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What Were They Thinking? The Federal Reserve In The Run-Up To The 2008 Financial Crisis

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**What were they thinking?
The Federal Reserve in the run-up to the 2008 financial crisis**

Final Version

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The Federal Reserve in the Run-Up to the 2008 Financial Crisis

Abstract

The Federal Reserve (the Fed) is responsible for monitoring, analyzing and ultimately stabilizing US financial markets. It also has unrivalled access to relevant economic data, high-level connections to financial institutions, and a large staff of professionally trained economists. What did the Fed know about subprime mortgage lending, securitization, and derivatives trading that are now widely recognized to have caused the 2008 financial crisis? Using a wide range of Fed documents from the pre-crisis period, particularly the transcripts of meetings of the policymaking Federal Open Market Committee (FOMC), the paper shows that Fed policymakers and staff were aware of these developments, but largely ignored them. Drawing on literatures in economics, political science and sociology, the paper then considers four hypotheses for explaining this puzzle: (1) ‘capture’ by financial interests; (2) Alan Greenspan’s free-market ideology; (3) reliance on unrealistic economic models; and (4) institutional inertia and organizational routines. The paper argues that ideology and economic models contributed to the Fed’s lack of concern, but in more complex ways than often thought, and that institutional routines played a crucial role.

Keywords: Federal Reserve, financial crisis, financial innovation, regulation, free-market ideology, organizational routines.

1. Introduction

The causes of 2008 the crisis are complex and still subject to some debate (Helleiner, 2011; Kotios and Galanos, 2012), but there is general consensus that the explosive growth of subprime mortgage finance and credit derivatives played a central role in magnifying the systemic risks associated with the housing bubble in the United States. Regulators have been widely criticized for failing to appreciate the dangers, and for not working to avoid the crisis, even if they could not have predicted its precise timing, or completely prevented it (e.g., Buiter, 2012; Gorton, 2012; Johnson and Kwak, 2010; Roubini and Mihm, 2010). Little work has been done, however, on exactly *why* regulatory agencies did not seem sufficiently concerned, even though prominent commentators and media sources were raising alarms at the time (e.g. Borio and White, 2004; Buffett, 2003; Rajan, 2005). While the study of Barth *et al.* (2012) is a notable exception, it covers a wide range of regulatory agencies rather than providing an in-depth analysis of particular institutions.¹ In this paper we conduct such an analysis focusing on the Federal Reserve (the Fed) to reveal and explain its thinking in the run-up to the crisis - where ‘thinking’ means both the research it was generating, and the policy debates that were being carried out by its main decision-making body, the Federal Open Market Committee (FOMC).

The focus on the Fed is justified for a number of reasons, beyond the fact that the Fed is arguably the most powerful and prestigious economic agency in the world (Obstfeld *et al.*, 2010). First, although the Fed’s regulatory purview, in the pre-crisis period, was limited to bank-holding companies, and although it shared the regulation of

US banking with the Federal Deposit Insurance Corporation (FDIC) and the Office of the Comptroller of the Currency (OCC), it is nevertheless responsible for oversight of systemic financial risk in the US economy. One of its core mandates is ‘maintaining the stability of the financial system and containing systemic risk that may arise in financial markets’ (Federal Reserve, 2005a), and the Gramm-Leach-Bliley Act of 1999 recognizes it as the ‘umbrella regulator’ of the financial system (Mayer, 2001). Second, the Fed has unique access to information from the US financial sector, via its 2500 staff carrying out official supervision, as well as its top officials having formal and informal contacts within the financial sector. As such, it was uniquely positioned to assess unfolding events in the pre-crisis period. Third, the Fed employs around 500 professional economists, many of them from top PhD programs, providing it with greater analytical capabilities for examining economic and financial developments than other US regulatory agencies.

To what extent then were Fed staff and policymakers aware of and concerned about financial innovations and their implications for systemic risk? What factors explain the Fed’s perspective on the pre-crisis developments? Given the Fed is required by law to make publicly available a large range of internal documents from which its thinking can be, at least partially, traced, we are able to address these questions through a combination of qualitative and quantitative analysis of Fed documents. We particularly focus on the FOMC transcripts, which are released with a five-year delay. The FOMC transcripts have been used extensively in previous research (e.g. Chappell et al., 2005; Hayford and Malliaris, 2005; Meade and Thornton, 2011) but, to our knowledge, not to explore the Fed’s pre-crisis thinking.

We find that there was definitely awareness at the Fed, both in research and policy discussions, of a potential housing bubble, and of the risks of new financial instruments and practices. However, this awareness seemingly never reached the ‘critical mass’ necessary to trigger sustained attention or concern. The striking fact is how *infrequently* research and policy deliberation touched on the financial activities that are now known to have led to the collapse.

We consider four possible hypotheses for explaining the Fed’s limited attention to financial risks: i) regulatory capture of Fed officials; ii) the dominance of Alan Greenspan’s free-market ideology; iii) the Fed research staff’s focus, like the economics profession more generally, on models with little relevance for actual financial developments; and iv) institutional inertia and ‘organizational routines’ within the Fed. While the first three hypotheses are prevalent in various scholarly and popular accounts of the 2008 financial crisis, the last hypothesis is drawn from political science and sociology literatures.

We find no evidence supporting the first hypothesis, but we argue that the other three hypotheses are helpful, to varying degrees, in illuminating the Fed’s thinking in the pre-crisis period. Specifically, the roles of ideology as well as the influence of abstract economics models on the Fed’s thinking were more complicated than often suggested in popular accounts. It is too simplistic to characterize Fed policymakers and research staff as blindly following free market ideology or abstract theoretical models. In particular, there was recognition within the FOMC, including by Greenspan, that bubbles could occur and financial actors could underestimate risks. Nevertheless, we argue that Fed policymaking and research were characterized by a dominant paradigm that narrowed the

Fed's mandate to inflation targeting (Kirshner, 1999). This paradigm contained three key assumptions: 1) monetary policy should focus on inflation-targeting rather than deflating possible bubbles; 2) the self-interest of investment managers is generally effective in preventing the buildup of systemic risks, while regulations are burdensome; and 3) if a bubble nonetheless developed, it could effectively be controlled after it had burst (Bernanke and Gertler, 2001). Further, as suggested by the literature on institutional pathologies in sociology and political science (e.g., Barnett and Finnemore, 1999; Vaughn, 1999; Hopf, 2010; Lombardi and Woods, 2008; Powell and DiMaggio, 1991; Weaver, 2008), we show that organizational routines may well have been crucial in reinforcing this dominant paradigm, blunting the institutional impact of contrary events and dissenting opinions.

The paper starts by reviewing the financial causes of the crisis (Section 2), followed by an in-depth analysis of FOMC transcripts and other Fed documents in the pre-crisis period (Section 3). It then examines the four possible hypotheses explaining the Fed's limited attention to financial risks (Section 4). The conclusion summarizes and outlines an agenda for future research (Section 5).

2. Causes of The Financial Crisis: A Brief Overview

Although the causes of the crisis are multifaceted (Helleiner, 2011; Kotios and Galanos, 2012; Krugman and Wells, 2010), scholars generally agree that a boom and bust in housing markets, fuelled by leverage, securitization and structured finance, played a central role (e.g., Gorton, 2012; Johnson and Kwak, 2010; Roubini and Mihm, 2010).² The collapse of the housing market was, thus, the proximate cause of the crisis. Figure 1

displays the Case-Shiller price index, demonstrating the historically unprecedented rise and fall of US housing prices in the 2000s.

Figure 1 here

The boom in sub-prime lending and sub-prime securitization in the United States marked the pre-crisis period. Figure 2, using data from the Fed's own flow of funds accounts illustrates the boom in securitization, showing asset-backed securities (ABSs) outstanding as a share of GDP. Mortgage-backed securities (MBS) account for the preponderance of ABS, amounting to about a fifth of the GDP at the 2007 peak. This period also included a massive increase in MBSs issued by private institutions, which made greater use of subprime mortgages than the MBSs issued by the traditional Government Sponsored Enterprises (GSEs), which had predominantly consisted of prime mortgages (Figure 3; Johnson and Kwak 2010: 144-146). There is nothing inherently and necessarily risky about securitization, even of sub-prime mortgages – securitization can be an effective way of spreading and diversifying risks. Yet, the low quality of sub-prime mortgages and complexity of financial instruments contributed to the accumulation of systemic risk leading up to the 2008 crisis. The types of mortgages being securitized became increasingly risky, including mortgages with adjustable rates (ARMs), NINJA loans (no income no job no assets) and mortgages with 'teaser' rates (Mason and Rosner, 2007).

Figures 2, 3 here

Further, structured finance became exceedingly complex. MBSs consisting of pools of mortgages were split into tranches with differing levels of risk: senior (about 80% of the pool), mezzanine (15-20%) and equity (about 3%). The first 3 per cent of

losses were absorbed by the equity tranche, the next 15-20 percent by the mezzanine, with the senior tranche therefore only suffering losses if 20 percent or more of the portfolio of securities were in default. Thus, the senior tranche was viewed as very safe, and typically evaluated as AAA by the credit ratings agencies, since a default rate of 20 per cent was viewed as extremely unlikely.³ Equity or mezzanine tranches of MBSs were tranced into CDOs, which were in turn tranced again into CDO squared or even CDO cubed. Then, the senior tranches of CDOs would often receive high ratings, despite their origins in the equity tranches of the original MBS, under the faulty assumption that the low correlation of defaults would continue indefinitely (MacKenzie, 2011). Figure 4 shows that the global value of CDO issuance accelerated markedly in 2004, approximately doubling from 2003, and nearly doubling again in each of 2005 and 2006 before dropping off slightly in 2007 and then collapsing in 2008.

Figure 4 here

Significantly increasing systemic risk, credit default swaps (CDS) allowed holders of structured products to insure against default (Stulz, 2010). Figure 5 shows the explosion of the notional value of CDS outstanding in 2005-2007, reaching a peak of nearly \$60 trillion. For instance, as we now know, AIG's heavy issuance of CDSs raised systemic risk by lowering the perceived risks of holding structured products, but in fact increasing the vulnerability of AIG and the financial system as a whole. Moreover, these new derivative products were traded on over-the-counter (OTC) markets rather than organized exchanges, with limited transparency.

