DE GRUYTER doi 10.1515/ael-2013-0008 — AEL: A Convivium 2013; 3(3): 357–405

Banking, Finance, and the Minsky's Financial Instability Hypothesis

Kurt Mettenheim*

Back to Basics in Banking Theory and Varieties of Finance Capitalism

Abstract: This article argues for a back to basics approach in banking theory and broaden comparative and historical perspectives on bank change. Evidence across advanced economies suggests varieties of finance capitalism rather than convergence toward joint stock banks and capital markets through privatizations, liberalization and deregulation. A minimal definition of banks as deposit-taking and loan-making institutions suggests that the US experience remains, paradoxically, both paradigm and exceptional, and that Minskyian approaches both contribute to recent debates about finance and banking and may profit by expanding the scope of analysis to include bank-centered finance abroad.

Keywords: banking, Hyman Minsky, financial instability hypothesismonetary authority

***Corresponding author: Kurt Mettenheim**, Department of Social and Legal Sciences, FGV-EAESP, Av. 9 de Julho 2029, São Paulo 01313-902, Brazil, E-mail: kurt.mettenheim@fgv.br

Table of contents

Draft versions of this article were presented at the Society for Advancement of Social Economics 21st Meeting, the 10th European Association of Management Conference, and the European Sociological Association Critical Political Economy Network 5th Interim Meeting.

List of papers of the thematic issue

1 Introduction

Wray's article "What Do Banks Do? What Should Banks Do?" makes important contributions to the study of banking and finance in the disciplines of accounting, political economy and law. It raises compelling questions about banks and the financial sector to demonstrate, once again, the importance of Hyman Minsky's work for scholarship and public policy (Minsky, 1991; 1982; 1964). Inspired by Wray's article, the extensive scholarship on Minsky (Wray, 2009; Nasica, 2000; Papadimitriou & Wray, 1998; Dymski & Pollin, 1994; Darity, 1992; Fazzari & Papadimitriou, 1992; Crotty, 1990; Taylor and O'Connell, 1985; Flemming, 1982; Goldsmith, 1982) and the pathologies of crisis since 2007, we argue for (1) a back to basics approach in banking theory and regulation, (2) broader comparative and historical perspectives on US banking from a varieties of *finance* capitalism

approach and (3) the need for more common ground between Minsky and mainstream approaches. Minsky's *opus* supports our claims about the pitfalls of market-based banking (especially in the US), the virtues of traditional deposit- and loan-based banking and the need to modernize US monetary authorities to avert further crises and the capture of public policy by large banks.

The article is organized as follows: After this introduction, Section 2 suggests that a minimal definition of banks and a return to basics in banking theory help separate contested questions of theory, conceptualization and evidence from the core characteristics of banks. A minimal definition strategy averts inserting hypotheses and expectations about market-based banking and deregulation (and a bias toward the US system) into definitions of banking and banking theory. In the third section, we briefly review theoretical positioning of debates about banking and Minsky's financial instability hypothesis since the 2007 financial crisis. Because US banking remains, paradoxically, both an exception and paradigm, care is needed so that Minsky's typology of banks does not conflate experiences abroad with realities in the US.

The fourth section argues that comparative and historical analyses promise to extend the work of Minsky and Wray. Our varieties of *finance* capitalism approach differs from the widely held expectation among mainstream and critical scholars (albeit less so since crisis) that financial systems would converge toward market-centered paradigms and private banking. The realization of competitive advantages by *non*-joint stock banks and a back to the future modernization of social banking, especially in bank-centered finance capitalism, are central developments since liberalization in the 1980s and 1990s that have been accelerated by crisis (Mettenheim & Butzbach, 2012; Ayadi, Schmidt, Llewellyn, Arbak, & De Groen, 2010; Ayadi, Schmidt, & Carbò Valerde, 2009).

Section 5 reviews the implications of these findings and approaches for regulation and monetary authority. A back to basics approach to regulation and broader historical and comparative perspective suggest (1) that deregulation of US banking and purposive weakening of monetary authorities produced and deepened crisis and (2) that the doctrine of "too big to fail," or "globally active systemically important banks" (US Government Financial Stability Oversight Council, 2011, p. 16) led to record capture of public policy by big banks and moral hazard. Moreover, US regulators permitted "stealthlike" transformation of big investment banks into commercial banks amidst crisis – while leaving the bulk of their operations *off* balance sheets, especially the most questionable credit derivatives. Before concluding, Section 6 argues that Minsky's proposal for community development banks provides a promising reference for debates about post-crisis reforms and paths toward recovery from the damages of deregulation and capture of public policy by big banks.

2 A minimal definition of banking

Wray uses Minskyian approaches to discuss banking, finance and economics across several levels of analysis. From a micro or firm level of analysis, Wray provides compelling accounts of how banks work. From a mezzo level of analysis, Wray traces the aggregate behavior of (especially big) banks to explain trends in the financial system and draws compelling causal relations between banks, markets and macro phenomena. Sometimes macro explanations are derived from Minsky's model of economic agents based on concepts in banking and finance – a powerful deductive approach tapped by others that should be further explored (Bezemer, 2010; Brunnermeier & Sannikov, 2009). Wray also demonstrates how micro- or firm-level phenomena in banking sum to affect the financial system and real economy using more inductive, empirical and conceptual methods of analysis.

However, the breadth of Wray's analysis and Minskyian categories require clarity in defining banks and levels of analysis. The title of Wray's article, "What Do Banks Do?" implies a micro and/or organizational approach. The subtitle "What Should Banks Do?" raises a series of broader questions and begs for clearer specification of how Minskyian approaches transit "up" levels of analysis to the financial system and real economy to address empirical and normative matters. Given this breadth of analysis and variety of questions, a minimal definition (Gerring, 2010, p. 135) of banks is in order to separate core characteristics of banks from essentially contested (Gallie, 1956) claims about their behavior, evolution, performance and systemic effects.

Our minimal definition follows: Banks are institutions that accept money deposits and extend loans. This goes back to classics of banking theory since Macleod (1856) (De Jonghe, 2010). It does not imply wholesale rejection, or acceptance, of dominant neo-classical and microeconomic approaches to banking (Berger, Molyneux, & Wilson, 2010; Bhattacharya, Boot, & Thakor, 2004). A minimal definition strategy raises many questions of Wray that go beyond the scope of this article. However, one consequence stands out.

A minimal definition of banks as institutions that accept deposits and make loans places the unique developments of banking in the US in a starkly different light.[1] Most of the research in the US assumes, for better or worse, that traditional banking has been surpassed by other more efficient intermediaries in financial markets (Deeg, 2010). This, in itself, is a thorny problem. A minimal definition of banks as deposit-taking and loan-making institutions helps (1) separate the diverse phenomena treated by Wray; (2) dramatize how different unregulated

1 Wray often appeals to core concepts of banking theory. For example, the expression "If deposits are to maintain parity…" implies a back to basics approach.

market-based banking in the US is in comparative perspective and (3) avert inserting recent trends (especially in the US) into the definition of banking.

For example, Wray defines banks, or rather what banks do, as "taking positions by issuing debt." This shifts the focus away from traditional banking and emphasizes how US banks now operate in primary and secondary markets for financial products and services. Many banks do this. However, the traditional, first and core business of banks is that of accepting deposits and making loans. Many histories of banking also get this wrong. For example, Hicks (1969) and Cameron (1972) describe the emergence of merchant banks during the seventeenth century as the transition to modern banking. This conceals the fact that religious orders and charitable institutions founded *Monte di Pieta* pawn and savings banks in Southern Europe in the fifteenth and sixteenth century. Savings banks also emerged throughout Northern Europe in the late eighteenth century and early nineteenth century (Mura, 2000). Cooperative banks followed at mid-nineteenth century in response to hunger and economic crisis. Social banking therefore (1) *predates* modern merchant banking, (2) emerged alongside private banking to retain large market shares in most advanced economies, and (3) has realized competitive advantages since liberalization of the industry (where not privatized or demutualized) (Ayadi et al., 2009, 2010).

A minimal definition also counters the tendency of contemporary banking theory to insert ideas about market-based banking into definitions of banks as intermediary institutions (Berger et al., 2010; Bhattacharya et al., 2004). Given the complexity of banking theory, the long history and continued presence of alternative (non-joint stock) banks, and very mixed evidence about market-based banking, a minimal definition helps separates contested matters of theory, concept and evidence from the core business of banks; that of accepting deposits and making loans.

This has three implications. First, regulators should encourage banks to stick to the core business of taking deposits and making loans (Gorton, 2010; De Grauwe, 2010). The UK Independent Commission on Banking calls this ring fencing – the separation of retail banking from market-based and investment banking (ICB, 2011). Second, a minimal definition of banking clarifies how exceptional the US transition toward unregulated market-based banking is compared to other advanced (and developing) economies. Third, a minimal definition of banking clarifies the importance of recent evidence that traditional banks outperformed market-based banks in terms of the core functions of finance; efficient and effective resource allocation, informed credit and risk analysis and intertemporal smoothing (Mettenheim & Butzbach, 2012).

This calls for reconsideration of market-based banking. For example, at the outset of his article, Wray discusses how banks may issue debt to 95% of liabilities – or even hundreds times liabilities in the case of derivatives. Since crisis, big US banks have been capitalized by public and private funds. And the

big four US banks (Bank of America, JP Morgan Chase, Citigroup and Goldman Sachs) report capital risk ratings. However, the bulk of derivatives and other financial operations and related exposures remain *off balance sheets* and *off markets* (see Appendix 1). Before crisis, these operations and exposures were excluded from capital risk ratings. US reforms propose to count them in murky, complex and disputed ways.[2] Meanwhile, regulators and bankers in the rest of the world (except for a select number of tax havens and global finance centers) seek to converge toward more conservative Bank for International Settlements (BIS) Capital Reserve Guidelines that require risk weighted capital reserves of 8%, reversing the calculation and ignoring thorny problems of risk weighting.

Wray clarifies how leverage and liquidity produced crises in the past, such as the collapse of US savings and loan institutions after they were brought into market-based banking in the 1980s. In this respect, Wray, by focusing on market-based banking, may actually undermine a traditional solution for what he describes as the liquidity problem; scale, confidence and careful conduct by banks and monetary authorities. From Shonfield (1965) through Aglietta (2009, 1995), the core claim about what makes banking systems stable and effective is that banks with large scale, low leverage and prudent policies can transform a multitude of short-term deposits into long-term finance. This is why going back to basics in banking theory matters. Large scale and low leverage still work. Highly leveraged banks are clearly central to Wray's arguments and behind much of what went wrong after deregulation to cause and deepen crisis in the US and abroad. Given recurrent problems with highly leveraged banks, a minimal definition of banks averts *inserting* the phenomena into the definition of banking.

3 Theoretical positioning between past and present theories of banking and finance

Wray also distances Minsky's approach from mainstream theory and policy debates unnecessarily. Reconsideration of market-based banking should include works like Adrian and Shin (2010), Gorton (2010, 2008), Akerlof and Shiller (2009), Abreu and Brunnermeier (2003), Calomiris (2008), Allen and Gale (2007, 2000), Rajan (2005), Morris and Shin (2004), Claessens and Forbes (2001), Diamond and Dybvig (1983), Tobin (1987) and Fisher (1933). These works share

2 "Derivatives activity in the US banking system continues to be dominated by a small group of large financial institutions. Five large commercial banks represent 96% of the total banking industry notional amounts and 86% of industry net current credit exposure" (OCC, 2010, p. 6). See Appendix 1.

many features of Minsky's approach – despite fundamental differences about tendencies toward equilibrium or instability.

Wray's arguments are also consistent with the views of financial crises in mainstream financial and monetary economics, including classics. For Ricardo and Smith, free efficient markets and a liberal economy and society imply *small* firms. The concentration of financial transactions off markets and off balance sheets at four US banks and the doctrine of "too big to fail" (or "globally active systemically important banks") are very distant from liberal conceptions of free markets made by dispersed and decentralized entrepreneurs. Wray's criticism on the too big to fail thesis is shared by classic and neo-classical approaches that retain traditional views of banking (Dallas Federal Reserve, 2011; ICBA, 2013). Market solutions imply the failure of big banks (Calomiris and Mason, 2003). This may frighten those with geopolitical concerns, vested interests and indeed all of us at the brink of crisis. Nonetheless, this is precisely where theories of moral hazard and objections to government bailouts provide grounds for convergence between Minskyian and mainstream approaches.

Capture of public funds by big banks during financial crises involves long-term trends of lobbying, revolving doors between agencies of monetary authority and big banks, targeted campaign contributions and rare and costly strategic moments of chicken (Rappaport & Chammah, 1966) or brinkmanship (Russell, 1959; Sola & Kugelmas, 2006). Long before the 2007 crisis, big banks adopted "blood sport" lobbying to control US congressional committees, veto proposals for regulation and promote ideas about self-regulation and the reliability of simple statistical models of risk management (US Government Financial Crisis Inquiry Commission, 2010). However, instead of producing greater stability, the deregulation of US banking and finance produced record asset bubbles and wealth effects, freed unethical marketing and predatory sales, and accepted, at face value, the murky bilateral transactions of banks off markets and clearing houses (Gorton, 2010; Baker, 2007).

Politics clearly matter here, both in explaining the turn to deregulation and the capture of policy amidst crisis by large banks with the "too big to fail" doctrine (Shull, 2010). The quick pace of events and vast amount of public funds transferred to large banks (over *US$16 trillion* at US Government Accounting Office 2011 estimates, see Appendix 2)[3] suggest that the concepts developed for past crises in emerging markets may also apply to crisis management in advanced economies. Strategic theories of chicken or brinkmanship suggest

3 Felkerson (2011) estimates total operations of the US Federal Reserve at US$29 trillion, using data released by the Federal Reserve under order of a Freedom of Information Act Request from Senator Bernie Sanders.

that large leveraged banks at the brink of failure may indeed flaunt or encourage perceptions that their failure would deepen panic and produce systemic failure.

