will tend to accumulate in less regulated areas. Once these risks have accumulated and alternative means of financing suddenly become more expensive, distress travels through cash flow arrangements between banks and non-banks. Non-banks may also threaten the profitability of banks, as the former are not subject to the same costs imposed by regulatory compliance while being able to establish positions in a greater range of markets, eventually perhaps intruding on traditional lending markets.

Finally, much of the federal response to the crisis was predicated on the need to preserve lending (Geithner 2014; Paulson 2013); at least, this was the perspective that dominated the decision-making environment and won out against alternatives (Bair 2012). Few geographers have taken up the task of documenting the spatial ramifications of the programs that executed this vision. Here, we apply the popular concept of a 'flight-to-safety' to economic growth. We are interested in demonstrating the spatial aspect of the flight-to-safety, which typically focuses on the changing preferences of investors for more liquid assets during times of distress (Baur and Lucey 2009; Beber, Brandt, and Kavajecz 2009). An important but undervalued aspect of this behavior is that these preferences are associated with different organizations, hence different geographies: during the 2008 crisis, for instance, there was a flow of funds out of money markets and into large banks that carried the “too-big-to-fail” guarantee (see Bair 2012). As such, we hope to highlight that there are political-economic choices involved in these changing preferences and these choices have a material impact on the composition and recovery of financial centers.

6.3 Data and methodology

The lack of major institutional differences between Los Angeles and San Francisco (they share a state banking supervisory system, for instance), their relative proximity, and similar financial histories make them ideal areas for comparing stability and resilience. In addition, the choice of Los Angeles and San Francisco follows from the high concentration of distress in California during the 2008 crisis and recession (Martin 2011) as well as the spatial bias in investments in these areas (Hebb and Sharma 2014). The two areas were clearly integral sites in the value-chain of property securitization, yet the differences in their bank populations and sub-sector specializations provide an opportunity to discern how federal recovery policies have contributed to differential growth and resilience between and within financial centers. We compare these cities at the metropolitan statistical area (MSA) and county levels. Los Angeles (MSA) consists of Los Angeles and Orange counties. San Francisco (MSA) consists of five counties: Alameda, Contra Costa, Marin, San Francisco, and San Mateo. We refer to Los Angeles and San Francisco counties as “core” counties.

The data used for growth and concentration calculations were retrieved from the US Census County Business Patterns, for establishments at the six-digit NAICS¹⁹ level within credit (NAICS 522), securities (NAICS 523), and insurance (NAICS 524).

Establishments refer to individual locations of business activities, so that firms or companies may consist of multiple establishments across many locations within the study area. One of the drawbacks of using establishment data is that they underestimate the breadth of activities that may occur at a single establishment. The NAICS classification for an establishment is determined on the basis of its primary business

¹⁹ North American Industrial Classification System

activity, which is found by calculating the relative share of revenue, capital investment, employment, or the value of goods and services produced by the various activities at a location. Consequently, the data collapse all business activity at a given establishment under one NAICS category, which has the effect of obscuring secondary or tertiary work and business. This bias occurs at the level of data collection²⁰.

Figures reflect end-of-year values for a time period beginning in 2005 and continuing at two-year intervals until 2011, when the series terminates (as of time of data retrieval). This temporal division approximates the stylized phases of an investment cycle. From 2005 to 2007, the investment boom in property markets was peaking and then faltering. The 2007-2009 period captures the financial crisis and the recession. Employment and home prices began their decline in 2007, while only three banks had failed nation-wide as of the final quarter of 2007, the official start date of the recession. Panics began in financial markets in the summer of 2008, including failures of major institutions, and asset markets reached their trough in mid-2009. By the end of 2009, the economy had returned to the bottom of the cycle, having entered a recovery/stagnation phase. Though our periodization cleaves off the first months of the recession from the crisis period, our timing is consistent with the observed fluctuations in employment and establishment growth. Dividing the full study period into three two-year sub-periods also incorporates any changes in the underlying regional economic base into the model. This allows, for example, a dynamic version of the traditional shift-share approach (Loveridge and Selting 1998).

We use a shift-share method measures growth and location quotients to measure growth advantages and specialization. Traditional accounting-based shift-share analysis determines whether the selected sectors in the study areas have under- or out-performed

²⁰ See <http://www.census.gov/eos/www/naics/faqs/faqs.html#q2>

the national economy over the study period. The equation disaggregates change in an indicator of the regional economy—here, establishments according to NAICS—into national, structural, and regional components. The equation is given below (following Barff and Knight III 1988; Knudsen 2000; Kobayashi 2004):

$$\Delta E_{ij}^{t+x} = N_{ij}^{t+x} + I_{ij}^{t+x} + R_{ij}^{t+x} \quad (1)$$

where: E is establishments in sector i of region j between years t and $t+x$; N is the national growth component; I is the structural component; and R is the regional component. Each component is calculated as follows:

$$N_{ij} = E_{ij}^t * g_n \quad (1.1)$$

$$I_{ij} = E_{ij}^t * (g_{in} - g_n) \quad (1.2)$$

$$R_{ij} = E_{ij}^t * (g_{ij} - g_{in}) \quad (1.3)$$

where: g is the growth rate for variable E over the time period (base year t and end year $t+x$); and n refers to the total national growth rate.

From equations 1.1 and 1.2, it is clear that the resulting coefficients for national growth and industrial structural factors will be proportional to each study area's population of establishments. Shift-share effectively controls for national-industrial structure. As such, our interest is in the coefficients from the regional factor. This factor indicates the existence of a local competitive advantage in growth, in instances where the regional component is greater than the national growth trend.

Location quotients (LQ) identify a static vision of local activity, placing evidence of regional competitive advantage in the context of economic specialization. The formula for the index is specified as:

$$LQ_{ij} = \frac{\left(\frac{E_{ij}}{E_j}\right)}{\left(\frac{E_{in}}{E_n}\right)} \quad (2)$$

The equation uses the same notations as in equations 1-1.3 above. The reference area for all formulae is the United States.

6.4 Metropolitan growth and change during a financial crisis

Table Sixteen displays the relative size of Los Angeles and San Francisco MSAs and constituent counties for the study years. The first panel records growth for total establishments. Both MSAs followed a similar path: their position within California diminished until 2009, after which they regained some of their size. At the intrametropolitan scale, Los Angeles county is three times as large as Orange county, and the former appears to have had a slight growth advantage over the latter. In San Francisco MSA, Alameda (containing the city of Oakland) is the largest county in terms of all establishments, followed by San Francisco and Contra Costa counties. Notably, both core counties more or less retained their relative size, which implies they grew at higher rates or contracted at lower rates than their immediate neighbors and other areas in California, during both the crisis and recovery periods.

Comparable figures for financial establishments are in the second panel. These figures provide two key insights into the spatial structure. First, the number of financial establishments in Los Angeles MSA relative to California remained consistent throughout the study period, whereas for San Francisco MSA that number decreased until interrupted by the crisis, and then decreased after the crisis years as well. This observation is the basis for the claim that core areas—here defined as MSAs—benefit from a form of insulation during moments of distress, although it appears to be transient.

Second, regional specialization in finance is structured differently in both of the MSAs: in Los Angeles MSA, Orange county captures a greater share of financial establishments than it does total establishments, indicating greater specialization there, while in San Francisco MSA, financial establishments show a more even distribution than for total establishments.

Relative size of study area in terms of all establishments				
	2005	2007	2009	2011
California				
Los Angeles (MSA)	0.395	0.392	0.379	0.390
San Francisco (MSA)	0.142	0.139	0.135	0.139
Los Angeles (MSA)				
Los Angeles county	0.736	0.736	0.737	0.739
Orange county	0.264	0.264	0.263	0.261
San Francisco (MSA)				
Alameda county	0.310	0.309	0.307	0.305
Contra Costa county	0.192	0.191	0.187	0.185
Marin county	0.084	0.083	0.082	0.080
San Francisco county	0.249	0.250	0.257	0.262
San Mateo county	0.166	0.167	0.167	0.167
Relative size of study area in terms of financial (NAICS 52) establishments				
	2005	2007	2009	2011
California				
Los Angeles (MSA)	0.376	0.379	0.379	0.380
San Francisco (MSA)	0.157	0.151	0.153	0.152
Los Angeles (MSA)				
Los Angeles county	0.657	0.658	0.667	0.668
Orange county	0.343	0.342	0.333	0.332
San Francisco (MSA)				
Alameda county	0.238	0.224	0.219	0.213
Contra Costa county	0.238	0.242	0.230	0.234
Marin county	0.087	0.089	0.090	0.086
San Francisco county	0.271	0.277	0.295	0.294
San Mateo county	0.166	0.168	0.166	0.173

Table 16: Relative size of Los Angeles and San Francisco and constituent areas. Source: author's calculations based on Census figures.

The growth rates in Table Two (Panel A) corroborate the patterns described

above, while also disaggregating growth in financial establishments by the three major three-digit NAICS sectors (credit, securities, and insurance). There are important differences between county-sectors. Within credit, both core counties had superior rates than almost all other areas during all three sub-periods, providing some evidence for a flight-to-safety pattern below the MSA scale. Within securities, counties in San Francisco (except Marin) outperformed those in Los Angeles during the crisis, while on the whole Orange county outperformed Los Angeles county. The record on MSA core-periphery performance is also mixed with respect to insurance. In Orange, insurance slipped more quickly into contraction than Los Angeles, however its contraction was less than two percent during crisis and recovery. On the other hand, within San Francisco MSA insurance growth remained static in San Francisco county, while shrinking in the other major areas.