Figure 5 here

This bonanza of securitization happened in an environment of de-regulation in financial markets in the United States (and elsewhere) (Johnson and Kwak, 2010; Roubini and Mihm, 2010). In 1996, the Fed allowed banks to reduce capital requirements on assets against which they had purchased CDS insurance (Barth *et al.*, 2012). The assessment of risks of derivatives was entrusted to the credit rating agencies (Helleiner, 2011; Levine, 2008). Three years later the Gramm-Leach-Bliley Act removed the remaining separations between commercial and investment banking (Helleiner, 2011). The same year, the President's Working Group on Financial Markets (PWGFM), which included Fed Chairman Alan Greenspan, 'recommended that custom derivatives be exempted from federal regulation' (Johnson and Kwak, 2010). The Commodity Futures Modernization Act of 2000 formalized this recommendation. Overall, deregulation decreased the transparency of market transactions and created an environment permissive to the growth of reckless financial transactions (e.g., Barth *et al.*, 2012; Gorton, 2012; Johnson and Kwak, 2010; Roubini and Mihm, 2010).

3. The Fed's Awareness and Concern about Financial Risks Before the Crisis

Was the Fed concerned about the explosive growth in complex financial derivatives and the boom in housing prices? Toward answering this question, this section analyzes the Fed's policy and research documents in the run-up to the crisis using both qualitative and quantitative data.

FOMC Transcripts

The FOMC is the most important policymaking group at the Fed – it meets 8 times a year to discuss the state of the economy and set monetary policy.⁴ It consists of the seven Governors and twelve regional Fed Presidents, five of whom are voting members, with the New York Fed always having a vote along with four others voting on a rotating basis. FOMC transcripts and supporting documents (Greenbook, Bluebook, Beigebook and staff reports to the FOMC) are made available to the public with a five-year lag. These transcripts cover a one- or two-day period of extensive briefings and discussions, of about 200 pages. At the time of writing of this article, transcripts are available through 2007.

The number of times key words related to systemic risk are mentioned in FOMC meetings provides a simple but telling indicator of the intensity of attention the FOMC paid to the core issues mentioned in the previous section. We used Atlas.ti software to count mentions of a range of terms related to systemic risk in all FOMC meetings between 2003-2007. As a benchmark, Figure 6 shows the frequency of mentions of terms related to inflation and growth.⁵ There is substantial variation, depending on the length of the meeting and the range of topics considered, but inflation-related terms usually appear hundreds of times, as do growth-related terms, though, on average, not quite as frequently.

Figure 6 here

Figures 7 and 8 show that subprime mortgages and financial innovations such as CDO and CDS are rarely mentioned until 2007, when the frequency of these terms

jumps. Comparing the results of these figures to Figure 6 suggests that FOMC members rarely considered mortgage securitization and financial derivatives in their deliberations.

Figures 7 and 8 here

To gain a deeper understanding of FOMC thinking, we now turn to a discussion of particular FOMC meetings, specifically those before the crisis in 2005 and 2006 as well as the September 1998 meeting, when the Fed brokered the rescue of the hedge fund Long Term Capital Management (LTCM). The LTCM case featured some of the same issues as the 2008 crisis. The analysis seeks answers to the following core questions: To what extent did the FOMC members raise concerns related to the sub-prime mortgage market and the systemic weaknesses of the financial system prior to the crisis? If so, how were such concerns addressed? What were some of their conclusions regarding a potential housing bubble?

FOMC Discussions on the Housing Market and Finance

2005 Meeting on Housing

Prior to the crisis, the most intensive FOMC discussion of the housing market and housing finance occurred in June 2005 in the context of increasing concerns in the press about the perceived housing bubble and subprime lending. There was also some follow-up discussion in the September 2005 meeting. The June meeting began with five staff reports on various facets of the housing market, followed by extensive discussion among the FOMC members and the staff.

Although several staff briefings acknowledged the level of public worry about the housing market and its possible bubble-like nature, they disagreed about the presence of a housing bubble. While Richard Peach, Vice President of the New York Fed, suggested that rising prices ‘could be the result of solid fundamentals’ (Federal Reserve, 2005b: 11), Joshua Gallin, Senior Economist in the Research and Statistics Division, warned on the basis of historically high price-to-rent ratios that ‘housing prices might be overvalued by as much as 20 percent’ (7). Research and Statistics Senior Economist Andreas Lehnert, like Peach, argued that these risks were overstated, as ‘increasing home equity, mainly driven by rising house prices, has supported mortgage credit quality’ (8). He also provided data indicating that mortgage insurance companies have a ‘historically large cushion to absorb losses’ (10). Glenn Rudebusch, Senior Vice President of the San Francisco Fed, noted that ‘[A]n asset price can, in theory at least, be separated into a component determined by underlying economic fundamentals and a non-fundamental or bubble component...perhaps representing irrational euphoria or pessimism’ (14). He also contrasted two possible responses to a bubble: the ‘standard policy’ that disregards bubbles and a ‘bubble policy’. While overtly taking an agnostic position, Rudebusch noted that bubbles could lead to ‘broad financial crisis and credit crunch and ...significant misallocation of resources’ (16). John C. Williams, Senior Vice President of the San Francisco Fed, however, countered Rudebusch’s concerns, using simulations from the Fed’s macroeconomic model of the US economy, the ‘FRB/US’ model (discussed below).

The FOMC members also disagreed about the presence of a housing bubble. For instance, Richmond Fed President Lacker agreed with Peach that ‘there are a lot of

plausible stories one can tell about fundamentals that would explain or rationalize housing prices' (Federal Reserve, 2005b: 62). Chairman Greenspan explored at length whether the increases in land prices could explain the rise in house prices. William Poole, head of the St. Louis Fed, doubted the presence of a bubble altogether: 'just for the hell of it, I would like to offer the hypothesis that property values are too low rather than too high (57).' There were, however, also some relatively pessimistic voices. Atlanta President Jack Guynn called attention to the 'unsustainable' housing price increases in parts of Florida and added: 'my supervision and regulation staff thinks this is an accident waiting to happen.' (117). Governor Edward Gramlich, one of the few at the Fed to have previously called attention to subprime abuses, pointed to rising foreclosures among those with low incomes, saying that 'it is a big problem in certain neighborhoods' (72). Governor Susan Bies emphasized the radical shift towards the use of ARMs, which over the previous twelve months had gone from 16 to 50 per cent of new loans. Bies also called attention to the growing reliance on new derivatives, off-balance-sheet positions and shadow banking institutions:

What is new about it this time, though, is that a lot of these nonconforming products are being securitized by the private sector. So the real question is: Where does the market discipline kick in? And as supervisors, can we fault an institution for responding to a market need when it is offloading the loans and the risk into these types of mortgage structures [RMBS pools] that Andreas [Lehnert] has been describing? We clearly could if the financial institutions were buying the equity or mezzanine risk tranches and the risks were back on the institutions' books. But in many cases that clearly isn't what is happening. So, we have some different aspects this time around....we need to figure out where to go on some of these practices that are on the fringes. But we haven't done a sterling job...[S]ome of the risky practices

of the past are starting to be repeated, and it may be that the generation of lenders now didn't live through the problems before. (46)

Governor Mark Olson expressed similar concerns:

The risk exposures [in housing] seem most likely to be in the MBS market.... It's not clear at this point if the MBS market will be an efficient distributor and disseminator of risk or if those in that market will be the last to recognize the risk that's embedded in what they are doing and know how to price it. (154-155)

Boston President Cathy Minehan also wondered about 'the complications of some of the newer, more intricate, and untested credit default instruments' that might lead to system-level turmoil (123).

In the end, though, the upshot of the committee discussions was optimism about the state of the housing market. For example, Chicago President Michael Moskow complimented the presenters and added that he 'found the information comforting' (Federal Reserve, 2005b: 47). Boston President Minehan concurred; 'I found them [the presentations] very helpful and reassuring, along the lines that Michael Moskow was discussing' (49). San Francisco President Janet Yellen, in remarks praised by several others, suggested that financial innovations enhanced the attractiveness of housing as an asset (35). Governors Guynn and Gramlich also seemed to suggest that the troubles in the housing market were localized. At the end of the second day of discussions even Governor Bies seemed optimistic; 'I'm not overly concerned. Especially with the record profits and capital in banks. I think there's a huge cushion.' (151).

FOMC Meetings in 2006

The FOMC extensively discussed the housing market again in December 2006 under the Chairmanship of Ben Bernanke, but the bottom line of the discussions remained optimistic. Here, as before, some FOMC members thought that the signs from the housing market were ominous, while others were more sanguine. Governor Bies continued to voice her concerns about mortgage financing risks:

One thing I am hearing from some folks who have been investing in mortgage-backed securities and may in some CDOs..., where they have been tranced into riskier positions through economic leverage, is the realization that a lot of the private mortgages that have been securitized during the past few years really do have much more risk than investors have been focusing on....So I think we could see noise in some of the mortgage-backed private deals and some of the riskier CDO economic leverage positions... (Federal Reserve, 2006b: 63-64; see similar comments in Federal Reserve, 2006a).

Governor Pianalto also had ‘become more worried about the potential spillover of housing conditions into consumer spending from wealth effects, income constraints, and creditworthiness’ (40). These concerns were counteracted however by President Lacker and others. A number of members argued that the US had developed into a ‘bi-modal economy’ in which the housing and the auto sectors could be sluggish while the rest of the economy did well. With these two economic nodes being relatively self-contained, the ‘spillover’ from any developments in housing was thought to be minimal. And, in summing up, Bernanke asserted that ‘[m]ost people see a two-track or bi-modal economy...’ (80). In agreement with the notion of a bi-modal economy, Bernanke noted that even if there was trouble on the housing side of the market, that part of the economy

was ‘about 15 percent of the economy as compared with 85 percent of the economy’ (81). Even those members of the FOMC who raised concerns about financial innovations did not seem to contemplate grave systemic risks of a potential bust in housing prices on the financial system; in fact the reverse was more often the case, i.e., derivatives were viewed as enhancing the stability of the housing market.

