A Long Strange Trip: The State and Mortgage Securitization, 1968-2010*

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Introduction

In the past 40 years, states and market actors have co-determined the structure of the financial markets (Preda, 2007). But the literature on the sociology of finance motivated by Callon (1998) and Knorr Cetina and Bruegger (2002) has been quiet on these sets of relationships (if not dismissive). We want to show that studying financial tools and technologies outside of the context of the state and banking firms offers at best an incomplete view of what has happened in financial markets, and at worse a misleading view. Governments do not just act as regulators of financial markets. Indeed, governments have pioneered most of the tools of modern finance including mortgage backed securities, the financial instruments that were at the core of the financial meltdown of 2007-2010 (Quinn, 2008). Government policies are oriented towards creating credit for home owners and consumers more generally. Governments have often stepped into financial markets and created either social programs to promote their policies or government owned or sponsored enterprises to stimulate particular policies.

Firms that populate the financial sector have themselves evolved their money making activities over time. Much of this has been in response to opportunities laid out by government regulation. So, for example, investment banks entered the mortgage backed securities market rather late. They did so at the behest of the government sponsored enterprises (hereafter GSE), Freddie Mac and Fannie Mae who wanted private sector participation in the underwriting of mortgage backed securities. During the 1990s, Countrywide Financial pioneered the strategy of the vertically integration of the mortgage market by originating loans, wholesaling them, becoming underwriters to package them into bonds, and operating as both a seller of bonds and a holder of bonds. Countrywide also pioneered the subprime market by offering people with less than stellar credit the opportunity to buy a house. The largest of the commercial banks (Bank of America, Wells Fargo, Citibank), the remaining large savings and loan banks (Indy Mac and Washington Mutual), and several of the investment banks (Lehman Brothers, Bear Stearns) followed Countrywide's lead. The GSE played a critical role in providing an implied guarantee for conventional (or prime) mortgages. The absence of the GSE from subprime and jumbo mortgage securitization markets encouraged private firms to focus on growing these riskier segments after 2003 since the lack of government guarantee meant higher returns. In the place of government guarantees against default came an explosion in financial engineering, or the use of complex models and CDO instruments that restructured pools of risky mortgages into AAA-rated securities.

By focusing primarily on the financial instruments themselves, one misses the context in which these instruments emerge and assume importance. One also cannot appreciate the role they played in propelling the growth of new markets and subsequent financial meltdown. Indeed, the rapid growth of credit default obligations (CDO) and credit default swaps (CDS) were the result of the tactics of almost all of the major U.S. banking entities to enter many parts of the mortgage market and use those instruments to help them make money. They were able to capture fees at all points in the process and borrow money in order to hold CDO, thereby becoming leveraged in the process. This system was created with the aid of policymakers and Fannie Mae and Freddie Mac. But the system was predicated on home prices continuing to increase. The slowing of that increase beginning in 2006 put pressure on all of the businesses of the largest banking entities. The proximate cause of the crisis was that banks were unable to pay back those who they had borrowed money from in order to buy CDO. While CDO instruments were at the heart of the mortgage crisis, they mattered because of their embeddedness in the way that firms were making money.

Financial crises are not new (Reinhart and Rogoff, 2009). Generally, financial crises are caused by some form of asset bubble. Governments fail to act to control the bubble and observers come to think that the party will go on forever. The crisis of 2007-2010 at its core was based on the bubble in housing prices in the United States. But the link between the government, the banks, and that bubble are not well understood. Our goal is to provide a brief account of the mortgage securitization industry: the role of government in creating the market; the role of firms and innovative actors in constructing the market; and the evolution of financial products as pragmatic solutions for sellers to overcome objections of buyers. We show how firms came to sow the seeds of their own destruction in 2002-2007. Ironically, the U.S. government, which pioneered MBS instruments during the 1960s as a way to stimulate home ownership without directly involving itself in the mortgage industry, now fully owns or controls over half of the mortgage debt in the U.S.

The paper has six parts. First, we propose a general way to understand the financial cycle and the link between governments, firms, and the growth of financial products. Then, we consider the case of the market for mortgage securitization. Next, we document how the government invented the market in the 1960s. We move on to the building of the market from

1970 until 1993. Then, we examine how the industry changed from 1993-2007 and how this caused the crisis. We end by considering the unfolding of the crisis and briefly assess various arguments about the government's role in causing it. In the conclusion, we return to a broader discussion of governments, financial crises, financial instruments, and regulation.

Governments and Banks in the Construction of Financial Markets

From our perspective, the best way to study the linkages between financial markets, governments, financial firms, and financial products is to realize that they form a field. By this, we mean that actors in governments and firms take one another into account in their actions. The structure of those relationships has a history. Such fields come into existence, remain robust for some period of time, and inevitably suffer crises (Fligstein, 1996). Financial instruments have a history that is centered in this field. The creation of new instruments, their spread, use, and role in the expansion and sometimes contraction in a particular market cannot be studied outside of these broader structures (for a similar argument see MacKenzie and Millo, 2003; for evidence on the broader point see, MacKenzie et. al., 2009).