Table Seventeen also displays the coefficients from the regional factor of the shift-share analysis in Panel B. A positive sign indicates that county-sector growth was greater than the national average, a sign of some unique, place-based competitive advantage. These coefficients temper expectations about a flight-to-safety pattern as they show that, in the case of credit at least, no county demonstrated a growth advantage during the financial crisis. However, Los Angeles and San Mateo counties did demonstrate an advantage in the post-crisis period, suggesting a greater degree of resilience than their neighbors. A growth advantage in the other sectors can be observed in several counties during the crisis period, namely in Contra Costa and San Francisco for securities and in Marin, San Francisco, and Los Angeles for insurance. Indeed, the growth premium for insurance in Los Angeles was consistently positive throughout the study period.

Growth Rates (in percent)

	SAN FRANCISCO MSA														
	Alameda			Contra Costa			Marin			San Francisco			San Mateo		
	05-07	07-09	09-11	05-07	07-09	09-11	05-07	07-09	09-11	05-07	07-09	09-11	05-07	07-09	09-11
Credit	-6.90%	-12.96%	-11.44%	2.15%	-24.61%	-7.35%	3.14%	-13.91%	-6.57%	###	-11.72%	-6.93%	6.67%	-17.14%	-0.49%
Securities	-10.09%	6.09%	-2.11%	7.54%	12.40%	1.92%	11.60%	-2.15%	-7.33%	3.45%	10.63%	-7.25%	8.31%	8.33%	-1.42%
Insurance	3.48%	-7.33%	-4.61%	4.24%	-3.79%	-2.77%	-2.80%	4.81%	-13.30%	-4.92%	0.96%	0.57%	-2.17%	-6.16%	-1.31%

LOS ANGELES MSA

	Los Angeles			Orange		
	05-07	07-09	09-11	05-07	07-09	09-11
Credit	7.71%	-14.09%	-5.64%	6.46%	-21.07%	-9.27%
Securities	6.81%	5.14%	-4.79%	7.30%	4.14%	-0.34%
Insurance	5.74%	1.66%	-2.13%	6.12%	-1.18%	-1.58%

Shift-Share Regional Factor

	SAN FRANCISCO MSA														
	Alameda			Contra Costa			Marin			San Francisco			San Mateo		
	05-07	07-09	09-11	05-07	07-09	09-11	05-07	07-09	09-11	05-07	07-09	09-11	05-07	07-09	09-11
Credit	-	-	-	-	-	-	-	-	=	+	-	-	-	-	+
Securities	-	-	+	-	+	+	+	-	-	-	+	-	-	-	+
Insurance	+	-	-	+	-	=	-	+	-	-	+	+	-	-	+

LOS ANGELES MSA

	Orange			Los Angeles		
	05-07	07-09	09-11	05-07	07-09	09-11
Credit	-	-	-	-	-	+
Securities	-	-	+	-	-	-
Insurance	+	-	+	+	+	+

Table 17: Growth rates and shift-share regional factors for two financial centers. Source: as in Table 16.

So far, the evidence for a flight-to-safety phenomena stands as follows. First, for the two MSAs relative to California, during the two-year crisis period, their share of total activity declined, but these losses were mostly reversed in the recovery period. Regarding financial activity, neither MSA contracted more than their neighbors during the crisis period. Second, both core counties contracted less during the crisis period relative to the other areas in their MSAs. Finally, the degree of contraction at the sector level varies. For credit, core counties benefited from higher growth compared to local non-core areas, but this did not translate into a consistent growth advantage compared to the national trend. The core areas were revealed, however, to possess a growth advantage in other financial sectors during the crisis period.

The next section analyzes the structure of the financial sector in the two financial centers, identifying three consolidation mechanisms within the banking industry.

6.5 Consolidation pressures during a financial crisis

In a zero- or negative-sum growth situation such as an economic contraction brought about by a financial crisis, the important difference between areas is relative growth. As some areas contract more relative to others—and we have established that generally non-core areas contracted more than the two core areas, the flight-to-safety pattern—the economic structure should reflect these dynamics. We summarize the LQs at the six-digit NAICS level within the three financial sectors in Table Eighteen.

There are three main points that arise from the LQ analysis that should be emphasized. First, the structural arrangements of the core counties in terms of magnitude and total number of financial specialties (an LQ greater than unity) remained stable throughout the period, or had deepened by 2008. For example, the average levels of specialization in San Francisco county were higher in 2011 than their initial levels.

Second, within Los Angeles MSA, the growth advantages in credit and insurance in the post-crisis period in Los Angeles witnessed in the shift-share results were not derived from degrading specialization in Orange county. The average LQs in Los Angeles were slightly lower in the final period than starting period for credit and securities, however it was already less specialized than Orange, which also saw lower average LQs by 2011. Significantly, Los Angeles county appears to have become more specialized in credit by 2011.

Finally, there was considerable diversity in the changes in the structural arrangements of areas in San Francisco MSA, with San Francisco county remaining the most stable. The contraction was, again, concentrated among sectors. Unsurprisingly, the average magnitude of credit specialization in San Francisco increased from 2005 to 2011 (the large jump after 2009 can be attributed to a sizable rise in concentration of the secondary market financing sub-sector). In all other areas, average credit specializations generally decreased from their starting levels. Alameda and San Mateo lost several specialties in securities sub-sectors, having had an average that was greater than unity in the starting period. In comparison, the financial structure in Contra Costa remained almost unchanged, while Marin temporarily added securities and insurance specializations as it lost those in credit.

The consolidation activity was not shared proportionally across the San Francisco MSA, although it was in Los Angeles MSA. As such, while there may not have been obvious *growth* advantages, other structural advantages exist. We attempt to capture some of the pressures of these structural changes in the remainder of this section. To accomplish this, we narrow the focus to banks and savings institutions, for which firm-level data are available.

Table Nineteen records changes in the population of banks and savings institutions from 2007 to 2011²¹. The general pattern is a declining number of banks but an expansion in their office networks. Although these developments impacted all counties unevenly, they were not significant enough to entail a change in the intra-metropolitan relative distribution of offices. Rather, there are two striking features. First, of the 153 additional offices and branches in California between 2007 and 2011, 145 were in one of the two study MSAs. That is, a net gain of only eight offices was shared across the rest of the state—which contains over half of the population—during this period. Second, the stock of deposits in banks in California increased by over \$130 billion from 2007 to 2011, and almost half of this growth occurred in San Francisco county.

This substantial deposit growth merits elaboration. Almost all of the deposit expansion in San Francisco came from two institutions: Bank of America (an increase of \$49.5 billion) and Wells Fargo (\$8 billion), both of which were already in the market in 2007. Two banks with large depository bases in San Francisco failed during 2008: United Commercial Bank, taken over by East West Bank (of Los Angeles), and Washington Mutual, taken over by JP Morgan Chase Bank. These acquiring institutions maintained smaller deposit bases in 2011 than the acquired institutions in 2007. This means that the remaining unit and regional banks were responsible for the rest of the \$6 billion in deposit growth. The ratio of deposits to banks is higher in San Francisco than Los Angeles, underlining the greater capacity of nationally-recognized banks headquartered in the former, like Wells Fargo, to capture depository business.

21 Data retrieved from FDIC Summary of Deposits data online.

		<u>2007</u>								
		Los Angeles (MSA)				San Francisco (MSA)				
		CA	Los Angeles	Orange	Alameda	Contra Costa	Marin	San Francisco	San Mateo	
Count	Number	350	144	105	47	34	22	55	33	
	Offices	7122	1716	684	249	226	86	259	158	
	Deposits (\$B)	750.872	233.88	67.961	30.937	24.95	7.763	91.518	18.984	
As a percent of MSA totals	Number		58%	42%	25%	18%	12%	29%	17%	
	Offices		72%	29%	25%	23%	9%	26%	16%	
	Deposits (\$B)		77%	23%	18%	14%	4%	53%	11%	

		<u>2011</u>								
		Los Angeles (MSA)				San Francisco (MSA)				
		CA	Los Angeles	Orange	Alameda	Contra Costa	Marin	San Francisco	San Mateo	
	Number	310	126	94	46	31	21	52	30	
	Offices	7275	1765	696	293	231	95	279	164	
	Deposits	885.006	253.23	76.244	30.85	27.465	9.713	156.158	22.944	
As a percent of MSA totals	Number		57%	43%	26%	17%	12%	29%	17%	
	Offices		72%	28%	28%	22%	9%	26%	15%	
	Deposits (\$B)		77%	23%	12%	11%	4%	63%	9%	

		<u>Change from 2007 to 2011</u>								
		Los Angeles (MSA)				San Francisco (MSA)				
		CA	Los Angeles	Orange	Alameda	Contra Costa	Marin	San Francisco	San Mateo	
Percent	Number	-11%	-13%	-10%	-2%	-9%	-5%	-5%	-9%	
	Offices	2%	3%	2%	18%	2%	10%	8%	4%	
	Deposits (\$B)	18%	8%	12%	0%	10%	25%	71%	21%	

		<u>Ratio of deposits (\$B) to number of banks</u>								
		Los Angeles (MSA)				San Francisco (MSA)				
		CA	Los Angeles	Orange	Alameda	Contra Costa	Marin	San Francisco	San Mateo	
	2007	2.15	1.62	0.65	0.66	0.73	0.35	1.66	0.58	
	2011	2.85	2.01	0.81	0.67	0.89	0.46	3.00	0.76	

Table 19: Growth and change in the depository network in two financial centers. Source: calculations based on FDIC Summary of Deposits data.

