An Autopsy of the U.S. Financial System:

Accident, Suicide, or Negligent Homicide?

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Abstract: In this postmortem, I find that the design, implementation, and maintenance of financial policies during the period from 1996 through 2006 were primary causes of the financial system's demise. The evidence is inconsistent with the view that the collapse of the financial system was caused only by the popping of the housing bubble ("accident") and the herding behavior of financiers rushing to create and market increasingly complex and questionable financial products ("suicide"). Rather, the evidence indicates that regulatory agencies were aware of the growing fragility of the financial system due to their policies and yet chose not to modify those policies, suggesting that "negligent homicide" contributed to the financial system's collapse.

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1. Introduction

Influential policymakers emphasize that the financial crisis was largely precipitated by a series of unforeseeable events that conspired to produce a bubble in the housing market. In particular, Ben Bernanke (2009b), Alan Greenspan (2010), Henry Paulson (2009), Christina Romer (2009), and Robert Rubin (2010) stress that large capital inflows to the United States lowered interest rates, fueled a boom in mortgage lending, a reduction in loan standards, and financial innovations that produced an unsustainable explosion of credit. This view characterizes the collapse of the financial system as reflecting "accidents," such as the bursting of the housing bubble, and "suicide," such the herding behavior of financiers rushing to create and market increasingly complex and toxic financial products.[1] Greenspan (2010), for example, depicts the financial crisis as a once in a "hundred years flood" and a "classic euphoric bubble." From this perspective, policymakers responded to a crisis that happened to them.

This view, however, is arguably incomplete and could impede the development of beneficial financial reforms. While large international capital flows to the United States fueled speculative investments in real estate and while financial shenanigans helped destabilize the global financial system, a different view holds that policies caused this crisis. According to this view, the Federal Reserve, Securities and Exchange Commission (SEC), Congress, and other official agencies implemented policies that spurred excessive risk taking and the eventual failure of the financial system. Thus, when policymakers highlight the global savings glut and "irrational exuberance," this deflects attention from the potential policy determinants of the crisis.

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[1] Citigroup's former CEO, Charles O. Prince, noted to the Financial Times in 2007, "When the music stops … things will be complicated. But as long as the music is playing, you've got to get up and dance. We're still dancing."

In this autopsy, I assess whether key financial policies during the period from 1996 through 2006 contributed to the financial system's demise. I analyze the decade before the cascade of financial institution insolvencies and bailouts and hence before policymakers shifted into an "emergency response" mode. Thus, I examine a comparatively calm period during which the regulatory authorities could assess the evolving impact of their policies and make adjustments. Specifically, I study five important policies: (1) SEC policies toward credit rating agencies, (2) Federal Reserve policies that allowed banks to reduce their capital cushions through the use of credit default swaps, (3) SEC and Federal Reserve policies concerning over-the-counter derivatives, (4) SEC policies toward the consolidated supervision of major investment banks, and (5) government policies toward two housing-finance entities, Fannie Mae and Freddie Mac. From this examination, I draw tentative conclusions about the determinants of the crisis.

The evidence indicates that senior policymakers repeatedly designed, implemented, and maintained policies that destabilized the global financial system in the decade before the crisis. The policies incentivized financial institutions to engage in activities that generated enormous short-run profits but dramatically increased long-run fragility. Moreover, the evidence suggests that the regulatory agencies were aware of the consequences of their policies and yet chose not to modify those policies. On the whole, these policy decisions reflect neither a lack of information nor an absence of regulatory power. They represent the selection -- and most importantly the maintenance -- of policies that increased financial fragility. The crisis did not just happen to policymakers.

The evidence does not reject the impact of international capital flows, asset bubbles, herd behavior by financiers, or excessively greedy financiers on financial instability, which have been carefully analyzed by, for example, Acharya and Richardson (2009), Jagannathan, Kapoor, and Schaumburg (2009), Kamin and DeMarco (2010), Obstfeld and Rogoff (2009), and Rose and Spiegel (2009). Rather, this paper documents that financial regulations and policies created incentives for excessive risk and the financial regulatory apparatus maintained these policies even as information became available about the growing fragility of the financial system. Since policymakers did not intend to destroy the financial system, I refer to this policy view as "negligent homicide," not as murder.

Although I do not make policy recommendations here, the analyses are relevant for those designing reforms (e.g., Barth, Caprio, and Levine, 2010, and Levine, 2010). Since technical glitches, regulatory gaps, and insufficient regulatory power played only a partial role in fostering the crisis, reforms that rectify these failures represent only a partial and thus incomplete step in establishing a stable financial system that promotes growth and expands economic opportunities. There was also a systemic failure of the financial regulatory system -- the system associated with evaluating, reforming, and implementing financial policies: Key authorities knew that policies were distorting the allocation of capital and did not reform those policies.

It is worth highlighting three limitations with this paper. First, I draw on a wide array of insightful examinations of the crisis from newspaper articles, books, regulatory agency documents, and research papers. I do not provide new examples or data. A second, related, limitation is that I do not conduct a comprehensive examination of all policies related to the crisis. In particular, there was a massive failure of corporate governance, not just regulatory governance. The board of directors of many financial institutions did not effectively induce management to act in the best interests of shareholders and others with financial claims on the firms as shown by Bebchuk (2010a, b). Rather, in reexamining selective pieces of evidence, I show that an enduring breakdown of the financial regulatory system was a primary factor in the financial crisis.