Brinkmanship was therefore used to describe the strategic positioning of banks, politicians and policy makers during financial crises in emerging markets during the 1980s and 1990s:

> Teetering on the brink of crises ("brinkmanship") induces a last minute coordinated response. To avert the worst and to save inherited practices and institutions the relevant actors are driven to engage in "state-crafting". Sola and Kugelmas (2006, p. 6)

Understanding how organized interests and big banks may first postpone then capture policies during financial crises implies focusing on politics. A central axiom of political science is that policies determine politics (Pierson, 1993; Lowi, 1972). More precisely, the type of public policy shapes the form of politics. We return to this promising line of inquiry for analysis of monetary authority below.

4 Expanding comparisons; varieties of *finance* capitalism

A comparative perspective also suggests a revision of Minsky's typology of banks. Wray follows Minsky by adopting four categories of banks: traditional commercial banks, investment banks, universal banks and public holding models. This conceals the fact that savings banks, cooperative banks and special purpose (development) banks retain substantial market shares in many advanced and developing countries. Alternative (non-joint stock) banks should not be hidden as a subset of universal banks. A useful expression from studies in Germany is that of "three pillars," where private, commercial and investment banks are one pillar, Sparkasse savings banks are a second pillar and credit cooperatives are a third pillar with roughly equal market shares (Krahnen & Schmidt, 2004).

Our two varieties of finance capitalism provide a more compelling typology. It is based on research in comparative financial economics and political economy that suggests that banks and markets are fundamentally different organizing principles for resource allocation, for channeling household savings to firms, for inter-temporal smoothing of household consumption and corporate investment, and for risk sharing across firms and households. The two types of market- and bank-centered *finance* capitalism clarify how capital markets, banks and corporate governance vary across advanced economies. On the left side of Table 1 is the paradigmatic market-centered system of the US that retains highly leveraged private banks that compete in liquid markets for

Table 1: Bank-centered vs market-centered finance capitalism.

	Market centered		Bank centered		
	US	**UK**	**Japan**	**France**	**Germany**
Financial markets	Hi	Hi	Moderate	Moderate	Low
Banks	Competition				Coordination*
Corporate governance	Hostile takeover		Main bank		Hausbank

Source: Allen and Gale (2000, p. 4).
Note: *Substituted for concentration.

capital and deregulated markets for financial services, and where hostile takeovers and liquid equity shares reinforce markets and competition as mechanisms for resource allocation. On the right side is Germany, with shallower capital markets and cooperative, long-term relations between banks and firms at the heart of corporate governance and resource allocation. Allen and Gale (2000) place the UK, Japan and France in between, suggesting that their financial markets, banks and traditions of corporate governance combine attributes more clearly embodied by the polar opposites of the US and Germany.

Descriptive data on the origins of external corporate finance and the structure of domestic banking and finance clarify the two varieties of finance capitalism – market-centered and bank-centered. First, the evolution of corporate finance in the US, Germany and Japan reported by Krahnen and Schmidt (2004) suggests clear and persistent differences (see Table 2). In Germany and Japan, banks provided, on average, over 82 and 93% of external corporate finance (1970–1996), while US banks provided 44%. Likewise, US firms obtained 45% of external finance by selling securities, while only 12 and 13% of firms in Germany and Japan obtained such financing.

Change in banking and markets over time confirms fundamental differences between market- and bank-centered varieties of finance capitalism (Deeg, 2011). Table 3 reports the evolution of bank credit/GDP, stock market capitalization/GDP, the portion of gross capital formation via equity and the number of listed firms per capita for market- and bank-centered financial systems from 1913 to 1999 (Rajan & Zingales, 2003). Market-centered finance is characterized by greater capitalization of stock markets (1.52 and 2.25 of 1999 GDP in US and UK vs 1.17, 0.95 and 0.67 GDP in France, Japan and Germany, respectively); less bank credit in the economy (0.17 and 0.39 GDP in the US and UK vs 0.47, 0.53 and 0.35 for France, Japan and Germany, respectively); larger portions of gross capital formation via equity (0.12 and 0.09 in the US and UK vs 0.09, 0.08 and

Table 2: External corporate finance, US, Germany and Japan, 1970–1996.

	1970–1974	1975–1979	1980–1984	1985–1989	1990–1996	1970–1996
US						
Banks	0.51	0.49	0.49	0.46	0.36	0.44
NBFIs	0.36	0.39	0.4	0.41	0.49	0.42
Households	0.12	0.11	0.07	0.07	0.09	0.09
For/Gov	0.01	0.02	0.04	0.06	0.06	0.04
Securities	0.42	0.42	0.41	0.45	0.48	0.45
Germany						
Banks	0.8	0.82	0.84	0.82	0.83	0.82
NBFIs	0.14	0.14	0.12	0.13	0.11	0.12
Households	0.04	0.03	0.03	0.04	0.04	0.04
For/Gov	0.02	0.01	0.01	0.02	0.03	0.02
Securities	0.12	0.09	0.08	0.11	0.13	0.12
Japan						
Banks	0.95	0.95	0.95	0.91	0.92	0.93
NBFIs	0.02	0.02	0.03	0.06	0.06	0.05
Households	0.02	0.02	0.01	0.02	0.01	0.02
For/Gov	0.01	0	0.01	0	0.01	0.01
Securities	0.1	0.1	0.1	0.15	0.16	0.13

Source: Krahnen and Schmidt (2004, p. 47).

0.06 in France, Japan and Germany, respectively); and more companies listed on stock exchanges per million residents (28.8 and 31.1% in the US and UK vs 20.0 and 12.7% in Japan and Germany, respectively).

Research in comparative financial economics supports the idea of two varieties of market-centered and bank-centered finance capitalism. In 2000, Allen and Gale summarized empirical findings of comparative financial economics as follows:

1. In most countries, stock markets are unimportant.
2. Financial markets are primarily markets for government debt.
3. Firms obtain funds via capital markets or bank loans.
4. The ideal of frictionless markets is rarely achieved in practice, so
   (a) "intermediaries" are needed to overcome information barriers and
   (b) the traditional view of financial markets as ideal means of allocating resources is misplaced (Allen & Gale, 2000, p. 3).

Each of these observations raises complex questions beyond the scope of this article. However, consideration of their implications for Minskyian approaches and the study of banking and finance is in order.

Table 3: Evolution of banking and finance in market-centered and bank-centered finance capitalism, 1913–1999.

	1913	1929	1938	1950	1960	1970	1980	1990	1999
					Bank credit/GDP				
Market centered									
US	0.33	0.33	0.44	0.40	0.30	0.25	0.18	0.19	0.17
UK	0.10	2.88	1.34	0.67	0.32	0.22	0.14	0.33	0.39
Bank centered									
France	0.42	0.44	0.36	0.24	0.30	0.33	0.45	0.42	0.47
Japan	0.13	0.22	0.52	0.14	0.21	0.33	0.48	0.51	0.53
Germany	0.53	0.27	0.25	0.15	0.23	0.29	0.30	0.32	0.35
					Stock market capitalization/GDP				
Market centered									
US	0.39	0.75	0.56	0.33	0.61	0.66	0.46	0.54	1.52
UK	1.09	1.38	1.14	0.77	1.06	1.63	0.38	0.81	2.25
Bank centered									
France	0.78		0.19	0.08	0.28	0.16	0.09	0.24	1.17
Japan	0.49	1.20	1.81	0.05	0.36	0.23	0.33	1.64	0.95
Germany	0.44	0.35	0.18	0.15	0.35	0.16	0.09	0.20	0.67
					Gross capital formation via equity				
Market centered									
US	0.04	0.38	0.01	0.04	0.02	0.07	0.04	0.04	0.12
UK	0.14	0.35	0.09	0.08	0.09	0.01	0.04	0.06	0.09
Bank centered									
France	0.14	0.26	0.03	0.02	0.04	0.04	0.06	0.02	0.09
Japan	0.08	0.13	0.75		0.15	0.03	0.01	0.02	0.08
Germany	0.07	0.17	0.06	0.00	0.04	0.02	0.01	0.04	0.06
					Listed companies per million population				
Market centered									
US	4.7	9.7	9.1	8.9	9.3	11.4	23.1	26.4	28.8
UK	47.0						47.2	29.6	31.1
Bank centered									
France	13.2		24.6	26.2	18.3	15.9	13.9	15.0	
Japan	7.5	16.6	19.4	9.1	8.3	15.1	14.8	16.7	20.0
Germany	27.9	19.7	10.9	13.2	11.3	9.0	7.4	6.5	12.7

Source: Rajan and Zingales (2003). Notes: Empty cells reported where data are unavailable.

The first observation – that stock markets are unimportant in most countries – counters expectations that banking would converge toward joint-stock private banking and market-based intermediation through privatizations, liberalization and deregulation. On the contrary, Allen and Gale conclude that equity markets are rarely at the center of financial systems.

The second observation – that financial markets are primarily markets for government debt – also rings different from recent foci on equity markets, liberalization and privatization. Indeed, in historical perspective, war finance via private sector purchase of government bonds is widely cited as fundamental for the development of capital markets (Geisst, 2012; Dickson, 1967).

The third observation – that firms obtain finance from markets *or* banks – supports our varieties of finance capitalism approach. However, this should not conceal the reality that firms tend to use *internal resources* more than bank credit or stock sales to invest and grow. Since Mayer (1988), studies of finance call for caution not to overestimate the importance of external funding. From this perspective, market- and bank-centered (and Minskyian) approaches should not *overstate* the importance of external finance in corporate governance.

The fourth observation of Allen and Gale (that the ideal of frictionless markets is rarely achieved) merits two comments. First, that "intermediaries" are necessary to overcome information barriers reinforces the importance of banks (and our traditional view of them) as institutions for intermediation. Second, this observation is in consistent with the Minsky's financial instability hypothesis. Allen and Gale conclude unequivocally that traditional approaches assuming perfect information, free markets and optimal equilibrium fail to describe how financial systems work. This is another promising bridge between Minskyian and mainstream approaches.

Differences between market- and bank-centered finance capitalism matter. First, bank-centered finance smooths economic shocks better. Inter-temporal smoothing is a core idea in financial economics. Equilibrium and welfare are maximized when adjustment to shocks avert dramatic downturns in the business cycle. Allen and Gale note that the oil price shock of 1973 caused capital in stock markets to decline by half 1972 peaks in the market-centered systems of the US and UK (Allen & Gale, 2000). This caused severe contraction in household incomes, especially for those holding pensions based on equities. In contrast, because neither households nor pensions held equities in the bank-centered systems of France, Japan and Germany, adjustment to the external shock was realized with substantially lower costs (Hoshi, 2004, p. 210). Booming domestic equity markets during the 1980s and 1990s shifted judgments in favor of market-centered finance. However, the greater importance of external shocks and the severity of crisis in the 2000s suggest that bank-centered finance capitalism may have once again fared better.

A second difference between market- and bank-centered finance turns on how firms and families renegotiate debt during downturns (Aoki & Dinç, 2000). In market-centered finance, forces of supply and demand set the price of credit "at-arms-length." In bank-centered finance, credit is determined by "face-to-

face" relations and longer views of collaboration. This has significant implications for policy coordination and social and political economy.

Allen and Gale also suggest that market- and bank-centered financial systems are not complementary. Because banks and markets retain different organizing principles, "Competition from financial markets can lead to the unraveling of inter-temporal smoothing provided by long-lived institutions" (Allen & Gale, 2000, p. 156). If individuals are offered a choice between investments, money may flow out of banks during bull markets to secure higher returns, eroding the capital base and capacity of banks to provide credit and finance. This runs counter to the argument of Hall and Soskice that change may be easier and more advantageous for coordinated (bank-centered) economies that liberalize (Hall & Soskice, 2001, p. 63). The contrary may also ensue. During crises, depositors may transfer funds out of markets and private banks to more trusted alternative banks, weakening markets, eroding the countercyclical capacity of private banks and reinforcing the capital and lending capacity of alternative (non-joint stock) banks.

Finally, Allen and Gale calculate *better* equilibrium across generations in an intermediated (bank-centered) financial system compared to market-based systems. This suggests, in less careful words, that traditional banks and bank-centered finance capitalism are better. Because banks can provide more effective monitoring of firms, finance with longer-term horizons and use information and local knowledge better, it follows that bank-centered finance capitalism may be expected to produce more sustainable growth than market-centered finance capitalism where banks have become intermediaries in capital markets.

4.1 Change in market-centered vs bank-centered finance capitalism

In European bank-centered finance capitalism, liberalization, monetary union and competitive pressures from shadow banking and capital markets have *not* produced systemic convergence toward private banking and market-centered finance. Instead, transition to a single European banking market and regulations induced non-joint stock banks such as savings banks, cooperative banks and public special purpose banks to modernize, merge and further integrate operations while attempting to recast their social missions and policy mandates (Ayadi et al., 2010; Ayadi et al., 2009). Liberalization of banking in Europe has thus led to the realization of competitive advantages in all three pillars of banking (Krahnen & Schmidt, 2004; Butzbach, 2006; Carbó Valverde, Gardener, & Williams, 2002). This is an anomaly for regulators, scholars and bank managers

who shared a bias toward market-based banking and expected convergence toward joint-stock paradigms of corporate governance and banking.

The place of cooperative banks in market- and bank-centered finance capitalism from 2004 to 2011 illustrates this difference (see Table 4). While cooperate banks retain below 2% of bank deposits and credit in the UK[4] and, in the US, declined 2004–2011 from holding 17.4–8.25% of bank deposits, cooperative banks retained 46.2, 19.4 and 33.9% of bank deposits and 46.5, 16.8 and 30.8% share of credit in France, Germany and Italy in 2011, respectively.

