

Reconsidering the Purpose and Function of Real Estate Price Indices

Robert J. Shiller

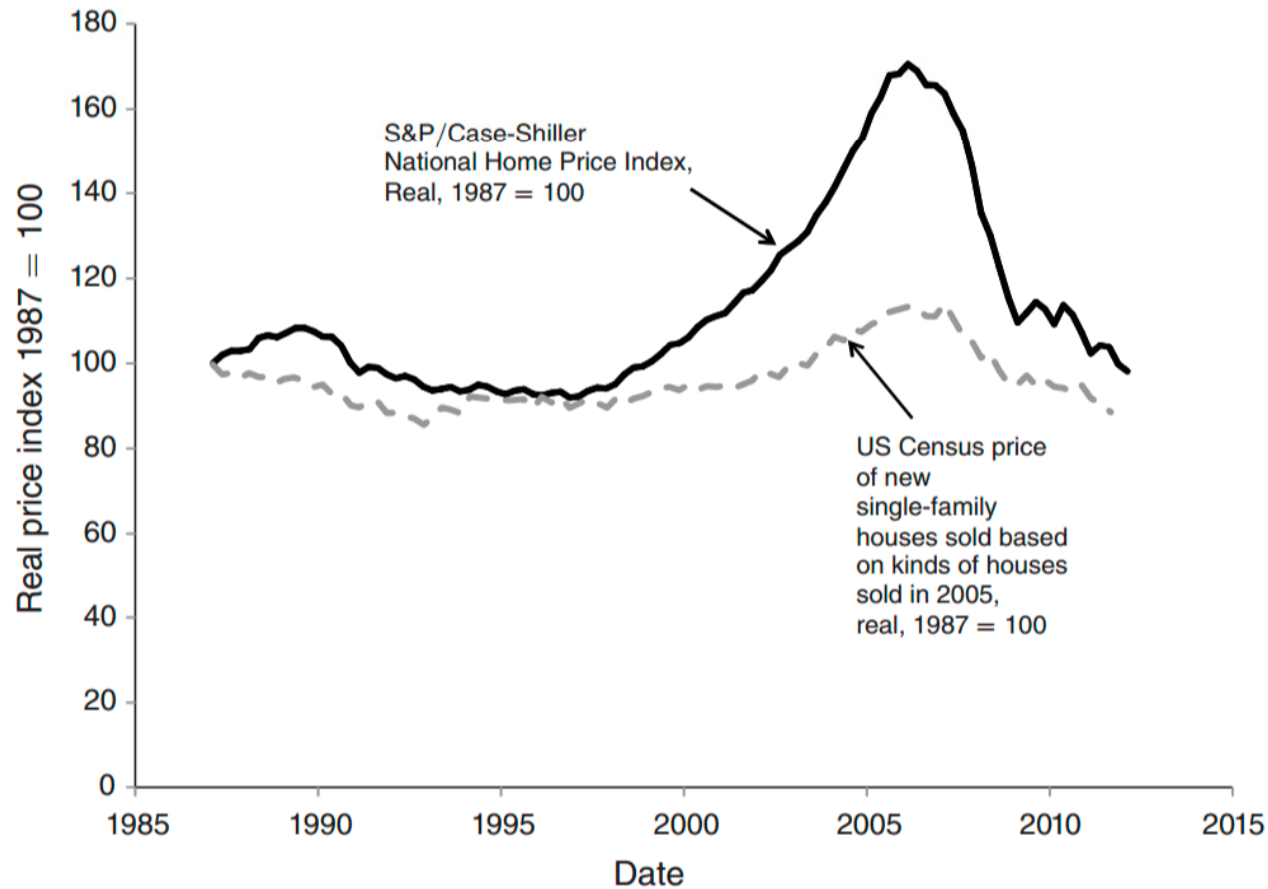
Yale University

**Second IMF Statistical Forum: Statistics for Policymaking
– Identifying Macroeconomic and Financial
Vulnerabilities,” November 18-19, 2014**

