

## **Introduction**

I thought this would be easy, but as I have listened to the papers over the last two days, I have found that it is not easy.

I convinced myself a long time ago that housing is important. My first published paper was commissioned by HUD in 1972. It was in a two volume set called *Housing in the 70's*, and it was on taxes and housing. The project was under the direction of John Weicher, who is here today, and Tony Blackburn at Urban Systems Research and Engineering, a great friend, who passed away this past year.

I got interested in housing in the mid 1980's when I made more money living in my house than I did teaching. Housing prices went up 40 percent in Boston in 1985. I remember sitting at the Boston Fed, working on a textbook and writing articles for the *New England Economic Review*, trying to explain why prices had risen so dramatically.

The first thing that I discovered was that the data were very bad. The only house price data that I could find anywhere was the median value of owner occupied houses from the National Association of Realtors.

To solve the problem, I collected a bunch of data on properties that had sold more than once in the last decade and spliced them together into a rudimentary repeat sales index. Then I built a model – estimated fairly carefully – that identified both a supply and demand function for housing. But there was a major problem when I tried to explain what had happened to prices. In nine of the ten cities I studied, the model predicted prices perfectly, but the tenth city, Boston, gave me a big problem. The model suggested

that Boston house prices should have increased only 15 percent between '84 and '86, but in fact, they had gone up 50 percent. It was then that I first uttered the word "bubble."

Within a few weeks I had met Bob Shiller and we started an enterprise that has lasted for more than 20 years.

The importance of home prices became even more evident at the beginning of this decade. My first of three pieces in the *Brookings Papers* (presented on September 7, 2000) included this warning:

Three concerns remain: the absence of any way to fully diversify around or to hedge market risk; the dramatic recent increase in the size and volume of the "sub-prime market;" and a substantial exposure of the Federal Government to catastrophic risk.

By far the bulk of losses suffered by holders and insurers and guarantors of mortgage paper in the past have been due to regional declines in house prices (Case and Shiller [1996]). The simple fact is that delinquencies become defaults and losses only when collateral is insufficient to cover the debt. The losses incurred in Texas, New England and California between 1985 and 1993 as the result of collateral shortfall dwarf the losses in the rest of the country due to changes in borrower economic circumstances. In the current economic climate, with home prices rising in every region of the country, variations in borrower characteristics such as credit scores explain most of the variation in default and foreclosure. If the housing market were to suffer a 20 percent decline, default rates and losses would far exceed the losses forecast by the most sophisticated credit scoring models in the industry.

This worry is to some extent heightened by the dramatic increase in sub prime high LTV lending of the last few years. While hard data on the size of the B&C market is hard to come by, trade publications such as *Inside Mortgage Finance*, *Inside B&C Lending* and *National Mortgage News* suggest that about 2 percent of current originations fit the description. A conservative estimate puts the currently serviced portfolio at about \$500 billion. Seasoned sub-prime paper exhibits default rates as much as five times higher than traditional high LTV mortgages. While this risk is priced to some extent, it should be noted that these default rates are being observed in a rising house price environment. Should house prices fall default rates will surely rise substantially.

Finally, the Congress has become increasingly aware of the explicit or implicit liability of the Federal Government for losses sustained on portfolios held by Fannie Mae, Freddie Mac, Ginnie Mae, the FHA and the VA. Indeed the government has some liability for more than half the nation's mortgage portfolio. To be sure, the Treasury is protected by owners equity, securitizations, mortgage

insurance, and OFHEO imposed risk-based capital requirements (based on severe stress tests).

Nevertheless, there is substantial government exposure in the event of a sharp drop in real estate prices, and current debate about the proper role of the government in financial markets is an interesting and important one.

Let me turn to the conference papers and the rich discussion around them. I have listened to the conversation over the last couple of days and there are lots of things that you agree on and a number that you don't agree on. Rather than talking about the specifics of the papers I will try to echo the themes that I heard.

The reason we are all here is to first talk about what went wrong and how the housing crisis happened.