Third, financial regulators and policymakers do not share a uniform view of the financial crisis. Officials acknowledge that regulatory mistakes were made. While they tend to focus on an absence of regulatory power to cope with failing institutions and regulatory gaps in which shadow financial institutions operated with little oversight, there are also cases in which the major agencies acknowledge deficient supervisory and regulatory practices (e.g., Geithner, 2009). For example, the Federal Reserve noted that it failed to monitor Citibank adequately as far back as 2005 and did not correct this shortcoming even after Citibank's financial condition deteriorated in 2008.[2] As other examples, the Inspector General of the Federal Reserve and Federal Deposit Insurance Corporation (FDIC) provided detailed evidence that regulators failed to implement their own rules to rein in the excessively risky behavior of banks. Thus, my characterization of "the" view of policymakers could be criticized as an unhelpful caricature. However, my goal is to provide a simple, but relevant, summary of the public view of the most senior policymakers as a mechanism for framing and motivating my assessment of what went wrong.

In the remainder of the paper, I discuss how the financial crisis was shaped by policies toward credit rating agencies (Section 2), credit default swaps and commercial banks (Sections 3 and 4), investment banks (Section 5), and Fannie Mae and Freddie Mac (Section 6). Section 7 concludes.

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[2] See (1) "Fed Reviews Find Errors in Oversight of Citigroup," Sewell Chan and Eric Dash, *The New York Times*, 4/8/2010, (2) the Material Loss Reviews by the Office of the Inspector General of the FDIC, which are available at http://www.fdicig.gov/, (3) the reports by the Office of the Inspector General of the Board of Governors of the Federal Reserve System, http://www.federalreserve.gov/oig/, and (4) "U.S. Faults Regulators Over a Bank,", Sewell Chan, *The New York Times*, 4/12/2010.

2. The Credit Rating Agencies

"These errors make us look either incompetent at credit analysis or like we sold our soul to the devil for revenue, or a little bit of both."

A Moody's managing director responding anonymously to an internal management survey, September 2007.[3]

2.1 Background

Credit rating agencies were indispensable to the crisis. To appreciate their role, consider the following sequence of transactions underlying the vast misallocation of global credit. Mortgage companies routinely provided loans to borrowers with little ability to repay those debts because (1) they earned fees for each loan and (2) they could sell those loans to investment banks and other financial institutions. Investment banks and other financial institutions gobbled-up those mortgages because (1) they earned fees for packaging the mortgages into new securities and (2) they could sell those new mortgage backed securities (MBSs) to other financial institutions, including banks, insurance companies, and pension funds around the world. These other financial institutions bought the MBSs because credit rating agencies said they were safe. By fueling the demand for MBS and related securities, credit rating agencies encouraged a broad array of financial institutions to make the poor investments that ultimately toppled the global financial system. Thus, an informed postmortem of the financial system requires a dissection of why financial institutions relied unquestionably on the assessments of credit rating agencies. How did they become so pivotal?

Until the 1970s, credit rating agencies were comparatively insignificant, moribund institutions that sold their assessments of credit risk to subscribers. Given the poor

[3] From "Debt Watchdogs: Tamed or Caught Napping?" by Gretchen Morgenson, *New York Times*, 12/7/2008.

predictive performance of these agencies, the demand for their services was limited for much of the 20th century (Partnoy, 1999). Indeed, academic researchers found that credit rating agencies produce little additional information about the firms they rate; rather, their ratings lag stock price movements by about 18 months (Pinches and Singleton, 1978).

2.2 The creation of NRSROs

Credit rating agencies experienced a major change in 1975. The SEC created the Nationally Recognized Statistical Rating Organization (NRSRO) designation, which it granted to the largest credit rating agencies. The SEC then relied on the NRSRO's credit risk assessment in establishing capital requirements on SEC-regulated financial institutions.

The creation of -- and reliance on -- NRSROs by the SEC triggered a cascade of regulatory decisions that increased the demand for their credit ratings. Bank regulators, insurance regulators, federal, state, and local agencies, foundations, endowments, and numerous entities around the world all started using NRSRO ratings to establish capital adequacy and portfolio guidelines. For example, bank regulators used NRSRO ratings to set capital requirements. Federal agencies used the risk designations of the NRSROs to establish asset allocation restrictions for several organizations, including government-sponsored entities like Fannie Mae and Freddie Mac. Furthermore, given the reliance by prominent regulatory agencies on NRSRO ratings, private endowments, foundations, and mutual funds also used their ratings in setting asset allocation guidelines for their investment managers. NRSRO ratings shaped the investment opportunities, capital requirements, and hence the profits of insurance companies, mutual funds, pension funds, and a dizzying array of other financial institutions.

Unsurprisingly, NRSROs shifted from selling their credit ratings to subscribers to selling their ratings to the issuers of securities. Since regulators, official agencies, and private institutions around the world relied on NRSRO ratings, virtually every issuer of securities was compelled to purchase an NRSRO rating if it wanted a large market for its securities.

Indeed, Partnoy (1999) argues that NRSROs essentially sell licenses to issue securities; they do not primarily provide assessments of credit risk.[4] A firm issuing a security without obtaining an NRSRO rating will face a limited market for its securities. Due to regulations and legal restrictions, the degree to which financial institutions deem particular securities appealing is powerfully shaped by NRSRO ratings. As long as the financial regulatory authorities rely on -- and hence endorse -- NRSRO ratings, there will be an enormous demand for NRSRO services.

[4] See Hill (2010a, 2010b) for insight examinations of credit-ratings firms.

2.3 Conflicts of interest in credit rating agencies

There are clear conflicts of interest associated with credit rating agencies selling their ratings to the issuers of securities. Issuers have an interest in paying rating agencies more for higher ratings since those ratings influence the demand for and hence the pricing of securities. And, rating agencies can promote repeat business by providing high ratings. Interestingly, the vice president of Moody's explained in 1957 that, "[W]e obviously cannot ask payment for rating a bond. To do so would attach a price to the process, and we could not escape the charge, which would undoubtedly come, that our ratings are for sale."[5]

While recognizing the conflicts of interest, credit rating agencies convinced regulators and Congress that reputational capital reduces the pernicious incentive to sell better ratings. If a rating agency does not provide sound, objective assessments of a security, the agency will experience damage to its reputation with consequential ramifications on its long-run profits. Purchasers of securities will reduce their reliance on this agency, which will reduce demand for *all* securities rated by the agency. As a result, issuers will reduce their demand for the services provide by that agency, reducing the agency's future profits. From this perspective, reputational capital is vital for the long-run profitability of credit rating agencies and will therefore contain any short-run conflicts of interest associated with "selling" a superior rating on any particular security.

