

# Chicago Fed Letter

## Comparing the prime and subprime mortgage markets

by Sumit Agarwal, financial economist, and Calvin T. Ho, associate economist

Against the backdrop of news reports on high mortgage delinquency rates, this article examines recent trends in mortgage lending and compares the prime and subprime markets in particular.

In this *Chicago Fed Letter*, we analyze the different mortgage types (prime versus subprime) and products (adjustable-rate versus fixed-rate) to explain differences in mortgage delinquency rates over time and across the Seventh Federal Reserve District.<sup>1</sup> In light of

recent news reports about the problems in the subprime lending market, our purpose is to document the recent trends in mortgage lending and analyze the rising level of delinquencies in the subprime mortgage market.

We show that the subprime mortgage market is facing substantial problems, as measured by delinquency rates, while the prime mortgage market is experiencing more typical delinquency rates, i.e., at historical averages

(see figure 1). Within the subprime mortgage market, we observe a substantial increase in delinquency rates, mostly for adjustable-rate mortgages (ARMs). Since the subprime ARM market is less than 7.5% of the overall mortgage market and a vast majority of subprime loans are performing

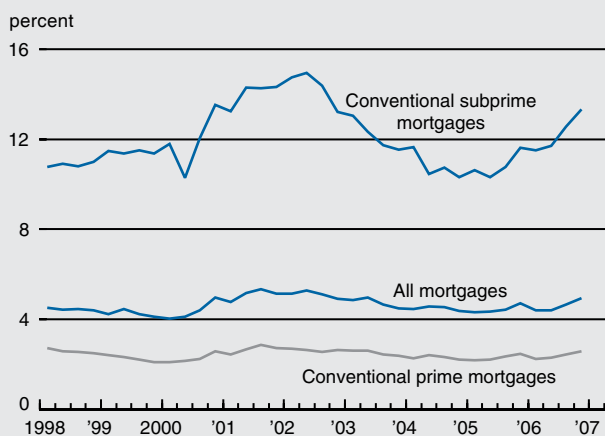
well, we believe that the subprime mortgage problems are not likely to spill over to the rest of the mortgage market or the broader economy. However, looking at the five states in the Seventh District, we find a substantial growth of adjustable-rate subprime lending in Indiana and Michigan—states that have experienced recent slowdowns in economic activity. We also find that Indiana and Michigan have higher delinquency rates than the national average.

### What are prime, subprime, and Alt-A mortgages?

The main difference between prime and subprime mortgages lies in the risk profile of the borrower; subprime mortgages are offered to higher-risk borrowers. Specifically, lenders differentiate among mortgage applicants by using loan risk grades based on their past mortgage or rent payment behaviors, previous bankruptcy filings, debt-to-income (DTI) ratios, and the level of documentation provided by the applicants to verify income. Next, lenders determine the price of a mortgage in a given risk grade based on the borrower's credit risk score, e.g., the Fair, Isaac, and Company (FICO) score, and the size of the down payment.

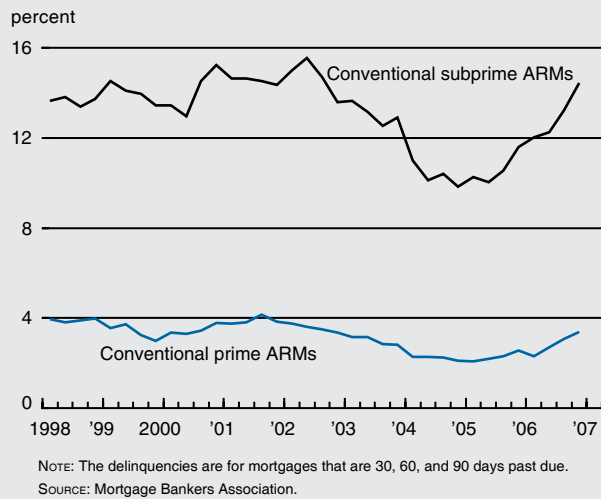
Lenders generally charge the prevailing prime mortgage rates to borrowers with lower credit risks as reflected by their

### 1. Mortgage delinquency rates



NOTE: The delinquencies are for mortgages that are 30, 60, and 90 days past due.  
SOURCE: Mortgage Bankers Association.

