CHAPTER 2

Credit and Housing Markets

In the summer of 2007, the contraction in the U.S. housing market worsened and credit markets experienced a substantial disruption. Default rates on subprime mortgages—particularly more recent vintages of adjustable-rate mortgages—rose rapidly. As a result, investors became worried about how much risk they had exposed themselves to by purchasing financial securities backed by these mortgages. Financial disruptions rippled through the U.S. and world financial markets as yields on many private debt securities rose sharply, while investor demand for those securities dramatically fell. As investors sought the safety of government securities, demand for U.S. Treasury securities spiked upward, driving down their yields.

The Administration and the Federal Reserve independently responded to the subprime mortgage problem and the financial market disruptions. The Administration's policy response addressed problems in the subprime lending market and sought to improve the long-run functioning of the housing and credit markets through programs such as *FHASecure* and HOPE NOW. *FHASecure* expands the Federal Housing Administration's (FHA) ability to offer home mortgage loan refinancing options by giving it the additional flexibility to help not only homeowners who are current on their mortgage payments, but also borrowers in default who had made timely mortgage payments before their loan interest rates reset. HOPE NOW is an example of the government encouraging members of the private sector—including lenders, loan servicers, mortgage counselors, and investors—to identify and reach out to at-risk borrowers and help more families stay in their homes. The Federal Reserve addressed the risks to the economy from financial market disruptions by increasing liquidity and lowering interest rates, and it addressed problems in the subprime mortgage market by joining with its fellow supervisory agencies to work on new consumer protection rules and to issue guidance to lending institutions.

Despite the magnitude of the disruption in financial markets, the impact on the broader real economy was, at least through the fourth quarter of 2007, largely confined to residential investment, which had been weak for about 2 years. Nonetheless, the tightening of credit standards raises the possibility that spending by businesses and consumers could be restrained in the future. Declines in housing wealth may also limit consumer spending.

The credit market disruptions appear to reflect a general repricing of risk that was triggered, though not solely caused, by subprime mortgage delinquencies, which were in turn a partial result of declines in housing appreciation. New financial products, such as certain mortgage-backed securities, also added a layer of complexity to the recent credit market disruptions. These securities markedly expanded liquidity in the mortgage markets and provided many Americans a previously unavailable opportunity to own their own homes.

The key points from this chapter are:

- Rising delinquencies for subprime mortgages revealed an apparent underpricing of risk and raised concerns about which market participants were exposed to that risk, but the subprime market was not the only cause for the contraction in credit markets.
- The Federal Reserve provided liquidity and took measures to support financial stability in the financial markets in the wake of the disruptions in the credit markets.
- The Administration focused its response on housing markets and helping homeowners avoid foreclosure—in particular, subprime borrowers facing increases in the interest rate on their adjustable-rate mortgages.
- Participants in the credit and housing markets are actively addressing challenges that were revealed during the summer of 2007. Markets are generally better suited than government to adapting to changes in the economic environment; markets can respond quickly to new information, while government policy often reacts with a lag or has a delayed impact.
- Financial innovations in the mortgage and credit markets have provided a range of economic benefits, but not without some costs. Over time, markets tend to retain valuable innovations and repair or eliminate flawed innovations.
- The macroeconomic effects of the downturn in housing and the credit market disruptions may occur through several channels, including the direct effect on residential investment, the reduction of wealth on personal consumption, and tighter lending standards on business investment.

What Are Credit Markets?

There are two primary ways to finance any economic activity: through equity or through debt. With *equity financing,* investors take ownership shares in an economic venture, such as investing in a new company, and receive some fraction of the future returns. With *debt* or *credit financing,* a creditor

lends a debtor money today, which the debtor must repay with interest in the future. Credit comes in many different forms: credit cards, automobile loans, mortgages, corporate bonds, and government bonds. Securities whose value is derived from underlying assets are called *derivatives* or *derivative securities. Credit markets* are the markets in which loans and their derivative securities are traded.

Consider mortgages. Suppose a person wants to purchase a house, but does not have enough cash on hand to buy it. The prospective borrower (the debtor) uses his available cash as a down payment and approaches a lender (the creditor), who lends the borrower the remaining money needed to cover the cost of the house. Over time, the borrower earns income from his job and pays off the mortgage (debt). Because money today is worth more than money tomorrow, the lender charges interest on the amount of the loan (the principal). The interest rate must be set high enough to compensate the lender for bearing the risks associated with the loan but low enough to make the loan attractive to the borrower.

Mortgages, like most forms of credit, are subject to three forms of risk: *credit risk* (the risk that the debtor will default on the loan), *interest rate risk* (the risk that market interest rates will fluctuate), and *prepayment risk* (the risk that the borrower will pay off the loan early). Lenders make money by charging borrowers interest payments on top of the periodic repayments of principal. Therefore, the lender is worse off if these interest payments stop, such as when the borrower defaults on a loan or pays off the loan early in an environment of low interest rates. Mortgage lenders may also face the risk of a loss of principal if a property is foreclosed upon. Loans with greater risk have higher interest rates to compensate the lender for bearing more risk.

Recent Developments in Mortgage Markets

From 2001 to 2007, there was a substantial increase in the use of subprime mortgages. (Box 2-1 defines "subprime mortgages" and other mortgage market terminology.) The share of mortgage originations that were subprime increased from 5 percent in 2001 to more than 20 percent in 2006. Subprime mortgages carry a greater risk than prime mortgages. Many subprime borrowers have poorer credit histories and less reliable sources of income than prime borrowers; they may provide little or no documentation of income or assets from which they can pay the mortgage; and they tend to have high loan-to-value ratios. As a result, compared with prime borrowers, subprime borrowers are more likely to default on their loans.

Box 2-1: Definitions of Select Mortgage Terms

Adjustable-rate mortgage (ARM): Adjustable-rate mortgages have an initial period with a fixed interest rate, after which the interest rate adjusts at set periods. For example, a 3/1 ARM would have a set interest rate for 3 years, but after that the interest rate would adjust every year. The adjusted interest rate is a function of some "index" market interest rate, such as the London Interbank Offer Rate.

Conforming loan limit: The charter-required limit, as determined by Federal regulators, placed on the size of loans that can be purchased by Fannie Mae and Freddie Mac.

Default: A borrower defaults on a mortgage when he or she fails to make timely monthly mortgage payments or otherwise comply with mortgage terms. A mortgage is generally considered in default when payment has not been made for more than 90 days. At this point, foreclosure proceedings against the borrower become a strong possibility.

Delinquency: A borrower is delinquent on a mortgage when he or she fails to make one or more scheduled monthly payments.

Fannie Mae: Fannie Mae is the registered service mark of the Federal National Mortgage Association, a U.S. Government-sponsored enterprise. Fannie Mae buys mortgage loans that meet certain criteria from primary mortgage lenders and sells mortgage-backed securities with guaranteed principal and interest payments. In return for this guaranty, investors pay a fee to Fannie Mae. Fannie Mae also holds some of the mortgages it purchases, and mortgage-backed securities it originates, in its portfolio.

Fixed-rate mortgage (FRM): A mortgage with an interest rate that remains the same throughout the life of the loan.

Foreclosure: A legal process in which a lender seeks recovery of collateral from a borrower (in the case of home mortgages, the home itself is the collateral), with several possible outcomes, including that the borrower sells the property or the lender repossesses the home. Foreclosure laws are based on the statutes of each State.

Freddie Mac: Freddie Mac is the registered service mark of the Federal Home Loan Mortgage Corporation, a U.S. Government-sponsored enterprise. Freddie Mac buys mortgage loans that meet certain criteria from primary mortgage lenders and sells mortgage-backed securities with guaranteed principal and interest payments. In return for this guaranty, investors pay a fee to Freddie Mac. Freddie Mac also holds some of the mortgages it purchases, and mortgage-backed securities it originates, in its portfolio.

Jumbo loan: A loan that exceeds the conforming loan limit.

continued on the next page

Box 2-1 — continued

Prime loan: Loans made to borrowers that meet stringent lending and underwriting terms and conditions. Prime borrowers have good credit records and meet standard guidelines for documentation of debt-to-income and loan-to-value ratios.