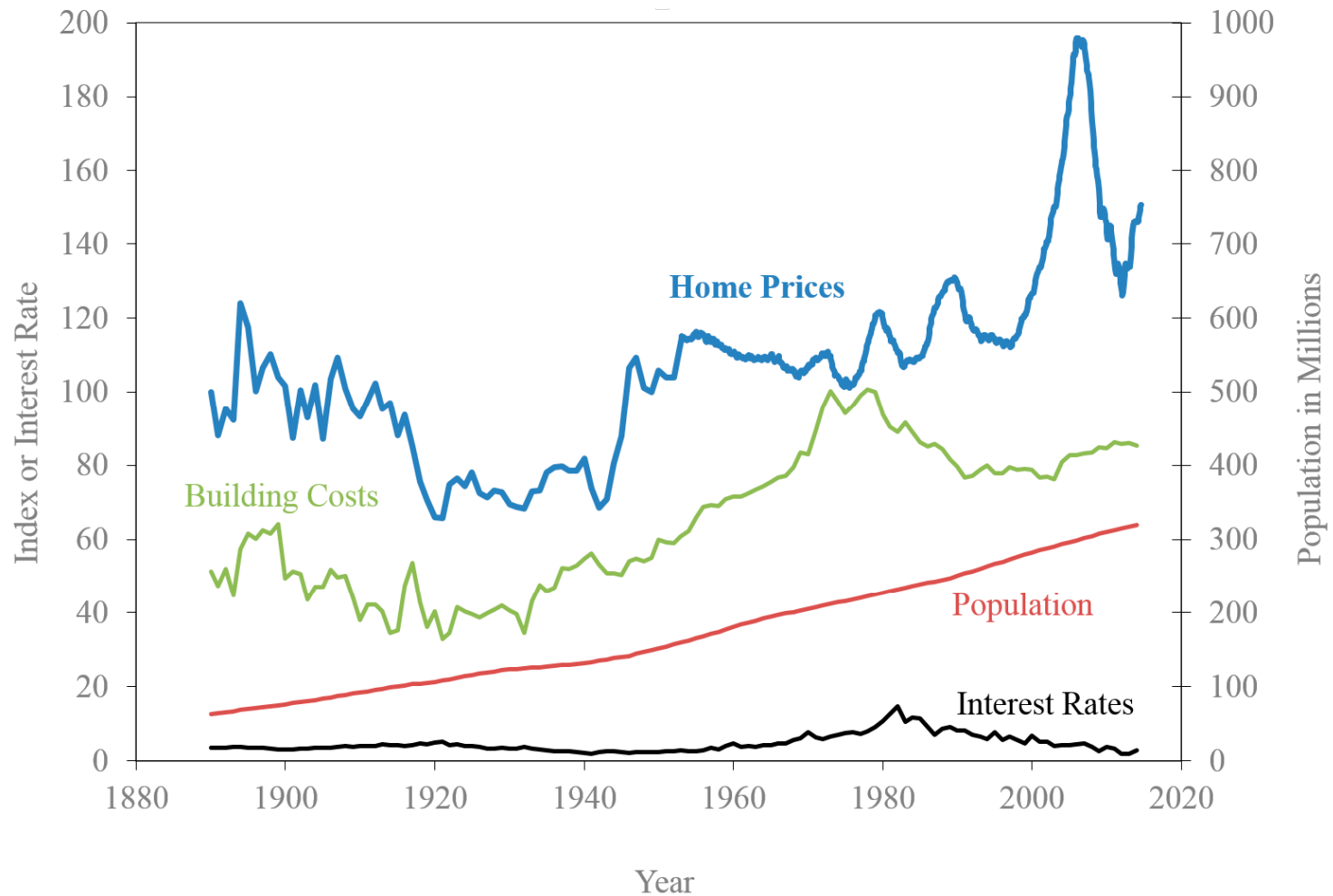
Basic Questions about Home Price Indices

- What are speculative prices like real estate prices?
- What is the nature of the problem of infrequent trading of real estate?
- Why do we want to measure home prices?
- What fundamental problems do we want to solve by using home price indices?
- Should improving our measurement of prices have the form of setting up new markets rather than just improving our econometrics?
- Are our econometric criteria changed when the purpose of indices is the settlement of financial contracts?

