

**Joint Center for Housing Studies  
Harvard University**

**Rebuilding the Housing Finance System After  
The Boom and Bust in Nonprime Mortgage Lending**

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July 2010  
MF10-10**

The authors wish to acknowledge the following individuals for their help in researching this paper: Daniel McCue, Meg Nipson, Kevin Park, Polina Dekhtiar, and Jordan Roberts. The authors also wish to thank William C. Apgar for his advice and for his work on this project. Lastly, the authors wish to thank Frank DeGiovanni and George C. McCarthy of the Ford Foundation for their support and keen insights into the operation of mortgage markets.

Paper originally presented at *Moving Forward: The Future of Consumer Credit and Mortgage Finance* – A National Symposium held on February 18 and 19, 2010 at Harvard Business School in Boston, Massachusetts.

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The boom and bust in nonprime<sup>1</sup> and nontraditional<sup>2</sup> mortgage lending in the United States is without precedent. The factors that fueled the boom and the way it unfolded sowed the seeds for what, in hindsight, appears to be an inevitable bust. The amount of risk in the system ballooned as a result of changes in lending practices. At the same time that credit was opened up to borrowers who had been previously denied loans because of past problems repaying their debts, many other underwriting standards were loosened. In addition, products with heavy payment reset risks proliferated in both the prime and nonprime markets. This layering of risk at or near the peak of an overheated housing market proved very deleterious to loan performance.

Yet, few predicted that performance in the nonprime mortgage market and the way they were packaged, sold, and referenced in the global capital markets,<sup>3</sup> would cause a loss of investor confidence so profound that it would spark a severe global financial crisis. It was not until August 2007 that the Federal Reserve decided that the rapidly eroding performance of subprime mortgage loans—and evaporating demand for the securities they backed—was enough of a threat to the broader economy to ease monetary policy. In an unusual move, the Fed lowered the discount rate for borrowing from the Federal Reserve in between regularly scheduled meetings of the Federal Open Market Committee. Although the committee held the more important federal funds rate target constant until its September meeting, lowering of the discount rate signaled both its concern and willingness to take action to contain the damage from the deteriorating subprime residential mortgage market.

These interventions would prove inadequate. A little more than a year later, and within the span of less than two weeks, the government helped rescue Bear Stearns and Merrill Lynch from collapse, allowed Lehman Brothers to fail, and bailed out insurance giant AIG. Credit markets froze nearly solid in the fall of 2008, the stock market went into a freefall, and job losses

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<sup>1</sup> “Nonprime” encompasses subprime, Alt-A, and higher-price lending. “Subprime” and “Alt-A” are, however, imprecise terms. Typically, subprime loans are made to borrowers with credit scores below a certain cutoff (commonly a 620 cutoff, although somewhat higher cutoffs may also have been used by some lenders when self-identifying loans). Alt-A mortgages are typically loans to borrowers with near-prime credit scores and/or loans requiring little or no income documentation or that allow high debt-to-income ratios. All three nonprime loan categories also include some loans with high loan-to-value ratios. When referring to federal Home Mortgage Disclosure Act data, the term “higher-price” is used because it has a very specific definition. While often used interchangeably, the terms subprime and higher-price loans are not equivalent. Definitional issues make drawing common conclusions about nonprime lending difficult.

<sup>2</sup> “Nontraditional” encompasses loan products that saw only limited use prior to the 2000s, such as interest-only and payment-option loans. Interest-only loans expose borrowers to payment resets when principal payments kick in after a pre-specified period. Payment-option loans can result in negative amortization. Balloon loans also fall under the nontraditional heading, as do some adjustable-rate loans such as 2/28 loans with teasers. All these loans expose borrowers to extra risk. There is some overlap between nonprime lending and nontraditional products (and a large overlap if adjustable-rate hybrid loans with teasers are included) because some nonprime borrowers were extended these loan products.

<sup>3</sup> Capital markets are the secondary markets where loans with terms of one year or more, and the securities backed by them, are bought and sold.

accelerated sharply. The interconnectedness of the global financial system became apparent as problems emanating from residential debt in the United States and in the derivatives used to hedge and trade mortgage risk prompted a global credit crisis.

Uncovering the causes of the nonprime boom and bust is essential to the formulation of effective government and business responses to the crisis. At stake are not only the safety and soundness of the financial system the next time that excess global liquidity creates pressure to relax underwriting standards and raise leverage, but also the access that Americans will have to mortgage credit, on what terms, and at what cost. Access to mortgage credit is vital to asset-building through homeownership and opens up avenues to finance consumption and investment on terms that are generally more favorable than consumer credit. It is not something that government can easily back away from without risking great economic dislocations. Especially at a time when the share of US households with credit problems has soared, how credit-impaired borrowers are treated will shape asset-building opportunities during the next economic expansion for millions of Americans. And while the recent housing bust has underscored the risky nature of investing in residential real estate, it has also created the conditions—house-price-to-income ratios in some locations at or near lows not seen since the early 1990s—that could make homeownership very attractive for years to come.

Understanding the boom and bust in nonprime and nontraditional lending first requires a brief discussion of the evolution of the housing finance system in the US from the 1970s onwards.

### **The Evolution on the Modern US Housing Finance System**

Throughout the 1970s, 1980s, and 1990s, mortgage lending was conducted with a limited number of mortgage products that dominated the market and underwritten, with few exceptions, to long accepted common standards. These relatively stringent underwriting criteria formed the backbone of a single “prime” market in which credit was allocated by adhering to these tight standards and charging all that were able to qualify for mortgages a very similar interest rate. Only higher loan-to-value ratio loans commonly incurred the additional payment of a private or government mortgage insurance premium to offset the greater risk associated with lower downpayment lending. As such, the system of credit allocation was considered a rationing system rather than a risk-based pricing system. This began to change around the early to middle 1990s when—haltingly at first—borrowers with previous problems repaying their debts were

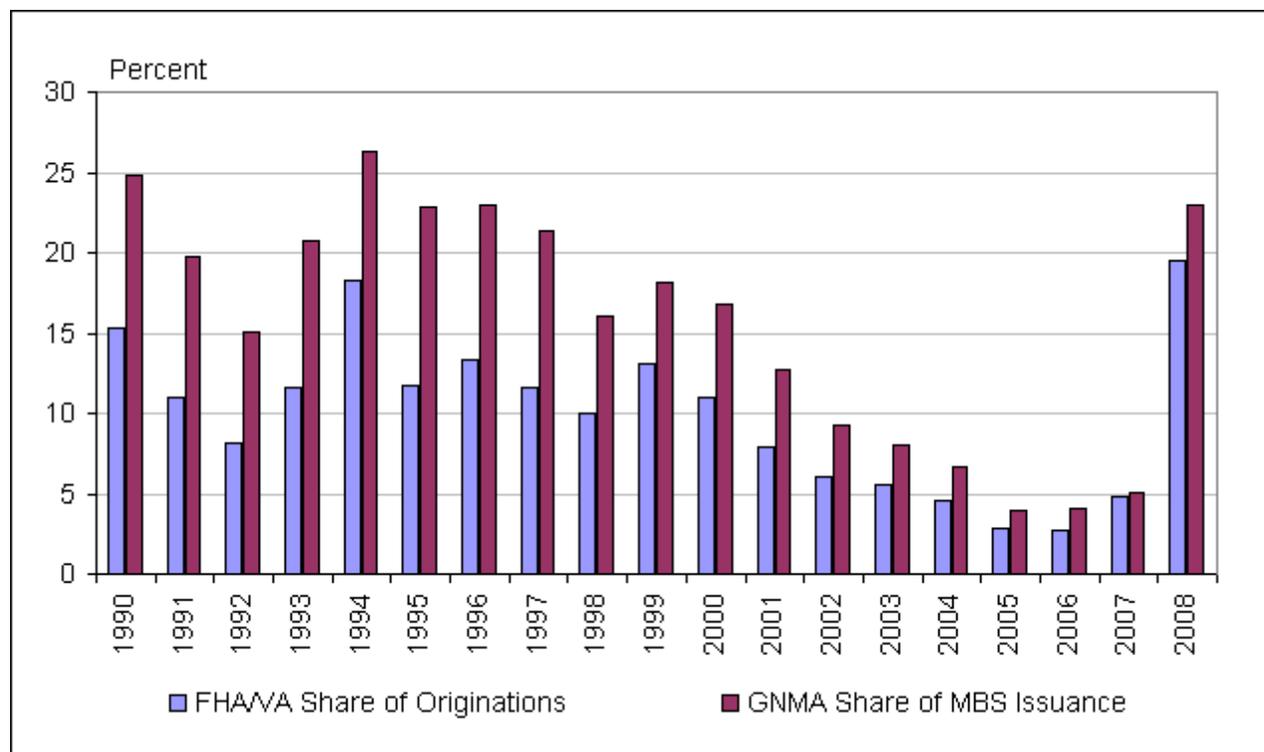
allowed to qualify but charged a higher interest rate to cover an expected higher risk of default. Thus began a period of pricing for risk in a nonprime market rather than allocating mortgage credit at a common price in a single prime market. Around the same time, the number of mortgage products available to borrowers began to slowly increase, first with more widespread use of “hybrid” adjustable rates (which had an initial adjustment period of more than one-year followed by conversion to a fixed rate). But by the mid-2000s nonprime lending had taken off and nontraditional products had proliferated.

### **The Segmentation of the Mortgage Market**

During the 1970s, 1980s, and most of the 1990s, the mortgage market was essentially segmented into three parts. Two were parts of the “conventional” market, defined as the market for loans that did not have explicit federal guarantees against loss of principal. The largest segment of the mortgage market was the “conforming” side of the conventional market. This was the market for loans purchased by or placed into mortgage backed securities (MBS) guaranteed by Fannie Mae and Freddie Mac. These two shareholder-owned corporations were chartered by Congress. Because of their unique charters and small lines of credit from the U.S. Department of Treasury, these Government Sponsored Enterprises (GSEs) were perceived by investors as having the implicit backing of the federal government. The two factors that made loans “conforming” is that they followed the exacting underwriting standards demanded by these two corporations and also fell underneath loan size limits established by the federal government and benchmarked to a federal index. The other segment of the conventional market was the “jumbo” side. This was the market for loans above the conforming limits established for Fannie Mae and Freddie Mac or not acceptable to them because they deviated from the underwriting requirements of these two secondary mortgage market giants. While some small portion of these jumbo loans had more lenient standards or product features than Fannie Mae and Freddie Mac would accept, the overwhelming majority simply was above the loan limits. Thus, the conventional market for nearly the entire period also was the prime market. The third segment of the market was made up of loans or MBS explicitly guaranteed by the federal government. Loans insured by the government had more lenient down payment and to debt-to-income requirements than conventional loans and were subject to relatively low mortgage limits established by Congress. The two major agencies insuring mortgages with the full faith and

credit of the federal government were the Federal Housing Administration (FHA) and the Veteran’s Administration (VA). Ginnie Mae was the agency that guaranteed the timely payment of principal and interest of securities backed by loans insured by FHA. Figure 1 shows these shares over time.

**Figure 1. FHA Market Share Soared After ABS Markets Collapsed**



Source: Inside Mortgage Finance, 2009 Mortgage Market Statistical Annual.

**The Growth of the Secondary Mortgage Market**

A hallmark of the evolution of the housing finance system since the 1970s is the growth and development of the secondary market for mortgages, mostly in the form of securities they guaranteed. The secondary market developed rapidly over the course of the 1980s and continued to grow in the 1990s and 2000s. Initially, the movement away from holding whole loans in portfolios was precipitated by macroeconomic events in the 1980s and a series of laws that deregulated mortgage lending and supported the secondary market in general and Fannie Mae and Freddie Mac in particular. These included the Depository Institutions Deregulation and Monetary Control Act, the Alternative Mortgages Parity Act, and the Secondary Mortgage Market Enhancement Act. The

macroeconomic events that facilitated it included the deep recession of the early 1980s and the wild gyrations in interest rates that hurt banks and thrifts stuck holding 30-year fixed rate mortgages when interest rates first rose sharply (because the interest rate they had to offer to attract depositors were above the interest rates on the loans they held in portfolio) and when then when rates plummeted (because borrowers prepaid their mortgages and returned principal at a time when mortgage rates were much lower) (Curry and Shibut 2000).

These events led more and more lenders to seek ways to get the implicit backing of the federal government by selling loans to Fannie Mae and Freddie Mac or get explicit backing by using FHA insurance and Ginnie Mae MBS guarantees. In addition, these events generated interest in finding ways to convert illiquid assets into more tradable and liquid homogenous securities with implicit or explicit government backing. Financial engineering in the secondary market gave another reason: the capacity to buy different classes of multiple class securities backed by a single pool, with each class having different priorities to principal and interest payments—and hence exposures to prepayment risks. This process was known as “structured” finance because classes were structured to appeal to a variety of different appetites for prepayment risk. Lastly, as banks and thrifts lost market share to pension funds and insurance companies, and as appetite for dollar-denominated mortgage assets around the world increased, the demand for securities backed implicitly or explicitly by the federal government also grew. Investors that did not make the mortgage loans or specialize in mortgage lending could look past the credit risk that taking on such debt might pose when acquiring mortgage assets. Thus, participants in the market were persuaded that credit risk was fully neutralized by FHA and Ginnie Mae, Fannie Mae, or Freddie Mac guarantees (with private mortgage insurance playing a supporting role).

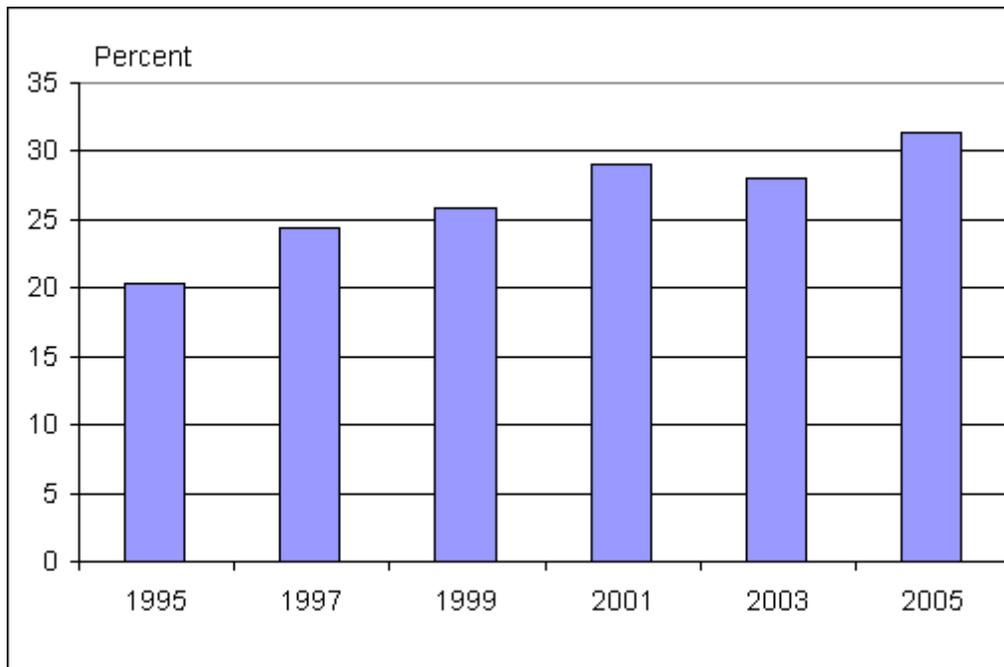
### **Industry Consolidation and the Originate-to-Distribute Model**

Two other important developments in the 1980s and 1990s are also worth noting. One—the increasing reliance on an “originate-to-distribute” model—is directly related to the growth in the secondary market. The other was consolidation within the industry.

As the secondary market developed, more and more mortgages were originated by brokers, mortgage bankers, and banks and thrifts that collected a fee for originating loans (and sometimes retaining servicing rights and the fees associated with them) but then conveyed loans to issuers of “agency” MBS (as MBS guaranteed by Fannie Mae, Freddie Mac, and Ginnie Mae

were called). During the 1990s, brokers steadily increased their share of the originations from 18.8 percent in 1994, to 27.9 percent in 2000, to a peak of 31.3 percent in 2005 (Figure 2).

**Figure 2: The Broker Share of Originations Climbed from 1995-2005**



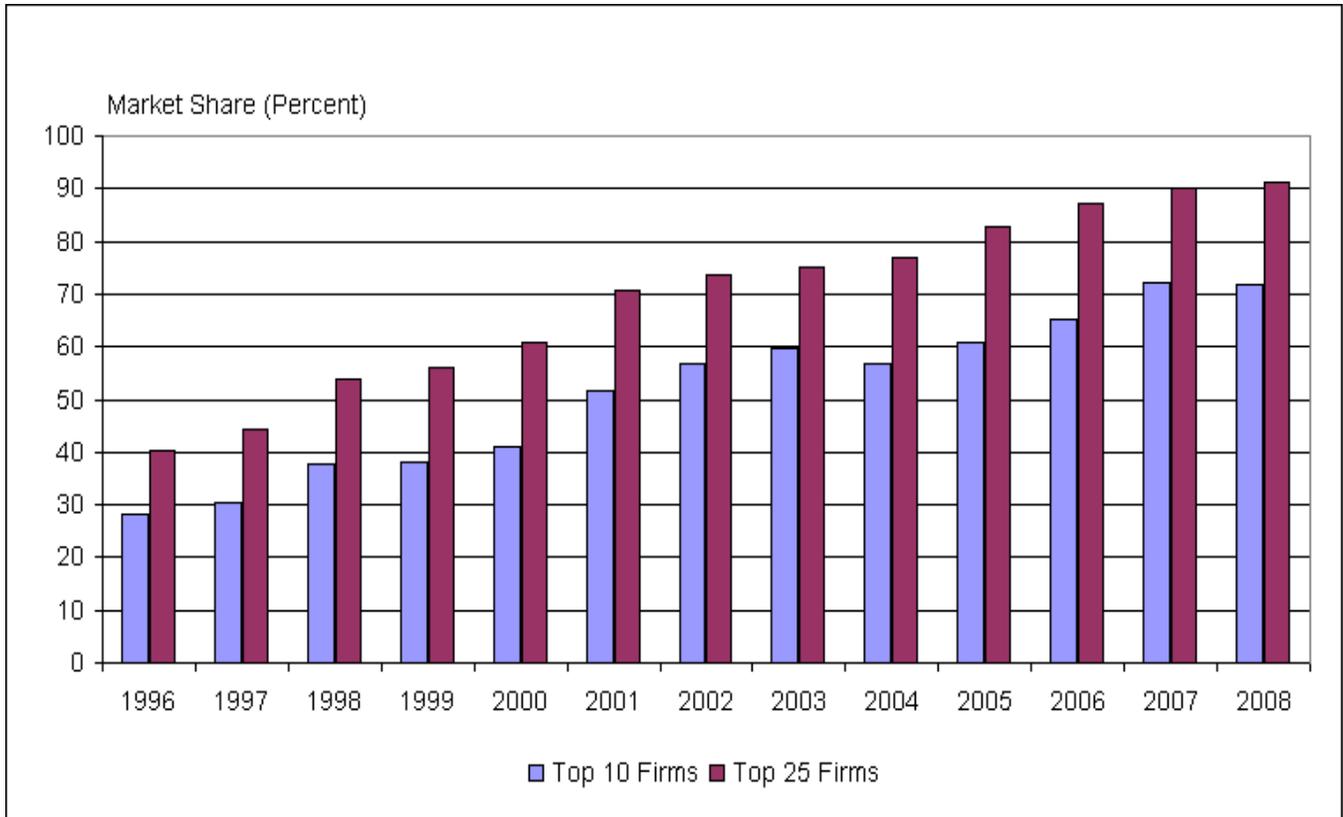
Source: Inside Mortgage Finance, 2009 Mortgage Market Statistical Annual.

