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# Moral Hazard and Mispriced Systemic Risk in the Lead-Up to the 2007 Subprime Mortgage Crisis in the United States

## Abstract

The 2007 subprime crisis was caused by high demand for subprime mortgage products underpinned by the unrealistic assumption that property prices would keep rising indefinitely. The subprime mortgage market worked as expected as long as prices were rising and demand for property was high. When these two conditions were violated and the housing bubble collapsed, the system became dysfunctional, many subprime borrowers defaulted, and mortgage-backed securities lost much of their value. Prevention could have been achieved through regulatory measures to shift the risk back from taxpayers and investors to loan originators. Fair distribution of risk should be the main objective of regulators if such crises are to be avoided in the future.

## Keywords

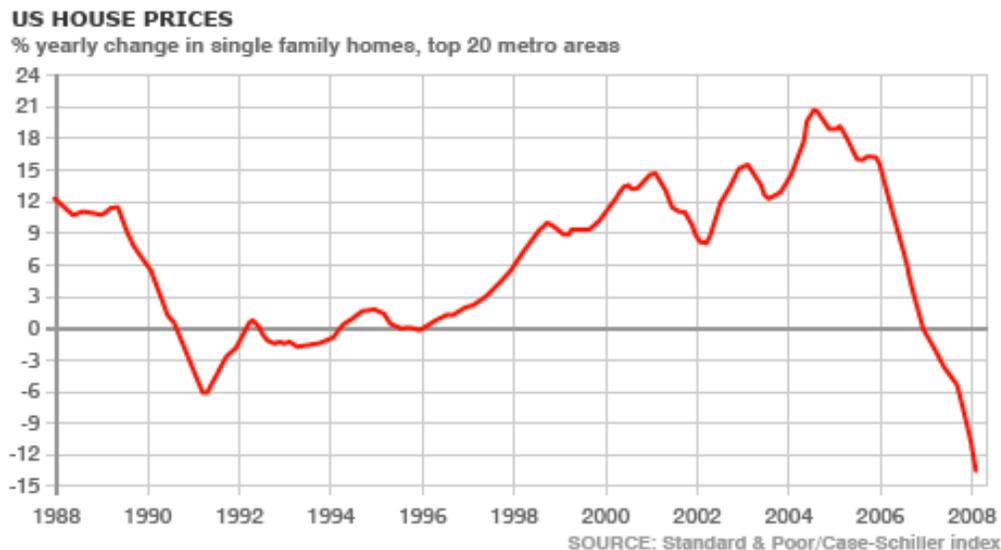
moral hazard, subprime mortgage crisis, risk management, financial crisis, great recession, systematic risk

## Cover Page Footnote

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The US subprime mortgage crisis of 2007 was the trigger of the global recession of the late 2000s. The interdependence of the housing market and the financial system proved complex and unpredictable; the shockwaves originating from the 2006 low point in the housing cycle could not be absorbed properly, spilling over to investment banking, eroding the confidence of investors and consumers, drying up credit flows, and causing a global financial panic. Different explanations have been proposed: deregulation of banking and finance after 1980, government housing policy, and the lower interest rates introduced by the Federal Reserve after 2001. However, the Great Recession would not have happened without the subprime mortgage crisis of 2007. The collapse in subprime lending arose from a type of information asymmetry known as moral hazard. Paul Krugman (2009: 34) defines moral hazard as “any situation in which one person makes the decision about how much risk to take, while someone else bears the cost if things go badly.” Short-sightedness and overconfidence, termed “irrational exuberance” by Alan Greenspan, Chairman of the Federal Reserve in the 1990s, formed the attitudes that eroded the stability of mortgage lending. The main drawback of subprime mortgage lending and the financial system was not that they were dysfunctional, but that they were constructed on the wrong assumption that risk was being distributed and dispersed. This assumption created a “pass the parcel” situation and led to a paradox under which insuring against risk increased the probability of the undesirable outcome.

