

US Housing – The Early Innings of a Secular Bull Market

Please email questions and comments to:

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I. Introduction

II. Valuation

III. Risks

IV. Why it Matters

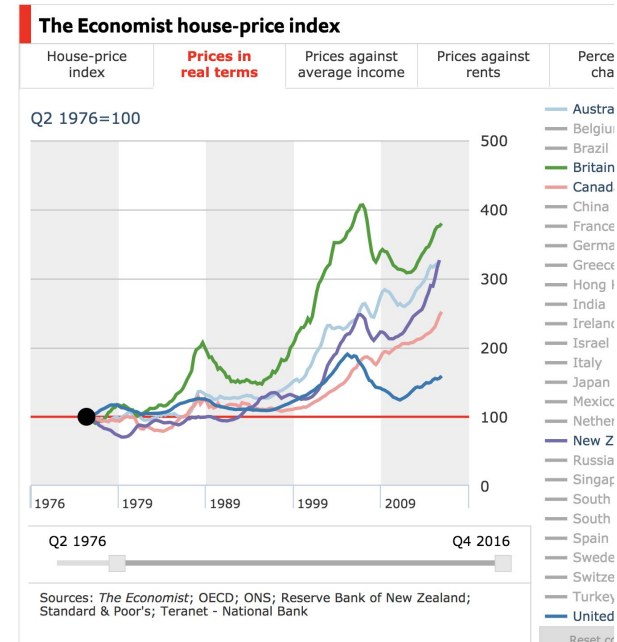
V. Investment Opportunities



I. Introduction: A History of the Past Cycle

The US is the Outlier

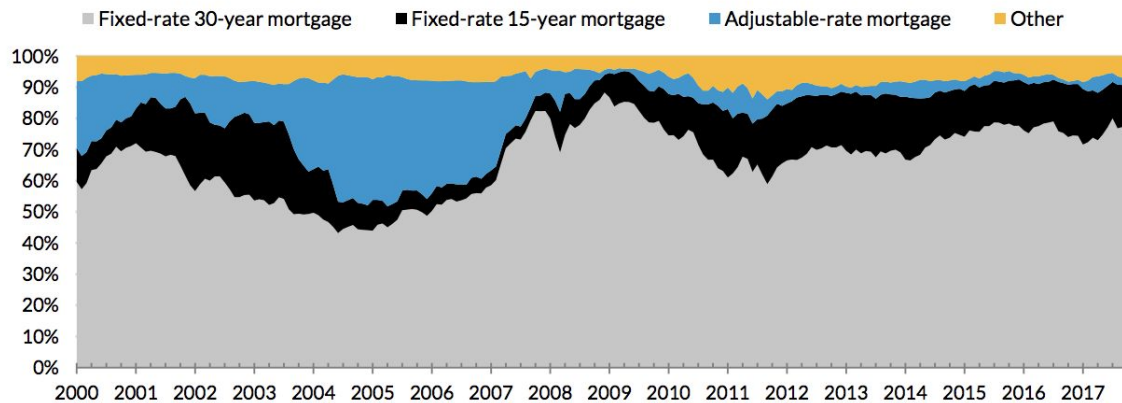
- Unlike its most similar peers or most other advanced economies, US house prices have not risen significantly in recent decades.
- US stands out as an outlier with low:
 - House Price/Income
 - House Price/Rent
 - Household Debt/GDP
- This cheap valuation flies in the face of strong rent levels and low real interest rates in the US.
- US underperformance is the result of tight lending post-2007.



What went wrong in the US?

- The fragile and highly leveraged private MBS market flow completely broke
- At-risk public agency lenders pro-cyclically tightened standards. Regulators and public at large learned moral lesson not to extend credit to all but upper middle class.
- Those without near perfect credit could not refinance after the market broke

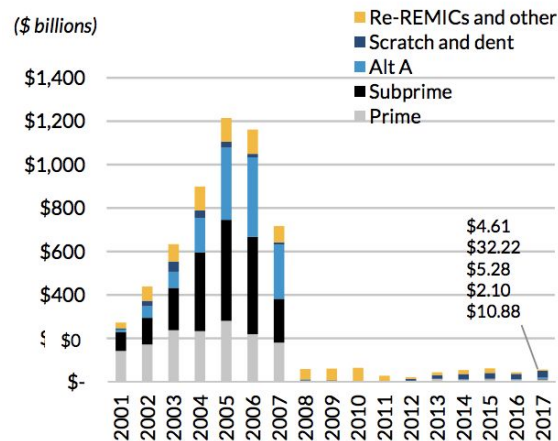
All Originations



Sources: Corelogic, eMBS, HMDA, SIFMA and Urban Institute.