### **What is different about this Cycle?**

The events that unfolded in the U.S. financial markets beginning in 2000 were unprecedented. Figure 1 chronicles the period and relies heavily on the work of Greenspan and Kennedy (2005, 2007). The national housing boom between 2000 and 2007 had roots in the prior turmoil in financial markets. The rapid decline of high tech industries, the stock market collapse in 2000 and 2001, the slow level of technology investment resulting from Y2K, and finally, of course, the events of 9/11 led to a relaxed monetary policy in an attempt to stimulate the economy and prevent recession. In January 2001 the Federal Reserve cut the Funds Rate by 50 basis points from 6.5 percent to 6 percent. By the end of the year, interest rates had been cut 11 times to 1.75 percent.

At the time the easing of credit began, the 30 year fixed conventional mortgage rate was 7.17 percent, down slightly from the 8.3 percent that it had averaged for the first 9 months of 2000. By the time the Fed Funds rate hit 1.75 percent in the fourth quarter, the

conventional fixed rate mortgage was down to 6.39 percent. The Fed Funds rate continued on its downward trend until it hit 1 percent in June of 2003, where it stayed for over a year. By that time, the conventional 30 year fixed-rate mortgage carried an interest rate of 4.6 percent. This easing was accomplished with a massive injection of liquidity, which clearly put pressure on yields and margins everywhere. In terms of affordability, the expansionary policy pursued during this short period reduced the cost of buying a home by almost a third.

If the point had been to stimulate the mortgage and housing markets, it certainly worked. Housing production and sale of existing homes boomed. In October of 2001 there were about 1.52 million housing starts annually. By the end of 2003 housing starts had increased by a third, to well over 2 million. Existing home sales were 5.2 million annually at the beginning of 2001 and were 6.5 million by the third quarter of 2003. By 2005 they hit 7 million and stayed about 6 million until 2007. There is little doubt that the housing market kept the economy out of recession through the turbulent times of the early and mid 2000s.

The figures presented in Figure 1 show that, at the end of 2002, the number of home sales and mortgage originations exploded. First, low interest rates stimulated demand for refinancing. \$5.5 trillion in mortgages were originated between the 4<sup>th</sup> quarter of 2002 and the 4<sup>th</sup> quarter of 2003, and \$3.7 trillion were paid off. In five quarters, the total of new mortgage originations was about the same as the entire stock of mortgage debt outstanding in 2001. Seventy-five percent of the originations were for the refinance of existing homes.

At the same time, the near monopoly power of Fannie and Freddie felt competitive pressure from Countrywide and other huge originators, as well as from a hungry Wall Street. Securitization offering implicit government guarantees of Fannie and Freddie bonds and very low default rates channeled much of the liquidity directly into mortgages during the expansion.

In June of 2003, mortgage rates began to rise, moving from 4.60 percent to 5.97 percent by August. The third quarter of 2003 saw the highest volume of refinances, with originations of \$942 billion in a single quarter. Then the refinancing boom was over. In the fourth quarter, refinances fell by 56 percent.

During the expansion of credit that ended in the middle of 2003, the industry grew and became highly competitive. The sector generated fee income of about 2.5 percent of the \$4 trillion in total originations in 2003 – over \$100 billion. Greenspan and Kennedy estimate that in 2004 the difference between gross and net equity extraction, essentially the fees paid for refinancing and home equity loans, reached \$200 billion.

With low default and foreclosure rates and high housing prices, lenders competed vigorously for the business of home buyers. Purchase originations doubled from \$239 billion in 2004 to \$478 billion in 2005. Much of this business was directed at low income neighborhoods and sub-prime borrowers. Between 2002 and 2006, the market originated \$14.4 trillion in mortgages, retired \$10.3 trillion in debt, and increased the stock of outstanding mortgage debt to \$10.3 trillion from \$6.2 trillion.

Needless to say, a credit expansion of this magnitude had a major impact on the housing market. First of all, prices rose. Between 2000 and 2006 prices in the bottom tier increased the most – in Miami by 241 percent, in Los Angeles by 249 percent, and by

200 percent in Washington, D.C., Las Vegas, and San Diego. The CS composite indexes more than doubled, and the national index increased by nearly 90 percent.