The September 1998 LTCM episode

Although the US had not experienced a full blown financial crisis since the 1930s, several episodes in the 20 years prior to the 2008 crisis served as potential warnings about the possible dangers of financial innovation (Morris, 2008). These episodes include the savings and loan debacle of the 1980s, the role of portfolio insurance computer programs in magnifying if not triggering the October 1987 stock market crash, and, most recently, the near meltdown of the hedge fund Long-Term Capital Management/Portfolio (LTCM or LTCP). As previously mentioned, we consider the LTCM case to be particularly important for the Fed’s thinking on systemic stability in the pre-crisis period because it centered on many of the same issues as the 2008 crisis, including overreliance on extrapolative models, high leverage, and over the counter (OTC) trading.

Created by Nobel Prize winning finance theorists and a former Fed governor in 1994, LTCM took huge, highly leveraged positions in derivatives and other assets that exploited relatively small pricing deviations extrapolated from recent historical patterns (Meyer, 2004). Initially, LTCM made spectacular profits. In 1998, however, it experienced large losses as a result of the Russian debt crisis, as asset prices deviated too much and too long from arbitrage conditions predicted by LTCM models given the

capital at its disposal (Mackenzie, 2005), leading to worries that LTCM's failure could bring down its creditors in a cascade of major defaults. Thus, the Fed took the unusual step of brokering a bailout arrangement with multiple banks, allowing time for LTCM's positions to unwind in a relatively orderly way.

The FOMC discussed the LTCM situation at length at the September 29, 1998 meeting. New York President William McDonough, who led the Fed's involvement in the bail-out negotiations of LTCM, explained that:

[G]iven the presence of over fifteen institutions in various nations in 'very large' counterparty positions to LTCP, 'we shared the view that the collapse of [LTCP] would create chaotic financial markets around the world and that nobody could make a good estimate of what the likely damage would be (Federal Reserve, 1998: 102).

This failure to properly assess counter-party risk resembles the pre-2008 crisis period.

Staff member Fisher, who was the Manager of System Open Market Account, reported:

Essentially, \$125 billion of [LTCM's] assets are out under repo. There are no assets in the firm..... Swap agreements are their instrument of choice, and that is how they got to a \$1.45 trillion off-balance-sheet position..... The off-balance-sheet leverage was 100 to 1 or 200 to 1 - I don't know how to calculate it. (108)

Fisher noted that 'all this relates to the question of how this financing got to be so big and nobody realized it was happening' (Federal Reserve, 1998: 120), while Greenspan suggested that 'it is one thing for one bank to have failed to appreciate what was happening to LTCM, but this list of institutions is just mind boggling' (108). Vice Chair Alice Rivlin asked, 'how many more LTCMs are there?' (109), to which McDonough answered 'there have to be little versions of LTCM/P' (110). Governor Lawrence Meyer expressed dismay and the need to learn from the LTCM crisis:

I think this is an important episode for us to study...We are trying to decide what is systemic risk and what is not....There is another issue I would be remiss not to mention, namely of how these lending and investment decisions get made....I was getting telephone calls from reporters who knew more about LTCM than I did. I don't think that's the way it should have been. (110)

Yet, the Fed largely forgot this episode. After the September meeting and a single subsequent conference call, LTCM was mentioned in meetings only twice in passing between 1999-2006 – once in February 2002, and once in October 2006. Similarly, a search of all Fed-in-print documents shows that between 1998 and 2008, the LTCM case was mentioned in a total of 12 documents out of 14,253.

Awareness of Financial Innovation in Other Fed Policy Documents and Research

In addition to the FOMC transcripts, we reviewed other publicly available Fed documents through the Fed's website Fedinprint.org. FedinPrint.org documents number about 1200 per year in the early 2000s, rising to about 1500 per year in 2005-2007.

Our analysis reveals that there was overall very little focus on the risks associated with financial innovation prior to the crisis. Figure 9 shows the number of Fed documents identified when certain housing finance keywords are selected. In 2002-2004, there are about 2-4 articles, testimonies, and speeches per year that touch on securitization, MBSs and subprime mortgages, with the numbers rising to about 5-7 in 2005-2006. In 2007, documents on subprime lending jump sharply to over 40 but articles on securitization remain tiny in number. As an alternative measure of attention, Figure 10 presents counts of 'systemic risk' and 'too big to fail' in all Fed documents. These two

are again generally quite low until 2007, although there is a sizeable increase in the number of documents on systemic risk in 2006 and 2007, related largely to 2006 conferences on this topic at the Federal Reserve Banks of Atlanta and New York. Finally, Figure 11 shows that there was a near total absence of documents on the new instruments, CDSs and CDOs/CMOs before the crisis and few even after.

Figures 9, 10, 11 here

Nevertheless, a limited number of these speeches, documents, and articles did recognize some of the problems brewing in the financial system. For instance, a 2005 speech by chairman Alan Greenspan on new financial instruments acknowledged potential problems in highly leveraged institutions where ‘the failure of a leading dealer could result in counterparty credit losses for market participants’ (Greenspan, 2005: 2). Governor Susan Bies in particular called attention to the rising risks in banking. In a speech in 2005, she discussed how ‘virtually all banking markets have become considerably more concentrated, with some companies - by their size alone - posing the potential for systemic risk,’ such that all banks should plan for ‘losses beyond the range of expectations’ (Bies, 2005). A few researchers were also producing relevant analysis. For instance, as early as 2004, Michael Gibson, an economist in the Trading Risk Analysis section of the Division of Research and Statistics, pointed out that CDOs were vulnerable to correlation and business cycle risks (Gibson, 2004). A Chicago Fed working paper by Robert Bliss and George Kaufman (2005) similarly identified the impact of derivatives on systemic risk that materialized three years later.

Summary

Although the decision-makers and economists at the Fed had knowledge of the complexity of ongoing developments in financial innovation and their potential dangers, both FOMC discussions and staff research on these topics seem to have been surprisingly infrequent. When the right type of discussions *did* surface in the FOMC, this information appears to have slid off the FOMC's and the research departments' agendas. The concerns within both the research and policy departments about ongoing developments in the housing and financial derivatives markets never reached a critical mass. Admittedly, the FOMC's primary responsibility is to set monetary policy, and in particular, the Federal Funds rate, so it is natural for the FOMC to focus on inflation and growth. However, given the Fed's responsibility for financial stability, and the impact of financial stability on the real economy, it is reasonable to expect that monetary policy decision-making would take the financial sector into greater consideration. Moreover, although not widely used, the Fed has some discretion over prudential regulation, a tool considered at some length but largely dismissed as undesirable or unnecessary at the special meeting on housing in June 2005.

4: Explaining the Fed's Behavior and Thinking

As previously noted, we consider four hypotheses: i) regulatory capture; ii) the dominance of free-market ideology; iii) the use of unrealistic academic models to the detriment of following actual financial developments; and iv) institutional inertia and 'organizational routines'.

Hypothesis 1: Regulatory Capture of the Fed explains the Fed's pre-crisis behavior.

Capture of a regulatory institution by the interests it is supposed to regulate is a well-known danger. In order to do an effective job, agency personnel must be sufficiently knowledgeable about, and connected to, the sectors they regulate. Too close a connection, however, may lead them to side with their would-be targets rather than pursue the public good (Dal Bo, 2006).

Congressional inquirers have identified a potential for precisely this kind of conflict of interest at the Fed, both before and after the crisis (GAO, 2011; House Committee on Banking, Currency, and Housing, 1976). Some observers suggest that this potential was realized, and that the Fed's actions were biased in favor of inaction by its employees' pecuniary self-interest. Johnson and Kwak (2010: 94), for example, view the ultimate cause of the crisis as the excessive power of the financial services industry, and point to the 'revolving door' of high-paid employment between regulatory agencies and large financial institutions, including the New York Federal Reserve Bank (see also Auerbach, 2008; Ferguson, 2012).

The documents analyzed for this project provide no evidence of 'surface capture' (Baxter, 2011)—direct bribery or corruption associated with 'revolving doors' between the Fed and financial institutions. This is hardly surprising given the public nature of the documents. It is in fact extremely difficult to prove the existence of such outright surface capture of any agency absent some kind of obvious 'smoking gun' detailing illicit bargaining (Baxter, 2011). Barth *et al.* (2012) find the surface capture of financial regulators to be an unconvincing hypothesis in general, stating that, 'our personal and

professional experiences from working with regulators and within regulatory institutions suggest that regulators are highly skilled individuals who have devoted themselves to public service. So this explanation does not feel right to us.’ (7). Their observation rings particularly true for the Fed, and there are no convincing claims to our knowledge that Fed officials, from Greenspan on down, have personally sought to profit from their positions.

At the same time, however, Barth *et al.* (2012: 7-9) accept that regulators tend to develop psychological biases favoring the financial industry, much in the same way as sports referees have been shown to favor the home team. Even more subtly, common theories, practices, and standards of evidence could represent an additional unconscious ‘cognitive’ or ‘cultural’ bias that blurs the separation of the regulator from the regulated (Buiter, 2012; Kwak, 2013). These effects – what Baxter (2011) calls forms of ‘structural capture’ – are still very hard to prove however, especially since cognitive and cultural overlap do not necessarily imply avoidable bias, just as decisions in favor of an industry do not prove corruption. Overall then, while structural forms of capture seem more likely than surface capture in the case of the Fed, they still seem hard to prove without exploring the precise mechanisms by which they might occur (see Carpenter and Moss, 2013; Pagliari, 2012). Hypotheses (ii)-(iv) do just this.

Hypothesis 2: Free-market ideology explains the Fed’s thinking in the pre-crisis period.

We find this hypothesis relevant, but we argue that instead of the simple notion of ‘free-market ideology’, the Fed adhered to a dominant paradigm that prioritized control

of inflation (Kirshner, 1999) and relied on market discipline and *ex-post* monetary easing rather than *ex ante* regulations to maintain financial stability.

Greenspan's statement 'I do have an ideology. My judgment is that free, competitive markets are by far the unrivaled way to organize economies. We tried regulation, none meaningfully worked' has been quoted many times (Committee Hearings 2008: 38; see also Greenspan, 2007). Previous work has also pointed to Greenspan's dominating leadership (Meyer, 2004; Blinder, 2005), prompting questions about whether Greenspan's ideology pervaded the Fed's thinking in the lead-up to the crisis.

