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Risk and Return in Subprime Mortgages

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The slowdown in the housing sector that began early in 2006 subtracted over a percentage point from GDP growth during the second half of last year. Now, in 2007, analysts have declared that the worst of the housing slowdown is over. However, early in February, more serious problems emerged in the subprime mortgage market, the rapid growth of which supported the later stages of the housing boom in 2005 and 2006. Subprime mortgages are risky loans to weak borrowers who usually have to borrow the down payment on a home purchase, leaving them with mortgage obligations equal to 100 percent of the purchase price.

Two companies, HSBC Holdings PLC and New Century Financial, disclosed early in February increased provisions for losses on subprime loans. The stock price of New Century Financial, which had been drifting lower, having fallen by about 15 percent between November 2005 and January 2007, dropped by 36 percent in one day on February 8, 2007, when its subprime lending problems surfaced. By February 9, New Century shares were down 46 percent on the year.

The weakest subprime loans are tracked in a credit market index known as the ABX Subprime index that tracks loans rated BBB-minus. That index dropped 7 percent in one week early in February. The ABX BBB spread, the gap between interest rates on subprime loans and treasury securities, went from about 250 basis points (early in December 2006) to over 800 basis points by early February 2007 and has continued to rise. Clearly, the perceived risk on subprime loans has increased sharply.

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While problem loans in the mortgage sector are largely concentrated in the subprime area, concern has spread to the housing market as well. Prices of shares in the S&P homebuilders' sector had rallied by about 20 percent from November 2006 to the end of January 2007, but then sold off by about 10 percent during the week in which problems began to emerge with subprime mortgages. Said Jeffrey Mezger, chief executive of KB Home, a large U.S. homebuilder: "If subprime tightens up and underwriting tightens up, it's going to impact [housing] demand."[1]

More Return, More Risk

The behavior of the subprime mortgage market, at least in the months leading up to the disclosure of more defaults early in February 2007, was typical of the behavior of many classes of risky assets, including loans to emerging markets and junk bonds in the corporate sector. Subprime loans can be viewed as household-sector junk bonds issued with the help of specialists operating to expedite the lending process and then to repackage the subprime loans into tradable securities. The tradable securities yield a higher rate of return than claims on less risky assets and constitute a more attractive investment outlet for managers who are keen on higher rates of return and are less concerned about risk. The widely noted subprime problems that have emerged early in 2007 are, of course, a reflection of doubts that the higher returns on such mortgages will be paid. The market manifestation of more shakiness in the subprime sector is a sharp increase in the interest rate paid on the securitized claims on that sector, which, in turn, reflects elevated risks.

While the sell-off of risky assets in the junk-bond class for households—subprime mortgages—may be contained, it is symptomatic of a broader issue tied to risk taking by investors incessantly searching for higher returns. Understanding its implications requires an understanding of the principles behind additional risk taking in that context.

Every binge has its limits, and the rush to acquire high-yielding, subprime mortgages has recently turned into a rush to exit, or to "write off" such loans.

Understanding Risk

Taking on risk means increasing investments with a broader range of possible outcomes, positive and negative, in the hope of capturing the more positive outcomes without suffering too many of the negative ones. According to Peter Bernstein, "The word 'risk' derives from the early Italian *risicare*, which means to 'dare.'"[2] Investors "daring" to risk negative outcomes expect, on average, to earn high rates of return. Higher expected returns are meant to compensate investors for assuming more risk. They are not, of course, a guarantee that bad outcomes will not occur.

In financial markets, risk is tied to volatility. An investment that yields an average return of 10 percent in a market where yields range from minus 2 percent to plus 22 percent may be deemed "risky" compared to an investment yielding, say, 5 percent in a market where yields range from 3 percent to 7 percent. The investor choosing the expected 10 percent return option "dares" to risk negative returns in order to access a higher expected return. Remember, however, that risk and return figures are expressed as *expected values* to be realized over a finite period, usually a year. Expected values are derived from past experience. Outcomes may differ from expectations and thereby modify forward-looking expectations. Risk rises both with an increase in the range of possible outcomes based on current information, and with possible further modification of such outcomes that may be tied to new information yet to be received.

