

Data Corner: Understanding Subprime Mortgage Defaults

Analysis conducted by economists at the Federal Reserve Bank of Boston provides insight into how subprime mortgages became as popular as they did, and why they have caused the problems that they have.¹ Below we highlight some of the key findings of this study.

Data on 2/28 hybrid subprime mortgages in Connecticut, Massachusetts, and Rhode Island show that, contrary to popular belief, rate reset shocks have played only a minor role in subprime defaults so far.² The default rate for mortgages originated in 2005 and 2006 is much higher than the default rate for 2002 mortgages. But for the more recent loans, the big jump in the default rate comes before the reset occurs (see Figure 1). No significant increase in defaults is seen near the actual reset date of 24 months.

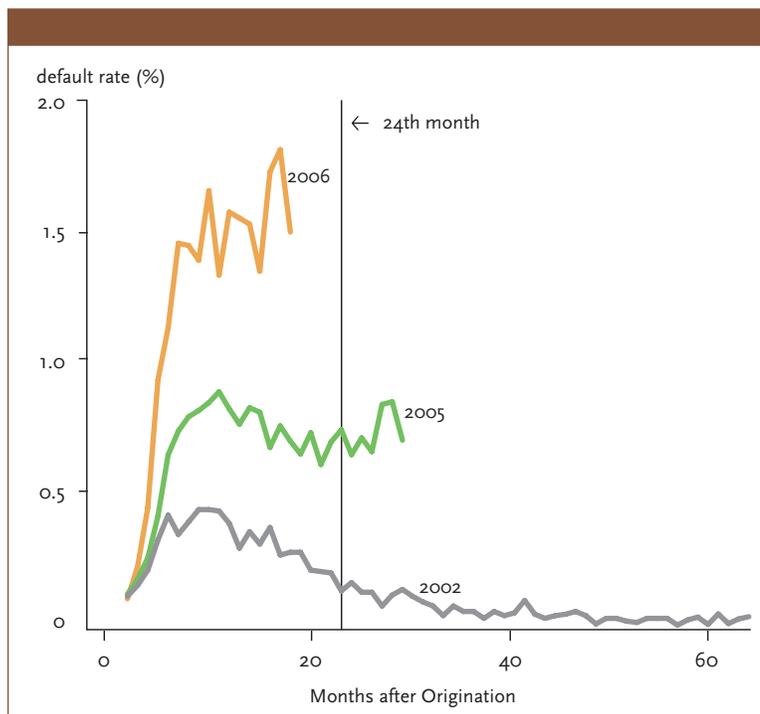
Defaults typically occur when homeowners experience life events that prevent them from making timely mortgage payments. Whether a bad life event leads to foreclosure depends on whether there is positive or negative equity in the home. With positive equity, foreclosure is unlikely. A homeowner is always better off selling the home and pocketing the difference between the proceeds of the sale and the outstanding balance of the mortgage.

Default rates for subprime loans rose as house prices began to level off and then decline (see Figure 2). Owners who had purchased their homes when prices were at their peak often found themselves with negative equity as prices fell. If an adverse life event occurred to an owner with negative equity, foreclosure generally followed.

The following three characteristics of subprime loans moved in the direction that made a subprime loan originated in 2005 more sensitive to a house-price decline than one made in 2000. First, during the housing boom, the average loan-to-value ratio for subprime mortgages in southern New England rose rapidly, from 82.6 percent in 2000 to 92.8 percent by 2005 (see Table 1). Borrowers with low downpayments are more likely to find themselves with negative equity when house prices fall, so they are more likely to suffer a foreclosure in response to a bad life event. Second, borrowers who are unable or unwilling to supply documentation for their loan applications typically default more often than borrowers who do supply documentation. The fraction of fully documented subprime loans in the southern New England subprime pool fell from 69.6 percent in 2000 to 50.2 percent in 2005. Third, the average borrower's debt-to-income ratio rose from 37.1 percent in 2000 to 42.0 percent in 2005.