The demand-side reasons for the subprime mortgage crisis stemmed from reckless mortgage lending to subprime borrowers, a response to high demand by prospective homeowners with problematic creditworthiness, who were either unaware of the risks they were taking or felt confident that rising property prices would protect them from loss. High demand for mortgage products was caused by the favourable economic climate of the late 1990s and the early 2000s. According to Blanchard (2013: 24), under the Clinton and Bush administrations, a steady growth rate and budget surplus were achieved. According to Davies (2010: 22), gross domestic product growth averaged 3.8% per annum for the years 1993-2001. The stable, low-interest rate environment brought about a two-decade period of steady real estate price growth. The following diagram captures the change in nominal house prices in the twenty biggest metropolitan areas in the United States from 1992 to 2008, based on a compilation of the Case-Shiller home price index by the rating agency Standard & Poor's:



Growth rates were positive for all years between 1992 and 2007, and reached an impressive 15% in 2001 and 21% in 2005. This unprecedented sustained growth in property prices was cause for much “irrational exuberance” among home owners, property investors and mortgage lenders. In a study conducted in San Francisco in 2005, Shiller (2008: 45) discovered that the mean expected increase in price among homebuyers over the next ten years was 14% a year, a very optimistic outlook not supported by most long-term trends. Subprime mortgages, which had existed since the mid-1990s but became more prevalent in the 2000s, allowed people who might have difficulties repaying their loans or troubled credit histories to get mortgages and purchase properties. In theory, the risk should have been minimised by higher, adjustable interest rates on subprime loans. Shiller (2008: 70) explains that subprime borrowers were motivated by the increase in property prices, whose longevity seemed like a promise for further growth in the long run. According to Blanchard (2013: 205), the fact that real estate prices had not been affected by the 2000-2001 recession also provided a sense of security to both borrowers and lenders.

In terms of moral hazard, subprime borrowers believed that rising prices guaranteed that they could always sell their property, pay back the mortgage loan and still have positive returns since the value of the mortgage would have decreased over time relative to the value of the house. According to Buckley (211: 87), who quotes statistics from a Federal Reserve Board report on US domestic loans, subprime lending increased at a rate of 25% a year over that period, which made subprime mortgages by far the fastest-growing mortgage product. Moreover, as Mian and Sufi (2009: 3) point out, the expansion of mortgage credit in primarily subprime-borrower neighbourhoods in the United States occurred

despite a strong decline in real, and sometimes absolute, incomes from 2002 to 2005. All of this evidence suggests that high demand for subprime mortgages exposed the market to the risks of moral hazard. High demand occurred because of positive macroeconomic tendencies but despite negative microeconomic realities. According to Stockhammer (2011: 236), this model was not sustainable in the long run: When its ability to maintain further price increase came to an end in 2006, prices plummeted, making many subprime mortgages impossible to repay.

Another important and often overlooked driver of subprime mortgage expansion, in the argument of Lybeck (2011: 112), was the growth of information technology, which made it easier for lenders and borrowers to connect and allowed lenders to reach a larger pool of prospective clients. Two-thirds of all mortgages in the United States from 2003 to 2007 were lent on the internet. Lybeck (2008: 113) also claims that demand for subprime mortgages was combined with information asymmetries because some lenders withheld or misrepresented the drawbacks of mortgage loans and created the impression that rising prices would be sufficient to repay any loan. The asymmetry was exacerbated when mortgages were repackaged into securities and sold to investors in a moral hazard attempt to shift subprime risk to agents who could never know the whole truth about subprime borrowers. The behavior of lending companies fueled the rise in demand: According to Mian and Sufi's (2009: 1450) study of mortgage lending by postal code, areas that experienced the largest increase in credit demand also had the lowest loan denial rates, and lenders tended to assign less importance to lenders' loan-to-income ratios in those regions than in other, less credit-dependent ones. Haughwout and Mayer (2009: 36) show that subprime loans were less expensive in areas with greater past house appreciation, reflecting the expectation of lenders that rising prices will minimise risk. Thus, by lowering the threshold for getting a mortgage and by making use of information technology, lenders inflated demand for mortgages. This was an example of moral hazard because borrowers believed the risk from taking a subprime loan would be minimised by rising real estate prices.