Reputational capital will reduce conflicts of interest, however, only under particular conditions. First, decision makers at rating agencies must have a sufficiently long-run profit horizon, so that the long-run costs to the decision maker from harming the agencies reputation outweigh the short-run benefits from selling a bloated rating. Second, the

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[5] From "Debt Watchdogs: Tamed or Caught Napping?" by Gretchen Morgenson, *New York Times*, 12/7/2008.

demand for securities must respond to poor rating agency performance, so that decision makers at rating agencies are punished for issuing bloated ratings on even a few securities.

These conditions do not hold; indeed, regulations weakened the degree to which a decline in the reputation of a credit rating agency reduced demand for its services. First, capital regulations induce the vast majority of the buyers of securities to use NRSRO rating in selecting assets. These regulations hold regardless of NRSRO performance, which moderates the degree to which poor ratings performance reduces the demand for NRSRO services. Such regulations mitigate the positive relation between rating agency performance and profitability. Second, the feedback from the quality of an NRSRO's ratings to its profits has been further weakened by the inability of those using credit ratings to sue NRSROs. Rating agencies claim that their ratings are opinions, which are protected by the right of free speech. The agencies and executives claim that they bear no responsibility for the quality of those ratings.

2.4 Securitization and the intensification of conflicts of interest

Any remnants of a disciplining effect of reputational capital on the conflicts of interest plaguing NRSROs were essentially eliminated by the explosive growth of securitized and structured financial products from the late-1990s onward. Securitization and structuring involved the packaging and rating of trillions of dollars worth of new financial instruments. Huge fees associated with processing these securities flowed to banks and NRSROs. Impediments to this securitization and structuring process, such as the issuance of low credit rating on the securities, would gum-up the system, reducing rating agency profits.

In fact, the NRSROs started selling ancillary consulting services to facilitate the processing of securitized instruments, increasing NRSRO incentives to exaggerate ratings on structured products. Besides purchasing ratings from the NRSROs, the banks associated with creating structured financial products would first pay the rating agencies for guidance on how to package the securities to get high ratings and then pay the rating agencies to rate the resultant products. The short-run profits from these activities were mind bogglingly large and made the future losses from the inevitable loss of reputational capital irrelevant.

Thus, rating agencies faced little market discipline, had no significant regulatory oversight, were protected from competition by regulators, and enjoyed a burgeoning market for their services.[6] It was good to be an NRSRO.

The regulatory community did not adapt to these well-known developments. Distressingly, the intensification of conflicts of interest through the selling of consulting services by rating agencies closely resembles the amplification of conflicts of interest when accounting firms increased their sales of consulting services to the firms they were auditing. This facilitated the corporate scandals that emerged less than a decade ago, motivating the Sarbanes-Oxley Act of 2002. Yet, still, regulators did not respond as rating agencies pursued these increasingly profitable lines of business.

Given the regulatory-induced protections enjoyed by NRSROs, their behavior and profitability were unsurprising. Lowenstein's (2008) excellent description of the rating of a mortgage backed security by Moody's demonstrates the speed with which complex products had to be rated, the poor assumptions on which these ratings were based, and the profits generated by rating structured products. Other information indicates that if the

[6] The 2006 Credit Rating Agency Reform Act specifically prohibited the SEC from regulating an NRSRO's rating methodologies.

rating agencies issued a lower rating than Countrywide (a major purchaser of NRSRO ratings) wanted, a few phone calls would get this changed.[7] Indeed, internal e-mails indicate that the rating agencies lowered their rating standards to expand the business and boost revenues. A Standard and Poor's employee noted in 2004, "We are meeting with your group this week to discuss adjusting criteria for rating C.D.O.s of real estate assets this week because of the ongoing threat of losing deals. Lose the C.D.O. and lose the base business — a self reinforcing loop." (Quoted from "Documents Show Internal Qualms at Rating Agencies," Sewell Chan, *The New York Times*, 4/23/2010). A collection of documents released by the U.S. Senate suggests that NRSROs consciously adjusted their ratings to maintain clients and attract new ones.

The profit margins enjoyed by NRSROs were extraordinary. For example, the operating margin at Moody's between 2000 and 2007 averaged 53 percent. This compares to operating margins of 36 and 30 percent at Microsoft and Google, or 17 percent at Exxon. It is true that the performance of the rating agencies played a central role in the crisis. But, it is also true that the financial regulators established the privileged position of rating agencies and protected them from the discipline of the market.

2.5 Conclusions

While the crisis does not have a single cause, the behavior of the credit rating agencies is a defining characteristic. It is impossible to imagine the current crisis without the activities of the NRSROs. And, it is difficult to imagine the behavior of the NRSROs without the regulations that permitted, protected, and encouraged their activities.

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[7] See "Debt Watchdogs: Tamed or Caught Napping?" by Gretchen Morgenson, *The New York Times* 12/2008.

In terms of a postmortem of the financial system, the role of NRSROs is not an example of "accidental" death or "suicide." The conflicts of interest within NRSROs have been known for decades and the further perversion of incentives due to securitization was predicted over a decade before the crisis. Moreover, regulators had seen the accounting debacle of 2001-2002, when corporations paid accounting firms both to structure and then to audit financial statements. The Sarbanes-Oxley Act of 2002 prohibited accounting firms from simultaneously performing these activities. So, when banks started paying the NRSROs both to structure and then to rate securities, the associated conflicts of interest were no surprise. Similarly, it is difficult to view the NRSROs as suicidal. The decision makers at NRSROs made enormous amounts of money. It was a logical, rational, and legal decision. As noted in an internal e-mail by an S&P employee, "Let's hope we are all wealthy and retired by the time this house of cards falters." (Chan, *NYT*, 4/23/2010) Rather the evidence is most consistent with the view that regulatory policies and Congressional laws protected and encouraged the behavior of NRSROs.