The issuers of securities backed by loans conveyed by these brokers then assumed the credit risk on the loans. Furthermore, servicing rights became actively traded so that the originating lender often did not end up servicing the loans it originated. This system was efficient in that it allowed some firms to specialize in retail originations, others in pooling and wholesaling loans, and others in issuing securities and manage and price for credit risk. The increasing use of mortgage brokers also allowed lenders to rely on variable rather than fixed costs to source loans, which had great advantages in the volatile and cyclical mortgage business. However, it also created a system in which credit risk was concentrated in a small number of entities and in which loan originators had more incentive to produce high unit volumes to earn upfront fees than concern themselves with the long-term performance of the loans originated.

Consolidation in mortgage origination and servicing was fuelled by the increasing commoditization of mortgages that secondary markets and advances in information technology

allowed as well as by the consolidation in the banking industry (which was in turn fuelled by deregulation like lifting interstate banking restrictions). In 1996, the largest 25 lending institutions accounted for 40 percent of the \$785 billion in home purchase and refinance originations. By 2008, their share had grown to more than 90 percent (Figure 3).

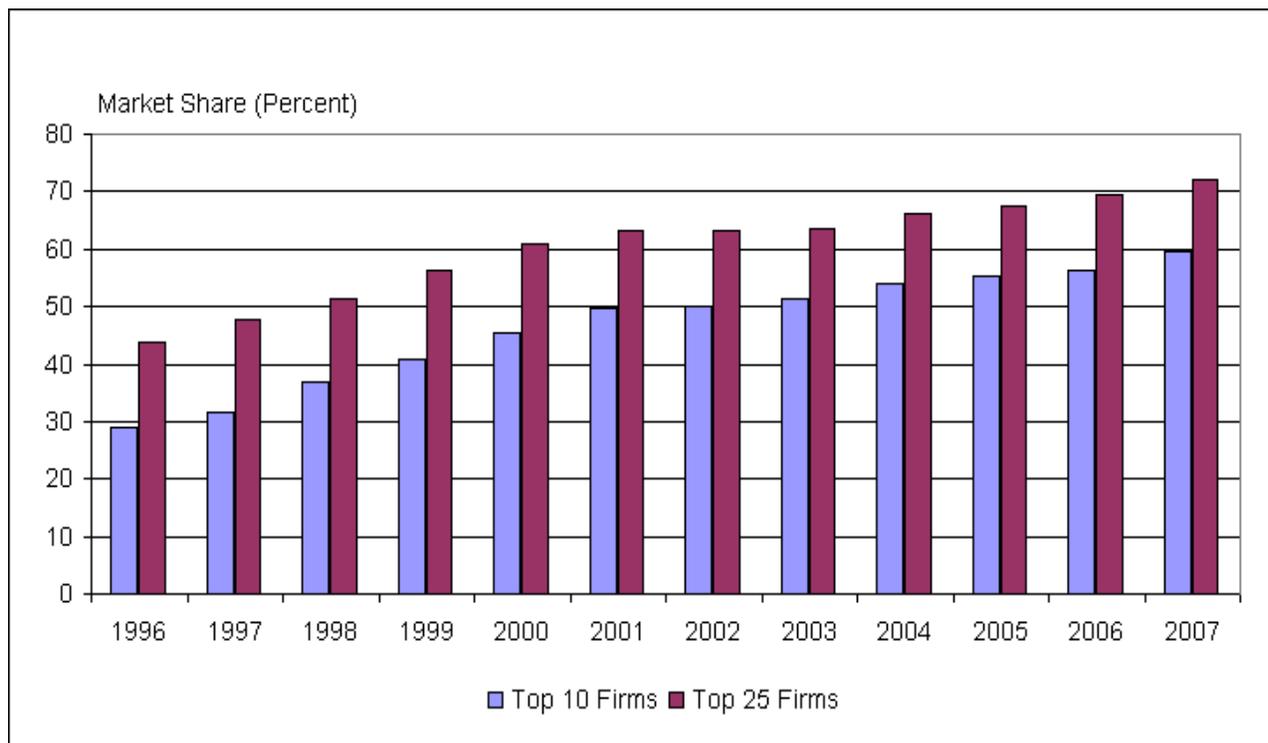
**Figure 3. Market Consolidation Among Mortgage Originators Has Been Significant**



Note: Market share is measured by dollar volume of loans.

Source: Inside Mortgage Finance, 2009 Mortgage Market Statistical Annual.

**Figure 4. The Servicing Industry Also Consolidated**



Note: Market share is measured by dollar volume of loans

Source: Inside Mortgage Finance, 2009 Mortgage Market Statistical Annual.

Mortgage servicing also was consolidating (Figure 4). Like the originate-to-distribute model, consolidation had strengths and weaknesses. On the one hand, economies of scale were achieved that brought down the costs of originating and servicing. On the other, a small customer base for Fannie Mae and Freddie Mac grew to have increasing market power in negotiating with these corporations. A handful could produce large exposures to counterparty risks (the risk that counterparties will work against the interest of another or that the failure of one will cause significant harm to another).

### **The Emergence and Rapid Growth of Nonprime Lending**

Beginning in the 1990s, the segmentation of the market between conventional conforming, jumbo, and government-insured mortgages that had been in place since the 1970s began to break down and the nonprime market emerged. Finance companies that funded their operations with corporate bond issues began to lend to borrowers with previous credit problems

who could not meet the conforming market standards. The subprime industry was born largely in an effort to serve these borrowers (Gorton 2008). The early pioneers reasoned that they could lend to these borrowers if a) the reason the borrowers had gotten behind on their credit payments were temporary shocks to incomes or expenses that had largely passed *and* b) the borrowers had substantial equity in their homes. The second condition offered lenders protection in the event the bet that these borrowers could repay their loans and rebuild their credit histories proved bad. Much of this lending was for second mortgages. These lenders charged higher interest rates on the loans to cover higher expected losses and found that borrowers were willing to pay them.

As a market emerged in which loans were priced based on risk, complaints began to arise that some lenders were preying on unsuspecting borrowers. A slew of practices were labeled “predatory” by consumer advocates and they lobbied at the federal, state, and local levels to protect consumers from these practices (Goldstein 1999). Concerns also began to emerge that consumers could be discriminated against in the interest rate charged for the loan or the fees or conditions imposed rather than through loan rejection.

Around the same time, the prime market began to use statistical credit and mortgage scores to do a better job of discerning good from bad risks (Straka 2000). Mortgage scores were based on modeling the performance of mortgage products that had been around for long periods of time and were based on performance observed over long periods of time under a range of different interest rate environments and market conditions. These models were embedded in automated underwriting systems that increasingly supplanted manual underwriting. The advantage was that the automated systems were both better at modeling risk and less subjective, relying on colorblind models instead of on individual underwriters armed with detailed and large manuals that they could use to exercise discretion to approve variances from stricter underwriting and documentation standards. The large banks and Fannie Mae and Freddie Mac that developed these automated systems and scoring models found the systems both drove down costs and allowed more borrowers to qualify for loans without adding to expected risk because the models allowed tighter underwriting on one standard to compensate for more lenient underwriting on another (Gates, Perry, and Zorn 2002).

Armed with mortgage scoring models and some limited experience with nonprime mortgage lending, nonprime lending expanded rapidly after 2000 and most especially around 2004. At first, most of the subprime loans originated were held in portfolio. Increasingly, though,

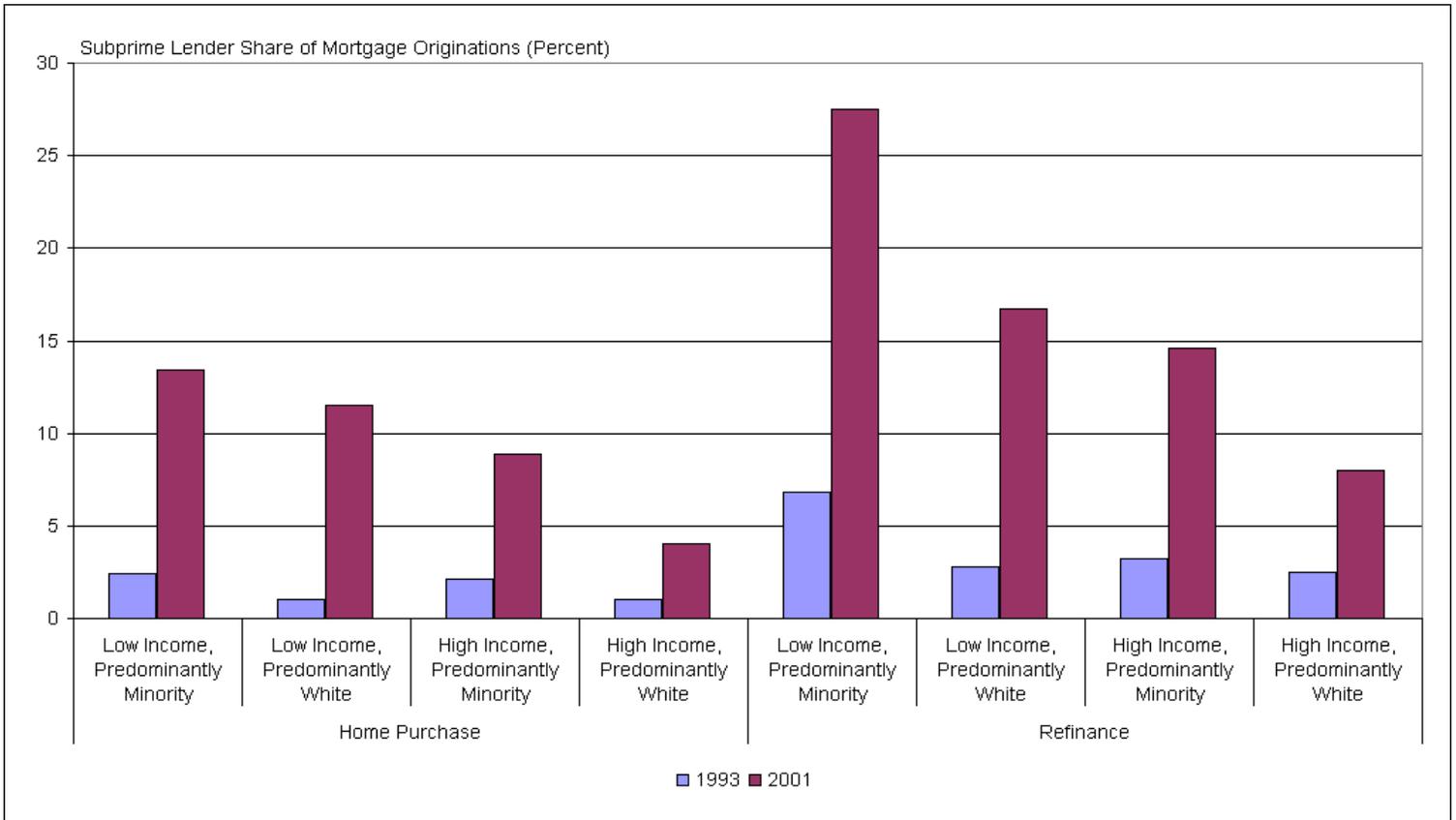
these loans were sold and placed into securities issued by investment banks or by large specialist subprime lenders. At the peak of the subprime lending boom in 2005 about 8 in 10—and by 2007 fully 9 in 10—subprime loans were placed into securities according to Inside Mortgage Finance. With the exception of \$13 billion wrapped by Fannie Mae, these securities had neither an implicit government guarantee against loss of principal from Fannie Mae or Freddie Mac nor an explicit guarantee from FHA and Ginnie Mae. These securities were therefore called “private label” securities and were traded in what was called the “asset backed securities” (ABS) market. This market was separate and distinct from the “agency” market where securities had implicit or explicit federal guarantees against the loss of principal (also called credit risk). From 1985 to 1995, the private label MBS market grew from just \$3.9 billion a year to fully \$69 billion in constant 2008 dollars, and continued to grow rapidly after 1995. While total MBS issuance increased more than 70 percent in real terms from \$449 billion in 1995 to \$769 billion in 2000, non-agency MBS issuance increased more, from a real annual level of \$69 billion in 1995 to \$170 billion in 2000. This lifted its share of MBS issuance from 15 percent in 1995 to 22 percent in 2000 (Inside Mortgage Finance 2009).

The way private-label securities dealt with credit risk was to issue multiple classes of securities from a single pool of mortgages with some classes “senior” in claim to principal in the event of loan defaults within the pool and others “junior.” Various other methods were also used to help insulate investors from loss of principal including third party guarantees from bond insurers, overcollateralization of the pools and excess spread income deposited into reserve accounts to absorb first losses. Ratings agencies rated large portions of the classes AAA or “money good,” implying that risk of loss of principal was extremely low. Classes of securities that were rated less than AAA were often recombined into Collateralized Debt Obligations (CDOs) that then managed to receive AAA-ratings for large portions of the issued classes. Indeed, Coval, Jurek and Stafford (2008) argue that the essence of structured finance is to “repackage risks and create ‘safe’ assets from otherwise risky collateral” by creating tranches that are “viewed by investors to be virtually risk-free and certified as such by ratings agencies.”

Not only were CDOs created, CDO-squared were constituted from recombined CDOs, and “synthetic” CDOs were created in which credit default swaps (CDS) referencing the underlying CDOs and MBS were issued as a way to hedge against and trade in the risk of these

underlying assets and the issuers of securities. In this way, securities and CDS that were multiples of the underlying face amounts of subprime mortgages were created.

**Figure 5.**  
**Subprime Loans Were Concentrated in Low Income and Minority Neighborhoods**



Notes: Includes only loans made in metropolitan areas. Predominantly white neighborhoods were less than 10% minority in 1990, while predominantly minority neighborhoods were 50% or more minority in 1990. Low-income neighborhoods had median income 80% of metro area median or lower in 1990, and high-income neighborhoods had median income 120% of metro area median or higher in 1990. Subprime loans are defined as all loans originated by lenders which were identified by HUD as subprime lending specialists.

Source: JCHS tabulations of enhanced HMDA database.

Subprime lending had a particular geography.<sup>4</sup> Lending by subprime lending specialists was much more concentrated in low-income, minority neighborhoods than in higher-income

<sup>4</sup> Several studies have looked at the geographical dispersion of subprime originations prior to 2004, when these loans grew from a niche product to a popular means of reaching potential homebuyers with below-prime credit. See, for example, Scheessele (2002), Calem, Gillen, and Wachter (2004), and Avery, Canner, and Cook (2005).

neighborhoods (Figure 5). From 1993 to 2001, subprime mortgage specialist shares (as identified by the Department of Housing and Urban Development based on the specialization of lenders) in these neighborhoods increased from 2.4 percent to 13.4 percent of all home purchase originations, and from 6.8 percent to 27.5 percent of all refinances. Subprime lending specialist shares in predominantly white, low-income neighborhoods jumped as well, climbing from 1.0 percent to 11.5 percent of purchase originations and from 2.8 to 16.7 percent of refinances (Joint Center for Housing Studies 2001). Without careful controls, it is difficult to judge whether this pattern entailed intentional discrimination. Indeed, one might expect this pattern since minorities have lower credit scores on average than whites. But reliance on credit scores to distinguish those who would get a prime loan from those who could get a higher-priced subprime loan at a minimum had a large disparate impact on minorities.

Also in the early 2000s, a range of boutique mortgage products that had been around for some time but had seen very limited use under tight underwriting standards started to be offered to more borrowers under more lenient standards. These “nontraditional” products became substantial fractions of the “prime” conventional and subprime mortgage markets by 2004. As home prices soared to record heights, the period also coincided with a dramatic increase in the volume of mortgage lending for home purchase, refinance, and home equity borrowing. Thus, large volumes of nonprime loans were originated and often with nontraditional features, including 2-28 adjustable rate subprime mortgages, and interest-only and payment option. Interest-only and payment option loans were far more common in the prime and Alt-A loans than the subprime market.

During the early and mid-2000s, Fannie Mae and Freddie Mac also became much more actively engaged in purchasing and guaranteeing “Alt-A” loans. These were loans mostly issued to borrowers with good or better credit scores but who deviated in some other way from standard underwriting—most often because of limited documentation or verification of income and assets of borrowers. They also began to purchase for their portfolios private label securities backed by subprime loans. However, they purchased only tranches that were rated AAA.

## **The Causes of the Nonprime Lending Boom and Bust**

While it is difficult to know for certain what caused the boom in nonprime lending and then the particular character of the ugly bust that followed it, there are four broad factors that likely each played essential roles. These are: 1) global liquidity which led to low interest rates, and greater leverage; 2) the origination of mortgage loans with unprecedented risks through relaxation of mortgage underwriting standards and the layering of risk, especially in the private-label securities market and in the portfolios of some large banks and thrifts; 3) the magnification, multiplication, and mispricing of this risk through financial engineering in the capital markets; and 4) regulatory and market failures.

