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HOUSING AND THE FINANCIAL CRISIS

Edited by Edward L. Glaeser and Todd Sinai





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Preface

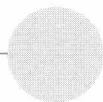
This volume includes eight papers that were prepared as part of a research project, “Housing and the Financial Crisis,” by the National Bureau of Economic Research. The papers examine various aspects of the housing convulsion and its aftermath: describing what happened to prices and construction during and after the housing boom across and within US metropolitan areas; considering the role of credit, capital flows, and other factors as precipitating causes of the housing boom and bust; and evaluating the role of government-sponsored enterprises in the housing market. These papers were presented at a conference in Cambridge, Massachusetts, on November 17–18, 2011.

We are grateful to the Smith Richardson Foundation for its financial support of the project, which also encompassed a conference, “Behavioral Finance and Housing Bubbles,” organized by Christopher Mayer and held on April 14, 2012, at the University of Chicago, and a conference, “Housing in the Aftermath of the Financial Crisis,” organized by Joseph Gyourko and held in Cambridge, Massachusetts, on July 24–25, 2012. We would also like to thank Carl Beck, Helena Fitz-Patrick, Denis Healy, Lita Kimble, Brett Maranjian, and Alterra Milone for their efforts on behalf of this volume and its associated conferences, and James Poterba for providing the impetus for this endeavor.

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Postmortem for a Housing Crash

Edward L. Glaeser and Todd Sinai

Introduction

The remarkable boom and bust of America's housing markets during the first decade of the twenty-first century now joins the stock market gyrations of the 1920s and the dot-com bubble of the late 1990s in the pantheon of great asset market swings. The twenty-city Case-Shiller repeat sales housing price index rose 70 percent in real terms between April 2001 and April 2006, the peak of the market. By November 2011, the index had declined by 40 percent from the peak, leaving housing prices approximately where they were at the start of 2000.

This great housing market crash did as much damage to the received wisdom about housing markets and housing policy as it did to the portfolios of households and financial institutions. Traditional economic models, with their assumptions of hyper-rational consumers with sensible assessments of future price movements, seem difficult to reconcile with price swings in markets like Las Vegas, where real housing prices rose by 71 percent in the thirty-six months before April 2006, only to fall by 65 percent in subsequent years. The unincorporated area outside Las Vegas has abundant land and little land market regulation, so how could buyers really believe that prices could stay so far above the costs of producing homes?

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The great housing convulsion destroyed the view that housing prices would always remain close to construction costs in unregulated markets (Glaeser, Gyourko, and Saiz 2008) and that price movements could be completely explained by changes in interest rates (Poterba 1984). Perhaps, most obviously, the crash banished the old myth that housing prices could only go up. Millions of underwater homeowners make it abundantly clear that houses are no different from any other asset in their ability to climb and crash.

Just as the crash changed our understanding of housing markets, it changed views about housing policy. While there were certainly economists who questioned the wisdom of pro-borrowing policies like the Home Mortgage Interest Deduction and the implicit subsidies enjoyed by Fannie Mae (the Federal National Mortgage Association) and Freddie Mac (the Federal Home Loan Mortgage Corporation), these policies were widely popular among politicians and voters of both parties. Subsidized mortgages were perceived not only as a tool to encourage the alleged social benefits of home ownership, but also as a path toward financial stability for ordinary Americans. Fannie Mae and Freddie Mac were supposed to be self-sufficient entities that created little risk for taxpayers.

The costs to taxpayers of bailing out these entities has been estimated at near \$200 billion, and millions of foreclosures call into question the wisdom of using subsidized borrowing to encourage asset accumulation. But there remains considerable uncertainty about what housing policy should do now, when housing markets remain weak, and in the future. A more libertarian view argues for less public intervention in housing markets. An alternative viewpoint argues for more action, at least as long as prices and construction remain low, to bolster housing markets, and hopefully thus the larger economy.