At the end of 2005 and finally into 2006, the housing market began to soften. Interest rates rose, and the 30 year mortgage interest rate was back to 6.6 percent by the last half of 2006. Gluts of speculative building occurred in Florida, Arizona, and Nevada. Homes in California and in the Northeast had become very expensive relative to incomes. The manufacturing base of the Midwest fell into recession. As expectations turned gloomy in 2006, house prices in sixteen of the CS metropolitan areas declined. By 2007 the prices in all 20 areas were declining and inventories were rising.

This had never happened before. In the past, when markets overshot the mark, prices were sticky and adjustment was orderly. With house prices falling nationally, and with the bulk of the newly-written mortgage debt in high loan-to-value loans, mortgage default rates rose sharply.

What about underwriting? The statistical models of default and foreclosure developed in the 30 years prior to the crisis seemed to “explain” differential default and claim incidence as a function of borrower and loan characteristics. All market participants used these models, sometimes without even realizing it. The most widely known underwriting tools were “Loan Prospector” and “Desktop Underwriter,” developed by Fannie Mae and Freddie Mac respectively. Their low cost and ease of operation made them the industry standard, and as these models diffused in the market, originators and mortgage insurance companies that did not accept their decisions got little new business.

Their stated goal was to transform the current patchwork risk-allocation process into a more efficient and accurate risk based pricing system. But it was hard, and ultimately impossible, to use information from a thirty-year period of rising house prices to predict default and foreclosure rates in a sharply falling price environment.

Between 2000 and 2005 we witnessed a boom of historical proportions. As detailed above, that boom was underpinned by a credit market unlike any other in history. Indeed the period 2000-2008 has been one of the truly important economic episodes of the last century. The result is a flood of bad mortgages with millions headed for foreclosure as the basic forces of overbuilt markets, falling prices, and poor underwriting has driven markets down across the country.

### **What is Happening Now?**

First, a basic fact: the household balance sheet has deteriorated dramatically. Looking at the Flow of Funds data, housing wealth reached over \$24 trillion in 2005. Between 2000 and 2005, we added \$10 trillion. About half was an increase in structure value from the building boom, and half was a run up in land value particularly on the coasts. Much of the land value increase has been lost; a ball park estimate puts the loss of residential values since 2000 at around \$4 trillion. The stock market by early 2009 had shed some 50% of its peak value, putting the total loss of household wealth close to \$15 trillion.

We are in the midst of a severe recession that began at the beginning of 2008. Since that time over 7 million payroll jobs have been lost, and the unemployment rate reached 10.2% before the end of 2009. Real GDP has been declining for three consecutive

quarters. Between the second quarter of 2008 and the first quarter of 2009, real GDP fell by about 3.1%.

### **The impact on homebuilders**

The home building sector has taken an enormous hit. David Crowe's paper reflects the depth of the problem. The essence of the problem is that with sticky prices, the housing market has traditionally been a quantity clearing market.

In most markets when excess supply exists, prices fall and firms cut back production. Inventories accumulate and the falling prices bring back demand until finally a new equilibrium is established. But if price is very slow to respond, the adjustment process falls on the quantity of production, which prolongs the cycle.

Historically, this is exactly what has happened in housing. Demand drops. The inventory of unsold homes rises. Prices stick. Output falls. The inventory of unsold property remains high because property is a durable not a consumable good. Household formation rates remain positive, and the new households eventually absorb the inventory and production rises. Assuming there is upward inertia, prices rise and overshoot, demand again slows creating the next cycle. The process is accelerated because housing production is a big part of aggregate demand. When production falls it slows the economy, which slows demand growth. Case and Quigley (2008) find large income effects from the contractions in housing production that the U.S. has experienced over the years.

Since the early seventies, we have had four major housing cycles. Each time housing starts rise above 2 million on an annualized basis, they turn. Starts peaked in 1973, 1978, 1986 and 2006. In the first three cycles of starts then fell by over 60 percent

to less than a million. Historically, when a cycle has fallen below a million, it has turned upwards. In the most recent cycle, however, starts hit exactly a million in December, 2007 and by January of 2009 were below 500,000 with out any real sign of rebound.

One other measure of the regularity of past cycles has been the percent of GDP devoted to residential fixed investment. The top of every cycle finds real gross residential investment at about 5.6 % of real GDP. This time it is much worse. In Q1 2009 real gross residential investment shot right through the traditional floor of 3.5% to 2.5% percent in Q4 2009, and it shows no sign of rising soon.