Reset: An interest rate on an adjustable-rate mortgage is said to have reset whenever it is adjusted, or moved, in the direction of the market interest rate that it tracks.

Subprime loan: Loans that meet less stringent lending and underwriting terms and conditions. Subprime borrowers may have weaker credit histories characterized by payment delinquencies; previous charge-offs, judgments, or bankruptcies; low credit scores; high debt-burden ratios; high loan-to-value ratios; or little to no documentation to prove income.

Workout: An adjustment to, or renegotiation of, a loan a lender makes with a borrower, usually with the purpose of avoiding a default or foreclosure on the loan. Types of workouts include modifications to the original loan contract, forbearance agreements (agreements that postpone payments), forgiveness of some debt, and short sales (the lender accepts the proceeds from the home's sale as settlement for the debt even if the proceeds do not cover the entire mortgage amount).

Strong house price appreciation in much of the country beginning in 2003 provided confidence that riskier borrowers could easily refinance mortgages, using their built-up equity, should they be unable to keep up with their monthly mortgage payments. This expectation of house price appreciation, coupled with an increasingly competitive lending environment, led lenders to relax their underwriting standards and offer products with features that lowered monthly payments. Loans with low initial payments, including subprime loans, helped further feed house price appreciation, and increased the risk of eventual default and foreclosure due to their future interest rate resets. Some subprime loans were traditional fixed-rate mortgages (FRMs) that specified a fixed interest rate throughout the life of the loan, while others were adjustable-rate mortgages (ARMs), with interest rates that followed a market interest rate, such as the *London Interbank Offer Rate* (LIBOR), the interest rate at which banks lend to one another using the London market. About 70 percent of subprime ARMs were 2/28 or 3/27 hybrid ARMs. A 2/28 hybrid ARM, for example, has 2 years of payments at a fixed introductory interest rate, after which it *resets* to a higher floating rate, and then floats for the remaining 28 years.

At the same time, the dollar volume of private mortgage-backed securities issued by private sector entities grew rapidly beginning in 2001. Investors were attracted to these securities because of their seemingly high risk-adjusted returns; ARMs apparently shifted interest rate risk from the lender to the borrower, whose mortgage payments would vary according to market interest rates. This provided continued liquidity support for the further expansion of mortgage lending, including poorly underwritten subprime lending. Lenders sold loans on the secondary market, passing risks on to investors who relied primarily on ratings of the securities provided by third-party rating agencies.

There are two important caveats to keep in mind when thinking about credit risk in the mortgage markets. First, defaults and foreclosures are expected even in the best of times. Some individual borrowers will experience difficulties—such as job loss—that may lead them to default on their mortgages. Eliminating defaults and foreclosures caused by such difficulties would be nearly impossible, and efforts to do so by raising credit thresholds would have the unfortunate effect of restricting access to credit—and, therefore, to home ownership—for many prospective borrowers. Second, in well-functioning markets, risks are priced. There is nothing wrong or unnatural about the possibility of higher default and delinquency rates, provided the borrower and lender enter the transaction fully informed. Lenders and investors can compensate for increased risk by setting an appropriately high interest rate. Of course, if information on credit risk is imperfect, the demand for loans in the secondary market will be affected. For example, if credit rating agencies or investors underestimate the default risk of subprime securities, the market may underprice subprime risk, leading to an excess quantity of subprime credit. See Box 2-2 for background on the credit rating agencies.

Box 2-2: Credit Rating Agencies

The securities credit rating industry began in 1909, but it was not until the 1930s that regulators began mandating the use of credit ratings. For example, banks cannot invest in bonds that are rated below investment grade; insurance companies are required to link their capital requirements to the ratings of the bonds they invest in; and the Securities and Exchange Commission's capital requirements require broker-dealers to hold investment-grade bonds in their portfolios.

In order to regulate these ratings the Securities and Exchange Commission created the National Recognized Statistical Rating Organization designation (NRSRO) in 1975. Since then, the NRSRO category has become a de facto license, and like all licenses, it aims to enforce quality but in fact restricts quantity, by granting monopoly power to the incumbent firms. Currently, seven firms are designated

continued on the next page

Box 2-2 — continued

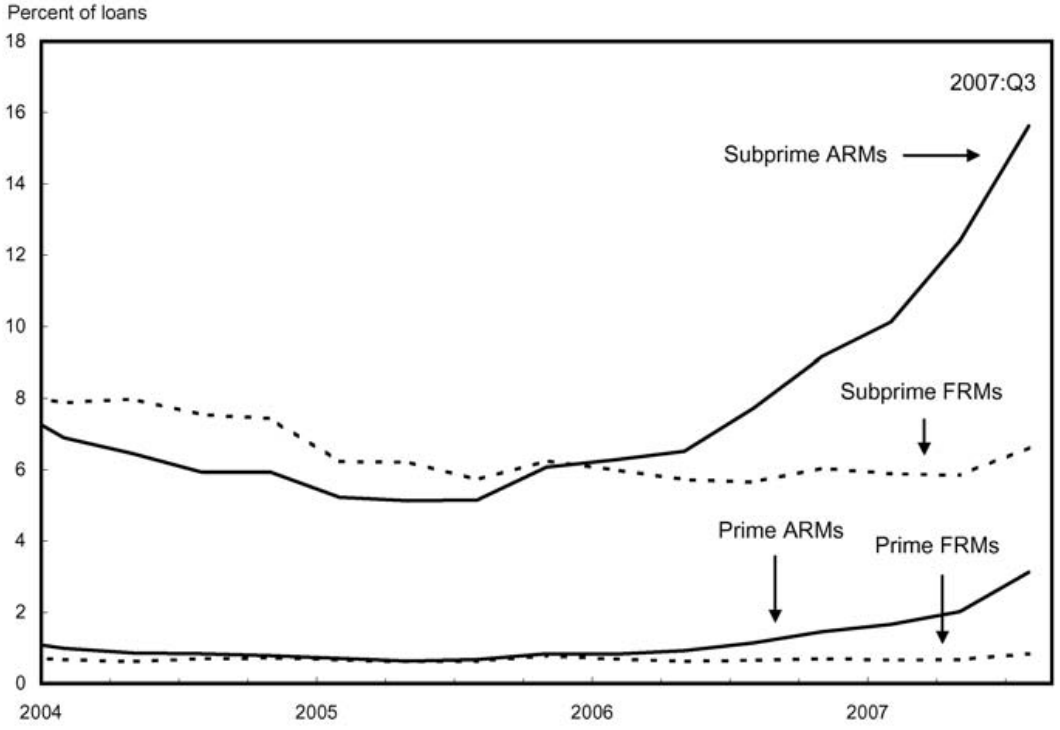
NRSROs. Critics have described the criteria for entry into the NRSRO designation as opaque, effectively blocking new entry.

The industry came under scrutiny after a large energy company was rated "investment grade" 5 days before its bankruptcy. In September 2006, the Credit Rating Agency Reform Act was passed to increase transparency and competition in the rating industry. Under the new act, a credit rating firm whose ratings have been used by at least 10 investors for 3 years can apply for registration as an NRSRO.

Although the new law is still being implemented, some contend that barriers to entry are still high, and conflicts of interest between the rater and the issuer persist. The President's Working Group on Financial Markets is examining the need for reform of the credit rating agencies.

In 2006, defaults on mortgages began to increase, but, as shown in Chart 2-1, the rise in default rates was concentrated in ARMs, particularly subprime ARMs, while default rates for FRMs were relatively unchanged. The performance of subprime mortgages was particularly poor for more recent vintages. Subprime mortgages originated in 2005 and 2006 have defaulted much more quickly than those originated in 2003 and 2004, for example. By July of 2007, escalating subprime ARM default rates led lenders to sharply curtail new originations of subprime loans.

Chart 2-1 **Percent of Mortgages 90 Days Past Due or In the Process of Foreclosure**
Subprime adjustable-rate mortgages have performed particularly poorly over the past year.



Source: Mortgage Bankers Association.