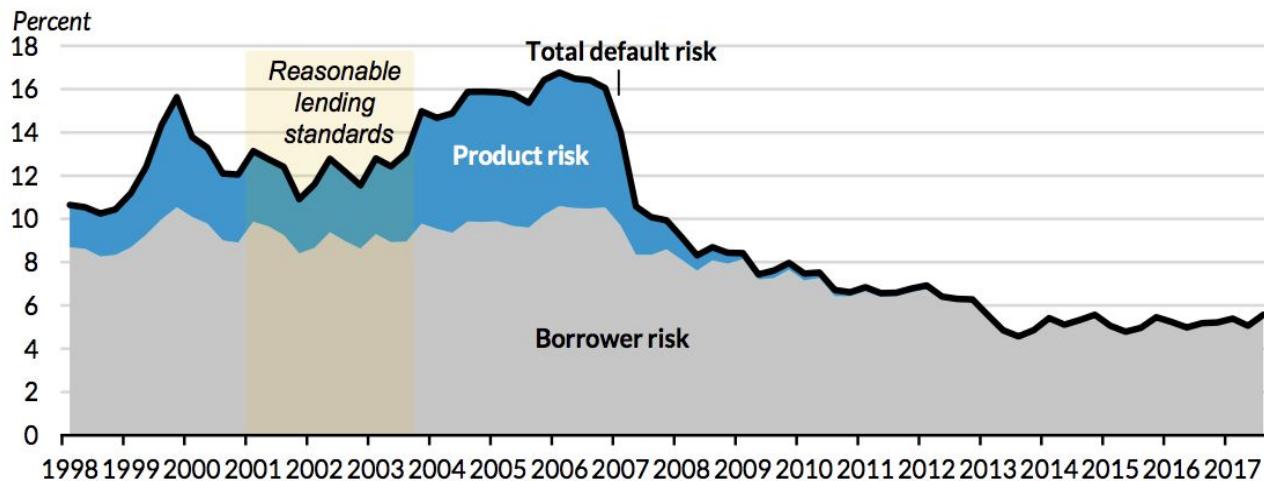
October 2017

Non-Agency MBS Issuance

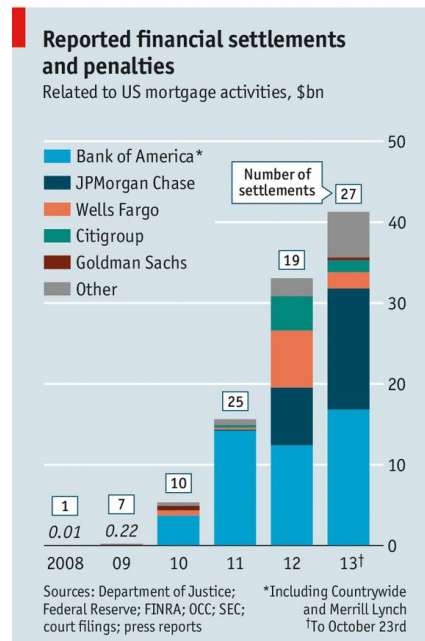


Mortgage Politics: A Case-Study in Pro-Cyclical Regulation

- Title of *The Economist* article from 2013: *Payback Time for Subprime* indicative of the morally motivated regulation after the bust
- Mortgage standards tightened by Agency lenders to levels far below norms
- Standards are only now starting to rise (slightly)
 - Default risk is the estimated default rate in bust

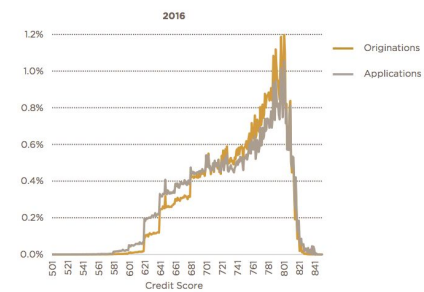
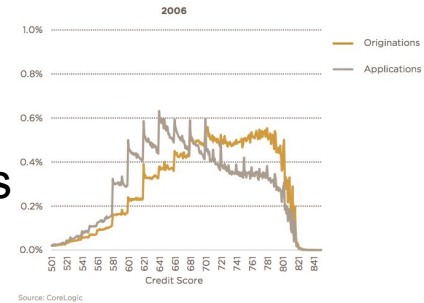
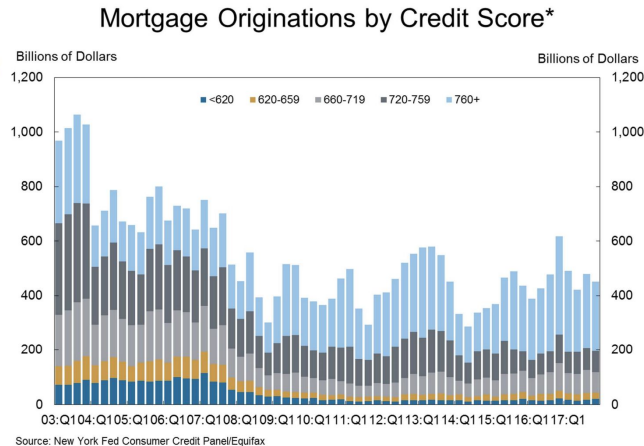
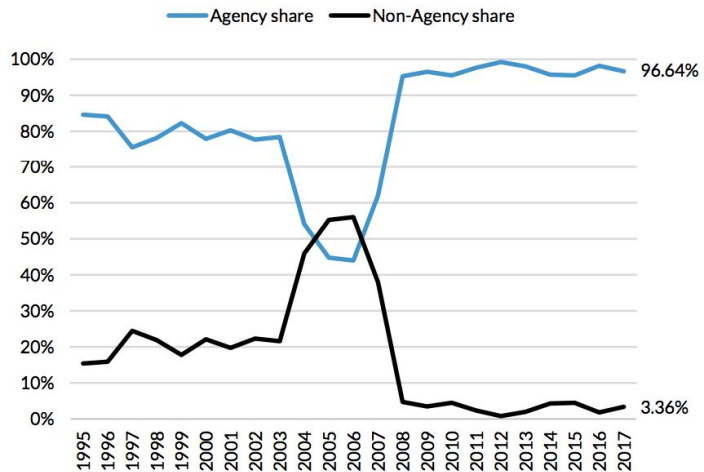


Sources: eMBS, Corelogic, HMDA, IMF, and Urban Institute.