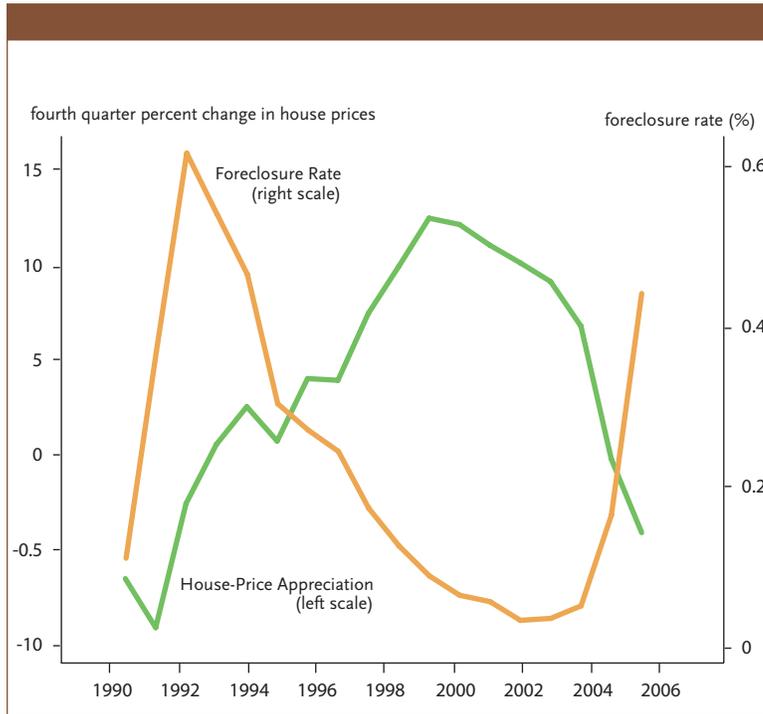
One risk statistic that did improve in the southern New England subprime pool is the average credit score of subprime borrowers. However, while a FICO credit score of 620 or above might qualify a borrower for some prime loans, it would not qualify him for any prime loan.³ If a borrower wanted to take out a mortgage with a high loan-to-value ratio, or one that implied a high debt-to-income ratio, or if this borrower did not want to document his income, he would likely

Figure 1: Default Rates for 2/28 Subprime Mortgages by Year of Origination



Source: LP dataset for southern New England.

Figure 2: Foreclosure Rates and House-Price Appreciation in Massachusetts



Source: Warren Group database. Federal Reserve Bank of Boston calculations.

be turned down by a prime lender. The subprime market started out by providing loans only to risky borrowers. As the housing boom gathered steam, however, the market began to provide risky loans to a variety of borrowers. But whether the holders of such loans are risky borrowers or not, they share a high vulnerability to the decline in home prices.

Thus, it is the recent decline in house prices that explains why so many recent subprime loans are defaulting even before the loans reset.

¹ Christopher L. Foote. "Subprime Outcomes: Turmoil in the Mortgage Market." *2007 Annual Report of the Federal Reserve Bank of Boston*. Based on the study by Foote et al.: "Subprime Facts: What (We Think) We Know about the Subprime Crisis and What We Don't." *Federal Reserve Bank of Boston Public Policy Discussion Paper*, May 2008. Both of these works and additional data and analysis on subprime mortgages and foreclosures from the Federal Reserve Bank of Boston can be found at: <http://www.bos.frb.org>.

² A hybrid adjustable-rate loan is a 30-year mortgage with a fixed interest rate for the first two or three years (2 years for a 2/28 loan). After this initial period, the interest rate "resets" to some fixed margin over a fluctuating benchmark market rate.

³ FICO, an acronym for Fair Issac & Co., is a scoring system developed by Fair Isaac & Co. and widely used to evaluate the creditworthiness of borrowers. FICO scores range from 300 to 850, with about one-quarter of the U.S. population falling in the range of 750 to 799.

Table 1: Risk Characteristics of Subprime Loans in Southern New England

	2000	2003	2005
All borrowers			
Number of loans originated	3,171	13,486	30,219
Average loan-to-value ratio	82.6	88.6	92.8
Share of loans fully documented	69.6	55.5	50.2
Average debt-to-income ratio	37.1	38.9	42.0
Fraction of borrowers with FICO score of 620 or more	44.5	68.2	71.0
Borrowers with FICO score of 620 or more			
Number of loans originated	1,411	9,203	21,442
Average loan-to-value ratio	83.8	89.8	93.8
Share of loans fully documented	67.0	48.6	40.8
Average debt-to-income ratio	36.9	38.6	41.9

Source: LP dataset for southern New England.