The homebuilding sector is the only major industry that in a normal contraction loses 60 percent of its business. This time the industry has lost 78% of its market. To put some numbers on it, in 2007 the average cost of a new home was roughly \$300,000. Take out land and imports based on data from a number of sources (National Association of Homebuilders, Census Construction Reports, Engineering News Record, etc.) and you are left with \$240,000 in new residential construction as part of GDP for each start. With starts down to around 500,000, a total of 1.79 million units that otherwise would have been built at the peak rates will not be started. That is a demand shock of just under \$430 billion. Assuming a multiplier of 1.4, that's a total decline of just under \$600 billion, or about 5.3% of GDP.

### **What now?**

Clearly, we have all learned a lot about the way housing and housing finance worked together to create this mess, and we have discussed potential ways to clean up the mess and prevent future catastrophic housing led cycles. Let me summarize what I heard this week. Here's what we need to do:

- Stabilize the Housing and Mortgage Markets
- Clear the inventory of foreclosed property and restructure where possible
- Restore underwriting standards
- Restructure housing finance
- Shift emphasis in policy toward rental and away from home ownership

### **Stabilize the Housing and Mortgage Markets**

First we need to stop the flow of blood. If prices continue to fall through 2009 and into 2010, the book of mortgage business written in 2008 and 2009 could end up with high default rates.

Here there was a mix of opinion. Should we stimulate demand? Obviously, the Feds have pushed rates down to record low levels. The target Fed Funds rate is now 0 to 25 basis points. Fixed rate mortgages bottomed at 4.5% and are still quite low as we enter the summer of 2009. With the new first time home buyer credit of \$8,000 and numerous state programs, the incentives are there.

Let us not forget that the tax code remains heavily stacked in favor of home ownership. Thinking about a house as a durable good highlights what makes it a potentially desirable tax favored investment. Consider buying a house outright, with no mortgage finance. The baseline yield on that investment (essentially the dividend) is the flow of housing services the buyer receives net of depreciation, maintenance and taxes. The flow of dividends from an investment in corporate equity depends on profits and is taxable, albeit at a low rate; the flow of **real net imputed rent** is fixed and not taxable, and of course the costs of finance and property taxes are deductible. Thus, this

component of yield has a stabilizing effect in downturns. Housing can be seen as a substitute for equities in periods of uncertainty.

But in addition to the real services yield, there is the potential capital gain, which is also tax free for most households. Furthermore, housing is highly leveraged, making returns highly volatile.

The consensus of the participants at the conference is that we are doing quite enough to stimulate housing demand – perhaps too much. After all, it was the extension of credit to previously unqualified buyers that led to the problem.

Clearly, underwriting standards needed to be raised and the higher standards have already led to a decline in demand. The massive quantity of A-, low-doc, no-doc, high LTV, and high ratio lending has dropped to essentially zero. This has already been accomplished by the market, which is flush with “toxic” paper.

Another argument that was a discussed was the Government’s position on home ownership as reflected by the Community Reinvestment Act, the Home Mortgage Disclosure Act, and the affordable housing goals of the past two decades. Recall that the 90’s began with a battery of studies that found discrimination in lending. Many believe that these programs contributed to the ultimate excesses, but also that they played a secondary roll to the massive expansion of private lending that followed the growth of companies like Countrywide, the competitiveness of Fannie and Freddie, and the entry of Wall Street into the mortgage business. Now we are faced with a very high rate of foreclosure and a new market clearing process that continues to push prices down.

## **Clear the inventory and end the auctions**

In the market today, two kinds of prices are being generated from two fundamentally different equilibrium processes. These two processes are operating side by side, often neighborhood by neighborhood, within metropolitan areas. First, there is the traditional search process with downwardly sticky prices, high inventory and aversion to loss on the part of sellers. Liquidity constrained sellers are actually more reluctant to sell because selling may have high transactions costs. Evidence suggests that people don't like to sell losers. This type of market clearing is slow, and it usually results in a slow and costly period of quantity adjustment with relatively little price change.

