

## SPECIAL TOPIC 5

### The Crisis of 2008: Causes and Lessons for the Future

#### FOCUS

- What impact has the 2008 crisis had on the U.S. economy?
- Why did housing prices rise rapidly during 2001–2005 and then fall in the years immediately following? Did regulation play a role? Did monetary policy contribute to the housing boom and bust?
- What caused the economic Crisis of 2008?
- What lessons should we learn from the Crisis of 2008?

*U.S. housing policies are the root cause of the current financial crisis. Other players—“greedy” investment bankers; foolish investors; imprudent bankers; incompetent rating agencies; irresponsible housing speculators; shortsighted homeowners; and predatory mortgage brokers, lenders, and borrowers—all played a part, but they were only following the economic incentives that government policy laid out for them.*

—Peter J. Wallison<sup>1</sup>

<sup>1</sup>Peter J. Wallison, “Cause and Effect: Government Policies and the Financial Crisis,” AEI Financial Services Outlook, [www.aei.org/publication29015](http://www.aei.org/publication29015).

# Not For Sale

The headlines of 2008 were dominated by falling housing prices, rising default and foreclosure rates, failure of large investment banks, and huge bailouts arranged by both the Federal Reserve and the U.S. Treasury. The Crisis of 2008 substantially reduced the wealth of most Americans and generated widespread concern about the future of the U.S. economy. This crisis



and the response to it may well be the most important macroeconomic event of our lives. Thus, it is vitally important for each of us to understand what happened, why things went wrong, and the lessons that need to be learned from the experience.

Let's take a closer look at the key events leading up to the crisis and the underlying factors that generated the collapse.

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## ST05-1 KEY EVENTS LEADING UP TO THE CRISIS

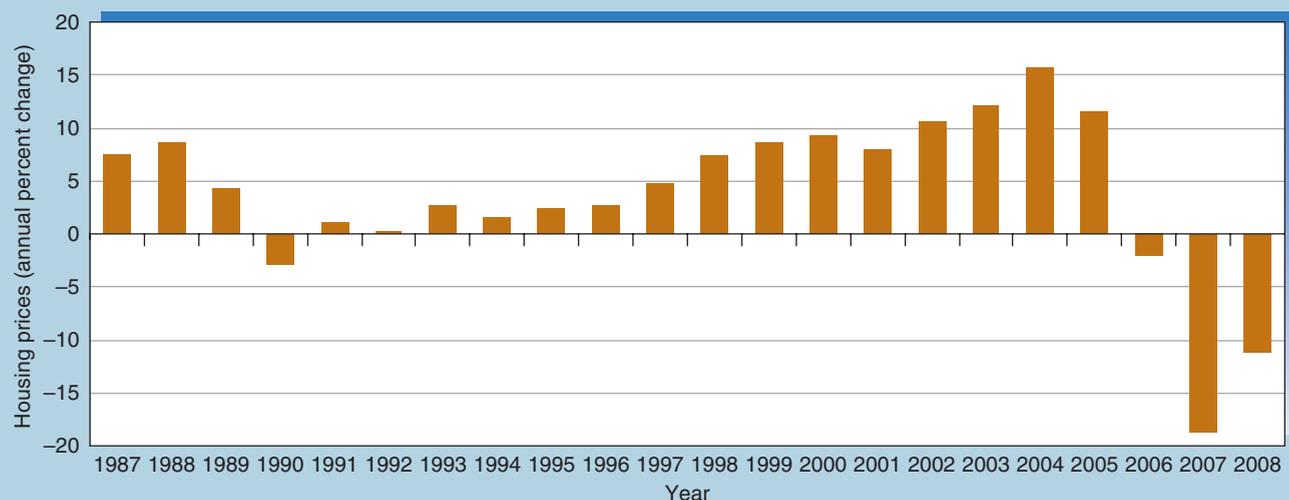
The housing boom and bust during the first seven years of this century are central to understanding the economic events of 2008. As Exhibit 1 shows, housing prices were relatively stable during the 1990s, but they began to increase rapidly toward the end of the decade. By 2002, housing prices were booming. Between January 2002 and mid-year 2006, housing prices increased by a whopping 87 percent. This translates to an annual growth rate of approximately 13 percent. But the housing boom began to wane in 2006. Housing prices leveled off, and by the end of 2006, they were falling. The boom had turned to a bust, and the housing price decline continued throughout 2007 and 2008. By year-end 2008, housing prices were approximately 30 percent below their 2006 peak.

### EXHIBIT 1

#### Annual Change in the Price of Existing Houses, 1987–2008

Housing prices increased slowly during the 1990s, but they began rising more rapidly toward the end of the decade. Between January 2002 and mid-year 2006, housing prices increased by a

whopping 87 percent. But the boom turned to a bust during the second half of 2006, and the housing price decline continued throughout 2007–2008.



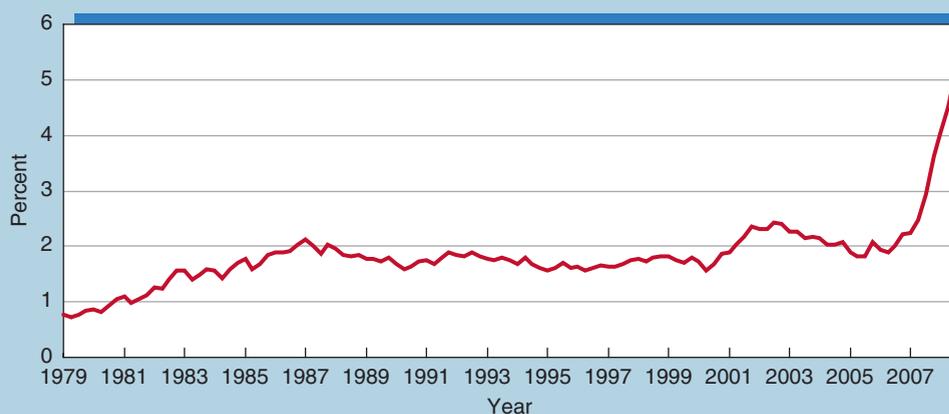
Source: www.standardpoors.com, S&P Case-Schiller Housing Price Index.

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## EXHIBIT 2

### Mortgage Default and Housing Foreclosure Rates, 1979–2008

As part (a) shows, the mortgage default rate fluctuated within a narrow range around 2 percent for more than two decades before 2006. It increased only slightly during the recessions of 1982, 1990, and 2001 but started to increase in the second half of 2006 and soared to more than 5 percent in 2008. As part (b) shows, the foreclosure rate followed a similar pattern. It ranged between 0.2 and 0.5 percent before 2006, before soaring to 1.2 percent in 2008.



(a) Mortgage default rate



(b) Housing foreclosure rate

Source: <http://mbaa.org>, National Delinquency Survey.