Critical approaches dating to Hilferding (1910) and Minskyian typologies *underestimate* the importance of alternative banks. For example, Polanyi (1944) focused on three social reactions of self-defense to *laissez faire* policies in the nineteenth century (central banking, labor unions and agrarian protectionism), but failed to mention savings trusts and cooperative banks. Regarding Minsky, it is true that alternative banks became increasingly marginal in the US and UK during his lifetime. In the US, the savings and loan crisis reduced the role of these institutions by the early 1990s. In the UK, savings and trust banks were consolidated and demutualized to become joint-stock banks in the 1980s. In this respect, after crisis, regional and local networks of cooperative banks and savings banks abroad provide important references for implementation of Minsky's proposal for US community development banks discussed below (Minsky, Papadimitriou, Phillips, & Wray, 1992).

In comparative perspective, banks in market-centered finance capitalism (the focus of Minsky and Wray) remain, paradoxically, paradigms and outliers.

Table 4: Cooperative banking market shares in varieties of finance capitalism.

	Deposits			Credit		
	2004	**2009**	**2011**	**2004**	**2009**	**2011**
Market-centered						
UK	2.0	2.0	2.2	1.3	1.4	1.6
US	17.4	11.6	8.25	n.a	n.a.	n.a.
Bank-centered						
France	50.2	41.5	46.2	53.7	46.5	56.0
Germany	18.5	19.3	19.4	11.6	16.8	17.5
Italy	29.2	33.3	33.9	25.9	30.8	31.7

Source: EACB (2004–2009), National Credit Union Administration (2009).

4 The 2012 sale by Llyods of 632 branch offices and 4.8 million customer accounts to the co-operative bank has increased the bank deposit market share of cooperative banks to an estimated 7% in the UK.

The US and UK now retain only one banking pillar (private joint-stock commercial banks), while most European banking systems retain two further pillars, i.e. savings banks and cooperative banks, not to mention mortgage banks and government-owned special purpose (development) banks that retain important market shares. Research in Brazil and other developing and emerging economies confirms that alternative banks retain powerful competitive advantages over private and foreign banks *and* provide important policy alternatives for social and political forces (Jayme & Crocco, 2010; Mettenheim, 2010). Understanding anomalies of bank change in advanced economies is therefore critical for reassessing change in developing and emerging countries.

4.2 Change in market-centered finance capitalism

A historical perspective suggests that market-centered finance capitalism in the US and UK was shaped by politics, early development, liberal philosophies and war finance. The predominance of financial markets and private banking in the US is "largely due to a different political history" (Allen & Gale, 2000, p. 32). After President Andrew Jackson vetoed renewal of the Second Bank of the US charter in 1832, an "aversion to powerful institutions of any kind" produced repeated bubbles and crises through the nineteenth century (Bodenhorn, 2003). For Hoffman (2001), politics and philosophies of public policy periodically reshaped US banking and finance, from delegation of regulation to state governments during the nineteenth century, creation of the Federal Reserve System in 1913, progressive-era design of savings and loan institutions and credit union and populist movements. Reforms in the wake of the 1907 and 1929 crises ended free banking and left a framework that remained in place until the 1980s. The Federal Reserve System (1913) and Glass Steagall Act (1933) combined deposit insurance, the separation of commercial banking from investment banking and prohibition of cross-state banking. These policies largely ended banking crises and created a more stable system of local and state banks – before deregulation in the 1980s unleashed another round of market bubbles and crises. From this perspective, implementation of the Dodd-Frank Act, the Volker Rule and more restrictive Basel III capital reserve guidelines may provide another turning point in US banking.

War finance is another political determinant of market-centered finance. In the UK, government bond markets and creation of the Bank of England are seen to explain both the emergence of British military power and London as a financial center during the eighteenth century (Dickson, 1967). Historical analyses also cite the Civil War and World War I as primary drivers of financial

development and the emergence of New York as a finance center (Geisst, 2012). The historical development of market-centered finance thus has more to do with politics, war and government bonds than free markets and optimal equilibrium.

A large number of banks was another exceptional feature of the US. Since this was seen to impede competition (Allen & Gale, 2000), reforms since the 1980s sought to encourage cross-state banking and the formation of larger banks through mergers and acquisitions. The morphing of large US investment banks into commercial banks during the recent crisis culminated consolidation. By 2010, four banks (JP Morgan Chase, Citbank, Bank of America and Wells Fargo) controlled over 45% of total bank assets in the US and (with Goldman Sachs) over 95% of off market derivatives (Appendix 1).

Bank change in the US is also exceptional in terms of the decline of traditional banking (accepting deposits and granting loans). Instead, household savings are invested, through banks and financial institutions, in new products and services based on tradable securities in liquid markets. Table 5 illustrates this shift toward intermediary institutions in the US. Household ownership of corporate equities declined 90.2–37.2% 1950–2010. In contrast, mutual funds increased holdings of US corporate equities 2.0–20.3% 1950–2010, while private pension increased 0.8–16.8% 1950–1990 (declining to 8.9% in 2010). Foreign entities also increased holdings of US corporate equities from 2.0 to 12.6% of total 1950–2010, while the value of equities increased from US$140.0 billion to over 23 *trillion* 1950–2010.

Table 5: US holdings of corporate equities, % total.

	1950	1970	1990	2000	2010
Households	90.2	68.0	51.0	39.1	37.2
Mutual funds	2.0	4.7	6.6	19.0	20.3
Foreign sector	2.0	3.2	6.9	8.9	12.6
Private pension funds	0.8	8.0	16.8	12.9	8.8
State and local pension funds	0.0	1.2	7.6	10.3	7.6
Life insurance companies	1.5	1.7	2.3	5.4	5.9
Other insurance companies	1.8	1.6	2.3	1.1	0.9
Closed-end funds	1.1	0.5	0.5	0.3	0.4
Bank personal trusts	0.0	10.4	5.4	1.9	0.0
Other	0.6	0.6	0.7	1.2	6.3
Total US$ trillion	0.14	0.84	3.54	19.04	23.4

Source: Federal Reserve (2012).

The implications of transition from traditional banking to a new financial paradigm in the US have been widely debated. Before the 2007 financial crisis, Hackethal (2001) argued that two interpretations predominated. One suggested that the new financial paradigm signified the end of traditional banking and that new policies of supervision and regulation were required. Another line of research suggested that the end of traditional banking was not foretold and that US banks were well positioned to remain at the center of financial markets, albeit in different ways. In sum, before crisis, consensus existed that a shift away from traditional banking toward a variety of intermediary institutions in liquid financial markets is the core trend in US finance and banking.

Since reforms in the 1970s and 1980s, the UK shares many of these trends. However, traditional institutions in the UK such as insurance companies, pension funds and building societies remain important intermediaries. And UK pension funds and life insurance managers tend to keep out of securities, while commercial paper and money markets remain smaller than in the US. UK banks thus remain important agents for short-term credit to firms, a critical difference during crisis. In a broader sense, traditional institutions repositioned themselves at the center of the new financial paradigm in the UK (Davies, Richardson, Katinaite, & Manning, 2011; Buckle & Thompson, 2005).

Wray's article inspires further historical work on change in market-centered finance capitalism. Minsky's historical analysis and typology are important sources for scholars in the wake of the financial crisis. Both the prevalence of crises in US history (before "back to basics" reforms in the 1930s introduced stability) and the deepening of crises since deregulation in the 1980s beg for historical analysis. However, much work is needed. For example, Wray's reference to Minsky's historical categories such as "Banking in the Money Manager Phase of Capitalism" (Wray, 2009) would benefit from review of the rich comparative literature on the 1920s (Feinstein, 1995).

4.3 Change in bank-centered finance capitalism

Debates about bank change in the US and UK turn on how deregulation, financial globalization and new information technologies have deepened capital markets and transformed banking from taking deposits and making loans to market-based management of assets and liabilities. Continental European experiences differed. European banks faced additional pressures from integration, adoption of a single currency and transition to a single banking market. However, increased competition and new bank strategies appear to have reinforced "those fundamental functional principles that are idiosyncratic to the

respective financial system" (Hackethal, 2001, p. 32). Instead of converging toward market-centered systems, finance in Europe has retained traditional features such as universal banks, alternative banks with long-term profit stability orientations and stakeholder governance and a wide variety of national arrangements. This is an apparent anomaly for liberal and neo-classical theories of bank change. Liberalization of banking in Europe has induced alternative banks to modernize, integrate operations and realize competitive advantages (Mettenheim & Butzbach, 2012; Ayadi et al., 2010; Ayadi et al., 2009).

It is true that most reforms in bank-centered finance capitalism were designed to create large banks capable of competing at home and abroad. The doctrine of "globally active systemically important banks" has reinforced political relations between governments and a select number of very large private banks. However, focusing on big banks conceals the reform, modernization and strategic repositioning of traditional institutions such as savings banks, cooperative credit societies, credit unions, mortgage associations and special purpose banks. Considered individually, most alternative banks and credit institutions are small or mid-sized institutions (that often share wholesale associations to reduce cost and maintain relationship banking networks). However, as a whole, alternative banks sum to a very large part of banking in many advanced economies. And contrary to the expectation that liberalization would reveal the competitive advantages of large private and foreign banks, local and regional credit institutions across Europe appear to have retained significant market shares. The following sections explore bank change in Germany and France to explain these anomalies for neo-liberal policies and contemporary banking theory.[5]

4.4 Germany

Relations between large German banks and business have captured the attention of observers since the nineteenth century (Shonfield, 1965, p. 247; Marshall, 1919, p. 354). Big private banks are at the center of the most problematic aspects of German history involving late development, authoritarianism, militarism, imperialism, cartels and corporatism. However, in the 1990s, Deeg (1999) noted that private banks accounted for *less than 30%* of bank assets in Germany. Assets held by the largest five German banks (17%) pale in

5 Although the varieties of capitalism literature suggests that France is more state-centric than cooperative or social corporatist (Schmidt, 2003), it should be noted that the regional and local government Caisse d'Epargne savings banks were transformed into cooperatives in 1999 rather than privatized to become joint-stock banks.

comparison with the approximately 50% held by the Sparkasse local government savings bank group (including many Landesbanks state government banks). Credit cooperatives hold a further 20% of bank assets and special purpose (development) banks approximately 10%.

Shonfield (1965) emphasized business planning, forecasting and long-term relationships with large private firms as the competitive advantages of German banks. Relations between "patient capital" from banks and German industry are defining elements of coordinated political economy (Hall & Soskice, 2001). In Germany, banking involves long-term relations and reputations, enduring contracts between suppliers and clients, limited sharing of privileged information, shared technical knowledge and skills, membership in industry associations and regulations that set standards, technologies and vocational training. The German tax system also still limits securities trading while patterns of cross-shareholding reinforce cooperation over competition on capital markets.

During the 1990s, German private banks supported financial reforms to improve their international positions (Beyer, 2002). Political elites also endorsed financial liberalization to project Frankfurt as a global finance center. Reforms dubbed *Finanzplatz Deutschland* sought to leverage joint-stock banks into global players and secure Frankfurt's future as a world finance center. However, the collapse of capital markets in 2000 and 2008 has led to reassessment of market-centered strategies and return to traditional patterns of savings, banking and corporate finance. The Frankfurt stock exchange *closed* the Neuer Markt for high-technology businesses in 2003.

Market downturns in 2000 and 2008 led households to shift assets back to traditional savings institutions (see Table 6). From 1999 to 2009, funds flowed *out* of shares in 9 of 11 years, while holding cash and bank deposits increased during years of crisis. This confirms the observation of Elsas and Krahnen (2003) that traditional relationships between universal banks and domestic

Table 6: Acquisition of financial assets, German households, (billion €).

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Cash/deposits	10.7	−31.1	27.3	78.8	58.3	49.2	43.8	42.3	85.9	120.9	49.8
Bonds	−3.5	3.3	5.7	12.7	19.4	34.4	17.7	20.9	−53.3	1.7	−4.5
Shares	21.4	20.4	−28.7	−71.1	−19	−6.5	−4	−5	−16.5	−45.5	−1
Mutual funds	43.9	54.6	52.7	37.9	27.5	−4.9	17.7	−2.4	24.2	9.3	29.2
Insurance	61.6	55.8	46.4	33.8	46	48.2	59.3	66.1	71.8	31.7	69
Pensions	6.8	9.9	9.9	10.7	10.2	9.3	7.3	10.2	4.3	7.3	7.6

Source: Deutsche Bundesbank (2010). Updated from Vitols (2004).

firms (and investors) remain at the center of German political economy. This also confirms the path of change after liberalization (a strengthening of traditional banks) unexpected by Allen and Gale (2000) and Hall and Soskice (2001) cited above.

A historical perspective helps explain how savings banks and cooperative banks acquired institutional foundations of competitive advantage to reinforce traditional patterns and finance flows in Germany. Politics also explains critical aspects of bank change in Germany. Geopolitical aspirations led to the creation of a select number of large joint-stock banks during the 1890s, institutions that remain the big private banks of Germany today. Commercial banks acquired 31% of bank assets in Germany by 1913, increasing to 40% under hyperinflation in 1925 (Deeg, 1999). However, by 1929 commercial bank shares of bank assets declined to 33%, reaching 15% under Nazi rule in 1938. Savings banks lost market share 33–19% (1913–1929) but grew thereafter to reach 45% of domestic bank system assets under fascism in 1938. Cooperative banks and local (mostly government) savings banks were founded from the late eighteenth through mid-nineteenth century to address the social question. However, the Nazi regime centralized the large branch office networks and shared wholesale operations of regional savings banks and cooperative banks in Germany to accelerate industrial development for war.

After World War II, savings banks and cooperative banks in Germany retained large market shares. The balance sheet totals and the value of loans to non-financial firms for different types of banks in Germany 1948–2008 are reported in Figures 1 and 2. Further time series analysis is in order. However, German banking does not appear to be converging toward market-centered

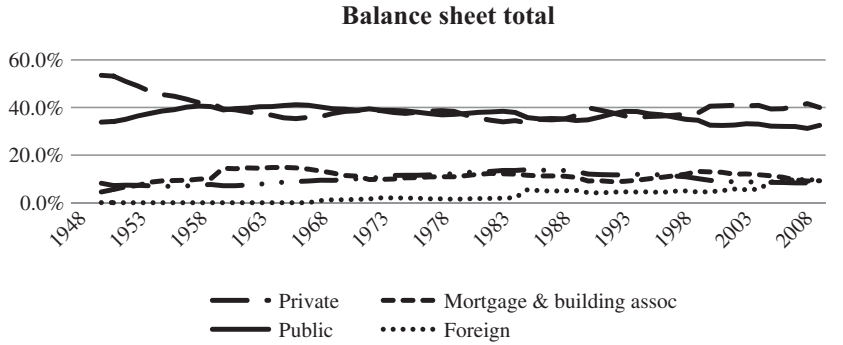

Figure 1: Balance sheet total of German credit institutions, 1948–2008.
Source: Bundesbank Statistical Service.