These four factors did not work in isolation from each other. Low interest rates (especially when combined with initially historically tight housing markets) sparked a house price bubble and motivated homebuyers to take on more mortgage debt. The house price bubble in turn fueled strong demand for homes and gave mortgage lenders comfort that the inflating values of the collateral backing loans were sufficient to overcome lax underwriting, while the lax underwriting and nontraditional products fueled demand that helped drive prices higher. Low mortgage interest rates and strong home equity growth also spurred record levels of cash-out refinances and other forms of home equity borrowing that added to household leverage. In addition, low interest rates caused investors to use low-cost, often short-term, debt to lever up returns on low yielding underlying mortgage and other long-term interest-bearing assets. This left investors vulnerable to liquidity risk if the value of their long-term mortgage assets fell. Financial engineering on the capital markets, for its part, resulted in large amounts of nonprime securities receiving AAA ratings that increased demand for risky nonprime loans and kept credit flowing to them. And failures to adequately price and rate risk, align incentives, and monitor counterparty risk effectively also contributed. Finally, the failure of regulation to prevent over-leverage, curb the origination of risky mortgages with aggressive underwriting, or demand transparency in the capital markets also contributed to the boom and then the financial crisis.

It could be argued that the erosion of nonprime loan performance reverberated through the global financial system because of the magnification of risk through the issuance of credit default swaps and synthetic CDOs referencing nonprime securities, the lack of transparency in the CDS market, the difficulty in assessing the performance of the loans underpinning CDOs and their

inclusion in so many CDO issues, the amount of leverage financial institutions used to warehouse or purchase nonprime securities, and the lack of adequate reserves against risk in the underlying subprime securities and the CDS referencing them.

### **Liquidity, leverage, and bubbles**

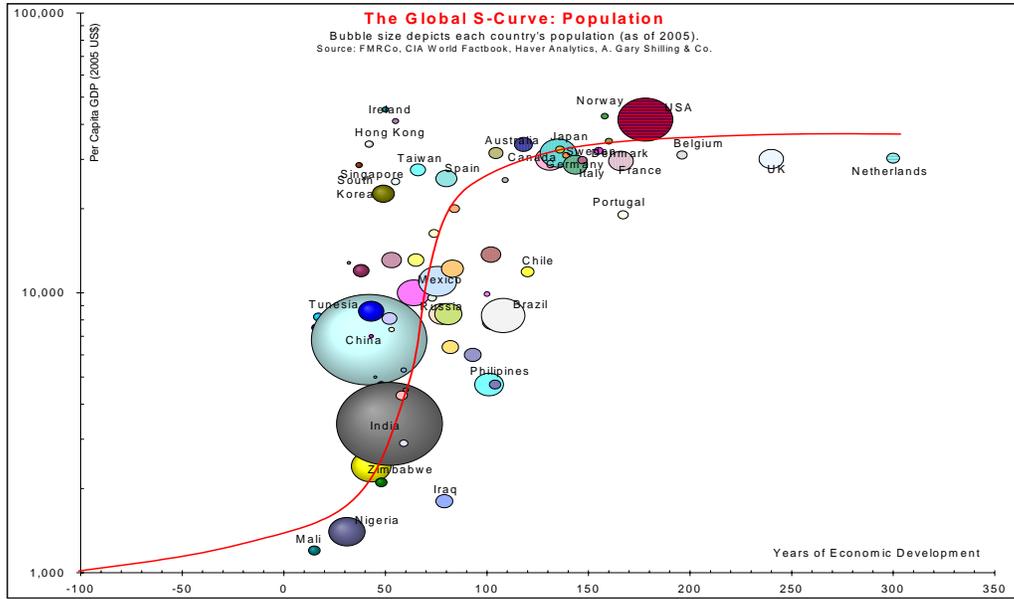
Arguably the driving force behind the boom in nonprime lending was the excess liquidity created in the 1990s. While the United States enjoyed its longest economic boom in postwar history, several large nations—including China, India, and Brazil—scaled the steep part of the industrialization growth curve (Figure 6). Perhaps in tandem with expansionary monetary policy, first in the United States and then spreading to other nations, the liquidity glut led to low interest rates which in turn stimulated both consumer spending and borrowing (Caballero, Farhi, and Gourinchas 2008a, 2008b; International Monetary Fund 2009).<sup>5</sup> As a result, a remarkable amount of cash began to look for opportunities for high returns. Pulling off such a feat required not only a search for evermore places to invest cash, but also leverage to boost returns.

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<sup>5</sup> There is an active debate on how large the role of low interest rates was in sparking the crisis. Many have argued that low mortgage interest rates played a critical role in triggering the house price bubble (see for example Himmelberg, Mayer, and Sinai 2005), while others have argued that while these rates did play a role they were not central (see for example Glaeser, Gottlieb and Gyourko 2010). An additional debate has sprung up over whether it was a glut of global liquidity or monetary policy that caused the decline in long-term mortgage interest rates, with Taylor (2009) most famously arguing it was monetary policy and Greenspan (2010) most famously arguing it was not.

**Figure 6.**

**Several Large Nations Climbed the Steep Part of the Industrialization Curve in the 1990s**

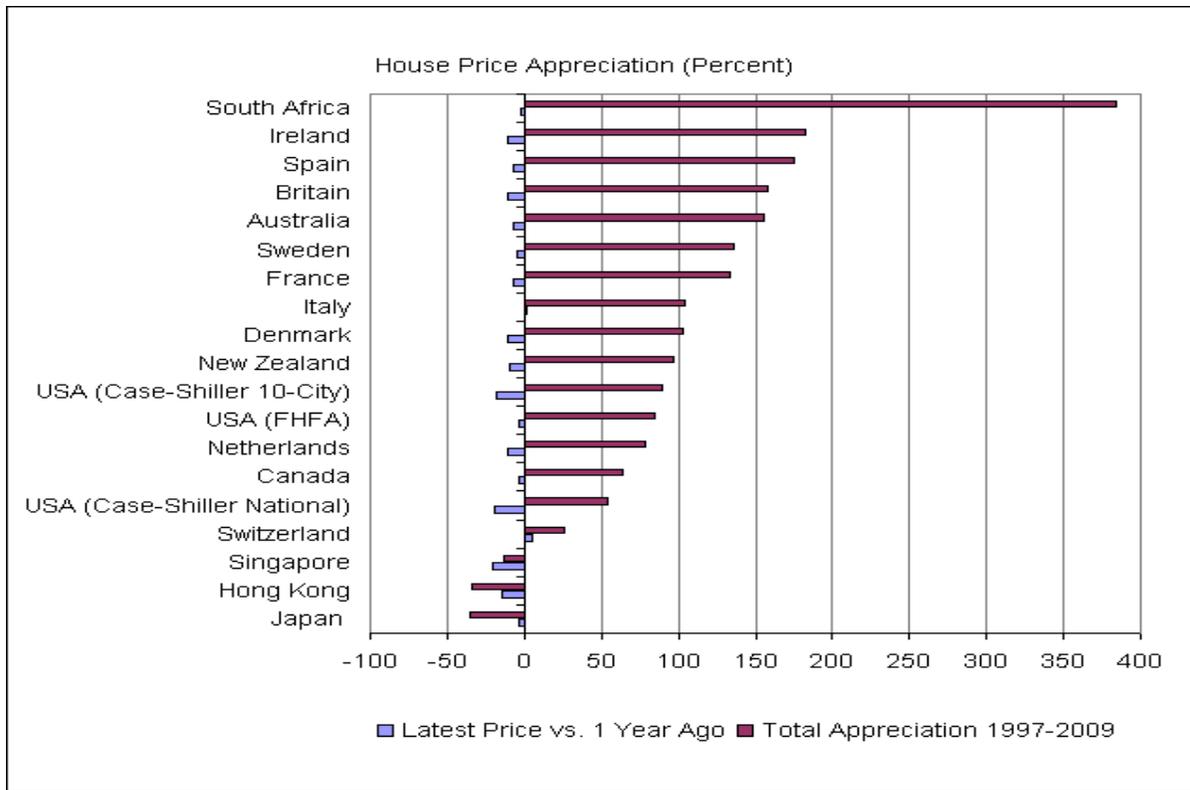


Source: Jurrien Timmer, Director of Investment Research at Fidelity Investments.

In addition, the same low interest rates allowed American homebuyers to chase house prices higher and higher without adding to their monthly mortgage payments. Easy credit prolonged and extended the boom, which might otherwise have run out of steam due to affordability constraints. Moreover, the appreciating prices protected borrowers and lenders from losses. Low interest rates and strong income growth helped lift home prices not just in the United States but in many other OECD nations, with the result that prices soared ahead of incomes in a remarkable number of countries (Figure 7). In fact, home prices did not increase nearly as much in the United States as in several other markets.<sup>6</sup> None of these nations was spared from a subsequent drop in home prices but most did not suffer as dramatic erosion in mortgage loan performance.

<sup>6</sup> Still, low interest rates and changes in certain underwriting standards are not sufficient to explain the run up in home price appreciation (Glaeser, Gottlieb, and Gyourko 2010). Apparently a bubble formed in part because people have backward looking expectations about home prices. What might otherwise be a temporary rapid run up in home prices produced by initially tight markets continued even after ample supply was added because people bought in anticipation of continuously and rapidly rising home prices, drawing more homebuyers and speculators into the market willing to pay more but driving an unsustainable number of new and existing home sales.

**Figure 7. The Explosive Growth in Home Prices Was Not Limited to the US**



Note: Data are as of the first quarter of 2009 or the latest available.

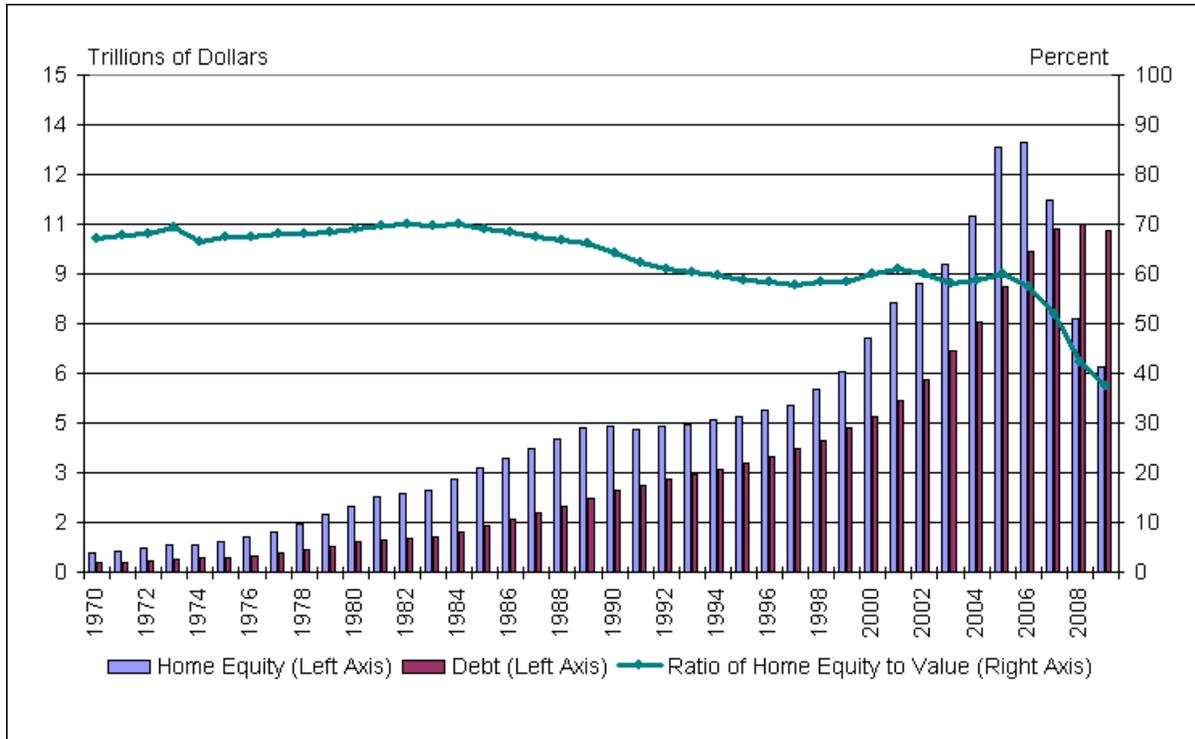
Source: The Economist, "Global House Prices," June 4, 2009.

What was different in the United States was the impact the decline had on loan performance because US lending standards were relaxed further than in other countries (with the possible exception of the UK, which also went through a subprime lending boom). The US experience can be contrasted with that of a country like Denmark, which also saw home prices increase sharply but which maintained an 80 percent maximum loan-to-value ratio and full income documentation requirements. Canada also maintained tighter standards. Its nonperforming loan share managed to remain less than a fifth of that in the United States (Lea 2010).

The tendency for people to spend more when asset values are appreciating led to heavy home equity borrowing and rapidly growing consumer spending, feeding the economic and housing market boom (Belsky and Prakken 2004). According to Freddie Mac, real cash-out

refinancing and consolidation of second loans through refinancing increased from \$75 billion in 2000 to \$263 billion in 2003, peaking at \$370 billion in 2006. All this borrowing also shrunk equity cushions, despite escalating home prices. The aggregate home equity-to-value ratio reached a record low of 55 percent in 2006 even before house prices collapsed (Figure 8).

**Figure 8. The Home Equity to Value Ratio Plummeted when Prices Declined after 2006**



Source: Federal Reserve Board Flow of Funds, Balance Sheet of Households and Nonprofit Organizations.

### **Lax underwriting standards and the layering of risk**

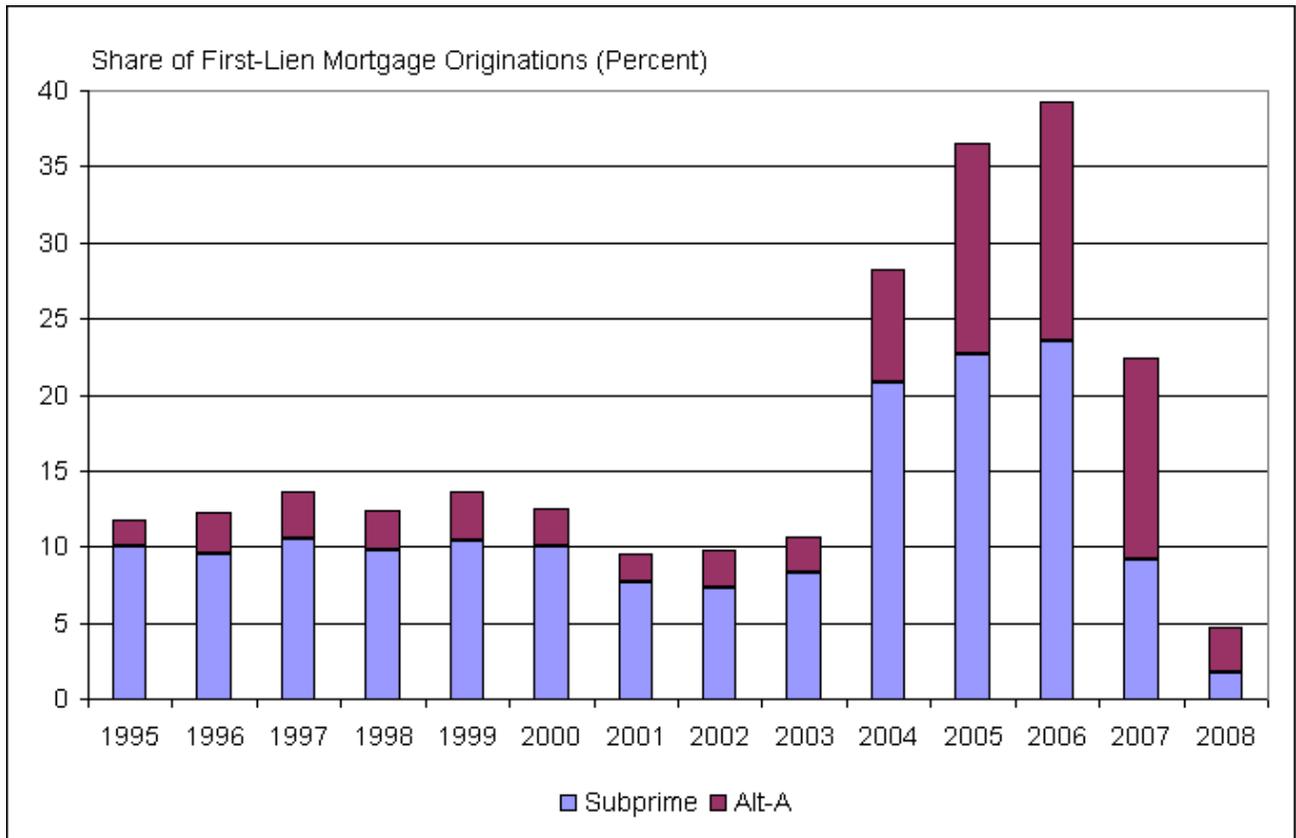
Rapidly rising home prices in 2000–2005 masked the risks posed by nonprime loans and lax underwriting standards. After all, borrowers that got into trouble repaying their mortgages early in the boom could either refinance their loans or readily sell their homes at a profit and repay their debt. On the investment side, demand for nonprime mortgages was strong not only because the residential mortgage market was so big and offered an outlet for excess liquidity, but also because the mortgages carried higher yields than prime mortgages and the securities backed

by them carried higher yields than many corporate bonds of the same rating. As a result, the number of investment companies focused solely on mortgage debt expanded.