The supply-side reasons for the subprime mortgage crisis complemented the demand-side ones and made it possible for moral-hazard thinking to inflate a housing bubble from the early-2000s onwards. Demand-side moral hazard can be divided into three risk evaluation subcategories: that of mortgage lenders, of investors, and of the US government. According to Shiller (2008: 51), mortgage lenders, aware of the risks of subprime lending but with apparent firm belief in the longevity of the growing bubble, stimulated demand for loans by introducing new mortgage products after 2000. These were loans with adjustable interest rates, no strict requirements for accompanying documentation, and loan-to-value ratios of

115-120%. Davies (2010: 36) claims that rising prices seemingly meant that such lending practices would be profitable because even if the borrower defaulted on their loan, which they were likely to do, the lender could foreclose the property and sell it for a profit. In other words, a situation of moral hazard was created as lenders were supposedly protected against risk of default by rising prices. Demyanyk and Van Hemert (2011: 1850) claim that lower interest rates after the collapse of the 2001 dot-com bubble meant that lenders could use cheap leverage to fund their lending activities, which prompted them to explore riskier niches of the mortgage market.

The risk borne by lenders was seemingly lowered even more by securitising mortgages and selling them to other investors and financial institutions (Purnanandam, 2011: 1881). Demand for asset-backed securities (ABS) on the secondary mortgage market incentivised mortgage lenders to sell large amounts of subprime products to property buyers and then repackage them into securitised financial instruments. According to Jacobs (2009: 21) these instruments were attractive to investors because they were rooted in the housing market, which was seen as a secure part of the economy unaffected by the 2001 recession, and because they pooled thousands of loans from different parts of the country, thereby dispersing risk. In addition, investors could borrow money at the low Federal Reserve rate and then use leverage to buy mortgage-backed securities (MBS). Repackaging MBS into collateralized debt obligations (CDOs) and selling them to other investors, most often pension and sovereign funds and foreign banks, was used to reduce risk even further. According to Stanton and Wallace (2011: 3276) rating agencies persisted in giving consistently high ratings to mortgage securities because they believed that price growth would continue. According to Shiller (2008: 50), even if they had theoretical doubts about giving high ratings, there was no evidence from the market to substantiate these doubts. There has been criticism regarding a possible conflict of interests in the rating process as rating agencies were paid fees by MBS originators; competition between agencies would naturally result in higher ratings as they would be willing to attract clients by recommending their products (Stanton and Wallace, 2011: 3273). As investors thought they were dissipating and distributing risk by buying and selling MBS products, they created moral hazard, which made the subprime financial markets dangerously interdependent and vulnerable.

Government policy aimed at helping lower-income people to buy a home of their own has also been blamed as one of the supply-side causes of the subprime crisis. According to An and Bostic (2009: 360), the Community Reinvestment Act of 1997 paved the way for the expansion of subprime lending. The Act compels banks to make loans to low-income borrowers and advises them to take into account other criteria, such as the belonging of potential borrowers to

a “community of colour” alongside purely economic criteria. In addition, An and Bostic (2009: 340) claim that government-supported mortgage institutions Freddie Mac and Fannie Mae backed subprime lending to correct inequalities in the mortgage market (Haughwout and Mayer, 2009: 33). The requirement of the 1977 Act required “regulated financial institutions...to help meet the credit needs of the local communities in which they are chartered.” According to Davies (2010: 104), from 1995 onwards Fannie Mae and Freddie Mac received tax incentives to buy MBS, and in 1996 they were required to ensure that at least 42% of the mortgages they bought were made to low-income borrowers. By the summer of 2008, Fannie Mae had bought \$553 billion worth of subprime mortgages, and the same was roughly true of Freddie Mac.

Despite warnings from the Federal Reserve chairman Greenspan that the leverage ratio of debt to MBS should be limited in the two companies, no substantial measures were taken, suggesting that political aims of equality in the housing market prevailed (Ferrari-Filho, 2011: 216). Just like lenders, rating agencies, and financial institutions, the US government believed that the upward real estate price trend will continue unabated for years to come, under which conditions subprime lending functioned well and the risk of borrowers defaulting was distributed around the financial system (Davidson, 2008: 669). When that assumption was no longer true, however, Fannie Mae and Freddie Mac ended up with worthless MBS which had been bought on leverage for trillions of dollars; this required their bailout by the US Treasury. However, as Brancaccio and Fontana (2011: 59) point out, there is little evidence to suggest that monetary policy played a main role in the formation of the housing bubble.