At the same time, banks, servicers, and other players are left holding portfolios of houses by virtue of default and foreclosure. By and large these properties are being auctioned off to the highest bidders, often at very low prices. This is not a new phenomenon. In every past regional decline these two processes were at work. In the New England decline in 1989 and 1990, average single family home prices were down roughly 14%. Yet the glutted condominium markets had concentrations of ill-advised conversions that lost 75 percent of their original values when sold at auction.

The evidence suggests that foreclosed properties in most cities seem to trade at prices that show significantly larger losses than properties not in foreclosure. Fiserv CSW has run preliminary repeat sales indexes on cities with large quantities of foreclosed properties both with and without the foreclosure sales in the data. In Miami as of the first quarter of 2008, the index with the full sample showed a 22 percent decline while the index with the auction sales excluded showed a 15 percent decline. In Chicago, the

index run with the full sample registered a 12 percent decline while the index estimated with the auction sales excluded registered a 7 percent decline. The difference was larger for Cleveland.

A recent paper by Campbell, Giglio and Pathak (2008) does an exceptional job looking at foreclosure discounts in Boston.<sup>1</sup> Their paper poses three potential explanations for the difference. First, foreclosed properties are typically, but not exclusively, in neighborhoods in the lower tier that experienced rapid run ups and a very high peak in 2006-7. Second, auction sales typically involve less “price discovery” and search. While they are not all fire sales, most firms that hold foreclosed property want it off of their balance sheets sooner rather than later. Third, foreclosure properties are in many cases not cared for during the process, meaning that there could be some substantial unobserved quality change.

During this conference, the Obama administration was hard at work looking for a way to prevent foreclosures. Millions of loans were in default and millions more were under water and threatened to fall into default.

A number of things are clear. First, foreclosures are bad. The minute a property goes vacant in many parts of the market, it is vandalized. Since the expansion of sub-prime credit was concentrated in low and moderate income neighborhoods, neighborhood externalities arose. As property after property in some of these neighborhoods was auctioned off, whole neighborhoods became blighted.

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<sup>1</sup> Campbell, John Y., Stefano Giglio, and Parag Pathak, “Forced Sales and House Prices.” November 2008. [http://www.richmondfed.org/conferences\\_and\\_events/research/2008/pdf/forced\\_sales\\_and\\_house\\_prices.pdf](http://www.richmondfed.org/conferences_and_events/research/2008/pdf/forced_sales_and_house_prices.pdf)

Many loans were made to households who could actually pay and wanted to stay in their homes if the mortgage could be restructured. The so called NPV rule became popular for figuring out whether a loan restructuring was desirable on a case by case basis. While everyone has an interest in restructuring as many loans as possible, a number of obstacles have continued to keep the process very slow and ineffective. Servicers have no incentive to restructure because foreclosures bring them more fees, and they fear litigation from MBS holders and others. The \$1,000 fee and the “rule of reason” provision of the recent legislation provided a fix, but the process has not really responded.

Shiela Bair at the FDIC has been relentless in her efforts to get this process going, as have others in the Treasury and at HUD. But lack of institutional infrastructure, the reluctance of claim holders to realize losses, and other obstacles remain. The tricky point is that the easier it is to do a restructuring, the higher the number of performing loans that will find themselves turning to defaults...: “why not me?”

There was some optimism in the room about the new rules, but there was also fear that the process would remain slow. Everyone agreed that restructuring was a priority, but for some, the glass is half empty, and for others, the glass is half full. It is a fact that roughly half of restructured loans re-default. At the same time, it is a fact that half do not.

### **Restoring Underwriting Standards**

There is simply no doubt that underwriting standards played a big role in the catastrophe that we are living through right now. It is clear that writing mortgages was a game that anyone could play. It was almost a classic case of moral hazard. The secondary market was like a black hole scooping up massive quantities of mortgages and

dispensing cash. The rating agencies gave high ratings, the Government offered an implicit guarantee to Fannie and Freddie, and the analytics offered evidence that this paper was profitable. Everyone took the presence of a hungry secondary market as a sign that this paper was good. So everybody wrote and wrote and wrote. And so it was as long as house prices continued to rise.