As previously discussed, the lion's share of nonprime loans at the peak was sold into the secondary market and subsequently bundled into securities, with most "structured" so that a significant share of the issued classes received high credit ratings. To satisfy strong investor and borrower demand, investment banks were willing to source loans with increasingly lax underwriting, with deeper and deeper teaser rates that would reset much higher (unless interest rates fell sharply) within a year or two, and with other risky features that lowered initial monthly payments for borrowers. This led to what we call the "origination" of risk—that is, the origination of highly risky products that had heavy payment reset risks and that were underwritten in ways that often failed to require proof of income or set high caps on debt-to-income ratios. Private conduits (investment banks and other originators selling directly into private securitizations) issued nearly all the securities backed by subprime loans, although as discussed above, both Fannie Mae and Freddie Mac ended up purchasing significant amounts of the highly rated tranches of those securities. As of 9/30/2009, they reported owning a total of \$86 billion of subprime private label securities. Private conduits also issued most of the Alt-A MBS, though Fannie Mae and Freddie Mac stepped up their issuances of securities backed by Alt-A loans 2000-2007. As of 9/30/2009, they reported guarantees outstanding on Alt-A loans in their credit books of business of \$415 billion. Some portfolio lenders also loaded up on nonprime debt.

In fact, nonprime mortgage growth in the first half of the 2000s was explosive, measured both by dollar volume and as a share of refinance and home purchase loans (Figure 9). Subprime mortgage loans moved from being a niche product to being widely distributed to borrowers of all income levels beginning in 2000. Though a disproportionate share of subprime mortgages were originated to lower income and minority households, the majority of all such loans were taken out by middle-income white households. Even at the peak in 2005, Home Mortgage Disclosure Act data shows that only about a quarter of all higher-priced home purchase loans were made in low-income communities, only a third in majority-minority communities, and only a fifth in low-income majority-minority communities.

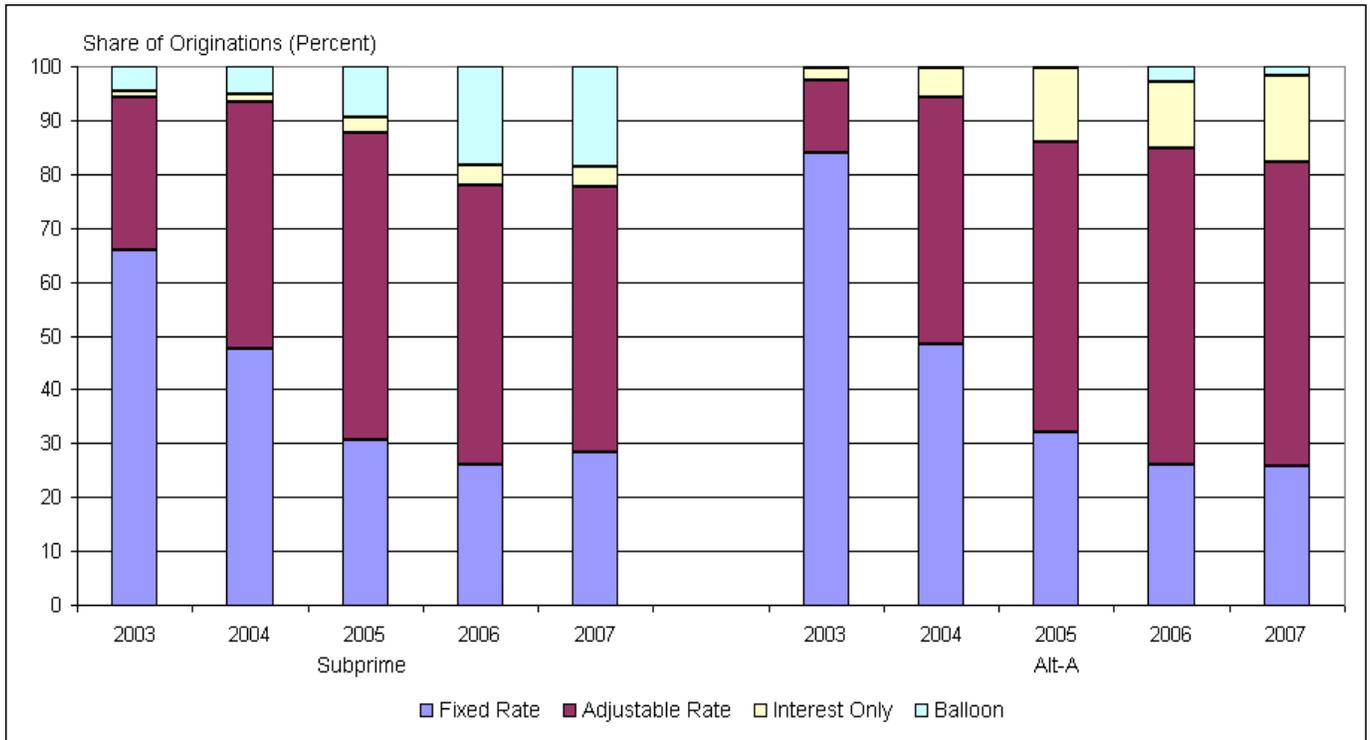
**Figure 9. Nonprime Lending Soared in the 2000s**



Source: Inside Mortgage Finance, 2009 Mortgage Market Statistical Annual.

Equally important, the product mix in the subprime market shifted from mostly fixed-rate to mostly adjustable-rate loans. In 2003, fully 66 percent of subprime loans were traditional fixed-rate loans. That share fell to 31 percent in 2005 and to 26 percent in 2006 (Figure 10). The most common loan became 2/28 adjustables, making up fully 44 percent of subprime originations in 2005. In addition, the share requiring a balloon payment jumped from 5 percent in 2003 to 10 percent in 2005 and to 18 percent in 2006. A shift away from fixed-rate loans was even more dramatic among Alt-A mortgages. As a result, a much larger share of subprime and Alt-A, than prime, borrowers faced the risk that their payments would reset higher after the initial period. On top of this, lenders offered teaser rates so that borrowers' rates would rise when the discount expired even if interest rates did not increase between the origination and payment reset dates.

**Figure 10. Adjustable Mortgages Made Up a Growing Share of Nonprime Loans**



Note: Adjustable rate mortgages include hybrid loans with initial fixed rates.

Source: First American CoreLogic, LoanPerformance data.

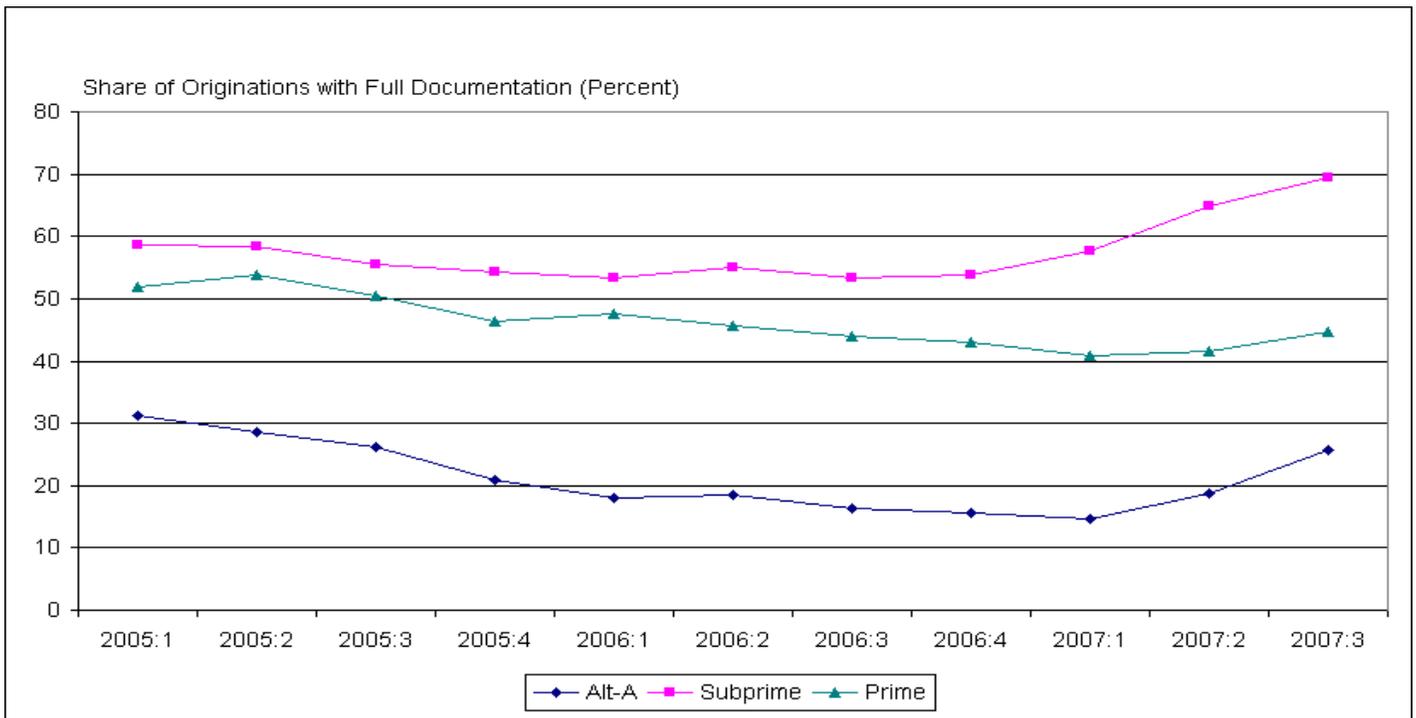
Meanwhile, issues of nontraditional loan products also skyrocketed. Interest-only (IO) and payment-option (PO) loans went from just a few percent of all loans in the first few years of the decade to a peak of about 19 percent in 2005.<sup>7</sup> These so-called “affordability” or “nontraditional” products allowed borrowers to leverage their incomes. Interest-only loans typically offered a five-year period in which the borrower paid only interest and the principal balance was carried. At the end of this set period, the borrower would have to repay the principal over the compressed time period remaining on the loan, which meant sharply higher monthly payments. The payment-option mortgage was much like a credit card, giving borrowers the flexibility to make a minimum payment that could be even lower than the interest due. When a payment was less than the full amortizing amount, the rest was rolled into the mortgage balance

<sup>7</sup> This figure is based on LoanPerformance data from First American CoreLogic.

resulting in negative amortization. Eventually borrowers would have to increase their monthly payments to pay down this growing principal.

Remarkably, lenders often layered additional risks on top of these considerable payment reset risks. First, lenders began to require less and less documentation of income and assets. While low- and no-documentation loans were also available in the prime and subprime markets, they were most prevalent in the Alt-A market where full documentation shares dipped to 15 percent (Figure 11).

**Figure 11. Few Alt-A Loans Had Full Documentation**



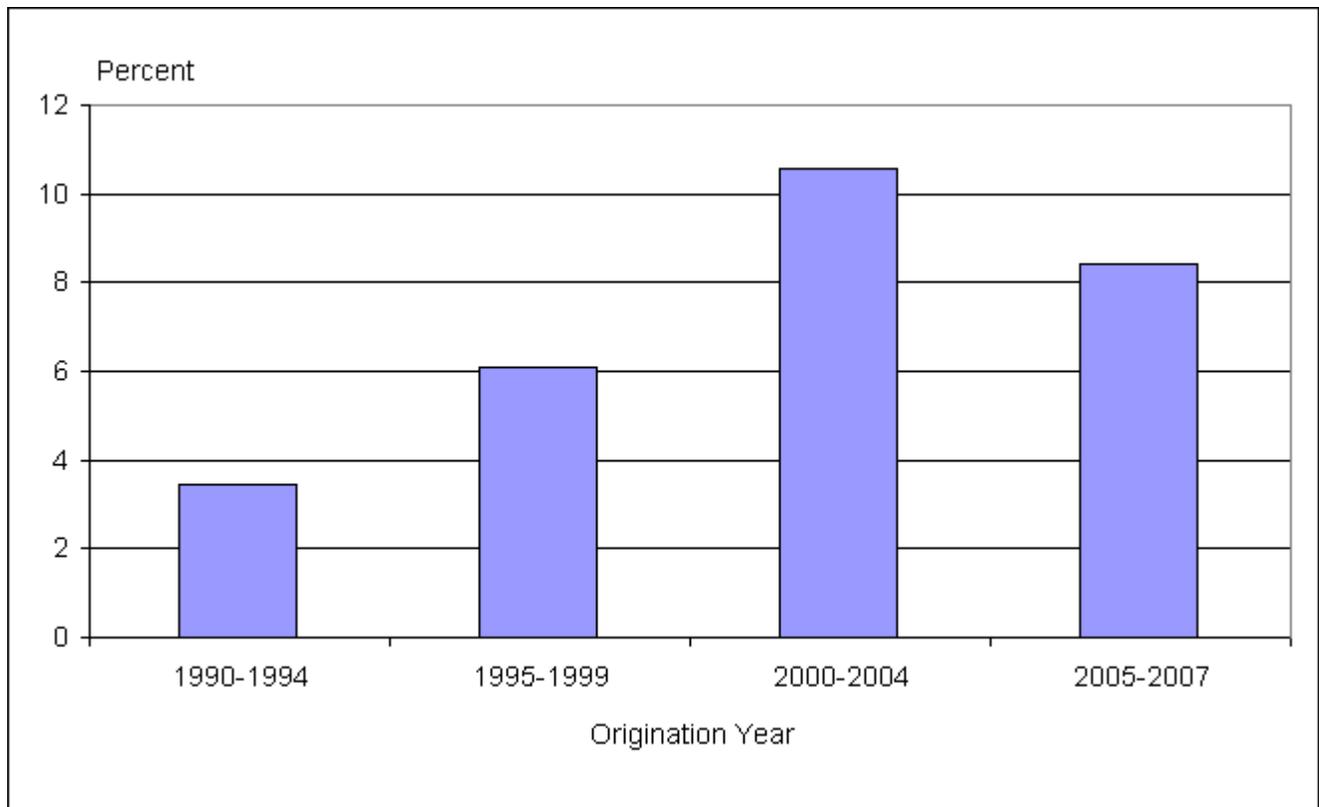
Note: Origination share is based on loan volume.

Source: First American CoreLogic, LoanPerformance data.

Second, the average combined loan-to-value (CLTV) for securitized loans increased during the post-2000 housing boom. Compared to loans originated 1995-1999, the share of Alt-A and subprime loans originated with over 90 percent CLTV rose from 2000 to 2004, while the two categories also made up a higher share of all securitized loans. The result was that the share of all loans in private label securities originated with 90 percent CLTV or higher climbed from 6 percent in the late 1990s to over 10 percent for the first half of the 2000s (Figure 12).

**Figure 12.**

**The Share of Loans in Private Label Securities with CLTV of 90 Percent or Higher Rose Sharply**



Source: First American CoreLogic, LoanPerformance data.

Although relaxing underwriting standards (including credit scores cutoffs, debt-to-income ratios, combined loan-to-value ratios, and income and asset documentation)—as well as widespread adoption of mortgage products with payment reset risks—may not have been the principal contributors to the run up in home prices, relaxing them did cause mortgage loan performance to be much worse in the United States than elsewhere when house prices finally fell.

**Multiplication and mispricing of risk on the capital markets**

The risks being taken in the primary mortgage market were multiplied on the secondary market by financial engineering and by investors overleveraging and holding insufficient reserves against losses. Mortgage-backed security issuers created increasingly more complicated securities and these securities were then referenced by CDS and synthetic CDOs in multiples of

the underlying mortgage loan amounts. MBS, CDOs, synthetic CDOs, and CDS all were often purchased with heavy amounts of short-term debts by investors.

These securities were snapped up by investors in large measure because of the high credit ratings most of the tranches received. A Fitch Ratings study from 2007 estimated that 60 percent of all global structured products (not just those backed by subprime mortgages) were AAA-rated compared to less than 1 percent of all corporate issues.<sup>8</sup> It was the ability to manufacture such large shares of AAA-rated product from loans with underlying risks that caused these securities to grow so rapidly. These high ratings simultaneously gave investors confidence that the securities would perform well and attracted investors who wanted to bet against these high ratings and wanted to hedge the risk that rating agencies were wrong. More generally, the growth of the nonprime and nontraditional mortgage market was fuelled by the perception that the mechanisms in place to manage and mitigate subprime mortgage risk were effective. Indeed, the system appeared to have myriad ways to manage these risks well. In the first instance, the risks being taken and priced were being modeled and simulated by several separate firms, including portfolio lenders, those guaranteeing securities like the GSEs and FHA, and, perhaps in some cases, third-party investors. Second, in the case of structured nonprime securities, ratings agencies applied their own models to both MBS and CDOs, and judged these loans safe enough to assign AAA-ratings to a large share of the tranches in an issue. Like others sizing up risk, ratings agencies stress-tested the loans in nonprime MBS using assumptions drawn from past periods of stress in housing markets. In hindsight, and with greater disclosure, it is now clear these tests were insufficient and that fitting models of new products and practices to valid historical precedents was difficult because of the lack of history with the products and practices (Rossi 2010; Deng, Xudong, Yao, and Rosenblatt 2009). At the time this was far less clear. Third, it was not just the ratings but the structure of investments that prompted confidence in agency ratings. The issues were overcollateralized, had excess spread siphoned into reserves, and investment grade tranches were senior in priority. Equity pieces were often held at least in part by the underwriters of the securities, and in any event enjoyed strong demand, suggesting to senior note holders that the yields in the equity pieces were rich enough to justify the risk. Fourth, risk diversification into other assets provided by CDOs also appeared to offer another level of protection against systemic risk. Fifth, those who wanted to hedge their risks had ample

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<sup>8</sup> Ashcraft and Shuermann (2008) present a Bear Sterns chart suggesting that a typical subprime MBS structure had 79.3 percent AAA-rated debt and a typical Alt-A MBS 92.9 percent AAA-rated debt.

opportunities to do so. Monoline insurers offered protection on whole loans as well as tranches of nonprime securities. Purchasers of nonprime securities could buy protection through bilateral credit default swaps with large AAA protection writers or by trading in CDS. All of these actions created the appearance that subprime risks were being managed well, hedged and diversified against, and distributed widely to those most able to bear or manage them.

