



FEDERAL RESERVE BANK *of* NEW YORK

# The Definition of Market Value

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Joseph Tracy

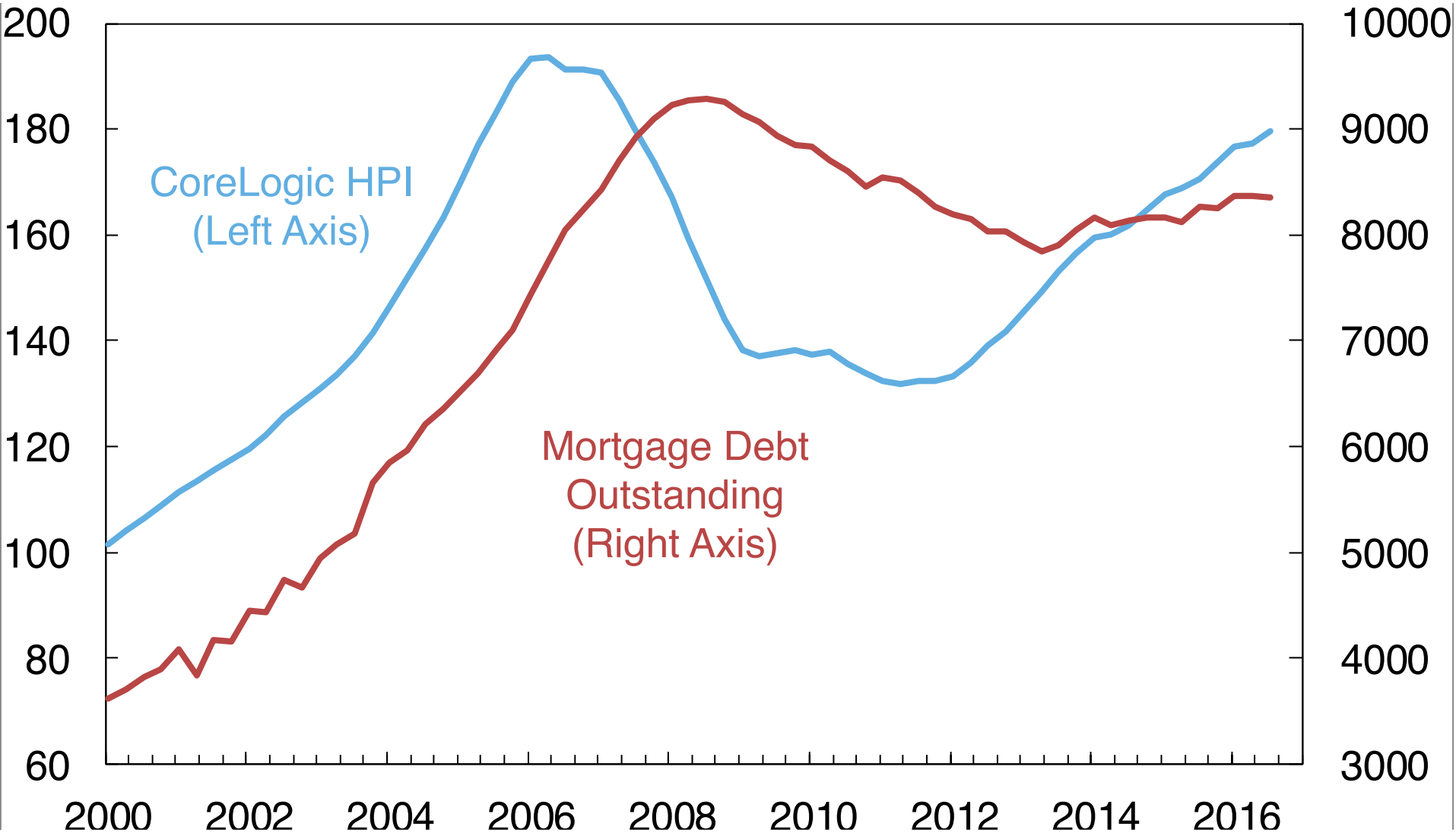
Collateral Risk Network

These views are my own and not necessarily the view of the Federal Reserve Bank of NY or the Federal Reserve System (in particular Art Lindo)