There are, however, a number of factors that militate against drawing a simple causal link between Greenspan's ideology and the Fed's thinking in the pre-crisis period. To begin with, a number of former FOMC members and Fed staff praise Greenspan's 'open[ness] to a whole range of incoming economic information in all its detail and puzzling variability' (Axilrod, 2011:104) and 'his flexibility and his unwillingness to get stuck in doctrinal straitjackets' (Blinder, 2005). The same can be said about the FOMC broadly. Previous accounts of the FOMC of the Greenspan era emphasize that the primary concern of the members was to grapple with the data, instead of imposing a particular ideological perspective (Chappell et al., 2005; Meyer, 2004). Additionally, as Section 3 underscored, FOMC members expressed a range of views even if this diversity did not necessarily translate into policy outcomes.

Moreover, Greenspan was not completely complacent about the ability of market participants to manage risk. As noted earlier, in May 2005 he recognized the growth of OTC derivatives markets and warned that their use could result in overall financial

instability if they were not properly managed. He expressed concern regarding the possibility that the stress tests done by market participants may be under-estimating counterparty credit risk (Greenspan, 2005: 2, 4). In noting that the rapid growth of derivatives products (including credit default swaps) may curb the ability of the market to assess risk accurately, Greenspan also accepted that financial actors sometimes fail at risk assessment.

Nonetheless, Greenspan believed that market participants' self-interest is the best safeguard of the health of the system (see also Cassidy, 2010). For instance, in his famous 2008 testimony to the House of Representatives (Committee Hearings 2008: 33-34) he observed that: '...the loan officers of those institutions knew far more about the risks involved and the people to whom they lent money, than I ever saw even our best regulator at the Fed capable of doing'. At the same time however he accepted that in retrospect he 'made a mistake in presuming that the self-interest of organizations, specifically banks and others, were such that they were best capable of protecting their own shareholders and their equity in the firms.'. It is reasonable to suggest that this kind of logic was behind Greenspan's involvement in keeping OTC markets unregulated (see Section 2).

A second component of Greenspan's views, shared with Bernanke, was trust in the Fed's ability to limit the fallout from crises. For example, Greenspan (2004: 34-35) praised the Fed's actions after the stock market bubble burst in 2001:

There appears to be enough evidence, at least tentatively, to conclude that our strategy of addressing the bubble's consequences rather than the bubble itself has been successful'

... 'It is far from obvious that bubbles, even if identified early, can be preempted at lower cost than a substantial economic contraction and possible financial destabilization....

This view mirrored Bernanke's, who in academic papers co-authored with Mark Gertler, cautioned against central bank intervention to address misaligned asset prices in favor of inflation-targeting (Bernanke and Gertler, 1999; 2001).⁶ Greenspan (2010, 19) reiterated his belief in mitigating rather than preventing financial instability after the 2008 crisis:

...the Board has always had a responsibility to address systemic risk. But recognizing that neither regulators nor economists can predict the timing of future crises...it is important to have authorities...to mitigate their impact.

This largely ex-post-oriented stance contrasts strongly with the Fed's approach to inflation during the Greenspan-Bernanke era. As articulated by Greenspan (2004: 35):

Our goal of price stability was achieved by most analysts' definition by mid-2003. Unstinting and largely preemptive efforts over two decades had finally paid off. Throughout the period, a key objective has been to ensure that our response to incipient changes in inflation was forceful enough.

In short, the two most recent Fed Chairmen were convinced that stability would likely be protected by focusing on stable inflation and that ex post interventions would further mitigate any fallout from financial panics. This common set of beliefs explains why even though Bernanke is noted for his open-mindedness to different perspectives and is credited with a more inclusive leadership style than Greenspan (Cassidy, 2008), the meetings chaired by Bernanke do not exhibit greater discussion on mortgage finance *until* the actual onset of the crisis in 2007 (see figures 7-11). For instance, Bernanke and Greenspan both ignored Governor Susan Bies's warnings (Section 3).

These discussions suggest that refinements to the notion of ideology are necessary in examining the Fed. It was not that the FOMC was overwhelmed by a knee-jerk reactive belief in the efficacy of free markets, nor did the FOMC fail to consider fundamental problems with markets – their lengthy debate on whether or not there was a housing bubble belies a simple notion of free market ideology. Nonetheless, there seems to have been a dominant paradigm at work that put faith in inflation-targeting, market discipline and *ex post* interventions to mitigate the fallout from financial panics. As the constructivist literature in international relations has long argued, material circumstances remain open to interpretation, and ideas are critical to the nature of that interpretation (e.g., see Blyth, 2002). In this case, the dominant paradigm at the Fed appears to have helped immunize the institution from the warning signs it received of impending financial danger in the pre-crisis period.

Hypothesis 3: Adherence to academic models explains the Fed's thinking in the pre-crisis period.

A number of scholars have argued that in the years leading up to the crisis, regulators were blinded to problems in financial markets not just due to ideology, but also due to the academic discipline of economics being overly focused on abstract, mathematical models, to the detriment of real-world issues in financial markets. For instance, Stiglitz (2011: 30) decries the ‘blindness’ of ‘economic theory’. Rodrik notes that ‘[e]conomists (and those who listen to them) had become overconfident in their preferred narrative of the moment... They forgot that there were many other storylines that led in radically different directions’ (Rodrik, 2011: *xii*). Rajan (2011) claims ‘many

[economists] simply were not paying attention!’ These comments build on longstanding assaults from within the economics profession itself about the lack of realism in formal models (e.g. Leontief, 1971; Hutchison, 1992; Mayer, 1993; McCloskey, 1996).

We find some support for the hypothesis that academic abstraction affected the nature of Fed research, which in turn, reinforced the tendency of FOMC discussions to under-emphasize systemic risk, but the FOMC discussions themselves did not closely follow academic literature or models.

As noted earlier, the Fed employs hundreds of economics PhDs in its research departments. These researchers are recruited from top PhD programs and in some cases even ranked and paid according to a point system based on articles placed in prestigious economics and finance journals. As Axilrod (2011) suggests, these researchers have little incentive to be as ‘sensitive to the issues and as immersed in the current flow of economic data and information’ as their more operations-oriented colleagues (184). For instance, the ‘dynamic stochastic general equilibrium’ (DSGE) models prevalent in scholarly research, with some important exceptions, have minimal financial sectors.⁷ The DSGE models are built upon assumptions about rational household and firm behavior in responding to exogenous shocks (see Edge and Gurkaynak, 2011). Practitioners of these models themselves have recognized their low relevance for understanding the financial crisis (Kocherlakota, 2010). The imbedded assumptions about rationality in most DSGE models and their complex mathematical structure discourage researchers from studying detailed functioning of actual financial markets (see Figures 9-11 above).

The question remains, however, whether the Fed’s high-level decision-makers, specifically the FOMC members, were following academic models prevalent in the

economics and finance literatures. Here, it is useful to differentiate between the staff that provide the critical background information to FOMC meetings and the FOMC members' discussions.

The staff's summaries of national economic developments and prospects - the 'Current Economic and Financial Conditions,' or 'Greenbook' (in reference to its cover) - seem to have relied little on financial data.⁸ The primary macroeconomic model behind the Greenbook forecasts changed in the mid 1990s, with the FRB/US model ('Federal Reserve Board / United States') replacing the longstanding Keynesian MPS model ('MIT, the University of Pennsylvania, and the Social Science Research Council'). The new model responded to academic developments by incorporating forward-looking expectations of actors, as well as vector autoregression techniques for identifying empirical trends (Brayton and Tinsley, 1996).⁹ It also assumed that consumer wealth effects were the primary channel through which housing prices affected the economy, ignoring the more complex issues of systemic risk that formed the heart of the crisis. Research director David Stockton admitted at the September 2007 FOMC meeting, as the crisis was worsening, that 'much of what has occurred [in the financial markets] doesn't even directly feed into our models' (Federal Reserve, 2007: 20).¹⁰ Insofar as FOMC members accepted Greenbook forecasts - a factor to be discussed in more detail below - their decisions were at least indirectly affected by academic trends and techniques.

The FOMC discussions themselves exhibit very little direct reliance on academic models, however. Even though, by our calculations, by the second half of the 2000s almost two-thirds of the top Fed officials had PhDs in economics, explicit references to academic papers, professors, and even theories seem quite rare within the FOMC. Mayer

(1999) suggests that the level of academic-sounding language and arguments found in the meetings increased from the 1960s onwards, which overlaps with the increases in the number of professionally-trained economists within the Fed. Furthermore, while terms such as the Keynesian ‘Phillips Curve’ and the monetarist ‘NAIRU’ (non-accelerating-inflation rate of unemployment) came to be used more than before, this does not imply any slavish adherence to specific target measures or theoretical guides. Instead, FOMC members have disagreed about them and have argued over their applicability and usefulness in response to unfolding events and new data, using them as heuristics for debate rather than assumed principles (Meyer, 2004; Meade and Thornton, 2011; Tillman, 2009). Similarly, it does not seem that academic models strictly framed the Fed’s monetary policy decisions. Specifically, the transparency-friendly ‘Taylor Rule’ that mechanically connected interest rate decisions to economic indicators certainly entered into FOMC discussions in the 1990s, but by all accounts it was honored as much in the breach as in the observance (Cecchetti, 2003; Hayford and Malliaris, 2001; Killian and Manganelli, 2008). Moreover, the Efficient Markets Hypothesis (EMH), which has been cited as one of the primary ideational factors behind the 2008 crisis (Lo, 2012), is never mentioned in the FOMC transcripts between 1996 and 2007.

But if the FOMC was not blindly following abstract academic theories, what *was* it doing? Past accounts based on insider experience suggest they were following a highly pragmatic and flexible decision-making process that emphasized informed judgment rather than rules (Abolafia, 2004; Anderson and Kliesen, 2012; Edison and Marquez, 1998; Meyer, 2004). This ‘Greenspan Standard’ (Blinder and Reis, 2005), or commitment to ‘constrained discretion’ (Bernanke, 2003; Friedman, 2006) seems to have

involved exactly the kind of distrust of formal models and automatic interpretation of data that critics of economics advocate (Greenspan, 2004).