#### Mortgage default rate

The percentage of home mortgages on which the borrower is late by ninety days or more with the payments on the loan or it is in the foreclosure process. This rate is sometimes referred to as the serious delinquency rate.

#### Foreclosure rate

The percentage of home mortgages on which the lender has started the process of taking ownership of the property because the borrower has failed to make the monthly payments.

Exhibit 2 part (a) presents data on the **mortgage default rate** from 1979 through 2008. (*Note:* The default rate is also known as the serious delinquency rate.) As these figures illustrate, the default rate fluctuated, within a narrow range, around 2 percent prior to 2006. It increased only slightly during the recessions of 1982, 1990, and 2001.

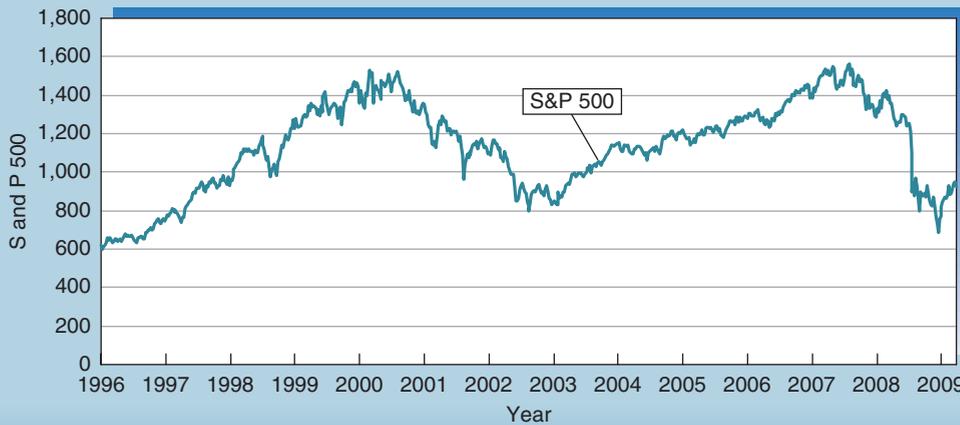
However, even though the economy was relatively strong and unemployment low, the default rate began to increase sharply during the second half of 2006. By the fourth quarter of 2007, it had already risen to 3.6 percent, up from 2.0 percent in the second quarter of 2006. The increase continued and the default rate reached 5.2 percent in 2008.

As Exhibit 2 part (b) illustrates, the pattern of the housing **foreclosure rate** was similar. It fluctuated between 0.2 and 0.5 during 1978–2005. The recessions of 1982–1983, 1990, and 2001 exerted little impact on the foreclosure rate. However, like the mortgage default rate, the foreclosure rate started to increase during the second half of 2006, and it tripled over the next two years.

During 2008, housing prices were falling, default rates were increasing, and the confidence of both consumers and investors was deteriorating. These conditions were reinforced by sharply rising prices of crude oil, which pushed gasoline prices to more than \$4 per gallon during the first half of the year. Against this background, the stock market took a huge tumble. As Exhibit 3 shows, the S&P 500 index of stock prices fell by 55 percent between October 2007 and March 2009. This collapse eroded the wealth and endangered the retirement savings of many Americans.

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**EXHIBIT 3**



Source: www.standardpoors.com.

**Changes in Stock Prices, 1996–2009**

Stock prices as measured by the Standard & Poors 500 are shown here. Note how stock prices fell by approximately 55 percent between October 2007 and March 2009. This collapse eroded the wealth and endangered the retirement savings of many Americans.

## ST05-2 WHAT CAUSED THE CRISIS OF 2008?

Why did housing prices rise rapidly, then level off, and eventually collapse? Why did the mortgage default and housing foreclosure rates increase rapidly well before the start of the recession, which did not begin until December 2007? Why are the recent default and foreclosure rates so much higher than the rates of earlier years, including those of prior recessions? Why did large, and seemingly strong, investment banks like Bear Stearns and Lehman Brothers run into financial troubles so quickly? Four factors combine to provide the answers to all of these questions.<sup>2</sup>

### ST05-2a FACTOR 1: CHANGE IN MORTGAGE LENDING STANDARDS

The lending standards for home mortgage loans changed substantially beginning in the mid-1990s. The looser lending standards did not just happen. They were the result of federal policy designed to promote home ownership among households with incomes below the median. Home ownership is a worthy goal, but it was not pursued directly through transparent budget allocations and subsidies to homebuyers. Instead, the federal government imposed a complex set of regulations and regulatory mandates that forced various lending institutions to extend more loans to low- and moderate-income households. To meet these mandates, lenders had to lower their standards. By the early years of the twenty-first century, it was possible to borrow more (relative to your income) and purchase a house or condo with a lower down payment than was the case a decade earlier.

The Federal National Mortgage Association and Federal Home Loan Mortgage Corporation, commonly known as Fannie Mae and Freddie Mac, played a central role in this relaxation of mortgage lending standards. These two entities were created by Congress to help provide liquidity in secondary mortgage markets. Fannie Mae, established by the federal

<sup>2</sup>For additional details on the Crisis of 2008, see Thomas Sowell, *The Housing Boom and Bust* (New York: Basic Books, 2009); Stan J. Liebowitz, “Anatomy of a Train Wreck: Causes of the Mortgage Meltdown,” Ch. 13 in Randall G. Holcombe and Benjamin Powell, eds., *Housing America: Building Out of a Crisis* (New Brunswick, NJ: Transaction Publishers, 2009); Peter J. Wallison, “Cause and Effect: Government Policies and the Financial Crisis,” *AEI Financial Services Outlook*, www.aei.org/publication29015; and Lawrence H. White, “How Did We Get Into This Financial Mess?” (Briefing Paper 110, Cato Institute, Washington, DC, November 18, 2008), available at www.cato.org/pub\_display.php?pub\_id=9788.

**Basis points**

One one-hundredth of a percentage point. Thus, 100 basis points are equivalent to one percentage point.

**Secondary mortgage market**

A market in which mortgages originated by a lender are sold to another financial institution. In recent years, the major buyers in this market have been Fannie Mae, Freddie Mac, and large investment banks.

government in 1938, was spun off as a *government-sponsored enterprise* (GSE) in 1968. Freddie Mac was created in 1970 as another GSE to provide competition for Fannie Mae.

Fannie Mae and Freddie Mac were privately owned (for-profit) businesses, but because of their federal sponsorship, it was widely perceived that the government would back their bonds if they ever ran into financial trouble. As a result, Fannie and Freddie were able to borrow funds at 50 to 75 **basis points** cheaper than private lenders. This gave them a competitive advantage, and they were highly profitable for many years. However, the GSE structure also meant that they were asked to serve two masters: their stockholders, who were interested in profitability, and Congress and federal regulators, who predictably were more interested in political objectives.