3. Credit default swaps and bank capital

3.1. Background

The standard narrative of the financial crisis emphasizes the role of complex derivative contracts, including credit default swaps. According to this view, financiers used newly designed financial instruments to boost profits, with the systemic risks of these financial innovations largely unknown. When the housing market faltered, triggering a devastating reduction in the price of derivative securities, this shocked both markets and regulators. But, is this an accurate, complete characterization? Let's consider just one, albeit enormously popular, derivative contract.

A credit default swap (CDS) is an insurance-like contract written on the performance of a security or bundle of securities. For example, purchaser A buys a CDS from issuer B on security C. If security C has a predefined "credit related event," such as missing an interest payment, receiving a credit downgrade, or filing for bankruptcy, then issuer B pays purchaser A. While having insurance-like qualities, CDSs are not formally insurance contracts. Neither the purchaser nor the issuer of the CDS needs to hold the underlying security, leading to the frequently used analogy that CDSs are like buying fire insurance on your neighbor's house. Moreover, since CDSs are not insurance contracts, they are not regulated as tightly as insurance products. CDSs are financial derivatives that are transacted in unregulated, over-the-counter (OTC) markets.

In principle, banks can use credit default swaps to reduce both their exposure to credit risk and the amount of capital held against potential losses. For example, if a bank purchases a CDS on a loan, this can reduce its credit risk: if the loan defaults, the counterparty to the CDS will compensate the bank for the loss. If the bank's regulator concludes that the counterparty to the CDS will actually pay the bank if the loan defaults, then the regulator typically allows the bank to hold less regulatory capital. This regulatory decision allows the bank to reallocate capital to higher-expected return, higher-risk assets.

CDSs grew dramatically from the mid-1990s until the beginning of the financial collapse in 2007. In 1994, building on early efforts at Merrill Lynch and Bankers Trust, J.P Morgan further developed CDSs and supporting vehicles, so that they could be employed on a massive scale. Gillian Tett (2009) entertainingly and insightfully describes the series of financial innovations and regulatory decisions that allowed the CDS market to flourish, reaching a notional value $62 trillion in 2007 according to Barth et al (2009).

3.2. The Fed, CDSs, and bank capital

The explosive growth of CDSs was abetted by the Fed's 1996 decision permitting banks to use CDSs to reduce capital reserves (Tett, 2009, p.49). Regulators treated securities guaranteed by a seller of CDSs as having the risk level of the seller – or more accurately, the counterparty – of the CDS. For example, a bank purchasing full CDS protection from American International Group (AIG) on collateralized debt obligations (CDOs) linked to sub-prime loans would have those CDOs treated as AAA securities for capital regulatory purposes because AIG had an AAA rating from a Nationally Recognized Statistical Rating Organization, i.e., from a SEC-approved credit rating agency.

Given the pricing of CDSs and the Fed's regulatory decision, banks found CDSs valuable tools for reducing capital and investing in more lucrative, albeit more risky, assets. For example, a bank with a typical portfolio of $10 billion of commercial loans could reduce its capital reserves against these assets from about $800 million to under $200 million by purchasing CDSs for a small fee (Tett, 2009, p. 64). By 2007, the largest U.S. commercial banks had purchased $7.9 trillion in CDS protection (Barth et al., 2009).

There were, however, serious problems associated with allowing banks to reduce their capital via CDSs. Given the active trading of CDSs, it was sometimes difficult to indentify the actual counterparty legally responsible for compensating a bank if an "insured" security failed. Furthermore, some bank counterparties developed massive exposures to CDS risk. For example, AIG had a notional exposure of about $500 billion to CDSs (and related derivatives) in 2007, while having a capital base of about $100 billion to cover all its traditional insurance activities as well as its financial derivatives business. The growing exposure of AIG and other issuers of CDSs should have – and did -- raise concerns about their ability to satisfy their obligations in times of economic stress.

3.3. The Fed maintains its policy despite growing risks

The Fed was aware of the growing danger to the safety and soundness of the banking system from CDSs.[8] For instance, Tett (2009, p. 157-163) recounts how Timothy Geithner, then President of the New York Federal Reserve Bank, became concerned in 2004 about the lack of information on CDSs and the growing counterparty risk facing banks. Barth et al (2009, p. 184-193) demonstrates through the use of internal Fed documents that it knew by 2004 of the growing problems associated with subprime mortgage related assets, on which many CDSs were written. Indeed, the FBI publicly warned in 2004 of an epidemic of fraud in subprime lending. In terms of the sellers of CDSs, detailed accounts by Lewis (2009) and McDonald (2009) illustrate the Fed's awareness by 2006 of AIG's growing fragility and the corresponding exposure of commercial banks to CDS counterparty risk.[9] Between 1996 and 2007, accumulating evidence increased concerns about capital adequacy.

[8] There is a longer history. In 1992, the President of the NY Federal Reserve Bank, Jerry Corrigan, expressed grave concerns that derivatives, primarily interest rates swaps, threatened the stability of banks and threatened the banks with tighter regulations (Tett, 2009, 17-18). But, Alan Greenspan, the Chairman of the entire Federal Reserve System, supported the International Swaps and Derivatives Association and successfully convinced Congress in 1994 to keep derivatives largely unregulated (Tett, 2009, 39-40).

