# Making Sense of the Subprime Crisis

*Kristopher Gerardi*

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**Moderator:** *Welcome to the Federal Reserve Bank of Atlanta's* Financial Update Focus *podcast. Today, we're joined by Kris Gerardi, an economist in the research division here at the Atlanta Fed. He'll be speaking about home foreclosures. Thank you for joining us today, Kris.*

**Kris Gerardi:** Thank you very much, Tom. I'm very happy to be here.

**Moderator:** *Your research shows that most of the home foreclosures occurring today stem from loans originated in 2005 and 2006, leading to the suspicion that lenders originated a large volume of risky loans during this period. Is there validity to this claim?*

**Gerardi:** Well, Tom, in the paper, we show that most of the loans originated in 2005 and 2006 were not really that different from loans made earlier—say, in the early 2000s—which had performed well despite carrying a variety of some serious risk factors such as high loan-to-value ratios, high debt-to-income ratios, low credit scores, and low documentation of income.

That said, we do document that loans in the 2005–06 cohort were riskier than previous vintages. In particular, we find that borrower leverage increased and, further, did so in a way that may have been a little opaque to investors, through second and third mortgages, often originated by different lenders. However, we also find that the change in the mix of mortgages originated is too small to explain the huge increase in defaults. Put simply, the average default rate on loans originated in 2006 exceeds the default rate on the riskiest category of loans originated in 2004.

**Moderator:** *So if there wasn't a huge change in underwriting standards, then is there something you can point to that explains the poor performance of mortgages originated in this period?*

**Gerardi:** Yes, I think so. In the paper we show that in early 2007 house prices stopped increasing, and in many areas of the country began to actually fall. Now, this had the effect of putting a halt to much of the refinancing activity that had characterized the subprime market in the early part of the decade, in which borrowers would extract portions of their home equity that they had largely accumulated through the appreciation of their home's value rather than through the amortization of mortgage debt.

In addition, the fall in house prices combined with the fact that many borrowers in this segment of the mortgage market had purchased their homes with little or no down payment and thus, in effect, were fully leveraged meant that households in financial distress—perhaps due to the loss of a job or even a medical condition—really had no way of avoiding foreclosure. Now, in contrast, when house prices were rising, these same households were able to either sell the house to pay off the mortgage or extract equity through a refinance into a subprime loan and use that equity to dig their way out of their financial hole.

**Moderator:** *Housing market analysts as a whole understood that a fall in house prices would have dire consequences for the market, but they downplayed the probability of house prices falling. You write that there was a lively debate about the future course of house prices. What were some of the dominant schools of thought about the arc of house prices?*

**Gerardi:** That's a very good question, Tom. Now, on one hand, you had many—and I would say most—housing economists that were concerned the increase in house prices from the mid-1990s through the mid-2000s was not really justified by fundamentals. For example, many economists believe that rents are a fundamental determinant of the value of housing. The argument goes that when house prices are too high relative to rents, well, potential home buyers will choose instead to rent, thus reducing the demand for houses and bringing house prices back into line with rents. Now by 2004, the rent-to-price ratio was extremely low relative to historical levels. And a similar argument could be made with respect to household income growth.

On the other hand, there were a few economists that were arguing that looking at only aggregate price-to-rent and price-to-income ratios is misleading and does not tell the entire story. They argued that when you look at more disaggregated data and take into account additional factors, such as the level of interest rates, the favorable tax treatment of mortgage interest, as well as expectations of future house prices, which they proxied for by historical averages of house price appreciation, that housing was not really overvalued in many areas of the country.

**Moderator:** *In hindsight, the events leading to the foreclosure crisis seem very obvious, and you write that, given the available data, market participants should have understood that a significant fall in house prices would cause a large increase in foreclosures, and models used to study markets are susceptible to certain assumptions about market participants' behavior. Why do you think that many market participants discounted the possibility of a fall in house prices?*

**Gerardi:** I think there are at least two explanations, Tom, with one explanation having some degree of economic justification. Since house price indexes began being calculated sometime after World War II, there has never really been a decline in nominal house prices at the national level. To be sure, there have been housing busts at the regional level—for example, Texas, California, and the Northeast in the late 1980s and early 1990s experienced a significant decline in nominal house prices—but never anything nationally. This observation, combined with the limited geographic diversity that characterized the pools of mortgages that mortgage-backed securities were derived from, may have given mortgage market participants a false sense of security at that time.

Now, another explanation, which is a little more behavioral in nature, holds that investors were simply shortsighted and caught up in the moment and in the housing boom. Now, the term "animal spirits" has been used to describe this behavior. John Maynard Keynes, the great economist, first coined the term in his influential book *The General Theory of Employment Interest and Money* to capture the idea that aggregate economic activity might be driven in part by waves of optimism or pessimism. Recently, some famous economists like Robert Shiller have argued that animal spirits are the main reason for why we currently find ourselves in this crisis.

**Moderator:** *Kris, given that house prices did begin falling, setting off a domino effect of foreclosure, do you think this outcome was foreseeable when the events were just building, or was the outcome we are experiencing unavoidable given the dynamics of the marketplace and the limitations of forecasting tools?*

**Gerardi:** That's a great question, and I think once it was clear that house prices were not going to appreciate at the high rates they did in the previous decade, and the probability of a significant decline in house prices increased, an analyst trying to forecast the market at the time should have foreseen the huge increase in mortgage defaults and foreclosures that has occurred. One of the things that we find in the paper is that the valuation models that were used in the industry to predict prepayment and default would have predicted the foreclosure crisis to a large extent if they had been fed in the large declines in house price appreciation that subsequently transpired.

Now, one thing that nobody could have really predicted, in my opinion, is the extent to which problems in the U.S. mortgage market overflowed into other areas of the financial system, in both this country as well as around the world.

**Moderator:** *Well, experience is a great teacher; what do you think the marketplace and its analysts have learned from the foreclosure crisis?*

**Gerardi:** Well, I hope that we can learn some lessons from this latest crisis and use them to improve the way the mortgage market functions going forward. A few decades ago the U.S. mortgage market went through a significant crisis, and here I'm talking about the savings and loan crisis that largely resulted from extreme interest rate and inflation volatility, coupled with a poor regulatory framework. A lot of innovation came out of that crisis, including an expansion of the mortgage menu and the integration of capital markets and mortgage markets through the process of securitization. The result is that today the mortgage market has become very efficient at dealing with interest rate and inflation risk. Now, I hope that we see a similar amount of innovation going forward from this crisis so that in the future the mortgage market can become slightly more adept at dealing with house price risk.

**Moderator:** *Thank you, Kris. Again, we've been speaking today with Kris Gerardi, an economist at the Atlanta Fed. This concludes our* Financial Update Focus *podcast on home foreclosures. For more information, please see the first quarter 2009 edition of* Financial Update. *On our Web site, frbatlanta.org, you can read Kris's working papers about this topic. Thanks for listening, and please return for more podcasts. If you have comments, please send us e-mail at [podcast@frbatlanta.org](mailto:podcast@frbatlanta.org).*