But rating private label securities involved making assumptions about default probabilities or expected losses that turned out in the end to be overly optimistic. As an example, in 2007, even before the larger meltdown, the Bank of International Settlements reported that Moody's downgraded 31 percent of all tranches it had rated. In June 2009, Standard and Poor's reported that only about one-tenth of its AAA-rated ABS collateralized debt obligations remained AAA while nearly six-tenths had fallen to less than B. Rating CDOs involved making assumptions not just about the default probabilities or expected losses of the individual asset types in a pool, but also about the joint probability of defaults of tranches drawn from different security issues. As a result, CDO ratings were even more sensitive to small variations in the estimated joint probabilities of default. As early as 2004, a working paper released by the Bank for International Settlements noted that "it has been argued that the high numbers of downgrades of high-yield CDO tranches over recent years are at least partially the result of the under-modeling of both default and recovery rates, and hence, a manifestation of model risk" (Fender and Kiff 2004, p.9). Coval, Jurek, and Stafford (2008) provide simple illustrations and simulations of how sensitive ratings are to joint default probability assumptions. Indeed, the assumptions used discounted the risk of nominal house price declines occurring nationally and, in the case of CDOs, relied on historical prices of CDS over a period in the 1990s to early 2000s when house prices were appreciating (Salmon 2009).<sup>9</sup>

But with high ratings and other appearances of safety, the market for these CDOs soared. The Securities Industry and Financial Market Association (SIFMA) reported total global CDO issuance stood at approximately \$157.5 billion in 2004, then more than tripled to \$520.6 billion just two years later. But as quickly as CDO issuances rose, they fell at the first signs of trouble. Quarterly issuance peaked at \$178.6 billion in the second quarter of 2007, and plummeted 87

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<sup>9</sup> More sensitive still were CDO-squared securities, which draw from an underlying pool of CDO tranches that have been combined and repackaged. CDO-cubed securities take the process a step further and are structured from the tranches of CDO-squared securities. Coval and his colleagues show how even a CDO-squared security made up entirely of mezzanine tranches could yield large tranches that achieved AAA ratings.

percent to \$23.6 billion a year later. CDOs denominated in US currency made up the lion's share, averaging 76 percent of global issuance from 2005 to 2007.

CDS writers issued swaps that referenced these complex securities and CDS were used to create synthetic CDOs, literally multiplying the amount of capital at risk in the event that nonprime mortgage performance was worse than expected. CDS are bilateral agreements between two counterparties to trade risk with reference to a third-party entity or security. The buyer pays a fee to the seller in return for a contingent claim on the seller should the reference security fail to make a payment or default. The seller either takes delivery of the defaulted bonds at par or pays the buyer the difference between the par value and the recovery value. CDS bear a resemblance to insurance policies, but in most cases there is no requirement to hold any asset or prove adequate reserves against the total exposure to losses.

Estimates of the size of the CDS market vary, but even lower-range estimates place it at over \$40 trillion at the end of 2007. The emergence of this mammoth market multiplied risks in at least four ways. First, it introduced an additional layer of counterparty risk because settlements of CDS require that those writing insurance be able to make good on protection, yet they are not required to reserve against losses in the same way as an insurance company or deposit-taking financial institution. Second, it introduced more systematic risk because a few enormous issuers dominated the market and the default of a single issuer could have serious ramifications. Third, the CDS market is not transparent, lacking both a central clearinghouse and price discovery mechanism. This made it unclear who bore which risks in the system, and who stood to lose if subprime performance was worse than anticipated. Indeed, not until the government stepped in to avert the failure of Bear Stearns and AIG and in the aftermath of the Lehman Brothers failure did it become aware of just how many counterparties stood to lose from the failure of any one of these entities. Finally, the CDS market vastly expanded the exposure of investors to subprime credit because the supply of CDS is not limited by the face amount of subprime debt but rather by the number of agreements that financial firms enter into that reference the face debt. Multiple contracts can and were written against the same issue. The Federal Reserve estimates that exposure to CDOs referencing BBB-rated subprime MBS was 60 percent greater than the BBB-rated subprime MBS issuance itself in 2005. In 2006, it was 93 percent greater (Pozsar 2008)

Making matters worse, investors also leveraged their long-term mortgage investments. Banks set up structured investment vehicles (SIVs) as off-balance-sheet entities to purchase

MBS and ABS, and lent them money to buy the assets. Hedge funds also purchased MBS and ABS with borrowed money. In many cases the loans extended were short term, leaving these funds and vehicles vulnerable to collateral calls and making it difficult for them to roll over their debts if poor performance eroded these long-lived assets. By the height of the subprime boom, off-balance-sheet SIVs had accumulated assets in the neighborhood of \$400 billion.<sup>10</sup>

Investment banks also began to increase their leverage and were permitted to do so by a US Securities and Exchange Commission (SEC) ruling in 2004 that dramatically changed the way the SEC measured banks' capital. The new rules allowed investment banks to use their own risk assessment systems to set their debt-to-net capital ratio. Previously, the net capital rule had required that broker dealers limit their debt-to-net capital ratio to 15-to-1. After the ruling, several investment banks exceeded that ratio, with Merrill Lynch setting a high ratio of 40-to-1 (Satow 2008).

In sum, the push to extend more and more credit emanating from the capital markets—as well as what was done to the credit when it was bundled and sold as securities on these markets—helped to magnify risks and increase the exposure of the financial system to deterioration in mortgage loan performance. For decades, the securitization process worked successfully to place long-term, fixed-rate, pre-payable mortgage loans with a variety of institutional investors, pooling and repackaging the loans into securities with a broad range of maturities, coupons, and credit risk protection. A large, liquid secondary market provided increasing access to mortgage credit on more favorable terms than would otherwise have been possible. But the secondary market became dysfunctional when it permitted mass originations of highly risky loans that, through financial engineering, were repackaged as mostly AAA-rated securities.

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<sup>10</sup> SIVs were designed to operate as ongoing entities, providing sponsoring banks healthy returns without increasing their capital reserve requirements. As part of the growing shadow banking system, the SIVs operated much like banks, using funds raised by issuing short-term commercial paper to invest in long-term assets including MBS. The asset-backed commercial paper market took the place of depositors in a traditional bank, with the SIVs borrowing at short maturity to invest at long maturity. The typical gearing for a SIV's capital structure was as much as 15 to 1, although some closed-ended SIVs focusing on residential mortgage securities had much higher leverage (Felsenheimer and Gisdakis 2008).

## **Regulatory and market failures**

Properly viewed, the problem in nonprime lending stemmed from the financial institutions that established the underwriting standards, the agencies that rated the securities backed by them, the firms that wrote credit default swaps against them, and the regulators that were entrusted with policing the system. It was they—not mortgage brokers, mortgage bankers, or borrowers—that determined the products that could be offered, the underwriting standards that would be tolerated, the requirements for capital reserves against losses, and the incentive structure for mortgage brokers, mortgage bankers, and broker-dealers that rewarded volume more than long-term loan performance. In hindsight, these were significant regulatory and market failures.

Some of the biggest problems stemmed from lax regulation and the deregulation of credit and the capital markets, including the more limited and uneven regulation and supervision of financial institutions that do not take deposits. This resulted in a patchwork of federal and state regulators and regulations. Indeed, it is clear that the nonprime lending boom was strongly driven by the demand for private-label, asset-backed securities (securities not backed by Fannie Mae, Freddie Mac, or Ginnie Mae) and the mortgage brokers and bankers, securities broker-dealers, securities issuers, and rating agencies that fed that demand.

### ***Weak counterparty risk management, regulation, and misaligned principal-agent incentives.***

The nonprime mortgage lending system relied on an originate-to-distribute model, as well as financial engineering on the capital markets, both of which increased the number of counterparties in the housing finance system. Although investors relied on ratings agencies to appraise the creditworthiness of counterparties large enough to get rated, plenty of unrated entities like brokers and small finance companies also fed loans to the system, and even some of the financial institutions with strong credit ratings saw major downgrades when the credit markets froze. In addition, lack of transparency in the CDS markets and among hedge and private equity funds and SIVs made it difficult to know the extent of exposure of counterparties to nonprime risk. All this added to the importance and cost of counterparty risk assessment.

Yet the mechanisms in place to manage counterparty risk were also lacking. Fannie Mae and Freddie Mac had for decades relied successfully on approved seller standards and audits as well as representations and warranties to guard against counterparty risk. But these protections broke down at the height of the nonprime lending boom in ways that did not become apparent until after the fact.

Safeguards in the private label market were even weaker and likely even less successful. In addition, loan originators were often brokers or small mortgage banks that had little or no capital at risk. Even those that did have substantial amounts of capital at risk often did not have adequate capital reserves to cover losses. Furthermore, investment banks, Fannie Mae and Freddie Mac were allowed high leverage ratios, while leverage ratios of SIVs and finance companies were not federally regulated, and CDS issuers were allowed to write insurance-like protection with an implicit premium on swap rate. While no reserves were required, these instruments were marked to market with a capital requirement. When the tide went out, many counterparties could not make good on their claims, causing a collapse in investor confidence and a liquidity crisis. The posting of collateral created liquidity problems. It was the reliance on a thin market that caused disputes on collateral posting and the inability to limit losses by getting out of trades.

Furthermore, incentives in the originate-to-distribute model between financial intermediaries serving as agents for the ultimate loan investors were not necessarily aligned. Brokers were paid an upfront fee for originations and broker-dealers an upfront fee for pooling and structuring securities. In essence, the financial intermediaries were primarily rewarded through volume, while investors are rewarded through the long-term performance of the loans. The compensation of rating agencies may have also created conflicts of interest because issuers pay for the ratings, not the investors that rely on the ratings to make investment decisions (Fender and Kiff 2004).

The compensation structure for mortgage brokers and loan officers also created opportunities to pass along their upfront fees to borrowers in the somewhat shrouded form of yield-spread premiums built into interest rates. This may have provided brokers and loan officers an incentive to originate loans in the nonprime market where pricing was more opaque, although no studies have confirmed that this was the case. In fact, even in the FHA channel with simpler mortgages and easier price discovery, yield-spread premiums show a wide dispersion (Woodward 2008). Also brokers do have offsetting incentives to treat customers fairly and transmit quality loans to aggregators. The mortgage lending business is highly competitive. Customer service and referrals matter to brokers, and so act as a check on their rent-seeking behavior. In addition, many lenders monitor the relative performance of loans originated by brokers and loan officers and will cease doing business with those with poor track records.

As for seller-servicers, they are compensated in part through servicing income, which is tied to the long-term performance and longevity of loans. These originators have significant

incentives to originate quality loans because the efficiency and returns of their servicing portfolios depend on it. The fact that servicing is highly concentrated and has thin margins puts strong pressure on sellers and servicers to attend to quality. This was less so in the nonprime market where more spread was retained by sellers and servicers.

***Deregulation, regulatory shopping, and state preemptions.***

Deregulation from the 1980s has been faulted for ushering in higher priced lending and anything-goes underwriting standards and mortgage product offerings. The 1980s were a tumultuous time in mortgage funding and in the regulations governing mortgage and credit markets (McCoy and Renuart 2008). The first major piece of legislation deregulating financial markets was the Depository Institutions Deregulation and Monetary Control Act of 1980. In a context of raging inflation, this act lifted interest rate ceilings (including fees) on first-lien home mortgages. It also extended coverage of a 1978 Supreme Court ruling to all deposit-taking institutions and thus allowed national banks to export their home state's interest rates to others. This effectively ended state usury caps because a bank could relocate its headquarters to a state with a very high or no ceiling and export rates elsewhere.

The second major piece of deregulation legislation was the Alternative Mortgage Transactions Parity Act of 1982. This act pre-empted state laws restricting the terms on adjustable-rate mortgages, balloon payments, and negative amortization, paving the way for interest-only and payment-option loans that would later contribute to mounting risks in the mortgage markets.

Deregulation is widely viewed as having had a powerful role in the collapse of the thrift industry. At both the state and federal levels, deregulation allowed thrift institutions to offer new and riskier loan products while also ushering in more relaxed capital requirements and accounting procedures. This proved a volatile mix, especially when combined with souring economic conditions in the Southwest and Midwest, an unprecedented increase in the chartering of new thrifts, and a weakening of bank oversight (Curry and Shibut 2000). Lax oversight in a market when so many thrifts were investing in an overheated real estate market led to the failure of more than a thousand institutions, at a cost to taxpayers of about \$124 billion (Curry and Shibut 2000).

The existence of multiple banking regulators has been faulted for allowing further de facto deregulation as a result of the more reaching preemptions of state law claimed by banking regulators competing for deposit-taking institutions that can shop for a preferred regulator

(McCoy and Renuart 2008). This process, it is asserted, allowed thrifts and nationally chartered banks and their affiliates to avoid state laws aimed at restricting permissible lending practices and thus allowed high-risk lending to thrive.

***Weak federal regulation and supervision of the shadow banking system, including lax oversight of the capital markets.***

Most criticisms of the nation's regulatory structure in relation to the nonprime crisis focus on the part of the system beyond the reach of banking regulators. This so-called "shadow banking system" or "unregulated fringe" includes state-chartered insurance and finance companies, investment banks, hedge funds, ratings agencies, private equity firms, special investment vehicles, and the brokers that delivered a substantial portion of loans from the retail level.<sup>11</sup>

Giving credence to this argument is the fact that the shadow banking system originated most of the nonprime loans. In addition, these loans increasingly ended up in private-label securities. When home prices began to fall these were the source of the heaviest and earliest mortgage losses. Virtually all of the subprime securities were private label issues and much of the Alt-A issues. With subprime and Alt-A reaching securitization rates over 90 percent in 2007, the private label market played a pivotal role.

It is clear ratings agencies, investment banks, hedge funds, private equity funds, state-chartered insurance companies, and state-chartered finance companies were not as closely supervised as deposit-taking institutions, nor were they generally subject to as tight or uniform regulation. Opacity in these markets was permitted, and rating agency practices and models were not subjected to the scrutiny of federal regulators. Finance companies were regulated and supervised unevenly by state regulators, and mortgage brokers were subject to an uneven patchwork of state laws and licensing.

There were several specific problems with regulation and oversight of the shadow banking system and the capital markets. These include the adequacy of (1) capital requirements for investment banks, CDS issuers, and the GSEs; (2) measures to ensure transparency; (3) oversight of rating agencies; (4) oversight and regulation of CDS markets and capital standards

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<sup>11</sup> The term "unregulated" fringe is really a misnomer. It would be more accurate to call the financial institutions in the shadow banking system less regulated or less closely supervised, or the state-regulated fringe.

for CDS protection writers; (5) assignment of liability for defects in loan originations; (6) underwriting standards, and (7) oversight of compensation.

The credit rating agencies played a central role in determining the feasibility of nonprime lending in general, and of certain terms in particular, through their ratings of structured nonprime securities. Yet this crucial function was essentially unregulated until the Credit Rating Agency Reform Act of 2006, which gave the SEC authority over the agencies. In addition, the lack of a central clearinghouse and minimal regulation of the CDS market has been criticized for allowing both opacity and systemic risk to build in the capital markets. Furthermore, assignees' lack of liability for the practices of nonprime loan originators (many of which were small and thinly capitalized) has been faulted for letting large, well-capitalized financial institutions off the hook for policing their origination channels.

### ***Insufficient consumer protections.***

Credit regulations did not adequately protect consumers, especially when the nation's credit allocation system shifted from offering nearly uniform pricing only to borrowers who met prime standards to offering credit at a risk-adjusted price to borrowers with subprime credit scores who were taking out loans with nonconforming underwriting standards and features. By the early 1990s—even before subprime lending really took off—reports of abusive and predatory practices were on the rise. This led to passage of the Home Ownership and Equity Protection Act (HOEPA) of 1994. While HOEPA was intended to deal with potentially unsafe, unfair, or usurious rates and fees as reports of predatory lending increased, it applied only to closed-end mortgages for refinance, had very high APR triggers, and imposed only some lending restrictions.<sup>12</sup>

Consumer disclosures have been faulted for being insufficient and confusing. Except for high-cost refinance loans as defined under HOEPA, for example, the Truth in Lending Act (TILA) did not require lenders to disclose binding prices until closing. In addition, subprime lenders were permitted to advertise their best rates without disclosing to consumers that they might not qualify for them. Furthermore, variable-rate disclosures were viewed as weak and as calling insufficient attention to the risks associated with a floating interest rate.

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<sup>12</sup> Lenders were prohibited from offering such high-cost loans with a balloon payment due within 5 years or with negative amortization, imposing a prepayment penalty for longer than 5 years, or refinancing the loan within a year unless assignees that pooled and securitized loans were subject to liability. Further, lenders were required to disclose a final APR, the amount of monthly payments, any balloon payments due, principal borrowed, and fees for credit insurance and debt cancellation three days before closing.

In general, disclosures designed back in the 1960s did not anticipate the complex risks (including a range of payment reset risks) that consumers would take on. Therefore they did not effectively disclose and underscore these risks. Even the APR, which is at the heart of both the prime and subprime disclosure regimes, is not easily grasped (Durkin 2008). New changes to the Real Estate Settlements and Procedures Act (RESPA)<sup>13</sup> and Truth-in-Lending Act<sup>14</sup> in place by 2010 have gone a long way towards improving disclosures and good faith estimates.

Weaker responses to subprime lending practices came earlier in the form of Interagency Guidance on Subprime Lending issued in 1999 and extended guidance in 2001. The guidance was mostly advisory in nature, though the 2001 extension did state that the portion of an institution's allowance for loan losses allocated to the subprime portfolio had to be sufficient to absorb estimated credit losses. The guidance also only applied to federally-regulated deposit-taking institutions. Despite this guidance some banks and thrifts continued to put subprime loans on their books. And to the extent it discouraged bank and thrifts from originating subprime loans it did not do so in the ABS market, which exploded in mortgage lending volume during the first half of the 2000s. The next actions were guidance on home equity lending, also aimed at deposit-taking institutions only, issued in 2005 and 2006. Guidance on nontraditional loan products did not come until the fall of 2006.

It was not until HOEPA changes went into effect on October 1, 2009 that really meaningful and enforceable steps were taken.<sup>15</sup> Though late in coming and not strong enough by some lights and too strong by others, the HOEPA changes were substantial. Additional changes in the form of strengthened TILA disclosures took effect in July 2009 and revised RESPA good faith estimates took effect in January 2010. Thus, while there eventually was a meaningful

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<sup>13</sup> Changes to RESPA took effect in January 2010 and included a thorough revamping of the disclosure forms for Good Faith Estimates (GFE) and HUD-1 settlement charges that made it easier to compare loans. The new GFE more clearly describes potential changes to interest rates, loan balances, and payments, and lumps all lender charges into a single origination charge. RESPA reforms also include restrictions on how much settlement charges can change between issuance of the GFE and closing. Lender-related fees must be identical from application to closing and there is a 10% tolerance for estimates in other areas.