[9] Furthermore, although the demise and government conservatorship of AIG in the September of 2008 is sometimes discussed as a complete surprise, it was not a surprise to the Fed or to *Time* magazine, which ran an article on March 17, 2008 titled, "Credit Default Swaps: The Next Crisis." The article reported that AIG had recently taken an $11 billion write-down on its CDS holdings and that loses on CDS holdings severely damaged Swiss Reinsurance Co. and monoline bond insurance companies, including MBIA and AMBAC Financial Group Inc. The article noted explicitly that these developments could be devastating for the financial institutions that purchased credit protection from these insurers. Yet, on March 16, 2008 on CNN, Treasury Secretary Paulson noted that, "I have great, great confidence in our capital markets and in our financial institutions. Our financial institutions, banks and investment banks, are strong." (Quoted from Barth et al., 2009, p. 1). Why didn't the Fed prepare for the potential failure of AIG or other major sellers of CDSs in the spring of 2008? So far, U.S. taxpayers have handed over about $180 billion to AIG.

Yet, the Fed did not adjust its policies regarding bank capital and CDSs.[10] This response is surprising because ensuring capital adequacy is the mainstay of bank regulatory policies for two reasons. First, when capital falls, banks have less of a capital cushion to weather potential loses. Second, and perhaps more importantly, when bank owners have less of their own money at risk, this encourages bank risk taking. Thus, reducing capital through the purchase of CDSs can have a multiplicative effect on bank fragility.

The Fed's initial decision in 1996 permitting banks to reduce capital through the purchase of CDSs was founded on sound principles. If the bank's borrowers do not pay their loans, the bank will not suffer a loss because the seller of the CDSs will compensate the bank. Under these premises, the bank should not have to hold a capital cushion against potential loses on these loans, because the CDS, in principle, hedges that risk.

The key question is why the Fed *maintained* its capital regulations with respect to CDSs as it learned of the growing fragility of the banking system due to the mushrooming use of increasingly suspect CDSs. Bank purchases of CDSs boomed immediately after the 1996 regulatory decision allowing a reduction in bank capital from the purchase of CDSs. Why didn't the Fed respond by demanding greater transparency before granting capital relief and conducting its own assessment of the counterparty risks facing the systemically important banks under its supervision? Why didn't the Fed adjust in 2004 as it learned of the opaque nature of the CDS market and as the FBI warned of the fraudulent practices

[10] Timothy Geithner created a taskforce in 2004 headed by Jerry Corrigan (a partner at Goldman Sachs and the former President of the NY Federal Reserve), which identified the array of risks posed by CDS to the stability of the banking system. Although the taskforce convinced the banks to improve their back office handling of CDS trading, the Fed did not attempt to limit reductions in bank capital from the purchase of CDSs. In fact, Alan Greenspan (2005) argued that credit default swaps "… have enabled the largest and most sophisticated banks in their credit-granting role to divest themselves of much credit risk by passing it to institutions with far less leverage."

associated with the issuance of the sub-prime mortgages underlying many CDS securities, or in 2006 as information became available about the fragility of AIG, or in 2007 when hedge funds warned the Fed, the Treasury, and G8 delegates about the growing fragility of commercial banks (Tett, 2009, p. 160-3)? The Fed's decision to maintain its regulatory stance toward CDSs was neither a failure of information, nor a shortage of regulatory power.[11] It was a choice; it was a failure of regulatory governance.

The Fed could have modified its capital regulations based on two simple, prudent premises. First, the Fed is responsible for the safety and soundness of the financial system, which relies on the largest banks holding capital commensurate with their risks. Second, the Fed did not have reliable methods for assessing the credit risk of those selling CDSs to banks, nor could it rely on the credit rating agencies to assess that counterparty risk. Based on these principles, the Fed could have prohibited banks from reducing regulatory capital via CDSs until the Fed had confidence in the financial viability of those selling CDSs to banks. It is true that the Fed did not have regulatory authority over CDSs, the credit rating agencies, AIG, or many other sellers of CDSs, so it could not have directly improved the counterparty risk associated with CDS. But, the Fed was -- and is -- responsible for overseeing the safety and soundness of the major banks. If it had refused to allow banks to reduce their capital reserves via CDSs, the Fed could have both enhanced the stability of the major banks and indirectly created incentives for improvements in the CDS market.

[11] As argued by Barth et al (2009, p. 184): "… even if the top officials from these regulatory agencies did not appreciate or wish to act earlier on the information they had, their subordinates apparently fully understood and appreciated the growing magnitude of the problem." Also, see the Fed's 2004 Interpretive Letter #998, which reiterates the Fed's capital regulatory policy with respect to CDSs.

3.4. Postmortem

I am not suggesting that the Fed's decision to allow banks to reduce their regulatory capital through the purchase of CDSs was the major cause of the global financial crisis. It is quite difficult to quantify the degree to which this policy increased risk-taking at any individual bank or the fragility of the financial system as a whole.

I am suggesting that the evolution of the CDS market, the fragility of the banks, and the Fed's capital rules illustrate key features of the financial crisis that are frequently ignored in current discussions of regulatory reform.

First, the problems with CDSs and bank capital were not a surprise in 2008; there was ample warning that things were going awry. This history is unsupportive of the "accident" explanation of the crisis.

Second, the evidence is more consistent with a "suicide" explanation. Banks purchased CDS to reduce capital, which allowed them to invest in riskier, more profitable endeavors. That is, banks drove themselves into an increasingly fragile state in search of additional profits.

Third, the evidence is most consistent with the "negligent homicide" view: Senior government policymakers created policies that encouraged reckless behavior by financiers and adhered to those policies over many years even as they learned about the ramifications of their policies. To maximize expected profits and bonuses, bank owners and managers have incentives to reduce capital and invest in higher expected-return assets. This is the standard risk-shifting motivation. Moreover, policies, such as deposit insurance, implicit government guarantees of debt contracts, or too-big-to-fail, magnify the incentives for rational, i.e., non-suicidal, bankers to increase risk-taking. The Fed's policies sanctioned and encouraged this behavior.