Tight Mortgage Credit Availability

- Mortgage credit constricted to those who meet strict credit score criteria
- Political factors (not economic) are now in the driver's seat for credit access as GSE's are controlled by the federal government
- With the government in the driver's seat this cycle lending this cycle lending will be supportive of prices.
 - Similar to government support of Farm and Student loans



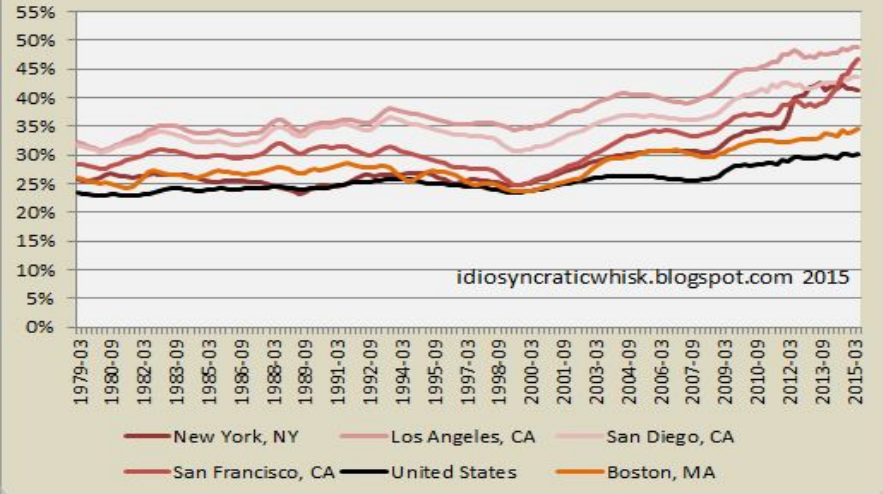


II. Valuation: The Last Cheap Asset Class?

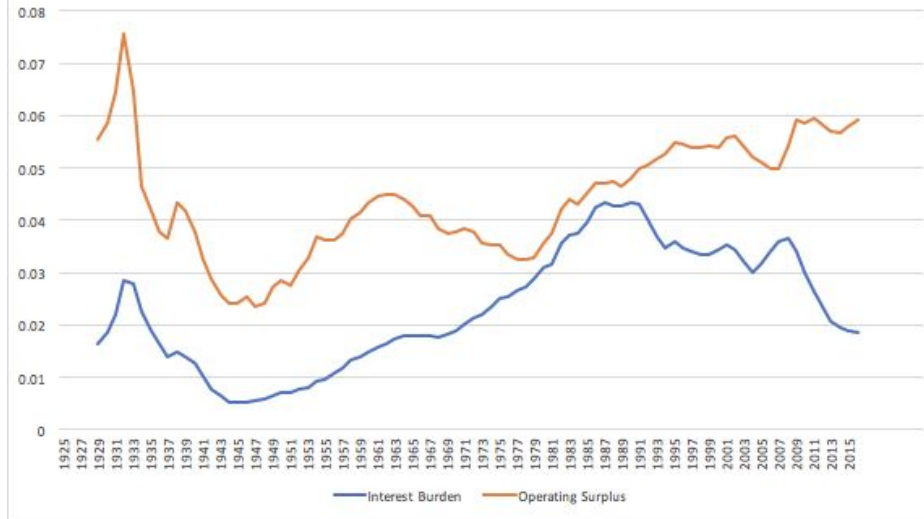
Rising Land Rents Support US Housing Assets

- Political constraints on building have created rising land rents, capturing more of the economy's productivity for landlords.
- Housing Net Operating Surplus (Market Rent + Imputed Rents - Maintenance, Management, Property Taxes, and Depreciation) is growing as % of GDP.

Rent Affordability (% of Median Income)

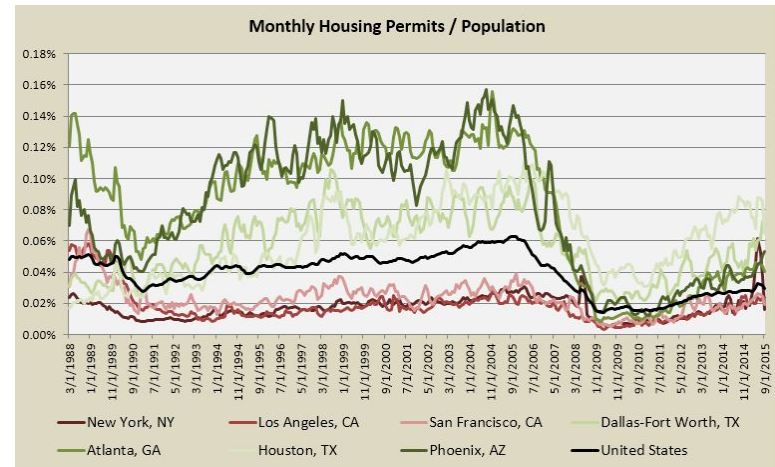
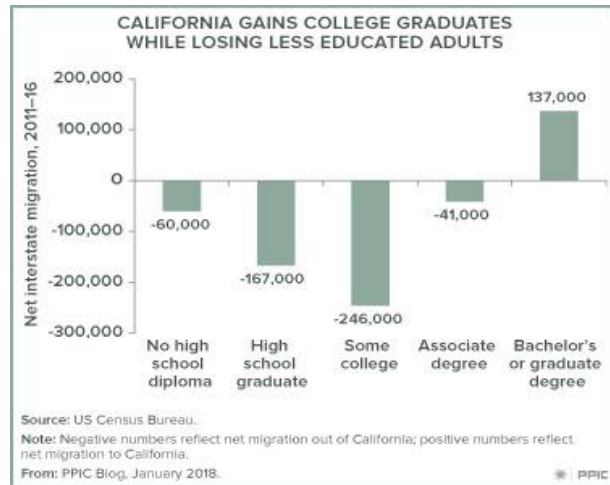