<sup>14</sup> Changes to TILA (which governs disclosure of the costs and terms of mortgage credit) took effect in July 2009 and applied to all non-investor mortgages. Under the changes, lenders are required to provide Good Faith Estimates to borrowers within three days of loan application, with a seven-day waiting period between GFE and closing. No fees can be collected from a borrower before a disclosure is issued except for the cost of obtaining a credit report. If the annual percentage rate changes by more than 0.125%, the lender must provide a corrected disclosure and wait an additional three days before closing the loan.

<sup>15</sup> HOEPA reforms included a new definition of higher priced lending. First-lien mortgages are now considered higher priced if they are 1.5 percentage points or more above an "average prime offer rate" index based on Freddie Mac's mortgage survey. Subordinate mortgages are higher priced if they are 3.5 percentage points or more above this index. For these higher priced loans, lenders are prohibited from making a loan without regard to the borrowers' ability to repay the loan from income and assets other than the home's value, based on the highest scheduled payment in the first seven years. Lenders must verify income and assets and establish escrows for taxes and insurance, and prepayment penalties are severely restricted. The reforms also introduced new rules for all mortgages which included prohibiting misrepresentation of home value, prohibiting pyramiding late fees, changing advertising rules, and expanding early disclosure requirements.

response, it did not take effect until some two years or more after the market had largely shut down nonprime lending anyway.

### ***Insufficient monitoring and regulation of system risk.***

Regulators did not take enough account of systemic risk. No single regulator was charged with attempting to measure and detect when investments and practices in the financial markets were adding to systemic risk... Off-balance-sheet SIVs allowed banks to take on more leverage and piggy-back seconds allowed homebuyers to do so. Meanwhile, as noted, leverage ratios of investment banks were allowed after 2004 to be set by the banks themselves. Massive volumes of CDS were issued that were not regulated by banks or insurance commissioners. Securities with performance systematically related to the performance of the broader market were given AAA ratings. Fannie Mae and Freddie Mac had high leverage ratios. Making matters even worse, the systemic risk being created by concentrating risk in the hands of a few “too-big-to fail” financial institutions was difficult to detect because the market for CDS was opaque. With SIVs and other funds depending on constant access to the commercial paper markets to finance long-term assets, duration risk was also allowed to flourish and went unregulated. This maturity mismatching caused many financial institutions to fail when they could no longer access the short term debt markets. This in turn forced them to sell assets into an illiquid market, further depressing prices.

### ***Of CRA and GSE Goals.***

Some have blamed the problems with nonprime lending performance on regulations that encouraged banks and thrifts to lend to low and moderate income borrowers and areas rather than on lax regulation of a shadow banking sector that was under no obligation to lend to underserved markets. But the problem was not, as some have argued, the Community Reinvestment Act (CRA) that places affirmative obligations on banks and thrifts to lend in low- and moderate-income communities. CRA played a minor role at best. There is ample evidence from carefully controlled studies of loans made by CRA lenders in their assessment areas that the loans performed comparatively well (Laderman and Reid 2008). Moreover, only 4.5 percent of all higher-cost loans (a proxy often used for nonprime lending) at the 2005 peak were made in areas where lenders were assessed for CRA performance.

Others have blamed affordable housing goals imposed on Fannie Mae and Freddie Mac by Congress beginning in 1992 and administered by the Department of Housing and Urban Development for causing nonprime lending to become such a large share of total originations. Indeed, both agencies were under pressure to purchase nonprime loans and the securities they backed, especially after regulators ratcheted up their affordable lending and underserved area goals in 2004 and established subgoals that forced them to meet targets through purchases of single-family rather than multifamily loans. Yet the GSEs had a much larger exposure to Alt-A loans than subprime loans even though Alt-A loans were not very goal rich. They also incurred heavy losses on interest-only and payment option loans, yet these loans were goal thin. Equally plausible explanations for their behavior are that, as shareholder-owned companies, they were also under pressure to regain market share they were losing to private label issuers of Alt-A and subprime securities, to serve their large customers better, and to go after the higher yields offered in the nonprime market. Weighing the evidence and arguments Jaffee (2010) concluded that market pressures probably played the larger role.

Whatever the reasons, it is the case that nearly all industry-identified subprime loans were nonconforming loans and that Fannie Mae and Freddie Mac participated in subprime markets almost entirely through purchases of AAA-rated tranches of private label securities.<sup>16</sup> While this added to the demand for subprime loans, the demand for exposure to these loans exceeded the total supply of them so it is hard to conclude that the market would not have flourished without them. Indeed, synthetic CDOs and CDS were issued in multiples of the face amount of the subprime securities they referenced so great was the demand and appetite for subprime risk that had to be sated. It is also the case that private-label Alt-A securities outstripped the issuance of Fannie Mae and Freddie Mac MBS Alt-A securities and GSE portfolio purchases of private-label Alt-A purchases combined. Indeed, Pinto (2010) estimated that in the peak years for Alt-A originations, 2005 and 2006, the GSE share of the Alt-A market was 25 and 36 percent, respectively<sup>17</sup>. Furthermore, looking just at private label Alt-A securitizations, the GSE share was an even lesser 11 percent in 2005 and 12 percent in 2006.

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<sup>16</sup> In 9/31/09, Fannie Mae reported 0.3% of its credit book of business was industry-identified subprime, but that loans with credit scores under 620 accounted for 4 percent of its book. Loans with such low credit scores would typically be considered subprime. Freddie Mac has not disclosed it had any subprime loans, but reported 4% of loans in its credit book had credit scores under 620. However, only Fannie Mae wrapped a guarantee around known subprime securities but only about \$12.8 billion worth.

<sup>17</sup> Pinto (2010) concludes that Alt-A originations reported by Inside Mortgage Finance(IMF) do not include GSE purchased Alt-A whole loans, therefore adds on reported GSE Alt-A purchases to the total Alt-A originations reported by IMF to obtain the GSE share.

Understanding and sizing the GSE contribution to the expansion of risk in the financial system, however, is difficult. Subprime and Alt-A loans are typically based on industry self-identifications. As a result, both Pinto (2008, 2010) and Jaffee (2010) each attempted to estimate GSE exposure to high risk loans other than just those self-identified as subprime and Alt-A. Using information Fannie Mae and Freddie Mac themselves disclosed on the credit profiles of their guarantee business and portfolios, Jaffee creates an “other” high risk category that includes all loans and securities that are not identified as Alt-A or as subprime *but* that had credit scores under 660, or a loan-to-value ratio over 90 percent, or were interest-only or payment option. Together with self-identified subprime and Alt-A, this is the book of business that has generated the lion’s share of losses at the GSEs. At \$1.0 trillion on the guaranty books on 9/30/09, this “other high risk loan” is a large category—larger in fact than the under half billion dollars of self-identified subprime and Alt-A in their guaranty book. Jaffe estimates that about 30 percent of the guaranty book and 10 percent of the investment portfolios of the GSEs on 9/30/09 were “other high risk,” subprime, and Alt-A combined. He did not, however, attempt to estimate the GSE share of the total mortgage debt outstanding that was high risk as of that date. Pinto 2008, on the other hand, considered any loan with a credit score of less than 660 in the credit books of the GSEs to be subprime and added these directly into the self-reported subprime numbers, creating his own set of subprime numbers. Unlike Jaffee, he did try to estimate the GSE share of total subprime market as he construes subprime loans (all loans with credit scores of under 660 included). By this definition, he concluded that the GSEs were responsible for 34 percent of the subprime loans outstanding in 2008.

Though the exact numbers and market shares are tough to settle on and depend on definition, the foray of the GSEs into “higher-price,” “subprime,” “Alt-A,” “other high risk,” and “nontraditional loans” has been responsible for a disproportionate amount of the asset impairments and the credit losses taken by the GSEs on their guarantees and portfolios. But it is important to recognize that the pressure on the GSEs would not have been as great if the financial institutions and rating agencies involved in the private-label market had been more tightly regulated and supervised, or if more regulatory constraints had been imposed on the nonprime products and practices of all financial institutions.

## **Summing Up**

In sum, nonprime lending and capital market problems largely arose from widespread regulatory lapses—ratings agencies and finance companies were barely subject to federal review and regulation, CDS markets were allowed to flourish with a striking lack of transparency, federal laws preempted state laws that might have curbed the riskiest lending practices, and efforts by states that opted out of the preemptions were stymied by federal banking regulators claiming preemptions anyway.

Moreover, it was the regulators who set the capital standards that proved inadequate throughout the financial system. It was also they who pressed Fannie Mae and Freddie Mac to boost specifically home purchase loans at the height of the nonprime market. If there is fault to be found with capital requirements and the Fannie Mae/Freddie Mac goals, it is not with the effort to regulate capital standards or to impose low- and moderate-income lending goals, but rather the actual standards that were promulgated. By the time rule changes made by the Federal Reserve aimed at inhibiting risk layering took effect in October 2009, the damage from issuing such risky nonprime and nontraditional loans had already been done.

## **Creating Safer and Healthier Mortgage Markets**

With so many people facing credit problems and foreclosures in the wake of the Great Recession, reestablishing a functional nonprime housing finance system is increasingly important to the future of homeownership and asset building. The causes of the boom and bust in nonprime lending point to a number of important steps that government and the private sector should take to restore mortgage markets to health.

From the ashes of a broken mortgage finance system, a stronger one must rise. The following are steps that could be taken to move forward in a way that provides credit to borrowers that might otherwise be excluded and also makes room for specialized mortgage products and future innovation while protecting consumers and containing systemic risk.

## **Put Prudent Nonprime Lending With Traditional Products to a Fair Test**

The evolution of nonprime lending in the mid-2000s was unfortunate not only for the damage it did, but also because it provided an unfair test of lending to borrowers with past credit problems. The wholesale relaxation of lending standards, when combined with marketing of

riskier nontraditional products near the peak of an overheated housing market, was a recipe for heavy defaults and severe losses. Had the financial system itself contained the risk better—through effective self-policing or through stronger regulation—the performance of nonprime loans (and prime loans for that matter) might well have been much better.

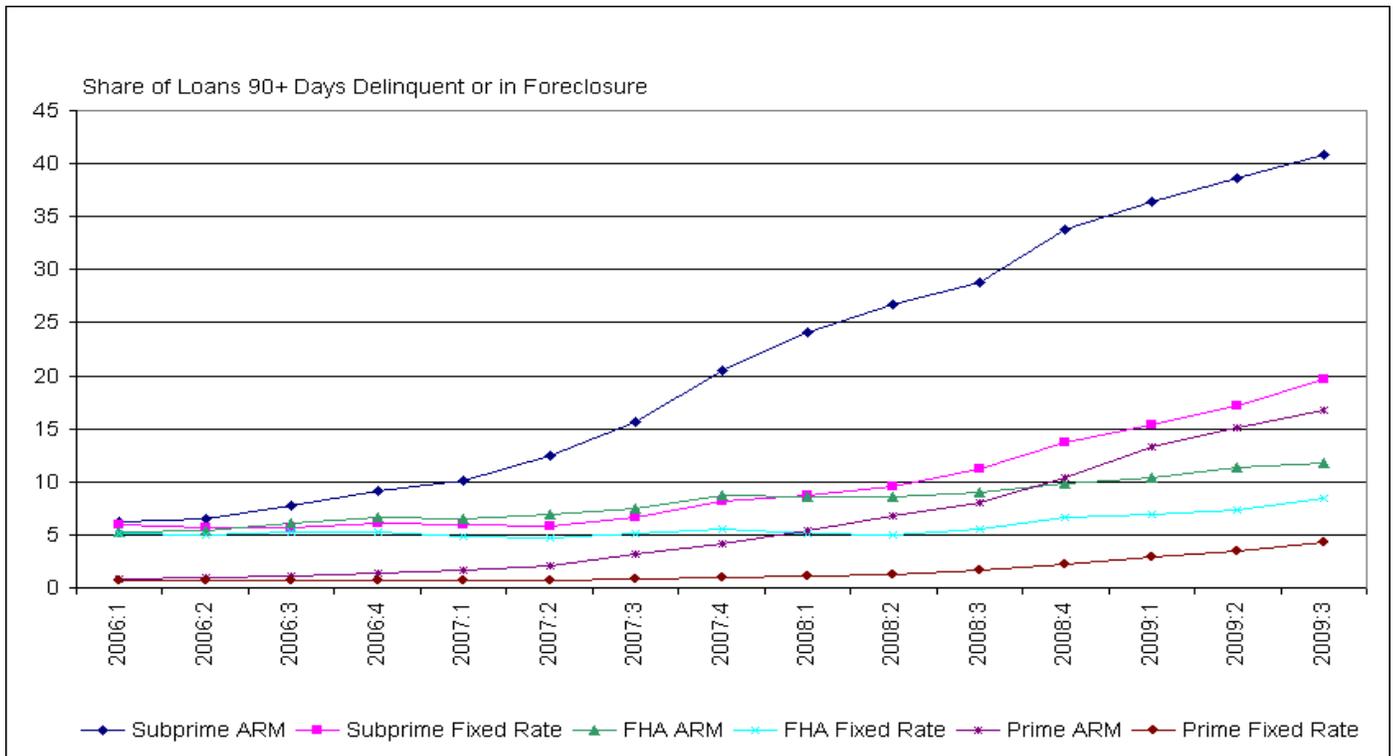
At least one test of nonprime loan performance—set up by Self Help, the Ford Foundation, and Fannie Mae under carefully controlled conditions—suggests that nonprime lending can be sustainable even under difficult market conditions. In 2000, Self Help began purchasing loans under the Community Advantage Program (CAP) that were originated by CRA lenders but that did not conform to Fannie Mae’s underwriting standards. Although tame by the nonprime lending standards and products offered in the mid-2000s (most CAP loans were 30-year fixed rate mortgages with no prepayment penalties and complete income documentation), at the time the experiment was designed the underwriting standards used were considered so risky that Fannie Mae agreed to participate only in a second-loss position with a large first-loss reserve funded by a grant from the Ford Foundation.

Ding and Quercia (2008) compared the performance of subprime mortgages originated outside CAP to CAP loans. They found that subprime loans carried a significantly higher risk of default and prepayment than CAP loans, even for comparable borrowers. For subprime loans with specific characteristics such as adjustable rates or prepayment penalties, the relative risk of default over CAP loans (which prohibited these practices) was even higher. Origination channel also appeared to make a difference, with default risk three to five times higher for borrowers who had obtained their mortgages through brokers, all else equal. The study also showed that in combination risky loan features magnified risk. Borrowers were four to five times more likely to default on subprime loans that combined broker origination, adjustable rates, and prepayment penalties than on CAP loans. These findings demonstrated that borrower characteristics were not solely responsible for the higher risk of subprime loans, and that features of the loans and of their origination channels contributed significantly to risk.

Ding and Quercia concluded that, when done correctly, lending to low-income and risky borrowers can be viable. And there is other evidence that loan type matters. Indeed, the difference between serious delinquency rates on subprime fixed versus adjustable-rate loans indicates that product type matters a great deal (Figure 13). For example, serious delinquency rates in the third quarter of 2009 stood at a remarkable 40.8 percent for subprime adjustable-rate

mortgages but a much lower 19.7 percent for fixed-rate subprime loans. In part, this difference reflects the fact that a larger share of adjustable-rate than fixed-rate mortgages were originated in 2004–2006 when home prices peaked. But even after controlling for vintage of loans, fixed-rate subprime mortgages performed far better (Figure 14).