The creation of modern markets would not be possible without the intervention of governments (Fligstein, 2001). Financial markets present an interesting special case of the role of government in markets. Modern banking dates back to the early modern period when governments needed to fund their activities and turned to private investors for money (Carruthers, 1999). Governments issued the first bonds and pioneered modern bookkeeping. Many of the financial crises of the past 500 years were caused by either governments overextending themselves by borrowing too much or allowing banks to create speculative markets for various asset classes (Reinhart and Rogoff, 2009). Quinn (2010) shows that in the postwar era in the U.S., accountants, lawyers, and economists working for the federal government invented new forms of debt and pioneered the tactic of taking debts off their books. Governments also pioneered the set of strategies that we call "securitization", the tactic of selling off the rights to cash flow being generated by some asset.

Governments have underpinned financial markets in a variety of ways for a variety of reasons. Most important is that governments have used financial markets to pursue policy goals. Governments have recognized that economic growth is related to the availability of credit. From a policy point of view, democratically elected governments have had to deal with the very real needs of farmers and industrialists to finance their businesses and consumers in their pursuit of money to finance their purchase of housing, automobiles, education, and the latest gadgets. This has caused governments to generally favor the expansion of credit for themselves (to finance activities governments deemed legitimate) and to other parties.

The central activity of banks is that they operate to gather capital from people who do not have a need for it and lend it to people who do. This process, called "intermediation" is at the basis of all of the things that banks traditionally have done. The people who give the money to banks are entitled to earn some interest and the bank takes a piece of the transaction for its profit. The lendee pays interest and fees in order to secure the loan. Governments have gotten involved in this process in a number of ways. In many parts of the world, governments own banks or maintain tight control over their banking sectors. Where they have allowed private sector banks, governments have produced regulations to insure that depositors are protected. They have created insurance for lendees to guarantee that banks will not lose all of the money lent out. They have produced a wide variety of regulation to govern how much banks can lend, how much they can borrow, and how they can invest their money. Governments have created central banks to coordinate banking activities and control the money supply.

There is a great deal of variation in the precise relationship between governments and the financial sector over time and space. Understanding this relationship requires historical and comparative analysis. So, in order to understand the nature of the role of government in a particular crisis (both as cause and as the actor who cleans up the mess), it is necessary to have an account that makes sense of how the sector came to be and the role that government had been playing in the sector up to and including the crisis. In the past 150 years, there has been a cyclical quality to these relationships. A given set of arrangements proves to be robust and the financial sector expands its activities. But, inevitably, that sector is disrupted by some kind of crisis. In the wake of the crisis, governments return to the sector and reorganize the remaining firms and sets out a new set of rules. This requires governments to arrive at an account of "what the problem was". Remaining banks will try and preserve what they have and get the government to intervene on their side. This results in a re-jiggering of the field and sets up the dynamic for the next cycle (Reinhart and Rogoff, 2009).

The role of professionals, particularly economists, but also lawyers and accountants, in this process is complex but explicable. On the government side, one can expect that the people in charge of regulating the sector will have a background in the sector either based on practical experience or training in the field of economics or banking. On the firm side, the creation of new products and markets will be partially under the control of the firms, but will also be influenced by the government and what is going on in related markets. There is a current debate over the role of economists in creating financial markets (e.g. MacKenzie, et. al., 2009). Many of the financial innovations of the past 50 years were not invented by economists with PhD's but instead people working within either the government or the industry.

People like Louis Ranieri, for example, who pioneered the use of mortgage backed securities at Solomon Brothers during the late 1970s and early 1980s, came to the problem from the perspective of a bond salesman (Lewis, 1989; Ranieri, 1996). Ranieri wanted to sell mortgage backed securities, but faced several difficult problems in trying to attract buyers. He worked with government officials, but also with potential customers to overcome these problems. The idea of dividing bonds into tranches where lower tranches paid more interest but were riskier and higher order tranches were more safe but paid less interest was Ranieri's way of getting customers to buy the amount of risk with which they felt comfortable. This central feature of all CDOs was thus, not the creation of financial economists but employees of financial firms who were trying to overcome the objections of potential customers in buying bonds.