One possible mechanism of consolidation is a flight-to-safety of depositors from outside the banking sector into the banking sector, an appealing move in light of federal deposit insurance for bank deposits (the FDIC director at the time of the crisis remarks that such a phenomena did indeed occur, see Bair 2012). Given our focus on these two financial centers, a possibility not explored empirically here is that banks in counties outside of Los Angeles and San Francisco MSA actually lost deposits, which would be evidence of a flow of deposits from institutions in peripheral areas to the national brand banks in the central areas. Another option is that much of this deposit growth relates to the federal capital program (TARP), for which Bank of America and Wells Fargo received substantial amounts (we can not determine how much of these amounts are reflected in deposits). Regardless, the data here establish a significant and unparalleled positive flow of deposits into San Francisco institutions, to two national banks in particular.

The earlier comment about the expansion of the bank office and branch networks in the face of bank ownership consolidation was not a foregone conclusion. An alternative could have been a shrinking office network from rationalizations after merger-and-acquisitions. Indeed, bank branch expansion is a more costly strategy than merger-and-acquisition (Dymski 2002). A unique insight into the consolidation environment among banks and savings institutions is available in Table Twenty, which presents the failures and acquisition patterns in the study area from 2008 to 2010.

There are two central lessons from the within-MSA allocation of failures during the banking crisis. First, the cause of failures differs by size class, and this in turn reflects the specialized credit intermediary structure in each area. IndyMac, Downey S&L, and First Federal of California (all in Los Angeles county), were very large

savings institutions that carried risky residential mortgages and high exposure to advanced mortgage-based securities products. Southern California was a key location in the development of advanced mortgage products, the result of the interaction between its speculative property markets as well as its specialized lenders, in an echo of the S&L debacle when the Beverly Hills-based operation of investment bank Drexel Burnham Lambert made markets in junk-bonds and funneled these products to savings institutions on the west coast and elsewhere (Stewart 1991). As a ratio of banks operating in the counties in 2007, the rate of failures in Los Angeles was almost double that of San Francisco, and this higher rate and the nature of failures emphasizes that a substantial portion of bank distress derived from the lending markets (see also Martin 2010).

The second important lesson of Table Five comes from the acquisition patterns. Seven of the failures in these two MSAs were acquired by same-county banks, three (two from the Bay Area and one from Orange) were acquired by Los Angeles institutions, a Marin bank was acquired by a San Francisco institution, and one bank by a San Diego bank. The remaining six were acquired by out-of-state institutions. Hence, although there were many failures in Los Angeles, the assets, deposits, and loan portfolios and their management remained to a large extent in Los Angeles. This might explain the expansion in office networks. As the locus of management drifts farther from operational sites, the probability of rationalization of peripheral bank branches increases due to decisional distance (Presbitero, Udell, and Zazzaro 2014). However, it may also be the case that the acquisition of local institutions by out-of-state institutions put a limit on branch expansion than what would have been the case if ownership remained local.

	Name	County	Size at	Est. FDIC	Acquirer in	Acquirer in	ADC/CRE	MBS/GSE	Risky	Over-reliance	Other
			Failure	Losses							
			(Total	(\$000s)					foreclosures	funding	
			Assets)	(\$000s)							
	IndyMac Bank	Los Angeles	30,698,512	13,214,128	Yes	--		X	X	X	Bank run
	Downey Savings and Loan	Los Angeles	12,779,371	571,138	No	No			X		
	California National Bank	Los Angeles	7,781,100	677,957	No	No		X	X		
	First Federal Bank of California	Los Angeles	6,143,903	81,568	Yes	--			X		
	PFF Bank & Trust	Los Angeles	3,715,433	389,435	No	No	X				
	First Regional Bank	Los Angeles	2,082,684	521,994	No	No	X			X	
	First Bank of Beverly Hills	Los Angeles	1,260,354	65,650	(Liquidated)	--	X			X	
Los Angeles	Alliance Bank	Los Angeles	1,113,361	220,240	No	San Diego	X			X	
(MSA)	Security Pacific Bank	Los Angeles	527,959	150,153	Yes	--	X			X	De novo
	Mirae Bank	Los Angeles	480,619	61,169	Yes	--	X			X	De novo
	Western Commercial Bank	Los Angeles	98,635	32,027	Yes	--					De novo
	First Heritage Bank N.A.	Orange	255,376	92,022	No	No					De novo
	Pacific Coast National Bank	Orange	131,418	31,796	Yes	--	X				De novo
	MetroPacific Bank	Orange	75,316	32,515	Yes	--	X				De novo
	First Vietnamese American Ban	Orange	48,000	16,924	No	Los Angeles	X				De novo
San	Innovative Bank	Alameda	266,816	42,900	No	Los Angeles					
Francisco	Tamalpais Bank	Marin	611,504	47,624	No	San Francisco				X	
(MSA)	United Commercial Bank	San Francisc	10,895,336	1,213,239	No	Los Angeles	X				
	Pacific National Bank	San Francisc	2,319,263	252,781	No	No	X	X			

Table 20: Bank failures in two financial centers. Source: calculations based on FDIC Bank Failure Reports retrieved online.

We have discussed two separate mechanisms that may explain the different experiences with growth and consolidation in the two MSAs. The location of the headquarters of very large, nationally-recognized institutions in San Francisco meant that, in a banking crisis, depositor fears of bank failures motivated them to withdraw their holdings from non-banks or smaller institutions and place them in those institutions perceived as more secure. In Los Angeles, the retention of ownership of banks within the city, despite the clustering of failures there, might have supported the stability of a large part of its financial community. Importantly, the string of failures and acquisition patterns in Los Angeles involved a recomposition of the financial community: the failure of savings institutions, and the survival (and strengthening) of commercial banks.

A final mechanism is the government intervention into the banking system, or the “bailout” beginning in 2008. The US Treasury made investments in over 700 financial institutions, and Table Six summarizes the impact of this program in California and the two MSAs. These figures should be interpreted as reflecting actual amounts deposited in local institutions, but rather a reflection of their relative size, importance, and power. Institutions in California accounted for just over eleven percent of receiving entities and thirteen percent of the capital investments. Los Angeles and San Francisco MSAs accounted for almost half of the receiving institutions in California, but close to all capital investments in the state (97 percent). The main beneficiary was Wells Fargo in San Francisco, and that institution received \$25 billion from the government (not all of this was deposited in its San Francisco division). That amount withheld, the twenty institutions in Los Angeles county received the majority of capital investments. However, on a per institution basis, even removing Wells Fargo, San Francisco received a greater share than Los Angeles. More importantly, the data reveal a core area bias.

	USA	CA	Los Angeles	Orange	Alameda	Contra Costa	Marin	San Francisco	San Mateo	
Count	Number	705	78	20	4	5	2	2	4	1
	TARP Disbursements (\$000s)	203,559,726	27,696,355	1,256,097	14,066	52,259	15,600	111,726	25,309,887	12,000
Count	Avg. per institution (\$000s)	288,737	355,081	62,805	3,517	10,452	7,800	55,863	6,327,472	12,000
	Avg. per institution (excl. Wells Fargo)		35,018						103,296	
As a percent of	Number			26%	5%	6%	3%	3%	5%	1%
totals for	TARP Disbursements			5%	0%	0%	0%	0%	91%	0%
California	TARP Disbursements (excl. Wells Fargo)			47%	1%	2%	1%	4%	11%	0%
As a percent of	Number			83%	17%	36%	14%	14%	29%	7%
MSA totals	TARP Disbursements			99%	1%	0%	0%	0%	99%	0%
	TARP Disbursements (excl. Wells Fargo)					10%	3%	22%	62%	2%

Table 21: Capital injections under TARP into BHCs in two financial centers Source: Author's calculations based on US Treasury's Troubled Asset Relief Program Transactions Report of February 19, 2014.

Partly this is because these areas, Los Angeles especially, enjoy larger populations with greater assets under management, and Los Angeles was particularly affected by the crisis.

Nonetheless, the proportions of the intervention do not accord with the structure in 2007. Referring back to Table 19, in 2007 only a third of banks operating in California had a presence in Los Angeles, and a quarter of total bank branches were located there. Less than a quarter of the banks operating across California maintained a location in San Francisco in 2007, while only twelve percent of the state-wide deposits were located in the county. Rather, as the Treasury capital investments were disbursed to institutions that were organized as bank holding companies and were primarily distributed to institutions that held advanced securities products (Bayazitova and Shivdasani 2012), the program selection bias benefited areas where it was more common for institutions to have engaged in the wholesale financial markets.

Though the shift-share results for the regional share did not indicate a competitive advantage in core areas for establishment growth during crisis, we have identified that these core areas nonetheless benefited from a consolidation premium. We discussed three pressures towards this centralization. The first is depositor preference for large banks that carry the perception of safety and more explicit government guarantees. This could also reflect the distribution of bailout funds. The second was the failure and merger patterns. Distress during the 2008 crisis was clustered organizationally and spatially: savings institutions, institutions primarily engaged in housing market financing, and areas that experienced a housing boom. Los Angeles fits these categories, however, crucially, the ownership of many of its failed banks was transferred to other institutions in the county, and a number of failed banks outside of

Los Angeles were taken over by institutions in Los Angeles. Finally, the government investment program disproportionately benefited institutions that were active in financial markets. Intuitively, the proximity requirements common to participation in financial markets would disfavor institutions proximally distant from financial markets, and the securities firms, exchanges, and related intermediaries are disproportionately located in San Francisco.

