AMHERST CAPITAL WHITE PAPER | JULY 2016

# The Case for U.S. Housing

- U.S. Single Family Housing significantly lagged post-crisis recoveries compared to equities and commercial real estate. That relative underperformance, plus potential support from pent-up demand, augur well for housing.
- In our opinion, median income-based measures suggesting that U.S. housing is overvalued are flawed.
- U.S. housing is NOT a monolithic whole; it is a very heterogeneous asset class. New
  constructions sit next to 70-year-old homes, across a variety of sizes and price points.
  Digging deep into local factors (e.g., land supply constraints, income growth of upper
  middle class) is essential to better understanding and forecasting home prices.
- We believe housing in Ohio, Illinois, Mississippi, Nevada and New Jersey is undervalued vs. local fundamentals and likely to outperform; while parts of Oregon, Texas, Hawaii and California are relatively overvalued and could lag income growth.







## The Case for U.S. Housing

# HOUSING SIGNIFICANTLY LAGGED THE RECOVERY IN STOCKS AND COMMERCIAL REAL ESTATE

Leading up to the financial crisis, equities, commercial real estate ("CRE") and single family home prices had appreciated by relatively similar amounts, rising approximately 50% from 2002 until cracks started to appear in housing in 2006 (Figure 1). In the aftermath of that last dip, however, asset prices recovered at vastly different speeds. Versus their previous peaks during 2006-2008, equities are approximately 35% higher (as measured by the S&P 500 Index), CRE is approximately 15% higher (as measured by the Moody's Commercial Property Price Index), while housing lagged, at only a 5% increase (as measured by the S&P Case Shiller Home Price Index).

Over the longer term, since 2002, equity prices are up nearly 140% (translating into 6.7% per year growth over 13 years). During that same time, commercial real estate prices rose 5% per year and are now 90% higher. But U.S. home prices lagged significantly, growing less than 40%, implying a measly 2.5% annual growth rate.

"...since 2002, equity prices are up nearly 140%; during that same time, commercial real estate prices rose 5% per year and are now 90% higher, but U.S. home prices lagged, growing less than 40%"



FIGURE 1 U.S. single-family home price recovery is much weaker than stocks and CRE

Note: CPPI = Moody's Commercial Property Price Index; SPCSHPI = S&P Case Shiller Home Price Index Source: Bloomberg, S&P, Moody's, Amherst Capital as of June 2016



## The Case for U.S. Housing

# THE FINANCIAL CRISIS CAST A LONG SHADOW ON HOUSING, CREATING LATENT DEMAND

The financial crisis had a much more lasting effect on the housing market than on other assets. Homeownership rates are lower (Figure 2) and we have observed that foreclosure-related issues have lingered almost a decade after the onset of the crisis. We believe that tainted borrower credit histories, a plethora of new regulation, and banks' unwillingness to lend aggressively have kept mortgage credit very tight as compared to pre-crisis credit standards. Based on estimates from the Urban Institute, about 1 million purchase mortgages that would have been made using 2001 credit standards have not been made each year since 2009. They also estimate an additional 1.2 million loans were missing in 2014 (Figure 3).

We believe the national housing stock is also severely underbuilt versus pre-crisis norms, by an estimated 7.7 million homes or roughly 6% of existing housing stock (Figure 4). In dollar terms, that represents \$2 trillion of unbuilt residential real estate. Based on the American Community Survey<sup>i</sup>, 2010-2014 net new constructions accounted for just 1% of the housing stock. Even after adjusting for higher construction activity in 2015- 16, we believe there is remarkable under-construction versus pre-crisis norms.

BOTTOM LINE Both household formation and home construction activity have been well below pre-crisis norms. We believe that this level of activity is not sustainable in the long run, and creates a large reservoir of potential housing demand. First, many older millennials have been living with their parents much longer than before, but are likely to form new households as the economy improves. Second, a substantial number of 23-27 year-old millennials will hit prime household formation age in the coming years (Figure 5). Our view is that this positive demand dynamic along with muted construction activity post-crisis will boost home prices.

Figure 2: Homeownership rate has dropped since 2007 Source: U.S. Census Bureau data as of Q1 2016.

Figure 3: Tight credit has curbed purchase loans Source: Bing Bai, Laurie Goodman, Jun Zhu, "Tight Credit Standards Prevented 5.2 million Mortgages from 2009-2014", Urban Institute, January 28, 2016.

