



# Understanding Housing Bubbles in Light of Recent Experience

Dallas Fed

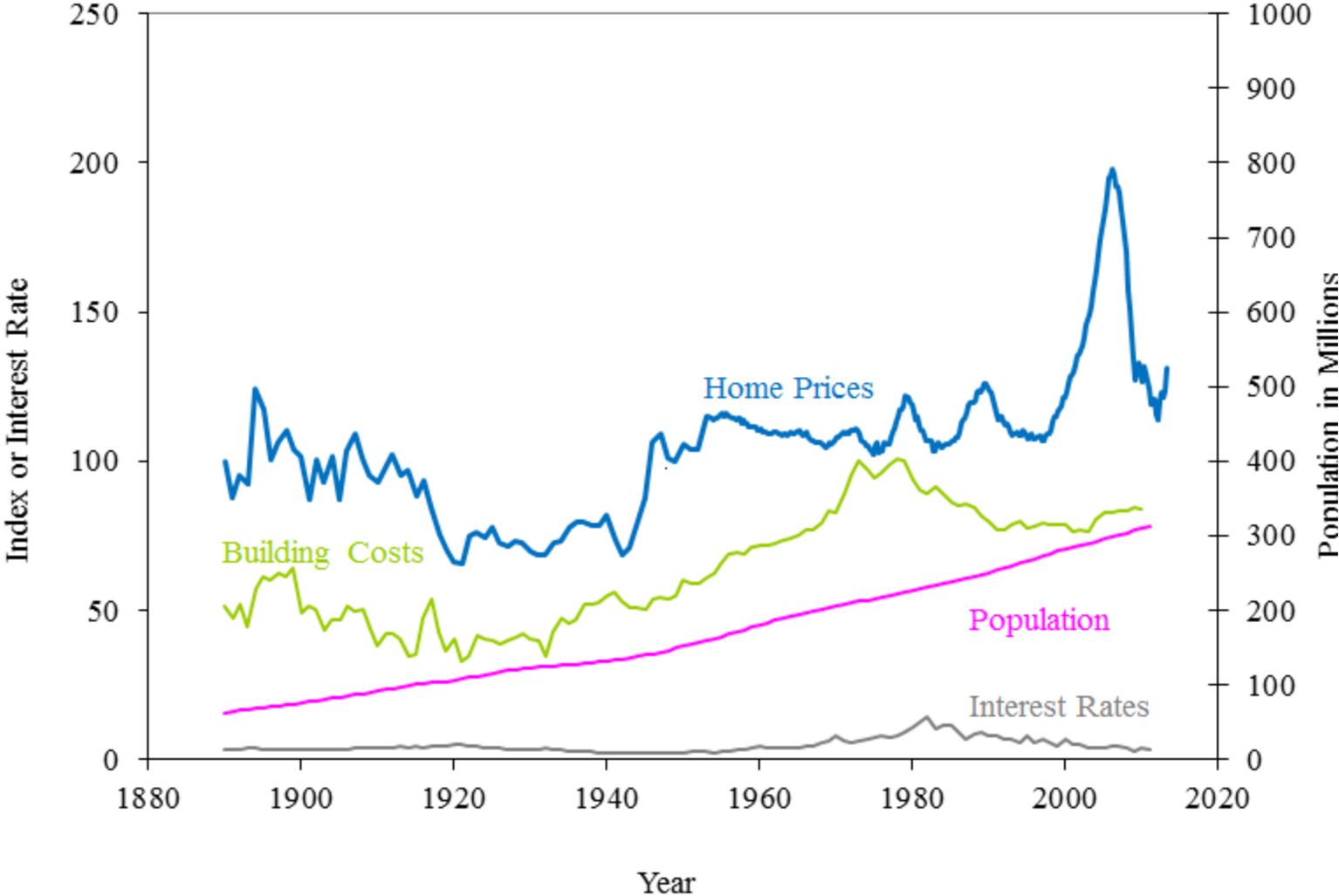
Housing Stability and the Macroeconomy:  
International Perspectives

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Robert Shiller, Yale University