6.6 Resilience in regional financial centers

In times of distress, the structure of banking and its regulatory system provides a consolidation advantage in the financial sector to core areas. This is a generalization based on observations in two areas, and may not be applicable across all financial centers in the United States during the 2008 crisis, or past and future crises. Both study areas were subject to pressures from shared mechanisms expressed through a similar type of organization (large commercial banks), although their spatial structures on the eve of crisis were very different. In this final analytical section, we discuss why this structural advantage matters, first in material terms for California and then for how it affects our thinking about stability and resilience from financial crises.

The structural advantage matters for two reasons for the study area. I have argued previously that the government intervention into financial markets represented a case of accidental regional and industrial policy (see Chapter Four). Here, I have presented evidence to evaluate the relative success of these unintended restructuring programs. First, regional disparities were made worse by the mechanisms underpinning consolidation, and these mechanisms were in part political decisions that were selected over alternatives. Second, the strategy of supporting large banks, though successful in returning profitability to a positive rate, had limited efficacy (see Figure 22). As banking

crises are essentially profitability crises (the insolvency of financial institutions arising from their undercapitalization and accumulation of nonperforming assets), we present a time series of average return on assets of commercial banks in California, beginning in 2002 for a wider context (Figure Nineteen).

The most important point from Figure Nineteen is that the average profitability of banks in California, despite less competition from fewer direct competitors in the commercial banking sector but also from fewer savings institutions and nonbank intermediaries, had not returned to its pre-crisis level by the end of 2013 (the rate of profit in California is almost exactly the same as for the US as a whole). In fact, it appears that the rate of growth in profitability had leveled off after 2011. A narrow, equilibrist definition of resilience might explain this pattern between 2011 and 2013 as part of the transitory deviation from trend that began after 2005. However, a broader definition of resilience reserves the possibility that the 2008 crisis has permanently and downwardly shifted the basis of profit-generating activities for commercial banks in California. Potential causes of this downward shift include the destruction of establishments in the sector as well as institutional changes and weakened demand.

Gains from the government programs to ameliorate the crisis were not shared system-wide: the positive externalities from the government program did not spill-over in spatial terms beyond core areas. This has much to do with strategic choices of the large banks. Average profitability in California is the aggregate of total income of all banks and their assets operating in the state; not all banks employ similar position-making activities, were affected by the crisis in the same way, or benefited from the mechanisms described earlier. For instance, major institutions in Los Angeles that benefited from the government actions during 2008 include Cathay General, City

National, East West, Nara (BBCN after 2011), and Wilshire banking corporations—they acquired failed institutions, received TARP financing, and benefited from the lower interest rate environment. With the exception of City National, the chartered banks of these corporations all had rates of return on assets greater than the California rate in 2013. Obviously, their assistance from the government was effective, and their large asset holdings provide a justification for such assistance. However, there remains the problem of the much lower average profitability for the rest of institutions operating in Los Angeles, in addition to the lower level of state-wide profitability. Below, we speculate on how the destruction of other credit intermediaries during the crisis may be retarding banking profitability.

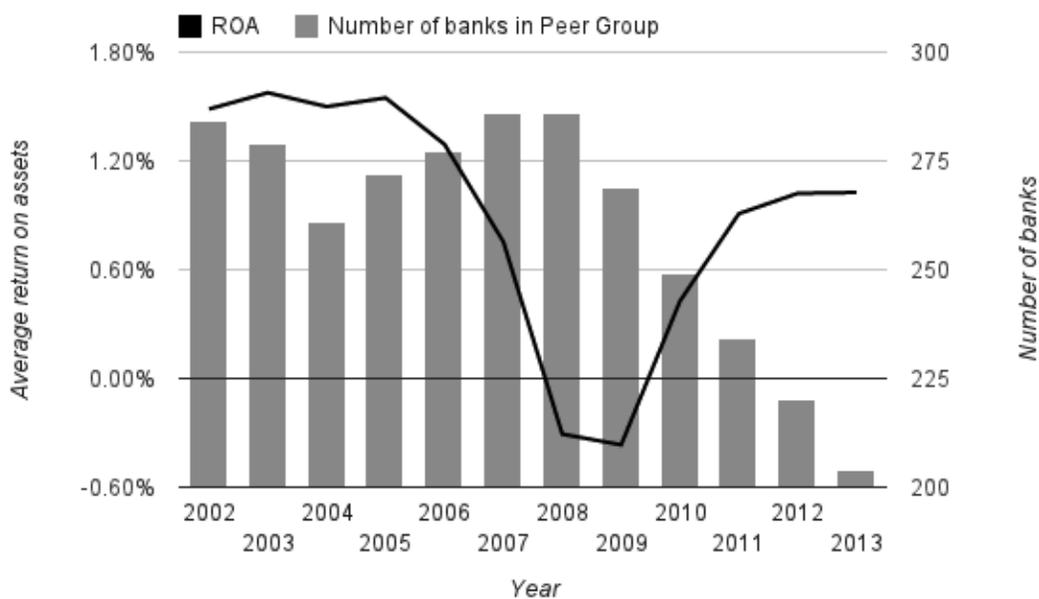


Figure 19: Number and average profitability of commercial banks in California, 2002-2013. Source: calculations based on FFIEC State Average Reports for California (all insured commercial banks). Note: average return on assets (ROA) is displayed on left y-axis (black line) and number of banks on right y-axis (grey bars).

A remaining, pressing question that we can only tentatively address is what the relationship is between these sub-sectors and the activities of commercial banks, and how these arrangements enhance or degrade resilience, stability, and growth. Returning

to the establishment figures for Los Angeles, we note that there were almost 800 fewer establishments in credit in Los Angeles (a 12 percent decline) (see Table Twenty-Three). These losses were distributed unevenly by sub-sector. An outcome of the structural changes between 2005 and 2011 has been a greater share of commercial banking establishments among credit intermediaries. This pattern is especially acute in relation to the four next largest sectors: savings institutions, real estate credit, mortgage and nonmortgage brokers, and other credit intermediaries, all sub-sectors that contributed to the property boom. Except savings institutions, which are regulated at either federal- or state-level, the rest of these sub-sectors could be classified as part of the so-called shadow banking system, variously competing with and complementing the activities of commercial banks.

In Los Angeles, the number of establishments in savings institutions, real estate creditors, and mortgage & nonmortgage loan brokers over the study period decreased between roughly 35 and 50 percent. The extent to which the formal banking community in Los Angeles generates income by extending loans to nonbank intermediaries involved in the property markets is one factor that possibly imposed a limit to government efforts to buttress commercial bank balance sheets. The recovery of very large institutions that received government financing and support vindicates those program to some extent, however we emphasize that there were few spill-over benefits to the firms and sub-sectors that generate subsidiary financial activity.

The limits to the government program, as such, derive from the reality that commercial banks are embedded in a dynamic local financial system. The large banks that were insulated or resilient to crisis, no doubt, were so due to their lower exposure to the collapse in property and mortgage market, but also from their ability to benefit

from the depositor flight-to-safety, the fire-sale of failed institutions, and to secure government capital disbursements. We suggest that, during 2008, government policies attempted to distribute destruction away from commercial banks, yet simultaneously limited the potential for creative transformation by channeling policy through these entities. Other sub-sectors that are responsible for lending did not benefit to the same extent, and in most instances, their decline was orders of magnitude higher than that faced by traditional banking intermediaries.

	Estab.		Share (%)	
	2005	2011	2005	2011
Credit Intermediation and Related Activities	5809	5086		
Commercial Banking	1388	1859	23.89%	36.55%
Savings Institutions	552	298	9.50%	5.86%
Credit Unions	280	301	4.82%	5.92%
Credit Card Issuing	9	35	0.15%	0.69%
Sales Financing	176	154	3.03%	3.03%
Consumer Lending	212	110	3.65%	2.16%
Real Estate Credit	1041	538	17.92%	10.58%
International Trade Financing	50	16	0.86%	0.31%
Secondary Market Financing	15	9	0.26%	0.18%
All Other Nondepository Credit Intermediation	162	202	2.79%	3.97%
Mortgage and Nonmortgage Loan Brokers	942	590	16.22%	11.60%
Financial Transactions Processing, Reserve, & Clearinghouse	293	329	5.04%	6.47%
Other Activities Related to Credit Intermediation	689	645	11.86%	12.68%

Table 22: Composition of credit intermediation In Los Angeles. Note: 'Estab.' refers to total number of establishments and 'Share' refers to the establishments in a sub-sector as a percent of all establishments in Credit Intermediation and Related Activities.

6.7 Summary

Our argument presents a supply-side critique of the government justification for the federal rescue program. There are two sides to our critique. First, the consolidation advantage—the concentration of growth, integrity, and stability in core areas—is inextricably linked to the federal policy of supporting large commercial banks. We have discussed two problems that accompany this advantage. First, the advantage must be considered in comparative terms: in a zero- or negative-sum situation, a successful

strategy will limit losses, and in the case of Los Angeles and San Francisco, this was apparently accomplished at the expense of peripheral areas, at times within their MSAs but also across California. It is clear that the spill-over benefits, at least as measured here in terms of offices, deposits, and broader growth and development of financial establishments, were highly localized.