US Housing NOS and Interest Burden as % of GDP



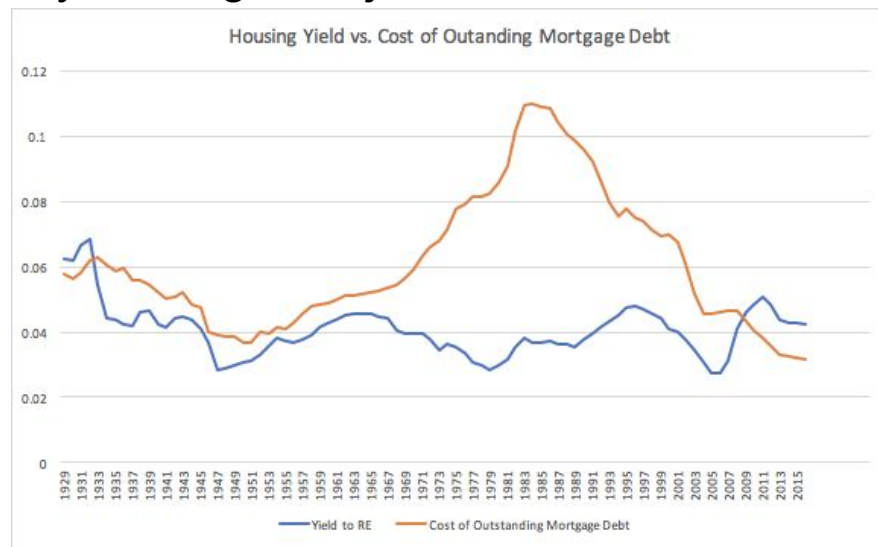
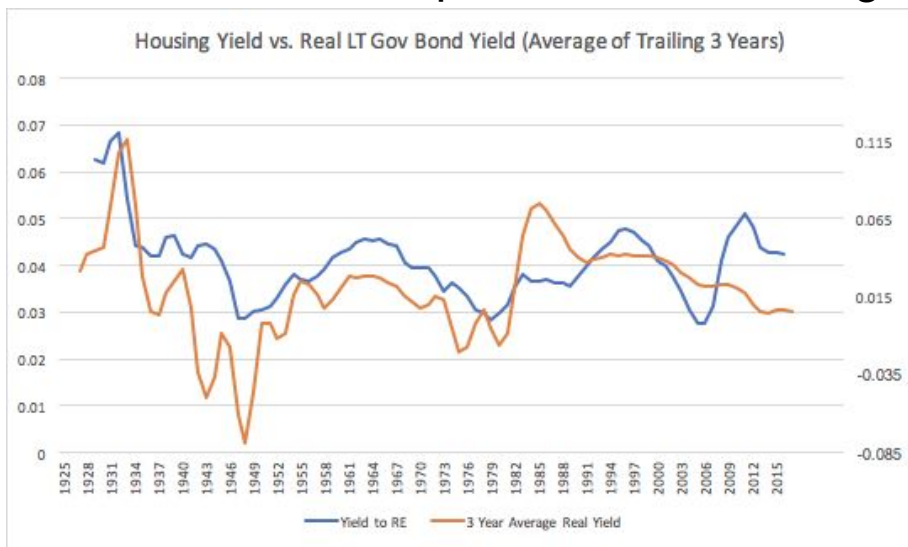
Tale of Two Cities: Political Issues Drive Housing Shortage

- High Productivity Cities show some of the lowest building levels in the nation: the result of political constraints, rather than the free-market.
- In high housing cost cities, there are substantial political constituencies allied against new construction. YIMBYs and tenant groups (against their own interests) often succeed in blocking construction. Since each individual project benefits only developer and landowner, hard to get community support.



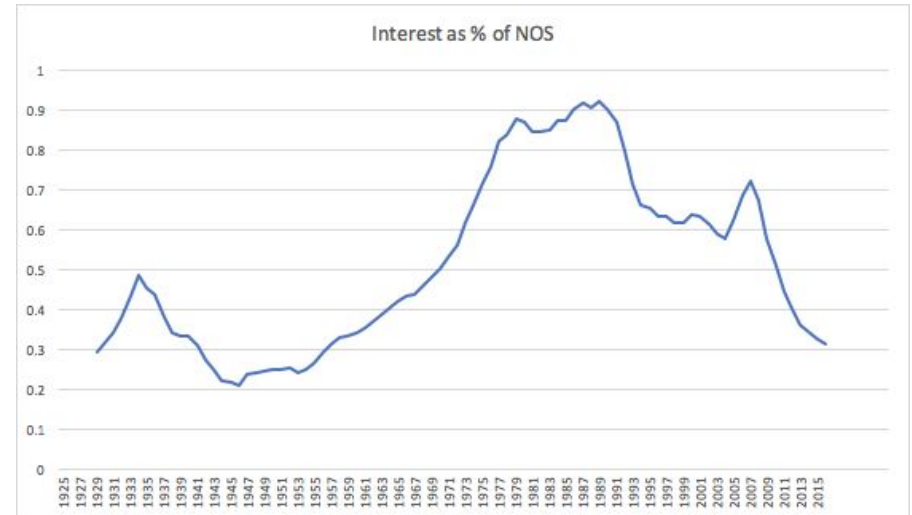
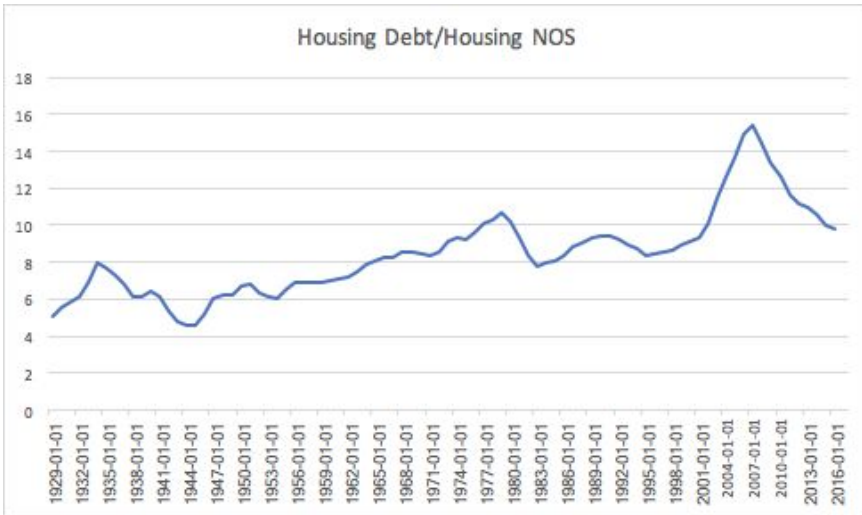
Housing Yields Attractive in Low Real Yield Environment