## 2. Adjustable-rate mortgage (ARM) delinquency rates



having met a minimum FICO score requirement and their having a sufficient down payment. Generally, subprime borrowers pay 200 to 300 basis points above the prevailing prime rates. Other costs associated with risk-based pricing in the subprime mortgage market include higher upfront origination fees (e.g., application fees) and prepayment penalties.

Finally, borrowers who have relatively good current credit scores, but who fail to provide sufficient documentation to verify income or who have high DTI ratios, are eligible for Alt-A loans. Of the nonprime loans, Alt-A loans are considered to be the least risky. Alt-A borrowers generally have credit scores falling between those of prime and subprime borrowers.

According to the Mortgage Bankers Association, prime mortgages make up about 80% of the mortgage market, subprime mortgages about 15%, and Alt-A loans about 5%. These figures represent the stock of mortgages outstanding as of 2006.

The interest rates for prime, subprime, and Alt-A mortgages can be fixed for the term of the loan or adjustable after a predetermined period (typically, one, three, or five years), depending on the financing needs and characteristics of the borrower.

## Mortgage market size and growth

The residential mortgage market in 2006 was \$10 trillion, representing one-quarter of the total debt market in the U.S. Over the past few years, the \$1.5 trillion subprime mortgage market has experienced exponential growth. According to Inside Mortgage Finance Publications, subprime mortgages accounted for over 20% of all mortgage originations in 2006, up

from 6% in 2002; the Alt-A mortgage market alone grew from \$85 billion in 2003 to \$400 billion in 2006.<sup>2</sup>

Adjustable-rate mortgages have fixed interest payments initially and adjust after a specified interval to a new interest rate that is based on the prime rate at that time. Data show that ARMs have gained popularity over fixed-rate mortgages across both prime and subprime markets. They usually carry comparatively low initial rates, which increase the appeal of this type of mortgage. The percentage of prime loans that are ARMs, for instance, jumped from 10.6% in December 2001 to 18.2% in December 2006, while the fraction of subprime ARMs rose from 27.6% in December 1998 to about 50% in December 2006.

## Evolution of the subprime mortgage banking industry

Subprime mortgages gained popularity in the early 1990s, when falling interest rates made them appealing to homeowners as a way to refinance existing mortgages, consolidate debt, or

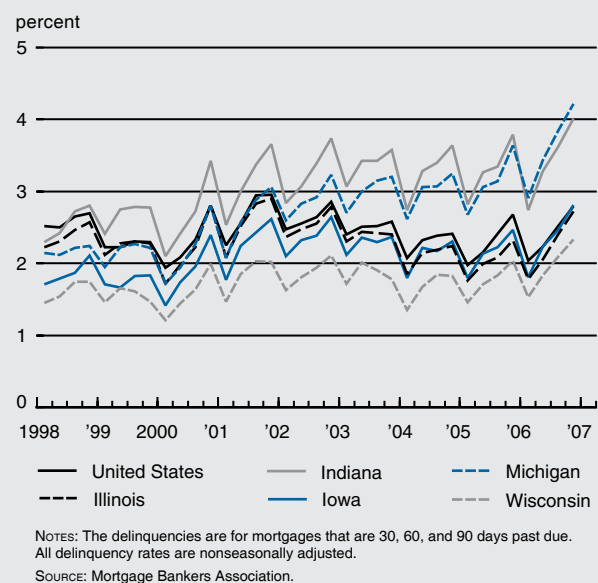
finance home improvements. The mortgage business landscape transformed as technology made it possible to automate credit checking and underwriting procedures, thereby significantly reducing the time and expense involved in these processes. Furthermore, the use of credit scoring systems made it possible to expedite the evaluation of mortgage applicants' risk profiles and increase the volume of applications processed.