Overall, then, although the FOMC discussions themselves are highly pragmatic, Hypothesis 3 is partially supported indirectly insofar as the academic agendas of the Fed staff may have contributed to the low volume of Fed research on mortgage finance and derivatives, which in turn likely contributed to the lack of attention among policymakers. The Fed researchers' focus on professionalism, namely their adherence to the dominant models and methods of the economics profession disconnected the Fed's research from real-world financial developments. This finding regarding Fed research's insularity is consistent with Barnett and Finnemore's (1999, 723) diagnosis of organizational pathologies, discussed further below: 'concentrations of people with the same expertise or professional training can create an organizational worldview distinct from the larger environment'.

Hypothesis 4: Shortcomings in the functioning of the FOMC inhibited concerns about systemic financial instability from reaching a critical mass.

Organizations theory and the social studies of science suggest that institutional dynamics might help explain the Fed's pre-crisis inertia. These approaches focus on how the very arrangements that enabled the Fed to operate efficiently could also have possessed a 'dark side' with the potential to produce suboptimal or pathological outcomes (Barnett and Finnemore, 1999; Vaughan, 1999). In other words, problems could have arisen not from ideology or the deliberate abuse of agency, but rather from the unanticipated ways in which routines for gathering, processing, and interpreting

information potentially reduced the flexibility and effectiveness of decision-making. The documentary evidence suggests four possible sources of such difficulties: the scripted structure of FOMC meetings; the routine focus of deliberations on interest-rate policy; the habitual treatment of certain sources of information as more or less credible; and the isolation of the Fed's supervision and regulation division.

FOMC Meeting Structure. In terms of the structure of FOMC meetings, at least two features contributed to an environment in which dissent – in this case, concern about systemic risk due to securitization of sub-prime mortgages – was unlikely to ‘stick.’ First, the substantive discussions of economic and financial conditions at FOMC meetings are based on a ‘go-around,’ where members sequentially present their perspectives on the economy, including reports on local conditions from regional Fed Bank Presidents. As former Governor Meyer puts it, the ‘FOMC meetings are more about structured presentations than discussions and exchanges...Each member spoke for about five minutes, then gave way to the next speaker’ (Meyer, 2004: 39).¹¹ Such a system is hardly conducive to the kind of back-and forth building of narratives and arguments necessary for considering alternative views in detail (Meade, 2006; Gibson, 2012). This routine segmenting of arguments also creates breaks in the proceedings that can further reduce the momentum of exploratory discussions. For example, Governor Bies’ pertinent questions in the September 2005 meeting about the new OTC markets for mortgage-based securities seemed to go unanswered not least because they were immediately followed by Chairman Greenspan taking advantage of the end of her turn to ask ‘shall we break for coffee?’ (Federal Reserve 2005c: 46).

A second way in which FOMC meetings stifle dissent and the exploration of alternative scenarios is their overwhelming emphasis on finding agreement. Although decisions are made by majority vote, the meetings tend very much toward consensus building (Chappell *et al.*, 2005).¹² Meyer (2004) explains how FOMC members attempt to find a common ground to facilitate ‘collective responsibility’ for the decisions and speak in a unified voice (53). For example, consider Governor Kohn’s statement at the December 2006 FOMC meeting:

[some members of the FOMC] are concerned that our individual public statements could impede our ability to reach internal consensus and to control whatever that consensus turns out to be is communicated to the public. I think that finding consensus on some of these issues is going to take considerable flexibility and give and take among Committee members.

Although these features of FOMC meetings are useful, and probably inevitable, constraints on meeting procedures, they can inhibit consideration of new and critical perspectives (Vaughn, 1999; Barnett and Finnemore, 1999).

Narrow Focus of Meetings. In addition to the structure of the meetings, their narrow focus may also have been problematic. However wide-ranging FOMC discussions have become, they ultimately focus on a very narrow institutional task: setting the federal funds interest rate, and deciding how to publicly signal the FOMC’s predictions about its future direction. Even the latter can involve extensive debate over which precise phrases to select from the Blue or Teal book options, with the level of detail frequently reaching that of the following example taken from Chairman Bernanke’s argument in the December 2006 meeting:

On section 2, the two suggestions that I think have commanded some significant support

are, first, President Minehan's suggestion of using the second section under alternative C and, second, the alternative in the Christmas-tree colors using 'although recent indicators have been mixed' in the present perfect tense—'although recent indicators have been mixed, the economy seems likely to expand at a moderate pace on balance over coming quarters.' I think those are the two that people have preferred. I don't think it makes a great deal of difference, frankly, but I lean personally a bit toward including the reference to indicators only on the grounds of trying to signal to the market again that we are watching the data, that we are aware of developments in the economy, and that we're not just taking the statement out and putting a new date on it. So that would be my recommendation—that we use the phrase 'although recent indicators have been mixed, the economy seems likely to expand,' and so on.

The time committed to making such narrowly-defined decisions can easily be thought of as crowding out other discussions, and even pushing the Fed towards a 'flattening of diversity,' wherein familiar policies (in this case setting the Federal Funds rate) are increasingly viewed as uniform hammers, and diverse problems look more and more like similar nails (Barnett and Finnemore, 1999: 720).

Nature of Information Considered. Another institutional problem concerns the Fed's uneven treatment of different sources of knowledge. Transcripts reveal that FOMC members routinely accept some kinds of information and data as reliable and easy to interpret, but discount or ignore others. Put differently, they clearly operate according to a particular 'economy of credibility' where data and interpretations coming along certain 'vectors' are habitually taken for granted, if not treated as completely unquestioned 'black boxes' (Latour, 1987; Shapin, 1995). While this behavior facilitates routine bureaucratic functioning, it also raises the possibility that decision-makers' organizational

routines lead to a false sense of security, blinding them to the dangers of unusual risks (Vaughan, 1999: 277).

The most obvious example of particular kinds of knowledge being routinely accepted is the central role of the Greenbook. Ex-Governor Laurence Meyer jokingly refers to the Greenbook as ‘the thirteenth member of the FOMC’ (2004: 34). Figure 12 classifies all references to the Greenbook in the 2005-2007 FOMC transcripts. Over 60 percent of these references are supportive, including ‘active agreement’ where FOMC members explicitly affirm the findings of the Greenbook, ‘passive agreement’ where Greenbook forecasts are mentioned without questioning them, and ‘broad agreement’ where FOMC members agreed with the overall conclusions but disagreed with some details. The widespread and consistent agreement with the Greenbooks suggests that there was not intensive questioning of the staffs’ forecasts. Moreover, the *specific topics and measures* covered in the briefing book section of the Greenbook inevitably direct discussions. In the pre-crisis period the Greenbook tended to focus on the real economy rather than the financial sector. While as much as a third of the detailed Part 2 Greenbooks in 2005-2007 covered financial data, the summary and forecast in Part 1 typically largely ignored finance. Part 1 of the January 2006 Greenbook, for example, devoted only 3 out of 51 pages to financial issues. Also, the Greenbook projections were based on simulations of the FRB/US model, which as noted above, did not capture the financial risks at the heart of the crisis. The general adherence to Greenbook data and forecasts, thus, ultimately contributed to the narrowing of the scope of FOMC discussions and the possible consideration of alternative perspectives. The Greenbook-conforming nature of the discussions also suggests that there was a subtle way in which economic

models, with rudimentary financial sectors, influenced the FOMC's otherwise more pragmatic thinking.

Figure 12 here

Another source of data that the Fed routinely treated as relatively credible is the anecdotes from personal communications during the FOMC meeting 'go-arounds'. A striking feature of these anecdotes is the frequency of contacts from 'Main Street' rather than 'Wall Street,' i.e. manufacturing, construction, and retail rather than banking and finance. For example, the June 2005, September 2005, May 2006, and December 2006 Beigebooks, which record anecdotes about economic and financial conditions from Regional Federal Bank presidents, mention Main Street contacts about seven times more than contacts from the financial sector, and about four times more than contacts from the real estate sector (including commercial real estate).¹³ The relative paucity of financial anecdotes is surprising given the Fed's responsibility for bank regulation, but reflects the FOMC's focus on inflation and growth and the lack of emphasis on financial stability.

Isolation of the Supervisory and Regulatory Branch. Finally, the Fed's main organ for identifying the risks faced by particular financial institution, as well as for measuring that institution's ability to assess and manage these risks, is the Division of Banking Supervision and Regulation (S&R). Senior S&R staff members were present at the LTCM meeting, the 2005 discussion of the housing market, and the last two meetings of 2007, when the crisis was starting to loom. But these were the *only* FOMC meetings in which S&R members participated between 1996 and 2007, and the S&R division was *mentioned* just eight times in the same period. At least at the highest deliberative level then, routine procedures may have isolated an important part of the organization from

transmitting information, interpretations, and priorities to decision-makers - a problem that has been identified before as suboptimal ‘structural secrecy’ (Vaughan, 1999).¹⁴ More research is necessary to determine why the S&R was so isolated from the FOMC, but S&R’s marginalization is again consistent with the Fed’s routines and ‘vectors of knowledge’ embodying the view that the self interest of financial managers and the ability to control of inflation obviate the need for bank regulation.

5. Conclusion

This paper documented the Fed’s limited attention to the systemic dangers associated with the housing boom and the role of structured finance therein. Both FOMC discussions and staff research rarely considered the issues now known to be at the heart of the crisis, i.e. the housing market, the complex superstructure of derivatives built on that market, and the institutions and practices of the new OTC financial world. Although the Fed did not have supervisory authority over much of this ‘shadow’ banking system, the banks that the Fed did oversee were deeply involved in it, and the Fed’s mandate to protect overall financial stability was clear. We are not claiming that the Fed could have predicted or prevented the crisis, but given its mandate and intellectual resources, it should have been engaged in greater study of the systemic risks associated with housing finance. As Buiter (2012: 6) puts it: ‘Regulators and supervisors must monitor risky behavior, risky products, practices and instruments, no matter where they occur.’

We explored four explanations for the Fed’s lack of concern: (i) regulatory capture/corrupt behavior by Fed officials; (ii) the dominance of Alan Greenspan’s free-market ideology; (iii) the role of abstract academic economic models; and (iv)

institutional inertia and ‘organizational routines’ within the Fed. We found no evidence of outright corruption at the Fed; instead ‘cognitive capture’ is much more plausible, and is consistent with the other three hypotheses for which there is some support, although in more subtle and interrelated ways than often portrayed.