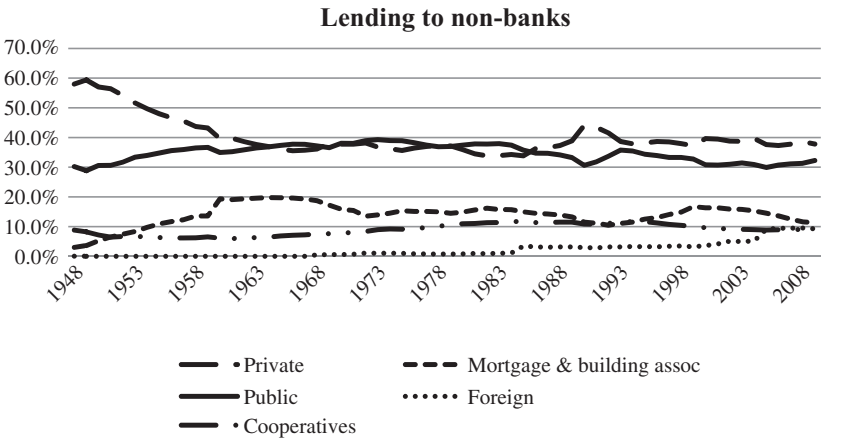

Figure 2: Lending to non-banks by type of German credit institution, 1948–2008. Source: Bundesbank Statistical Service.

finance capitalism based on the privatization of government banks and the capitalization of joint-stock private banks on equity markets, despite privatization of the postbank.

Instead, descriptive evidences from 1948 to 2008 suggest similar patterns of change in all types of banks. Liberalization in the 1980s and 1990s increased the market share of foreign bank lending to non-financial firms in Germany from near zero through the 1970s to 10% by 2008. This appears to have come at the expense of mortgage and building associations rather than government and cooperative banking sectors.

This anomaly for neo-liberal reforms and contemporary market-based banking theory has implications for social economy and public policy. Savings banks and cooperative banks sustain financial inclusion and avert capital drain from rural areas (Bresler, Größl & Turner, 2007). Despite liberalization, monetary union and revolutions in information and communication technologies, banking in Germany is still shaped by political and social networks that link public and private sectors, determine the reputations of managers and make or break public and corporate finance. Financial economics calls this relational banking. Comparative political economy calls this coordination. Social economy calls this networking. In Germany, alternative banks retain broad networks of branch offices that place these institutions at the center of social and political economy and sustain competitive advantages. In comparison, private commercial and investment banks suffered losses from exposure in capital markets and scared depositors toward alternative banks.

4.5 France

This dual trend toward a select number of large private banks and the realization of competitive advantage by alternative banks also appears in France. Large privatized banks such as BNP Paribas, Société Générale and Crédit Lyonnais have pursued capitalization on markets and mergers and acquisitions to globalize. In France, big private banks also tend to capture the attention of researchers and regulators. However, the transformation of Caisse d'Epargne regional and provincial government savings banks into an integrated group of cooperative banks and the modernization and integration of other cooperative groups such as the Crédit Agricole, Crédit Mutuel, Crédit Coopératif and Banques Populaires suggest that alternative banking in France has also realized competitive advantages since liberalization. However, research also suggests that alternative banks in France adopted market-based banking and paradigms of governance and management from private banks to a greater degree (Butzbach, 2006).

While large state banks were privatized after 1980 in France, regional and local public savings banks were transformed into cooperatives. The number of savings banks in France declined from 451 in the 1980s to 33 organized under a single group by June 2003. Butzbach (2006) reports a *decline* of market share by commercial banks and expansion of market share by cooperatives and savings bank in the period after liberalization, 1986–1999. And, amidst crisis, the merger between Banque Populaire and Caisse d'Epargne groups in June 2009 has created the *largest* domestic banking group in France.

In sum, change in bank-centered finance capitalism has differed significantly from expectations of disintermediation and market-based banking. Instead of wholesale privatizations and demutualization, public savings banks and cooperative banks have modernized since liberalization of the industry in Germany and France, using their more traditional banking profiles to avert large losses in the recent financial crisis and to emerge since crisis with substantial market shares.

5 Deregulation, monetary authority and the reality of reaction

Wray provides a rich series of examples reinforcing Minsky's financial instability hypothesis. References to "pump and dump" schemes, the demise of underwriting, compelling descriptions of how traders push asset bubbles and tough stories from US banking sum to persuade. However, far from evidence of

instability in banking *per se*, Wray reveals how different the US has become. Few central banks around the world would tolerate such market manipulations, use of inside information, unethical marketing practices and illusory levels of leverage adventured by US investment banks. When Wray describes US investment banks as "more like huge hedge funds" that operate on capital leverage ratios "up to several hundred," he risks reinforcing his target – a free market fetish that pervades debates about banking and regulation. In bank-centered finance capitalism (and many developing and emerging countries), neither monetary authorities nor managers let banks and financial institutions operate in this manner. Nor are shadow banks allowed to conduct financial operations off exchanges without clearing houses, outside regulations and off balance sheets to the extent of the US (Bakk-Simon et al., 2012; Gorton & Metrick, 2010). Bank-centered finance systems and developing countries therefore averted the immense losses and costly capital infusions incurred in market-centered finance systems, despite the greater vulnerability of their open economies and the severity of fiscal problems and economic downturns since crisis (European Commission, 2011).

One aspect of US exceptionalism is especially troubling. For Wray, monetary authorities at the Federal Reserve Bank, US Treasury, Securities and Exchange Commission and other agencies and relevant Committees in the House and Senate are increasingly *unable* to accompany or regulate banks and finance. This observation appears to be an example of what Albert Hirschman described as a recurrent thesis in the rhetoric of reaction, that of futility (Hirschman, 1991). However, it is not rhetoric but reality that Wray captures. Wray identifies a new *reality of reaction*: the increasing impression of futility among US policy makers in terms of their capacity to supervise, regulate and control banks and financial markets.

Further analysis is required. However, abroad, especially in Europe (and many emerging and developing countries that experienced banking and financial crises in the near past), central banks and monetary authorities have *increased* capacity to monitor, supervise and regulate domestic banks and capital markets. Meanwhile, transition to BIS Basel Accord III capital risk guidelines is scheduled to impose tougher (more traditional) controls on risk taking and leverage. In comparative perspective, new information and communication technologies have *increased* the capacity of monetary authorities, especially where crises generated political support for the modernization of bank supervision and market regulation. From this perspective, deregulation of banking in the US has meant lost opportunities to modernize the regulatory agencies responsible for monetary authority (GAO, 2011a).

The Dodd-Frank Act (2010) and the new US Financial Stability Oversight Council may reverse this trend. However, lost opportunities mean lost time. US

banking, finance and government during the 2000s strayed from global convergence toward closer monitoring, regulation and supervision of banks and financial institutions under BIS Basel Accords, International Financial Reporting Standards and further European Commission regulation of a single banking market (proposed reforms at the European Commission and European Parliament appear tougher, i.e. more traditional). The technology for more effective regulation of banks exists. Information and communication technologies make it possible for monetary authorities to track bank operations, market transactions and levels of exposure *online* in *real-time*. The reality that US regulators lag so far behind other central banks because of Madisonian anti-government utopias, and capture of public policy by big banks, is a luxury neither the country nor world can afford. The Dodd-Frank Act and Basel III Accord imply change, but also appear to favor bureaucratic complexity over parsimony and fail to make use of new technologies to increase the efficiency of regulation and reduce costs of compliance for banks. The imposing complexity of new regulations in the US and dispersion of regulation across many agencies and branches of government do not bode well. Moreover, given the continued practice at big banks to retain many assets off balance sheets, transition toward international standards implies a continued double standard (Woolley & Ziegler, 2012).

5.1 Deregulation as the erosion of monetary authority

Perhaps, the most important conclusion from studies of banking crises is that the cost of prevention is much lower than the cost of repair. Supervision of banks and financial markets, tighter regulation of leverage and risk, and *timely* intervention are much cheaper than capital infusions for banks amidst panic in financial markets, emergency lending of last resport to counter credit crunches and quantitative easing to reverse economic downturns (Sheng, 2011; Tumpel-Gugerell, 2011; Reinhart & Rogoff, 2011). This section reviews how deregulation and market-based banking eroded monetary authority and increased the cost of crisis in the US.

For the US Government Financial Crisis Inquiry Commission, "widespread failures in financial regulation and supervision proved devastating to the stability of the nation's financial markets" (2010, p. xviii).[6] Bank regulation and monetary policy in the US is dispersed across 12 federal agencies, a Federal

6 Dissident members of the Commission note that public housing policies also distorted markets: "US government's housing policies... fostered the development of a massive housing bubble between 1997 and 2007 and the creation of 27 million subprime and Alt-A loans, many of which were ready to default as soon as the housing bubble began to deflate" (2010, p. 533).

Reserve System with 12 independent regional reserve banks, further requirements and institutions on the state level as well as judicial review and legislative prerogatives. The complexity and diversity of bank regulation in the US has burdened banks, produced "regulatory arbitrage" and led banks to shift operations offshore to global finance centers. These were central arguments for deregulation. In 2001, President of the Federal Reserve, Alan Greenspan, argued that "market-stabilizing private regulatory forces should gradually displace many cumbersome, increasingly ineffective government structures" (US Commission, 2010, p. 56).

Beginning in the 1980s, deregulation and transition from traditional (deposit-taking, loan-making) banks to market-based banking did indeed replace government structures. However, instead of stability, this produced a wave of bank mergers and failures. In response, US monetary authorities chose to let small banks fail and rescue large banks. President Reagan's Comptroller of the Currency, Todd C. Conover, in testimony to Congress, justified rescue of Continental Illinois (1984, seventh largest US bank) by stating that regulators would not allow large money center banks to fail (leading Representative Stewart McKinney to coin the phrase "too big to fail"). Rescues followed for First Republic (1988, 14th largest), Mcorp, (1989, 36th largest) and Bank of New England (1991, 33rd largest). In 1991, the Federal Deposit Insurance Corporation Improvement Act sought to limit the use of public funds to rescue failing banks. However, two loopholes proved critical. Regulators could lift caps on rescues if systemic risk was declared to be at stake. And investment banks were to be covered by the Federal Deposit Insurance Company (FDIC).

Deregulation of futures markets also led to the explosion of derivatives off bank balance sheets during the 2000s (Appendix 3). Alan Greenspan argued for deregulation in 1999 as follows:

> The fact that the OTC markets function quite effectively without the benefits of [CFTC regulation] provides a strong argument for development of a less burdensome regime for exchange-traded financial derivatives. (US Commission, 2010, p. 48)

In 2000, the Commodity Futures Modernization Act embraced this view and "eliminated oversight by both the Commodity Futures Trading Commission (CFTC) and the Securities and Exchange Commission (SEC)" (US Commission, 2010, p. 48).

The expression "over the counter" (OTC) derivatives (i.e. not traded on exchanges) is widely used. However, two clarifications are in order. First, futures, options and derivatives for commodities, foreign exchange and interest rates have long been purchased by firms to hedge operations and traded on major stock exchanges (Rowady, 2010). Derivatives help firms transfer risk. And well regulated,

transparent and standardized futures markets provide important information that helps ensure that government policy and market forces converge.

In the US, credit derivatives differ because they 1) exploded in value during the years preceding crisis, 2) are traded "bilaterally" as contracts between banks *off exchanges*, 3) are dominated by *four* US banks and 4) remain outside banking and capital market regulations. Four US bank holding companies (JP Morgan Chase, Citibank, Bank of America and Goldman Sachs) reported 96% of nominal values and 86% of "credit risk equivalencies" of off balance sheet derivatives at year-end 2010 (Appendix 1).

In short, the problems with derivatives in the US are not due to derivatives *per se* but the unregulated explosion of credit derivative contracts during the 2000s that were non-public agreements between banks declared off balance sheets without shared accounting standards or market pricing through clearing houses or capital markets. As former Treasury Secretary Lawrence Summers testified in 2009:

> by 2008 our regulatory framework with respect to derivatives was manifestly inadequate" [...] "the derivatives that proved to be by far the most serious, those associated with credit default swaps, increased 100 fold between 2000 and 2008. (US Commission, 2010, p. 49)

This converged with the end of the real estate bubble in the US and (public and private) mismanagement of mortgage-backed securities to produce panic in US financial markets in 2007 (Gorton, 2008).

Belief in the self-regulation of private banks and the efficiency of markets undermined advocates of intervention and regulation in US monetary authorities. Richard Spillenkothen (Federal Reserve Board Director of Banking Supervision and Regulation, 1991–2006) summarized:

> Supervisors understood that forceful and proactive supervision, especially early intervention before management weaknesses were reflected in poor financial performance, might be viewed as i) overly-intrusive, burdensome, and heavy-handed, ii) an undesirable constraint on credit availability, or iii) inconsistent with the Fed's public posture. (US Commission, 2010, p. 54)

While demoralization of regulators weakened monetary authority, bureaucracies and budget lines remained in place and failed to reduce the cost of reporting for banks (Rugy & Warren, 2009).