The current rise in defaults reflects a combination of factors, including flat or falling home prices, weaker underwriting standards (including higher loan-to-value ratios), regional economic weakness, and interest rate resets on subprime ARMs. About 1.8 million owner-occupied loans in subprime mortgage pools are scheduled to reset in 2008 and 2009. For mortgages issued in the past several years, defaults are occurring well before interest rates reset, which suggests soft housing prices and weak underwriting standards may be more important factors. As housing prices began to falter, flat or falling home prices combined with weaker underwriting standards meant that borrowers lost their "equity cushion" and had more difficulty refinancing or selling their homes. Borrowers who had purchased homes (particularly homes for investment purposes) but now owed more than the properties were worth had incentives to stop making mortgage payments in order to minimize their financial losses. Rising interest rates increased the probability of default and foreclosure for borrowers with adjustable-rate mortgages because their monthly payments grew as rates were climbing. The relative importance of these factors may vary geographically, as discussed in Box 2-3.

Worries in late summer about exposure to risk increased in the markets for other mortgages as well. In particular, interest rates on jumbo mortgages (mortgages in excess of the "conforming loan limit" of $417,000) rose, and jumbo mortgage originations slowed. Chart 2-2 shows the increase since the summer of 2007 in interest rates for fixed-rate jumbo mortgages relative to fixed-rate conforming mortgages.

Box 2-3: Geographic Variations in Housing Markets

Home prices vary significantly from neighborhood to neighborhood, State to State, and region to region. In 2006, for example, the median sale price for an existing home sold in the western United States was well over $300,000 compared with just $170,000 in the Midwest. Within California, the median price in San Jose was $775,000, while the median price a few hours away in Sacramento was only $375,000.

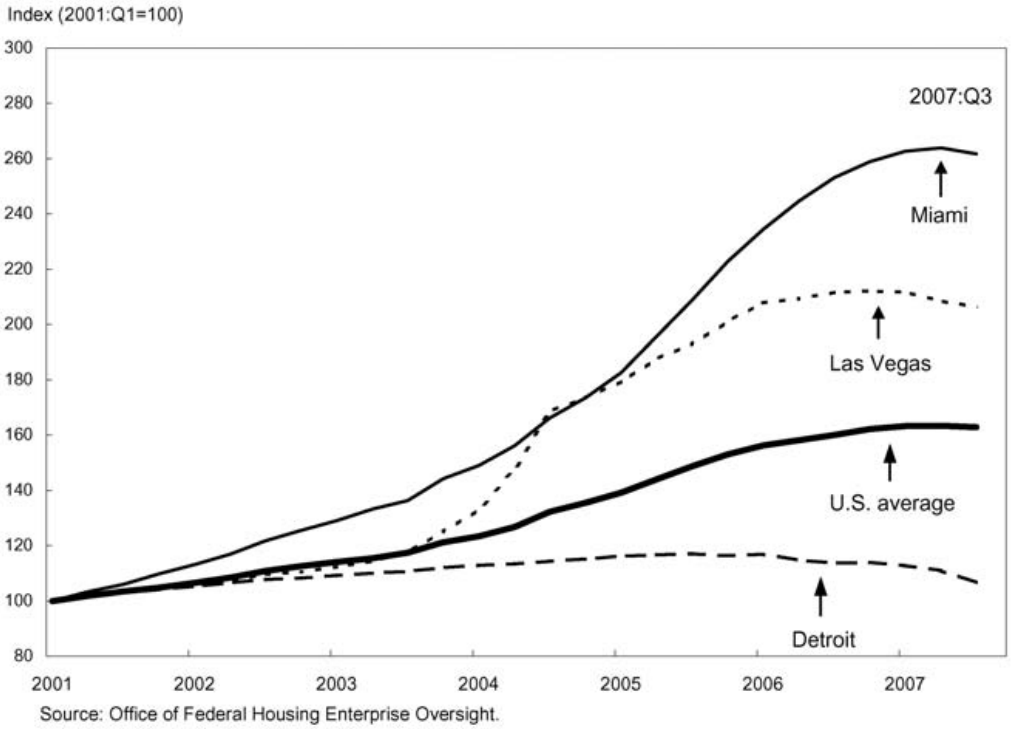
Home prices increased from 2001 to 2007 and boomed from 2003 to 2006, rising over 35 percent on average across the Nation, but those gains also showed large regional variations. House prices rose most dramatically in the southeastern and western United States and, to a lesser extent, in New England and the mid-Atlantic. Likewise, the subsequent deceleration (or outright declines) in house prices in 2007 also varied, with the largest changes occurring in those places that had previously shown the most rapid appreciation or were experiencing prolonged economic weakness.

continued on the next page

Box 2-3 — continued

Home Price Appreciation

House price appreciation has varied substantially across cities.

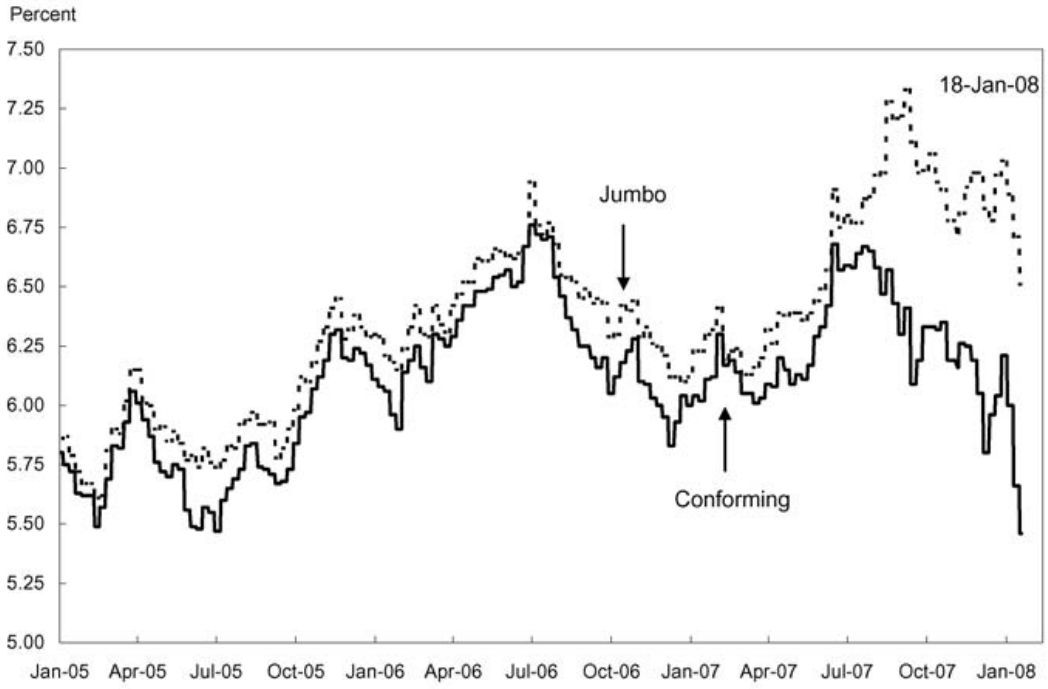


Source: Office of Federal Housing Enterprise Oversight.

Mortgage default rates have also varied substantially across regions. Falling house prices and high loan-to-value ratios have likely lifted delinquency rates in places that had experienced substantial run-ups in prices (such as Las Vegas and Miami), while economic weakness has likely lifted delinquencies in some Midwestern cities.

Concerns about risk also affected the secondary market in which mortgages are bought and *securitized,* that is, bundled together and sold as a single security (see Box 2-4). The government-sponsored enterprises (GSEs), Fannie Mae and Freddie Mac, securitize the majority of prime mortgages below the conforming loan limit. The secondary market for GSE-securitized mortgages remained active through 2007, presumably largely because some investors believe that these securities have an implicit guarantee from the U.S. Federal Government, even though no such guarantee exists. In contrast, the securitization of jumbo mortgages slowed as investors shied away from securities not created by the GSEs.