This essay is an introduction to a volume meant to make sense of the housing convulsion and its aftermath. We organized this essay, and to a lesser extent the chapters in the volume, around three broad questions. First, we focus on description. What actually happened to prices and construction during and after the housing boom? America is not one housing market, and the boom hardly hit every market equally. Even among the Case-Shiller metropolitan areas, which represent an unrepresentatively volatile set of America's cities, there were places that experienced little price movement during the boom. Between April 2000 and April 2006, real prices in the Dallas area increased by less than 2 percent.

Three of the chapters in the volume address the core facts of the boom and bust. The first one, by Todd Sinai, presents a far-ranging look at price movements at the metropolitan area level, and presents six stylized facts about housing prices movements throughout the United States. The second chapter, by Andrew Haughwout, Richard W. Peach, John Sporn, and Joseph Tracy, focuses on the supply side of the market. They document key facts

about building and land prices during the boom, document the changing industrial structure of the building industry, and investigate the role that the supply side of the market played in determining the nature of the boom and bust.

The third chapter, by David Genesove and Lu Han, examines both prices and permitting behavior, but focuses within, rather than across, metropolitan areas. Their work illustrates that even within a single metropolitan area, some neighborhoods experienced significantly more appreciation than others. They document that the boom seems to have particularly increased prices in areas with relatively short commute times, and that the gradients of prices with respect to commuting time seems to have flattened during the bust. These facts can be interpreted as supporting the view that the boom was associated with temporarily high valuations of genuine neighborhood assets, like proximity to jobs.

The second section of this introduction focuses on the causes of the boom, and inevitably changes in credit conditions play a dominant role in the search for causes. There are, of course, alternate explanations for the boom, and we discuss some of them in this introduction. Case and Shiller have persistently argued for the importance of unrealistic expectations about future house price appreciation and, in hindsight, the assumptions of many buyers during the boom appear to have been wildly mistaken. But there are at least three reasons why irrational expectations-based explanations have garnered less attention from housing economists than credit market-based explanations.

First, it is hard to think of erroneous expectations as being an exogenous variable, appearing out of nowhere and fueling housing price growth. If we think of price growth assessments as reflecting some deeper cause, then that pushes toward understanding the deeper causes rather than the mediating force of expectations. Second, there is no clear explanation of why irrational exuberance would show up so demonstrably in some markets, like Phoenix, and not in others, like Dallas. Finally, economics has a long and valuable tradition of attempting to exhaust rational explanations for market phenomena rather than embracing human error. The focus on the rational provides discipline for economic theorizing, even if it misses important components of human behavior.

Most non-credit-related “rational” explanations of the housing boom are relatively easy to disprove. For example, traditional theories would suggest that rising incomes could increase demand for housing and explain a price increase, but incomes were not rising nearly fast enough during the 2000 to 2006 period to explain the boom. Supply limitations may explain some of the variation in prices across America’s metropolitan areas, but it is hard to imagine that supply conditions were changing quickly enough during the few years of the current millennium to explain a massive housing price increase.

Conversely, real interest rates were falling during much of the 2000 to 2006

period, and conventional models suggested that this decline might even be enough to explain a large portion of rising housing prices in many metropolitan housing markets (Mayer, Himmelberg, and Sinai 2005). In addition, there seems to have been a proliferation of easy credit during this time period, epitomized by the rise in subprime lending, that may have increased the number of people who had access to the credit needed to buy housing. As such, it is at least possible that easy credit explains a significant amount of the housing boom.

Supporters of the credit market theory note that the boom coincided with a period of time when risk spreads were extremely low by historical standards. In 2006, many lenders appear to have believed that both home buyers and the Greek government had almost no chance of defaulting. It is less clear whether this coincidence reflects a causal chain that runs from credit availability to high housing prices, or whether it reflects an overall climate of extreme optimism that simultaneously impacted home buyers, mortgage lenders and the buyers of Greek debt. Chapter 4, by Keys, Piskorski, Seru, and Vig, details the evolution of mortgage financing during the boom. They document the tremendous increase in subprime and “Alt-A” lending, and present evidence suggesting that increased securitization decreased lending standards. They document that securitization becomes more common for borrowers with FICO scores above 620, and that defaults rise, rather than fall, for borrowers with FICO scores that put them above this quantity.