Regarding hypothesis (ii), it is unconvincing to draw a straight causal line between Greenspan’s apparent free market beliefs and the Fed’s thinking. Unlike extreme advocates of market efficiency, both Greenspan and the majority of FOMC members accepted the possibility of a housing bubble. Furthermore, Greenspan and others apparently understood and acknowledged that complex systems of MBSs, CDOs and CDSs could increase systemic risk. FOMC members also aimed to understand ongoing economic and financial developments, as opposed to advocating a specific ideological approach.

Blaming unrealistic economic models (hypothesis iii) is also too simplistic. It is true that Fed research was increasingly academic and that the main Fed macro model did not feature the financial mechanisms that were at the heart of the crisis. But the FOMC discussions are highly pragmatic and make few mentions of academic theories.

Finally, regarding hypothesis (iv), the kinds of organizational routines identified by sociology and political science, may well have played a significant role in directing the Fed’s attention away from the crucial issues. The structure of debates within the FOMC does not easily allow dissent to build momentum, and this may have contributed to occasional concerns about systemic instability failing to have an institutional impact. Furthermore, the narrow focus of the meetings on familiar problems and solutions may have crowded out consideration of more unusual issues and interpretations, and habits of

routinely relying on particular sources of information while ignoring others may have reinforced this narrowing. At a more structural level, the simple absence of representatives from certain parts of the system (especially the supervision and regulation division) during most meetings may also have de-emphasized thinking about possible systemic problems.

Overall then, ideology, reliance on academic styles of research, and institutional routines and habits, all seem to have encouraged a prevailing way of thinking at the Fed that made it hard for concern about the new financial dangers to ‘stick.’ This dominant paradigm can be condensed into three key assumptions; 1) Fed interventions should focus on inflation-targeting, 2) market discipline is more effective and less costly than regulation in preventing excessive risk-taking, and 3) if a bubble did develop, the damage could be controlled after it had burst, as with the 2001 dotcom bubble. Taken together, these three assumptions explain why the Fed as an institution focused almost exclusively on how a housing bubble could affect consumer spending and employment, rather than on how it might trigger a meltdown of the entire financial system via leverage and derivatives.

These points are also relevant going forward. To begin with, the 2008 financial crisis has thrown into doubt the reliance on inflation-targeting and market discipline as protectors of financial stability. As Rajan (2005) presciently warned in the Fed’s 2005 Jackson Hole conference, executive compensation systems and financial innovations create perverse incentives encouraging herd behavior and a focus on short-term profits at the risk of catastrophe. Citibank CEO Chuck Prince made the same point colorfully in July 2007 with his candid admission that, ‘when the music stops, in terms of liquidity,

things will be complicated. But as long as the music is playing, you've got to get up and dance. We're still dancing.' (cited in Nakamoto and Wighton, 2007)

The downsides of reliance on the Fed to bail out the system after a crisis are also becoming clear. Under Bernanke's leadership, the Fed's unprecedented efforts to contain the crisis may have prevented a second Great Depression, but the crisis has been so monumental that massive financial sector rescues and three rounds of quantitative easing have not stimulated the economy enough to return to full employment. Many believe that the US economy has descended into a Keynesian liquidity trap, where traditional monetary policy has limited effectiveness in spurring recovery. In addition, the unprecedented interventions by the Fed in the mortgage, commercial paper and other markets far outside its normal operations, have blurred the distinction between monetary and fiscal policies, calling into question the central bank's independence (Roubini and Mihm, 2010). Crucially, the Fed's exit strategy from the huge increase in its balance sheet is far from clear.

The US Dodd-Frank Act has strengthened the Fed's monitoring of banks and their subsidiaries, as well as giving it oversight over savings and loan holding companies and non-bank institutions that are categorized as systemically important financial institutions (Shull, 2012). The Fed claims, '[g]iven the risks to financial stability exposed by the financial crisis, [the Fed] has reoriented supervisory focus to look more broadly at systemic risks and has strengthened its micro-prudential supervision of large, complex banking firms' (Tarullo, 2013). Our analysis suggests that without reorienting the organization's operation – including prioritizing research on real-world financial issues, how research is provided to the FOMC, and the organization of FOMC meetings – and

without strengthening the connection among research, regulation and policy-making units, these reforms may fail.

Further research could usefully explore several aspects of pre-crisis thinking of the Fed identified in this paper. First-hand accounts of the actual routine practices and uses of information in different parts of the system would shed more light on just how academically-oriented researchers were, why that was, the views of senior officials, and the Fed's bureaucratic structure. Perhaps more importantly, finer detail concerning the generation and interpretation of information would also enable the exploration of two crucial issues: why the Supervision and Regulation division came to be isolated from key research and decision-making functions, and how the Fed at various levels obtained knowledge about the financial system. Finally, the views of former FOMC members could reveal how all of this played out at the highest decision-making level, apparently narrowing the broad mandate of the Fed to maintain overall financial stability so much as to effectively exclude sustained concern about the developments that ultimately caused the catastrophic meltdown of 2008.

Endnotes

¹ The International Monetary Fund conducted a self-examination of its pre-crisis behavior that considers some of the phenomena to be discussed below (Independent Evaluation Office of the IMF, 2011). Even though its conclusions about ideology and institutional inertia are somewhat similar to those offered here, the relevant sections of the report are very brief, and focus on conclusions rather than evidence and theoretical interpretation.

² In this section, we focus on US housing and financial markets given our interest in the Fed although housing bubbles inflated by lending booms and securitization also occurred in several European countries.

³ See Coval *et al.* (2009) and MacKenzie (2011), for instance, for detailed explanations of structured finance.

⁴ Fed documentation defines the FOMC's role as follows: 'The Committee reviews economic and financial conditions, determines the appropriate stance of monetary policy, and assesses the risks to its long-run goals of price stability and sustainable economic growth.' (<http://www.federalreserve.gov/monetarpolicy/fomc.htm>)

⁵ We considered a wide range of terms and phrases and report only the most important here. Atlas allows for similar terms to be grouped in a single search, e.g., CDS and credit default swaps.

⁶ For Greenspan's endorsement of Bernanke's academic findings, see the discussion in Cassidy 2008. For a technical discussion of the same point, see Blinder 2005.

⁷ A prominent exception of a DSGE model with financial frictions is Bernanke *et al* (1999).

⁸ The Fed merged the Greenbook and Bluebook into the Tealbook in 2010 in an attempt to streamline the production and processing of the two documents. The effects of this change remain unclear given the five-year delay in the release of these documents.

⁹ While both these features were responses to deregulation-friendly ‘New Classical’ claims about the impossibility of managing markets, the resulting model was a neo-Keynesian one (Mankiw 2006; Meyer 2004; Pescatori and Zaman 2011).

¹⁰ This point mirrors a point made by the IMF’s Independent Evaluation Office – the IMF’s ability to anticipate the crisis was undermined by methodological homogeneity and an emphasis on abstract models (Independent Evaluation Office, 2011).

¹¹ While Meade (2006) suggests that the go-around impedes the voicing of dissent, our point is different in that even if dissent is voiced, and as we have shown to be the case, the go-around impedes the *impact of* dissent on discussions and institutional outcomes.

¹² Lombardi and Woods (2008) emphasize the downsides of consensus-generating nature of IMF staff discussions, a point stressed in the IMF’s self-evaluation of its pre-crisis weaknesses (Independent Office of the IMF 2011).

¹³ These numbers were almost identical across the different Beigebooks. Discussions about ‘real estate’ primarily consisted of comments about housing prices, from construction firms, developers, contractors, and real estate agents. ‘Finance’ consisted of conversations with bankers and information about mortgage volumes, interest rates, delinquency rates, and perceptions of credit standards. ‘Main Street’ comments were

centered on manufacturing and retail, but also included less-discussed topics like agriculture and tourism.

¹⁴ Similarly, the IMF's self-evaluation found that the IMF staff's compartmentalization in isolated 'silos' contributed to the institution's failure to appreciate the dangers before the crisis (Independent Evaluation Office of the IMF, 2011).

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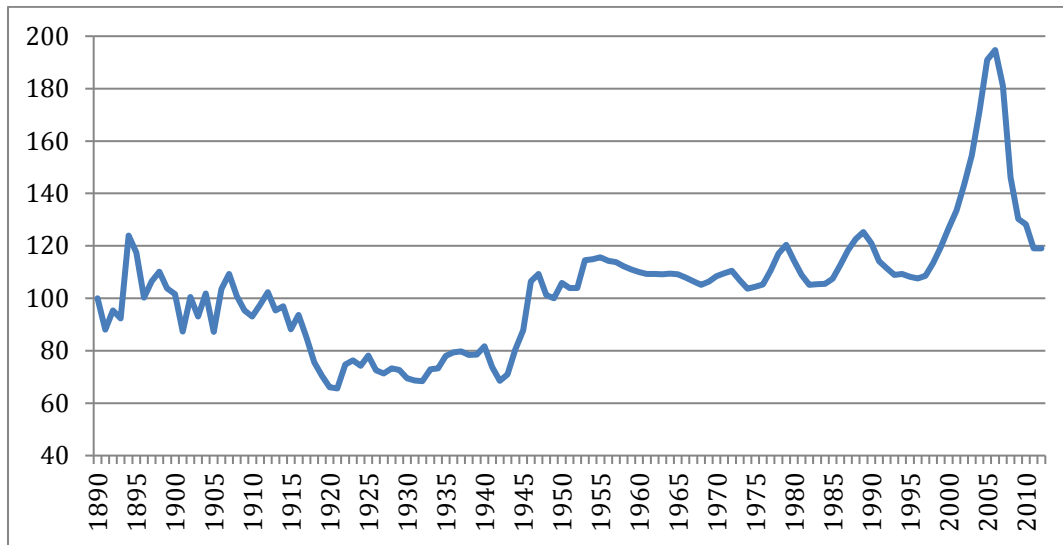
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Figure 1