As a result of their GSE structure, Fannie Mae and Freddie Mac were highly political. The top management of Fannie and Freddie provided key congressional leaders with large political contributions and often hired away congressional staffers into high-paying jobs lobbying their former bosses. Between the 2000 and 2008 election cycles, high-level managers and other employees of Fannie Mae and Freddie Mac contributed more than \$14.6 million to the campaign funds of dozens of senators and representatives, most of whom were on congressional committees important for the protection of their privileged status.

The lobbying activities of Fannie Mae and Freddie Mac were legendary. Between 1998 and 2008, Fannie spent \$79.5 million and Freddie spent \$94.9 million on congressional lobbying, placing them among the biggest spenders on these activities. They also set up “partnership offices” in the districts and states of important legislators, often hiring the relatives of these lawmakers to staff these local offices.<sup>3</sup> The politicians, for their part, and the regulators who answered to them fashioned rules that made very high profits possible for the GSEs, at least in the short run. Although it was a relationship that reflected political favoritism (some would say corruption), members of Congress, particularly those involved in banking regulation, were highly supportive of the arrangement.

Fannie Mae and Freddie Mac did not originate mortgages. Instead, they purchased the mortgages originated by banks, mortgage brokers, and other lenders. Propelled by their cheaper access to funds, Fannie Mae and Freddie Mac grew rapidly during the 1990s. As **Exhibit 4** shows, the share of all mortgages held by Fannie Mae and Freddie Mac jumped from 25 percent in 1990 to 45 percent in 2001. Their share fluctuated around 40 percent during 2001–2008. Their dominance of the **secondary mortgage market** was even greater. During the decade prior to their insolvency and takeover by the federal government during the summer of 2008, Fannie Mae and Freddie Mac purchased about 90 percent of the mortgages sold in the secondary market. Because of this dominance, their lending practices exerted a huge impact on the standards accepted by mortgage originators.

Responding to earlier congressional legislation, the Department of Housing and Urban Development (HUD) imposed regulations designed to make housing more affordable. The HUD mandates, adopted in 1995, required Fannie Mae and Freddie Mac to extend a larger share of their loans to low- and moderate-income households. For example, under the HUD mandates, 40 percent of new loans financed by Fannie Mae and Freddie Mac in 1996 had to go to borrowers with incomes below the median. This mandated share was steadily increased to 50 percent in 2000 and 56 percent in 2008. Similar increases were mandated for borrowers with incomes of less than 60 percent of the median. Moreover, in 1999, HUD guidelines required Fannie Mae and Freddie Mac to accept smaller down payments and extend larger loans relative to income.

The policies of Fannie Mae and Freddie Mac exerted an enormous impact on the actions of banks and other mortgage lenders. Recognizing that riskier loans could be passed on to Fannie and Freddie, mortgage originators had less incentive to scrutinize

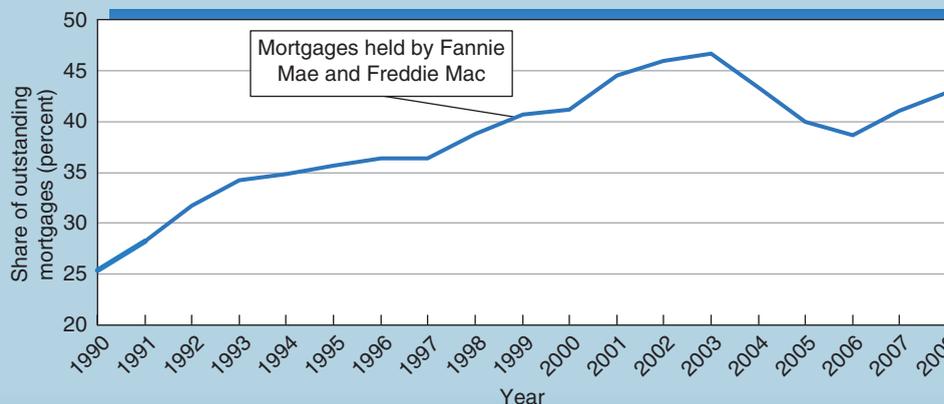
<sup>3</sup>For additional details, see Peter J. Wallison and Charles W. Calomiris, “The Destruction of Fannie Mae and Freddie Mac,” American Enterprise Institute, online (posted Tuesday, September 30, 2008). Also see Common Cause, “Ask Yourself Why... They Didn’t See This Coming” (September 24, 2008), available at [www.commoncause.org/site/pp.asp?c=dkLNK1MQIwG&b=4542875](http://www.commoncause.org/site/pp.asp?c=dkLNK1MQIwG&b=4542875); and Center for Responsive Politics, “Lobbying: Top Spenders” (2008), available at [www.opensecrets.org/lobby/top.php?indexType=s](http://www.opensecrets.org/lobby/top.php?indexType=s).

## EXHIBIT 4

### The Share of Total Outstanding Mortgages Held by Fannie Mae and Freddie Mac, 1990–2008

Fannie Mae and Freddie Mac dominated the mortgage market for many years. Because of their government sponsorship, they were able to obtain funds cheaper than private firms. They held 45 percent of all mortgages in 2001, up from 25 percent

in 1990. During 2001–2008, their share fluctuated around 40 percent. Their dominance of the secondary market, where loans are purchased from originators, is even greater. In July 2008, they were declared insolvent and taken over by the U.S. Treasury.



Source: Office of Federal Housing Enterprise Oversight, [www.ofheo.gov](http://www.ofheo.gov).

the creditworthiness of borrowers and more incentive to reduce the required down payment, in order to sell more mortgages. After all, when the mortgages were soon sold to Fannie or Freddie, the risk was transferred to them also. The bottom line: Required down payments were reduced and the accepted credit standards lowered.

Modifications to the Community Reinvestment Act (CRA) in 1995 also loosened mortgage-lending standards. These changes required banks to meet numeric goals based on the low-income and minority population of their service areas when extending mortgage loans. In order to meet these requirements, many banks, especially those in urban areas, were forced to reduce their lending standards and extend more loans to borrowers who did not meet the conventional credit criteria.

The lower standards resulting from the GSE and CRA regulations reduced lending standards across the board. Lenders could hardly offer low-down-payment loans and larger mortgages relative to housing value on **subprime loans**, without offering similar terms to prime borrowers. As the regulations tightened, the share of loans extended to subprime borrowers steadily increased. **Exhibit 5** illustrates this point. Measured as a share of mortgages originated during the year, subprime mortgages rose from 4.5 percent in 1994 to 13.2 percent in 2000 and 20 percent in 2005 and 2006. (*Note:* Bank examiners consider a loan to be subprime if the borrower's **FICO score** is less than 660.) When the **Alt-A loans**, those extended without full documentation, were added to the subprime, a third of the mortgages extended in 2005–2006 were to borrowers with either poor or highly questionable credit records.