Chart 2-2 **Conforming and Jumbo Mortgage Rates, 30-Year Fixed Rate Mortgages**
The spread between jumbo and conforming rates widened following the onset of credit market turmoil in August 2007.



Source: BanxQuote.

Box 2-4: Securitization and Structured Finance

Securitization is the transformation of a collection of individual assets into tradable securities. These "asset-backed securities" are created by financial institutions—including banks and government-sponsored enterprises—from pools of assets, such as mortgages, car loans, credit card loans, corporate receivables, and student loans.

Mortgages make up a large fraction of asset-backed securities. Traditionally, a lender makes a loan to a borrower, in what is called the primary market. In the secondary market, a financial institution buys multiple loans, which, taken together, are essentially a bundle of cash flows. The simplest mortgage-backed security is a pass-through security, for which the interest and principal payments of the individual loans pass through to the holders of the new securities.

Securitization has two major economic benefits: increased risk diversification and increased available capital. With securitization, an investor with $400,000 can own 1 percent portions of 100 $400,000 mortgages rather than having to purchase a single such mortgage. If a single

continued on the next page

Box 2-3 — continued

mortgage defaults, the investor bears a $4,000 loss instead of a full $400,000 loss. If investors are risk-averse, this diversification makes them better off. A security can also include portions of diverse types of mortgages, which further spreads risk if the payment performance on the individual mortgages is not perfectly correlated. Securitization benefits lenders by enabling them to sell loans to those investors who can better handle the risks associated with mortgage borrowers. The sale of mortgages provides lenders with cash that they can then use to supply more mortgages. Investors benefit from the availability of additional securities.

The second economic benefit of securitization is an increase in available capital. More risk-diversified securities draw additional investors into the market, expanding the amount of capital in the market. This increased supply of credit may result in a lower cost of credit for borrowers, which, everything else remaining equal, makes home ownership more accessible.

Credit Market Disruptions in 2007

There were significant disruptions in financial markets in the summer of 2007. Problems became evident in June and July, when several hedge funds reported large losses and a large mortgage lender faced mounting problems. In late July, demand for U.S. Treasury securities jumped due to a "flight-to-quality" as investors shied away from mortgage-related assets, and to a lesser degree, corporate bonds and other relatively riskier assets. The shift away from corporate bonds resulted in a wider spread between interest rates on U.S. Treasuries and those on corporate bonds, following several years of narrow spreads. Conditions in financial markets worsened in early August, when several hedge funds experienced large losses. One European fund even stopped investor redemptions, saying that it was not possible to value certain securities. The disruptions led investors to try to maintain highly liquid positions and to focus on assets that were perceived as less risky and more easily priced.

Credit Market Link to Mortgages

The housing and credit markets are linked through the securitization of mortgages. The resulting mortgage-backed securities are often further packaged into other, more complicated, financial securities. Originations of mortgages that could not be purchased and securitized by Fannie Mae

and Freddie Mac slowed sharply in the summer, as investors worried about exposure to risk. This contraction in the secondary market for mortgages had implications for mortgage originations: When banks are unable to sell mortgages they originate, they have fewer funds available for further originations. In addition, banks may be unwilling to hold some of the mortgages they originate because their appetite for risk may differ from that of the investors who previously bought their loans. Securitization problems also emerged for jumbo mortgages, which are not purchased by Fannie Mae and Freddie Mac.

Flight to Quality

When credit markets became disrupted, investors engaged in a "flight to quality," as indicated by the large increase in demand for U.S. Treasury securities. Because investors have high confidence that the U.S. Government will not default on its debt, the demand for U.S. Treasury securities—which include a variety of bills, notes, and bonds—tends to rise during periods of increased financial uncertainty. This increased demand pushes down Treasury yields (which move inversely with prices) relative to private lending rates such as the London Interbank Offered Rate, as shown in Chart 2-3.

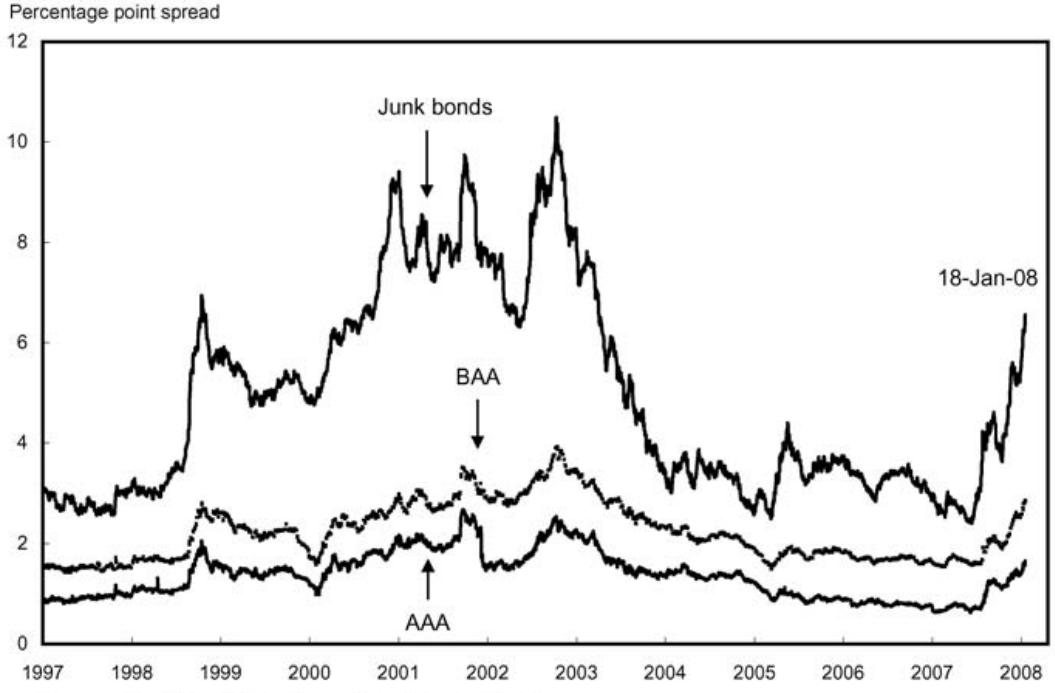
Chart 2-3 **Three-month London Interbank Offered Rate and Rates on 3-Month Treasury Bills**
The spread between the London Interbank Offered Rate (LIBOR) and Treasury bill yields widened at the onset of the credit market turmoil in August 2007.

Sources: British Bankers' Association and Department of the Treasury.

Corporate bond yields also rose relative to U.S. Treasury securities. The higher yield on a corporate bond reflects, among other things, the relatively higher likelihood of default (credit risk), the risk of not being able to find a buyer for the bond (liquidity risk), and the potential for default to be correlated with other macroeconomic factors (systemic risk). The spread between the interest rates on corporate bonds and U.S. Treasury notes is therefore a barometer of risk in the market. In late July 2007, these credit spreads spiked upwards, even though they still remained low by historical standards, as Chart 2-4 illustrates.

Financial market participants also showed a preference for making shorter-term, rather than longer-term, loans to one another. This preference reflected a concern among some participants that they might unexpectedly need cash and therefore did not want to have it wrapped up in longer-term loans. Some participants also worried about the potential risk of default among their borrowers. As a result, the costs of borrowing for longer terms rose relative to overnight borrowing.

Chart 2-4 **Spread Between Corporate Bond Yields and Rates on 10-Year Treasury Notes**
In the second half of 2007, rates on corporate bonds rose as investors sought the security of U.S. Treasuries.



Sources: Merrill Lynch, Moody's, and Department of the Treasury.

Contraction of the Asset-Backed Commercial Paper Market

Another credit market that contracted in 2007 was the asset-backed commercial paper (ABCP) market. As of January 16, 2008, the ABCP market was an $800 billion market, roughly 45 percent of the $1.8 trillion U.S. commercial paper market, which itself is roughly one-fifth the size of the $9 trillion U.S. corporate bond market. Corporations issue short-term loans, called *commercial paper,* to smooth temporary fluctuations in cash flows; the commercial paper market is one market for short-term financing for firms. For example, suppose a firm needs to make certain seasonal payments and has a current cash flow constraint. The firm issues commercial paper into the market in exchange for cash, then repays the loan in 30 or 60 days. This loan is unsecured in that it does not specify collateral in case of default. For blue-chip firms, default is unlikely. However, any firm that defaults on a commercial paper loan is almost surely on the brink of bankruptcy because the default signals to the market that it doesn't have enough cash to pay off the most immediate of its financial obligations.