# Housing Boom & Bust

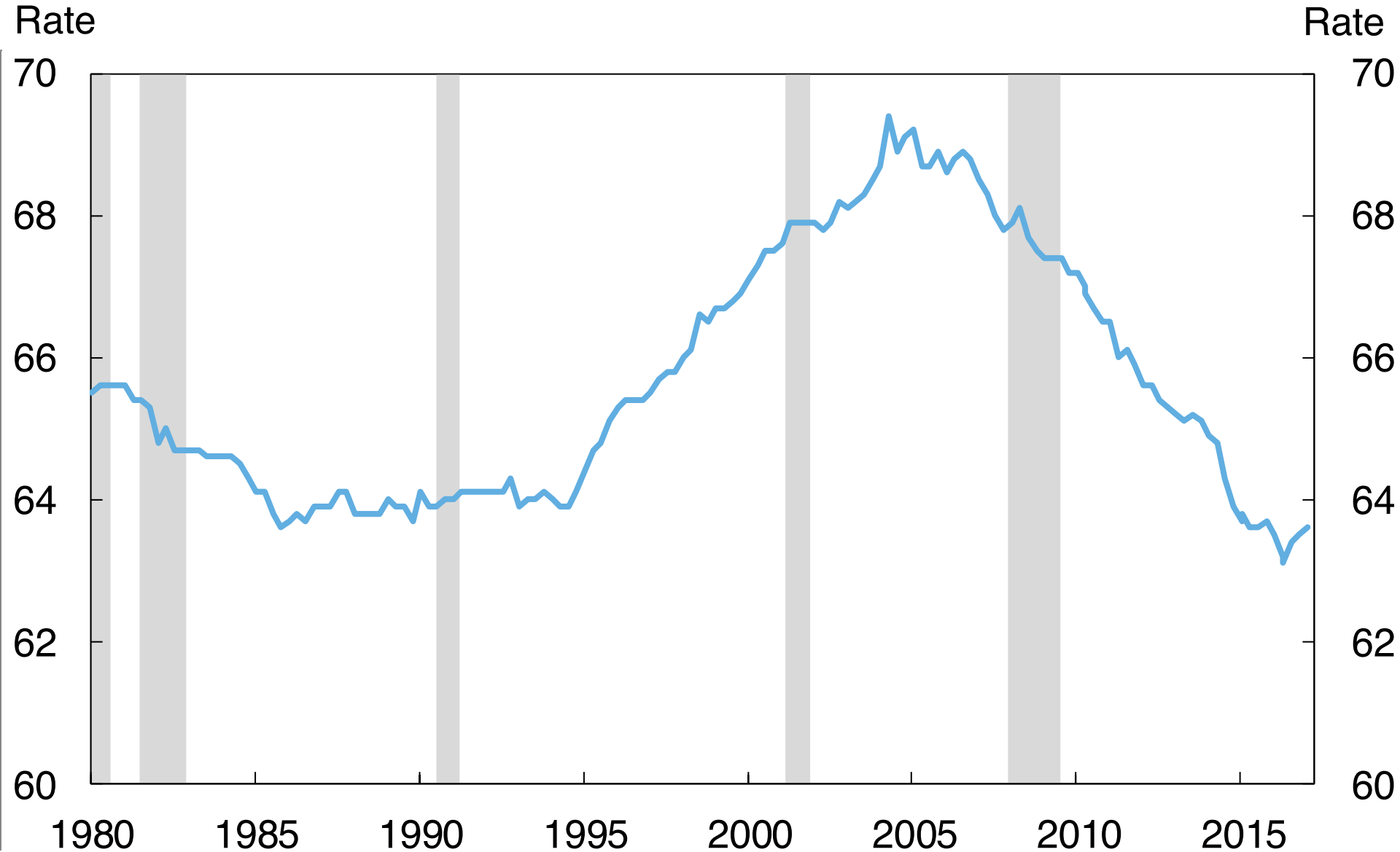
Index (Jan 2000 = 100)

\$ Billions



Source: FRBNY Consumer Credit Panel/Equifax and CoreLogic

# Aggregate Homeownership Rate



Source: Census Bureau via Haver Analytics

Note: Shading shows NBER recessions.