Despite all of these reasons, however, the subprime crisis would never have happened if the housing bubble had not burst in 2006, sending shocks over the entire US economy due to the complex and poorly understood connections between housing and finance. This fall could not have been predicted, but it was the natural final stage of the property cycle which started in the early 1990s (Roll, 2011: 12). No regulator, rating agency, or financial firm could have known that critical mass would be reached in 2006, but their belief that this moment will come after many years was another example of moral hazard. The example of the dot-com bubble and its collapse in 2001 was not linked by analysts to the housing market due to a belief in its stability *per se*: Shiller (2008: 69) describes this as the idea that because population and the economy are growing on limited land resources, the price of real estate must inevitably keep rising through time. While this is broadly true in the long run, it does not prevent the formation of bubbles and their subsequent crash in the short and medium run, as was the case with the subprime mortgage crisis. Shiller (2008: 70) explains that it is not realistic to expect gross domestic product growth to be proportional to the increase in house

prices, or that macroeconomic tendencies should inextricably be linked to real estate prices. According to Caggiano, Franzen and Howell (2008: 626), critical mass was reached in 2006 due to a number of factors, one of which was the oversupply of housing driven by expanding demand, which was boosted by the stable macroeconomic environment and cheap credit. According to Stockhammer (2011: 236), by mid-2006 demand had outstripped supply, and some more knowledgeable buyers realized that prices had become excessive and hurried to sell their properties. This caused a fall in prices, which led to a rising number of defaults of subprime borrowers from the middle of 2006 onwards.

Although the underlying economic dynamics were not under the control of regulators or agents on the primary and secondary mortgage markets, a compelling argument can be made that regulation should and could have been improved to limit the moral hazard game of “pass the parcel.” According to Davies (2010: 35), mortgage lenders and MBS investors routinely operated with too little capital and high leverage ratios. This caused a liquidity squeeze when the subprime defaults began, and foreclosures could not restore the level of liquidity necessary to offset losses. Therefore, new capital regulations are needed to ensure that financial institutions operate with smaller debt-to-assets ratios to ensure their robustness if the value of their assets diminishes, as happened during the subprime mortgage crisis. Moral hazard can be minimised through regulation by shifting the responsibility to bail out suffering financial institutions from taxpayers to the institutions themselves. According to Krugman (2009: 76), firms should be allowed to fail in a lawful manner without help from the government. The end of the “too big to fail” attitude will prevent investors and mortgage lenders from sharing responsibility with taxpayers and thus reduce moral hazard. Lybeck (2011: 97) suggests that if a large financial institutions with great relative importance for economic health runs into trouble, it should be bailed out, but with funds from a rescue pool to which all financial institutions will be expected to contribute. This move will decrease moral hazard, but will not completely remove it since financial behemoths engaging in risky behaviour will still be guaranteed a form of relief. Timothy Geithner, as quoted by Lybeck (2011:105), argued that this solution, while keeping moral hazard in place, would exclude taxpayers from sharing the responsibility, which is democratically fair. According to An and Bostic (2009: 364), unlimited government support for subprime lending should radically be scaled back, and Fannie Mae and Freddie Mac should hold the mortgages they underline to much more anxious scrutiny. The collapse of the bubble from mid-2006 onwards was certainly one of the most important reasons for the crisis and could not have been prevented. What could have been prevented was the moral hazard infection which created a false sense of security for everyone in the mortgage market. The issue of “irrational exuberance” was one of unfounded belief in the stability of the property markets shared by homebuyers,

lenders, investors, rating agencies, and regulators.