Commercial paper that is secured by assets (such as a firm's receivables, auto loans, or mortgage-backed securities) is known as *asset-backed commercial paper.* For example, if an automobile manufacturer sells cars but does not receive payment for the cars for 1 month, its receivables account will document the expected cash flow 1 month into the future. Therefore, a bank can issue to the market commercial paper backed by the receivables of the firm. If the firm defaults on its obligations, the holder of the ABCP can receive some payment from the receivables of the firm.

Usually, ABCP is issued by a *special-purpose vehicle* or *conduit* sponsored by a bank that buys assets—such as receivables from multiple corporations—and issues commercial paper backed by these assets to the outside market. Because ABCP conduits issue short-term debt to finance longer-term assets, they must continue to issue new commercial paper to repay maturing commercial paper (a process called *rolling*). Special-purpose vehicles can provide corporations with relatively low-cost access to the short-term financing available in commercial paper markets. These vehicles are not subject to the regulatory capital charge that is mandated for banks that extend credit directly to borrowers. For example, a bank that makes a direct loan to an automobile manufacturer would have to hold capital against that loan. But a bank that sponsored a special-purpose vehicle (which it did not own) could keep the manufacturer as a customer (and earn some fees) without bearing the credit risk of a direct loan and without facing a capital charge. *Structured investment vehicles (SIVs)* are a type of conduit that issues both commercial paper and medium-term notes to finance the purchase of assets. SIVs differ from ABCP

conduits in that SIVs have less access to backup credit facilities (called *liquidity support*) in case they are unable to meet their short-term debt obligations.

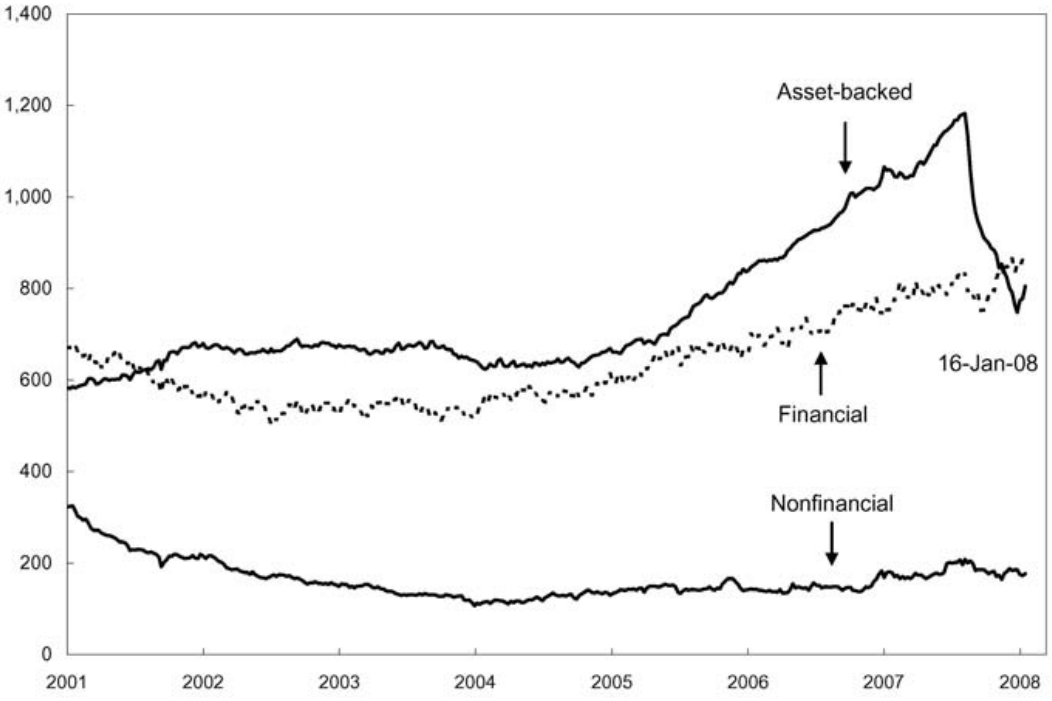
The credit market disruptions seriously shook the ABCP markets. Investors began to differentiate more between the various types of ABCP and they demanded higher returns on ABCP that had less liquidity support. As a result of this greater investor scrutiny and investor reluctance to purchase commercial paper issued by entities with limited or no backstop liquidity, the volume of outstanding ABCP shrank more than 35 percent, from $1,180 billion in early August 2007 to about $750 billion in late December 2007 (Chart 2-5). Increased concern about risk associated with ABCP and risk in general prompted a flight to quality as investors shifted to low-risk short-term Treasuries. Because ABCP is used to fund SIVs, the reduced demand for ABCP forced banks to either bring the underlying assets (and their associated liabilities) back onto their balance sheets or reduce the size of their SIVs by selling off the assets.

Slower Merger and Acquisition Activity

The relatively low cost of credit contributed to a boom in mergers and acquisitions (M&A) in recent years, but announced M&A deals slowed

Chart 2-5 **Commercial Paper Outstanding**

The volume of outstanding asset-backed commercial paper contracted sharply in the latter half of 2007.



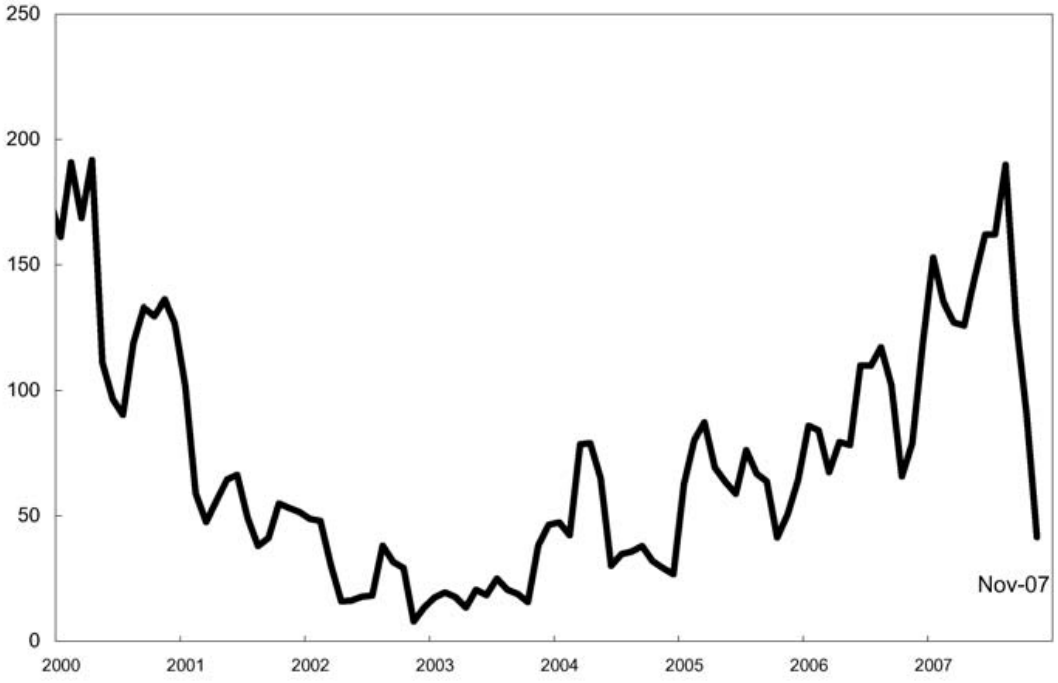
Source: Federal Reserve Board.

sharply following the credit disruptions in mid-2007. The aggregate value of announced M&A deals fell off sharply in late summer after having climbed to the highest levels since 2000–2001, as shown in Chart 2-6. Over the 12 months through August 2007, the value of M&A deals were about $1.65 trillion, but over the following 3 months these deals totaled just $498 billion at an annual rate. Banks that were underwriting *leveraged buyouts* (LBOs)—whereby a company or investor uses debt to finance the purchase of another company's assets—found that buyers were no longer as willing to purchase the debt associated with LBOs, which meant that banks had to keep more of the debt on their own books, possibly limiting the ability of some banks to make further loans.