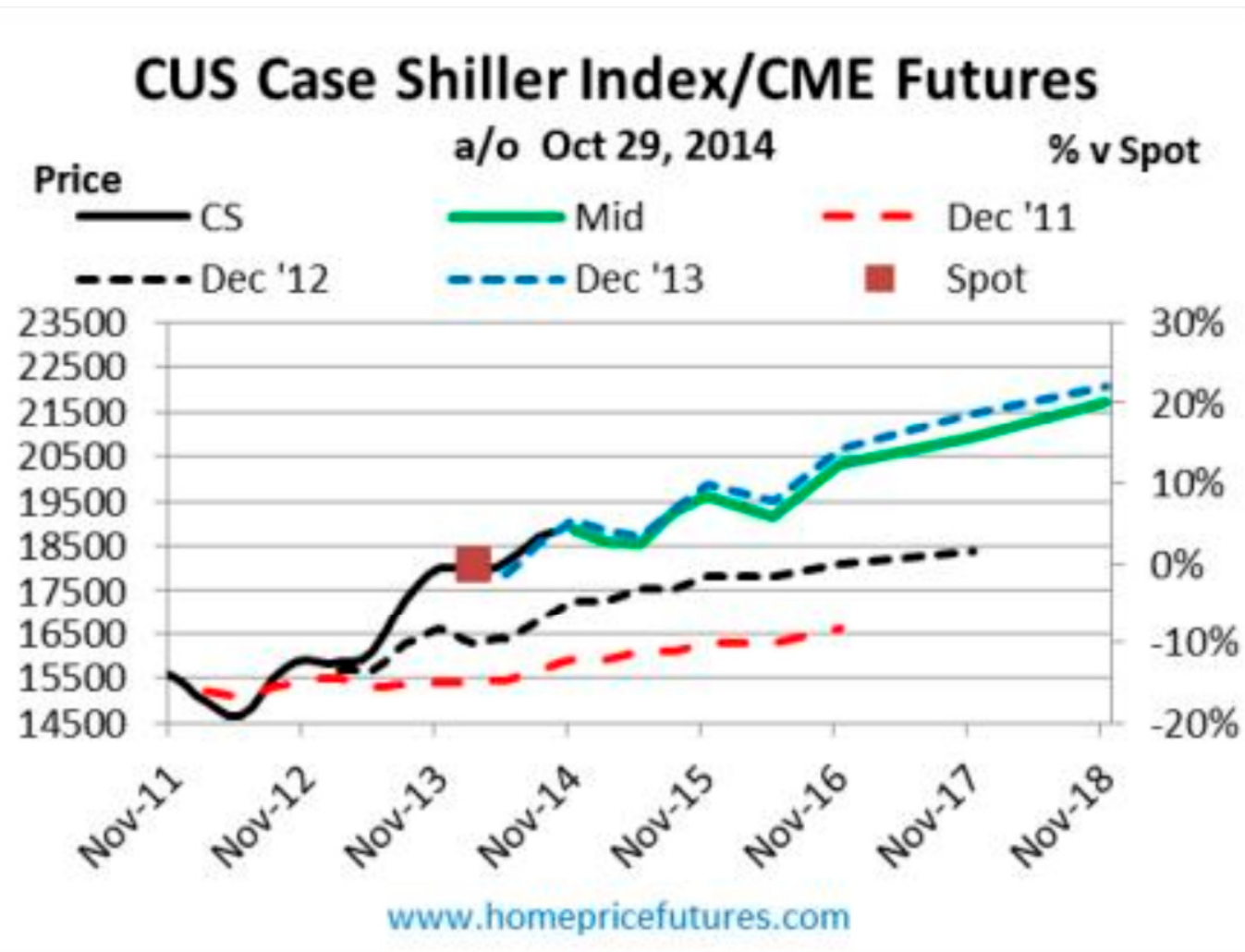
Comparing S&P/Case-Shiller National Index with Census Constant Quality Index 1987-2013



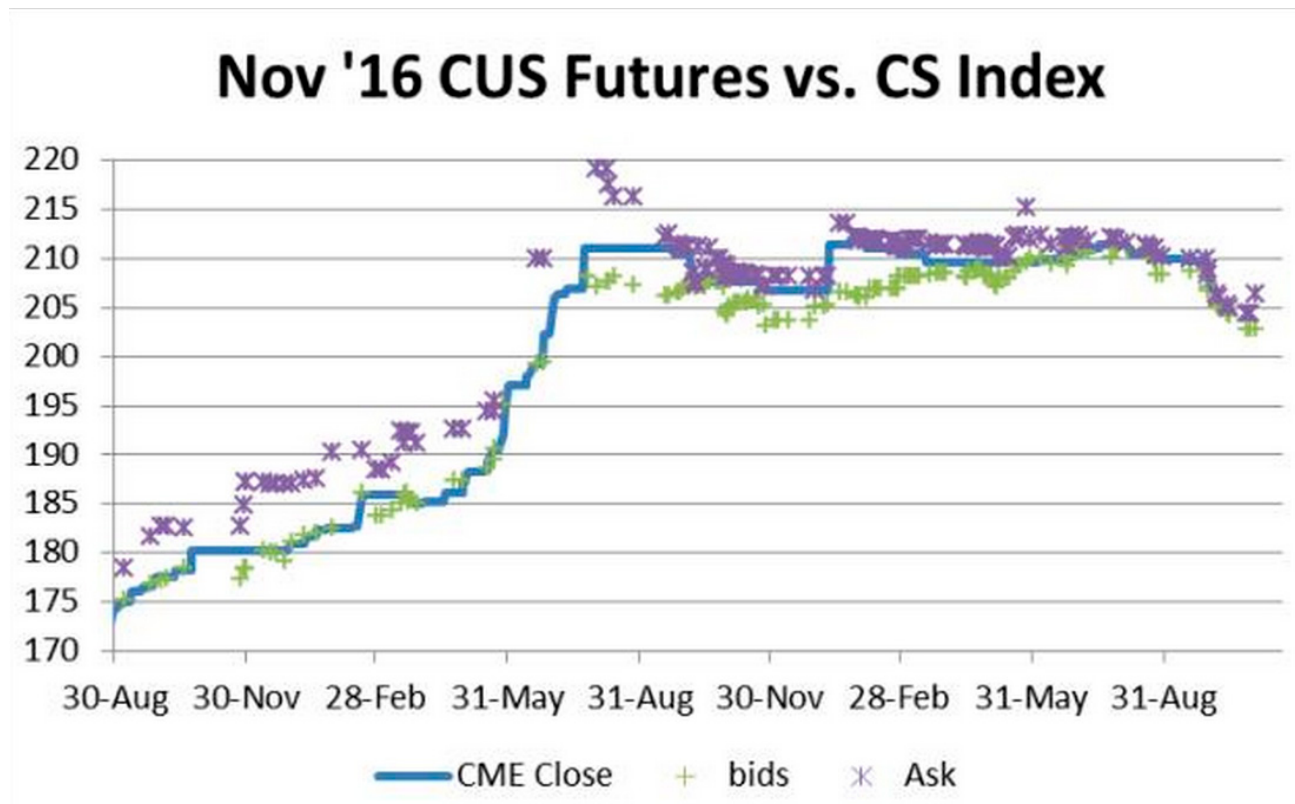
US Real Home Prices from R. Shiller *Irrational Exuberance* 3rd Ed. 2015