The subprime crisis was caused by high demand for subprime mortgage products underpinned by the unrealistic assumption that property prices would keep rising indefinitely. The subprime mortgage market worked well as long as prices were rising and demand for property was high. When these two conditions were violated and the housing bubble collapsed, the system became dysfunctional, many subprime borrowers defaulted, and mortgage-backed securities lost much of their value. The crisis would never have occurred without the price slump, but the bubble would not have inflated if subprime lenders had not been allowed to engage in moral hazard behavior. Prevention could have been achieved through regulatory measures which shifted the risk back from taxpayers and investors to loan originators. The subprime mortgage crisis was caused by misplaced confidence, a product of moral hazard which could have been avoided if homebuyers, mortgage lenders and investors had borne more of the risk they created. Fair distribution of risk should be the main objective of regulators if such crises are to be avoided in the future.

### References

- An, Xudong, and Raphael W. Bostic. 'Policy Incentives And The Extension Of Mortgage Credit: Increasing Market Discipline For Subprime Lending'. *Journal of Policy Analysis and Management* 28.3 (2009): 340-365. Web.
- Arestis, Philip et al. *The Financial Crisis*. Houndmills, Basingstoke: Palgrave Macmillan, 2011. Print.
- Bailey, Nikitra. 'Predatory Lending: The New Face Of Economic Injustice'. *Human Rights* 32.3 (2005): 14-16. Print.
- Blanchard, Olivier, and David R Johnson. *Macroeconomics*. 6th ed. New York: Pearson Education Limited. Print.
- Caggiano, Julie, Therese Franzen, and Leslie Howell. 'Subprime Mortgage And Predatory Lending Law Developments'. *The Business Lawyer* 63 (2008): 625-638. Print.
- Davidson, Paul. 'Is The Current Financial Distress Caused By The Subprime Mortgage Crisis A Minsky Moment? Or Is It The Result Of Attempting To Securitize Illiquid Noncommercial Mortgage Loans?'. *Journal of Post Keynesian Economics* 30.4 (2008): 669-676. Web.
- Davies, H. *The Financial Crisis*. Cambridge, UK: Polity Press, 2010. Print.
- Demyanyk, Y., and O. Van Hemert. 'Understanding The Subprime Mortgage Crisis'. *Review of Financial Studies* 24.6 (2009): 1848-1880. Web.
- Haughwout, Andrew F., Christopher J. Mayer, and Joseph S. Tracy. 'Subprime Mortgage Pricing: The Impact Of Race, Ethnicity, And Gender On The Cost Of Borrowing'. *Brookings-Wharton Papers on Urban Affairs* (2009): 33-63. Web.
- Jacobs, Bruce I. 'Tumbling Tower Of Babel: Subprime Securitization And The Credit Crisis'. *Financial Analysts Journal* 65.2 (2009): 17-30. Web.

- Krugman, Paul (2009). *The Return of Depression Economics and the Crisis of 2008*. W.W. Norton Company Limited. Print.
- Lybeck, Johan A. *A Global History Of The Financial Crash Of 2007-2010*. Cambridge, UK: Cambridge University Press, 2011. Print.
- Mian, Atif R., and Amir Sufi. 'The Consequences Of Mortgage Credit Expansion: Evidence From The U.S. Mortgage Default Crisis'. *The Quarterly Journal of Economics* 124.4 (2009): 1449-1496. Print.
- Purnanandam, A. 'Originate-To-Distribute Model And The Subprime Mortgage Crisis'. *Review of Financial Studies* 24.6 (2011): 1881-1915. Web.
- Roll, Richard. 'The Possible Misdiagnosis Of A Crisis'. *Financial Analysts Journal* 67.2 (2011): 12-17. Web.
- S&P Dow Jones Indices,. 'S&P/Case-Shiller 20-City Composite Home Price Index - S&P Dow Jones Indices'. N.p., 2015. Web. 7 Apr. 2015.
- Shiller, Robert J. *The Subprime Solution*. Princeton, N.J.: Princeton University Press, 2008. Print.
- Stanton, R., and N. Wallace. 'The Bear's Lair: Index Credit Default Swaps And The Subprime Mortgage Crisis'. *Review of Financial Studies* 24.10 (2011): 3250-3280. Web.