4. Transparency vs. The FED, SEC, and Treasury

Powerful regulators and policymakers thwarted efforts to make the CDS market more transparent. The Fed (under Alan Greenspan), the Treasury (under Robert Rubin and then Larry Summers), and the SEC (under Arthur Levitt) squashed attempts by Brooksley Born of the Commodity Future Trading Commission (CFTC) to shed light on the multi-trillion dollar OTC derivatives market, which included credit default swaps, at the end of the 1990s.

Incidents of fraud, manipulation, and failure in the OTC derivatives market began as early as 1994, with the sensational bankruptcy of Orange County and court cases involving Gibson Greeting Cards and Proctor and Gamble against Bankers Trust. Numerous problems, associated with bankers exploiting unsophisticated school districts and municipalities, plagued the market. Further, OTC derivates played a dominant role in the dramatic failure of Long-Term Capital Management (LTCM) in the summer of 1998. Indeed, no regulatory agency had any warning of LTCM's demise, or the potential systemic implications of its failure, because it traded primarily in this opaque market.

In 1998, the CFTC issued a "concept release" report calling for greater transparency of OTC derivatives. The CFTC sought greater information disclosure, improvements in record keeping, and controls on fraud. The CFTC did not call for draconian controls on the derivatives market; it called for more transparency.

The response by the Fed, the Treasury, and the SEC was swift: They stopped the CFTC. First, they obtained a six month moratorium on the CFTC's ability to implement the strategies outlined in its concept release. Second, the President's Working Group on Financial Markets, which consists of the Secretary of the Treasury, the Chairman of the Board of Governors of the Federal Reserve System, the Chairman of the SEC, and the Chairman of the CFTC, initiated a study of the OTC derivatives market. Finally, they helped convince Congress to pass the Commodity Futures Modernization Act of 2000, which exempted the OTC derivates market – and hence the CDS market – from government oversight.

The point of this addendum is to emphasize that senior regulators and policymakers lobbied hard to keep CDSs and other derivatives in opaque markets. This policy was not an accident; it was a choice.

The point of this addendum is to emphasize that senior regulators and policymakers lobbied hard to keep CDSs and other derivatives in opaque markets. Thus, a comprehensive assessment of the causes of the crisis must evaluate why policymakers made choices like this. Indeed, Nick Timiraos and James R. Hagerty argue in *The Wall Street Journal* on February 9, 2010,

> "Nearly a year and half after the outbreak of the global economic crisis, many of the problems that contributed to it haven't been tamed. The U.S. has no system in place to tackle a failure of its largest financial institutions. Derivatives contracts of the kind that crippled American International Group Inc. still trade in the shadows. And investors remain heavily reliant on the same credit-ratings firms that gave AAA ratings to lousy mortgage securities."

5. Investment Bank Capital, Risk-Taking, and the SEC

> "We have good deal of comfort about the capital cushions at these firms at the moment."[12]
>
> Christopher Cox, chairman of the Securities and Exchange Commission, March 11, 2008.

5.1. Total failure

All five of the major investment banks that had been supervised by the SEC in 2008 experienced major transformations. Only three days after the SEC Chairman expressed confidence in the financial soundness of the investment banks on March 11, 2008, the New York Federal Reserve provided an emergency $25 billion loan to Bear Stearns in a vain attempt to avert Bear's failure. A few days later, with additional financial assistance from the Fed, a failed Bear Stearns merged with the commercial bank JP Morgan Chase & Co. Six months later, Lehman Brothers went bankrupt, and a few months later, at the brink of insolvency, Merrill Lynch merged with Bank of America. In the autumn of 2008, Goldman Sachs and Morgan Stanley were "pressured" into becoming bank holding companies by the Federal Reserve and arguably rescued from failure through an assortment of public programs. The SEC's fingerprints are indelibly imprinted on this debacle.

5.2. Three Coordinated SEC Policies

Consider three interrelated SEC decisions regarding the regulation of investment banks. First, the SEC in 2004 exempted the five largest investment banks from the net capital rule, which was a 1975 rule for computing minimum capital standards at broker-

[12] Quoted from the Stephan Labaton, *The New York Times*, 10/3/2008.

dealers.[13] The investment banks were permitted to use their own mathematical models of asset and portfolio risk to compute appropriate capital levels. The investment banks responded by issuing more debt to purchase more risky securities without putting commensurately more of their own capital at risk. Leverage ratios soared from their 2004 levels, as the bank's models indicated that they had sufficient capital cushions.

Second, in a related, coordinated 2004 policy change, the SEC enacted a rule that induced the five investment banks to become "consolidated supervised entities" (CSEs): The SEC would oversee the entire financial firm. Specifically, the SEC now had responsibility for supervising the holding company, broker-dealer affiliates, and all other affiliates on a consolidated basis. These other affiliates include other regulated entities, such as foreign-registered broker-dealers and banks, as well as unregulated entities such as derivatives dealers (Colby, 2007). The SEC was charged with evaluating the models employed by the broker-dealers in computing appropriate capital levels and assessing the overall stability of the consolidated investment bank. Given the size and complexity of these financial conglomerates, overseeing the CSEs was a systemically important and difficult responsibility.

Third, the SEC neutered its ability to conduct consolidated supervision of major investment banks. With the elimination of the net capital rule and the added complexity of consolidated supervision, the SEC's head of market regulation, Annette Nazareth, promised to hire high-skilled supervisors to assess the riskiness of investment banking activities. But,

[13] As the SEC Commissioners debated the policy, they noted that it could lead to a "potential catastrophe" and questioned whether "we really will have investor protection." Yet, they ultimately voted for it, with one commissioner noting that he would "keep my fingers crossed for the future." For an illuminating video of the actual meeting, see "The Day the SEC Changed the Game" at http://topics.nytimes.com/topics/news/business/series/the_reckoning/index.html

the SEC didn't. In fact, the SEC had only seven people to examine the parent companies of the investment banks, which controlled over $4 trillion in assets. Under Christopher Cox, who became chairman in 2005, the SEC eliminated the risk management office and failed to complete a single inspection of a major investment bank in the year and a half before the collapse of those banks (Labaton, 2008). Cox also weakened the Enforcement Division's freedom to impose fines on financial firms under its jurisdiction.