Equity Markets

Equity markets continued to function amid the disruptions in the credit markets, but implied stock price volatility—an indicator of investor uncertainty—jumped during the summer and remained sensitive to news about credit market developments. Unlike many credit market instruments that trade infrequently and are hard to price, stocks trade in high volumes and are continually repriced, making them much more transparent financial instruments.

Chart 2-6 **Value of Announced Merger and Acquisition Deals**
North American M&A activity slowed in the latter half of 2007.
Billion US$ (3-month moving average)



Source: Thomson Financial.

International Implications

A notable aspect of the disruptions in the U.S. credit and housing markets was that it was felt globally. Subprime losses appeared not only in the United States but also in the portfolios of banks and investors in Europe, Australia, and Asia, demonstrating how interconnected global capital markets have become. This international diversification provided a clear benefit as the impact of subprime losses were shared, rather than concentrated solely on U.S. investors and financial institutions. In some cases, European banks were more severely affected, at least initially, by the credit market disruptions than were U.S. banks. Lastly, both the European Central Bank and the U.S. Federal Reserve boosted liquidity in similar, and effectively simultaneous, actions (discussed later in this chapter).

Policy Response to Credit Market Disruptions

The mortgage and credit market disruptions of the summer of 2007 shook investor confidence. As in previous financial disruptions, however, these markets again demonstrated their resilience and flexibility. The possibility of gains from trade forces markets to adjust quickly and self-correct. In many cases, the Federal Reserve has better tools at its disposal for addressing certain credit market problems than do fiscal policymakers. For example, the Federal Reserve can act to stave off certain types of liquidity problems, such as short-term cash availability at major banks, but not other liquidity problems, such as a lack of trading in asset-backed commercial paper that results from investors' doubts about the value of the paper.

The Federal Reserve took a variety of actions in the second half of 2007 to maintain financial stability and encourage continued economic growth. In early August 2007, the Federal Reserve used open market operations to inject large amounts of liquidity into financial markets. The Federal Funds rate—the interest rate at which U.S. banks lend to other banks overnight—fell below the target rate. On August 17, 2007, the Federal Reserve made credit more easily available by enacting a 50-basis-point reduction in the *discount rate,* the interest rate that banks are charged when they borrow from the Federal Reserve's discount window. The Federal Reserve also permitted the provision of term financing for terms as long as 30 days, and reiterated the Federal Reserve's policy of accepting a broad range of collateral for loans from the discount window, including home mortgages and related assets. On September 18, 2007, the Federal Reserve reduced the discount rate by an additional 50 basis points and lowered the target Federal Funds rate by 50 basis points. On October 31, 2007, the Federal Funds rate and the discount rate were lowered another 25 basis points.

The Federal Reserve Bank of New York's Open Market Trading Desk announced on November 26 that it would increase the availability of credit in financial markets by conducting certain open market operations for terms that extended past the end of the year. On December 11, 2007, the Federal Funds rate and discount rate were cut another 25 basis points. The following day, the Federal Reserve announced two new actions, in coordination with other central banks actions, that were designed to boost liquidity. The first action was a series of term fund auctions—short-term loans—to depository institutions. The second action was the establishment of temporary currency arrangements with the European Central Bank and the Swiss National Bank that make dollars available to these banks to alleviate dollar funding pressures in their jurisdictions. The Federal Reserve cut rates further in January 2008.

Policy Response to Housing Market Challenges

Housing market policies have been of two types. First are policies that are created to encourage market participants to make use of tools they already possess and provide targeted assistance to borrowers. Second are those that are designed to make changes to the future functioning of the housing market. Policies should be crafted in a manner that avoids unnecessarily restricting access to credit and financial market innovation. Some policies encourage developing private market solutions, such as recommending that lenders develop a mortgage workout plan with borrowers rather than progressing through the foreclosure process. Box 2-5 discusses the challenges of workouts. Policies may also be designed to offer targeted assistance, such as increasing access to FHA-insured loans for subprime borrowers facing interest rate resets. To strengthen the market for the future, other policies address fundamental problems that markets may be slow to address themselves, such as better disclosure of loan terms, total settlement charges, and other mortgage characteristics. In addition, policies that require or provide incentives for lenders and investors to perform quality due diligence would promote true risk-based pricing in the subprime sector, and could make this sector more competitive.

Addressing Current Challenges

The Administration has worked with lenders, loan servicers, mortgage counselors, and investors to develop private sector solutions. The HOPE NOW initiative is an effort to encourage private sector servicers, housing counselors, and investors to work together. The goal is to provide relief to homeowners. The Administration has encouraged market participants who historically have not shared information, resources, or business practices to

come together to create a coordinated plan to help homeowners. Importantly, HOPE NOW has no budgetary cost to the Federal Government. HOPE NOW participants have agreed on a new set of industry-wide standards designed to help streamline the mortgage workout process for borrowers with adjustable-rate mortgages who can afford their current mortgage payments, but will have trouble when their interest rates rise. The standards aim to help keep these borrowers' mortgages affordable in three ways: refinancing their existing loans into new private mortgages, moving them into *FHASecure* loans, or freezing their current interest rates for 5 years. HOPE NOW also has an informational component, which has increased outreach to borrowers through mailings, and has supported a toll-free hotline, 1-888-995-HOPE, to provide 24-hour mortgage counseling in multiple languages.

Box 2-5: Mortgage Lending Today

Securitization has helped drive the expansion of home ownership, available credit, and the selection of mortgage products throughout the Nation. Before securitization was a prominent market force, the mortgage industry was characterized by the portfolio lending model. Under this model, a bank made a loan to a borrower and the loan remained on the bank's balance sheet until the loan was paid off. The bank serviced the loan, meaning that it collected interest and principal payments from the borrower, throughout the duration of the loan. If the borrower became delinquent or defaulted on the mortgage, the bank would evaluate the economic feasibility of a mortgage workout plan with the borrower—perhaps by modifying terms or establishing a repayment program for missed payments—versus working through the foreclosure process.

Expanded use of mortgage securitization has partly eclipsed the portfolio lending model and has drawn in new market participants. Now a German businessperson can invest in a hedge fund that purchases mortgage-backed securities, which themselves are pools of mortgages from lenders in Minnesota. The German businessperson is investing in mortgages and supporting the availability of credit for a teacher in Minnesota who wants to buy her first home. Thus securitization provides liquidity and risk diversification in an increasingly integrated world.

The rise of securitization has meant that a third party is needed to service the bundled loans, that is, collect payments from borrowers and distribute payments to investors. Loan servicing has developed into a sophisticated industry. Loan servicers can be commercial banks, community banks, investment banks, and/or third-party corporations. Servicers typically transfer interest and principal payments to master servicers or loan trustees before these payments reach the actual

continued on the next page

Box 2-5 — continued

investors. The servicer makes mortgage payments on behalf of the borrower, and retains a portion of the payment as its own revenue. A Pooling and Servicing Agreement (PSA) dictates the rules on loan modifications between the lender, the investor, and the servicer.

One challenge is that PSAs often have different terms, which may make large-scale loan modifications more difficult for servicers to accomplish. To solve this problem, there has been a recent movement to allow servicers more freedom to modify loans for distressed borrowers. In the summer of 2007, a private sector group representing servicers, lenders, and financial institutions issued guiding principles for the securitization and servicing industries. These principles are intended to increase the uniformity of contracts across the Nation. Less variation in contracts allows servicers to develop uniform practices for dealing with renegotiation, lowering the costs of modifying loans.