- Net yield to housing assets (NOS/Market Value of Households RE) are just above 4%
- Cost of mortgage debt below housing yields for the first time since before the Great Depression (and FHA)
- Thesis: This spread will be arbitrated away, fueling a major bull market



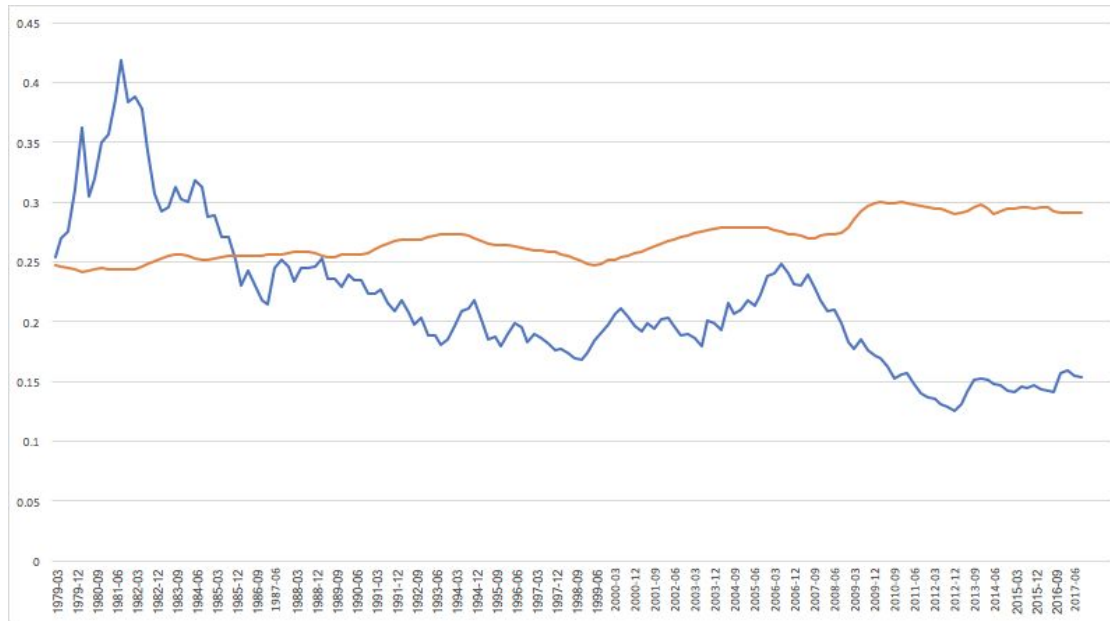
Mortgage Debt Sustainability

- Housing Debt/Housing NOS is still de-leveraging from 2007 peak
- Housing interest as % of Housing NOS is now down to levels last seen in the 1950s due to falling leverage + falling interest rates