In the case of the recent financial crisis, all of these forces were at work (Albers, 2008). The regulators of the banking sector had come to share the decision premises that the leading banks had. Johnson and Kwak (2009) and Smith (2009) call this a kind of "cognitive" capture. Regulators agreed with the bank industry that the proliferation of financial products had effectively spread the risks in the financial sector to actors who could absorb them. They saw the continuous expansion of the housing sector and the use of complex credit instruments to manage the sector as "efficient" because it produced a large amount of credit for a large number of people and the market appeared to be growing and profitable. Of course, as the market began its collapse, the main players on the regulatory side consistently underestimated the severity of the downturn. In the aftermath of the market collapse, the same people remain to be in charge of re-regulation and the re-organization of the sector. This is partially because of the continued control over the regulatory apparatus by economists and people associated with the industry. But it is not obvious who else could take over such regulation. In order to understand this cycle more thoroughly, it is useful to work through the case of mortgage securitization from its invention in the 1960s to it ultimate collapse in 2007.

The Transformation of the Mortgage Market in the U.S., 1969-2010

Housing is at the core of the American economy. Indeed, owning a house has been one of the linchpins of the American dream. The purchase of a house is the largest expense that any citizen ever makes. Public policy has recognized this as an admirable goal and governments of all political persuasions worked to make ownership a reality since at least the 1920s and arguably since 1780 (Quinn, 2010). The underlying shifts in the way in which mortgages were purchased are at the core of the mortgage meltdown from 2007-2010. Our goal in this section is to describe the shift in this market from one where local savings and loan banks dominated under a set of rules provided by the government to one where the largest financial institutions used the mortgage market to feed their creation of investment products like mortgage backed securities (MBS), credit debt obligations (CDO), and credit default swaps (CDS). The federal government has been a key party to this transformation. They pioneered the financial instruments that made this possible and they provided regulation and the GSE to help structure the mortgage market.

In 1965, the main players in the mortgage market were savings and loan banks. These banks had their origins in the 19th century when they were called "buildings and loans" or sometimes community banks. These banks would take deposits from local communities and then make loans to people in those communities which were used to buy or build houses. From 1935 until the late 1980s, about 60% of mortgage debt was held by savings and loan banks while commercial banks accounted for another 20% of the market (Fligstein and Goldstein, 2010).

The government played a number of roles in creating the dominance of the savings and loans banks in the mortgage market. During the Depression, the government was concerned about home foreclosures and access to mortgages. They passed the National Housing Act of 1934, which created two government agencies, the Federal Housing Administration (FHA) and the Federal Savings and Loan Insurance Corporation (FSLIC). The Federal Housing Administration was authorized to regulate the rate of interest and the terms of mortgages and provide insurance for doing so. These new lending practices increased the number of people who could afford a down payment on a house and monthly debt service payments on a mortgage, thereby also increasing the size of the market for single-family homes. The FSLIC was an institution that administered deposit insurance for savings and loan banks that guaranteed depositor's got their money back if banks went bankrupt. Later, the FSLIC was merged into the Federal Deposit Insurance Corporation (FDIC). The government regulators acted to stabilize the mortgage market in the aftermath of the Depression. Regulation and depository insurance allowed savings and loan to prosper in the postwar era building boom by being able to take in deposits that were guaranteed to account holders and make loans to people that could also be guaranteed by insurance provided by the government. Furthermore, favorable deposit rate regulations (Regulation Q) protected Savings and Loans from competition, which was justified by savings and loan banks role in promoting the American dream of home ownership.

The mortgage market circa 2005 bears little resemblance to this relatively simple world. Today, the market contains a number of distinct segments (Kendall, 1996). Borrowers today go to a lending company (frequently a bank, but not exclusively) who now is called an "originator" because they make the initial loan. Unlike the savings and loan banks, these companies do not want to hold onto the mortgages they sell, but instead want to have them packaged into bonds, called mortgage backed securities (MBS) to be sold off to others. If they hold onto the mortgages, then their capital is now spent and they are unable to lend money again and their ability to generate fees goes away. So, they turn around and sell the mortgages thereby recapturing their capital and move back into the market to lend.

The mortgages are then packaged together into something called a special purpose vehicle by underwriters who are GSE, investment banks, or commercial banks. This vehicle turns the mortgages into a bond that pays a fixed rate of return based on the interest rates being paid by the people who buy the houses. These bonds are then rated by bond rating agencies in terms of their risk involved and sold to various classes of investors. These special purpose vehicles divide up the mortgages into what are called "tranches". Here the mortgages are separately rated by bond agencies in terms of their riskiness. In this way, investors can buy riskier bonds that pay a higher rate of return or less risky bonds that pay a lower rate of return. The special purpose vehicles are managed by firms called servicers, who collect the monthly mortgage payments from the people who actually own the mortgage and disburse them to the bond holder. MBS have subsequently been repackaged into so-called MBS CDO. Here, buyers could purchase tranches of financial instruments that were based on a set of MBS. But both MBS and MBS CDO are ultimately based on the cash flow coming from mortgage payments (Tett, 2008).