The Administration launched a new program at the FHA called *FHASecure* as a targeted response aimed at keeping families in their homes. The FHA was created in 1934 to insure (but not originate) mortgages for qualified low- and moderate-income borrowers, with less-than-perfect credit and little savings for a down payment. This insurance boosts home ownership by enabling borrowers who may have been priced out of the mortgage market to acquire housing on more affordable terms. The FHA works through a network of approved lenders and guarantees that if the borrower defaults on the loan, the FHA will pay the lender the full outstanding balance of the loan. Unlike many subprime lenders, most of the FHA's risk is covered by charging mortgage insurance premiums, not through significantly higher interest rates.

FHASecure can help some creditworthy borrowers who are affected by subprime interest rate resets to refinance their mortgages. The *FHASecure* program applies both to homeowners who are current on their mortgage payments and borrowers who made timely mortgage payments before their loans reset but are now in default. A borrower in default must also have sufficient income to make future mortgage payments under a fixed-rate FHA-insured loan, and a history of on-time mortgage payments before their current loan reset. Making FHA mortgage refinancing options available to more homeowners will help reduce the number of foreclosures and can help bring greater stability to local housing markets.

The President signed a bill to temporarily change the current Federal tax code so that cancelled mortgage debt is not treated as taxable income. Under prior law, if the value of a home declines, and a portion of the debt on the

home is forgiven, that portion is treated like taxable income for the borrower. For example, suppose a homeowner owes $120,000 on a mortgage, and the home's value falls to $100,000. If the mortgage lender agrees to take $100,000 from the proceeds of the home's sale and forgive the rest of the debt, the old tax code treated the $20,000 of forgiven debt as income on which the homeowner must pay taxes. Under the new law, the homeowner need not pay taxes on the forgiven debt.

The Administration has also proposed legislation to allow State and local governments to temporarily broaden their tax-exempt bond programs to include mortgage refinancings. Under current law, State and local governments are allowed to issue tax-exempt bonds, called "qualified mortgage bonds," to finance new mortgage loans to first-time home buyers, with some limits on which mortgages can be covered. If passed, this legislation would reduce the cost of State and local housing agency programs that aim to refinance borrowers facing unaffordable rate resets into lower-cost fixed-rate mortgages.

Strengthening the Mortgage Market for the Future

High default rates, which have contributed to recent market disruptions, are more likely if consumers do not understand the terms of their loans. Transparency in mortgage lending helps borrowers find affordable mortgages and avoid predatory lending. Transparent markets lower the chance that borrowers will default on loans. The Administration is working on a new rule under the Real Estate Settlement Procedures Act (RESPA) that would simplify shopping for loans and reduce settlement costs for consumers. RESPA was originally passed in 1974 to protect mortgage borrowers from unnecessarily high settlement charges. This new rule would simplify and improve disclosure requirements for mortgage settlement costs, making it easier for borrowers to shop for loans. The rule would establish a new standard Good Faith Estimate form that loan originators would be required to provide to borrowers in all RESPA-covered transactions. The aim of the rule is to communicate complex information to borrowers so that borrowers will be able to shop effectively for the best loan for them, and understand the obligations they are undertaking when financing a home with a mortgage.

The Federal Reserve is also working to improve transparency through a review of the rules for mortgage lending under the Truth in Lending Act. In December 2007, the Federal Reserve published proposed rules under Regulation Z of the Truth in Lending Act to make mortgage lending more transparent. The new rules would prohibit seven misleading advertising practices, such as using the term "fixed" to refer to a rate that can change, and would require truth-in-lending disclosures to borrowers early enough to use while shopping for a mortgage.

The Federal Reserve is using its rule-making authority under the Home Ownership and Equity Protection Act (HOEPA) to address unfair or deceptive mortgage lending practices. In December 2007, the Federal Reserve proposed—in addition to the rules regarding transparency discussed above—new rules under the Truth in Lending Act that would address unfair mortgage lending. For example, the rules would require subprime lenders to verify income and assets before making a loan and would prohibit subprime lenders from making loans without considering borrowers' ability to repay them. The rules would also prohibit *all* lenders from paying mortgage brokers *yield spread premiums*—fees paid by a lender to a broker for higher-rate loans—without notifying the consumer in advance and from coercing appraisers to misrepresent the value of a home.

The Administration's proposed FHA Modernization legislation aims to reform the FHA to better reflect the way in which the private mortgage market operates, particularly the way it prices risk. From September 2003 to February 2005, FHA loan volume fell precipitously, from 135,000 mortgage endorsements in September 2003 to just 40,000 in February 2005, as Chart 2-7 shows. The drop reflects several factors, including low interest rates that made unassisted mortgages affordable for more families, the private sector's increased use of automated underwriting that allowed the private sector to offer loans on favorable terms to more home buyers, and the increased use of subprime mortgages. In general, it is a positive development when the private sector is offering favorable terms to borrowers who previously would have turned to the FHA. Unfortunately, some borrowers are still underserved, particularly in the subprime market. The FHA's mission is to serve borrowers who are at the margins of home ownership by offering safe, affordable options without compromising underwriting standards. In recent years, the FHA's outdated statutory authority has limited the agency's ability to keep pace with the evolving mortgage market. As a result, borrowers opted for the innovative products and risk-based pricing that were available in the private sector.

FHA Modernization, which was first proposed in the Administration's 2007 budget, is designed to restore a choice to home buyers who cannot qualify for prime financing. The three major elements of FHA reform are to: (1) Allow the FHA to price insurance premiums based on borrower risk; (2) Raise loan limits in high-cost markets so that more families can be served; and (3) Lower the down payment requirements.

Currently, the premiums for FHA mortgage insurance do not vary according to a borrower's credit risk or to the expected cost from defaults. This causes better borrowers to subsidize weaker borrowers (a process called *cross-subsidization*). Charging the same price for all borrowers is a form of average-cost pricing, while charging different prices according to cost (here, risk) is a shift toward marginal-cost pricing, which is more efficient. On top of this, cross-subsidization has driven lower-risk borrowers to seek

Chart 2-7 **Monthly FHA Mortgage Endorsements**

FHA mortgage endorsements increased in 2007 after having fallen sharply in recent years.

Source: Department of Housing and Urban Development.

alternatives offered in the conventional market. The proposed risk-based pricing addresses this issue by reducing the cost of FHA mortgages for lower-risk borrowers. Risk-based pricing will also enable borrowers to know why they are paying certain costs and what they can do to help lower these costs in the future. The incentives for families to improve their credit histories or save for a down payment are important elements of risk-based pricing. While full risk-based pricing requires a Congressional act to raise the premium caps, a partial, limited version of risk-based pricing can take place through regulation. The new flexibility under the *FHASecure* program includes these regulatory changes in risk-based pricing, and the Administration has called on Congress to pass the broader FHA Modernization legislation to fully implement risk-based pricing.

The second piece of FHA modernization would allow the FHA to insure higher-priced homes. Under current law, the FHA may insure loans that are up to 87 percent of the conforming loan limit. In certain high-cost States, this limit is below the median home price in the State. For example, in California the median home price in 2006 was $500,000, which is more than the current FHA cap of $363,000. Therefore in certain States, the FHA cannot insure many of the homes in the State. The Modernization bill broadens the reach of the FHA program by removing the 87 percent cap and allowing the FHA to insure up to 100 percent of the conforming loan limit.

Finally, the third piece of FHA modernization would eliminate the down payment requirements. Currently, an FHA mortgagor is required to make a 3 percent cash contribution at settlement to be applied to the cost of acquisition of the property. The Administration's proposal removes this 3 percent requirement. Just like risk-based pricing, the change in down payment requirements moves away from the "one size fits all" approach and provides the FHA with the flexibility to insure a variety of mortgage products for different purposes and different borrowers.

Macroeconomic Implications

The potential macroeconomic effects of the housing market weakness and the credit market disruptions may operate through several channels, including residential investment, personal consumption, and business investment. In addition, the production of some manufactured goods used in construction has been weak, and employment in some finance-related sectors has fallen off. Many economists would agree that the downturn in the housing market has likely had some effects on consumption and business investment, but the magnitude of the effects are unknown.