Second, in addition to widening regional disparities, the consolidation advantage had a limited efficacy. This limitedness is evident in the profitability metrics, which show that despite fewer competitors and the bundle of generous federal programs, average profitability among Californian banks has not returned to its pre-crisis levels. Our conclusions drawn from that information remain speculative; whether the market is in fact less competitive and whether the federal programs provided a competitive advantage to surviving institutions are open questions. A more important point that we have tendered as a possible explanation for the constrained profitability is that executing stability policy through very large commercial banks ignores, first, the ability and few incentives of these organizations to lend and solicit deposits from private markets facing deflation and when their capital bases are already being augmented by the government, and, second, the role of the shadow financial system in lending and the relationships between shadow institutions and formal ones. In the United States, non-bank intermediaries extend more credit than do chartered banks, and a manifestation of this is in the composition figures that show non-chartered institutions represent over half of the credit establishments in Los Angeles county. Certainly a portion of these non-chartered institutions may be contained within a bank holding company, subject to oversight by the Board of Governors of the Federal Reserve, yet this does not obviate the point that a significant amount of lending activity in the US is not executed through formal,

regulated channels.

We have identified a number of points that merit further empirical research. One direction to pursue is a further disaggregation of profitability of banking institutions, by location as well as according to their spatial strategies and organization structure. Such an endeavor could identify the sources of downward pressure on state-wide profitability, and make it possible to test the hypothesis that exposure to shadow or nonbank intermediaries resulted in income stress on firms. A second avenue that is closely related to this point is concerned with determining the nature of the shadow intermediary and bank relationship—that is, the location of these entities and their ownership structure, for example. Such undertakings would advance our understanding of the “missing geographies” (Beaverstock and Doel 2001) that structure the global financial world and that appear to play a vital role in the allocation of benefits and burdens from financial dysfunctions.

Chapter Seven: Conclusions

7.1 Introduction

This dissertation was organized according to three objectives: first, to describe the locational and distributional consequences of financial crises; second, to determine the extent to which institutional factors may be responsible for those locational patterns; and, finally, to situate these developments in the context of future growth and financial stability. These objectives served as a means of countering the view that financial crises are random, unforeseeable, and the result of an ambiguous set of human behaviors. Such a view can be summarized in the words of Carmen Reinhart and Ken Rogoff (2009b, xxviii): “...financial crises follow a rhythm of boom and bust through the ages.

Countries, institutions, and financial instruments may change across time, but human nature does not.” My basic intention was to demonstrate that euphoria, excess, and folly are not the sole determinants of a financial crisis, but rather that political organization, industrial organization, and market structure affect the frequency and location of crises. Essentially, human behavioral explanations cannot on their own explain the nonrandom distribution of economic change resulting from financial crises. Rather, financial crises—and their locational attributes—are manufactured by political economic choices, and this is exemplified by the concentration of financial distress at various scales, including within and between countries, regions, metropolitan areas, financial centers, and industrial sectors.

In this regard, the work here was strongly influenced by the examples of Warf and Cox (1995; 1996) and Martin (2011). Concerning the former, the authors demonstrated that financial crises display strong spatial dimensions, and acknowledging

this fact is crucial in comprehending the origins of such events and in resolving them. The latter emphasized at least three critical points. First, ostensibly global processes such as financial crises are in fact highly localized, in terms of origins especially. Second, Martin pointed out how underdeveloped our understanding of the geography of financial asset bubbles and collapses are, and called for greater work on the topic. And finally, the post-2008 crisis regulatory order would have complex effects on space; that is, systems such as home financing, commercial banking, and capital markets are already highly geographical systems, and were subjected to a spatially uneven set of financial dysfunctions. Insights from these scholars have guided the research here. However, as I discussed in the introduction, in the case of the US, an additional important factor regarding the nature of the 2008 crisis has been the significant decline in the size of the workforce and the ongoing turmoils in labor markets.

As such, the dissertation fulfilled its mission by creating original datasets of change in economic activity—mainly employment and establishments—at various scales of analysis and indicators of financial stability, and performing quantitative analyses on those data. These data were analyzed using standard tools within the field of economic-geography, including basic statistics and econometrics, indexes of industrial concentration and economic specialization, cluster analytical techniques, and shift-share techniques. The combination of employment and establishment data, these quantitative methods, as well as data on subprime mortgages, mortgage modifications (under HAMP), failed bank information, bank deposits, bank assets, and the government capital program (TARP) make for a novel contribution to the literature.

In the rest of this chapter, I will summarize and conclude the arguments contained in the preceding research. In the next section, I restate the empirical findings

of the previous chapters as well as offer some common conclusions deriving from the dissertation as a whole. Following that, I discuss the limitations of the research, in terms of both subject matter and methodology, and then outline the contributions to the literature. Then, I describe the implications of the research for policy, particularly so-called macro-prudential policy and financial reform. In the final section, I suggest how the research here has opened up new avenues for future research.

7.2 Restatement of findings

Instead of simply recapitulating the empirical findings of each of the core chapters, this section organizes the findings according to three categories: evidence for the uneven effects of financial crises, evidence for the uneven response to financial crises, and evidence pertaining to future market conditions.

7.2.1 The effects of financial crises are uneven

The clustering of financial crises over time and by country should dispel the notion that such events are random. In Chapter Three, following the observations of Eichengreen (2002) on balance-of-payment crises and Calomiris and Haber (2014) on banking crises, the evidence gathered from Reinhart and Rogoff (2009b) and even an IMF dataset (Laeven and Valencia 2013) suggests that financial crises are anything but random at the global scale. For example, using the data from Reinhart and Rogoff, banking crises after 1975 were most frequent in the mid-1980s and then again in the late 1980s and early 1990s, while the IMF data suggests that catastrophic financial failures were also clustered mainly in the early 1980s and then mid-1990s. Where inflation crises and sovereign defaults were becoming less frequent over time, asset market collapses appear to be becoming more frequent, which reflects the growing

financialization of less-financially developed countries. Importantly, banking crises and asset market collapses appear to more regular than other financial crises, emphasizing the importance of isolating these particular events from the wider family.

The analysis in Chapter Three also draws attention to the fact that defining a financial crisis and determining its duration remain unsettled in practice. This problem is particularly acute in the case where a financial crisis can be measured based on quantitative criteria, such as an inflation or currency crisis or depreciation in asset markets. In this case, there is considerable variation in the appropriate threshold for determining a crisis. In the case of a banking crisis or sovereign default, there is not a financial asset that expresses underlying stability or volatility. The case of systemic crises further complicates the analysis, as such crises involve wider political actions and often multiple financial dysfunctions. Such debates are a strong reminder of the importance of situating quantitative studies in the context of specific country or region cases.

I have identified several scales at which the uneven effects of financial crises manifest themselves. First, the average effects of crises vary depending on economic sector. A tentative explanation is that exposure to the volatility associated with financial dysfunction depends on the way the average firm in a sector constructs its balance sheet and income flows. For instance, manufacturing firms typically require periodic refinancing of their capital goods, introducing greater interest rate risk and greater potential problems from debt. Such firms are also likely to export their goods, which raises the possibility of risks from foreign exchange.

Second, between territories at sub-national, regional scales there are also variable effects from crises. Among US metropolitan areas during the 2008 crisis, the key

difference in economic performance has to do first with robustness to crisis and second with recovery from crisis. That is, there are structural factors that expose metropolitan areas to larger relative decreases in employment and economic activity, including the condition of their housing markets but also the level of sectoral diversity and the presence of specialized financial intermediaries. There are similarly structural factors that affect the pace of recovery. In addition, a specific type of metropolitan area—financial centers—further structures the recessionary effects of a financial crises unevenly between its constituent areas. Core areas, where investment banks, related capital market intermediaries, and corporate headquarters are likely to concentrate, benefited disproportionately relative to peripheral areas of the financial center.

Third, different financial intermediaries are more or less exposed to negative effects from a financial crisis. For example, during the 2008 banking panic, the largest failures were among savings institutions, such as IndyMac or Washington Mutual, and this type of intermediary also witnessed a greater proportion of its population fail over the course of the crisis. Additionally, the landscape of consumer banking was affected unevenly, with some banking sub-sectors growing, such as commercial banking, and others contracting, particularly real estate and mortgage financing.

The evidence pointing to the concentrated negative effects of financial crises on growth by sector, region, metropolitan area, and financial centers begs the question why this unevenness should be the case. Chapter Four suggested that innate structural factors account for the metropolitan distribution of economic contraction. The next sub-section summarizes the findings pertaining to how the response to financial crises, which is itself uneven, might further exacerbate the locational patterns of crises.

7.2.2 The response to financial crises is uneven

A comparison between the S&L episode and the 2008 panic demonstrates that the way a government responds to financial crises may be historically inconsistent. The government response is conditional upon the prevailing balance of power between financial institutions, regulatory agencies, and public groups. In this section, I make a number of points concerning the three headline federal interventions into the US economy during the 2008 crisis, that is, the resolution of failing banks, the capital injections into financial institutions, and the foreclosure crisis.