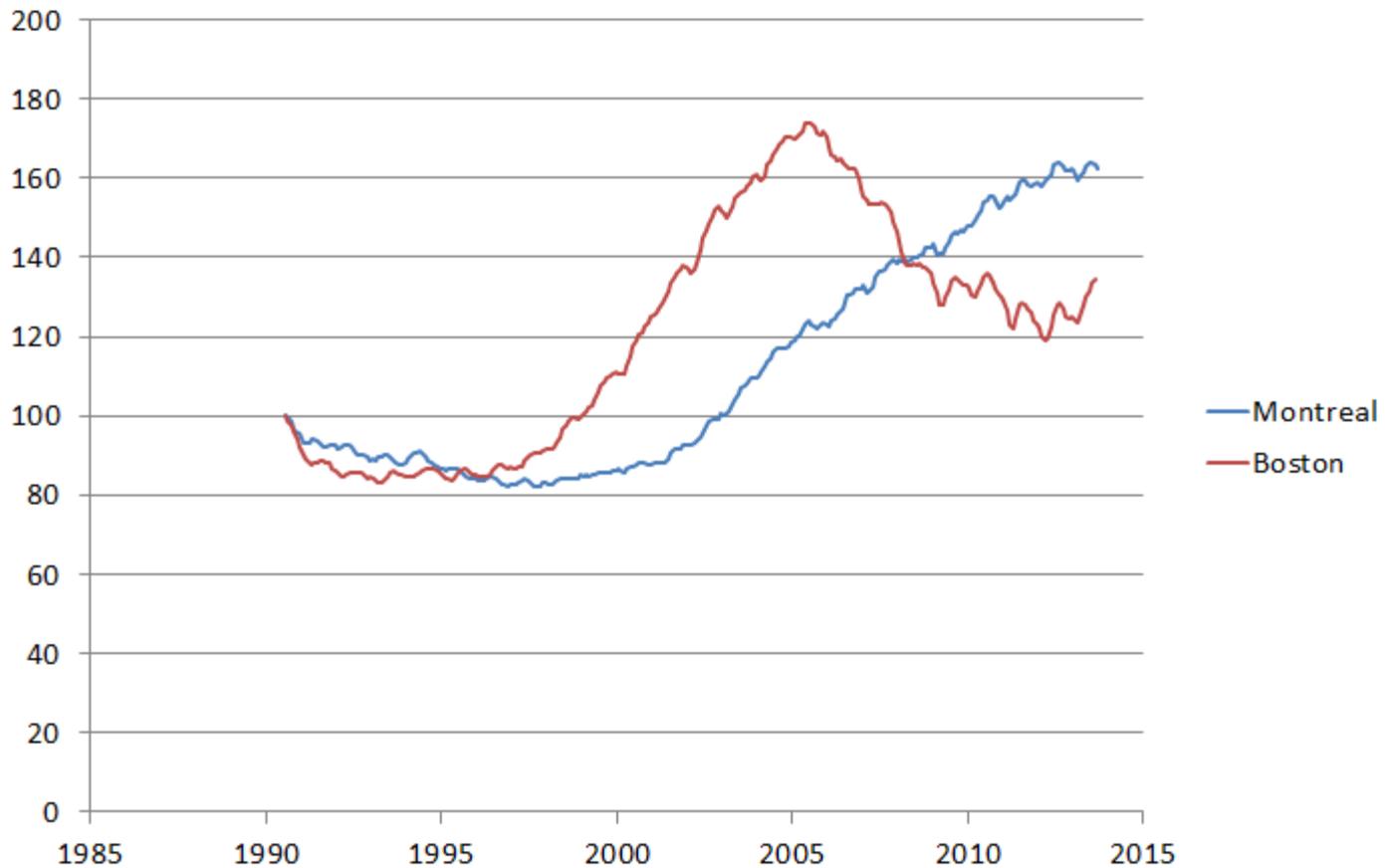
November 15, 2013

# USA Real Home Prices and Housing Fundamentals 1890-2013

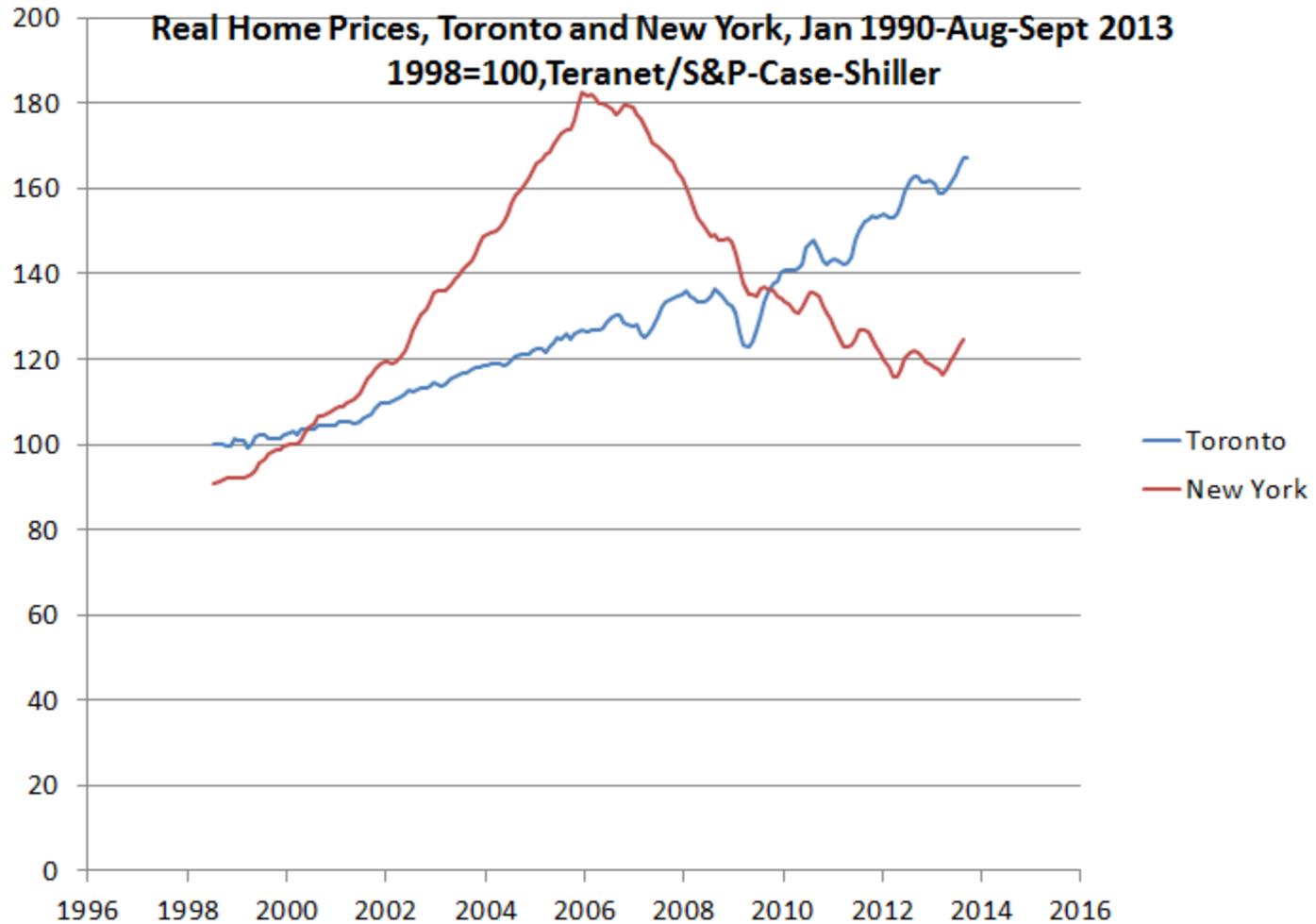


# Montreal and Boston

Real Home Prices, Montreal and Boston, Jan 1990 to Aug-Sept 2013,  
1990=100, Teranet, S&P/Case-Shiller