Our imagery is one where circa 1975 mortgages were highly geographically dispersed in their holdings and held locally by savings and loan and commercial banks. Now, after they are issued, they migrated to a few square miles of Manhattan where in the offices of the major banks and GSE they are packaged into special purpose vehicles. They then are re-dispersed to investors all over the world (although they are serviced from a few locations). Investors are a heterogeneous group. The largest investors in these securities are the GSE who held onto lots of MBS. But, MBS are held by commercial banks, investment banks, savings and loan, mutual funds, and private investors here and around the world (Fligstein and Goldstein, 2010). The interesting question is how did we move from a world where the local buyer went to their local bank to get a loan to one where most of the mortgages in the U.S. are now packaged into MBS and CDO and sold into a broad national and international market?

It will surprise most readers that the origins of the MBS and the complex financial structure we just presented were not invented by the financial wizards of Wall Street, but instead were invented by the Federal government. It is probably even more surprising that this set of inventions dates back to the 1960s. Quinn (2008) shows that the idea to create mortgage backed securities began during the administration of President Johnson. The Johnson Administration was worrying about two issues: how to expand house ownership and how to do it in a way that would not increase the federal budget deficit. The Democratic Congress and President wanted to rapidly increase the housing stock as part of its "Great Society" programs. They had three goals:

to increase the housing stock for the baby boom generation, to increase the rate of home ownership, and to help lower income people to afford housing. Quinn (2008) shows that the Johnson Administration did not think the fragmented savings and loan industry was in the position to provide enough credit to rapidly expand the housing market. But, federal officials were also worried about the size of the budget deficit. Because of the Vietnam War and the Great Society expansion of Medicaid, Medicare, and other social benefits, the government was running large and persistent debts. An expensive housing program where the government provided funds for mortgages would add to the deficit, because the government would have to borrow money for the mortgages and hold those mortgages for 30 years.

If the government was going to stimulate the housing market, the Johnson Administration would need to do it in such a way as to not add to the federal deficit. This caused them to reorganize the Federal National Mortgage Association (now called Fannie Mae) as a quasi-private organization, called a GSE (GSE), to lend money and hold mortgages. They also created another GSE, the Federal Home Loan Mortgage Corporation (now called Freddie Mac) to compete with Fannie Mae and a government agency to insure those mortgages against risk of default Government National Mortgage Association (now called Ginnie Mae). The idea of the GSE was that the loan guarantees they provided would be backed ultimately by the federal government.

But taking these mortgage granting entities private was not the only innovation of the Johnson Administration. The government also pioneered the creation of mortgage backed securities (Sellon and VanNahmen, 1988). The government, even in the GSE, did not want to be the ultimate holder of the mortgages it helped to sell. In order to do this, it needed to find a buyer for those mortgages. It did so by offering and guaranteeing the first modern mortgage backed securities (MBSs) which were issued as bonds through Fannie Mae and Freddie Mac. These bonds could then be sold directly to investors and were sold by the GSE or through investment banks (Barmat, 1990). The first mortgage backed security was issued on April 24, 1970 by Ginnie Mae (Wall Street Journal, 1970)

The private MBS market barely grew in the 1970s. There were several issues. Potential buyers of mortgage bonds were skeptical of buying mortgage-backed securities because of prepayment risk. The problem was that if you bought such a bond, people might pre-pay the mortgage before the end of the mortgage term and bond holders would get their money back before they made much of a profit. This was made worse by the fact that mortgage holders were more likely to re-finance houses when interest rates were falling thus leaving bondholders with money to invest at interest rates lower than the original mortgages (Kendall, 1996).

This problem was ultimately solved through joint cooperation between the GSE and investment banks. They created the system of “tranching" described above in order that investors could decide which level of pre-payment risk they wanted (Brendsel, 1996). But there were also legal and regulatory issues involved in the packaging of bonds (Quinn, 2008; Ranieri, 1996). The most important was the problem of turning a mortgage into a security. The issue of a loan originator selling the mortgage into a pool of mortgages required changing the tax laws. The Tax Reform Act of 1986 cleared the way to the expansion of the MBS market. Investment banks and government officials worked together to solve these problems.

The demise of the savings and loan banks was an unexpected collapse that hastened the growth of the MBS market (Barth, 2004). The general economic crisis of the 1970-80s produced very high interest rates. Savings and loan banks relied for most of their funds on individual deposits. The regulation known as Regulation Q fixed the rate that savings and loan banks could pay on these deposits. Savers began to flee those accounts and the savings and loan industry faced the crisis that they could not raise enough money to make new loans. Moreover, they were holding onto a large number of mortgages that were priced at very low interest rates. Congress responded by passing the Garn-St. Germain Act. They repealed regulation Q and allowed the banks to pay whatever interest rate they chose on deposits. They also deregulated the asset side, allowing all banks to invest in a wider and riskier array of assets while still guaranteeing very large deposits. This meant the effective end of segmented banking.