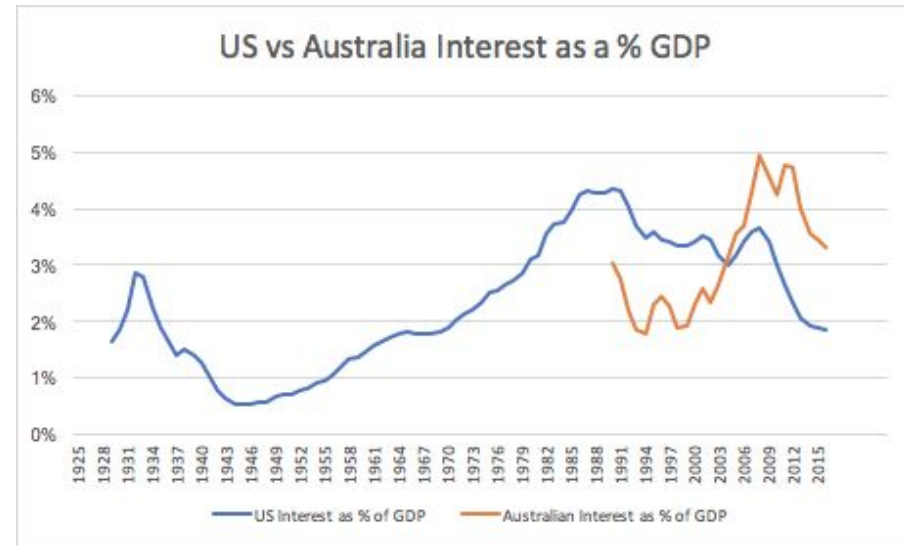
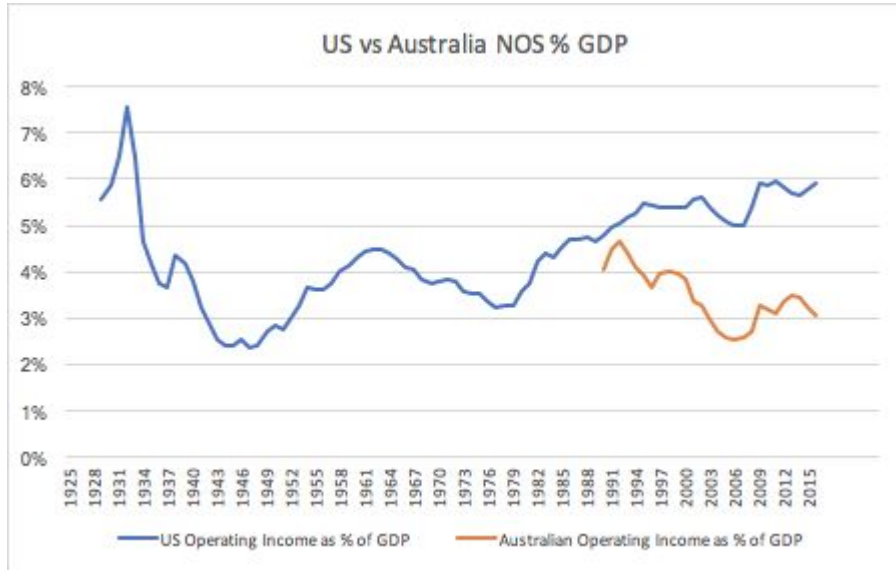
Buy vs. Rent: US in Hedge Finance Stage

- Zillow data for median rent (orange) and median mortgage payment (blue) as % of income
- For the average home buyer, the value of home buying is clear, but mortgage access is constraining people from buying



International Comp: What a Real Housing Bubble Looks Like

- US NOS well covers interest (3.2x), while Australian interest exceeds NOS!
- Australian housing oversupply evident in falling NOS as % of GDP
- Textbook 'Ponzi' Finance in Australia (Only logical reason that housing interest > housing NOS is that people believe prices will keep rising)





III. Risks: What Can Go Wrong?

- YIMBY's gain real traction politically
 - Seeing this anecdotally in California with the Democratic Party moving towards YIMBY policies to lower rent costs for ascendant renter-dominant Hispanic constituency (although this is not really showing up in substantially higher permits)
- Rent Control?
 - Fails to solve fundamental problem of lack of housing in high-value areas and cements fundamental undersupply
- A deportation program by Trump Admin.
 - Unlikely that gov. deports millions required to end housing shortage

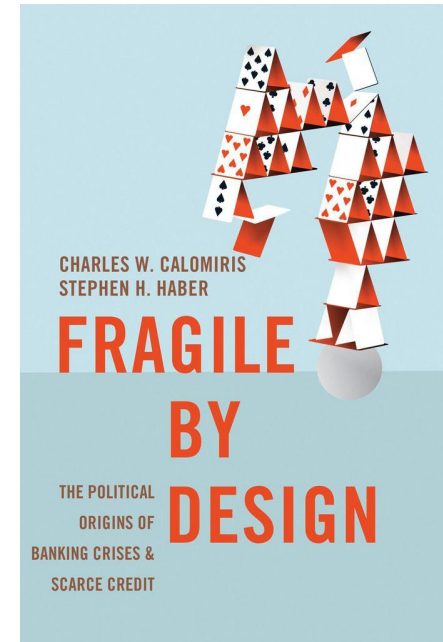


Millennials tell boomers 'Yes In My Backyard'

Sacramento, especially the Downtown and Midtown areas, has the fastest rising rents in the country. As the Bay Area's middle class gets "squeezed out in droves," as a Newsweek article put it last year, those rents will continue rise.

Macroeconomic Risks to Housing

- Substantial increase in real yields historically has seen a strong correlation with housing
 - Is it a 'good' increase in real yields?
- US government credit risk called into question
 - Arguable that people would see housing as a safe haven asset and inflation hedge (like 1970s bull)
- Bank credit contraction
 - Much less important to Housing market today than in earlier economic cycles given the government's domination of the market
 - System less structurally fragile today than history (see Fragile By Design)
- Boomers lack of retirement plan necessitates reverse mortgages, and forced selling at their deaths



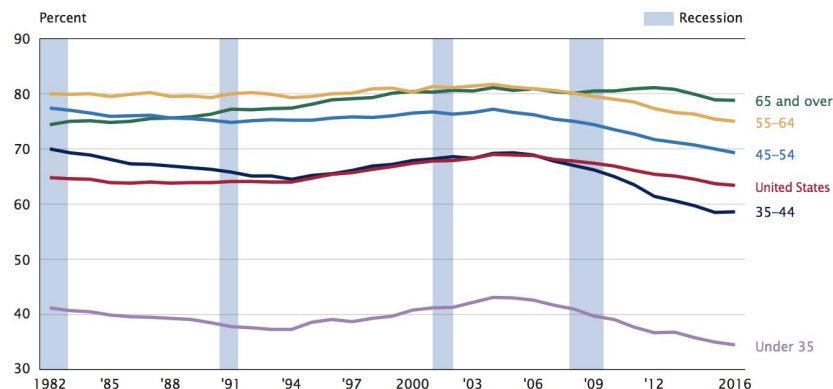


IV. Why it Matters: Vital Insights into US Consumer and Business Cycle

Effects of Growing Land Rent on Consumption

- Rising land rents distribute real and phantom income to older, higher-income households with lower marginal propensity to consume
- Housing value capitalization needs funding. '00 boom built on Chinese savers
 - Who will be the savers next?