Figure 4: Residential construction has lagged since 2007 Source: U.S. Census Bureau, data as of Q1 2016, Amherst Capital, June 2016.

Figure 5: Millennials will "Echo" into demand Note: Age distribution as of 2013; 20-24 bucket now 23-27 Source: U.S. Census Bureau, data as of Q1 2016

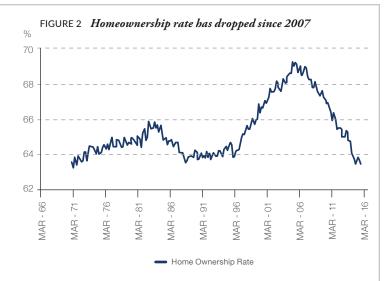


FIGURE 3 Tight credit has curbed purchase loans

Loan Category		2001 Total	2014 Total	% Drop	Est. Missing Loans
Core_ Logic HMDA Merged Database	< 660 FICO	1,445,629	329,961	77%	1,007,062
	660 - 700 FICO	838,610	583,816	30%	191,791
	>700 FICO	2,367,078	2,189,247	7.50%	0
	Total	4,651,317	3,103,024	33%	1,198,854

FIGURE 4 Residential construction has lagged since 2007

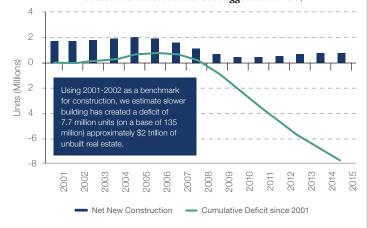
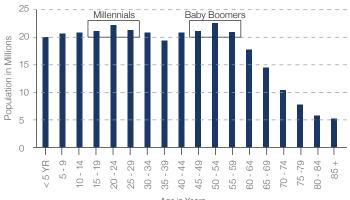


FIGURE 5 Millennials will "echo" into demand





# The Case for U.S. Housing

## HOUSING NOT OVERVALUED

(AS SOME MARKET OBSERVERS SUGGEST)

Despite housing's relative underperformance vs. other asset classes (such as equities and CRE) and what we have outlined above as the fundamental support from pent-up demand over the next few years, some market observers suggest that U.S. single family housing is starting to become overvalued. A few even warn of another bubble. Such conclusions broadly rely on measures of home price relative to median income, and in our opinion, are deeply flawed.

Marginal homebuyers tend to be from above-medianincome households, and income of such households is a bigger driver of home prices than is median income. In our research, we find that areas with similar growth in median income can have very different home price returns. However, layering in average income growth can explain the divergence in returns (Figure 6). As an example, we compare San Jose, CA and Washington, D.C. over the past 25 years.

170 150 125 DEC - 16 DEC - 02 DEC - 04 DEC - 06 DEC - 08 DEC - 10 DEC - 12 DEC - 14 Amherst HPI (YE 2002 = 100) SPCSH PI (YE 2002 = 100) Per Capita Disposable Income (YE 2002 = 100) Median HH Income (YE 2002 = 100)

FIGURE 6 Home price measures using median income alone are ineffective

Note: Amherst HPI, which better adjusts for distressed transactions, shows the same trend as the S&P Case Shiller HPI Source: Bloomberg, S&P, U.S. Census Bureau as of April 2016, U.S. Bureau of Economic Analysis, Amherst Capital, June 2016



# The Case for U.S. Housing

## CASE STUDY: SAN JOSE, CA VS. WASHINGTON, D.C.

In 1991, at the beginning of our 25-year case study, both San Jose, CA and Washington, D.C. had very similar annual household median income levels (approximately \$46-47K per year). Then over the 25 years, median incomes grew at a similar pace, about 3.2% annually in San Jose and 2.9% in Washington, D.C. However, San Jose home prices rose 5% annually, but only 3.3% in Washington, D.C. (Figure 7).

Interestingly, this discrepancy between income and home price growth fades away if we add average income into the mix. In 1991, both areas had comparable average incomes; San Jose at \$74.7K vs. Washington, D.C. at \$71.3K. Since then, average incomes rose 5% annually in San Jose compared to 3.6% in Washington, D.C. (Figure 8). Average income growth is much more in line with the pace of home price growth over the last 25 years, and explains HPA outperformance in San Jose over the long term. The data suggests that home prices are not driven by changes in income of the entire population, but by changes in the upper income households (who tend to be homebuyers).