**Figure 13. Delinquencies Are Much Higher for Subprime Adjustable Mortgages than Subprime Fixed Mortgages**

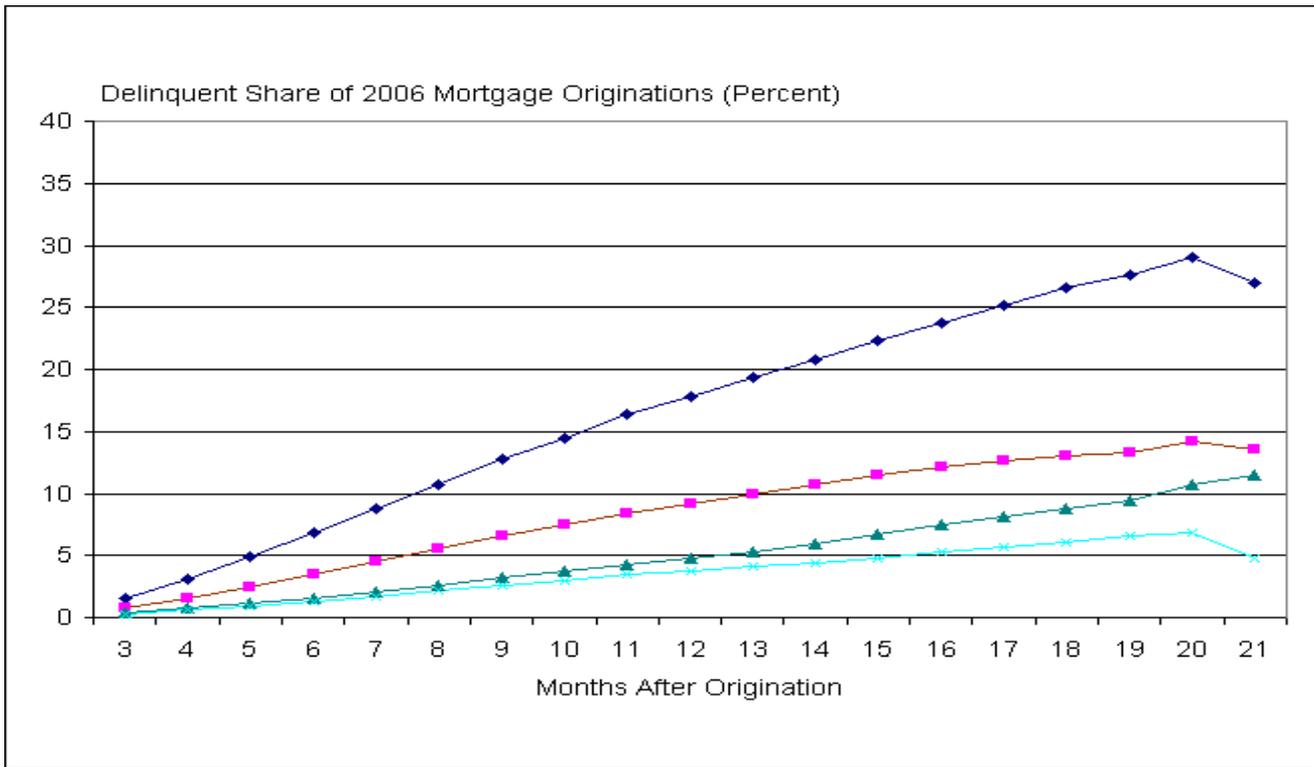
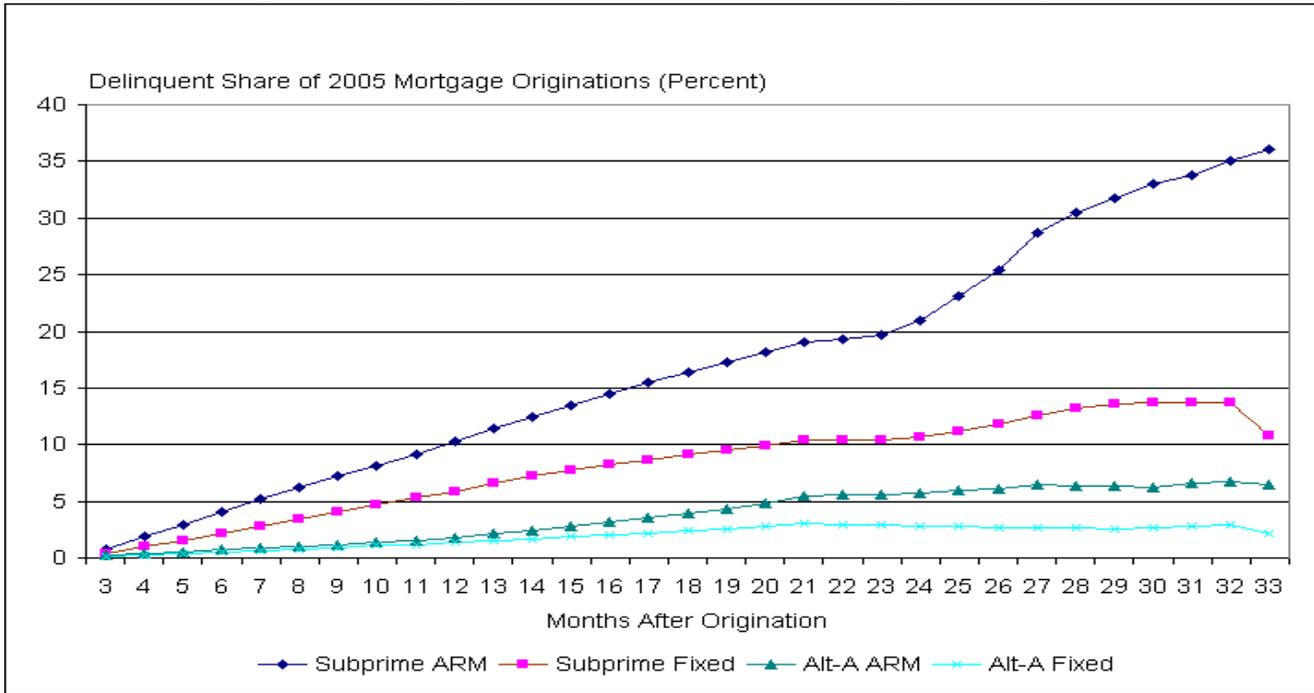


Notes: Serious delinquencies include loans 90+ days delinquent or in foreclosure. Delinquent loan shares are not seasonally adjusted.

Source: Mortgage Bankers Association, National Delinquency Survey.

**Figure 14.**

**Adjustable Subprime Mortgages Fared Worse Than Other Types of Nonprime Loans**



Source: First American Core Logic, Loan Performance data.

It is now time to put prudent nonprime lending to a broad and fair test. The ingredients of such a test should include more careful licensing of brokers, a return to more traditional lending products, verifying incomes and ensuring the borrowers have the capacity to handle mortgage payments at a fully-indexed rate, and requiring escrows. This would restore common sense underwriting. And important strides in this direction have already been taken through the regulation of “higher-priced” loans as defined by new HOPEA regulations, newly mandated national licensing of brokers, and changes to Good Faith Estimates under the Truth in Lending Act. Provisions of the Finance Reform Bill go further by establishing minimum underwriting standards, enhanced disclosures on adjustable and interest-only loans, a prohibition on prepayment penalties for all but certain fixed-rate qualified loans, and a prohibition on payments to the originator (broker) for all loans types that are based on loan terms such as loan type or interest rate (though the bill does allow the ability to pay a broker points based on loan size).

### **Recognize that Properly Underwritten, Nontraditional Loans Have Their Place**

When prudently underwritten—and when systemic risk was not ballooning—many nontraditional loan products performed well. It would therefore be wrong to conclude from the poor overall performance of nontraditional prime loans that the products themselves should be prohibited. Indeed, there are good reasons to offer nontraditional products, like payment-option loans, that allow for flexibility in deciding on monthly payments; or hybrid adjustable-rate mortgages that allow people to amortize loans over 30 years but lock in lower rates for a shorter period matching their expected stay; or products that bank on future income gains. For example, a 5/25 loan affords borrowers that intend to move within 5 years a lower interest rate, with the only risk being that the rate will reset if the borrower remains in the home longer than expected. This ought to be viewed as a useful and workable loan option rather than one to be avoided.

It should be noted that the housing market crisis exposed nonprime lending to exceptional stresses that even prime loans were unable to withstand. The steep decline in home prices experienced in many areas, when combined with high unemployment, took a toll on the performance of prime mortgages as well. Indeed, serious delinquency rates on prime loans reached 6.3 percent in the third quarter of 2009 and were still rising. By comparison, during the previous three recessions (none of which featured as steep a drop in home prices), serious delinquency rates for all loans peaked at less than 2 percent.

## **Build Models that Can Serve as a Foundation for Sustainable Nonprime Lending**

The failure to properly model nonprime default probabilities and loss severities could be interpreted as a sign that modeling cannot be used to assess nonprime and nontraditional product risk. But the history of these models in the prime mortgage market suggests otherwise.. As discussed earlier the orderly process of expanding the pool of eligible borrowers in the prime conforming market was extended by the GSEs into the nonprime market gradually at first. Fannie Mae created the Expanded Approval program in 2000 to provide credit to borrowers with underwriting variances that constituted higher expected risks. Expanded Approval was a risk-based pricing system, but its use was limited to select lenders, volumes were kept low, loan products were typically fixed, and at least initially a hard 620 credit score cutoff was used.

But the private conduits relaxed underwriting dramatically, relying heavily on simulations based on borrower credit scores and loan-to-value ratios that included overly optimistic home price appreciation assumptions or drew conclusions from past performance of similar products that were more strictly underwritten (Rossi 2010; Lang and Jagitiani 2010). These models relied far less on past precedent than the models in the prime market where there was much more relevant historical data to examine.

Moving forward, it should be possible to build a sustainable nonprime lending system that is based on careful modeling of and experimentation with different underwriting standards and products. The goal must be to manage nonprime risk better through sounder underwriting and by requiring greater reserves to buffer losses.

## **Engage in a Serious Public Debate about Acceptable Levels of Risk**

Even before subprime foreclosures skyrocketed, there was already a question of what level of expected default was reasonable for lenders to accept. Until the second half of 2007, subprime defaults were under 10 percent. As a result, about 9 in 10 subprime borrowers that would otherwise have been denied credit were able to either refinance their mortgages or buy homes and benefit from the potential to earn a leveraged return on an investment in housing, pay down principal, and enjoy the pride of ownership.

A serious public debate over what level of expected risk is reasonable for individuals to assume, from a safety and soundness perspective, has never been initiated. An argument can be

made in favor of lending under standards that produce higher expected default rates than in the prime market as long as three conditions are met. First, estimates of expected defaults should be considered reliable and based on actual performance history before pilot programs see expanded. Second, yields should be high enough to cover and reserve against expected losses, though this is much easier said than done because there is no consensus on how to get the expected loss calculations right. Third, borrowers must understand the risks they are taking on. Under these circumstances, borrowers can make informed choices and lenders cover themselves for the added risk of lending to borrowers who have failed to repay previous debts on schedule.

Of course, the debate over what constitutes an acceptable level of risk would not be simple and would take place against a backdrop of lost faith in the models used to form default and loss expectations. However, lenders will almost certainly continue to rely on modeling past data and simulating performance in making underwriting decisions. These models will come under closer scrutiny—whether or not regulations demand it—because investors will be less likely to go along with modeling assumptions and approaches used in the past. In addition, information will now be available on how different loan types performed under a truly disastrous set of circumstances. As time passes, credit-scoring models will also be improved by modeling the ability of those who defaulted on their mortgages to repay other debts, providing an even stronger basis for underwriting decisions.

### **Take Steps to Limit Systemic Risk**

Scanning the wreckage caused by the financial crisis in September 2008, as well as six other episodes since the 1980s,<sup>18</sup> head of National Economic Council Larry Summers (2008) concluded that “regulation will have to shift from its traditional focus on regulating individual institutions to focus on the stability of the entire system.” While it is likely that policymakers will move in this direction, it is instructive to note that during the height of the housing bubble and nonprime lending boom, many serious and thoughtful observers failed to appreciate the depth and magnitude of the systemic risk being taken, and regulators failed to heed the warnings

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<sup>18</sup> These other crises are the 1987 stock market crash, the savings and loan crisis of the mid- to late 1980s, the commercial real estate crash of the late 1980s and early 1990s, the peso crisis in Mexico in 1994–1995, the Asian financial crisis of 1998, and the Long Term Capital Management collapse scare in 1998.

of those who did. This underscores how difficult it is to decide that a bubble is forming and take steps to stop it, especially ones that restrict credit practices and products.

Limiting systemic risk is politically unpopular because it can constrain economic growth and inhibit financial innovation. Measures that could be taken include imposing stiffer capital requirements on more financial institutions so that they can lend less from a given asset base; subjecting financial institutions that are not federally chartered to more rigorous federal safety and soundness examinations and examinations for compliance with consumer protection rules; creating an agency to prohibit credit products viewed as unsafe for consumers (and by extension the financial system); or, as Pollock (2009) has suggested, raising capital requirements when asset prices deviate from long-term trends.

Though unpopular, one or more of these actions may be preferable to leaving the current set of regulations unchanged. The downside of that decision is obvious: the world would remain exposed to periodic financial crises stemming from permissible practices in the financial system that may cost taxpayers a great deal of money and have disastrous consequences for the economy. In the end, some combination of stiffer capital reserve requirements, paying into federal insurance funds, and limiting the risks lenders by enforcing basic underwriting standards—especially on riskier loan products or higher-priced loans to risky borrowers—will be important. It remains to be seen whether the new HOEPA higher priced lending requirements and Finance Reform Bill minimum mortgage lending standards go far enough in constraining risky mortgage lending and if the broader oversight and stronger capital and risk-retaining requirements on banks and nonbank financial institutions within the Financial Reform Bill will be enough to contain systemic risk. . But containing systemic risk through proper management of risk is a critical adjunct to stronger capital reserve requirements that limit the supply of credit.

In short, containing and managing risk through underwriting, not just through its pricing, must be restored to nonprime markets while still allowing a market for serving borrowers with subprime credit records to thrive. In addition, if lenders continue to have wide latitude to offer products and apply underwriting standards of their choosing, there should be some way for regulators to step in if there is a sense that the collective action of lenders is contributing dangerously to systemic risk.

## **Improve Consumer Protections and Disclosures**

The admonishment “buyer beware” as a predicate of consumer protection works best when buyers can easily comparison shop, prices are transparent (and borrowers do not incur costs for price discovery), product features being compared are nearly identical, buyers and sellers have equal information and power in the negotiation, the risks of purchasing a product are clear, and buyers have a clear and well-informed perspective on the product that is best for them (Laibson and Zeckhauser 1998). All of these conditions were lacking in the nonprime mortgage market.

As discussed, steps to protect consumers have already been taken in the form of HOEPA reforms that curb underwriting excesses around capacity to pay for the newly created category of “higher priced loans” and to better inform consumers through TILA and RESPA disclosures that make interest rate, interest fee, and settlement cost estimates more binding for all loans secured by homes. Additional steps aimed at underwriting are proposed in the Reform Bill, such as mandatory verification of income and minimum underwriting standards to ensure a borrower’s ability to pay (which include use of a fully-indexed interest rate on hybrid adjustable rate mortgages to ensure the ability of a borrower to absorb reset shock should it occur).

An important step that the government could also take is to help nonprime borrowers comparison shop by demanding greater pricing transparency. Government could explore the feasibility of requiring that lenders publicly post prices for comparable loan products to a public website. The disclosure could take the form of grids that show interest rates that borrowers with particular credit scores would be charged if they took out a particular product with a particular set of terms. Alternatively, when an automated scoring model is used, the borrowers could be granted access to the wholesale loan interest rate (net of broker commissions) and also told the cost of running their information through another automated system to get another price quote when working with brokers who work with multiple lenders.

As it stands now, buyers and sellers do not have equal information or bargaining power. Sellers of mortgages have much more information on the rates and terms being offered on nonprime mortgages than borrowers. Brokers are faxed—or otherwise have access to—rate sheets along a number of dimensions from multiple lenders and are under no obligation to share that complete information with borrowers. Correspondent and retail branch lenders know the minimum interest rate that wholesale aggregators are looking for, but they too are not required to make those prices known to the borrower.

By prohibiting yield-spread premiums on all mortgages and amending TILA to require that lenders disclose the aggregate fees paid to brokers related to each loan and any additional compensation brokers received from the creditor, borrowers will also more easily see all the compensation they cede to their lenders and the amount of interest they will be paying on their loan.

Beyond the challenges posed by the specific features of the nonprime market are the cognitive biases of consumers in making mortgage decisions, which leave borrowers vulnerable to taking on risks and failing to pick the lowest cost loan. These biases include discounting future risks and assuming that their own level of risk of an adverse event is lower than average. There are also cognitive biases that result from innumeracy, which is widespread, and the use of rules of thumb to solve complex problems with future uncertainties, such as focusing on the monthly payment rather than the annual percentage rate in sizing up the true cost of the loan.

While all these biases apply in a more extreme way in the nonprime market, they exist to some degree in the prime market as well. The challenges in relying entirely on educated consumers to protect themselves in mortgage transactions are apparent. The RESPA and TILA reforms in effect in 2010 go a long way toward greater clarity about payment reset risks on products that contain them and in giving firmer fee and rate quotes to borrowers, but they are as yet untested in terms of influence on consumer behavior. The Reform Bill calls for other amendments to the TILA, requiring that lenders give borrowers six month notice prior to the reset of any hybrid mortgage, along with an explanation of the change, good faith estimate of the new amount, and a list of alternatives the borrower may pursue before the reset

The sense that disclosures are not enough has also added to the pressure on lawmakers to strengthen consumer protections further. In considering new regulations, lawmakers are faced with the challenge of protecting consumers without inhibiting financial innovations that might in fact serve borrowers well, or without prohibiting mortgage products and underwriting standards that lenders want to offer and that consumers can use to finance consumption or investment. For example, the proposed Consumer Finance Product Safety Commission, currently envisioned in the financial reform legislation as an independent bureau within the Federal Reserve, has met with strong industry opposition for fear it will stifle innovation.

## **Improve Affirmative Obligations/Duties to Serve Low-Income Markets**

With pockets of concentrated foreclosures dotting low and moderate-income communities, especially where minorities make up half or more of the population, there is a significant risk of a return to a time when it was especially difficult to get mortgage loans in these communities. A strong economic argument can be made that absent collective action, lenders will pull back from low-income lending in ways that will have disparate impacts on minorities, low-income neighborhoods in general and low-income minority neighborhoods in particular (Litan et al. 2000).

As argued above, it is easy to confuse the reasons for the poor performance of loans to these borrowers and in these communities, and blame the victim. But these low-income, especially minority communities, were “reverse redlined,” with unfettered lending practices permitting borrowers to take excessive risks they sometimes did not understand, including some degree of predatory lending and the use of products and underwriting standards that allowed buyers in low-income communities to drive prices to unsustainable levels. Lenders fitting models to recent history might deny credit in the future on the basis of the abysmal performance generated by the recent reckless practices that thrived at the top of an overheated housing market. Just as when CRA and HMDA were initially passed, it may take collective action that only regulation can bring about to keep lenders looking for ways to reach out to low-income communities and working together to restart lending under a more sustainable model in these places.

But there is also ample reason to want to review and reconsider how CRA is implemented and how widely it should apply (Willis 2010). This review is already well underway—with many opposing views—but it is important that the review lead to concrete steps to improve how CRA grades are assessed and potentially expand its reach (Chakrabarti et al., eds., 2009). As it stands now only loans made by banks and thrifts in areas where they have branch offices count, reducing the laws relevance since only a fraction of all mortgage loans fit this bill. Its critics have pointed out that at least in some cases large banks responded to regulatory pressures by extending below market interest rate loans to borrowers that already had a higher than typical risk profile. While some cross-subsidization has long been a part of the broad prime market—so that the same price has been charged on loans and to borrowers that constitute even though they constitute different risks—this sort of treatment has struck some observers as evidence of an act implemented in an overreaching way or interpreted unwisely by

the regulated. Although the extent to which such market distorting behavior was practiced is unclear, most observers believe it was mostly done by a handful of lenders in large metropolitan areas that were competing for outstanding ratings.

Like CRA, the notion of the duty for secondary market firms to serve certain markets where the risk of being underserved either remains or could reemerge is sensible. It should not be abandoned, even if it is viewed as having contributed to the unwise embrace of Alt-A lending by the GSEs in the mid-2000s, without first diagnosing if it was how the goals were set that created a problem. Fannie Mae and Freddie Mac from 1999 onward complained about the increase in the goals and even more vocally about the inflexibility of the goals. They argued that the goals should be modified for years in which refinance volumes were especially heavy or adjustable rate shares especially high and in 2004 the industry challenged HUD's calculations and estimates of the market. Then in 2005, they complained that forcing them to meet specific single-family home purchase subgoals was ill-advised and limited their ability to meet goals in a more prudent and safe fashion.