First, there were existing mechanisms among financial regulators to prevent a banking panic and to liquidate insolvent financial institutions. Many of the actions that are available to the FDIC, for example, are triggered automatically when certain capital levels and other safety and soundness indicators are reached, and as such part of the government response to the problem of insolvent financial institutions largely reflects the operation of these technical processes. However, neither regulatory oversight prior to the panic nor failure resolution during and after the panic were applied consistently to all institutions. A number of very large institutions, such as Citigroup, were by all accounts effectively insolvent in the fall of 2008, yet were not seized by the government. Consequently, the supposedly automatic processes within the government repertoire that were designed to objectively and immediately resolve insolvent financial institutions did not capture the full extent of distress within the formal banking sector. The targets of that resolution action, however, to a large extent fit the pattern of distress arising from the foreclosure, subprime, and unemployment crises. At the same time, as Chapter Four indicated, the groups of the worst- and best-performing metropolitan areas had higher than average rates of local bank failures, suggesting that such failures have

limited explanatory power in accounting for the recession and recovery patterns.

Second, the *ad hoc* measures designed to contain the banking panic and limit the financial market collapse displayed locational patterns that were independent of the location of underlying economic distress. The central program in this case was the recapitalization through TARP. One of the factors determining the recipients of these funds was that funds would only be disbursed at the highest tier holding company of the BHC structure, so a primary limiting factor in structuring that geography is, effectively, the location of BHC headquarters. However, the allocation of funds of the program was also influenced by the initial disbursement, intended to signal to financial markets the government commitment to stabilizing very large financial institutions. The nine original recipients received just under two thirds of total disbursements under the government recapitalization program. The fact that the the recapitalization program was executed by officials of the US Treasury and the Federal Reserve of New York is a key reason why the locations of failed banks and rescued BHCs differed.

And finally, American households bore an enormous and disproportionate share of the burden of the 2008 crisis. In many ways, the government in 2008 was faced with a choice to either relieve stress on financial institution balance sheets or households balance sheets, and the measures adopted to execute benefited overwhelmingly the former. For instance, the \$4.5 billion allocated out of TARP as of April 2013 for the HAMP foreclosure relief represents 2.21% of TARP funds distributed. It is clear that the foreclosure epidemic and strains from subprime mortgage debts had an unambiguously negative effect on economic growth and continue to hold back a recovery. Yet, even the relief provided through HAMP does not completely accord with the areas where the subprime crisis unfolded; in fact a correlation coefficient between HAMP and subprime

mortgages at the metropolitan-level was 0.5335. By the government's own estimate, HAMP modifications have had limited efficacy and were ineffective in stemming home foreclosures.

The separation between the geographies of bank failures, foreclosures and subprime mortgages, the government response to foreclosures, and the government action to recapitalize financial institutions is an important empirical point to emerge from the research here. Previously I have stated that, following French, Leyshon, and Thrift (2009), there was a very geographical response to the 2008 crisis, as much as its origins reflect a set of problems with strong geographical foundations. This insight and the evidence supporting it are a welcome antidote to the analysis of the 2008 crisis by Calomiris and Haber (2014) that argued populist influence, centered on public housing mandates, helped precipitate the 2008 crisis. The ability of the financial sector to receive such favorable treatment and to extract such concessions from the government embodies the low level of influence and control that public interests wield over financial markets and have wielded since the liberalization program resumed in the mid-1990s. Recognizing this disparity and correcting myths to the contrary are important steps moving forward.

7.2.3 The 2008 crisis has to led to greater consolidation and concentration

The evidence gathered in the previous chapters suggests that banking markets in the post-crisis period are characterized by increasing consolidation and concentration. The contours of this activity are characterized by a set of economic and institutional characteristics, of which I describe five.

First, as part of the natural course of the banking crisis, the number of chartered depository institutions declined. However, as indicated in Chapter Four, approximately

two thirds of the chartered banks that went out of existence during the crisis period were through unassisted mergers-and-acquisitions. That is, bank failures represented a minority of the consolidation activity. This first point suggests that the market for corporate control in the banking sector remained vibrant through the crisis, and indeed much of the consolidation activity favored already very large institutions.

Second, in fact, very large financial institutions became larger through at least three mechanisms: unassisted mergers-and-acquisitions, assisted mergers-and-acquisition (failed banks), and the recapitalization process. It should be noted that the recapitalization process, in turn, involved two steps: institutions seeking TARP funds were required to first solicit capital from private markets prior to being eligible for government financing. The result was a munificent combination of private and public financing that augmented the balance sheets of institutions that were already mainly solvent and already very large.

Third, in contrast to the declining number of chartered depository institutions, the number of top-tier BHCs increased. These top-tier holding companies are those that own additional holding companies, so this activity likely points to growth from the adoption of chartered banks not under the BHC umbrella prior to the crisis, and investment banks and other nonbank institutions into BHC structures during the crisis. Indeed, consistent with Krippner's (2011) analysis, the Board of Governors of the Federal Reserve takes on greater responsibility as a bank regulator in this scenario as BHCs fall under its purview. The expansion of the BHC population and its oversight are a cause for continued attention.

Fourth, the case study on Los Angeles and San Francisco suggests that financial centers may have captured a disproportionate share of the benefits from the

consolidation and concentration activity. For example, instead of losing control of depository bank resources to other areas, Los Angeles retained a large share of ownership over those resources despite a number of large failures. Additionally, both centers preserved and even increased the number of specialized financial sub-sectors. These centers also captured the majority of expansion in the commercial banking sector office networks, despite hosting fewer banking institutions, relative to other areas of the state. That these centers maintained much of the integrity of their financial systems in the face of tremendous destruction speaks to the role played by the decision to execute stability policy through large institutions and that many large financial intermediaries benefited to such an extent during the crisis.

Finally, one way of gauging the relative success of the government intervention in restoring the health of the financial system is in the average rate of bank profitability. The metric of profitability used in Chapter Six shows that the average rate since 2011 has remained below the pre-crisis average by at least half of a percent, despite improving since 2009. As the case study in that chapter suggested, many large banks have restored their profitability, which leaves other, smaller institutions as remaining below the pre-crisis average.

Besides the changes to market structure, one of the points emphasized earlier was that there was a simultaneous and on-going transformation of the regulatory structure, most clearly in the case of the expanding role of the Federal Reserve as bank regulator. Both of these processes—and their co-constitutive nature—must be taken into account in future studies.

7.3 Limitations of the research

In this sub-section, I focus on the limitations of my research endeavor, including

topics related to the problems of employment as object of study and financial crises as the object of study. These three categories contain limitations that refer both to the subject matter as well as methodology.

7.3.1 Employment

Perhaps the central problem with the use of employment as an object of study is the productivist bias that accompanies it. That is, formal, paid work becomes a privileged domain relative to other aspects of life. This problem is associated with a larger issue in the study of the 2008 financial crisis; namely, we are confronted with the issue of deciding whose experience of the crisis merits academic study (Castells, Caraça, and Cardoso 2012; Pollard 2012). In this regard, selecting employment takes on normative implications. For example, I have focused exclusively on private and not public employment, as a result of the lack of data. There are three specific limitations that flow from my choice of employment that I wish to emphasize here: the conflict between evaluating quantity rather than quality of work; not actually measuring the underlying phenomenon; and, not studying how the crisis affected the regulation of work and labor.

Studying employment generally involves measuring the stock of labor performing an activity or flows of labor into and out of firms and sectors. There are a number of conceptual alternatives to my decision to focus on changes in the stock of employment. For example, rather than rely on sectoral divisions to differentiate between types of employment, an alternative would be to rely on occupational divisions (Chapple et al. 2004), therefore shifting the emphasis away from the production of goods and services and more on the requisite labor inputs (education, skills) and the daily work routines. Such an endeavor encounters a serious constraint in the form of data

availability. Employment data is readily available from multiple sources and typically in the format of the NAICS. Yet, data is also readily available on unemployment and occasionally even part-time work. The shortcoming in that case is that replacing employment with unemployment removes any determination of the quality of work altogether, which is self-defeating for my purposes.

A second problem relates to the difficulty in measuring the underlying phenomenon. Change in employment does not reveal anything about actual hiring and firing patterns or decisions, although this could partly be resolved by using measures of labor flows. The actual phenomena are the layoff and the hire. These events, in turn, come about from the interactions between (prospective) employee and employer, and are governed by many other sociological and political factors, not simply business decisions based on seemingly objective market conditions and the financial health of the firm. As such, admittedly, the research here cannot purport to describe the phenomenon at the heart of the matter. In order to investigate these patterns, it would be necessary to conduct an entirely different analysis involving qualitative methods, such as surveys and interviews. As my interest lies in establishing broad-based facts about the nature of the changing economy that can be approached satisfactorily through my methodology, I defer this matter to my more qualified colleagues on these methods.

Closely linked to this problem of avoiding the actual underlying phenomenon are the assumed mechanisms and relations that link the regulation of the financial sector to the regulation of the labor market. I have chosen not to pursue existing research paths that have posited that the national rules and practices governing financial markets structure economic development among territories and firms (Christopherson 1993; Christopherson 2002). Similarly (and, again, related to the second problem above), I

have chosen not to analyze how the financial crisis affected the governance of labor markets. Approaching that problem might involve studying labor market institutions, such as the varying strategies of employees and/or unions and employers in wage bargaining negotiations, and changes in employee benefits, wage setting, and government spending on unemployed workers, as well as related issues concerning the governance of the firm, such as investment decisions and firm organization. The financial crisis certainly affected the decision-making calculus for employees and employers, particularly in the latter's capacity as capitalist agent. Again, my chief interest lies in a meso-level, above the individual firm but below the macroeconomy. My priorities reflected the availability of data on the full private economy according to various territorial and sectoral configurations as a means of addressing gaps in our understanding of the locational distribution of the 2008 crisis.