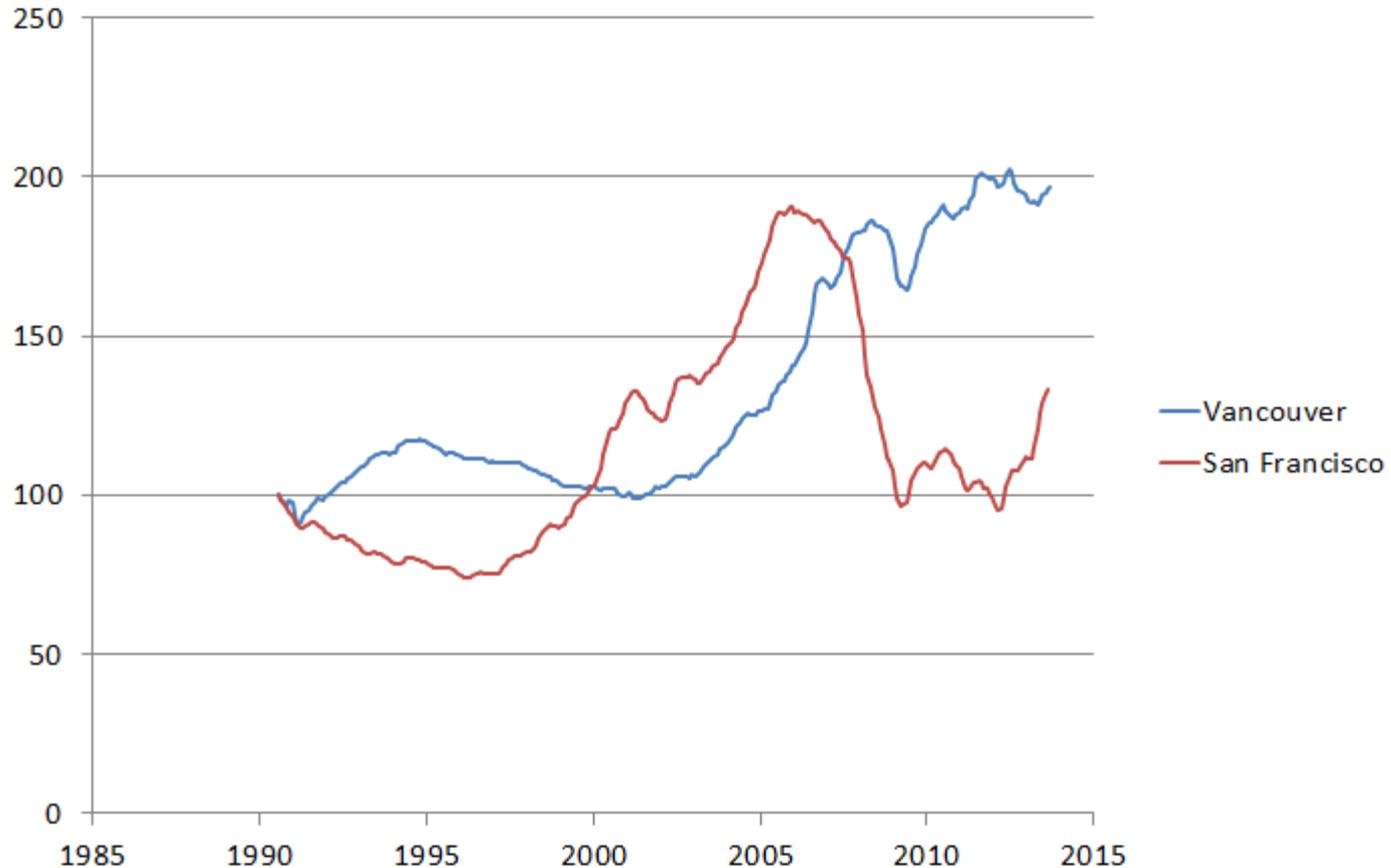


# Toronto and New York

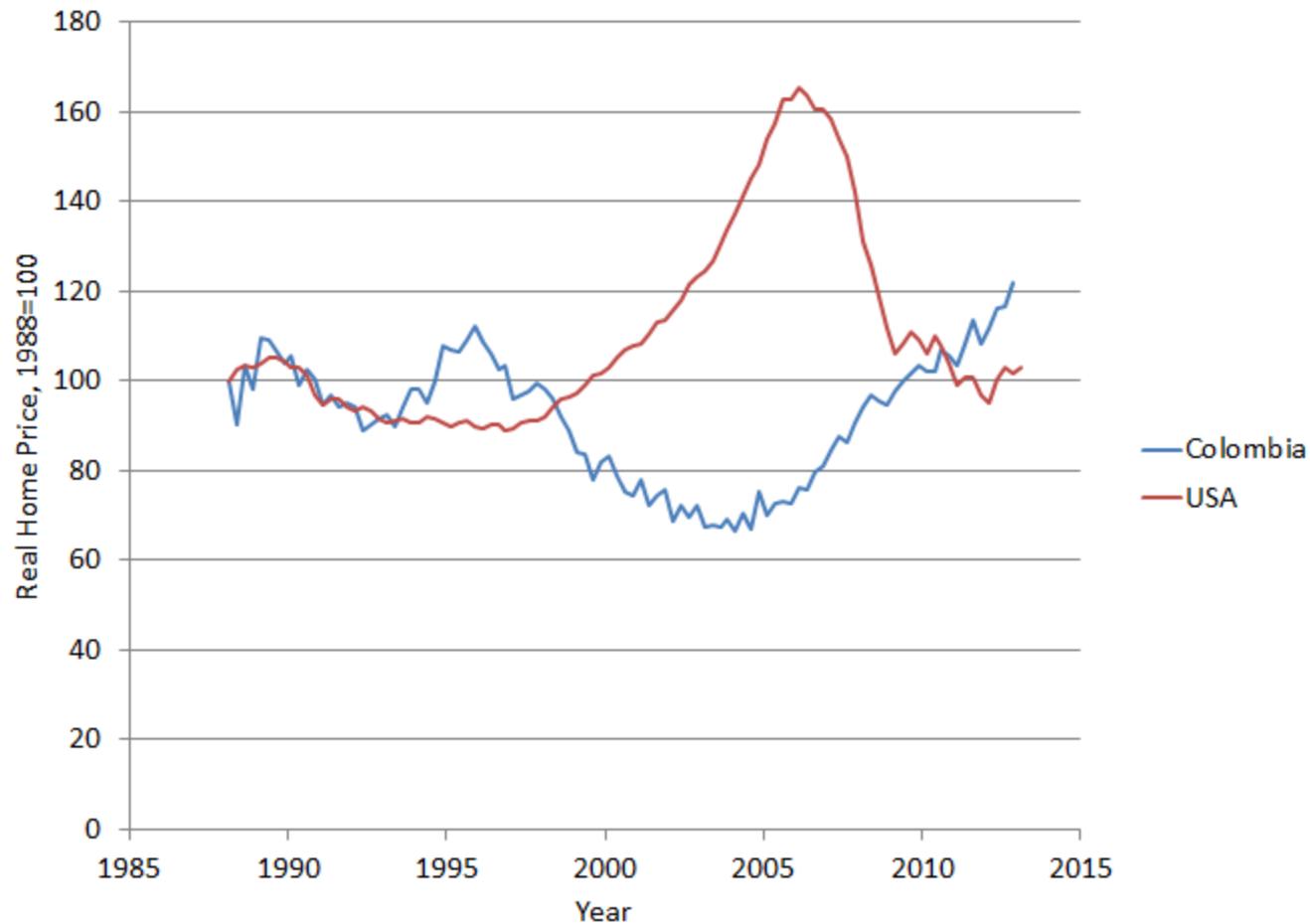


# Vancouver and San Francisco