5.3. The effects of these decisions

The combination of these three policies contributed to the onset, magnitude, and breadth of the financial crisis. The SEC's decisions created enormous latitude and incentives for investment banks to increase risk, and they did. The SEC has correctly argued that the net capital rule never applied to the holding company in defending the 2004 net capital rule. But, this defense is narrowly focuses on the net capital rule alone. It is the combination of SEC policies that helped trigger the crisis, not only the change in the net capital rule.[14]

In easing the net capital rule, adopting a system of consolidated supervision, but failing to develop the capabilities to supervise large financial conglomerates, the SEC became willfully blind to excessive risk-taking. The evidence points inexorably toward the SEC as an accomplice in creating a fragile financial system.

[14] The SEC also correctly notes that leverage ratios at the CSE holding companies were higher during some years in the 1990s than in 2006. But, the nature of financial markets and risk-taking shifted markedly from the 1990s to the mid-2000s due to the explosion of structured products and the increased use of OTC derivatives. Thus, comparing leverage ratios in the 1990s to those in 2006 is much less informative than comparing leverage ratios from 2004 to 2006, when leverage ratios boomed after the SEC changed its policies. In assessing why the major financial firms under the SEC's purview failed, it is critical to examine the combination of policy responses, not only the net capital rule change.

Indeed, the current Chairwomen of the SEC, Mary Schapiro, and a court appointed investigator agree with this assessment. Ms. Schapiro noted: "I think everybody a few years ago got caught up in the idea that the markets are self-correcting and self-disciplined, and that the people in Wall Street will do a better job protecting the financial system than the regulators would. I do think the SEC got diverted by that philosophy." (From "SEC Puts Wall St. On Notice," Edward Wyatt, *The New York Times*, 4/19/2010). Anton Valukas's 2,200-page report on the causes of the Lehman Brothers failure to the bankruptcy court is even more pointed. It notes that Lehman "was significantly and persistently in excess of its own risk limits." More importantly, he adds that the SEC "was aware of these excesses and simply acquiesced."

To conclude, consider the testimony of The SEC's Deputy Director, Robert Colby, before the U.S. House of Representatives Financial Services Committee on April 25, 2007:[15]

> … the bill as introduced would subject the CSEs that already are highly regulated under the Commission's consolidated supervision program to an additional layer of duplicative and burdensome holding company oversight. The bill should be amended to recognize the unique ability of the Commission to comprehensively supervise the consolidated groups … Because the Commission has established a successful consolidated supervision program based on its unique expertise...

Eighteen months after the SEC argued that it was successfully supervising the five major investment banks, they had either gone bankrupt, failed and merged with other firms, or were forced to convert to bank holding companies, with billions of taxpayer dollars spent on facilitating these arrangements. The purposeful elimination of supervisory guardrails supports a charge of gross negligence, without malice, in facilitating the financial crisis.

[15] See: http://www.sec.gov/news/testimony/2007/ts042507rc.htm

6. Fannie Mae and Freddie Mac

6.1. Background

The government took over the two regulated housing-finance giants, Fannie Mae and Freddie Mac, on September 7, 2008 that together owned or guaranteed almost $7 trillion worth of mortgages.[16] Fannie Mae and Freddie Mac are Congressionally-chartered, stockholder-owned corporations.

These government-sponsored entities (GSEs) were designed to facilitate housing finance. They purchase mortgages from banks and mortgages companies that lend directly to homeowners, package the mortgages into mortgage-backed securities (MBSs), guarantee timely payment of interest and principal, and sell the MBSs to investors. Besides this core securitization activity, the GSEs also buy and hold mortgages and MBSs. By increasing the demand for, and hence the price of, mortgages in the secondary market, the GSEs can reduce the interest rates the homebuyers pay on mortgages in the primary market, fostering home ownership.

While facilitating housing is a *raison d'être*, the GSEs also use their privileged positions to earn substantial profits. Specifically, the GSEs borrow cheaply: the debt issued by these two financial institutions enjoyed an implicit government guarantee, which was made explicit when the government placed them into conservatorship. Thus, the GSEs could borrow at low interest rates and buy mortgages with higher interest rates. Over time, the GSEs increased the degree to which they bought and held mortgages relative to their securitization role, in which they bought, packaged, guaranteed, and sold MBSs. As long as

[16] More precisely, the Federal Housing Finance Agency placed into conservatorship both the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac).

there were not too many defaults, the GSEs made enormous profits. Indeed, profits were limited primarily by the size of the mortgage market and threatened by regulatory interventions that might force GSEs to funnel more of their earnings into lowering primary mortgage rates, with a concomitant lowering of GSE profits. Fortunately for the GSEs, Congress and other policymakers helped expand the mortgage market and kept regulatory interventions to a minimum.

6.2. Policy changes and effects

Two policies combined to expand the mortgage market for GSEs: the expansion of the affordable housing mission of GSEs and the Community Reinvestment Act (CRA) as discussed in Barth et al (2009), Joint Center for Housing Studies (2008), and Wallison and Calomiris (2008). Enacted in 1977, the CRA was designed to boost lending to disadvantaged areas by prohibiting discrimination. In the mid-1990s, under the CRA, regulators started using quantitative guidelines to induce greater lending to low- and moderate-income (LMI) areas and borrowers. The Department of Housing and Urban Development (HUD) in the mid-1990s put corresponding pressure on the GSEs to adjust their financing standards to facilitate the flow of credit to LMI borrowers, encouraging the GSEs to finance lower quality mortgages. Furthermore, Congress also added an affordable housing mission to the GREs. In 1991, Fannie Mae announced a $1 trillion affordable housing initiative, and in 1994, Fannie Mae and Freddie Mac initiated an additional $2 trillion program for LMI borrowers.