Similarly, we believe that areas with land supply constraints have a much greater response to income growth than those having plenty of buildable land. This happens not just in cities such as San Francisco and Miami that are limited by topography or geography; but also in areas with regulatory limits on height or density of buildings and zoning codes. Thus accounting for buildable land supply constraints helps explain the decades-long outperformance of San Francisco, New York, Miami and Los Angeles.

"The data suggests that home prices are not driven by changes in income of the entire population, but by changes in the upper income households (who tend to be homebuyers)."

FIGURE 7 HPI - San Jose, CA vs. Washington, D.C.



FIGURE 8 Incomes - San Jose, CA vs. Washington, D.C.



Note: HPI = Home Price Index. We show the Amherst Non-distressed Home Price Indices for the two regions Source: Amherst InsightLabs<sup>ii</sup>, Amherst Capital, as of April 2016



# The Case for U.S. Housing

# HOUSING IS A HIGHLY HETEROGENEOUS ASSET CLASS (NOT A MONOLITHIC WHOLE)

While market observers (and parts of the media) often simplify and talk about U.S. housing as a whole, housing is really a very diverse asset class. The variations stem from a multitude of factors, including property age, size, price point, and even style. For the U.S. as a whole, 10% of the housing stock (in units) is priced over half a million dollars, while another 10% is at \$50K or lower (Figure 9). While higher priced homes tend to be more concentrated on the coasts, there is much variation even within specific states (Figure 10). The median bucket in California is homes worth \$300-500K while in Texas it is \$100-150K. However, even California has a large number of homes priced below \$150K, while in Texas there are a large number of homes above \$300K. Similarly, there is a wide distribution of homes across other dimensions, such as age of construction (Figures 11) and size.

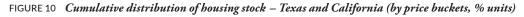
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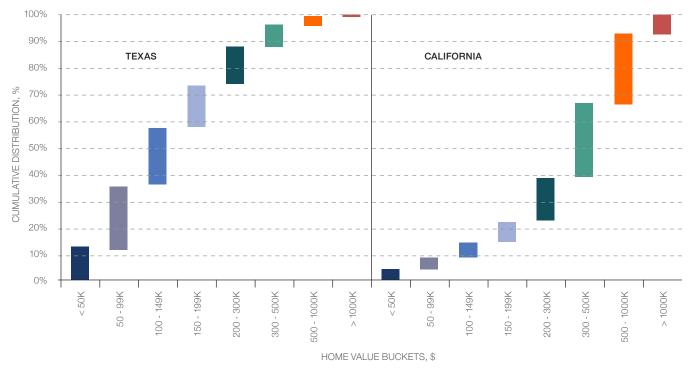




Source: U.S. Census Bureau "2014 American Community Survey," Amherst Capital, June 2016







Source: U.S. Census Bureau "2014 American Community Survey," Amherst Capital, June 2016

FIGURE 11 Distribution of Housing Stock (by age of construction, % units)



Source: U.S. Census Bureau "2014 American Community Survey," Amherst Capital, June 2016

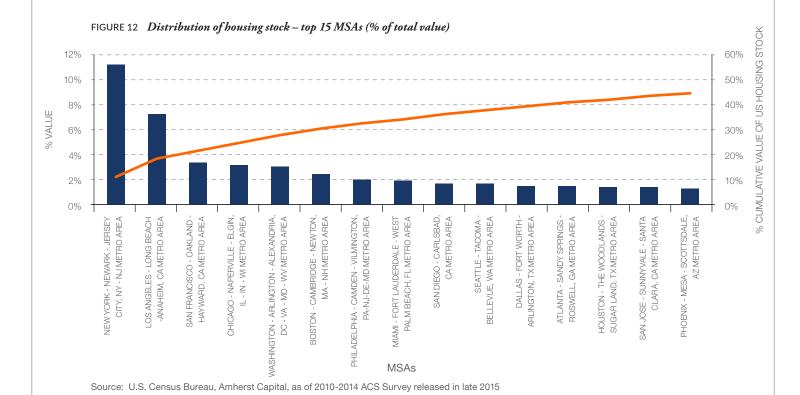


# The Case for U.S. Housing

# IMPORTANCE OF LARGE MARKETS IS SOMETIMES OVERSTATED

Market participants also sometimes overemphasize what is happening in certain key markets like New York or San Francisco. Yes, these markets do form a large part of the U.S. housing stock by value (Figure 12), but it is important to put things into perspective. While it is true that large Metropolitan Statistical Areas such as the one around New York City (spanning parts of NY/NJ/CT and PA) form a significant proportion of U.S. housing stock by value, even the top 20 MSAs only constitute approximately 50% of the value of U.S. housing stock, and only 40% of housing by number of units. iii It is important to consider (qualitatively, plus quantitatively drilling down in depth) all local variations in housing! An area appearing overstretched for some reason may catch the attention of the media, but that does not mean the same holds true across the country.