Our back to basics approach and focus on politics also suggests that biases of market-based banking and capture of regulations by big private banks has also occurred in international institutions (Lall, 2012). For example, the 1996 revision of the BIS Basel Accord capital at risk guidelines let banks use derivatives to hedge risk and thereby *reduce* the amount of capital held in reserve. In

1997, International Monetary Fund (IMF) guidelines recommended that nominal values of derivatives be counted as financial assets on bank balance sheets (IMF, 1997). Subsequently, the BIS developed (rather complex) guidelines for calculation of credit risk equivalencies for derivatives (BIS, 2010). International Financial Reporting Standards and domestic accounting boards and associations are currently debating how derivatives should be counted.

5.2 From deregulation to crisis

Competing hypotheses have rushed to explain the origin and evolution of the US financial panic and crisis (Lo, 2012; Levine, 2010; Gorton, 2008). This section briefly reviews antecedents, crisis mechanisms and policy responses. Asset bubbles are not new to financial markets (Reinhart & Rogoff, 2011). However, deregulation, a dual bubble of long-term housing prices and quick valuation of mortgage-backed securities and related derivatives produced unprecedented crisis in 2007. Policy statements, national accounts, Federal Reserve balance sheets, market trends, working papers and the burgeoning literature on the crisis suggest the following causal sequence.

First, the steep valuation of the Case-Schiller Home Price Index from 1988 to 2009 suggests that a long-term asset bubble changed US political economy and produced structural imbalances (see Table 7). From 1895 to 1995, home prices largely accompanied inflation (Baker, 2007). However, from 1995 to June 2006, home prices outpaced inflation by *70%*. This produced a US$2.5 trillion home price bubble and US$8.0 trillion in housing-related wealth effects. Construction alone during this period increased from 4 to 6% of US GDP.

Table 7: Case-Schiller home price index, 1996–2009.

	1992	1994	1996	1998	2000	2002	2004	2006	2008	2009
Index	74.3	76.4	79.6	85.7	100.0	118.0	146.2	188.6	158.9	128.1

Source: Standard and Poors.

Second, policies designed to counter financial crisis in 2000 such as low interest rates fueled another round of home price increases, while construction and consumption were encouraged by further deregulation of financial markets. Revocation of the Glass-Steagall Law (1999), the Commodities and Futures Act of 2000 and the Consolidated Entity Supervision Act of the Securities and Exchange Commission (2004) freed US banks to sell and securitize mortgages

and related derivatives virtually without supervision. Instead of convergence toward International Financial Reporting Standards and BIS Basel II Accord capital reserve requirements, US banks proceeded to leverage freely and sell largely without consumer protection regulations. This degree of deregulation in the US during the 2000s remains an outlier. Elsewhere, domestic regulators, banks and financial institutions have adopted policies and reforms to converge toward BIS domestic bank regulations and more effective capital market supervision (Table 8).

Table 8: US bonds outstanding, 1996–2008 US$ billion.

Year	Municipal	Treasury	Mortgage Related[1]	Corporate	Federal Agency[2]	Money Market[3]	Asset Backed[4]	Total
1996	1,261.6	3,666.7	2,486.1	2,126.5	925.8	1,393.9	404.4	12,265.0
1997	1,318.7	3,659.5	2,680.2	2,359.0	1,021.8	1,692.8	535.8	13,267.8
1998	1,402.7	3,542.8	2,955.2	2,708.5	1,302.1	1,977.8	731.5	14,620.6
1999	1,457.1	3,529.5	3,334.3	3,046.5	1,620.0	2,338.8	900.8	16,227.0
2000	1,480.5	3,210.0	3,565.8	3,358.4	1,853.7	2,662.6	1,071.8	17,202.8
2001	1,603.6	3,196.6	4,127.4	3,836.4	2,157.4	2,587.2	1,281.2	18,789.8
2002	1,763.0	3,469.2	4,686.4	4,132.8	2,377.7	2,545.7	1,543.2	20,518.0
2003	1,876.8	3,967.8	5,238.6	4,486.4	2,626.2	2,519.9	1,693.7	22,409.4
2004	2,000.2	4,407.4	5,862.0	4,801.7	2,700.6	2,904.2	1,827.8	24,503.9
2005	2,192.1	4,714.8	7,127.7	4,965.8	2,616.0	3,433.7	1,955.2	27,005.3
2006	2,363.5	4,872.3	8,452.8	5,344.6	2,651.3	4,008.8	2,130.4	2,9823.7
2007	2,580.1	5,081.5	8,931.4	5,946.8	2,933.3	4,172.0	2,472.4	32,117.5
2008	2,635.3	6,082.2	8,897.3	6,205.1	3,207.8	3,791.7	2,671.8	33,491.2
2009	3,672.6	7,249.8	8,508.4	6,991.9	2,727.5	3,127.2	2,338.3	34,615.7
2010	3,795.9	8,853.0	8,481.1	7,902.7	2,538.8	2,866.5	2,044.4	36,482.4
2011	3,719.6	9,928.4	8,357.1	8,197.1	2,326.9	2,572.2	1,825.0	36,926.3
2012*	3,719.4	10,716.1	8,205.4	8,583.8	2,358.4	2,442.4	1,696.1	37,721.6

Source: Securities Industry and Financial Markets Association (SIFMA) (2012).
1 Interest bearing marketable public debt. 2 Includes GNMA, FNMA, and FHLMC mortgage-backed securities and CMOs, and CMBS, and private-label MBS/CMOs. 3 Includes commercial paper, banker's acceptances, and large time deposits. 4 Includes Auto, Credit Card, HEL, Manufacturing, Student Loan and Other. (CDOs are included).

Third, the valuation of mortgage-backed securities and derivatives created a fundamentally new situation once problems appeared in 2007. Data from the Securities Industry and Financial Markets Association (SIFMA) suggest how the value of asset-backed securities exploded after deregulation (Table 9). Values of outstanding debt and new debt issued, 1996–2008, reveal an abrupt capitalization of mortgage-related and asset-backed securities. Longstanding markets for

Table 9: Mortgage-backed securities, 1999–2008, US$ billion.

	MBS	CMO	Total
1999	2,292.0	662.2	2,954.2
2000	2,491.7	664.1	3,155.8
2001	2,830.2	801.3	3,631.5
2002	3,158.3	926.0	4,084.3
2003	3,493.0	1,003.4	4,496.4
2004	3,546.2	1,024.2	4,570.4
2005	3,681.1	1,117.1	4,798.2
2006	3,965.8	1,254.1	5,219.9
2007	4,604.2	1,343.5	5,947.7
2008	5,075.2	1,308.5	6,383.7

Source: Securities Industry and Financial Markets Association (SIFMA) (2012).
Notes: Agency MBS = mortgage-backed securities. Agency CMO = collateralized mortgage obligations or real estate mortgage investment conduits (REMICs).

municipal bonds, treasury bonds, corporate debt, federal agency securities, money markets and asset-backed bonds remained on relatively stable growth trajectories until crisis hit in 2007. In comparison, the market value of mortgage-related bonds almost doubled from US$3.5 trillion in 2000 to reach US$8.9 trillion before crisis in 2007.

Fourth, secondary markets for mortgage-backed securities and derivatives were central drivers of the financial market bubble and crisis. In comparison, municipal bond markets remained largely stable through panic and crisis, despite the subsequent impact of crisis on local government tax receipts and budgets. The value of US Treasury bonds also *increased* during crisis, reflecting a flight-to-quality, much criticized by surplus countries such as China. This remains a profound comparative advantage of market-centered finance capitalism in the US. Despite originating crisis, flight-to-quality movements in capital markets cheapen counter cyclical policies. Corporate bonds also *increased* during crisis as US Federal Reserve banks and treasury injected funds to keep US firms afloat. Market-centered finance capitalism thereby retains particular sets of complementarities and policy alternatives.

The increase of home equity loan-based asset-backed securities in 1996–2007 also indicates the distortions in the US economy before crisis (see Table 10). The value of home equity loan-based asset-backed securities increased from US$51.6 billion in 1996 to reach over US$585.6 billion in 2007, while "other" asset-backed securities increased from US$76.0 billion in 1996 to over US$1.5 trillion in 2008.

Table 10: US asset-backed securities, 1996–2008, US$ billion.

	Automobile loans	Credit card receivables	Home equity loans	Manufacturing housing	Student loans	Other	Total
1996	71.4	180.7	51.6	14.6	10.1	76.0	404.4
1997	77.0	214.5	90.2	19.1	18.3	116.7	535.8
1998	86.9	236.7	124.2	25.0	25.0	233.7	731.5
1999	114.1	257.9	141.9	33.8	36.4	316.7	900.8
2000	133.1	306.3	151.5	36.9	41.1	402.9	1,071.8
2001	187.9	361.9	185.1	42.7	60.2	443.4	1,281.2
2002	221.7	397.9	286.5	44.5	74.4	518.2	1,543.2
2003	234.5	401.9	346.0	44.3	99.2	567.8	1,693.7
2004	232.1	390.7	454.0	42.2	115.2	593.6	1,827.8
2005	219.7	356.7	551.1	34.5	153.2	640.0	1,955.2
2006	202.4	339.9	581.2	28.8	183.6	794.5	2,130.4
2007	198.5	347.8	585.6	26.9	243.9	1,069.7	2,472.4
2008	137.7	314.1	395.5	20.0	239.5	1,565.0	2,671.8

Source: Securities Industry and Financial Markets Association (SIFMA) (2012).

Analysis of structural causes, reasons for panic, mechanisms of contagion and consequences for banks, markets, economies and societies will require further research (Lo, 2012). Financial economists emphasize international capital flows, herd behavior and contagion (Levine, 2010). Behavioral finance studies suggest that irrational herding and contagion in financial markets require new regulatory approaches (Ackerlof & Schiller, 2009). Critical perspectives see the current crisis as a historical turning point that has ended the predominance of neoclassical economics, neo-liberal policies and neo-conservative politics (Bresser-Pereira, 2010). Marxist scholars argue that the fictitious character of financial capital and the fetish of financial markets have produced unprecedented wealth transfers (Crotty, 2011). A variety of new, neo- and post-Keynsian approaches suggest that Minsky was fundamentally right, but that neo-liberal policies during the 2000s delayed and worsened crisis (Palley, 2010; Laidler, 2010). We restrict our observations to two comments about central banking and Minsky's proposal of community development banks in the US.

5.3 From rules to discretion in market-based central banking

Wray's article also demonstrates that reconsideration of central banking is needed (Jeffers, 2010; Borio & Disyatat, 2010; Buiter, 2008: Goodhart, 2008). Debates about central banking before crisis relegated questions about lender of last resort

to the remote past and developing countries where instability persisted. For bankers, regulators, academics and the financial press, new theories about efficient financial markets, new concepts from monetary economics (such as the credit channel and interest rate channel), and technological advances meant that central banking could simply signal markets and manage marginal increments to the money supply to control inflation. Central banking became largely consensual, independent from politics, simpler in the sense of using interest rates to control inflation and more transparent in the sense of looking to futures markets for policy parameters. Crisis profoundly changed all three characteristics.

Since 2007, US monetary authorities channeled massive emergency support (US$16 trillion according to US GAO, 2011b, *US$29 trillion* according to Felkerson, 2011) into a select number of large banks while letting hundreds of regional and local banks and credit institutions fail. The balance sheet of the Federal Reserve Bank increased from US$900 billion before crisis to over three trillion dollars in early 2013, first through massive extension of credit, then through central bank swaps, then through purchase of government bonds. The discretionary character of policies, lack of congressional, judicial and public oversight and a bias toward big banks led to the failure of an unprecedented number of small- and medium-sized banks. Brief review of policies follows to explore the consequences of this dramatic expansion of monetary authority.

In December 2007, the Federal Reserve's Open Market Committee authorized Central Bank Liquidity Swaps that reached over US$10 trillion (34% of Felkerson's 2011 total) when ended in February 2010. This implies that the US Federal Reserve Policy served as the primary lender of last resort abroad during the financial crisis (see Table 11). Federal Reserve Central Bank

Table 11: US Federal Reserve Central Bank Liquidity Swaps, 2007–2010.

Central Bank	Central Bank Liquidity Swaps, US$ billion
European Central Bank	8,011,370
Bank of England	918,830
Swiss National Bank	465,812
Bank of Japan	387,467
Danish Nationalbank	72,788
Sveriges Riksbank (Sweden)	67,200
Reserve Bank of Australia	53,175
Bank of Korea	41,400
Norges Bank (Norway)	29,700
Banco de Mexico	9,663

Source: Felkerson (2011).

Liquidity Swaps far outpace the value of liquidity provided by international institutions such as the IMF and BIS, institutions designed to provide liquidity during financial crises and, supposedly, serve as central banks to central banks. The emergency measures and policy discretion of the US Federal Reserve thereby reinforce discretionary national policy over international norms, regimes and institutions.

The Federal Reserve Primary Dealer Credit Facility, created in February 2008, provided an overnight loan facility to ensure funds for primary dealers of treasury securities in the US and sustain demand in domestic financial markets. Borrowing remained under US$20 billion through September 2008, increased to over US$110 billion by December 2008, but decreased thereafter to remain under US$40 billion by April 2009. Felkerson (2011) estimates total lending through the Federal Reserve Primary Dealer Credit Facility substantially higher – at *US$8.9 trillion* (30.2% of his total).

US Federal Reserve Banks also purchased massive amounts of asset-backed securities to sustain markets. In September 2008, the Federal Reserve Board created the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility to stave off financial panic. Lending through the Federal Reserve Bank of Boston reached US$150 billion by September 2008. However, loans under this program declined to near zero in April and remained below US$20 billion in May 2009. Felkerson (2011) estimates lending through the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility at US$217 billion.

In November 2008, the Federal Deposit Insurance Corporation created a Temporary Liquidity Guarantee Program that provided over US$334 billion by April 2009. US monetary authority purchases of government sponsored enterprise (GSE) mortgage-backed securities also reached US$1.25 trillion in GSE "agency" mortgage-backed securities, US$200 billion in direct agency obligations while permitting purchase of up to US$300 billion in treasury securities during 2009. The Federal Reserve Board also created a Term Asset-Backed Securities Loan Facility that lent US$71 billion.