As the mortgages extended to those with weak credit soared, so too did the number with little or no down payment. **Exhibit 6** shows both the number of loans issued by Fannie Mae and Freddie Mac and the share extended to borrowers with 5 percent or less down payment. Note how the number of new loans financed by the government sponsored corporations increased from less than one hundred thousand in the late 1990s to more than six hundred thousand in 2007. At the same time, the share of mortgages to borrowers making a down payment of 5 percent or less rose from 4 percent in 1998 to 12 percent in 2003 and 23 percent in 2007. Thus, Fannie Mae and Freddie Mac were flooding the market with low-down-payment loans extended to borrowers with weak credit. Meanwhile,

#### Subprime loan

A loan made to a borrower with blemished credit or one who provides only limited documentation of income, employment history, and other indicators of creditworthiness.

#### FICO score

A credit score measuring a borrower's likely ability to repay a loan. A person's FICO score will range between 300 and 850. A score of 700 or more indicates that the borrower's credit standing is good. FICO is an acronym for the Fair Isaac Corporation, the creators of the FICO score.

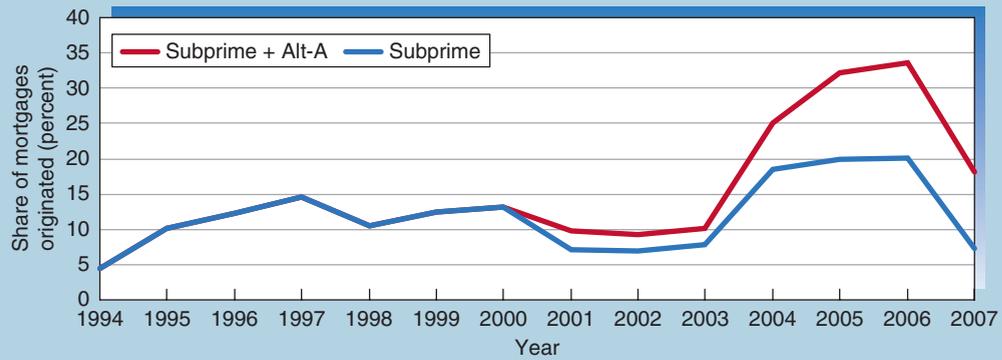
#### Alt-A loans

Loans extended with little documentation or verification of the borrowers' income, employment, and other indicators of their ability to repay. Because of this poor documentation, these loans are risky.

**EXHIBIT 5**

**Subprime and Alt-A Mortgages as a Share of the Total, 1994–2007**

Both subprime and Alt-A mortgages reflect loans to borrowers with a weak credit history. Note how the share of loans to borrowers in these two categories jumped from roughly 10 percent in 2001–2003 to 33 percent in 2005–2006.



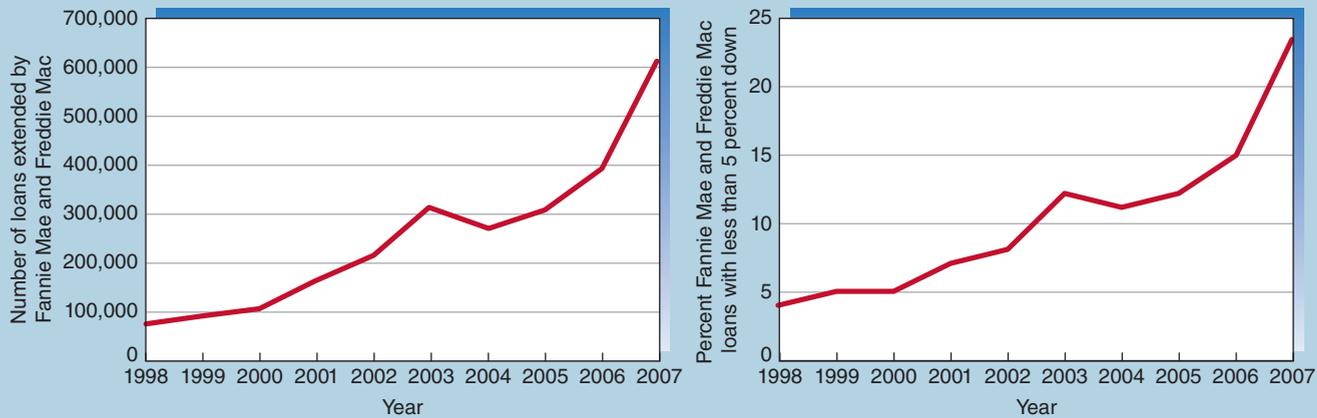
Source: The data for 1994–2000 are from Edward M. Gramlich, Financial Services Roundtable Annual Housing Policy Meeting, Chicago, Illinois (21 May 2004), [www.federalreserve.gov/boarddocs/speeches/2004/20040521/default.htm](http://www.federalreserve.gov/boarddocs/speeches/2004/20040521/default.htm). The data for 2001–2007 are from the Joint Center for Housing Studies of Harvard University, The State of the Nation’s Housing 2008, [www.jchs.harvard.edu/son/index.htm](http://www.jchs.harvard.edu/son/index.htm).

**EXHIBIT 6**

**Growth of Low-down-payment Loans Extended by Fannie Mae and Freddie Mac**

Following the 1999 HUD guidelines encouraging Fannie Mae and Freddie Mac to extend more low-down payment loans, the GSEs both increased the number of their mortgages (left frame) and the share extended with a down

payment of 5 percent or less. As right frame shows, the share of these low down payment mortgages extended by Fannie Mae and Freddie Mac increased from 4 percent in 1998 to 12 percent in 2003 and 23 percent in 2007.



Sources: Russell Robert’s, *Gambling With Other Peoples Money*, mercatus Center, <http://mercatus.org/publications/gambling-other-peoples-money>.

conventional loans for which borrowers were required to make at least a 20 percent down payment fell from two-thirds of the total in the early 1990s to only one-third in 2005–2006.

The shift from conventional loans to “creative finance” and “flexible standards,” as the regulators called the new criteria, is highly important because the default and foreclosure rates for subprime loans ranges from seven to ten times the rate for conventional loans to prime borrowers. This differential is even greater in the case of mortgages with little or no down payment. Initially, this easy credit policy increased demand and pushed housing prices upward. But, the policy was not sustainable and it was predictable where it would lead. Eventually, the

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growing share of low-down-payment loans extended to those with weak credit would result in substantially higher default and foreclosure rates. This is precisely what happened.