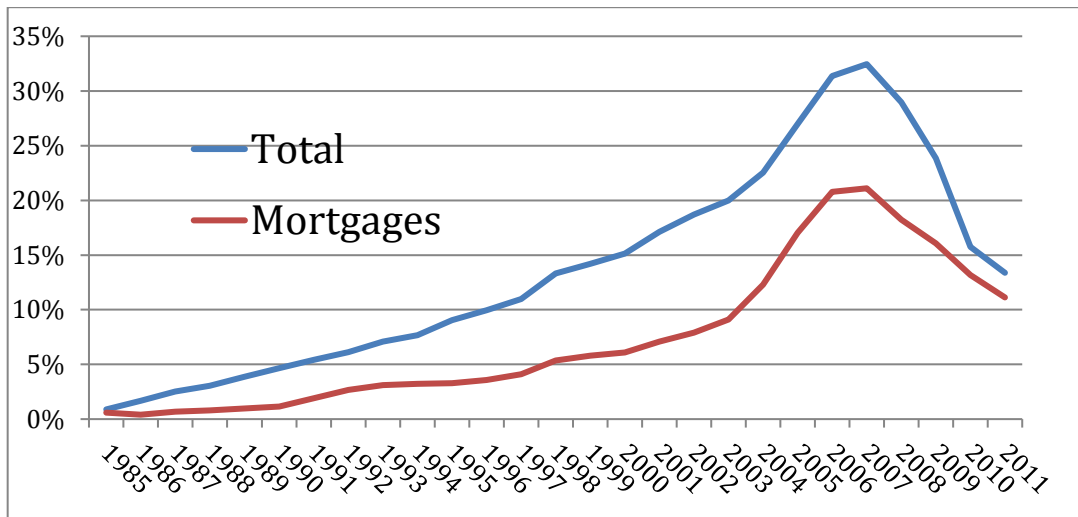
US Case-Shiller Housing Price Index, Inflation Adjusted, 1890-2012



Source: Robert Shiller's web site.

Figure 2

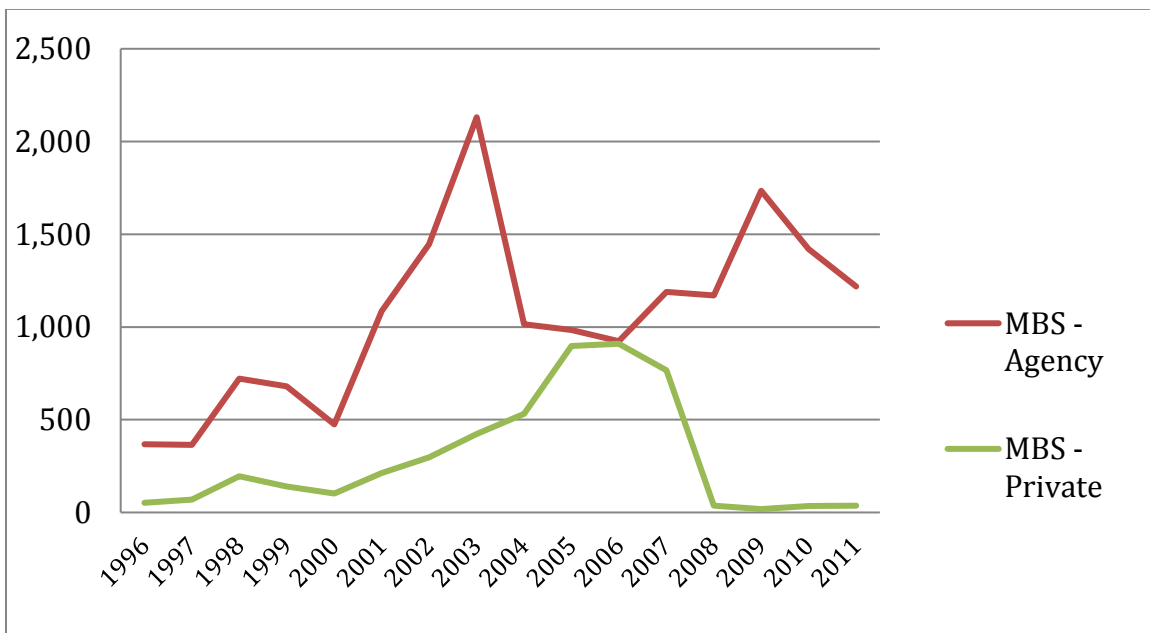
US Asset Backed Securities Outstanding, Share of GDP (%)



Source: Authors' calculations from the Federal Reserve Flow of Funds accounts.

Figure 3

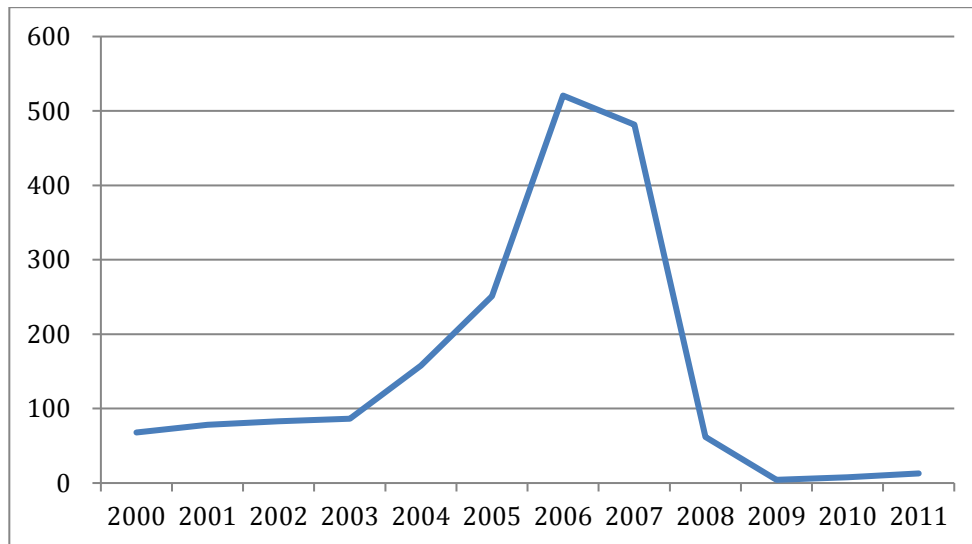
U.S. Total Mortgage-Related Security Issuance \$(Billion USD)



Source: Securities Industry and Financial Markets Association

Figure 4

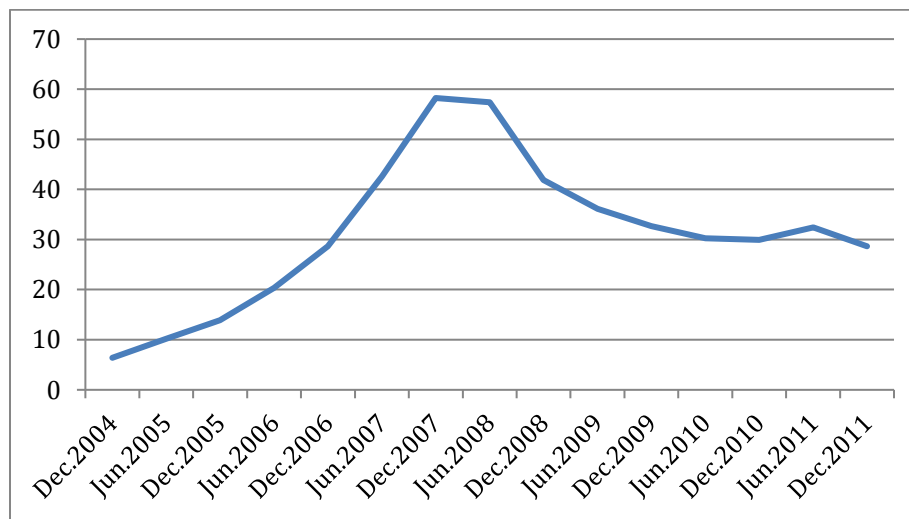
Global CDO Issuance, Annual (\$ billion)



Source: Securities Industry and Financial Markets Association

Figure 5

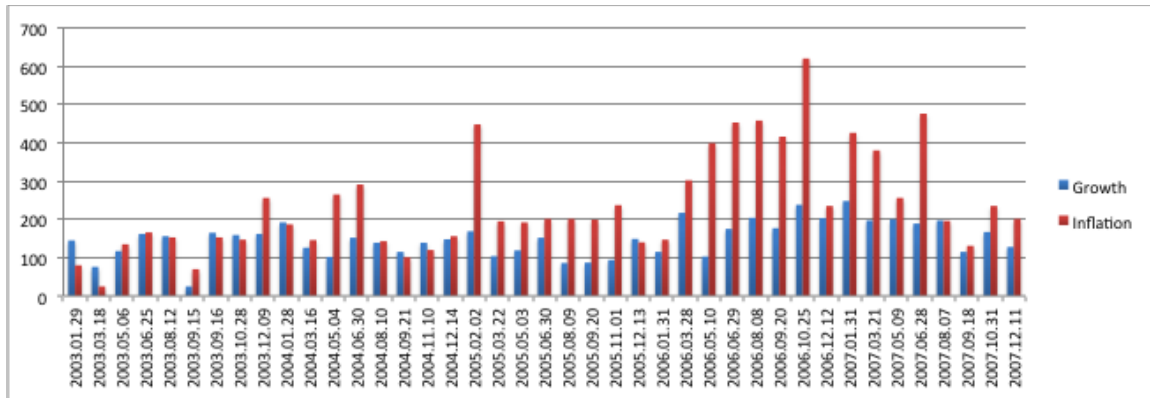
Global Credit Default Swaps Outstanding, \$ Trillion