The banks responded in several ways. First, savings and loans increasingly abandoned their historic role as mortgage intermediaries. They began to sell their mortgage holdings at a great loss in order to raise capital. These mortgages were repackaged into MBS, primarily by Solomon Brothers (Lewis, 1990). Savings and loans also began to pay high interest on rates on government guaranteed bank accounts. Many S&Ls then made very risky investments in commercial real estate which helped create a commercial real estate bubble. This caused their ultimate demise (Barth, 2004). Savings and loan banks failed and the government ended up having to take them over and spend $160 billion on a bailout.

As the Savings and Loans left the mortgage finance sector, the federal government took up the slack as the provider of mortgage credit. In 1980, the GSE had only packaged about $200 billion of mortgages debt into MBS. By 1990, 50% outstanding mortgage debt was in GSE pools and another 10% was being held by the GSE. The GSE were directly involved in 60% of U.S. mortgages, and only 15% were held by Savings and Loans (Fligstein and Goldstein, 2010).

Despite the central role of the government as the main guarantor of mortgage risk, the overall structure of mortgage finance markets was quite fragmented both vertically and horizontally during the early 1990s (Jacobides, 2005; Davis and Mizruchi, 1999). Around the GSEs were arrayed a large number of relatively small originators and mortgage servicers who provided the inputs and serviced the outputs of the agency-backed MBS (see Fligstein and Goldstein 2010 for a more detailed discussion of concentration in mortgage finance markets).

But this interregnum of government centrality during the 1990s proved brief. Over the course of the decade the state and the banks worked to grow the MBS market and re-embed mortgage finance in the private sector. The transformation of the mortgage finance industry during the late 1990s and 2000s involved several closely interrelated shifts: the reorientation away from prime toward non-conventional mortgages and the associated shift in market share from the GSEs to the private banks, the development of new strategies amongst those banks for vertically integrating and mass-producing mortgage debt products, the increasing consolidation of the market around a small set of dominant firms, and the proliferation of more complex financial instruments that transformed risky mortgages into AAA securities and made them more palatable to investors. The government and the GSE encouraged banks of all kinds to enter into the market as part of their policy drive to increase home ownership. They also responded to the desires of all kinds of banks to be free of regulation and enter whichever segments of the market they chose. It is to the story of the past 20 years that we now turn.

The Rise of the Industrial model of the MBS Market, 1993-2007

Until 2003 most MBS were sponsored by the GSE. The GSE relied on either the commercial or investment banks to put these packages together by originating or acquiring the mortgages, underwriting the MBS and helping sell them to investors. Indeed, the GSE worked to bring more and more financial firms into the MBS business. Those who did this included Lehman Bros., Bear Stearns, Merrill Lynch, Morgan Stanley, and Goldman Sachs. Of course, commercial banks and bank holding companies like Bank of America, Wells Fargo, Citibank, and Countrywide Financial were also deeply involved in the selling and packing of mortgages and MBS.

At the same time that they became more involved in the securitization process, the largest banks became more and more integrated in the chain of production from the origination of mortgages to their ultimate sale as MBS from 1993-2007. Banks began in the 1990s to view their business as not based on long term relationships to customers who would borrow and pay off their debts, but instead as fee based. This meant that banks were no longer interested in making loans to customers and holding the loans but instead were more interested in generating fees from various kinds of economic transactions. This was a response to the downturn in their core businesses of lending to long time customers (James and Houston, 1996). DeYoung and Rice (2003) document these changes across the population of commercial banks. They show that income from fee related activities increases from 24% in 1980 to 31% in 1990, to 35% in 1995, and 48% in 2003. This shows that commercial banks were moving away from loans as the main source of revenue by diversifying their income streams well before the repeal of the Glass Steagall Act. The largest sources of this fee generation in 2003 were (in order of importance) securitization, servicing mortgage and credit card loans, and investment banking (DeYoung and Rice, 2003: 42).

Mortgage finance corresponded perfectly with a fee-based orientation. Financial firms realized they could collect fees from selling mortgages, from packaging them into MBS, from selling MBS, and from holding onto MBS where they could earn profits using borrowed money (Currie, 2007; Levine, 2007; DeYoung and Rice, 2003). The increased attention to fee revenue from securitization and mortgage servicing was accompanied by a huge growth in their portfolios of real estate assets. DeYoung and Rice show that banks did not just shift towards a fee generating strategy, but also shifted the focus of their investments. Instead of directly loaning money to customers, banks would either sell mortgages or package them into MBS. They would then borrow money to hold onto a portion of the MBS. Commercial banks' real estate loans represented 32% of assets in 1986, increasing to 54% of assets in 2003. Why did this happen? They did this because holding onto the MBS was where the money was made. Mortgage Servicing News (2005) estimated that mortgage origination accounted for 10% of the profit on a real estate loan, while holding the MBS accounted for 70% and servicing the loan accounted for 20%. By 1999, Bank of America, Citibank, Wells Fargo, and J.P. Morgan Chase, the largest commercial banks all had shifted their businesses substantially from a customer based model to a fee based model where the end point was for customers' loans to disappear into MBS.