The key to undertaking successful investment in risky assets is the price paid for the riskier assets. If, for example, an investor buys a BBB mortgage security yielding 250 basis points more than the yield on treasury notes, he is betting that conditions surrounding the underlying subprime mortgages will not deteriorate and, in fact, may improve. If conditions remain the same, the investor earns an extra 2.5 percentage points over what would have been earned on low-risk treasury notes, while if conditions improve, the investor earns an even higher rate of return. However, implicit in the higher rate of return is the possibility that conditions will worsen. As conditions have deteriorated in the subprime mortgage market, their value has fallen by enough to more than wipe out the extra return earned over treasury notes. In other words, after the fact, the investors' evaluation of risks in the subprime mortgage market, at least in February 2007, has proven to be too optimistic. Losses have to be acknowledged, earnings have to be written down for the owners (such as HSBC Holdings and New Century Financial), and prices of related stocks have had to fall. Moreover, doubts about the viability of financing the housing sector have spread to home building stocks in general, and those stocks have fallen in value as well.

Hindsight, of course, is easy. In order to evaluate the intensity of the appetite for risk in search of higher rates of return, it is worthwhile to have a better understanding of what was known about subprime loans while investors were bidding eagerly for the bonds tied to those loans.

A Primer on Subprime

"Subprime mortgage" is a term used in financial markets to describe, euphemistically, mortgage loans that are largely uncollateralized and undocumented. "Uncollateralized" means that there is no asset being purchased with the proceeds of the loan that could be seized and presumably sold by the mortgage lender should the borrower fail to make payments on the loan. The collateral asset, the home being purchased, is already pledged to the primary mortgage lender, not to the secondary or subprime lender who is probably lending to pay the down payment on a home purchase. "Undocumented" means that the mortgage loan is granted without verification of the prospective borrower's income and assets that might be used to pay interest on the loan or eventually to repay the loan.

Many of the uncollateralized/undocumented loans in the subprime sector were, in a world of "innovative" mortgages, initiated as "negative amortization loans." Such loans allow the borrower simply to skip inconvenient payments of interest and/or principal with such omissions being added automatically to the amount borrowed, in many cases without collateral or documentation. The result is a larger loan to an already unqualified borrower

who has no equity cushion in the purchased home, having already borrowed the down payment. If the loan is an adjustable-rate mortgage, when the rate rises (as has started to occur in recent months and could well continue) the borrower will probably be unable to pay the higher rate.

If such lending practices seem shoddy and absurd, so be it. They are shoddy and absurd. But they produce high-yielding mortgage products in a world where high yields are harder and harder to find. Investors just keep buying more and more high-yielding product as if it carried just a little more risk than lending to the U.S. Treasury in a world of low and stable inflation.

Of course every binge has its limits, and the rush to acquire high-yielding, subprime mortgages has recently turned into a rush to exit, or to "write off" such loans. No matter how you describe it, lending to mortgage borrowers who simply cannot pay any interest (never mind principal) or who cannot make mortgage payments unless interest rates keep falling or property values keep rising is unwise. Once rates stop falling or house prices start to fall, the game is over.

Now that interest rates have risen a little and property values have definitely stopped rising, and in some cases have dropped sharply, subprime borrowers cannot even get a loan from subprime lenders. Compounding the difficulty facing these borrowers is the fact that most subprime loans have prepayment penalties. If the subprime loan is structured as an adjustable rate mortgage, after a period of time, say, one or two years, the interest on the mortgage is boosted above the initial "teaser" rate. But in most cases, even if the borrower wants to pay off the loan, a prepayment penalty makes it more costly to do so. By virtue of the prepayment penalty, the borrower has an incentive simply to walk away from the loan, leaving it to be declared nonperforming.

The subprime mortgage market, by itself, is not large enough to constitute a systemic risk to the banking or financial system unless a "contagion effect" boosts rates on all mortgages. Such subprime loans constitute about 10 percent of the $9.5 trillion mortgage market, or about $950 billion, with the lowest quality subprime loans only a small portion of that nearly trillion dollar figure encompassing all subprime loans. Still, in view of the possible risks to the broader mortgage market and to the housing sector overall that are implicit in problems in the subprime sector, it is worth asking how and why mortgage lenders would wish to actively accumulate subprime loans, some of which are uncollateralized and undocumented and are therefore highly likely to default.

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Why So Much Subprime Lending?