## ST05-2b FACTOR 2: PROLONGED LOW-INTEREST RATE POLICY OF THE FED DURING 2002–2004

Following the high and variable inflation rates of the 1970s, Federal Reserve policy focused on keeping the inflation rate low and stable. By the mid-1980s, the inflation rate had been reduced to 3 percent. Throughout 1985–1999, the Fed kept the inflation rate low and avoided abrupt year-to-year changes. In turn, the relative price stability reduced uncertainty and created an environment for both strong growth and economic stability. During this era, it was widely believed that price stability was the only objective that could be achieved with monetary policy, and if this objective was achieved, the monetary policy makers had done their job well.

However, as the lessons of this period began to dissipate, Fed policy makers, including chairman Alan Greenspan, began to focus more on control of real variables such as employment and real GDP. Reflecting this change, Fed policy has been more erratic since 1999. Monetary policy was expansionary just before 2000, restrictive prior to the recession of 2001, and then highly expansionary during the recovery from that recession. As Exhibit 7 shows, the Fed kept short-term interest rates at historic lows throughout 2002–2004. These extremely low short-term rates increased the demand for interest-sensitive goods like automobiles and housing.

The Fed's artificially low short-term rates substantially increased the attractiveness of **adjustable rate mortgages (ARMs)** to both borrowers and lenders. As Exhibit 8 shows, adjustable rate mortgages jumped from 10 percent of the total outstanding mortgages in 2000 to 21 percent in 2005. The low initial interest rates on adjustable rate mortgages made it possible for homebuyers to afford the monthly payments for larger, more expensive homes. This easy credit provided fuel for the housing boom. But the low rates and ARM loans also meant that as short-term interest rates increased from their historic low levels, home buyers would face a higher monthly payment two or three years in the future. Unsurprisingly, this is precisely what happened.

### Adjustable rate mortgage (ARM)

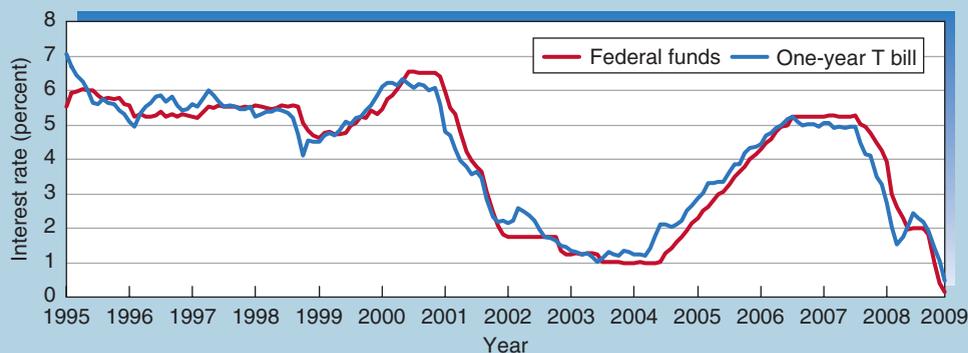
A home loan in which the interest rate, and thus the monthly payment, is tied to a short-term rate like the one-year Treasury bill rate. Typically, the mortgage interest rate will be two or three percentage points above the related short-term rate. It will be reset at various time intervals (e.g., annually), and thus the interest rate and monthly payment will vary over the life of the loan.

## EXHIBIT 7

### Fed Policy and Short-Term Interest Rates, 1995–2009

Here we show the federal funds and one-year Treasury bill interest rates. These short-term rates are reflective of monetary policy. Note how the Fed pushed these rates to historic lows (less than 2 percent) throughout 2002–2004 but then increased them substantially during 2005–2006.

The low rates provided fuel for the housing price boom, but the rising rates led to higher interest rates and monthly payments on adjustable rate mortgage (ARM) loans, which helped push the mortgage default and foreclosure rates upward beginning in the second half of 2006.



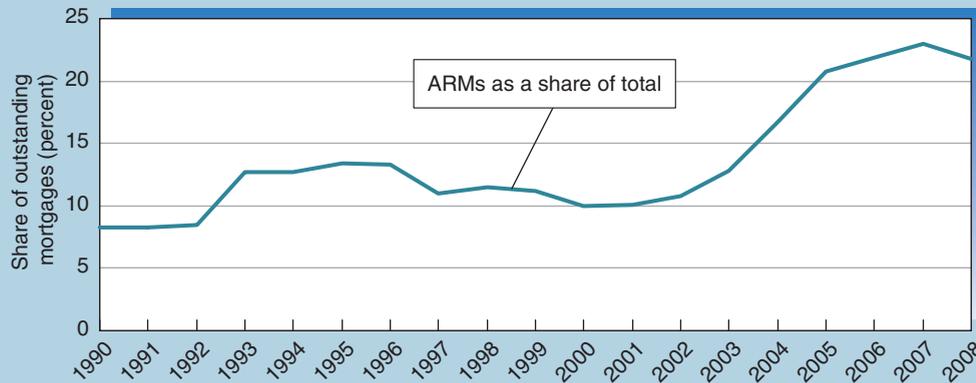
Sources: [www.federalreserve.gov](http://www.federalreserve.gov) and [www.economagic.com](http://www.economagic.com).

## EXHIBIT 8

## Adjustable Rate Mortgages (ARMs) as a Share of Total Outstanding Mortgages, 1990–2008

The interest rate and monthly payment on ARMs are tied to a short-term interest rate (e.g., the one-year Treasury bill rate). The Fed's low-interest rate policy of 2002–2004

increased the attractiveness of ARMs. Note how ARM loans increased as a share of total mortgages from 10 percent in 2000 to 21 percent in 2005.



Source: Office of Federal Housing Enterprise Oversight, [www.ofheo.gov](http://www.ofheo.gov).

By 2005, the expansionary monetary policy of 2002–2004 was clearly placing upward pressure on the general level of prices. The Fed responded with a shift to a more restrictive monetary policy, which pushed interest rates upward (see Exhibit 7). Many who purchased houses with little or no down payment and adjustable rate loans when interest rates were low during 2002–2004 faced substantially higher monthly payments as interest rates rose and the monthly payments on their ARM loans were reset during 2006 and 2007. These owners had virtually no equity in their homes. Therefore, when housing prices leveled off and began to decline during the second half of 2006, the default and foreclosure rates on these loans began to rise almost immediately (see Exhibits 1 and 2). Some owners with little or no initial equity simply walked away as their outstanding loan exceeded the value of their house.

Essentially, the small down payment and ARMs combination made it possible for homebuyers to gamble with someone else's money. If housing prices rose, buyers could reap a sizable capital gain without risking much of their own investment capital. Based on the rising housing prices of 2000–2005, many of these homebuyers expected to sell the house for a profit and move on in a couple of years. There were even television programs and investment seminars pushing this strategy as the route to riches.

Exhibit 9 shows the foreclosure rates for fixed interest rate and ARM loans for both subprime and prime loans. Compared to their prime borrower counterparts, the foreclosure rate for subprime borrowers was approximately ten times higher for fixed rate mortgages and seven times higher for adjustable rate mortgages. These huge differentials explain why the increasing share of loans to subprime borrowers substantially increased the default and foreclosure rates.