The Federal Reserve Board also created a Commercial Paper Funding Facility through the Federal Reserve Bank of New York to avert panic spreading into commercial paper markets. Loans to banks under this facility reached US$350 billion in January 2009, but declined to under US$140 billion by June 2009. Felkerson (2011) estimates total lending through the Commercial Paper Funding Facility at US$737 billion (2.5% of his total).

The Federal Reserve Board also created a Term Auction Facility in December 2009 to ensure liquidity in uninsured interbank lending markets. Lending through this facility remained at approximately US$140 billion into October

2008, but increased to almost US$500 billion in March 2009 before declining to an estimated US$320 billion outstanding in June 2009. Felkerson (2011) estimates total lending through the Term Auction Facility at *US$3.8 trillion* (12.9% of his total).

The Federal Reserve Board also created a Money Market Investor Funding Facility that reached over US$152 billion in October 2008 (average outstanding loans over US$120 million). However, lending again declined to almost zero by April 2009 and remained below US$30 billion in June 2009. Finally, in November 2008, the Federal Reserve Board created a Term Asset-Backed Securities Loan Facility to ensure the issue of asset-backed securities in secondary markets for student loans, auto loans, credit card loans and loans guaranteed by the Small Business Administration. Lending by the Federal Reserve Bank of New York through this facility reached just over US$10 billion during May and June 2009.

US government policies increased the total value of outstanding Treasury securities from US$4.8 trillion in 2006 before the financial crisis to over US$11.0 trillion by third quarter 2012. The Federal Reserve Board Balance Sheet increased from US$914.7 billion at year-end 2007 to over US$3.0 trillion in early 2013. Deregulation and crisis thus required massive *ad hoc* policies to avert the spread of panic across financial markets and the deterioration of bank portfolios dependent on markets for liability funding. As the US and Europe struggle to emerge from economic downturns caused by crisis, central banking and monetary authority have become profoundly different; politicized rather than independent, involving policies that are complex, untested and often at odds with markets rather than in convergence. Estimates of total transfers by US monetary authorities by the US GAO (16 trillion dollars) and Felkerson (29 trillion dollars) far exceed US GDP of 14.5 trillion at year-end 2010 (GAO, 2011b; Felkerson, 2011). Central banking and monetary authority have clearly become something different.

Comparing the cost of crisis and asset removal schemes provides further support for our back to basics approach and clarifies the differences across varieties of finance capitalism.

5.4 Comparing the cost of crisis and policies in market- and bank-centered finance capitalism

Estimates for the costs incurred from financial crisis produced by the IMF reveal substantial differences between varieties of finance capitalism (see Table 12). In terms of economic output lost, the 11 and 23% declines of Germany and France remain below the 25 and 31% declines of the UK and US. The fiscal cost of crisis in Germany and France (1.8 and 1%) also remains substantially below the 8.8

Table 12: Economic cost of crisis for varieties of finance capitalism.

VOFC	Country	Output loss	Fiscal cost	Peak NPLs	Increase in public debt
Bank-centered	Germany	11	1.8	3.7	17.8
	France	23	1	4	17.3
Market-centered	UK	25	8.8	4	24.4
	US	31	4.5	5	23.6

Source: Laeven and Valencia (2012). Output loss = % GDP. Fiscal cost = % GDP of bank recapitalizations (excluding asset purchases and direct liquidity assistance from treasury). NPL = non-performing loans as % total loans. Increase in public debt = % increase in debt projections one year before crisis and three years after crisis.

and 4.5% fiscal cost estimates for the UK and US. Lower peaks in non-performing loans (3.7 and 4.0 vs 4.0 and 5.0) and lower increases in public debt from bank recapitalizations (17.8 and 17.3% vs 24.4 and 23.6%) also suggest that the bank-centered finance capitalism in Germany and France incurred lower costs of crisis than market-centered finance capitalism in the UK and US.

Comparison of policy costs also suggests the differences between varieties of finance capitalism. For example, asset removal schemes in the US (US$0.5–1.0 trillion) far outpace similar schemes in Germany (0.18 billion euros) (see Table 13). Second, reflecting differences between market- and bank-based finance, assets removed from bank balance sheets were also priced differently – via auction in the US and by auditors in Germany. Third, removed assets are exchanged for cash sold to funds in the US, government guaranteed bonds are

Table 13: Asset removal schemes compared, US and Germany.

	United States	Germany
Eligible assets	Legacy loans and securities (0.5–1.0 trillion dollars)	Structured securities (0.18 billion euros)
Pricing	Auction	Auditors
Assets exchanged	Cash, as assets are sold to funds	Government guaranteed bonds issued by Special Purpose Vehicles
Length	Maturity of transferred assets	Maturity of transferred securities
Loss sharing	Public–private share	Banks ultimately bear losses; US Treasury and private capital provide equity finance; FDIC provides guarantee for debt issued by PPIFs to fund asset purchases

Source: Stolz and Wedow (2010, p. 37).

issued by Special Purpose Vehicles in Germany to acquire removed assets. Thus, while losses are shared by public (Treasury and FDIC) and private investors in the US, banks are required to declare losses in Germany.

Table 14 reports the value of asset removal plans in the US, UK, France and Germany. The descending value of plans designed to inject capital, guarantee liabilities and support assets in the four countries suggest that market-centered finance in the US and UK required more funds from monetary authorities to remove bad assets from bank balance sheets in the wake of crisis. In the US, banks used $216.2 billion of $580.0 billion made available for capital injections, while 33.7 of 55.0 billion pounds and 35.8 billion pounds of additional funds for capital injections were required in the UK. In comparison, 8.3 of 21.0 billion euros in France and 3.2 of 5.0 billion euros in Germany of capital injections, and lower levels of liability guarantees and asset support schemes, sum to suggest the significantly lower cost of crisis in bank-centered finance capitalism in comparison to market-centered finance in the US and UK.

Table 14: Cost of asset removal plans in market- and bank-centered finance capitalism.

	Capital injections		Liability guarantees		Asset support		Total as % GDP
	Spent/Plan	Other	Issued/plan	Other	Spent/Plan	Other	
Market-centered							
US	216.2/580.0	19.1	251.2/464.0	26.7	40.0/1,148.0	74.9	26
UK	33.7/55.0		157.2/300.0			218.0	25
Bank-centered							
France	8.3/21.0	3.0	134.2/320.0				18
Germany	3.2/5.0		14.4/30.0		4.4/4/4		18

Source: Stolz and Wedow (2010, p. 24).

Further comparative analysis is in order. However, estimates for the cost of crisis and asset removal plans suggest that bank-centered finance capitalism fared better than market-centered finance capitalism in the recent crisis. We follow Whitehead (2002) in considering central banking as a mode of political authority. From this perspective, deregulation of banking in the US implies a loss of monetary authority and the destruction of smaller regional and local traditional banks in favor of a select number of banks that continue to declare the bulk of derivatives and other questionable transactions off balance sheets without clearing houses, without standard accounting procedures for risk or value. Instead of increasing the efficiency and effectiveness of finance, unregulated banks in market-centered finance capitalism increased capture of public policy and

imposed greater costs on society through discretionary central bank capitalizations and other policies amidst and since crisis.

6 Minsky's proposal for community development banks

Because banking in the US and UK has been largely reduced to private banking,[7] Minsky's proposal (with Wray as co-author) to create community development banks is of the greatest importance (Minsky et al., 1992). This proposal of Minsky and Wray is innovative because of its focus on the social and economic dimensions of community development. This appears to differ from the insistence of Wray in his present article that banks and finance should contribute (exclusively?) to *capital* development. His proposal with Minsky for community development banks responds to fundamental problems of credit rationing (Stiglitz & Weiss, 1981), emphasizes decentralized relational banking over centralized development banking (Boot, 2000) and is designed to promote socioeconomic inclusion through banking, a question that has regained attention in post-crisis policy debates (FDIC, 2012; Chakrabarti, Erickson, Essene, Galloway, & Olson, 2009).

Given the tendency of centralized development banks and large infrastructure projects to suffer capture from construction industries and labor unions, the proposal of community development banks by Minsky and Wray is far more promising. Community development banks raise profoundly different questions about *human* capital and *social* economy, thereby shifting down levels of analysis and away from definitions of capital development that Wray describes as Smithian and Keynesian. This proposal for decentralization, relationship banking and sustainable development through community development banks provides an essential and timely contribution to debates about post-crisis policies in the US and abroad.

7 Credit unions and building societies remain exceptions. In the US, legislation to create a National Infrastructure Bank remains pending in US House and Senate committees, while proposals to create public banks are pending in 20 state legislatures. Small but healthy credit union and independent community bank sectors also suggest diversity in US banking. In the UK, the recovery of non-joint stock building societies, creation of the public UK Green Investment Bank and the expansion of cooperative banking also indicate a resurgence of non-joint stock banking.

Table 15: US community development financial institutions.

	Loan funds	Banks	Credit Unions	Venture Cap. funds	Total
Number	70%	7%	19%	4%	723
Assets ($bi)	3,898.7	851.0	308.4	98.9	5,157.0
Self-sufficiency	47%	110%	97%	59%	
<1.5 m	29%		90%	26%	32%
1.5–4.9 m	51%		78%		57%
5.0–14.9 m	53%		103%		64%
>15.0 m	58%	110.0%	113%	57%	69%

Source: Fabiani and Greer (2007).

Unfortunately, the small size and market-based models of current federal programs for community development finance in the US conspire against the broader social role envisioned by Minsky and Wray. The US Treasury Department Community Development Financial Institutions Fund delegates social banking and finance to an estimated 900 institutions. Although 91.9% of participating institutions are non-profit entities, all *banks* so registered are *for profit* institutions (25.6% of institutions are associated with churches). Table 15 reports the number and assets of loan funds, banks, credit unions and venture capital funds that participate in the US Department of Treasury funding. A full 83.1% of outstanding portfolio of these institutions are loans, 13.3% to business, 39.5% to real estate and 4.6% of loans by value to consumers (although 42.3% of number of loans).

Measures of self-sufficiency reported by the US Department of Treasury study suggest the importance of scale to cover costs of operation in social and community banking. In comparison to large and longstanding institutions of alternative banking in Europe, the smaller scale and recent history of many of these institutions reduces their self-sufficiency. Moreover, the concentration of assets in home construction and real estate exposed small US community development finance institutions to large capital losses in the financial crisis.

From the broader comparative perspective of our two varieties of finance capitalism, market-based private banking and a one-pillar banking system in the US mean that social and community development banking must begin on a smaller scale. Review of the Community Reinvestment Act after 30 years confirmed the need for new ideas (Chakrabarti et al., 2009). US institutions in this sector retain US$5.61 billion assets, a very small portion of the US$11.9 trillion total bank assets reported by the Federal Reserve at year-end 2010. The proposal of Minsky and Wray to create a system of community development banks may therefore inspire more audacious policy alternatives able to accelerate alternative banking experiments.

7 Conclusion

We respond to Wray's article on banking by suggesting that a minimal definition of banking, back to basics research strategies and broader comparative and historical perspectives may contribute to the development of his work in the Minskyian tradition. This may also help avert (contrary to the intent of Minsky) that the financial instability hypothesis may actually contribute to the tendency to conflate experiences abroad with excesses of deregulation and highly leveraged banks in the US. For a scholar working in a prosperous financial center of a large developing country that has recently launched new secondary markets for mortgage-backed securities and a variety of other derivatives and financial instruments, Wray's work remains an important reference for how markets, banks and deregulation may go wrong. However, the big stories from outside the US are about the modernization of monetary authorities to better monitor, supervise and control banking, the realization of competitive advantages by alternative banks, the adoption of more transparent and prudent banking in the wake of crises, and insistence on conservative reserve policies to safely deepen credit and capitalize markets. Perhaps, this is the most fundamental difference since the recent crisis. After decades of incremental and often imperceptible progress amidst seemingly endless financial crises and contagion across developing and emerging countries, the pain and suffering of reforms amidst crisis, cautious low-leverage banking and the modernization of central banks appear to have paid off. That US banks, financial markets and monetary authorities have fallen so far behind international standards of transparency, supervision, regulation and reserve requirements are a costly irony and embarrassment that Wray's article helps to address.

Acknowledgments: The author thanks Olivier Butzbach, Oliver Kessler, Christoph Scherrer, Esther Jeffers, Dietmar Wetzel, Grahame Thompson, Pascal Petit, Maria Antonieta del Tedesco Lins, Maria Fernanda Freire de Lima and Natalia Fingermann for comments and suggestions on draft versions. Research support was provided by GVpesquisa, the São Paulo Business School (FGV-EAESP) research fund. A July 2011 residency at the Rockefeller Foundation Bellagio Center permitted completion of manuscript. Lauro Gonzalez, Otaviano Canuto, Olivier Butzbach, Lakshmi Kumar, Reinhard Schmidt and Ranjith Hettiarachchi provided further suggestions at a Bellagio Center Seminar in July 2011. I also thank anonymous reviewers and Yuri Biondi, Editor of AEL – A Convivium, for suggestions. Acknowledgments imply no responsibility for author's ideas.