# Important Question:

- Could appraisers have helped to identify the departure of house prices from market fundamentals?
  - Comparable sales appraisal is a relative value exercise
    - Will not help to identify when house prices are systematically being impacted by speculative dynamics
  - Replacement cost appraisal is no better in this regard
    - Land values incorporate any speculative premium

# Housing Rent vs House Prices

- Rents should be tied to local market fundamentals
  - Rents reflect the “market value” of the **current** housing services
  - Renters will not pay more or less today due to the future evolution of the housing market
  - Speculative premiums in house prices should not impact current rents

# Relationship Between Rents & Prices

- House prices reflect the asset value of the house
  - The asset value reflects the discounted value of the future housing services provided by the house
  - Rents reflect the current value of the housing services
- User cost relationship
  - $P$  = house price,  $R$  = annual rent,  $u$  = “user cost”

$$\frac{P}{R} = \frac{1}{u}$$

# Determinants of User Cost

- User cost of housing reflects the following factors:
  - Mortgage rate (+) + => lower P/R
  - Property tax rate (+)
  - Marginal tax rate (–) – => higher P/R
  - Property tax rate (+)
  - Insurance rate (+)
  - Maintenance as % of house value (+)
  - Depreciation rate (+)
  - Risk premium for owning a house (+)
  - **Expected house price appreciation (–)**

# Implied P/R in “Normal” Markets

- Set house price appreciation at historical average of 3.8%
- Vary the other factors that impact user cost using reasonable values
  - Produces P/R ratios ranging from 13 to 20
  - P/R of 30 or higher indicative of speculative market
- P/R helps us interpret house price dynamics
  - Rising prices and stable P/R: strong demand and/or supply restrictions
  - Rising prices and increasing P/R: speculative behavior