As Exhibit 9 shows, there was no upward trend in the foreclosure rate on fixed interest rate loans for either prime or subprime borrowers during 2000–2008. On the other hand, the foreclosure rate on ARMs soared for both prime and subprime loans during 2006–2008. In fact, the percentage increase in foreclosures on ARM loans was higher for prime than subprime borrowers. This is highly revealing. It illustrates that both prime and subprime borrowers played the low-down-payment, mortgage casino game.

The crisis is often referred to as the *subprime mortgage crisis*. This is true, but it is only part of the story. It was also an ARM loan crisis. Fed policy encouraging

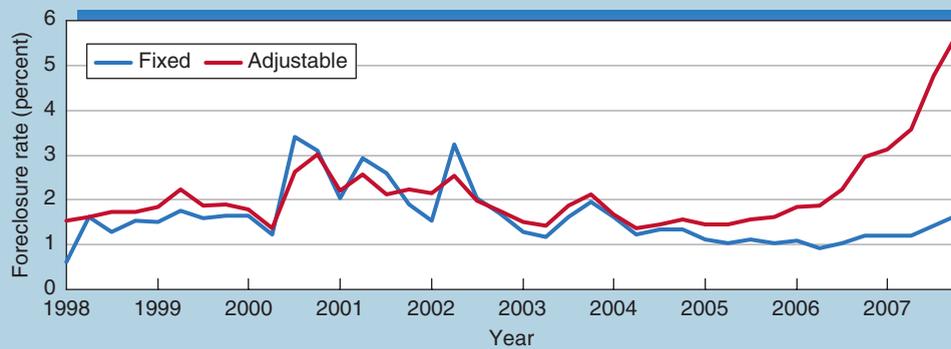
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**EXHIBIT 9**

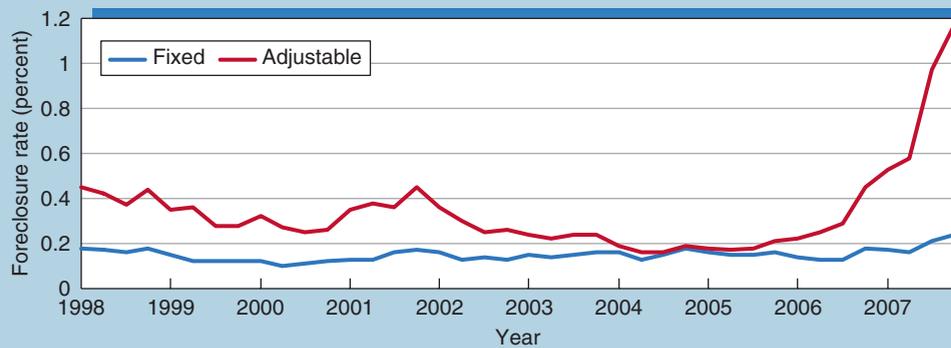
**The Foreclosure Rate of Fixed and Adjustable Rate Mortgages for Subprime and Prime Borrowers, 1998–2007**

The foreclosure rates on fixed and adjustable interest rate mortgages are shown here for both subprime (part a) and prime (part b) borrowers. Note how the foreclosure rate was generally seven to ten times higher for subprime loans than for those to prime borrowers. As housing prices leveled off and declined in 2006–2008, the foreclosure rate on fixed interest rate mortgages did not

change much. In contrast, the foreclosure rate for ARM loans soared beginning in the second half of 2006, and this was true for ARM loans to both subprime and prime borrowers. Clearly, the increasing share of both subprime and ARM loans during 2000–2005 contributed to the boom and bust of the housing market.



(a) Subprime loans



(b) Prime loans

Source: Stan J. Liebowitz, "Anatomy of a Train Wreck: Causes of the Mortgage Meltdown," Ch. 13 in Randall G. Holcombe and Benjamin Powell, eds, *Housing America: Building Out of a Crisis* (New Brunswick, NJ: Transaction Publishers, 2009). We would like to thank Professor Liebowitz for making this data available to us.

ARM loans, the increasing proportion of these loans as a share of the total, and their higher default and foreclosure rates also contributed substantially, first to the housing boom and then to the bust. The combination of the mortgage lending regulations and the Fed's artificially low interest rate policies encouraged decision-makers to borrow more money and take unwise and inefficient investments.

**ST05-2c FACTOR 3: THE INCREASED DEBT-TO-CAPITAL RATIO OF INVESTMENT BANKS**

A rule change adopted by the Securities and Exchange Commission (SEC) in April 2004 made it possible for **investment banks** to increase the leverage of their investment capital, which eventually led to their collapse. A firm's **leverage ratio** is simply the ratio of its investment

**Investment bank**

An institution that acts as an underwriter for securities issued by other corporations or lenders. Unlike traditional banks, investment banks do not accept deposits from, or provide loans to, individuals.

**Leverage ratios**

The ratio of loans and other investments to the firm's capital assets.

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**Security rating**

A rating indicating the risk of default of the security. A rating of AAA indicates that the risk of default is low.

**Mortgage-backed securities**

Securities issued for the financing of large pools of mortgages. The promised returns to the security holders are derived from the mortgage interest payments.

holdings (including loans) relative to its capital. Thus, if a firm had investment funds that were twelve times the size of its equity capital, its leverage ratio would be 12 to 1. Prior to the SEC rule change, this was approximately the leverage ratio of both investment and commercial banks.

Essentially, the SEC applied regulations known as Basel I to investment banking. These regulations, which have been adopted by most of the industrial countries, require banks to maintain at least 8 percent capital against assets like loans to commercial businesses. This implies a leverage ratio of approximately 12 to 1. However, the Basel regulations provide more favorable treatment of residential loans. The capital requirement for residential mortgage loans is only 4 percent, which implies a 25 to 1 leverage ratio. Even more important, the capital requirement for low-risk securities is still lower at 1.6 percent. This means that the permissible leverage ratio for low-risk securities could be as high as 60 to 1.

Key investment banking leaders, including Henry Paulson who was CEO of Goldman Sachs at the time, urged the SEC to apply the higher leverage ratio to investment banks. Ironically, Paulson later became Secretary of the Treasury and was in charge of the federal “bail-out” of the banks that got into trouble because of the excessive leveraging of their capital.

Following the rule change, large investment banks, like Lehman Brothers, Goldman Sachs, and Bear Stearns, expanded their mortgage financing activities. They bundled large holdings of mortgages together and issued securities for their finance. Because of the diversity of the mortgage portfolio, investment in the underlying securities was thought to involve minimal risk. If the **security-rating** firms provided the **mortgage-backed securities** with a AAA rating, then the investment banks could leverage them up to 60 to 1 against their capital.