Source: Bank for International Settlements

Figure 6

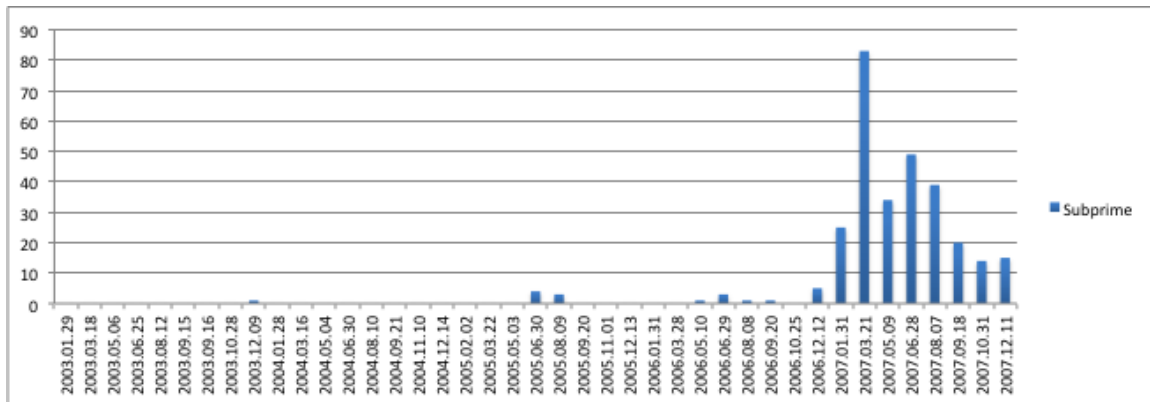
**FOMC Transcript Word Count by Meeting, 2003-2007:
Benchmarks: Growth and Inflation**



Source: Authors' calculations from FOMC transcripts

Figure 7

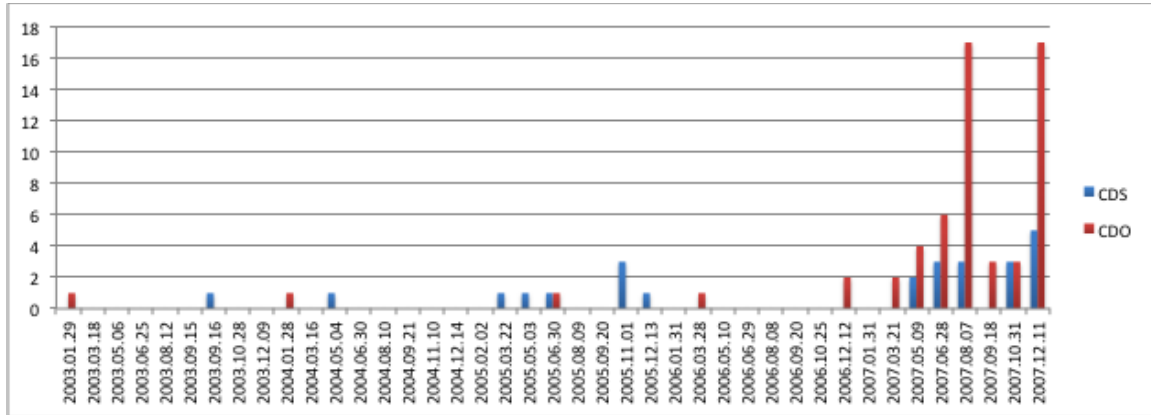
**FOMC Transcript Word Count by Meeting, 2003-2007:
Subprime Mortgages**



Source: Authors' calculations from FOMC transcripts

Figure 8

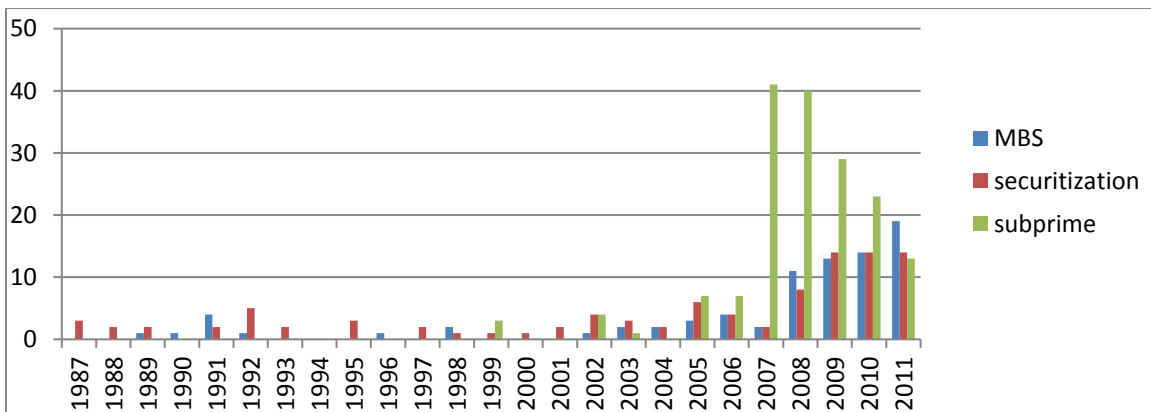
**FOMC Transcript Word Counts of Selected Terms, 2003-2007 Meetings
Key Financial Innovations**



Source: Authors' calculations from Federal Reserve FOMC transcripts.

Figure 9

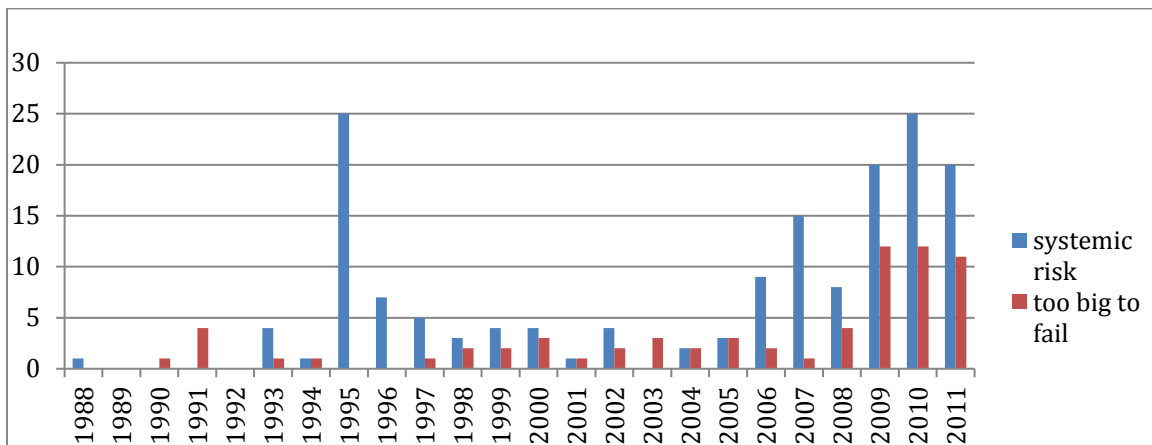
Number of Federal Reserve Documents on Mortgage Finance



Source: Authors' Calculations from Fed-in-Print.org data.

Figure 10

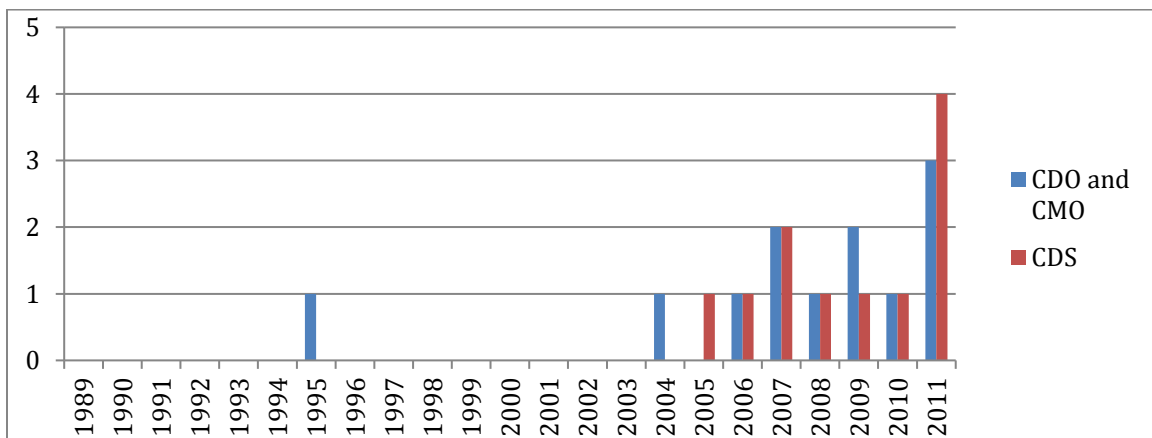
Number of Federal Reserve Documents on Systemic Risk



Source: Authors' Calculations from Fed-in-Print.org data.

Figure 11*

Number of Federal Reserve Documents on Financial Instruments

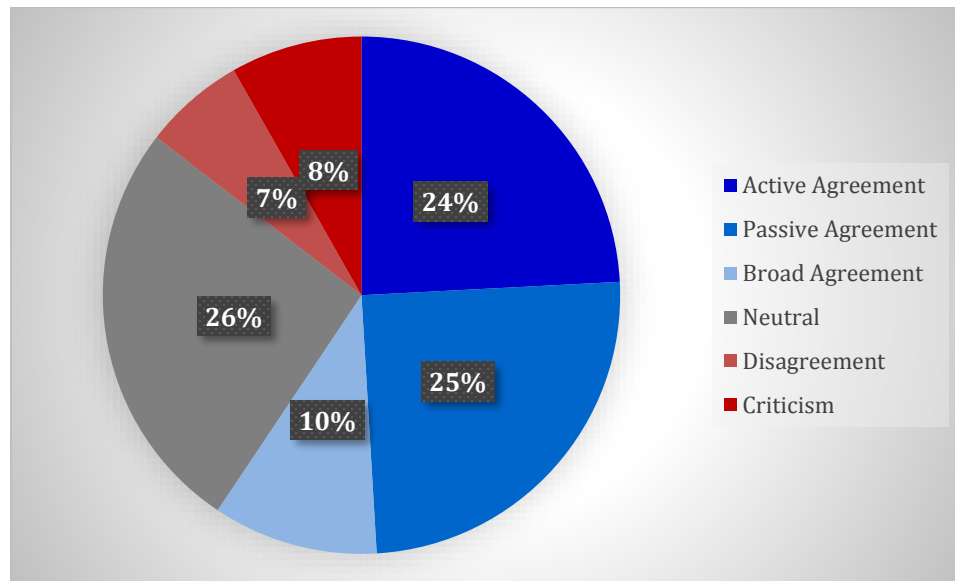


* Modern CDS contracts only widely used since 1994

Source: Authors' Calculations from Fed-in-Print.org data.

Figure 12

FOMC Comments on the Greenbook, 2005-2008



Source: Authors' Calculations from FOMC Greenbooks.