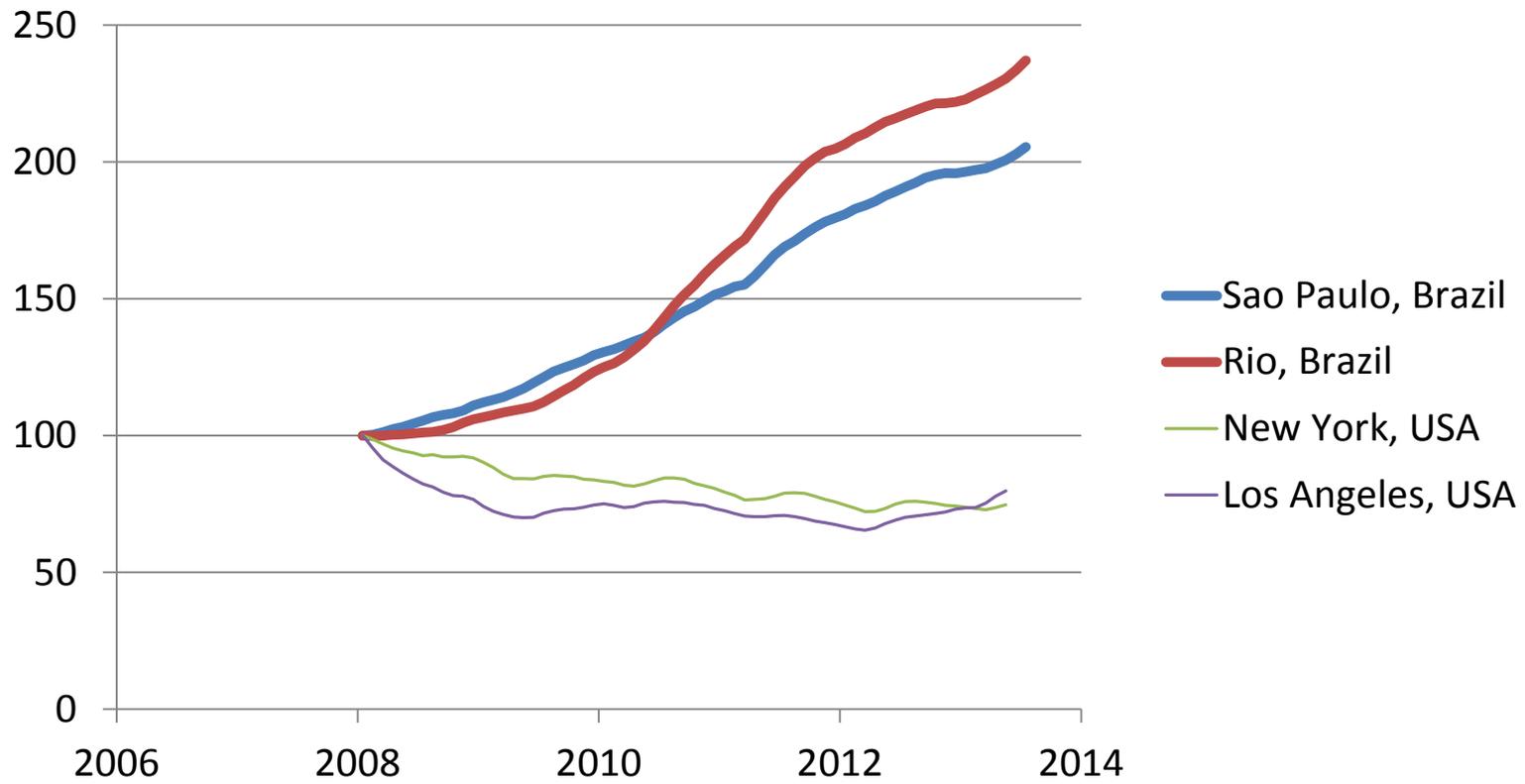
Real Home Prices, Vancouver and San Francisco, Jan 1990 to Aug/Sept 2013, 1990=100, Teranet, S&P/Case-Shiller