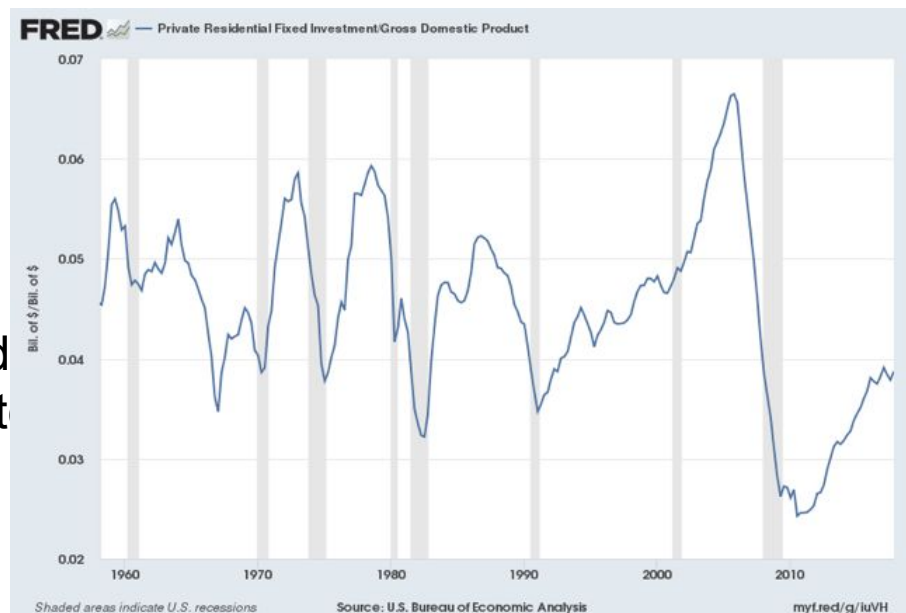
Figure 7.
Annual Homeownership Rates for the United States by Age Group: 1982–2016



- High land rents to housing will provide retirement to politically powerful boomers in key cities
 - Political implications? Strong incentive to keep housing undersupplied
- Bullish for businesses serving boomers
- Bearish for businesses serving millennial discretionary spending

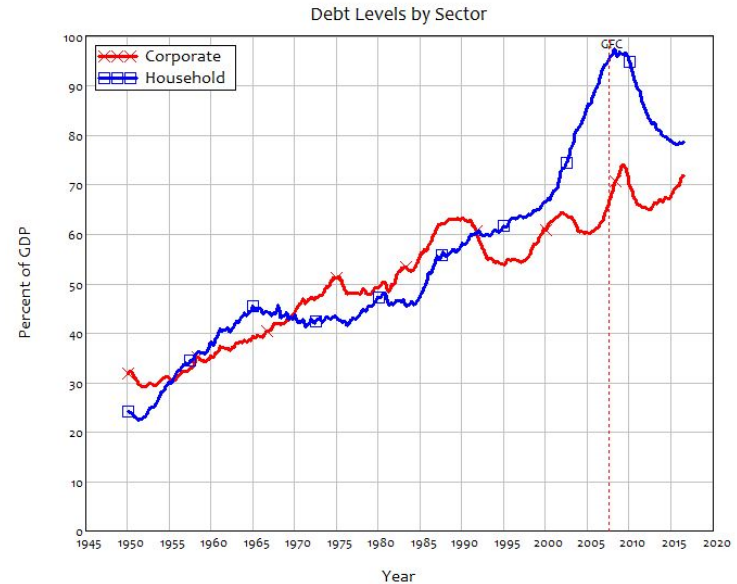
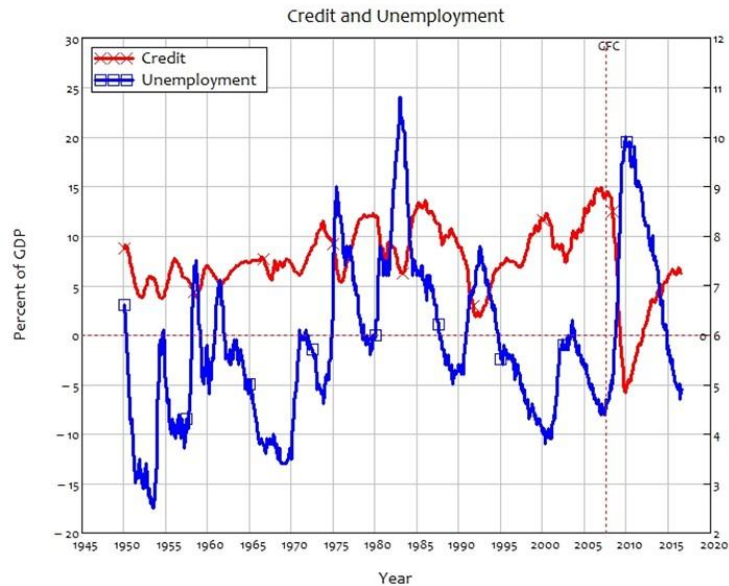
Housing IS the Business Cycle?