The expansion of the subprime mortgage market has helped make homeownership possible for households that may not have qualified in the past. While the gains in homeownership are broad based, they are especially large for the minority and low-income communities.<sup>3</sup> However, weaker financial conditions and lower credit scores of the subprime borrowers have led to a higher cost of borrowing; this, combined with declining or flat house prices and rising interest rates, has put upward pressure on the delinquency rates for subprime ARM borrowers.

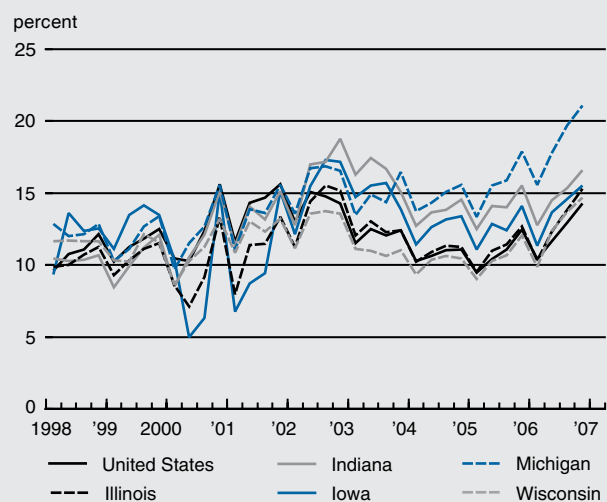
## Delinquencies in prime and subprime mortgages

Data provided by the Mortgage Bankers Association indicate that the overall mortgage delinquency rate has been hovering around 4% since the early 1990s. Although the rate has edged up to about 4.9% in the past 12 months,

## 3. Prime mortgage delinquency rates, by region



#### 4. Subprime mortgage delinquency rates, by region



NOTES: The delinquencies are for mortgages that are 30, 60, and 90 days past due. All delinquency rates are nonseasonally adjusted.

SOURCE: Mortgage Bankers Association.

it remains near historical lows (see figure 1). This is largely because prime loans, which make up 80% of the mortgage market, have stable delinquency rates. Both fixed-rate and adjustable-rate prime mortgage delinquency rates are approximately 2% and 4%, respectively—just around their corresponding historical averages.

Subprime mortgages, on the other hand, have exhibited significant increases in delinquency rates. In December 2006, over 13% of subprime loans were delinquent in the U.S., up from about 10% during the housing boom a few years earlier. More than 14% of subprime ARMs were delinquent in December 2006, up from about 10% two years earlier, and over the same period, there were twice as many foreclosures on homes (i.e., loan defaults leading to seizures of homes by lenders).

Figure 2 shows the delinquencies for the prime and subprime ARM markets. In recent years, the delinquency rate for prime ARMs was below its historical high of 4%, but the delinquency rate for subprime ARMs increased from 10% in September 2004 to 14% in September 2006. However, over the same period, the delinquencies for the fixed-rate prime and subprime markets were below their historical highs of 2.5% and 16.6%, respectively, and stayed relatively flat.

significant increase in delinquencies, reducing the likelihood of any spillover effects on the rest of the mortgage market. However, the problem may be more significant for some states, as we discuss in the next section.

#### Mortgage activity in the Seventh District

The growth of the subprime mortgage market has varied across the five states in the Seventh District. For example, the share of subprime mortgages in Michigan grew from 2% in 1998 to just below 16% in 2006, while the share of subprime mortgages in Iowa grew from less than 1% in 1998 to 8% in 2006. In contrast to Indiana and Michigan, the other three states of Illinois, Iowa, and Wisconsin had shares of subprime mortgages that were below the national average of 15.2% at the end of 2006.

Figures 3 and 4 show that Indiana and Michigan, which have experienced slowdowns in the manufacturing sector, have reported higher rates of delinquencies—sometimes twice as high as the national average in both prime and subprime mortgage markets. At the end of 2006, the delinquency rates for prime mortgages were 4.0% and 4.2% for Indiana and Michigan, respectively, while the national average was 2.8% (see figure 3).