"...even the top 20 MSAs only constitute roughly 50% of the value of U.S. housing stock, and only 40% of housing by number of units."

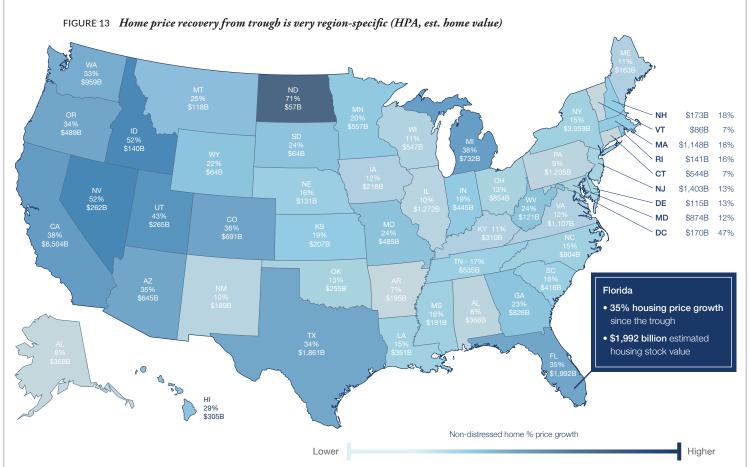




# The Case for U.S. Housing

# FORECASTING HOME PRICES IS DEFINITELY A LOCAL MATTER

Forecasting U.S. home prices is less about a dazzling top-down U.S. macro analysis than it is about dissecting the tedious, nitty-gritty details at the granular level. A single national home price number is a fascinating metric and can receive extensive media attention, and is relevant in periods of highly correlated performance (as it was during the financial crisis). However, in today's market, fundamentals and region-specific factors are likely to have a much larger impact. In fact, many regional markets that were highly correlated during the financial crisis have experienced vastly different recoveries since the bottom in prices (Figure 13).



Average U.S. recovery since 2011 = 20% | Total value is approximately \$35 trillion

Note: We show non-distressed home % price growth from the trough based on Amherst non-distressed HPI. The second number listed for each state shows our estimate of housing stock \$ value based on census data.

Source: U.S. Census Bureau, Amherst InsightLabs, Amherst Capital as of April 2016



# The Case for U.S. Housing

But the \$35 trillion dollar question is: Can a granular analysis better predict future home prices? To evaluate this, we split U.S. metropolitan division area home price growth into a fundamental component (income growth, land supply constraints, household growth) and a short-term component (momentum, interest rates, credit availability). The fundamental component gives us a measure of sustainable home prices, in turn helping us develop insight as to an area being over or undervalued. Historically, this measure of fundamental value has done a good job in separating outperformers and underperformers. The 15 most undervalued areas from 2011 have appreciated approximately 6% per year on average, while the 15 most overvalued areas rose only 2% per year (Figure 14).

"The 15 most undervalued areas from 2011 have appreciated approximately 6% per year on average, while the 15 most overvalued areas rose only 2% per year (Figure 14)."

135 130 120 120 115 110 110 100 95 1 APR-11 APR-12 APR-13 APR-14 APR-15 APR-16

Overall U.S.

Most overvalued 15 areas

FIGURE 14 Fundamental value has been a good predictor of relative performance (last 5 years)

Note: The 15 most under and overvalued areas were selected based on Amherst InsightLabs' April 2011 Fundamental HPI measure. Volume Source: Amherst InsightLabs, Amherst Capital as of April 2016