7.3.2 Financial crisis

The same problems of deciding whose experience of the financial crisis deserves academic treatment as well as identifying the actual underlying phenomenon arises in the matter of selecting financial crisis as an object of study. I will discuss some of the limitations of my approach arising from these problems in addition to the international and global dimension of financial crises, which I have largely neglected here.

The issue of whose experience and the underlying phenomenon of the crisis are closely related. The choice of data, availability constraints notwithstanding, determines whose experience of the financial crisis will be narrated. For instance, concentration and consolidation indexes do not translate readily into material consequences for consumers of financial products. By focusing on these indexes, sectoral growth patterns, and the health of financial institutions, I have not provided a picture of how the credit crunch

impacted households or non-financial businesses, except in broad and indirect terms as revealed in the subprime mortgage statistics. If there were detailed information about the terms of individual loans or perhaps more generally the transaction costs of lending and borrowing, it would be possible to identify specific mechanisms through which the financial crisis affected financing channels, and hence the decision-making environment of various actors. Again, it would be necessary then to connect these changes in credit pricing and availability with concrete decisions by households and businesses, which would require a qualitative investigation based on surveys or interviews.

In addition to whose experience of crisis merits attention, a more fundamental issue is which crises merit attention. Substantively, I inherited a number of the definitions of Reinhart and Rogoff (2009) as to what counts as a financial crisis, and although I problematized their use in Chapter Three, it nonetheless is important to clarify what events fall outside their schematic, as I attempted to do in that chapter. Similarly, there were a number of alternatives for comparison. In Chapter Two, I isolated the S&L crisis of the 1980s-1990s and the failure of the hedge fund Long-Term Capital Management as a result of the breakdown in their operations and risk practices as global markets entered a period of volatility. I argued in that chapter that these two events were important precursors to the nature and form of the 2008 crisis.

Yet, I excluded discussion of the 2000-2001 asset market crash in the US as the technology boom dissipated, as well as any serious treatment of the inflation crisis in the 1970s, or even the Great Depression. An additional possibility for comparison would have been the various bank failures and market crises during the 1960s and 1970s, which demonstrate the innate instability that accompanies financial innovation and the investment cycle (Minsky 2008). Part of the reason for selecting the events I did is that I

view the financial liberalization program of the 1980s-2000s as a vital component of contemporary US experience with crisis.

Another crucial limitation arises from scale. The relevant scales in the preceding chapters have included countries, economic sectors, US states, metropolitan areas, and financial centers. Recall that the commentary by Lee et al. (2009) urged greater attention to the geopolitical consequences from underwriting recovery as well as regulatory geographies of the global financial system. Though this view has been criticized for the excessive attention placed on the global scale at the expense of local scales (Martin 2011), it does raise the important point about the role of international capital flows more generally.

Indeed, these capital flows have been consistently identified as key variables in the stability of global financial markets (Kindleberger 2000; Strange 1997). It is also not unreasonable that international capital flows may have effects below the national level, perhaps being evident among regions and even cities (see, for example, the analyses by Peek and Rosengren [1997; 2000] on the impact of the Japanese asset crash on lending by Japanese institutions in California and the US). One justification for excluding international capital flows is that in the case of the 2008 crisis, most of the problematic flows originated in the US, in its housing markets and global investment banks (a notable exception being the surplus recycling between the US and China, mostly in the form of Treasury bills). As I have restricted most of my research to the changing conditions of employment, I believe that discussing the domestic sources of financial dysfunction is sufficient, but I acknowledge its limitations. My methodological decision here reflects the need to limit the scale and scope for pragmatic reasons pertaining to data availability and collection as well.

7.4 Contribution to literature

In the introduction chapter, I discussed how this dissertation crosses through multiple academic spaces—within geography itself, touching on work by economic as well as financial geographers, in addition to the disciplines of economics, both mainstream and heterodox writers, and sociology. While the empirical findings can be mainly applied to expanding our understanding of the geography of financial crises, there are several other contributions that the research here has made to economic- and financial-geography. There are three specific points.

First is the novel combination of datasets, which have generated original facts about employment dynamics during financial crises. For example, Chapter Three brought together annual employment data with the financial crisis information from Carmen Reinhart and Ken Rogoff's long-term database. While there have been prior studies that have considered the effects of banking crises on employment by sector (Dell'Ariccia, Detragiache, and Rajan 2008), that chapter stands out as it compares the effects of many financial crises on employment. This innovation also makes that chapter one of the first pieces of research to undertake a systematic analysis of the data contained in Reinhart and Rogoff (2009b). Additionally, a methodological innovation was to apply the method in Fingleton, Garresten, and Martin (2012) to a sector-level. The remaining chapters also featured novel combinations of data. Specifically, the pairing of data on metropolitan mortgage markets and bank failures in Chapter Five, as well as the pairing of data on bank failures and bank rescues in Chapters Four and Six, have not—as far as I know—been the subject of any academic studies after the crisis.

Second, the dissertation has been an attempt to apply common methods within economic-geography to an understanding of the financial sector, bridging economic-

and financial-geography. For instance, the work here is the first since the efforts of Barney Warf (1996) and Joseph Cox (Warf and Cox 1995; 1996) to document the locational patterns of bank failures. In applying this mission to the 2008 crisis, I have been able to raise a number of concerns regarding the nature of the banking regulatory order and the foundations of financial instability in the US in general. As Warf and Cox demonstrated almost twenty years ago, I have attempted to demonstrate the relevance of banking organizations as well as their administrative counterparts to processes of growth and change, by invoking the most extreme example of a banking crisis. These organizations are relevant not only for their influence on the dynamics of employment and economic growth but also for the venue they provide for processes of institutional change.

And finally, on the topic of institutional change, the chapters containing the original research have been motivated in no small part by the need to make more prominent the nature of the on-going distributional conflict arising from the 2008 crisis. In Chapter Two, I offered two diagrams for incorporating an aspect of distributional conflict into the study of financial crisis. The first, the “Game of Bank Bargains” described by Calomiris and Haber (2014), argues that the fundamental political institutions of a society—particularly, the way that society manages the credit allocation process—will determine whether that society is frequently afflicted by banking crises. Krippner (2011) argues that over the contemporary period, the institutional evolution of financial regulation has been motivated by the desires of the state to deflect responsibility from the state to markets for managing credit. These diagrams are pertinent because they center their analyses on the problem of financial crises, showing that such crises are endogenous to the system and play a pivotal role in structuring

future pathways of economic growth and political change. It is vital that geographers be able to engage with such influential works in related disciplines, and advance appropriate alternatives and criticisms.

My reason for bringing in diagrams of distributional conflict is founded on two convictions. First, geography is an important means of identifying the relevant actors involved in distributional conflict and describing their motivations and operations. Second, geographers have a responsibility to contribute evidence and analysis to the public understanding of policy-relevant topics. As the two most pressing public policy concerns in the US today, in my view, are the lack of economic growth and the need for financial reform, the notion of distributional conflict at the heart of the US financial system is an appropriate vehicle for analyzing the effects of financial crises.

7.5 Implications for policy

My findings of uneven economic growth patterns, the locational distribution of financial distress, increased consolidation and concentration, and the institutional factors that structure these patterns offer a number of implications for public policy. There are three specific matters worth mentioning: the oversight of too-big-to-fail (TBTF) institutions; recapitalization of financial institutions; and, the attention devoted to employment growth and recovery.

Concerning the oversight of TBTF institutions, a preliminary point is that we should be wary of pursuing financial stability through these organizations. The TBTF policy generally means that federal intervention is warranted in the case of the possible insolvency of a financial institution, typically one whose failure would cascade through financial markets in the form of a panic or perhaps other so-called contagion effects. Responsibility for these organizations increasingly falls to the Board of Governors of

the Federal Reserve. One of the risks there is that developing a set of supervisory mechanisms, such as the 'stress test' or 'orderly liquidation authority', that apply only to TBTF organizations may in fact further contribute to normalizing their existence, and lead to a general acceptance of this class of institutions (attended by the misguided belief that regulators possess the tools to adequately supervise and resolve them). As Chapter Four demonstrated, the costs to the public of the TBTF intervention in a crisis episode are enormous, and, so far, there is no guarantee that the costs of a TBTF resolution can be contained under the current regulatory order. Additionally, allowing separate supervisory and resolution procedures for types of financial institutions undercuts government impartiality in that when such procedures follow different footprints they can aggravate existing spatial disparities. As such, a fundamental implication for public policy is that government action is always geographical, and as such there must be a consideration of how such policies will behave over space.

A second risk is that, if TBTF organizations continue to dominate the financial landscape, more authority to regulate the banking sector will pass to the Federal Reserve system. The history of agitation on the part of the Federal Reserve to implement financial liberalization serves as an effective signal of where its priorities lie. One of the alternatives to TBTF, of course, is to implement size restrictions on financial institutions. These could be achieved through limits on assets-under-management, deposit or non-deposit liabilities, or perhaps even in terms of the number, size, and type of holding companies allowed within the BHC or FHC structure. Doing so would likely go far in establishing credibility on the part of financial regulators when they attempt to exercise resolution authority for failing institutions in the face of objections that doing so might provoke a systemic risk or that those organizations would exercise their

political clout. Size restrictions would help to obviate those objections. A further benefit would be to reorient responsibility towards federal agencies such as the FDIC, which are partly autonomous yet allow for the possibility of democratic accountability and control.