The subprime mortgage market constitutes about 15% of the overall mortgage market, and about 50% of subprime mortgages are ARMs. While there has been a 40% increase in subprime ARM delinquencies over the past two years, the rest of the mortgage market, especially the fixed-rate subprime mortgage market, has not experienced a similar hike in delinquency rates.

This suggests that about 7.5% of the overall mortgage market has experienced a

At the end of 2006, the delinquency rate for subprime mortgages was 21.1% in Michigan and 14.2% across the nation. All five Seventh District states had higher delinquency rates than the national average, varying between 14.7% in Wisconsin and 21.1% in Michigan (see figure 4).

In addition, Indiana has a higher share of subprime mortgages as a share of total mortgages, thus exacerbating the impact of the subprime problems. Specifically, Indiana's share is 18.3%, or 3.1% above the national average.

#### Can market participants help prevent the spread of subprime problems?

There are a number of recent public and private initiatives that should help prevent the spread of the subprime problems to the broader economy. Freddie Mac, a U.S. government-sponsored enterprise that issues mortgage-backed securities, has indicated that it would purchase \$20 billion of loans from subprime borrowers facing an ARM reset. Fannie Mae, a similar entity, has created a product allowing for 40-year home loans. Also, financial institutions, such as Citibank and Bank of America, have set up a \$1 billion fund to help provide subsidized loans to homeowners who

Michael H. Moskow, *President*; Charles L. Evans, *Senior Vice President and Director of Research*; Douglas Evanoff, *Vice President, financial studies*; Jonas Fisher, *Economic Advisor and Team Leader, macroeconomic policy research*; Richard Porter, *Vice President, payment studies*; Daniel Sullivan, *Vice President, microeconomic policy research*; William Testa, *Vice President, regional programs and Economics Editor*; Helen O'D. Koshy, Kathryn Moran, and Han Y. Choi, *Editors*; Rita Molloy and Julia Baker, *Production Editors*.

*Chicago Fed Letter* is published monthly by the Research Department of the Federal Reserve Bank of Chicago. The views expressed are the authors' and are not necessarily those of the Federal Reserve Bank of Chicago or the Federal Reserve System.

© 2007 Federal Reserve Bank of Chicago  
*Chicago Fed Letter* articles may be reproduced in whole or in part, provided the articles are not reproduced or distributed for commercial gain and provided the source is appropriately credited. Prior written permission must be obtained for any other reproduction, distribution, republication, or creation of derivative works of *Chicago Fed Letter* articles. To request permission, please contact Helen Koshy, senior editor, at 312-322-5830 or email [Helen.Koshy@chi.frb.org](mailto:Helen.Koshy@chi.frb.org). *Chicago Fed Letter* and other Bank publications are available on the Bank's website at [www.chicagofed.org](http://www.chicagofed.org).

ISSN 0895-0164

are on the brink of foreclosure. Additionally, some states have raised funds to help homeowners refinance risky mortgages; for example, Ohio has raised \$100 million for this purpose. Other states, such as Pennsylvania, New York, and New Jersey, are pursuing similar strategies.

Finally, in response to the rising level of delinquencies, lending institutions have tightened credit and underwriting standards. Credit spreads on new

subprime securitizations have increased, and subprime securities originations have slowed.

These measures, together with better disclosure by lenders, efforts to prevent lending fraud and abuse, and financial counseling for potential and existing borrowers, could go a long way toward helping households keep their financial obligations more manageable and reducing delinquency rates.

---

<sup>1</sup> The Seventh Federal Reserve District comprises all of Iowa and most of Illinois, Indiana, Michigan, and Wisconsin.

<sup>2</sup> See Inside Mortgage Finance Publications, 2006, *Mortgage Market Statistical Annual 2006*, 2 vols., Bethesda, MD.

<sup>3</sup> For further details, read the speech by Federal Reserve Chairman Ben Bernanke at [www.federalreserve.gov/boarddocs/speeches/2007/20070517/default.htm](http://www.federalreserve.gov/boarddocs/speeches/2007/20070517/default.htm).