These policies permitted and encouraged the GSEs to accept lower quality mortgages and hence spurred primary market lenders to lend more to more suspect borrowers. For example, by 2001, the GSEs were purchasing mortgages that had no down payment; between 2005 and 2007, they bought approximately $1 trillion of mortgages with subprime characteristics; which accounted for about 45% of their mortgage purchases.[17] By signaling to mortgage lenders that they would purchase mortgages with subprime characteristics -- such as mortgages with low FICO credit scores, high loan-to-value ratios, negative amortization, low documentation -- Fannie and Freddie triggered a massive movement into the issuance of lower quality mortgages. Mortgage companies were more willing to accept the fees for making loans to questionable borrowers if they knew that the GSEs would purchase the loan.

The push into lower quality mortgages created a complex "mutual dependency" between Congress and the GSEs, fueling their increasingly risky investments (Wallison and Calomiris, 2008). Congress relied on the GSEs to both promote housing policies and to provide campaign donations. The GSEs relied on Congress to protect their profitable privileges and refrain from regulatory interventions. Each satisfied its side of the bargain. The GSEs provided generous campaign contributions and greatly expanded their funding of LMI borrowers. Profits and bonuses soared. In turn, policymakers limited regulatory oversight of the GSEs. Indeed, even after the House Banking Subcommittee and the GSE's regulator (Office of Federal Housing Enterprise Oversight) accused them of serious accounting fraud in 2000, 2003, and 2004 and even as evidence emerged of their financial fragility, Congress did not pass a proposed bill that would have strengthened supervision of the GSEs and prohibited the GSEs from buying and holding MBSs. Such a policy shift would have limited GSE exposure to low-quality mortgages, which ultimately led to their bankruptcy.

[17] See the Fannie Mae publication, "2008 Q2 10-Q Summary," the Freddie Mac publication from August 2008, "Freddie Mac Update," and the calculations by Wallison and Calomiris, 2008, p. 7-8.

6.3. Postmortem

Deterioration in the financial condition of the GSEs was not a surprise. *The New York Times* warned in 1999 that Fannie Mae was taking on so much risk that an economic downturn could trigger a "rescue similar to that of the savings and loan industry in the 1980s," and again emphasized this point in 2003.[18] From 2003 through 2007, the GSE's regulator warned of excessive risk-taking; the Treasury acknowledged ineffective oversight of the GSEs; Congress discussed the fragility of GSEs and their illusory profits; Alan Greenspan testified before the Senate Banking Committee in 2004 that the increasingly large and risky GSE portfolios could have enormously adverse ramifications; and Taleb (2007) warned that the GSEs "seem to be sitting on a barrel of dynamite, vulnerable to the slightest hiccup."[19]

But, Congress did not respond and allowed increasingly fragile GSEs to endanger the entire financial system. It is difficult to discern why. Some did not want to jeopardize the increased provision of affordable housing. Many received generous financial support from the GSEs in return for their protection. For the purposes of this paper, the critical issue is that policymakers did not respond as the GSEs became systemically fragile. Again, I am not arguing that the timing, extent, and full nature of the housing bubble were perfectly known. I am arguing that policymakers created incentives for massive risk-taking by the GSEs and then did not respond to information that this risk-taking threatened the financial system.

[18] See Steven A. Holmes, "Fannie Mae Eases Credit to Aid Mortgage Lending," *New York Times*, September 30, 1999 and Alex Berenson, "Fannie Mae's Loss Risk is Larger, Computer Models Show," *New York Times*, August 7, 2003.

[19] See Zachary A. Goldfarb, "Affordable-Housing Goals Scaled Back," *Washington Post*, September 24, 2008, Stephen Labaton, "New Agency Proposed to Oversee Freddie Mac and Fannie Mae," *New York Times*, September 31, 2003, and Alan Greenspan, "Proposals for Improving the Regulation of the Housing Government Sponsored Enterprises," testimony before the Committee on Banking, Housing and Urban Affairs, *U.S. Senate*, February 24, 2004.

7. Conclusion

Finance is powerful. As the last few years demonstrate, the malfunctioning of the financial system can trigger economic crises, harming the welfare of many. As the last few centuries demonstrate, the functioning of the financial system affects long-run economic growth. If financial systems funnel society's savings to those with the best projects, this helps promote and sustain economic progress (Levine, 2005). Getting financial policies right is a first-order priority in creating an environment conducive to economic prosperity.

This paper has examined the determinants of the recent crisis. Without denying the importance of capital account imbalances and herd behavior, my analyses suggest that this is not the entire story. Similarly, while a confluence of surprises helped trigger the crisis, the evidence is inconsistent with the view that poor information about financial institutions was the sole cause of the crisis. Thus, the evidence is inconsistent with testimonies before the Financial Crisis Inquiry Commission by Robert Rubin (former Treasury secretary and former director of Citigroup), Charles O. Prince III (former CEO of Citigroup), and Alan Greenspan (former Chairman of the Fed), who claim that the crisis was an unprecedented and unpredictable accident. The crisis did not just happen. Policymakers and regulators, along with private sector coconspirators, helped cause it.

The evidence indicates that financial sector policies during the period from 1996 through 2006 precipitated the crisis. Either by becoming willfully blind to excessive risk taking or by maintaining policies that encouraged destabilizing behaviors, policymakers and regulatory agencies contributed to the financial system's collapse. As noted by Senator Carl Levin, "The recent financial crisis was not a natural disaster; it was a manmade economic assault. It will happen again unless we change the rules."

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