- UCLA Economist Edward Leamer argues the residential investment cycle is vital to understanding Business Cycles.
- Reasons for Housing's Cyclical importance
 - New household formation associated with other purchases (furniture, new TVs, etc)
 - Housing sales and downsizing leaves sellers with a lot of \$
 - Increase in housing value provides equity that can be easily capitalized
- Household debt growth strongly correlated with the Economic Cycle
- Takeaway → Housing vital to consumer debt cycle; current setup is supportive of an ongoing economic expansion



More on Housing's Importance

- Understanding housing helps us understand credit growth by US consumers
 - Steve Keen's work ignores rising NOS which supports higher debt levels
- Macro-research firm Variant Perception stresses importance of permits (representative of the housing cycle) in forecasting recessions





V. Investment Opportunities: How to Ride the Bull Market

- Leveraged Single Family

- Pros:

- Cheap long-term non-recourse leverage available through the government
- One of the best options for individual investors or aspiring homeowners
- Low volatility
- Tax advantages and subsidies

- Cons:

- Illiquidity
- Hard to diversify idiosyncratic property/local area-specific risk



Long Trades: Ride the Bull

- Homebuilders

- Pros:

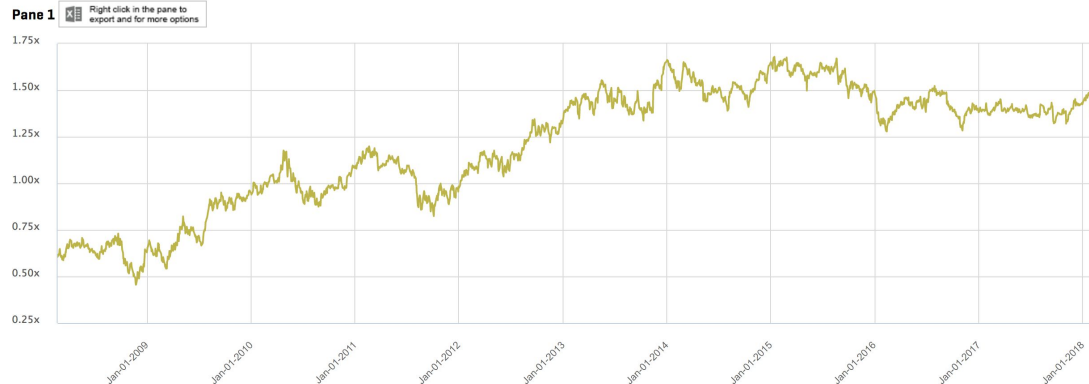
- Operating Margins tied to home prices
 - Valuations for the sector at TEV/Forward Revenues at 1.4x have not risen since 2013

- Cons:

- Potential business model issues

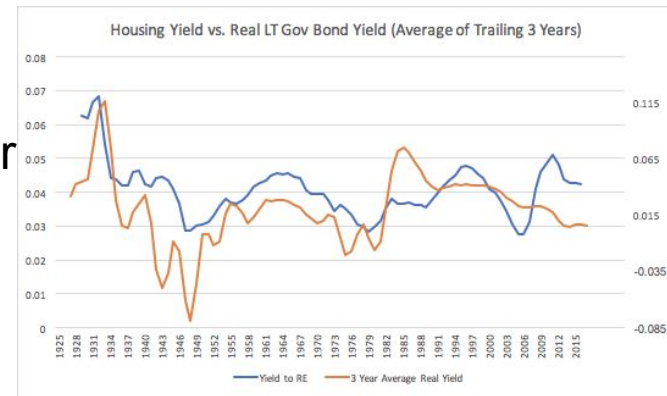
D·R·HORTON®
America's Builder

S&P Homebuilders Select Indust... Daily TEV/Total Revenues : 1.39



Relative Value Trade: How Does 5% Positive Carry Sound?

- Long Publicly Traded SFR REITs
 - Trade at discounts
 - AMH trades at 1.06x book not pricing in appreciation since acquisition
 - Decent EBITDA yields
 - AMH Forward EBITDA/TEV -- 6.4% EBITDA yield
 - INHV Forward EBITDA/TEV -- 5.4% EBITDA yield
 - Inflation hedge of rising rents hedges against TIPS inflation risk
 - Best In Class Management
 - INVH ex-Blackstone SFH company
 - AMH Chairman is Public Storage founder
- Short 30 Year TIPS
 - Low cost with yields only 1.02% + CPI rate
 - Positive correlation with Housing
 - Long-duration matches long-duration house



- The US housing bust and the regulations on lending caused mortgage lending to become tight
- This tight credit has led to a US housing market that is undervalued when compared to its economic earnings, which can be measured by the Housing Sector's Net Operating Surplus (NOS)
- This NOS has been rising in recent decades as a share of economic output largely because of constraints on building in high-productivity/amenity cities
- Given the likely secular bull market in US, investors should position themselves to profit by buying property, homebuilders, and single-family REITs and finance the trade by borrowing (if they can) through long-term government-controlled channels.

Thank you!

Further Reading: Great Sources on the US Housing Cycle

- <http://idiosyncraticwhisk.blogspot.com/>
 - Kevin Erdmann's fantastic and criminally underfollowed economic analysis of the housing market. A few of the charts from this presentation were taken from his blog. His upcoming book this year will be a must-read.
- [Can We Avoid Another Financial Crisis?](#)
 - Keen provides good insights into how private credit growth drives cycles in economic demand. However, he does not recognize that growing rent as a proportion of income justifies higher mortgage levels.
- [Randal O'Toole](#)
 - Cato Institute scholar who details how zoning inflates land rents to housing and pushes house prices up.
- [Bridgewater's Economic Principles](#)
 - Similar to Keen's work, Bridgewater provides insights into the effects of debt on economic cycles.