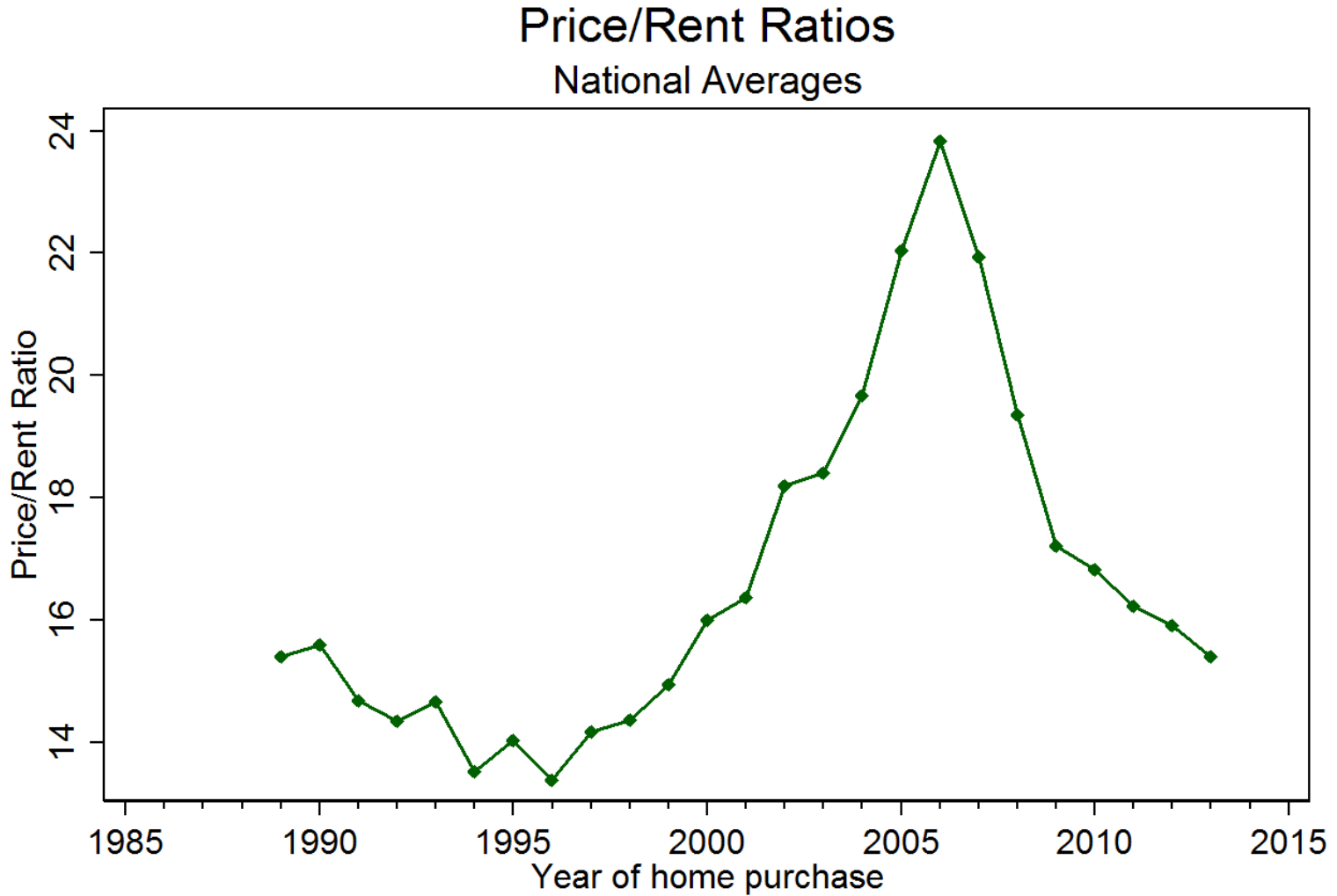
# P/R During the Boom & Bust

- Estimate a statistical model of annual rents based on the characteristics of the house, the metro area and time period
  - Try to mimic what appraisers would do in their rent assessment for sold properties
- Use this statistical model to generate the rent for owner-occupied houses that recently sold
- Use the American Housing Survey
- For each house sale, we calculate the implied P/R

# P/R During the Boom & Bust - continued

- Characteristics used to explain annual rents
  - House and lot size
  - Number of bedrooms and baths
  - Presence of a basement and garage
  - Presence of central air system
  - Age of the house
  - Quality of house and neighborhood rating
  - MSA/year