An additional implication of the findings here for public policy is that we must reconsider whether the role of recapitalization is integral in the problem of financial crises. That is, arguing that the chief objection of financial stability policy is to prevent a bail-out of financial organizations or markets misses the mark. Consider these points. First, we must accept that financial crises are a natural part of capitalist economic life. Second, as long as there will be dysfunctions in the financial sector, it is crucial that there be a lender-of-last-resort that can take emergency action to prevent illiquidity. Mandates against bail-outs must understand and preserve this function. Third, beyond liquidity problems, it is unacceptable to allow the widespread insolvency of financial firms without affording some protection to the value of financial assets that are held on household balance sheets. When the value of financial assets on bank balance sheets collapses, the effects are not isolated to those banks.

As stated earlier, the decision to recapitalize following a financial crisis is essentially a question of *whom* to recapitalize. In developing the guiding principles for the design of stability policy, we would do well to recall the successes and failures of the S&L recapitalizations—that is, how best to ensure that losses from bank failures are imposed on the creditors who made poor lending decisions. A main difference between the S&L crisis and the 2008 crisis is not necessarily the amount of public capital appropriated, but rather the principles and processes through which the capital was allocated. At the same time, a refusal by the state to alleviate the strains on balance sheets after a financial crisis is a recipe for a permanent credit crunch. It is important

that we begin to think more positively (in the scientific sense) but critically about the role of recapitalization following a financial crisis. It is for this reason that I advocated in Chapter Four a greater scholarly attention to the motivations of financial regulators, how the national interest in financial stability is defined and executed, and, more generally, the historical record on responses to financial crises, as much as their causes.

The final implication for public policy is partly an exhortation. The overriding conclusion of the research here is that the effects of financial crises on employment activity are uneven: between economic sectors and territories at multiple scales, and depending on the nature of the financial crisis. This unevenness raises a rudimentary question, repeated from Chapter Three: are the agents responsible for generating crises also those who carry the burden for amortizing them? The analysis in Calomiris and Haber (2014) should indicate that there remains considerable disagreement over who, in fact, is truly responsible for causing financial crises. By introducing the problematic of financial crises in terms of uneven employment losses among economic sectors, my intention was to advance an agenda of studying distributional conflict in deeper context. Beyond the pressing problems of unemployment, the quality of available work, and opportunities for a fulfilling working life—all of which have been severely and negatively impacted by the 2008 crisis—the crisis has left a potentially indelible mark on the sectoral organization of the economy. Understanding how this transformation was affected by financial processes provides the necessary context for a policy program aimed at countering the financialization of the economy.

7.6 Directions for future research

Each of the empirical chapters typically concluded with suggestions for future research based on the findings of those chapters as well as given the methodological

limitations. In this section, I summarize and extend some of the suggestions. There are three categories under which the recommendations for future research below can be included: those recommendations that address the limitations described above; those that extend, refine, and validate the empirical findings; and, those that pursue questions raised by the preceding analysis. The recommendations proceed chronologically, according to when they were raised in the prior chapters.

One of the most promising directions for future research is a more thorough geographical, comparative analysis of financial crisis episodes. Specifically, as raised in Chapter Two, a promising direction is a comparison of the S&L crisis and the 2008 crisis, perhaps through the analytical lens of the distributional conflict models used in that chapter. Part of this could apply the approach by Warf and Cox (1995; 1996), especially in documenting the transfer of control over distressed assets between regions. An equally insightful track would be to analyze the geography of the political changes. That is, how constituencies were formed and represented in the debates during the S&L crisis and 2008 crisis over the nature of the government response, including bank industry groups, public housing advocates, and government reform advocates. It would also be possible to trace the evolution of those constituencies from the S&L crisis to the 2008 crisis, integrating the changes in the political process with those occurring in the financial sector.

An additional opportunity for comparative work lies in the experience of Japan during the 1990s. There are several similarities between the financial problems in Japan in that period and the US in recent years: a crash in property markets, a string of banking and other financial company failures, asset market volatility, deflation, disinflation, the growing role of financial services relative to the rest of the economy,

and the dominance of monetary over fiscal policy as a means of combating the financial problems. In addition to evaluating the similarities in financial markets and the political domain, there is an opportunity to compare patterns of growth at the sector-level, such as how output and employment patterns varied by sectors. This sort of in-depth case study would also serve as a means of testing the veracity of claims in Chapter Three.

Concerning Chapter Four, one of the essential remaining questions is: was the federal policy for the resolution of failed banks and for the recapitalization of other financial institutions spatially-blind or was there some explicit consideration of space and territory? Such an investigation could likely proceed more easily in the case of the FDIC, the guiding documents and procedures for which are more readily accessible in the public domain, than for the TARP. The expected answer for the case of the FDIC, as emphasized in Chapter Four, is probably that the effect on specific territories were not considered in the decision-making environment to shutter a failed bank. An additional question that the analysis in that chapter pointed to was how the tensions between state-level regulators (and other state-level institutional factors) and federal regulators affect the quality of supervision. The larger question superseding this is whether the quality of state-level supervision of financial institutions matters at all for the level of financial volatility in that state. Again, a comparison between the S&L episode and 2008 crisis might be an apt opportunity to explore such a question.

Chapter Five could be augmented as additional employment data becomes available with the scheduled future release of Census information, in addition to an effort to compile data on public employment for those metropolitan areas where data is not withheld for confidentiality. As stated earlier, the lack of data on public employment is a major constraint in this study. Considering that much of the burden during the round

of austerity in the US recently fell on public sector workers, it is a disservice that more geographical work has not analyzed the degree to which these workers bore the burden at the state- or metropolitan-level (I recognize that I have not been able to accomplish this either). In addition, the dataset on metropolitan economic and financial indicators could be complemented by data on municipal finances, such as tax revenues, obligations to creditors, municipal bonds, and obligations to pension funds. The link between these factors and metropolitan growth constitute an understudied geography, which has taken on particular relevance following the 2008 crisis.

Finally, financial centers—the perennial favorite of economic- and financial-geographers—remain an important area of study. There are two key limitations to the study of financial centers in Chapter Six that could be addressed in additional research and that would extend the findings here. The first limitation is that Los Angeles and San Francisco were studied in isolation, ignoring the wider domestic and even transnational network of financial centers. Relative performance of financial centers, especially, during the crisis may not simply reflect the economic performance of host countries. The hierarchy of international financial centers, including 'offshore' centers, depends in part on the types of specialization within those centers, and these specializations—at a broad level, these would include investment banking, asset management, stock market intermediation, alternative financial funds, insurance, or real estate—were impacted differently by the crisis. As such, the financial crisis represents an excellent case study for studying financial center performance, and the implications of that performance for long-term growth and the distribution of power between these centers.

The second limitation is the absence of information on the larger advanced business services (ABS) firms that support financial markets and firms. In the process of

researching and devising the previous chapters, I spent considerable effort analyzing dynamics in specific ABS sectors. Although none of that data or analysis has been included here, it is clear that ABS sectors, in terms of their employment growth dynamics, responded differently to the financial crisis. Whether or not this differential performance reflects the unique exposure of these sectors to financial distress and volatility is an open question. Additional factors include long-term historical and structural pressures, legal developments and changes in the corporate governance system (such as the changing requirements for corporate compliance under Sarbanes-Oxley, for instance), and the co-agglomeration and dependency between various ABS sectors and financial markets. A rich literature has been growing on the ABS sector and its relationships to the financial sector, offering one of the concrete geographies that links financial activity across the globe. How the constituent sectors fared over the 2008 crisis raises, again, the crucial concern over whether the agents responsible for precipitating crisis conditions are similarly responsible for amortizing its losses.

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Appendix

Africa

Ghana
Kenya
Mauritius
Nigeria
South Africa
Zambia

Americas

Argentina
Bolivia
Brazil
Chile*
Colombia
Costa Rica
Mexico*
Peru
United States*
Venezuela

Asia

India
Indonesia
Japan*
Korea*
Malaysia
The Philippines
Singapore
Thailand
Taiwan

Europe

Denmark*
France*
Italy*
The Netherlands*
Spain*
Sweden*
United Kingdom*

Note: * OECD member

Table A1. Countries in the sample

<u>Pacific</u>	<u>East South Central</u>
Washington	Kentucky
Oregon	Tennessee
California	Mississippi
Alaska	Alabama
Hawaii	
	<u>Middle Atlantic</u>
<u>Mountain</u>	Pennsylvania
Montana	New York
Idaho	New Jersey
Wyoming	
Nevada	<u>South Atlantic</u>
Utah	West Virginia
Colorado	Maryland
Arizona	Delaware
New Mexico	District of Columbia
	Virginia
<u>West North Central</u>	North Carolina
North Dakota	South Carolina
Minnesota	Georgia
South Dakota	Florida
Nebraska	
Iowa	<u>New England</u>
Kansas	Vermont
Missouri	New Hampshire
	Maine
<u>East North Central</u>	Massachusetts
Wisconsin	Connecticut
Michigan	Rhode Island
Illinois	
Indiana	
Ohio	
<u>West South Central</u>	
Oklahoma	
Arkansas	
Texas	
Louisiana	

Table A2. US states belonging to each Census region