Most undervalued 15 areas

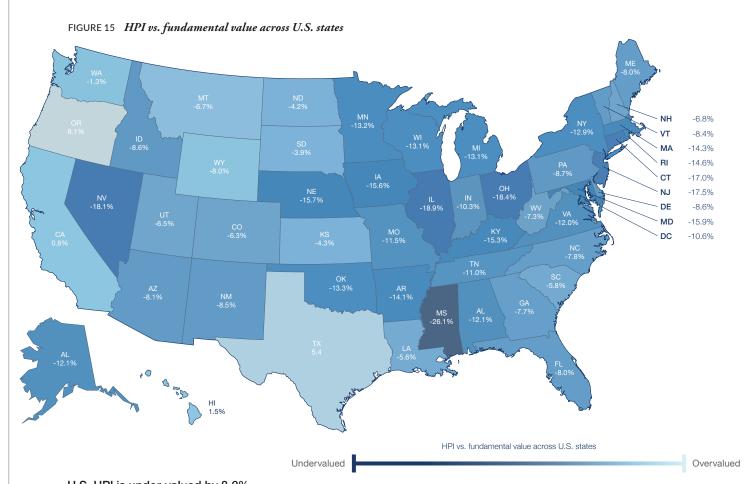


# The Case for U.S. Housing

# WHAT AREAS ARE UNDERVALUED CURRENTLY?

Applying our detailed analytical tools and processes to housing fundamentals at the metropolitan division level, we find that parts of Oregon, Texas, Hawaii and California are somewhat overvalued and we believe will lag income growth in those regions. On the other end of the spectrum, the most undervalued are in states like Mississippi, Illinois, Ohio, Nevada and New Jersey. Amherst Capital anticipates these undervalued areas to outperform regional income growth. Aggregated results for the U.S. states are shown in Figure 15.

"On the other end of the spectrum, the most undervalued are in states like Mississippi, Illinois, Ohio, Nevada and New Jersey."



U.S. HPI is under-valued by 8.2%

Note: Negative numbers indicate HPI is undervalued vs. fundamentals, whereas positive numbers show overvalued areas Source: Amherst InsightLabs' Fundamental HPI Index, Amherst Capital as of April 2016





#### About the Authors



Sandeep Bordia has more than 13 years of experience working in various roles across the mortgage markets. Prior to joining Amherst Capital, Sandeep was the Head of Securitized Products Research at Barclays Capital, responsible for all research related to agency/nonagency MBS, CMBS, ABS and European ABS.

Before joining Barclays in 2008, he spent six years at Lehman Brothers focusing on agency prepays, mortgage origination, servicing and subprime.

Sandeep has an MBA from Indian Institute of Management and a BTech from Indian Institute of Technology.



Jasraj Vaidya than 10 years of experience in the real estate investment space. He most recently served as the Head of U.S. CMBS & Residential Credit Strategy at Barclays, where he led a team of five analysts on U.S. Commercial Mortgage Backed Securities, Asset Backed Securities and Residential Credit Strategy.

Prior to joining Barclays in 2008, Jasraj spent 3 years at Lehman Brothers, most recently as an Analyst covering residential credit strategy.

Jasraj has an MBA from the Indian Institute of Management and a BE in Engineering from Gujarat University.

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#### **FOOTNOTES**

(1) As of June 30, 2016. This amount includes assets pertaining to certain discretionary multi-sector fixed income clients of our affiliate Standish Mellon Asset Management Company, LLC ("Standish"), for which certain Amherst Capital employees provide advice acting as dual officers of Standish. In addition, discretionary portfolios with approximately \$447 million are managed by certain of our employees in their capacity as dual officers of The Dreyfus Corporation. AUM includes gross assets managed in the single family equity strategy, which includes \$245 million of leverage.(2)Seed capital Investor. It is not known whether the listed client approves or disapproves of the advisor or the advisory services provided.



## The Case for U.S. Housing

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The Case for U.S. Housing

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MARK-2016-07-08-0152 EXP 1/2017



# The Case for U.S. Housing

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## **ENDNOTES**

- i. The American Community Survey (ACS) is an ongoing statistical survey by the U.S. Census Bureau. It regularly gathers information previously contained only in the long form of the decennial census (such as housing characteristics, income, employment, educational attainment, ancestry, language proficiency, migration, disability). This updated statistical information is usually available with a 1-2 year lag.
- iii. Amherst Capital has an exclusive license with Amherst InsightLabs ("AIL") in the asset management industry. AIL is an affiliate of Amherst Holdings, LLC.
- iii. U.S. Census Bureau, Amherst Capital as of 2010-2014 ACS Survey released in late 2015.
- iv. Amherst InsightLabs' Fundamental HPI is an estimate of sustainable home prices in a region based on fundamental drivers like income growth, household growth, homeownership and land sunnly constraints

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