# Mean P/R for U.S.

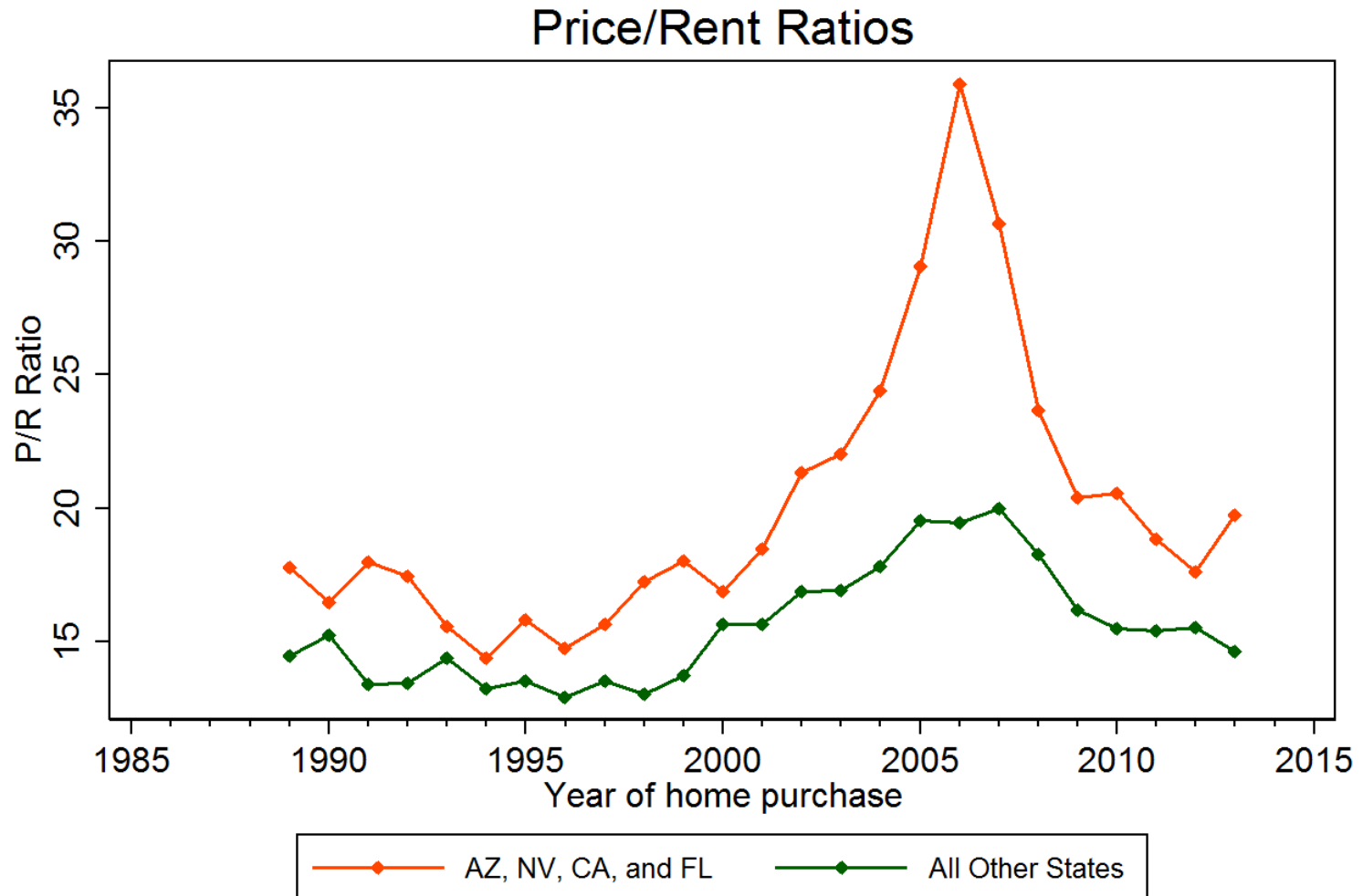


Generated using the AHS, Years 1989-2013

# Distribution of P/R – by year

<u>All States</u>			
<u>Year</u>	<u>Median</u>	<u>P75</u>	<u>P95</u>
1989	12.86	20.07	<b>31.52</b>
1991	12.91	18.79	<b>28.62</b>
1993	13.37	18.53	<b>28.74</b>
1995	13.05	17.51	<b>24.84</b>
1997	12.90	17.27	<b>27.12</b>
1999	13.15	17.61	<b>33.76</b>
2001	13.94	19.40	<b>36.99</b>
2003	15.29	22.67	<b>39.16</b>
2005	18.88	<b>26.98</b>	<b>48.23</b>
2007	17.64	<b>25.88</b>	<b>59.80</b>
2009	14.31	20.45	<b>39.14</b>
2011	13.67	19.52	<b>37.33</b>
2013	13.96	19.52	<b>32.00</b>

# Mean P/R for Sand States



Generated using the AHS, years 1989-2013

# Distribution of P/R – by year

<u>Sand States</u>			
<u>P Year</u>	<u>Median</u>	<u>P75</u>	<u>P95</u>
1989	17.07	24.43	<b>33.80</b>
1991	17.43	22.98	<b>33.44</b>
1993	14.03	19.11	<b>32.22</b>
1995	15.30	18.10	<b>27.03</b>
1997	13.67	20.00	<b>32.14</b>
1999	15.30	21.50	<b>38.98</b>
2001	15.25	21.97	<b>40.47</b>
2003	18.60	<b>30.21</b>	<b>43.67</b>
2005	<b>26.22</b>	<b>37.29</b>	<b>54.80</b>
2007	<b>25.49</b>	<b>37.32</b>	<b>71.01</b>
2009	16.39	23.71	<b>50.60</b>
2011	15.32	23.58	<b>47.79</b>
2013	15.63	22.08	<b>60.70</b>