Why has subprime lending grown so much? The answer, at least partly, lies with the incessant search for yield among highly liquid financial managers. Subprime loans grew rapidly late in the housing boom because there was a strong demand, especially in California, among households that could not really afford to latch on to property in the booming housing market. An inability to raise any cash toward a down payment on a house or inadequate income to qualify for a mortgage under normal standards were deemed "no problem" by subprime lenders. Many of the originators of subprime loans were simply intermediaries who then resold the loans that were repackaged into credit tranches (parts of a larger, diversified bond portfolio) and securitized for sale to investors seeking higher returns. The ultimate holders of the claims on high-risk borrowers may or may not have known that they were buying what were, in some cases, uncollateralized or undocumented loans. In its February 8 article on problems in the subprime market, the *Wall Street Journal* quotes HSBC executive Tom Detelich saying "we made some decisions that could have been better."[3]

The role of government regulators in the mortgage market has been to attempt to discourage some of the practices that led to the granting of subprime loans, but as has become clear, given the size of the problems that have emerged, regulators were unable to prevent rapid expansion of such loans. With the emergence of additional problems in February 2007, market forces followed by regulators tightening loan standards have made it much more difficult and expensive to get a loan in the subprime market.

There is a broader message in the near fiasco that has emerged in the subprime market. That is the growing "moral hazard" problem in the financial markets and in the approach to those markets by banks and other financial intermediaries that may be tied to official policy toward asset market bubbles. A number of speakers from the

Federal Reserve System, including Chairman Ben Bernanke and new board member Frederic Mishkin, have articulated the Fed's policy on housing or other asset market "bubbles." Basically, the policy is that since bubbles are impossible to identify before the fact, the central bank should not attempt to deflate alleged asset market bubbles. However, if the bubble bursts and asset markets are negatively affected to a degree that threatens the financial system or economic growth, the Fed should step in and provide support to prevent systemic risk, as was done after the Long-Term Capital Management collapse in the fall of 1998 and, with a lag, after the tech-stock collapse in 2000.

There is sound logic to this view of the central bank's role with respect to asset markets, since bubbles are difficult to identify before they burst and can be very problematic for financial markets after they burst. However, the compression of risk premia (i.e., the earlier tightening of the spread between BBB-mortgage paper and treasuries to 250 basis points) suggests a willingness on the part of many financial intermediaries, including some leading banks and mortgage brokers, to overpay for risky assets. This is, perhaps, tied to a general sense that the Fed will act as a cushion if credit markets swoon. Of course, if one's competitors are willing to overpay for risky assets—and during the run-up in the prices of those assets they outperform the market—then the pressure to participate in the rush into risky assets may attract more buyers. That said, the moderate scale of the problems in the subprime market (some 10 percent of the total mortgage market), coupled with the extremely imprudent behavior of leading financial institutions that has created such problems, may present an opportunity to the Federal Reserve to begin to mitigate the moral hazard problem tied to its obligation to avoid systemic risk.

A Proposal

The Federal Reserve should, as part of its oversight activity with respect to the American banking system, prepare a report on the growth of the subprime mortgage market. The report should include the activities of mortgage specialists, such as New Century Financial and HSBC Holdings. If there are jurisdictional issues with respect to responsibility for different segments of the mortgage market, those should be resolved by producing a joint report with other institutions.

The report should document, in detail, the activities in the mortgage sector that have led to the difficulties in the subprime sector. The Fed and its potential coauthors should clearly indicate the activities for which they would hold financial intermediaries individually responsible and for which they would not provide systemically oriented relief. The aim would be to force financial intermediaries to undertake a normal evaluation of risk and return in connection with their mortgage lending activities.

This would be a messy and difficult endeavor. A myriad of reasons—jurisdictional, practical, and others—will be found not to undertake it. However, the alternative is to allow some participants in the U.S. financial system simply to continue to seek return irrespective of foreseeable risks, confident that any resulting financial disaster would be prevented by the Federal Reserve as soon as someone cried "systemic risk."

Notes

1. Richard Beales and David Wighton, "Mortgage Worries Rise as Key Credit Index Hits Record Levels," *Financial Times* (London), February 14, 2007.

2. Peter L. Bernstein, *Against the Gods: The Remarkable Story of Risk* (New York: John Wiley & Sons, Inc., 1996), 8.

3. Carrick Mollenkamp, "In Home-Lending Push, Banks Misjudged Risk," *Wall Street Journal*, February 8, 2007.