CME Futures Trading of S&P/Case-Shiller Indices

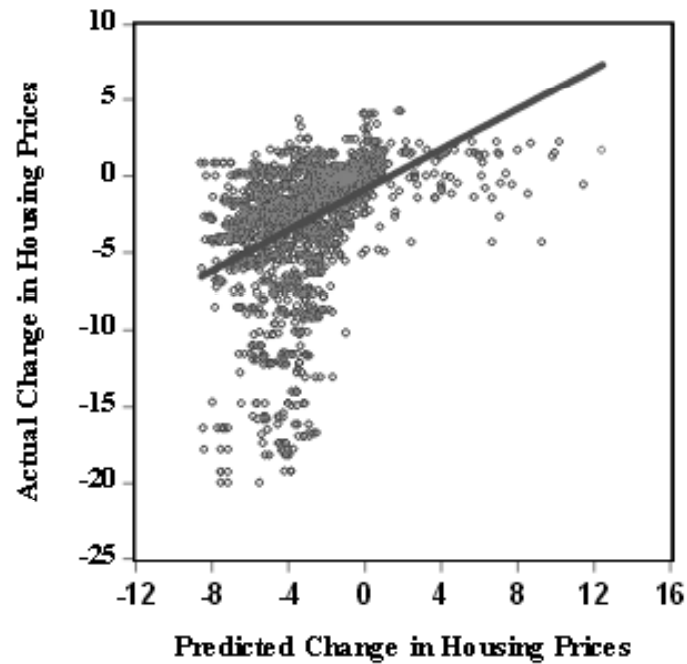


Chicago Mercantile Exchange (CME) US Home Price Futures (Index Aug 2014 is 188.58, so 11% up)



From “The Housing Futures Market” G. Donald Jud and Daniel T. Winkler, *J. Real Estate Lit* 2009

Exhibit 12
Predicted and Actual Changes in Housing Prices



Some Ideas (1993)

- Hedonic Repeated Measures Indices

$$z = \begin{bmatrix} 1 & 0 & -s_{10} & s_{11} & 0 \\ 1 & 0 & -s_{20} & s_{21} & 0 \\ -1 & 1 & 0 & -s_{31} & s_{32} \\ -1 & 1 & 0 & -s_{41} & s_{42} \\ 0 & 1 & -s_{50} & 0 & s_{52} \\ 0 & 1 & -s_{60} & 0 & s_{62} \end{bmatrix} \quad y = \begin{bmatrix} p_{11} - p_{10} \\ p_{21} - p_{20} \\ p_{32} - p_{31} \\ p_{42} - p_{41} \\ p_{52} - p_{50} \\ p_{62} - p_{60} \end{bmatrix} \quad (4)$$

- Perpetual futures

$$s_{t+1} = (f_{t+1} - f_t) + (d_{t+1} - r_t f_t) \quad (5)$$

Progress in Finance

- Experimentation
- Behavioral finance
- Government role in facilitating innovation