The effect on residential investment is the easiest to quantify. Between the fourth quarter of 2005 and the fourth quarter of 2007, real residential investment dropped about 29 percent and subtracted an average of nearly 0.9 percentage point per quarter at an annual rate from real GDP growth. Single-family housing starts peaked at more than 1.8 million units in January 2006 and then fell more than 55 percent, to below 800,000 units, in December 2007. Inventories of unsold homes are at elevated levels: the inventory-to-sales ratio for existing single-family homes in December 2007—at 9.2 months' supply—was down from the previous few months but still near highs last reached in 1991. As prices for new and existing homes adjust to clear excess inventories, housing starts will stop declining and the drag on GDP growth from residential investment will lessen.

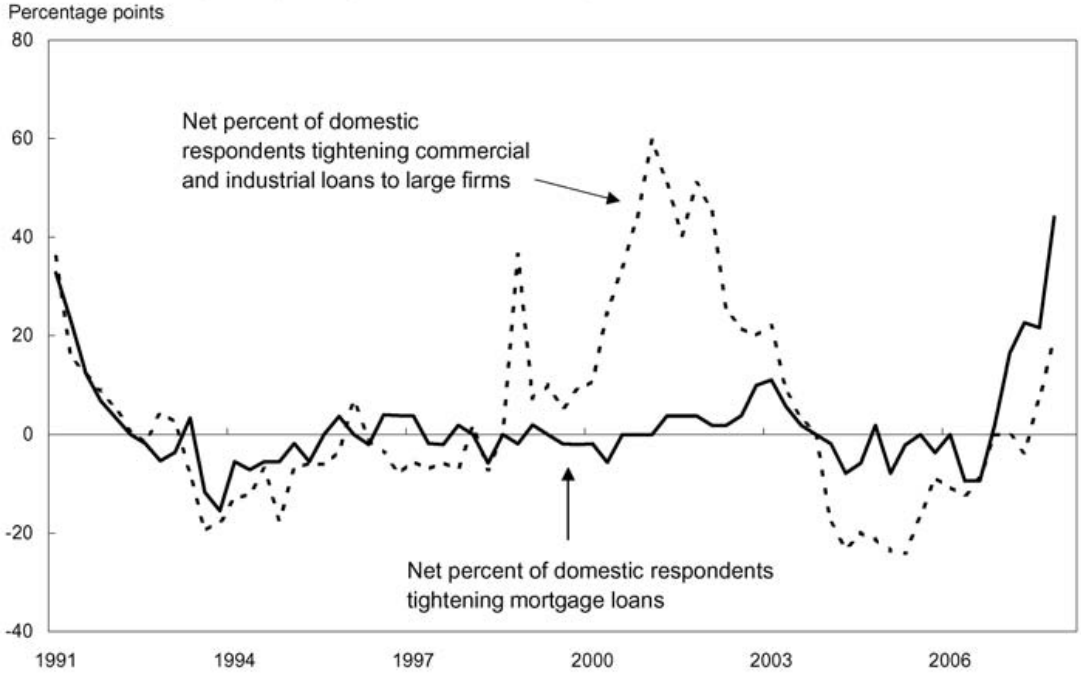
A second effect of the downturn in housing is the potential effect on personal consumption and saving. For many households, their house is their primary asset and a significant source of wealth. A considerable academic literature has shown that increases in wealth tend to boost consumption, though the estimated magnitude of these so-called "wealth effects" is imprecise and may depend upon the type of asset (such as stock market wealth versus housing wealth). In the case of housing wealth, some calculations suggest that a $100 billion decline in the value of the housing stock would reduce the long-run level of annual consumption by between $4 billion and $8 billion. Importantly, consumption responds only gradually

to such a change in wealth, which affords fiscal and monetary policy the time to provide an offset.

A third effect of the recent credit market disruptions is that lending standards have been tightened (Chart 2-8) for mortgages and other types of consumer loans as well as for commercial real estate and other types of business lending. Tighter lending standards tend to reduce residential investment by making it more difficult to obtain mortgages. Consumption expenditures are also likely to be lower for two reasons. First, new homeowners may need to save more for their down payments than had previously been the case, which reduces consumption during the period in which they are saving. Second, existing homeowners may find it more difficult to borrow against their home equity or to engage in cash-out refinancings that previously might have boosted their short-term consumption.

On the business side, tighter lending standards would tend make investment more expensive. Historically, business fixed investment has exceeded the internally generated funds of corporations (also known as cash flow) by a substantial margin. The gap between these two measures is financed by issuing equity or taking on corporate debt such as corporate bonds or bank loans. In recent years, this gap has been considerably smaller, which suggests

Chart 2-8 **Lending Standards**
Banks have been tightening lending standards on a variety of loan products in recent months.



Note: The values for the second through the fourth quarters of 2007 were calculated as a weighted average of prime, subprime, and nontraditional loans using weights estimated by the Council of Economic Advisers.
Source: Federal Reserve Board.

corporations have not needed to borrow funds from other sectors as much as they did in the past. However, this gap is reemerging and firms may need to borrow more in the future, at which point tighter lending standards might become more limiting, though this effect has not been apparent through the third quarter of 2007.

Conclusion

All economic activity requires flows of capital between different parties at different times. This borrowing and lending activity takes place constantly in the world credit markets. These markets are essential to every well-functioning economy because they shift capital from those who supply it (creditors) to those who demand it (debtors). Credit markets include a wide variety of instruments, such as corporate bonds, government bonds, and money market instruments (commercial paper, certificates of deposit, and repurchase agreements, among others). The Federal Reserve's monetary policies influence the general price of borrowing and lending in the economy. Lenders can charge a higher interest payment to compensate themselves for bearing additional risk. Like any market, the credit markets bring together a diverse set of buyers and sellers, and the price of the debt instrument represents an exchange between these two parties.

The summer of 2007 witnessed a contraction in the credit markets that caused the price of borrowing to rise and the quantity of some types of debt offered to the market to shrink. This contraction took place in several markets, including the mortgage lending market and the asset-backed commercial paper market. As markets evolve and adapt to economic conditions, prices and quantities will adjust. The impact on the nonfinancial real economy has been muted to date, notwithstanding the decline in residential investment over the past 2 years. However, the effects of declining home prices in some parts of the country and the tightening of credit standards is likely to have at least some effect on consumer and business spending as time passes.

Monetary policy actions can offset some of the weakening in aggregate demand that results from disruptions in the housing and credit markets, and other government policies can offer targeted assistance. *FHASecure* and FHA Modernization are leading examples of targeted assistance to homeowners and subprime borrowers facing the possibility of foreclosure on their homes. These borrowers purchased their homes during a period in which lenders underpriced risk and offered subprime mortgages at low prices to too many borrowers. *FHASecure* can help those eligible borrowers who were caught off guard by rapidly evolving credit markets and, in some cases, predatory

lending. FHA Modernization will encourage a more flexible and better functioning, risk-based mortgage lending market for those with low and moderate incomes.

Beyond such targeted responses, the best course of action is often to simply allow markets to adjust. Financial markets are in a constant process of pricing risk. Economic factors fluctuate daily, and the prices of traded debt instruments reflect investors' attitudes toward the risks associated with these fluctuations. By their very nature, markets have a remarkable resilience and can adapt rapidly to changing economic circumstances, as demonstrated by the response of the markets to the credit market disruptions that began in the summer of 2007. Policies that attempt to protect market participants from the discipline of the market risk delaying necessary adjustments and creating a potential moral hazard problem by giving lenders and borrowers less incentive to make prudent financial decisions in the future.

Markets naturally self-correct, rewarding good strategies and punishing bad ones. Government actions may be less effective at differentiating between the two and may prevent markets from creating products that benefit consumers. In addition, any government actions mitigating the outcomes of risky behavior may create perverse incentives for reckless decisions by borrowers and investors who may come to rely on government interventions. Allowing the market to price mortgage risk will help ensure that subprime mortgages are available to those who can afford to repay them. With enhanced transparency, the market can weed out poor financial products while encouraging positive financial innovations, a process that is crucial to maintaining U.S. competitiveness in the global financial community.