Appendix 1: Credit equivalent exposures, top 25 commercial banks and trust companies in derivatives, 2010 (US$ millions)

Rank	Bank	Total assets	Total derivatives	Total risk-based capital	Bilaterally netted credit exposure	Potential future exposure	Total credit derivative exposure	Total credit exposure to cap. (%)
1	JP MORGAN CHASE	1,631,621	77,898,648	130,444	153,573	191,852	345,425	265
2	CITIBANK	1,154,293	50,252,508	117,682	57,926	153,491	211,417	180
3	BANK OF AMERICA	1,482,278	48,463,617	150,777	60,476	201,391	261,867	174
4	GOLDMAN SACHS	89,447	42,547,726	23,587	23,591	124,785	148,376	629
5	WELLS FARGO	1,102,278	3,754,683	117,141	26,410	38,515	64,925	55
6	HSBC BANK USA	181,118	3,667,023	22,177	8,706	28,319	37,025	167
7	BANK OF NY MELLON	181,855	1,429,403	13,095	4,981	5,001	9,982	76
8	STATE STREET	155,529	778,801	11,565	5,068	6,783	11,851	102
9	MORGAN STANLEY	68,180	373,770	9,571	249	1,562	1,811	19
10	PNC BANK	256,639	344,617	31,777	2,669	984	3,653	11
11	SUNTRUST BANK	162,510	319,644	16,424	2,608	1,323	3,932	24
12	NORTHERN TRUST	70,373	243,838	6,440	6,725	2,500	9,225	143
13	REGIONS BANK	128,373	122,002	14,028	964	283	1,247	9

(*Continued*)

(Continued)

Rank	Bank	Total assets	Total derivatives	Total risk-based capital	Bilaterally netted credit exposure	Potential future exposure	Total credit derivative exposure	Total credit exposure to cap. (%)
14	US BANK	302,260	96,923	29,419	1,453	5	1,459	5
15	FIFTH THIRD BANK	108,972	77,779	14,796	1,688	659	2,347	16
16	KEYBANK	88,592	67,537	12,175	1,181	186	1,367	11
17	TD BANK	168,749	66,525	13,009	1,344	769	2,113	16
18	BRANCH BANKING & TRUST	150,828	65,838	17,417	929	378	1,307	8
19	UNION BANK	78,675	42,969	8,866	846	702	1,547	17
20	RBS CITIZENS	107,836	42,534	10,035	970	322	1,293	13
21	ALLY BANK	70,284	35,994	11,438	171	405	577	5
22	TD BANK USA	11,148	34,319	1,207	652	393	1,045	87
23	BANK OF OKLAHOMA	17,415	28,665	1,528	231	286	517	34
24	HUNTINGTON BANK	53,407	28,381	5,549	426	129	555	10
25	DEUTSCHE BANK	45,504	27,879	8,777	1,766	777	2,543	29
Top 25 banks holding derivatives		7,868,163	230,811,622	798,923	365,605	761,800	1,127,406	141
Other banks holding derivatives		2,758,743	369,774	306,426	9,834	2,639	12,473	4
Total for banks holding derivatives		10,626,906	231,181,397	1,105,349	375,439	764,439	1,139,878	103

Source: (OCC, 2010, p. 26).

Total derivatives = Nominal value.

Bilateral Netting = "A legally enforceable arrangement between a bank and a counterparty that creates a single legal obligation covering all included individual contracts. This means that a bank's receivable or payable, in the event of the default or insolvency of one of the parties, would be the net sum of all positive and negative fair values of contracts included in the bilateral netting arrangement." (OCC, 2010, p. 12)

Bilaterally Netted Capital Exposure = Balance of single counterparty legally enforceable bilateral netting agreement balance between positive and negative values.

Potential Future Exposure = "An estimate of what the current credit exposure (CCE) could be over time, based upon a supervisory formula in the agencies' risk-based capital rules. PFE is generally determined by multiplying the notional amount of the contract by a credit conversion factor that is based upon the underlying market factor (e.g. interest rates, commodity prices, equity prices) and the contract's remaining maturity. However, the risk-based capital rules permit banks to adjust the formulaic PFE measure by the "net to gross ratio," which proxies the risk-reduction benefits attributable to a valid bilateral netting contract. PFE data in this report uses the amounts upon which banks hold risk-based capital." (OCC, 2010, p. 7)

Total Credit Derivative Exposure = "Sum of netted current credit exposure and predicted future exposure. OCC explanation: For a portfolio of contracts with a single counterparty where the bank has a legally enforceable bilateral netting agreement, contracts with negative values may be used to offset contracts with positive values. This process generates a "net" current credit exposure... A bank's net current credit exposure across all counterparties will therefore be the sum of the gross positive fair values for counterparties without legally certain bilateral netting arrangements (this may be due to the use of non-standardized documentation or jurisdiction considerations) and the bilaterally netted current credit exposure for counterparties with legal certainty regarding the enforceability of netting agreements." (OCC, 2010, p. 7)

Total Credit Exposure to Capital = Ratio of total credit risk exposure to BIS Basel II Accord risk-based capital (tier one plus tier two capital).

Appendix 2: US government emergency program recipients (1 Dec 2007–21 July 2010), by bank holding company

	TAF	PDCF	TSLF	CPFF	Subtotal	AMLF	TALF	Total loans
Citigroup Inc.	110	2,020	348	33	2,511	1	–	2,513
Morgan Stanley	–	1,913	115	4	2,032	–	9	2,041
Merrill Lynch & Co.	0	1,775	166	8	1,949	–	–	1,949
Bank of America Corporation	280	947	101	15	1,342	2	–	1,344
Barclays PLC (UK)	232	410	187	39	868	–	–	868
Bear Stearns Companies, Inc.	–	851	2	–	853	–	–	853
Goldman Sachs Group Inc.	–	589	225	0	814	–	–	814
Royal Bank of Scotland Group PLC (UK)	212	–	291	39	541	–	–	541
Deutsche Bank AG (Germany)	77	1	277	–	354	–	–	354
UBS AG (Switzerland)	56	35	122	75	287	–	–	287
JP Morgan Chase & Co.	99	112	68	–	279	111	–	391
Credit Suisse Group AG (Switzerland)	0	2	261	–	262	0	–	262
Lehman Brothers Holdings Inc.	–	83	99	–	183	–	–	183
Bank of Scotland PLC (UK)	181	–	–	–	181	–	–	181
BNP Paribas SA (France)	64	66	41	3	175	–	–	175
Wells Fargo & Co.	159	–	–	–	159	–	–	159
Dexia SA (Belgium)	105	–	–	53	159	–	–	159
Wachovia Corporation	142	–	–	–	142	–	–	142
Dresdner Bank AG (Germany)	123	0	1	10	135	–	–	135
Societe Generale SA (France)	124	–	–	–	124	–	–	124
Subtotal Top 20	1,964	8,804	2,304	279	13,350	1	9	13,475
All other borrowers	1,854	146	14	460	2,475	103	62	2,639
Total	3,818	8,951	2,319	738	15,826	217	71	16,115

Source: GAO, 2011b:131 TAF = Term Auction Facility, PDCF = Primary Dealer Credit Facility, TSLF = Term Securities Lending Facility, CPFF = Commercial Paper Funding Facility, AMLF = Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, TALF = Term Asset-Backed Securities Loan Facilities.

Appendix 3: Nominal value of derivative contracts, US commercial banks 2001–2010 (billion dollars)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
By product										
Futures & Forwards	9,313	11,374	11,393	11,373	12,049	14,877	18,967	22,512	26,493	35,709
Swaps	25,645	32,613	44,083	56,411	64,738	81,328	103,090	131,706	142,011	149,247
Options	10,032	11,452	14,605	17,750	18,869	26,275	27,728	30,267	30,267	32,075
Credit derivatives	395	635	1,001	2,347	5,822	9,019	15,861	15,897	14,036	14,150
By Type										
Interest rate	38,305	48,347	61,856	75,518	84,520	107,415	129,574	164,404	179,555	193,482
Foreign exchange	5,736	6,076	7,182	8,607	9,282	11,900	16,614	16,824	16,553	20,990
Equities	770	783	829	1,120	1,255	2,271	2,522	2,207	1,685	1,364
Commodities	179	233	214	289	598	893	1,073	1,050	979	1,195
Credit derivatives	395	635	1,001	2,347	5,822	9,019	15,861	15,897	14,036	14,150
Total	45,386	56,074	71,082	87,880	101,478	131,499	165,645	200,382	212,808	231,181

Source: (OCC, 2010, pp. 14–15).

References

Abreu, D., & Brunnermeier, M. (2003). Bubbles and crashes. *Econometrica, 71*(1), 173–204.

Ackerlof, G.A. & Schiller, R. (2009). *Animal Spirits: How Human Psychology Drives the Economy, and Why It Matters for Global Capitalism*. Princeton, NJ: Princeton University Press.

Adrian, T., & Shin, H. S. (2010). Liquidity and leverage. *Journal of Financial Intermediation, 19*(3), 418–437.

Aglietta, M. (1995). *Macroéconomie financière*. Paris: La découverte.

Aglietta, M. (2009). Towards a new model of long-term finance. In E. Paulet (Ed.), *Financial markets and the banking sector* (pp. 9–37). London: Pickering and Chatto.

Akerlof, G. A., & Shiller, R. J. (2009). *Animal spirits: How human psychology drives the economy, and why it matters for global capitalism*. Princeton, NJ: Princeton University Press.

Allen, F., & Gale, D. (2000). *Comparing financial systems*. Cambridge, MA: MIT Press.

Allen, F., & Gale, D. (2007). *Understanding financial crises*. Oxford: Oxford University Press.

Aoki, M. & Dinc, S. (2000). Relational Financing as an Institutional and Its Viability under Competition, in Aoki, M. and Saxonhouse G. R. eds., *Finance, Governance, and Competitiveness in Japan*, pp. 19–42. Oxford: Oxford University Press.

Ayadi, R., Schmidt, R. H., & Carbò Valerde, S. (2009). *Investigating diversity in the banking sector in Europe: The performance and role of savings banks*. Brussels: Center for European Policy Studies.

Ayadi, R., Schmidt, R. H., Llewellyn, D. T., Arbak, E., & De Groen, W. P. (2010). *Investigating diversity in the banking sector in Europe. Key developments, performance and role of cooperative banks*. Brussels: Center for European Policy Studies.

Baker, D. (2007). *The United States since 1980*. Cambridge: Cambridge University Press.

Bakk-Simon, S., Girón, C. Hempell, H., Maddaloni, A., Recine, F., & Rosati, S. (2012). Shadow banking in the Euro area: An overview. European Central Bank, Occasional Paper Series, No. 133.

Bhattacharya, S., Boot, A., & Thakor, A. (Eds.). (2004). *Credit, intermediation and the macro economy: Models and perspectives*. Oxford: Oxford University Press.

Berger, A. N., Molyneux, P., & Wilson, J. O. S. (Eds.). (2010). *The Oxford handbook of banking*. Oxford: Oxford University Press.

Beyer, J. (2002). "Deutschland AG a.D.: Deutsche Bank, Allianz und das Verflechtungszentrum großer deutscher Unternehmen," MPIfG Working Paper 02/4, March.

Bezemer, D. (2010). Understanding financial crisis through accounting models. *Accounting, Organizations and Society, 26*, 676–688.

BIS (Bank for International Settlements). (2010, September). *Triennial Central Bank survey: Foreign exchange and derivatives market activity. Preliminary results*. Basel: BIS Monetary and Economic Department.

Bodenhorn, H. (2003). *State banking in early America: A new economic history*. Oxford: Oxford University Press.

Boot, A. (2000). Relationship banking: What do we know? *Journal of Financial Intermediation, 9*, 7–25.

Borio, C., & Disyatat, P. (2010). Unconventional monetary policies: An appraisal. *The Manchester School, Supplement*, 53–89.

Bresler, N. Größl, I., & Turner, A. (2007). *The role of german savings banks in preventing financial exclusion*. Berlin: Springer.

Bresser-Pereira, L. C. (2010). The global financial crisis, neoclassical economics, and the neoliberal years of capitalism. *Revue de la regulation, Spring*, 7.

Brunnermeier, M., & Sannikov, Y. (2009). A macroeconomic model with a financial sector. Princeton University Working Paper.

Buckle, M., & Thompson, J. (2005). *The UK financial system*. Manchester: Manchester University Press.

Buiter, W. H. (2008). Central Banks and financial crises. Kansas City: 2008 Symposium of the Federal Reserve Bank Kansas City, August 21–23. Retrieved from www.kansascityfed.org/publicat/sympos/2008/Buiter.09.06.08.pdf

Butzbach, O. (2006). *Varieties within capitalism? The modernization of French and Italian savings banks. Perspectives No. 54*. Brussels: World Savings Bank Institute.

Calomiris, C. (2008). Banking crises. NBER Reporter, Research Summary.

Calomiris, C., & Mason, J. (2003). Fundamentals, panics and bank distress during the depression. *American Economic Review, 93*(5), 1615–1647.

Cameron, R. (1972). *Banking and economic development: Some lessons of history*. Oxford: Oxford University Press.

Carbó Valverde, S., Gardener, E. P. M., & Williams, J. (2002) Efficiency in banking: Empirical evidence from the savings banks sector. *Manchester School, 70*(2), 204–228.

Chakrabarti, P., Erickson, D., Essene, R. S., Galloway, I., & Olson, J. (2009). *Revisiting the CRA: Perspectives on the future of the community reinvestment Act*. San Francisco, CA: Federal Reserve Banks of San Francisco and Boston.

Claessens, S., & Forbes, K. (2001). *International financial contagion*. Springer: New York

Crotty, J. R. (1990). Owner-manager conflict and financial theories of investment instability – A critical assessment of Keynes, Tobin, and Minsky. *Journal of Post Keynesian Economics, 12* (4), 519–549.

Crotty, J. R. (2011). *The realism of assumptions does matter: Why Keynes-Minsky theory must replace efficient market theory as the guide to financial regulation policy*. Amherst, MA: University of Massachusetts. Retrieved from http://people.umass.edu/crotty/Oxford_draft_April_27_2010_final.pdf

Dallas Federal Reserve Bank. (2011) Choosing the road to prosperity. Why we must end too big to fail – Now. Annual Report. Retrieved from http://www.dallasfed.org/assets/documents/fed/annual/2011/ar11.pdf

Darity, W. (1992). Financial instability hypothesis. In P. Newman, M. Milgate, J. Eatwell (Eds.), *The new Palgrave dictionary of money & finance* (Vol. 2, pp. 75–76). Basingstoke/London: Macmillan.

Davies, R., Richardson, P., Katinaite, V., & Manning, M. (2011). *Evolution of the UK banking system*. London: Bank of England.

Deeg, R. (1999). *Finance capitalism unveiled: banks and the German political economy*. Ann Arbor, MI: University of Michigan Press.