The chapter by Donghoon Lee, Christopher Mayer, and Joseph Tracy (chapter 5) focuses on the rise of second liens during the boom. These second liens often made it possible for borrowers to get mortgages with essentially no money down. During the bust, these second liens create a conflict of interest between mortgage servicers who own second liens and owners of first liens. The servicers presumably have an interest to encourage payment on the second lien, even if the borrower is not servicing the first lien.

Chapter 6, by Favilukis, Kohn, Ludwigson, and Van Nieuwerburgh, then elegantly exposit the view that easy credit caused the run-up in housing prices. In their model, easy credit comes from a savings glut outside the United States. They parameterize a model and show that given their assumptions, the decrease in lending standards could have caused the price run-up. They also present some evidence linking price growth and bank loan officers’ reports of their willingness to supply credit.

Chapter 7 by Glaeser, Gottlieb, and Gyourko offers an alternative take on the credit market hypothesis. They argue that there are several reasons why a conventional user cost model of housing will overstate the predicted link between credit conditions and housing prices, including elastic supply and mean reversion of interest rates. They then argue that the more modest link, predicted by a perhaps more realistic model, is supported by the long-run data and that this modest link implies that easier credit cannot explain more than a fraction of the boom in housing price and that tighter credit can similarly explain little of the bust.

The final section of this chapter and the final chapter in this volume focuses on the future of housing policy. In this introduction we discuss briefly a broader range of public policy considerations around housing, including the Federal Housing Administration, and the Home Mortgage Interest Deduction. Chapter 8, by Dwight Jaffee and John Quigley, specifically focuses on the Government-Sponsored Enterprises (or GSEs), Fannie Mae and Freddie Mac. Jaffee and Quigley describe the history of the GSEs and their repeated crises. Their analysis suggests that the GSEs received an implicit government subsidy, and much of the benefit of that subsidy went to GSE shareholders. Moreover, even if the GSEs are not themselves responsible for the boom and bust, they seem to have done relatively little to steady the market.

The chapter then discusses broader options for the future of the GSEs and in particular the possibility of shrinking their role enormously. The authors' evidence calls into question the view that the GSEs are absolutely vital for the functioning of housing markets. It is certainly quite possible that the cost of these enterprises, at least in their current form, significantly exceeds their benefits.

The great housing convulsion is a major event for housing research—an event so significantly large that it could even herald a paradigm shift within the field. The essays in this volume attempt to collect what we know about the nature and causes of the boom. Our hope is that this provides a starting point for future major advances in housing research.

The Anatomy of the Boom and Bust

The nationwide contours of the housing market boom and subsequent bust are well known. The Case-Shiller price index may not be nationally representative, but it does capture the basic shape of events nationwide. After six long years of nominal price stagnation and real price declines from 1991 to 1997, prices began to rise again. During all but one of the first five years of the most recent decade, the twenty-city price index increased by 10 percent or more; the exception year was 2001 when, despite deep economic troubles, nominal prices still managed to increase by over 7 percent.

The Case-Shiller increase somewhat overstates the national boom because it overrepresents America's more volatile housing markets. Except for late 2004 and 2005, nominal annual price growth in the Federal Housing Finance Agency's index, which represents a far wider range of metropolitan areas, does not top 10 percent. Yet while that index typically shows annual growth rates of 6 to 7 percent, it still shows the same basic pattern of a rapid increase in price growth around the end of 2007, followed by a sustained period of robust price increases that lasts until 2006, and steady price declines since that date.

This national pattern provides one depiction of the past decade, but it is an incomplete story. The first three chapters in this volume enrich the

national picture first by providing subnational data (chapter 1), data on housing supply (chapter 2), and intra-metropolitan information (chapter 3). The variation within the United States is important, not just in detailing the larger picture, but providing data with which we can test various explanations of the boom and bust.

Figure I.1 shows the relationship between changes in the Federal Housing Finance Agency (FHFA) Price index between 2001 and 2006, divided by the 2001 index level, and changes in the price index between 2006 and 2011, also dividing by the 2001 index level. We adjust for changes in the nationwide consumer price index. We deflate by the 2001 index level for both periods so that the changes are in comparable units.