This new integrated fee-based approach amounted to an "industrial" model for the mortgage business. The original pioneer in producing this conception of mortgage finance was not a bank, but Countrywide Financial. Countrywide Financial was founded in 1969 by David Loeb and Angelo Mozilo. During the 1970s, the company almost went bankrupt as it tried to expand its mortgage business across the U.S. during the bad economic times of high interest rates and high inflation. But during the 1980s, the firm invested heavily in computer technology in all phases of its business. In the 1980s, the company expanded dramatically across the country began entering all of the activities of the mortgage industry. By the mid 1990s, it had entered into every segment of the mortgage industry. It purchased, securitized, and serviced mortgages. It operated to deal mortgage backed securities and other financial products and also invested heavily in mortgage loans and home equity lines. During the mid 1990s, the company began to enter the subprime mortgage market and was a leader in that market for the next 10 years. In 2006 Countrywide financed 20% of all mortgages in the United States, at a value of about 3.5% of United States GDP, a proportion greater than any other single mortgage lender. Its rapid growth and expansion made it one of the most visible and profitable corporations of the past 20 years. Between 1982 and 2003, Countrywide delivered investors a 23,000.0% return (Fligstein and Goldstein, 2010). Countrywide's success became the model for a large number of banks as they expanded their MBS businesses, as well other mortgage finance firms like GMAC and GE Capital.

The vertical integration of MBS production was spurred on by the desire of firms to control the mortgages from the point of origination to their ultimate sale. Anthony Tufariello, head of the Securitized Products Group, in a press release distributed when Morgan Stanley bought Saxon Capital suggested that:

"The addition of Saxon to Morgan Stanley's global mortgage franchise will help us to capture the full economic value inherent in this business. This acquisition facilitates our goal of achieving vertical integration in the residential mortgage business, with ownership and control of the entire value chain, from origination to capital markets execution to active risk management." (2006)

Dow Kim, president of Merrill Lynch's Global Markets Investment Banking group made the very same point in announcing the acquisition of First Franklin, one of the largest subprime originators in 2006:

> "This transaction accelerates our vertical integration in mortgages, complementing the other three acquisitions we have made in this area and enhancing our ability to drive growth and returns." (2006)

Thus another significant consequence of the industrial model was that the mortgage sector became a focal point for diverse types of financial institutions to enter new businesses. Countrywide Financial started (a mortgage broker) and Washington Mutual Bank (a savings and loan bank) both rapidly entered into all parts of the mortgage business during the 1990s. On the investment bank side, Bear Stearns, an investment bank, entered the mortgage origination business by setting up lender and servicer EMC in the early 1990s. Lehman Brothers, another investment bank bought originators in 1999, 2003, 2005, and 2006 (Currie, 2007). Both GMAC and GE Capital moved after 2004 into the subprime mortgage origination industry and the underwriting of MBS (Inside Mortgage Finance, 2009). During the subprime mortgage boom, Morgan Stanley, Merrill Lynch, and Deustche Bank all bought mortgage originators (Levine, 2007).

One of the main propellers of this convergence and integration after 2000 was the repeal of the Glass-Steagall Act (Hendrickson, 2001; Barth, et. al., 2000). The Glass-Steagall Act was enacted in 1935 during the Depression. One of its main rules was to force banks to choose whether or not they wanted to be investment banks or commercial banks. During the past 25 years, policymakers and bankers have worked to have this barrier broken down, largely because of the MBS business. As that business became larger, commercial banks wanted to be able to sell loans (be originators), package loans (be conduits), and hold onto loans (be investors). As banks like Bank of America and Citibank saw that fees for putting together these packages ended up with investment banks, they lobbied to have the barrier removed. They got their wish. The Glass-Steagall Act was rescinded in 1999 and banks were allowed to be in any business they chose.

At the same time that firms were diversifying both horizontally and vertically into multiple market segments, each of these individual markets was also becoming much more concentrated around a core set of dominant firms. The market share of the top five originators stood at 16.3% in 1996, a remarkably unconcentrated figure. But by 2007, the top five originators accounted for 42% of a much larger market. In 1990, the 25 largest lenders accounted for less than 30% of the mortgage market. This rose steadily during the 1990s and by 2007, the top 25 originators controlled 90% of the market. Similarly, if one looks at the top 10 conduit issuers in 2007, the total is 71%. So, there was not just a rapid growth in the size of these markets, but also a rapid concentration of activities in fewer and more nationally oriented banks (Fligstein and Goldstein, 2010). The evolution of regulations and firm strategies meant that by the early 2000s the formerly fragmented mortgage finance markets had been combined into a single market with players vying for opportunities at all parts of the market.