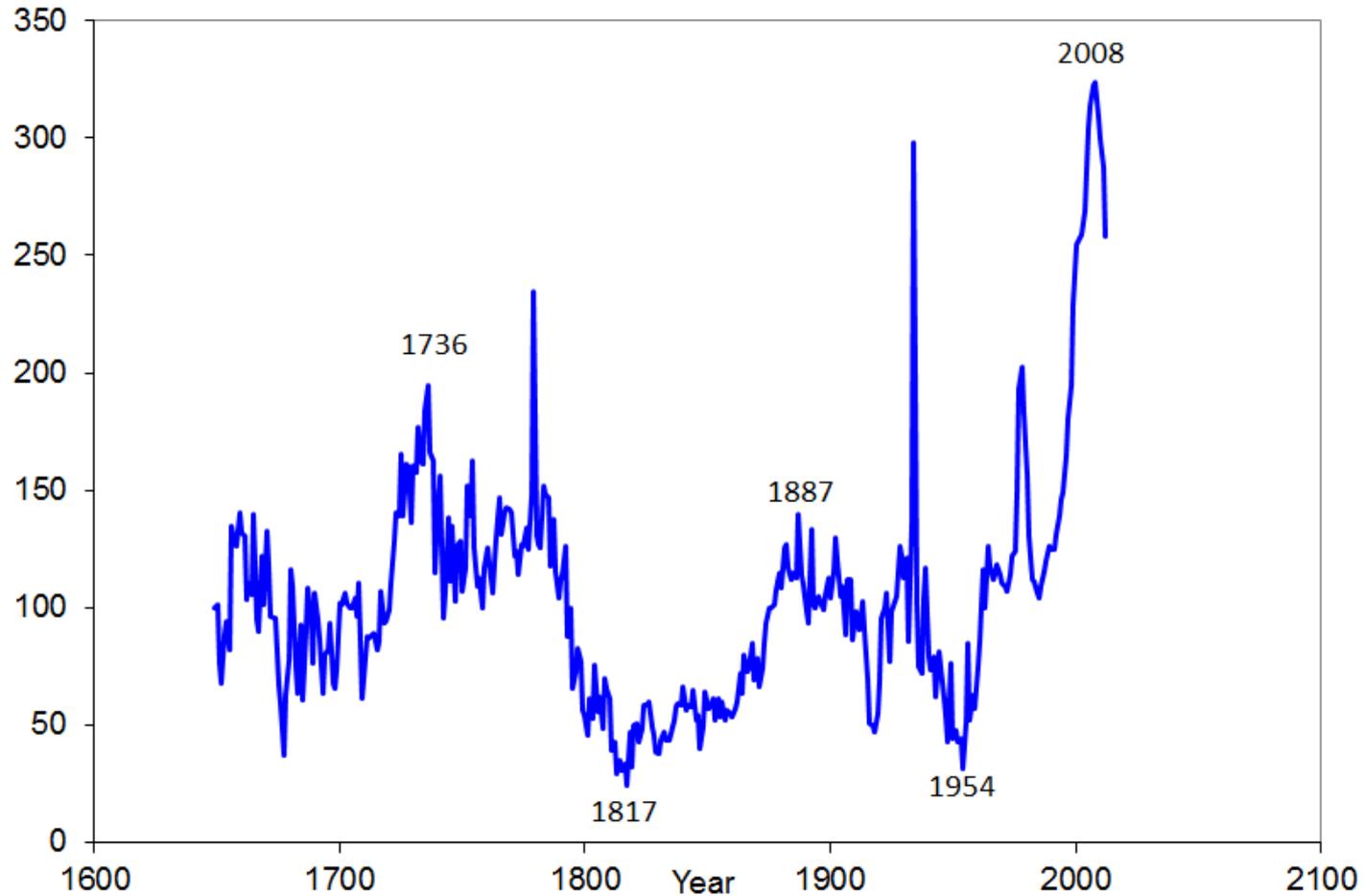
# Comparing Colombian & USA Real Home Prices, 1988 = 100



# Comparing Brazilian (fipec) & USA (S&P/Case-Shiller) Real Home Prices, 2008 = 100



# Real Home Prices Herengracht, Piet Eichholtz, 1649-2013



Amsterdam- *Herengracht* Region  
Berckheyde, 1685



# Epidemics and Word of Mouth

- Spread of ideas is similar to spread of infectious diseases
- “Memes” (Richard Dawkins, *The Selfish Gene*, 1976)
- “Thought viruses” replicate as do viruses
- “Tropes” in literary theory
- Mathematics of epidemiology is therefore relevant to economics



# SIR Model (Susceptibles, Infectives, Removed) Kermack and McKendrick, 1927

- $n$  individuals,  $x$  susceptibles,  $y$  infectives,  $z$  no longer contagious,  $n=x+y+z$ . Infection rate is  $\beta$ , removal rate is  $\gamma$ , and define the relative removal rate  $\rho=\gamma/\beta$
- $dx/dt=-\beta xy$
- $dy/dt=\beta xy-\gamma y$
- $dz/dt=\gamma y$