Deeg, R. (2010). Institutional change in financial systems. In G. Morgan et al. (Eds.), *The Oxford handbook of comparative institutional analysis*. Oxford: Oxford University Press.

Deeg, R. (2011). Financialisation and models of capitalism: A comparison of the UK and Germany. In G. T. Wood & C. Lane (Eds.), *Capitalist diversity and diversity within capitalism* (pp. 121–149). London: Routledge.

De Grauwe, P. (2010). The scientific foundation of dynamic stochastic general equilibrium (DSGE) models. *Public Choice, 144*, 413–443.

De Jonghe, O. (2010). Back to the basics in banking? A micro-analysis of banking stability. *Journal of Financial Intermediation, 19*, 387–417.

Deutsche Bundesbank. (2010). Financial accounts for Germany, 1991–2009. Special Publication 4.

Diamond, D., & Dybvig, P. (1983). Bank runs, deposit insurance, and liquidity. *Journal of Political Economy, 91*(3), 401–419.

Dickson, P. H. (1967). *The financial revolution: A study in the development of public credit, 1688–1756*. London: MacMillan.

Dymski, G., & Pollin, R. (Eds.). (1994). *New perspectives in monetary macroeconomics – Explorations in the tradition of Hyman P. Minsky*. Ann Arbor, MI: The University of Michigan Press.

EACB (European Association of Co-operative Banks). (2004–2009). Key statistics. Retrieved February 8, 2010, from http://www.eurocoopbanks.coop/?nav=2.11

Elsas, R., & Krahnen, J. P. (2003). Universal banks and relationships with firms. CFS Working Paper Series, Center for Financial Studies.

European Commission. (2011). *Impact assessment, accompanying document for a Regulation of the European Parliament and of the Council on OTC Derivatives, Central Counterparties and Trade Repositories. Brussels: European Commission*. Retrieved from http://ec.europa.eu/enterprise/policies/europeanstandards/files/standardization/sec-2011-671_en.pdf

Fabiani, D., & Greer, J. (2007). *Growth, diversity, impact: A snapshot of CDFIs in FY 2003*. Washington, DC: Community Development Financial Institutions Fund, US Treasury Department.

Fazzari, S., & Papadimitriou, D. B. (Eds.). (1992). *Financial conditions and macroeconomic performance – Essays in honor of Hyman P. Minsky*. Armonk, NY: M.E. Sharpe.

FDIC (Federal Deposit Insurance Corporation). (2012). *FDIC survey of unbanked and underbanked households*. Washington, DC: FDIC. Retrieved from http://www.fdic.gov/householdsurvey/2012_unbankedreport.pdf

Federal Reserve (2012). Flow of funds accounts of the United States. Retrieved from http://www.federalreserve.gov/RELEASES/z1/

Feinstein, C. H. (Ed.). (1995). *Banking, currency, and finance in Europe between the wars*. Oxford: Oxford University Press.

Felkerson, J. (2011). $29,000,000,000,000: A detailed look at the Fed's bailout by funding facility and recipient. Bard College Levy Economics Institute Working Paper no. 698.

Fisher, I. (1933). The debt-deflation theory of great depression. *Econometrica, 1*(4), 337–357.

Flemming, J. S. (1982), Comment (on the financial-instability hypothesis). In C. Kindleberger & J. Laffargue (Eds.), *Financial crises – Theory, history, and policy* (pp. 39–41). Cambridge: Cambridge University Press.

Gallie, W. B. (1956). Art as an essentially contested concept. *Philosophical Quarterly, 6*(23), 97–114.

GAO (Government Accounting Office). (2011a). *Information systems controls at Federal Reserve Banks*. Washington, DC: Government Accounting Office, GAO-11–447R. Retrieved from http://www.gao.gov/new.items/d11447r.pdf

GAO (Government Accounting Office). (2011b). *Federal reserve system: Opportunities exist to strengthen policies and processes for managing emergency assistance*. Washington, DC: GAO.

Geisst, C. T. (2012). *Wall Street, a history*. Oxford: Oxford University Press. (updated edition).

Gerring, J. (2010). *Social science methodology: A criterial approach*. Cambridge: Cambridge University Press.

Goldsmith, R. W. (1982). Comment [(on: the financial-instability hypothesis – Capitalist processes and the behaviour of the economy (by H. P. Minsky)]. In C. Kindleberger &

J. Laffargue (Eds.), *Financial crises – Theory, history, and policy* (pp. 41–43). Cambridge: Cambridge University Press.
Goodhart, C. (2008). The regulatory response to the financial crisis. *Journal of Financial Stability, 4*, 351–358.
Gorton, G. (2008). "The Panic of 2007," Proceedings of the 2008 Jackson Hole Conference, "Maintaining Stability in a Changing Financial System," Kansas City, MO: Federal Reserve Bank of Kansas City.
Gorton, G. (2010). *Slapped by the invisible hand: The panic of 2007*. Oxford: Oxford University Press.
Gorton, G., & Metrick, A. (2010). *Regulating the shadow banking system*. Washington, DC: Brookings Papers on Economic Activity, No. 2.
Hackethal, A. (2001). How unique are US banks? – The role of banks in five major financial systems. *Journal of Economics and Statistics, 221*, 592–619.
Hall, P. & Soskice, D. (2001). *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*. Oxford: Oxford University Press.
Hilferding, R. (1910). *Finance capital. A study of the latest phase of capitalist development*. London: Routledge & Kegan Paul (1981 edition).
Hirschman, A. (1991). *The rhetoric of reaction: Perversity, futility, jeopardy*. Cambridge, MA: Harvard University Press.
Hoffman, S. (2001). *Politics and banking: Ideas, public policy, and the creation of financial institutions*. Baltimore, MD: Johns Hopkins University Press.
Hoshi, T. (2004). *Corporate finance and governance in Japan*. Cambridge, MA: MIT Press.
ICB (Independent Commission on Banking). (2011). *Final report, recommendations*. London: Independent Government Banking Commission.
ICBA (Independent Community Bankers Association). (2013). ICBA backs dallas fed plan to restructure too-big-to-fail firms. Press Release, January, 17, 2013.
IMF (International Monetary Fund). (1997). *The statistical treatment of financial derivatives*. Washington, DC: International Monetary Fund.
IMF (International Monetary Fund). (2011). *Global financial stability report*. Washington, DC: International Monetary Fund.
Jayme, F., & Crocco, M. (Eds.). (2010). *Bancos Públicos e Desenvolvimento*. Rio de Janeiro: IPEA.
Jeffers, E. (2010) The lender of last resort concept: From Bagehot to the crisis of 2007. Revue de la régulation (online) 8. Retrieved from http://regulation.revues.org/8903.
John H. (1969). *A Theory of Economic History*. Oxford: Oxford University Press.
Krahnen, J. P., & Schmidt, R. H. (Eds.). (2004). *The German financial system*. Oxford: Oxford University Press.
Laeven, L., & Valencia, F. (2012). *Systemic banking crises database: An update*. Washington, DC: International Monetary Fund, Working Paper 12/163.
Laidler, D. (2010). Lucas, Keynes, and the crisis. *Journal of the History of Economic Thought, 32*, 39–62.
Lall, R. (2012). From failure to failure: The politics of international banking regulation. *Review of International Political Economy, 19*(4), 609–638.
Levine, R. (2010). An autopsy of the US financial system: Accident, suicide, or negligent homicide. *Journal of Financial Economic Policy, 2*(3), 196–213.
Lo, A. W. (2012). Reading about the financial crisis: A twenty-one-book review. *Journal of Economic Literature, 50*(1), 151–178.

Lowi, T. J. (1972). Four systems of policy, politics, and choice. *Public Administration Review, 32*(4), 298–310.

Macleod, H. D. (1856). *The theory and practice of banking*. London: Longmans Green And Co.

Marshall, A. (1919). Industry and trade. Retrieved from http://socserv2.socsci.mcmaster.ca/~econ/ugcm/3ll3/marshall/Industry%26Trade.pdf

Mayer, C. (1988). New issues in corporate finance. *European Economic Review, 32*, 1167–1188.

Mettenheim, K. (2010). *Federal banking in Brazil: Policies and competitive advantages*. London: Pickering and Chatto.

Mettenheim, K., & Butzbach, O. (2012). Alternative banking: Theory and evidence from Europe. *Brazilian Journal of Political Economy, 32/4*(129), 580–596.

Minsky, H. P. (1982). The financial instability hypothesis – Capitalist processes and the behaviour of the economy. In C. P. Kindleberger & J. P. Laffargue (Eds.), *Financial crises – Theory, history, and policy* (pp. 13–39). Cambridge: Cambridge University Press.

Minsky, H. P. (1991). the financial instability hypothesis – A clarification. In M. Feldstein (Ed.), *The risk of economic crisis* (pp. 158–66). Chicago, IL: University of Chicago Press.

Minsky, H. P., Papadimitriou, D. B., Phillips, R. J., & Wray, L. R. (1992). Community development banking: A proposal to establish a nationwide system of community development banks. Bard College Levy Economics Institute, Public Policy Brief 3.

Morris, S. E., & Shin, H. S. (2004). Liquidity black holes. *Review of Finance, 8*(1), 1–18.

Mura, J. (Ed.). (2000). *History of European savings banks*. Stuttgart: Deutscher Sparkassenverlag.

Nasica, E. (2000). *Finance, investment and economic fluctuations – An analysis in the tradition of hyman P. Minsky*. Cheltenham – Northampton: E. Elgar.

National Credit Union Administration. (2012). Yearend Statistics for Federally Insured Credit Unions. Washington, DC: National Credit Union Administration.

OCC Office of the Comptroller of the Currency. (2010). *OCC quarterly report on Bank trading and derivatives activities*. Washington, DC: OCC.

Palley, T. I. (2010). The limits of Minsky's financial instability hypothesis as an explanation of the crisis. *Monthly Review, 61*(11). Retrieved from http://monthlyreview.org/2010/04/01/the-limits-of-minskys-financial-instability-hypothesis-as-an-explanation-of-the-crisis

Papadimitriou, D., & Wray, L. (1998). The economic contributions of Hyman Minsky: Varieties of capitalism and institutional reform. *Review of Political Economy, 10*(2), 199–225.

Pierson, P. (1993). Review: When effect becomes cause: Policy feedback and political change. *World Politics, 45*(4), 595–628.

Polanyi, K. (1944). *The great transformation*. New York: Rinehart.

Rajan, R. (2005). Has financial development made the world riskier? NBER Working Paper No. 11728.

Rajan, R. G., & Zingales, L. (2003). The great reversals: The politics of financial development in the 20th century. *Journal of Financial Economics, 69*, 5–50.

Rappaport, A., & Chammah, A. (1966). The game of chicken. *American Behavioral Scientist 10*(3), 10–28.

Reinhart, C., & Rogoff, K. (2011). *This time is different: Eight centuries of financial folly*. Princeton, NJ: Princeton University Press.

Rowady, E. P. (2010). The global risk transfer market: Developments in OTC and exchange-traded derivatives. Tabb Group study for World Federation of Exchanges.

Rugy, V., & Warren, M. (2009) Expansion of regulatory budgets and staffing continues in the new administration: An analysis of the U.S. Budget for Fiscal Years 2009 and 2010. Mercatus Center, GMU and Weidenbaum Center, WU, MO Regulators Budget Report 31.

Russell, B. (1959). *Common sense and nuclear warfare*. London: George Allen & Unwin.

Schmidt, V. A. (2003). French capitalism transformed, yet still a third variety of capitalism. *Economy and Society, 32*(4), 526–554.

Sheng, A. (2011). Central banking in an era of quantitative easing. Bard College Levy Economics Institute, Working Paper No. 684.

SIFMA (Securities Industry and Financial Markets Association). (2012). Statistics. Retrieved from http://www.sifma.org/research/statistics.aspx

Shonfield, A. (1965). *Modern capitalism: The changing balance of public and private power*. Oxford: Oxford University Press.

Shull, B. (2010). Too big to fail in financial crisis: Motives, countermeasures, and prospects. Bard College Levy Economics Institute, Working Paper No. 601.

Sola, L., & Kugelmas, E. (2006). Crafting economic stabilisation: Political discretion and technical innovation in the implementation of the real plan. In L. Sola & L. Whitehead (Eds.), *Statecrafting monetary authority: Democracy and financial order in Brazil* (pp. 85–116). Oxford: Centre for Brazilian Studies.

Stiglitz, J., & Weiss, A. (1981). Credit rationing in markets with imperfect information. *American Economic Review, 71*, 353–376.

Stolz, S. M., & Wedow, M. (2010). Extraordinary measures in extraordinary times: Public measures in support of the financial sector in the EU and United States. European Central Bank Occasional Papers Series 117.

Taylor, L., & O'Connell, S. A. (1985). A Minsky crisis. *Quarterly Journal of Economics, 100*, 871–885.

Tumpel-Gugerell, G. (2011). Asset price bubbles – How they build up and how to prevent them? Speech at an alumni event of the Faculty of Economics at the University of Vienna, May, 3.

Tobin, J. (1987). *Essays in economics*. Cambridge, MA: MIT Press. (3 vols).

US Commission (US Government Financial Crisis Inquiry Commission). (2010). *The financial crisis inquiry report*. Washington, DC: US Government Printing Office.

US Government Financial Stability Oversight Council. (2011). *2011 annual report*. Washington, DC: Financial Stability Oversight Council.

Vitols, S. (2004). Changes in Germany's bank-based financial system: A varieties of capitalism perspective. WZB, Markets and Political Economy Working Paper No. SP II 2004–03.

Whitehead, L. (2002). *Democratization: Theory and experience*. Oxford: Oxford University Press.

Woolley, J. N., & J. N. Ziegler. (2012). The two-tiered politics of financial reform in the United States. In R. Mayntz (Ed.), *Crisis and control: Institutional change in financial market regulation* (pp. 29–66). Frankfurt/M: Campus.

Wray, L. (2009). The rise and fall of money manager capitalism: A Minskyian approach. *Cambridge Journal of Economics, 33*(4), 807–828.