The mortgage-backed securities, financed with short-term leveraged lending, were highly lucrative. The large number of mortgages packaged together provided lenders with diversity and protection against abnormally high default rates in specific regions and loan categories. But it did not shield them from an overall increase in mortgage default rates. As default rates increased sharply in 2006 and 2007, it became apparent that the mortgage-backed securities were far more risky than had been previously thought. When the risk of these mortgages became more apparent, the value of the mortgage-backed securities plummeted because it was difficult to know their true value. As the value of the mortgage-backed securities collapsed, the highly leveraged investment banks faced massive short-term debt obligations with little reserves on which to draw. This is why the investment banks collapsed so quickly. In fact, when the Fed financed the acquisition of Bear Stearns by JP Morgan Chase, the leverage ratio of Bear Stearns was an astounding 33 to 1, about two and a half times the historical level associated with prudent banking practices.

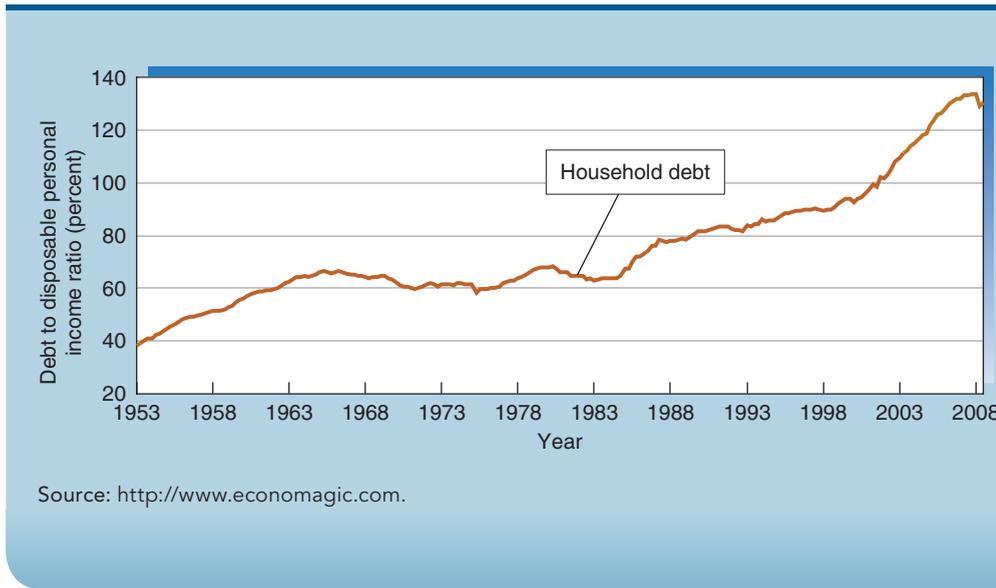
Why didn't key Wall Street decision makers see the looming danger? No doubt, they were influenced by the low and relatively stable default rates over the past several decades (see Exhibit 2). Even during serious recessions like those of 1974–1975 and 1982–1983, the mortgage default rates were only a little more than 2 percent, less than half the rates of 2008. But one would still have thought that analysts at investment companies and security-rating firms would have warned that the low historical rates were for periods when down payments were larger, borrowing was more restricted relative to income, and fewer loans were made to subprime borrowers. A few analysts did provide warnings, but their views were ignored by high-level superiors.

However, the incentive structure also helps explain why highly intelligent people failed to see the oncoming danger. The bonuses of most Wall Street executives are closely tied to short-term profitability, and the mortgage-backed securities were highly profitable when housing prices were rising and interest rates were low. If a personal bonus of a million dollars or more is at stake this year, one is likely to be far less sensitive to the long-term dangers.

The incentive structure accompanying the regulation and rating of securities also played an important role. Only three firms—Moody's, Standard & Poors, and Fitch—are legally authorized to rate securities. These rating agencies are paid by the firm requesting the rating. A Triple-A rating was exceedingly important. It made higher leveraging possible, but, even more important, the Triple-A rating made it possible to sell the mortgage-backed securities to institutional investors, retirement plans, and investors around the world looking for relatively safe investments. The rating agencies were paid attractive fees for their ratings, and Triple-A

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**EXHIBIT 10**



**Household Debt to Disposable Personal Income Ratio, 1953–2008**

Between 1953 and 1984, household debt as a share of disposable (after-tax) income ranged from 40 percent to 65 percent. However, since the mid-1980s, this debt-to-income ratio has increased dramatically. By 2007, it soared to 135 percent, more than twice the level of the mid-1980s.

approval would mean more business for the rating agencies as well as the investment banks. Clearly, this incentive structure is not one that encourages careful scrutiny and hard-nosed evaluation of the quality of the underlying mortgage bundle. Paradoxically, the shortsighted and counterproductive incentive structures that characterize some of Wall Street’s best-known firms contributed to their collapse.

**ST05-2d FACTOR 4: HIGH DEBT/INCOME RATIO OF HOUSEHOLDS**

During 1985–2007, household debt grew to unprecedented levels. As Exhibit 10 shows, household debt as a share of disposable (after-tax) income ranged from 40 percent to 65 percent during 1953–1984. However, since the mid-1980s, the debt-to-income ratio of households climbed at an alarming rate. It reached 135 percent in 2007, more than twice the level of the mid-1980s. Unsurprisingly, more debt means that a larger share of household income is required just to meet the interest payments.

Interest payments on home mortgages and home equity loans are tax deductible, but household interest on other forms of debt is not. This incentive structure encourages households to concentrate their debt into loans against their housing. But a large debt against one’s housing will mean that housing will be the hardest hit by unexpected events that force major adjustments. This is precisely what occurred in 2006–2008. The rising interest rates and mere leveling off of housing prices soon led to an increase in mortgage defaults and foreclosures, because households were heavily indebted and a huge share of that indebtedness was in the form of mortgages against their housing. As the economy weakened, of course, this situation quickly worsened. Thus, the high level of household indebtedness also contributed to the Crisis of 2008.

**ST05-3 HOUSING, MORTGAGE DEFAULTS, AND THE CRISIS OF 2008**

The combination of the HUD regulations, low-down-payment requirements, and the Fed’s low interest policy of 2002–2004 resulted in the rapid growth of both subprime and ARM loans during the first five years of this century. As is often the case with policy changes, the initial effects were positive—strong demand for housing, rising housing prices, and a construction boom. But the long-term effects were disastrous. The increasing share of

subprime loans began to push default rates upward. Similarly, the low short-term interest rates that made adjustable rate mortgages attractive during 2004 soon reversed and led to higher monthly payments as the interest rates on ARM loans were reset in the years immediately ahead. As these two factors converged in the latter half of 2006, they generated falling housing prices and soaring mortgage default and foreclosure rates. The housing and lending crisis soon spread to other sectors and economies around the world. Moreover, the Triple-A rated mortgage-backed securities were marketed throughout the world, and, as their value plunged with rising default rates, turmoil was created in global financial markets.