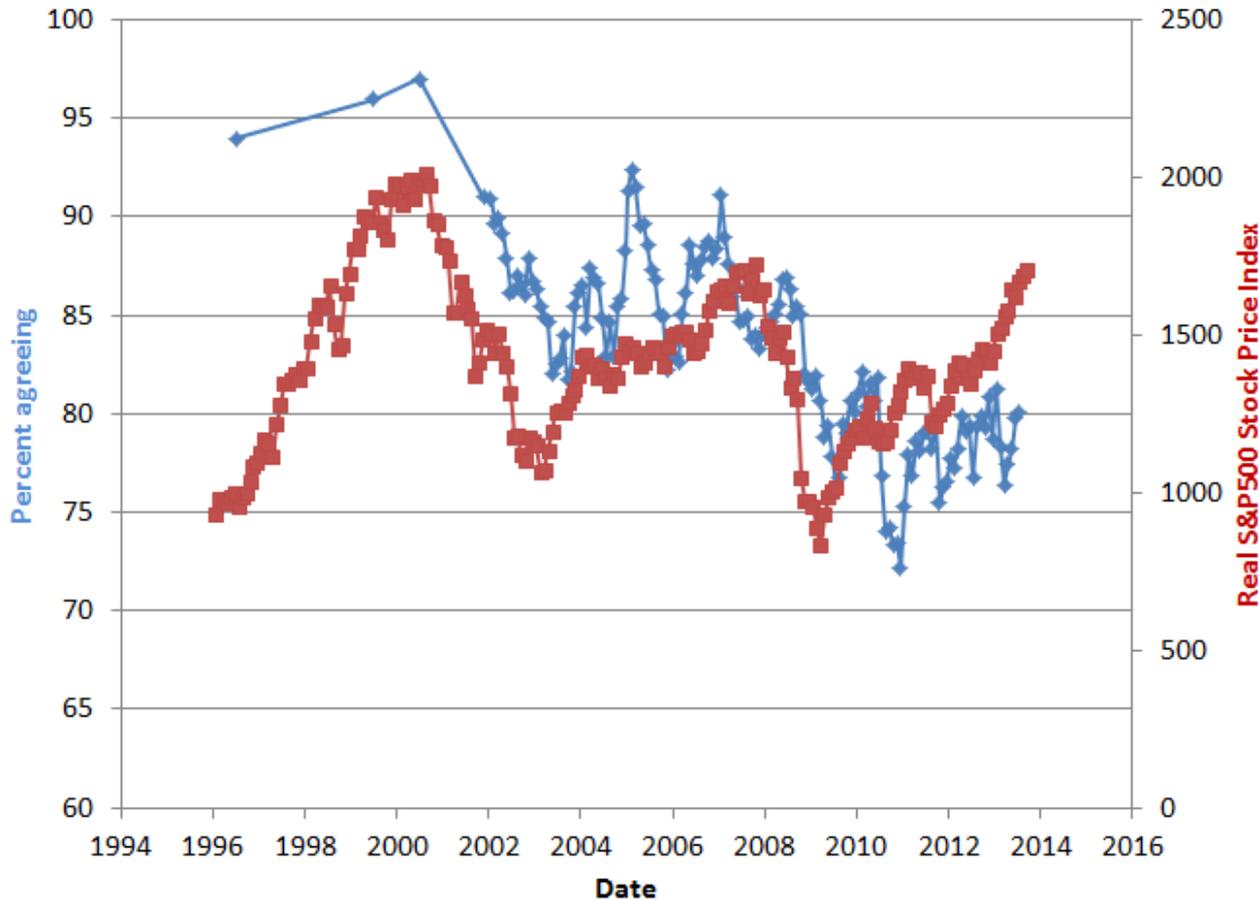


# Properties of SIR Model

- No epidemic can start unless relative removal rate  $\rho < x_0$  (the initial number of susceptibles)
- In an epidemic, number of infectives first rises, then falls.
- Epidemic peaks when  $x$  falls below  $\rho$
- “Size of epidemic”  $z_\infty$  is the total number of people who eventually contract the disease
- Size relative to population is determined by  $\rho$ , low  $\rho$  promoting large size