### **Improve Transparency in the Capital Markets**

As Federal Reserve Chairman Bernanke (2008) pointed out, "Because mortgage-backed securities are complex amalgamations of underlying mortgages that may themselves be complex to price, transparency about the underlying assets and the mortgage-backed security itself is essential." Yet transparency in the ABS market was lacking because only a limited amount of detailed information on the underlying assets was passed along when the assets were placed into securities. In addition, investors had an even more difficult time following the characteristics of underlying loans and predicting how their performance would affect payouts when tranches were recombined to manufacture even more tranches in CDOs. When CDO tranches were recombined again to form CDO-squared, transparency suffered even more.

CDS and synthetic CDOs (CDOs referencing the underlying loans and mortgage-backed securities) did not trade on public markets and did not have a central clearinghouse or repository of record. Indeed, the Commodity Futures Modernization Act of 2000 ensured that the derivatives market would remain largely unregulated. A dispute between the SEC and the Commodity Futures Trading Commission over which had jurisdiction over derivatives like CDS had inhibited the market for them in the United States while the market was developing rapidly

in Europe. As a result, regulators, let alone investors, could not gauge total exposure to nonprime credit risk, which entities held it, and who the counterparties to CDS were.

This lack of transparency proved a major failing, turning a useful method for managing and hedging risk into a means for propagating it. In the aftermath of the financial crisis, efforts have been made to have credit default swaps and other derivatives traded on public exchanges or clearinghouses, backed by capital reserves, such as is written into the Financial Reform Bill through the requirement that several classes of derivatives be traded on an exchange and routed through derivatives clearing organizations registered with the CFTC. The opacity of capital markets may also lead investors to demand, or regulators to require, greater disclosure of pertinent information on the loans backing mortgage securities. The lesson here is that these efforts are important and worthwhile. As part of the Reform Bill, the SEC is required to adopt rules requiring the issuers of ABS to disclose information regarding the underlying assets within each tranche or class, including disclosures of loan-level data.

### **Improve Measurement, Monitoring, and Management of Counterparty Risk**

The lack of transparency in the capital markets and the reliance on ratings agencies to judge the creditworthiness and business practices of counterparties resulted in counterparty risk that was undetected and poorly managed. In addressing this problem, there is a tendency to prescribe retention of more credit risk by the mortgage originators to better align counterparty interests while also creating cushions against losses. While this makes sense, there are limits to how far down the supply chain such demands can reasonably reach, and it is likely that putting more capital at risk is not sufficient in and of itself to properly manage counterparty risk.

Imposing stiff capital requirements on brokers and small mortgage companies is impractical and doing so could drive them out of business. Yet the originate-to-distribute model has relied—and will likely continue to rely—on mortgage brokers. The reason the broker network has been so durable is that it allows larger lenders to avoid the fixed costs of operating a large retail mortgage origination system. Consumers can also benefit from brokers who are able to offer products, pricing, and underwriting from a wide array of lenders. Given their scale and business model, brokers are often not in a position to retain much credit risk.

While larger mortgage banks, finance companies, banks, thrifts, and investment banks are in a better position to retain more of the risk—and there are good reasons to want them to do so—it

does not guarantee reduction in the risks taken, especially if origination and brokerage fees remain upfront and substantial. In fact, many banks did have capital at risk, which is why their losses related to nonprime mortgages have been so large, such as Bear Stearns and Lehman Brothers.

In addition to requiring counterparties put capital at risk, there are other ways that counterparties can and should monitor, manage, and contain risk. Instead of relying on the ratings of rating agencies, entities that aggregate loans—or insure or guarantee loans or the securities they back—can impose their own strict requirements for sellers and servicers. Fannie Mae, Freddie Mac, and others have long operated with such rules. In addition, these aggregators constantly monitor the performance of sellers and brokers to detect those with loans that perform significantly worse than their peers. Regulations could require that all aggregators impose certain requirements on sellers and servicers and that all aggregators have counterparty risk monitoring systems in place. These systems would look for statistical outliers in the performance of their sellers and servicers and prescribe methods for investigating whether they warrant breaking off business with these seller-servicers. The Financial Reform Bill calls for new regulations on ratings procedures and further disclosures of credit rating methodologies by the credit ratings agencies, with emphasis on qualitative detail on the data used and assumptions made, as well as some quantitative reporting of the impact of various changes to market conditions.

A recent step in the direction of both greater counterparty strength and ability to monitor performance is the requirement that mortgage brokers meet national licensing standards and be listed in a national registry. Licensing standards help ensure the professionalism of brokers and registration allows the performance of brokers to be more closely monitored. Interestingly, employees of regulated financial institutions must be federally registered but do not need state licenses, diminishing the reach of the law.

The extent to which counterparty rules as strong as those in the conforming market were in place in the private conduit channels is less clear. The incentives to police distribution channels were weaker, however, because the broker-dealers that structured the securities were not guarantors and were insulated from assignee liability. One way to help ensure that broker-dealers police their distribution channels, therefore, would be to hold assignees liable for certain conditions under which loans were originated, though efforts to impose assignee liability in the 1990s strongly suggest that conditions would have to be limited, clear, compelling, and liability

capped so securities backed by loans in private conduits could be effectively rated. Even so, such a move could have a chilling effect on market participants.

Lastly, counterparty risks can be reduced by better aligning the incentives of agents to avoid principal-agent problems. This could be done by tying some portion of mortgage broker and MBS broker-dealer compensation to the long-run performance of loans, such as the requirement in the Financial Reform Bill that issuers retain a minimum of 5 percent of all securitized assets unless the ABS is backed entirely by qualified mortgages as defined by the bill. Rather than front loading all the incentives, some portion could come out of the payment streams from the mortgages the brokers originate or securities they issue. This is how servicers are compensated. But it would be difficult to achieve this without a transition period because upfront fees are more immediate. It would also likely take regulation because brokers prefer upfront fees. Thus, any firm that offered them would likely gain market share from those paying a portion from recurring monthly payments tied to loan performance and prepayment characteristics.

### **Improve Regulation and Supervision of the Shadow Banking System**

The lack of oversight by federal authorities meant that many important practices occurred out of sight and reach of federal regulators (except for practices already prohibited by federal credit laws like TILA, RESPA, HOEPA, and the Equal Credit Opportunity Act). Finance companies, mortgage brokers, ratings agencies, CDS issuers and markets, investment banks, and investment funds would benefit from more federal oversight and regulation.

While many of those that might be subjected to such regulation and oversight are resisting it and all want to be heard about how such regulations and oversight might be structured, at least one major trade association representing firms in the so-called shadow banking system has acknowledged the value of subjecting firms it represents to federal oversight. The Mortgage Bankers Association has called for establishing a federal regulator to develop uniform national mortgage standards and regulate independent mortgage banks and brokers.<sup>19</sup>

It does appear likely that at least some players in the shadow banking system will come under closer federal scrutiny and regulation. As noted, the federal government has already taken

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<sup>19</sup> The MBA proposal calls for legislation that incorporates and extends borrower protections in HOEPA, including taking into account a borrower's ability to pay using fully indexed rates and fully amortized payments. It also improves appraisal and servicing rules. The proposal establishes a duty of care for loan originators which requires them to present a choice of appropriate loan products to borrowers, fully disclose their cost, and disclose all forms of compensation received by the broker or loan officer in connection with the loan. Under the proposal, borrowers would have to agree in writing to the terms of a nontraditional loan product before closing.

that step with mortgage brokers through licensing and registration, but it likely that efforts will also be made to improve federal oversight and regulation of the rating agencies, issuers of CDS, and investment banks acting as broker-dealers. The proposed Consumer Financial Protection Bureau goes a long way towards doing this by granting a single bureau within the Federal Reserve the authority to examine and enforce regulations for all mortgage-related businesses, including all lenders, servicers, mortgage brokers, and bank and non-bank financial companies.

### **Retool Federal Role in Guaranteeing Mortgage Debt**

For decades, the markets perceived that Fannie Mae and Freddie Mac had the implicit backing of the federal government because they were chartered by Congress, enjoyed special privileges, and had modest but symbolic lines of credit with Treasury. When the federal government stepped in and placed Fannie Mae and Freddie Mac into conservatorship, this perception was borne out (if not for equity holders) for its debtors and purchasers of its MBS. It is important to point out, however, that other large financial institutions, notably AIG and the several of the nation's largest banks, received significant federal backing for their obligations, as well, and in some cases on terms less onerous than those imposed on the GSEs. Thus, the expectation has been raised that the federal government will step into to prop up any institution deemed too large to fail and to honor their debts. But, be that as it may, the experience with Fannie Mae and Freddie Mac must cause a rethinking of the how the government should support mortgage liquidity and the stability of the financial system through insurance and guarantees of mortgages and MBS.

In rethinking this role, several important lessons outlined in this report should be kept in mind. First and foremost, absent FHA and the federal government stepping in to honor the debt and guarantee commitments of Fannie Mae and Freddie Mac, the mortgage market would have utterly collapsed. The prospect of such a collapse is terrifying. Had it occurred, for some period of time no one could have bought or sold a home without cash or accepting onerous terms, no one could have refinanced to take advantage of lower rates, and no one could have borrowed against home equity. Homes would have been as devalued and untradeable as subprime securities were in the fall of 2008. Thus, it is clear that federal insurances and guarantees are vital to the stability of the mortgage finance system and the broader finance system, as well as the national economy. It would therefore be ill-advised for the federal government not to have mechanisms in place to provide these insurances and guarantees and be able to activate them

immediately on a massive scale should conditions demand it. Indeed, the ability of the federal government to go in over a weekend and seize control of the two companies was vital to keeping the financial system from collapsing and credit flowing from the thousands of private firms that originate and service loans. In addition, Fannie Mae and Freddie Mac were used to run large-scale federal loan modification programs and allowed the Federal Reserve to operate an agency MBS purchase program that lowered mortgage interest rates and kept credit flowing.

Second, even if the federal government provides only an implicit guarantee (and it is doubtful whether such an implicit guarantee makes sense moving forward or only explicit guarantees should be offered), it has a compelling interest in charging fees for these guarantees, as it does with FHA, to protect against losses. It must also sort out ways to make sure it has the proper counterparty risk management measures in place, including adequate reserve requirements against losses and other risk-sharing arrangements that limit moral hazard and principal-agent problems.

Third, the need for federal guarantees goes beyond the need to insure whole loans and extends to guarantees of MBS, especially of securities structured to allow interest rate risk to be parsed and better managed. As discussed in this report, the secondary market—and one driven by large players that can enforce standardization—has enormous benefits, including liquidity that lowers mortgage interest rates, the capacity to tap into deeper pools of capital which also lowers costs, and better matching asset and liability duration through the issuance of securities with a range of maturities, coupons, and privileges to cash flows from otherwise long-term, illiquid mortgage assets. Absent structured securities aimed at managing interest rate and related prepayment and asset-liability matching risks, it would be difficult to source so much capital for 30-year fixed rate product. Even pension funds and insurance companies focused their purchases on REMIC tranches with short-term maturities. Absent federal guarantees on those structured securities, they may not be issued at all times and will have to revert to the tricks of structuring credit risk that backfired so badly in the private label ABS and CDO market for subprime mortgage securities.

Fourth, if lowest common denominator lenders are allowed to thrive anywhere in mortgage credit markets because regulatory oversight is weak, any shareholder-owned company like Fannie Mae and Freddie Mac that offers an implicit (or explicit) mortgage guarantee will come under pressure to move towards that lowest denominator to retain market share and possibly boost short-term earnings if yields are attractive. Thus, the federal government has a compelling interest not only in managing counterparty risk through capital requirements and

risk-sharing arrangements but also through care in the loan products and underwriting standards it will allow these enterprises to insure or purchase (perhaps above and beyond regulations already in place to limit products and standards for all mortgage loans, as is the aim of the Financial Reform Bill and the new HOEPA rules governing higher-priced lending).

Lastly, FHA has been criticized over the years for being too rule bound by law to act decisively to manage the risks in its own portfolio and innovate in ways that might better serve the consuming public. It has also been faulted for being too sensitive to political pressure to police its private partners as effectively as a private company can. And it has long been viewed by experts as having antiquated information technology systems, salary structures that make it difficult to attract the necessary talent, and other problems that stem from being a poorly funded government agency. While many strides have been made to improve and reform FHA, few would say that these reforms have solved many of the agency's structural challenges. Moving forward, old reform proposals should be dusted off and revisited in light of recent events and FHA's evolution (Vandell 1995; Wartell 2002). As for Ginnie Mae, which guarantees timely payment of principal and interest on securities backed by FHA insured loans, it provides a model that is now being looked at as a way for the federal government to provide wraps around securities issued by firms that would become chartered entities for the purposes of issuing MBS explicitly backed by the federal government.

Beyond the loans and MBS its guarantees, the federal government of course also has its role to play in regulating originators, issuers, rating agencies, mortgage loan products, mortgage derivative products, consumer disclosures, and public disclosures of lending information like HMDA to protect consumers and investors and promote fair lending. It has long exercised this role and is in the process of rethinking and reforming it.

### **Improve Loan-Level Disclosures**

The lack of disclosure and lack of uniformity in disclosure has made it extremely difficult to reach common conclusions about the basic facts of the boom and bust in nonprime lending.<sup>20</sup> Subprime and Alt-A loans were self-defined by lenders. There was no statutory definition – even credit score cutoffs varied widely in defining subprime. While proprietary databases often contained sufficient information to parse data based on the underlying loan product features,

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<sup>20</sup> See Edward Pinto's (2008) detailed testimony on the subject to the Committee on Oversight and Government Reform of the US House of Representatives, December 9, 2008.

underwriting standards, and credit scores of borrowers, these data were not widely available to the public at a detailed level.<sup>21</sup> This has inhibited meaningful analysis. To gauge the nature and extent of nonprime lending it would be helpful to get away from such umbrella terms as Alt-A, prime and subprime and substitute much more specific categories that are reported in common ways. For example, it would be useful to cross classify loans into common categories of combined loan-to-value ratios, debt-to-income ratios, credit scores, the degree of documentation of income, whether loans required escrowing of taxes and insurances, if the applicants intended to occupy the home as a primary residence or not, and type of product (such as interest-only loans with reset dates of five years or more or less than five years; payment-option loans; fixed-rate loans of 15 years or less or more than 15 years; and adjustable rates with reset dates of one year or less, 2-4 years, and 5 years or more). Common combined LTV categories might be 80 percent or less, 80-90 percent, 91-95 percent, 96-97 percent, greater than 98 percent, and so forth. Information on numbers as well as performance of loans cross-classified in this way if a certain threshold number of loans were reached within a cell could be required of private vendors. This could be done at the national level and only for pre-agreed categories and threshold loan numbers so that the vendors would still be able to sell more detailed geographic and loan-level data.

There are many loan-level disclosure reforms proposals now circulating that would demand much greater disclosure than this, especially on loans in private label securities. These may gain traction. The approach described here is an effort aimed specifically at gauging the national patterns of the kinds of loans being originated and under what sorts of underwriting standards, how much risk layering, and how these loans are performing. These other reform proposals, such as included in the proposed Reform Bill, are mostly aimed at improving the ability of investors to know what is in ABS and CDOs they invest in and to track the performance of these securities. Others are pushing to do the same for privately placed securities or to improve disclosures around broker mark-ups and loan modifications.<sup>22</sup> Others seek to link

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<sup>21</sup> It is worth noting that Wall Street analysts often released reports that drew on such detailed information and that some of the vendors were quite forthcoming in recent years to researchers and policy makers on a case-by-case basis. But these vendors are businesses and there are both limits to the amount of time they can spend on formatting tables for outside parties to help inform public debates and inefficiencies in doing so in ways that are thought out in advance as the most fundamental to policy formulation. Coming up with required national level disclosures as described in the text would bring efficiency and consistency to the process and could be developed based on a process facilitated by regulators.

<sup>22</sup> For an excellent review of these proposals as well as the issues they pose, see Jackson (2010).

loan information to borrower characteristics by forming a common identifier between HMDA data and loan level data reported to and aggregated by third party data vendors.<sup>23</sup>

### **Revisit Servicing Arrangements in Securitizations**

The jury is still out on whether the differing interests of tranche holders and the Pooling and Servicing Agreements that governed servicing arrangements for loans held in trust by special purpose entities inhibited servicers in their response to massive subprime loan defaults. As a result, the legal agreements governing trusts and the conduct of servicers are worthy of closer attention, and efforts to strengthen them are worth making.

### **Where Next**

The severe global recession sparked by the meltdown in credit markets poses important questions to business leaders and policymakers about the best ways to reform the US capital markets and housing finance system. The answers are difficult because they involve the perennial tradeoff between, on the one hand, limiting access to credit by imposing harsher capital standards, restrictions, and prohibitions on products and underwriting practices and, on the other hand, ensuring credit is as available as possible, consistent with sound underwriting, for businesses and households to borrow to pursue consumption and investment.

Even those who have faulted many nonprime lending practices express a strong interest in seeing the market succeed because, by definition, it opens up access for borrowers and allows the use of loan products and terms otherwise unavailable in the prime market. Whatever solutions are worked out, it is now more important than ever to strike a fruitful balance in this perennial tradeoff. The hope is that market corrections and regulatory reforms in the nonprime market will allow a broad range of households to have access to mortgage credit, but in ways that are more sustainable, involve fewer risks, and do not become fodder for excessive financial risk-taking in the capital markets.

By 2010, regulatory reform proposals were proliferating and the Financial Reform Bill made it past the Senate and House of Representatives and to conference. The proposals had a wide range of sponsors, including trade organizations, investment banks, think tanks, academics, lawmakers, and the administration. It is uncertain how these proposals will be received and

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<sup>23</sup> See both Jackson (2010) and Fishbein and Essene (2010)—NOTE THESE ARE DRAFT PAPERS AND NOT YET IN CIRCULATION.

which will ultimately be acted upon. But what emerges will govern the safety and soundness of the financial system, access to and the cost of mortgage credit, and the fairness and clarity of mortgage lending for years to come.

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