Reorientation Towards Subprime Mortgages

By 2003, investors of all kinds, commercial banks, investment banks, hedge funds, insurance companies, and other private investors had figured out how to use leverage by borrowing money cheaply to buy MBS. Investors who actually had cash, like pensions funds, insurance companies, and governments and banks around the world were seeking out safe investments that paid more than 1-2% like government bonds. American mortgages seemed like a good bet. The underlying assets of mortgages were houses and the MBS contained mortgages from all over the country, thereby appearing to be diversified geographically. American housing prices had risen steadily for as long as anyone could remember. Finally, MBS were rated and it was possible to secure "AAA" rated bonds. This made American mortgages seem like low risk, high yield investments.

Two factors spurred the pronounced shift in the composition of the mortgage sector toward riskier non-conventional mortgages after 2003 (Goldstein and Fligstein 2010). First was that the supply of conventional mortgages peaked in 2003 and began a rapid decline hereafter. About $2.6 trillion worth of conventional or prime mortgages were bought in 2003, which were mostly refinancings driven by extremely low interest rates. But in 2004 interest rates increased slightly and prime mortgage origination dropped to $1.35 trillion, a decline of almost 50%. So, while those who had money to buy MBS were looking for product, the saturation of the prime market meant that packagers of MBS lacked enough to sell. Also, banks and mortgage specialists had learned to profit from industrialized securitization and had built expanded organizational structures predicated upon the input of more raw mortgages. This meant that there was a huge incentive to find new sources of mortgages.

Firms compensated by aggressively expanding the formerly small niche market for subprime loans and home equity loans. In 2004, for the first time, these loans exceeded the prime market. In the peak of the mortgage craze in 2006, fully 70% of all loans that were made were non-conforming mortgages of one form of another. This astounding change in the character of the mortgage market was noticed by regulators and Congress. But, the Federal Reserve chose to ignore what was going on. Alan Greenspan has famously testified before Congress that the reason he did nothing to stop this rapid growth in subprime mortgages is that he did not believe that banks would have made these loans if they thought they were too risky. He is also on record as saying that he clearly was mistaken on this point.

Government regulations also shaped the development of non-conventional markets in less direct ways. Most fundamental is the fact that the GSEs were barred from including subprime mortgages in their pools. This created a demarcated segment that the banks could have all to themselves. So while the shift toward non-conventional mortgages was spurred primarily by the supply crisis in the prime market, non-conventional markets offered firms the opportunity to cut out the government as middleman, integrate entirely, and realize higher yields due to the lack of government guarantee against default.

Complex Instruments

The use of complex financial instruments was one of the key factors that allowed firms to expand non-conventional securitization because these technologies could be used to transform pools of even the riskiest mortgages into investment-grade securities. CDOs (re-securitizations of existing MBS securities) and CDSs (quasi-insurance against a defaulting MBS or CDO) were both modeling-intensive tools widely believed to guard against default risk by spreading it and minimizing its financial impact. CDO instruments thereby provided an infrastructure for firms to securitize and sell trillions of dollars of risky mortgages.

But the explosion of these instruments around non-conventional mortgage securitization was also at root a product of the structure of relations between firms and the state in the market. The fact that regulations barred the GSEs from issuing and guaranteeing subprime-backed MBS required an alternative means of making these products palatable to risk-averse investors. Sophisticated statistical models (and their devilish assumptions) came to replace the government guarantee as a way of dealing with MBS defaults.

Assessing the State's Role in Creating the Financial Crisis

The preceding analysis suggests that the key developments in the mortgage finance field leading up to the subprime crisis resulted from the co-evolution of state policies and firm strategies. So what of the state's precise role? A comprehensive accounting of relevant regulatory (in)-actions is beyond the scope of this chapter, but we present a few remarks on important aspects of the debate.

The subprime meltdown is often framed as an inevitable outgrowth of the Fed's low interest rate policy. While low interest rates were a necessary condition for fuelling the housing price bubble and heightening the attractiveness of high-yield MBS, it was actually an increase in rates in 2004 that hastened the rapid growth of risky mortgage debt as firms sought out new loan markets to compensate for the drop-off in refinance loans (Goldstein and Fligstein 2010). The main role of the Fed and other regulators was to refuse to halt the banks' reckless strategies in accordance with their belief in the efficient market hypothesis. Indeed the OTS, the OCC, the SEC, and the Federal Reserve all failed at key junctions to place any restraints on the banks' expansion of subprime lending or their growing leverage.