The figure illustrates that the growth in prices, from trough to peak, was highly variable. Some cities, like Las Vegas, experienced extraordinary swings, while others, like Houston, were far more stable. Chapter 1 also emphasizes that the distribution of price growth has a very fat tail. The average market experienced real price growth of about 55 percent, but 57 percent of markets experienced price growth, trough-to-peak, below that amount. When Sinai weights by the number of housing units in the market in 1990, the price distribution becomes even more skewed, as some of the largest markets experienced particularly robust growth, which is one reason why the Case-Shiller price index, which is skewed toward larger markets, finds larger average growth than the FHFA index.

The ephemeral nature of the boom is also illustrated by the robust correlation between the sizes of the boom and bust. The slope of the line in the figure is -0.95 , so that if an area saw its prices rise by 50 percent between 2001 and 2006, that area's house prices were, on average, up only 2.5 percent over the entire decade. Such mean reversion is not uncommon in housing and other asset markets (Cutler, Poterba, and Summers 1991), but typically it is far milder than the figure suggests. Glaeser et al. (2011), for example, estimate a -0.32 coefficient for five-year changes on lagged figure year changes over a longer time period, which is about one-third of the coefficient shown in the picture.¹ The extraordinary magnitude of mean reversion in the 2001 to 2011 period suggests that the last boom was unrelated to enduring economic fundamentals.

That heterogeneity is itself an important fact about the boom, in part because it relates to different theories about the boom's cause. If this enormous heterogeneity is to be compatible with a common national shock to housing demand, caused perhaps by a common national shock to credit conditions, then there must be extremely large differences in housing supply, as suggested by Glaeser, Gyourko, and Saiz (2008). Alternatively, this heterogeneity might mean that a common national factor, like easier credit,

1. These results are not exactly comparable since they also control for year and area fixed effects, but even without those the estimated mean reversion levels are far smaller.



Fig. I.1 Percent house price growth (2001–2006) versus percent house price declines (2006–2011) by housing market

Note: House price growth calculated from the Federal Housing Finance Agency's House Price Index.

had different impact in different areas depending on local factors, such as the number of borrowers that were previously unable to access credit, as in Mian and Sufi (2009). A final explanation is that the booms were fueled by location-specific factors, perhaps including unrealistic expectations about local long-run trends that were not driven by any common national shock.

One clue offered by the heterogeneous price changes is that the places that boomed in the 2000s also boomed during the previous run-up in housing prices during the late 1980s. While the magnitude of the more recent price rise is far larger, there is a strong correlation between boom markets across the two episodes. This fact is compatible with the view that housing supply elasticity, which is presumably relatively constant over time, helps explain the cross-area heterogeneity. It is only compatible with the hypothesis that emphasizes a common national shock interacting with different local conditions, if indeed it was essentially the same national shock that operates during both periods, such as easier credit. If the boom was the result of lots of little local shocks, then there would have to be some reason why those shocks were so similar in the 2000s and the 1980s.

The cross-area heterogeneity is also helpful in testing the hypothesis that changes in underlying fundamentals can explain the boom. The Sinai essay addresses fundamentals both by controlling for rents and by controlling

for underlying economic variables such as local income levels. Neither of these variables can explain much of the variation in prices over the boom, which pushes us toward theories that reflect the cost of capital or expectations about housing price appreciation—both of which should impact the price-to-rent ratio—and away from theories that emphasize changes in the fundamental demand for housing in particular areas.

A final interesting geographic fact is that the price growth was disproportionately present in coastal metropolitan areas. While there were some inland areas, such as Las Vegas, that experienced extreme price movements, overall, the interior of the country was far more stable. The coastal areas typically have more restrictions on housing supply, and more robust local economies that have shown remarkable resilience over many decades. The geographic clustering also reminds us that at least geographically proximate markets do seem to be somewhat linked, as documented by Sinai and Souleles (2005).

The Genesove and Han chapter focuses within metropolitan areas. During the latest boom, there was more price growth in the center of metropolitan areas, although that was not the case during the 1980s (Glaeser and Gottlieb 2012). The Genesove and Han chapter documents that the prices declined more sharply with commuting time during the boom than after it, which also suggests that prices rose more sharply close to employment centers.