It is important to note that both the mortgage default and foreclosure rates soared well before the recession began in December 2007. This illustrates that the housing crisis was not caused by the recession. Instead, it was the other way around.

## ST05-4 THE CONTINUING IMPACT OF THE 2008 CRISIS

The 2008 financial crisis continues to exert an impact on the U.S. economy. Fannie Mae and Freddie Mac were declared insolvent and taken over by the federal government in 2008. They have received \$188 billion in taxpayer funds and still obtain credit at lower interest rates than other potential lenders. The government now dominates the mortgage market. When the mortgage loans of the Federal Housing Administration are added to those of Fannie Mae and Freddie Mac, 90 percent of the new mortgages for housing are currently financed by the federal government. In essence, the mortgage lending business has been nationalized.

Will this dominance of the housing loan market by the federal government persist? Both President Obama and Congress indicate they would like to privatize Fannie Mae and Freddie Mac and reduce the government's role in the housing loan market. However, their incentive to act is relatively weak. In 2012, the net earnings of Fannie Mae and Freddie Mac were positive. While this was good news, it comes with a downside: The inflow of these funds to the Treasury will make it more difficult to privatize them and denationalize the mortgage lending market.

As discussed above, regulations that created perverse incentives and undermined sound lending practices were a central cause of the Crisis of 2008. In the aftermath of the Crisis, new regulations designed to prevent the next crisis were adopted. Will these regulations be effective? There is reason for skepticism. History illustrates that regulation is not a cure all. Regulatory agencies will be characterized by "tunnel vision." They will focus on their narrow objectives (e.g., promoting home ownership), and they will largely ignore the secondary effects of their actions. Regulators have a poor record with regard to foreseeing future problems. After all, mortgage lending and banking are two of the most heavily regulated sectors of our economy, but none of their regulators foresaw the problems leading up to the 2008 crisis. With time, a sweetheart relationship will nearly always develop between the regulators and those whom they regulate. All of these factors should cause one to pause before believing that a new regulatory apparatus will head off the next crisis.

To a large degree, the Crisis of 2008 reflects what happens when policies confront people with perverse incentives. Constructive reforms need to focus on getting the incentives right. Consider the following questions. Would the mortgage market work better if loan originators were held responsible for defaults on loans they originated, even if they sold them to another party? Does it really make sense to encourage households to concentrate all of their debt against their house, as current tax policy does? Should high-level corporate managers be provided with a stronger incentive to pursue the long-term success of their company? Incentives related to all of these questions played a role in the Crisis of 2008. Although the precise response is not obvious, the crisis suggests that review of current policy in these areas would be wise.

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## KEY POINTS

- After soaring during the previous five years, housing prices began to decline during the second half of 2006, and mortgage defaults and housing foreclosures started to increase. As the housing bust spread to other sectors, stock prices plunged, major investment banks experienced financial troubles, unemployment increased sharply, and by 2008 the economy was in a severe recession.
- Fannie Mae and Freddie Mac grew rapidly during the 1990s. Their government sponsorship made it possible for them to obtain funds cheaper than private rivals. Because of their dominance of the secondary market, in which mortgages are purchased from originators, their lending standards exerted a huge impact on the mortgage market.
- Beginning in the mid-1990s, mandates imposed on Fannie Mae and Freddie Mac, along with regulations imposed on banks, forced lenders to reduce their lending standards, extend more mortgages to subprime borrowers, and reduce down payment requirements. The share of mortgages extended to subprime borrowers (including Alt-A loans) rose from 10 percent in 2001–2003 to 33 percent in 2005–2006. Correspondingly, the share of low-down-payment loans extended by Fannie Mae and Freddie Mac soared from 4 percent in 1998 to 23 percent in 2007. These changes were highly important because the default and foreclosure rates on subprime and low-down-payment loans are several times higher than for conventional loans to prime borrowers.
- The historically low interest rate policies of the Fed during 2002–2004 increased the demand for housing and the attractiveness of adjustable rate mortgages. This provided fuel for the soaring housing prices. ARM loans increased from 10 percent of total mortgages in 2000 to 21 percent in 2005. Fed policy pushed interest rates up in 2005–2006 and ARM loans were reset, pushing monthly payments higher. As a result, the default and foreclosure rates on these loans soared for prime as well as subprime borrowers.
- As a result of regulations adopted in April 2004, investment banks were allowed to leverage their capital by as much as 60 to 1 when financing mortgages with Triple-A rated securities. The rating agencies provided the Triple-A ratings, and the mortgage-backed securities were sold around the world. As the mortgage default rates rose in 2007–2008, Fannie Mae, Freddie Mac, and the major investment banks holding large quantities of these securities quickly fell into financial troubles, and several collapsed.
- The ratio of household debt to personal income increased steadily during 1985–2007, reaching a historic high at the end of that period.
- Low-down-payment requirements, the growth of subprime and ARM loans, the Fed’s easy credit policy, highly leveraged mortgage-backed securities, and heavy borrowing by households fueled the run-up in housing prices. With time, however, this was a disastrous combination that provided the ingredients for the recession and Crisis of 2008.
- The Crisis of 2008 reflects the unintended consequences of regulatory and monetary policy and what happens when the incentive structure is polluted by unsound institutions and policies.

## CRITICAL ANALYSIS QUESTIONS

1. Why did housing prices rise rapidly during 2002–2005? Why did the mortgage default rate increase so sharply during 2006 and 2007 even before the 2008–2009 recession began?
  2. What happened to the credit standards (e.g., minimum down payment, mortgage loan relative to the value of the house, and creditworthiness of the borrower) between 1995 and 2005? Why did the credit standards change? How did this influence the housing price bubble and later the default and foreclosure rates?
  3. If owners have little or no equity in their houses, how will this influence the likelihood that they will default on their mortgage? Why?
  4. When did mortgage default and housing foreclosure rates begin to rise rapidly? When did the economy go into recession? Was there a causal relationship between the two? Discuss.
  5. \*When mortgage originators sell mortgages to Fannie Mae, Freddie Mac, and investment banks the originators have no additional liability for possible default by the borrower. How will this arrangement influence the incentive of the originators to scrutinize the creditworthiness of the borrower? Would the incentive structure be different if the originator planned to hold the mortgage until it was paid off? Why or why not?
  6. Some charge that the Crisis of 2008 was caused by the “greed” of Wall Street firms and other bankers. Do you agree with this view? Do you think there was more greed on Wall Street in the first five years of this century than during the 1980s and 1990s? Why or why not?
- \*Asterisk denotes questions for which answers are given in Appendix B.