Some commentators have argued that the state's more activist interventions into the mortgage markets – particularly policies designed to extend credit to historically underserved communities – amounted to market distortions that drove lenders to increase credit to risky borrowers. In particular, the Community Reinvestment Act (CRA) is often cited by critics as a key governmental contributor to the risky subprime boom. The comprehensive report submitted to Congress by the Department of Housing and Urban Development presents a littany of evidence against this view (HUD 2009). Financial firms embraced these markets because they figured out that was where profits were highest, not because the government pressured them. The problem was not so much the state's purposeful efforts to expand credit provision as it was the state's failure to place any limitations on the banks' reckless expansion of credit.

What has saved the financial sector is the government takeover of the GSE and the propping up of the rest of the banking system. The mortgage market is still one characterized by the industrial organization of banks but these banks are now more heavily concentrated and control more and more of the market. Government is the main player who is now providing loans into the mortgage market. By virtue of its ownership of Freddie Mac and Fannie Mae, and its takeover of assets of failed banks, the government now owns half of the mortgages in the U.S. Ironically, in the 1960s, the government set up the GSE and created the MBS in order that they could increase home ownership without direct government ownership of mortgages. But their 40 year efforts to create a large private market for mortgages rose spectacularly and failed. Today, they own the largest share of the market.

Conclusion

Our paper provides an account of the development of the mortgage finance sector during the past forty years, and in doing so seeks to clarify the central but often subtle role of the state in this process. In essence, the housing bubble was being driven by financial institutions who wanted to be vertically integrated and mass-produce MBS and CDO in order to make money off of all phases of the securitization process. The financial institutions evolved from the early 1990s until 2007 in a way that made them able to innovate and capture more and more profit making activity. The “industrial” model was enormously profitable as long as house prices went up and the size of the market grew. The low interest rates of the early 2000s fuelled this model as it provided incentive to increase the supply of mortgages that were originated. The main source for those mortgages from 2001 until 2004 was the conventional mortgage market where nearly everyone who could have refinanced a mortgage did so. The demand for MBS from investors could not be satisfied by the prime mortgage market. Beginning in 2004, all of the main players in the industry shifted their attention to subprime mortgages. They discovered that they could package these mortgages and sell their higher returns to customers, but also hold onto to these higher returns by buying them into their own portfolio. In essence, the financial community who wanted to buy and hold MBS and CDO drove the subprime market, where there were even higher profits to be had.

The fall was caused by the fact that at the end of the day, the underlying assets in the bonds were not really AAA. Mortgagees started to default as they could no longer make payments or keep up with adjustable mortgages. Even once the housing market started to turn down and defaults rose, large banks continued buying up subprime lenders in a bid to keep the raw materials flowing through the pipeline. The same industrial strategy which had allowed the banks to grow the subprime bubble would also prove to be a source of it's unraveling.

We note that this account diverges from much of the sociological literature on financial markets in general, and from extant explanations of the MBS meltdown in particular. The "financialization" of the American economy made all of this possible and indeed, made it the core profit center of the U.S. economy (Davis, 2009; Krippner, 2005). But the "financialization" perspective misses the profound ways in which mortgage finance began transforming into a vertically integrated "industrial" model in the 1990s and spread to all of the major players by 2006. The "actor-network/performativity" model rightly points out that the rise of the MBS and CDO boom occurred through the proliferation of ever more complex securitization technologies, particularly CDO. But, this perspective errs in supposing that the explanatory salience of CDOs derives the features of the instruments themselves rather than from their role in the broader industrialization of mortgage finance.

If we are right, large firms increasingly came to dominate mortgage finance in the years leading up to the meltdown. They did so with the help and approval of government regulators and the GSE which were all interested in increasing the availability of credit and home ownership. Yet most sociological work on financial markets has not placed firms and the government at the center. Scholars have focused instead either on macroscopic historical shifts whereby financial markets supplant firms (Davis 2009), or on micro-level structures and the rationalities of individual traders (Knorr Cetina and Bruegger 2002). Our account implies that the key developments in the industry are wholly unapparent without focusing on firms, GSE, and the government as the central actors.

The role of government regulators in this process demands further research. We know of some key events and actors, but we know less about what they knew and when they knew it. There were warning signs that the industry was in trouble as early as 2005, but they were ignored. It is easy to conclude that this was a case of regulatory capture of the government by the financial sector. But, the story is more complex: the regulators shared the assumptions of the sector and therefore did not just get undermined, but appeared to be willing and helpful participants.

Economists and historians have been studying the Great Depression of the 1930s on and off for the past 80 years. This is because scholars were not satisfied with the conventional wisdoms of the moment as explanations of what happened. Our paper has worked to provide an interpretation of how to make sense of the industry over time by focusing on the role of government and firms in innovating financial products and structuring the market. We hope it stimulates more efforts to apply all of the tools of economic sociology to understand the "great recession" of 2007-2009.

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