Finally, after house prices rose nationally for at least 4 decades, they have now fallen an average of 30% since 2005. Now we have to deal with the consequences. It is not a trivial matter because without the protection of rising collateral value, it is very difficult to say what the right underwriting standards are. Institutions seem to be drawing the line tightly. Financial institutions are now required to stress-test their balance sheets. Many have seen their credit ratings drop and minimum standards for qualification have jumped radically. To get a standard mortgage today you need a nearly perfect credit score and a big down payment.

Clearly new regulations will be forthcoming. The standards will be tied to some “reasonableness test” that includes debt service ratios, credit scores and down payments. The trick will be to get it right. Given the recent turmoil, the tendency will be to draw the string too tightly. This has already had a serious effect on the hoped for recovery. The correct standards will depend ultimately on how the recovery progresses and what the volatility will be in the coming years. The only thing we know for sure is that income will be verified (and required), the minimum credit score will be higher than it has been, and the exotic products like “option arms” will probably be phased out for at least a few years.

## **Restructuring the Financial Markets**

Another reaction to this crisis will be the restructuring of the financial markets. There was a good deal of discussion around the table and afterward about what would and should be done with Fannie and Freddie: Would the mortgage insurance industry survive? What kinds of capital requirements would be imposed and on whom? What role would the Fed play?

As an aside, I went to a conference in Australia in 2004. The topic was whether monetary policy can “lance” an asset bubble, and the consensus was “no.” The Fed should stick to maintaining the value of the currency.

The problem is that parts of the regulatory apparatus were in place when the foundations of collapse were being laid. OFHEO regulated Fannie and Freddie, imposed risk based capital requirements, ran stress tests, did audits, and yet Fannie and Freddie still went down. It should be noted that OFHEO also enforced higher affordable housing goals. In addition, the banks were highly regulated and examined, and many banks also went down.

The tricky part here is what to do about Wall Street. On the one hand, free and relatively unregulated financial markets have served us well over the decades. On the other hand financial markets are now very much like banks. In fact, it is as if the financial markets are just one big bank. You might as well throw in insurance companies too. We make deposits; they invest the proceeds and pay interest.

The Congress is split down party lines and historically has not made good judgments in periods of crisis. I did not sense at the conference any real consensus about what the institutional landscape would look like after all is said and done. Fannie and Freddie will

not go away; they are too big and important. My guess is that they will be agencies of the government. The Fed will clearly have more power and more of a supervisory role. The role of the Home Loan Banks will be hotly debated and the mortgage insurance industry should survive, since the government will be reluctant to take all the risk on its own ticket.

### **Homeownership, rental housing and affordability**

The American Dream has been at the center of the housing agenda in the U.S. since the early Reagan years on the grounds that homeownership leads to happier and more productive citizens and that homeowners are likely to be better citizens and take better care of their property since they have a “piece of the action.” The Federal government provides huge subsidies for homeownership, including the non-taxation of imputed rent, the deductibility of mortgage interest and property taxes, and high rates of exclusion for capital gains on owner occupied housing. There is, of course, Fannie and Freddie, which provided a very liquid market for mortgages and kept a never-ending supply of cheap credit flowing into housing. Other first time home buyer programs at both the state and Federal levels added to the favored treatment.

Rental housing was the cheap stepsister of owner occupied housing for decades. While programs like Section 8, Section 235, Low Rent Public Housing and other programs have been in place, they receive the short end of the stick financially. In most cities the wait lists are long and, with a few notable exceptions, are not well maintained. Rental housing is not an entitlement in the U.S.

One of the constant themes at the conference was the question of whether we had overdone the subsidy to homeownership at the expense of rental housing. The consensus

seemed to be that we had. The homeownership rate, which was 63.8% in 1964, rose to 67.1% by 2000 and peaked at 69.1 % in 2005 before falling back to 67.3% by 2008.

The idea seems to ignore the fact that homeownership is not for everyone. The fact is that operating a single family home is like running a small business. The roof needs to be maintained, the boiler fixed, and the basement may flood. Many of the people who found their way into homeownership were also parties to sophisticated financial arrangements.

Clearly, consumer protection legislation to expand protection to homebuyers from predatory lenders will find its way into the law this year.

**Figure 11 b: United States Total Quarterly Originations 2000-2008**