Genesove and Han suggest a supply-side story for explaining this effect. Areas that are further away from employment centers effectively have more land in which to deliver housing. That extra supply can mute the price impact of demand increases. An alternative view suggests that price growth during the boom was associated with overly optimistic assessments of the value of urban assets, including access to core employment sectors. If these assets were temporarily overvalued during the boom, then we should expect to see more of a price decline in these areas during the bust.

While the examples of Phoenix and Las Vegas during the boom showed that extreme price growth was still possible in areas with apparently elastic supply, supply is still important both in shaping price growth and in determining the long-term real consequences of the boom. After all, the supply elasticity determines the extent to which a temporary price boom translates into real investment in housing and commercial real estate throughout the country. Understanding the magnitude of oversupply during the boom is also important if we are to estimate how long it will take for the American construction industry to resume more normal building levels.

Chapter 2 begins by putting the housing boom of the last decade into a broader historical perspective. Measured by housing starts per capita, the construction boom never reached the heights hit in the 1960s, 1970s, and 1980s. However, while those booms had a relatively short duration, and were followed by short, sharp downturns, the more recent building boom

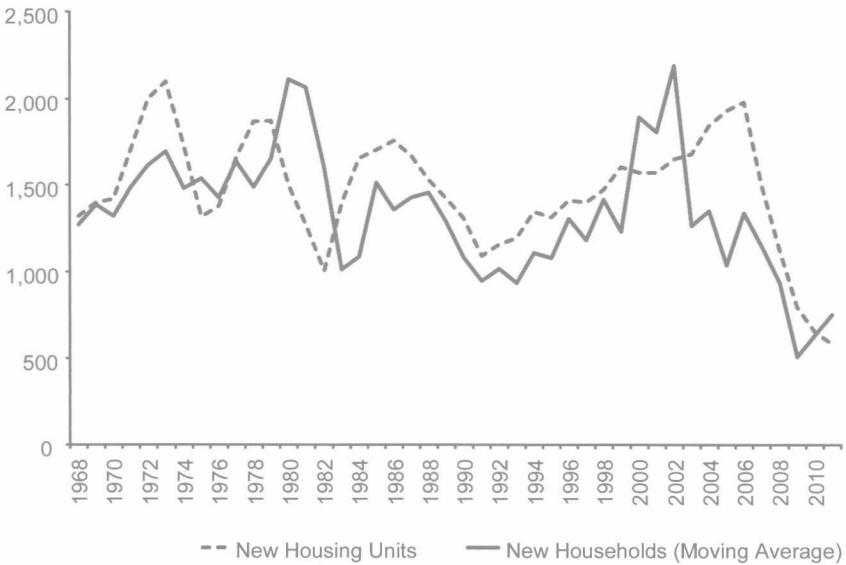


Fig. I.2 Number of new housing units and number of new households, 1968–2011

Notes: Numbers in thousands. “New Households” is an average of the current year, the previous year, and the next year.

lasted for almost fifteen years. The construction bust after that boom has been more extreme than during the earlier upturns, perhaps because this boom lasted for so many years. As a share of gross domestic product, the recent building boom was fully as big as in earlier years, which reflects higher building costs and the larger structures that have become more prevalent. Moreover, the recent boom was almost all driven by increases in single-family, not multifamily, construction.

The amount of building needs to be related to the rate of household formation. Figure I.2 shows the long-run paths of household formation and changes in the number of new housing units in the United States. During the earlier booms, increases in building were matched with increases in the numbers of new households. During the more recent boom, construction occurred without any similar increase in number of households.

Haughwout et al. emphasize the changing demographic trends within America to explain the shifts. In earlier decades, the number of younger Americans was growing rapidly, as the baby boomers moved into adulthood. In recent years, the growth in younger age cohorts has been modest, but there were increases in the numbers of older Americans. Indeed, this demographic shift led Mankiw and Weil (1989) twenty years ago to predict a great housing bust. The fact that the building boom occurred despite the aging of America is fairly remarkable.