# Rent Appraisals As MacroPrudential Signal

- Appraisers would do an appraisal and annual rent assessment
  - Report the implied P/R as well as appraised value
  - P/R values above 25 would be a signal to buyer and lender that prices are getting speculative

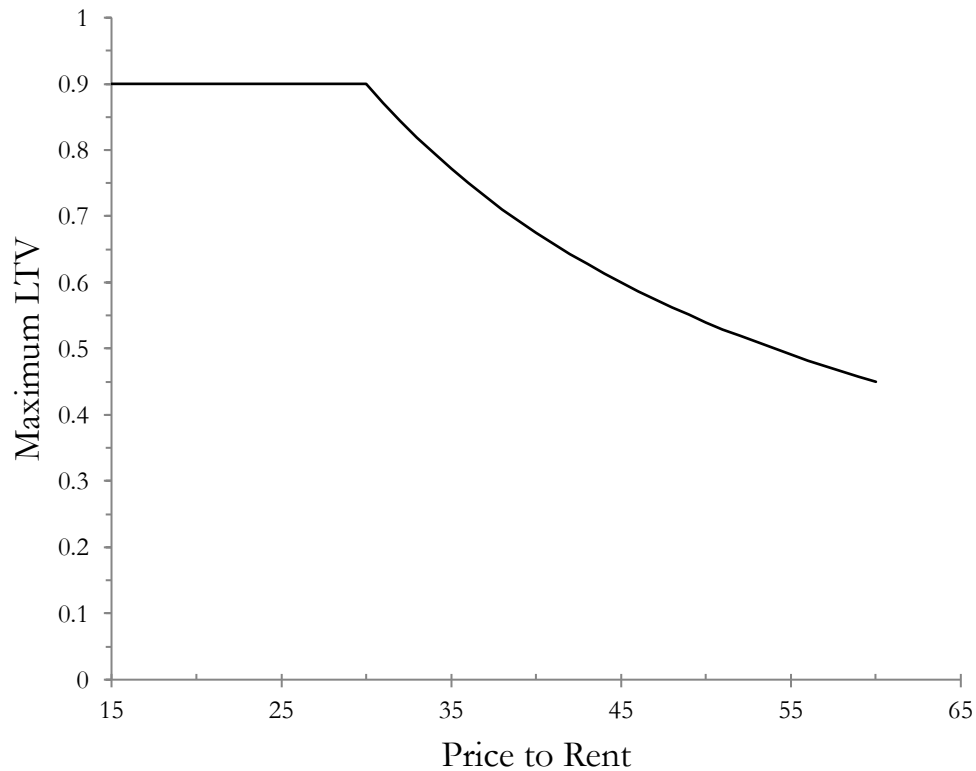
# Rent Appraisals As MacroPrudential Tool

- Macroprudential lending policy
  - **Goal:** countercyclical LTV
  - Lenders can loan up to a stipulated % of the **minimum** of the appraised value or 30 times rent
  - In normal times, appraised value  $< 30 * \text{Rent}$ 
    - Policy would have no impact on origination LTV
  - In speculative times, appraised value  $> 30 * \text{Rent}$ 
    - Borrower would have to increase downpayment
    - Lowers the origination LTV
  - As markets cool, appraised value  $< 30 * \text{Rent}$ 
    - Allows the origination LTV to increase



# Rent Appraisals As MacroPrudential Tool

- Assume that maximum origination LTV is 90% in “normal” market



# Summary

- House prices are subject to speculative behavior – tied to unrealistic expectations for future house price appreciation
  - Comparable sales and replacement cost appraisal methods are not designed to identify these situations
- Rents reflect current market value of the housing services
  - Not affected by unrealistic house price expectations
- P/R is a useful tool to identify/signal and address housing speculation
  - Allow appraisers to help support financial stability