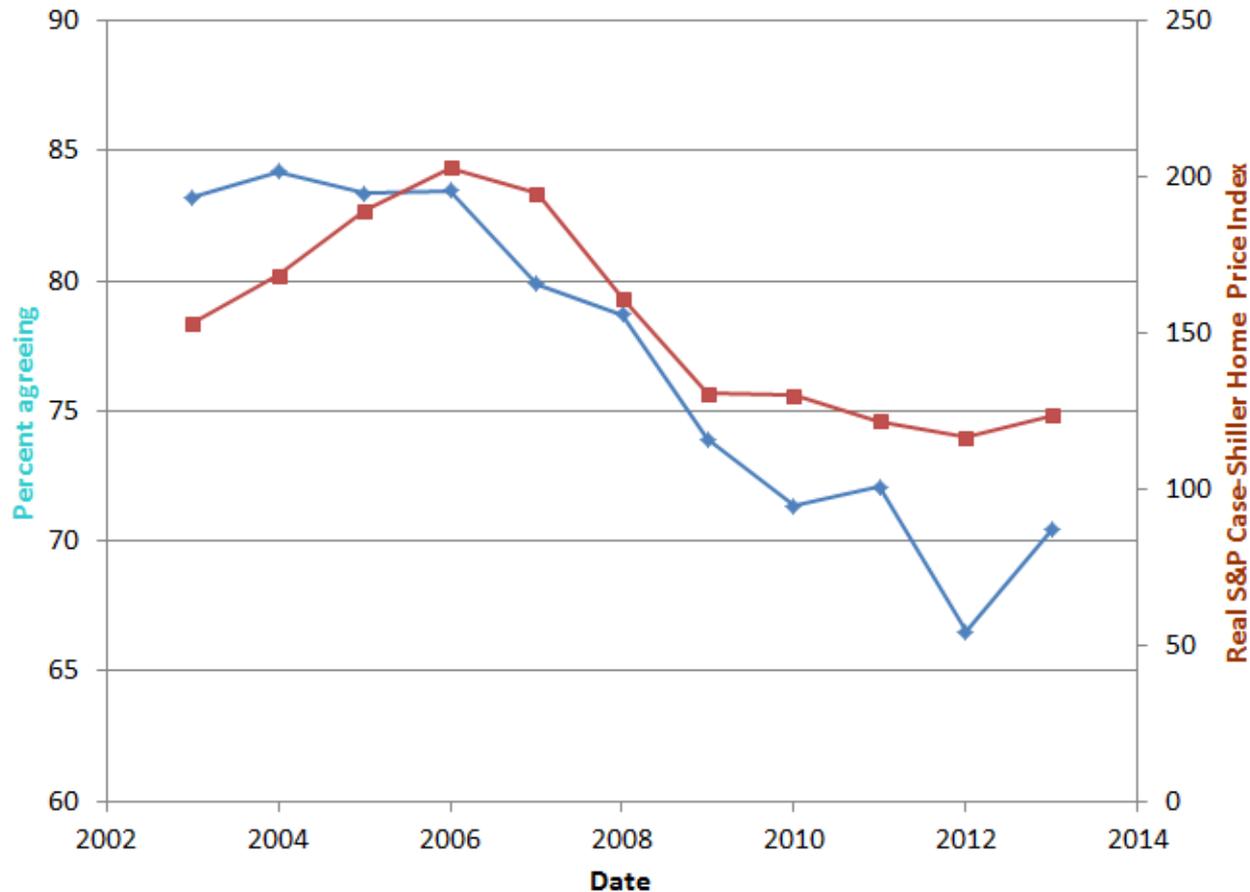


Individuals agreeing with the statement:  
“The **stock** market is the best investment for long-term holders, who can just buy and hold through the ups and downs of the market”



Individuals agreeing with the statement:

“The **Housing** market is the best investment for long-term holders, who can just buy and hold through the ups and downs of the market”



# How would one ever calculate the probability that the statements above are true?

- The statements represents memes, that have intuitive sense of truthfulness
- They are evaluated by Daniel Kahneman's System 1, instantaneously, without computations, not System 2, *Thinking Fast and Slow*, 2011

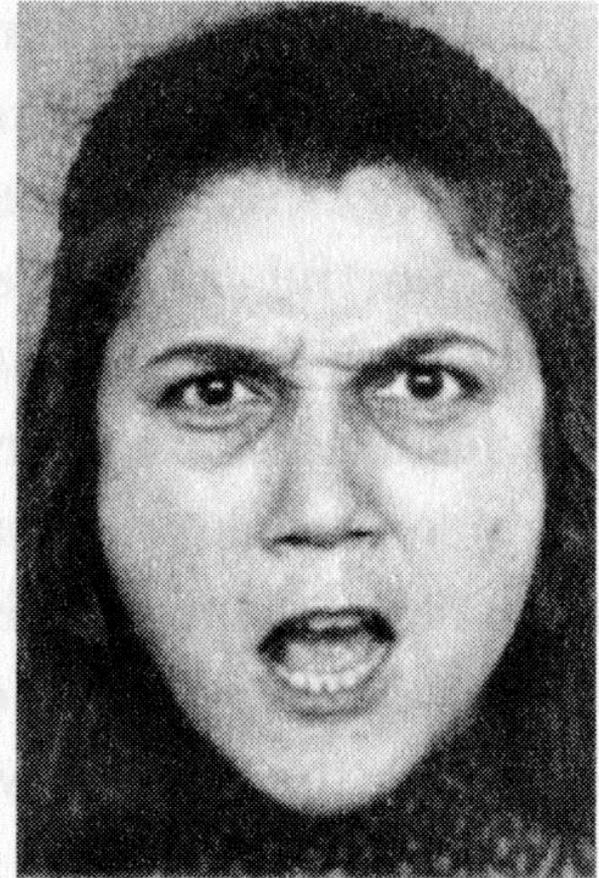


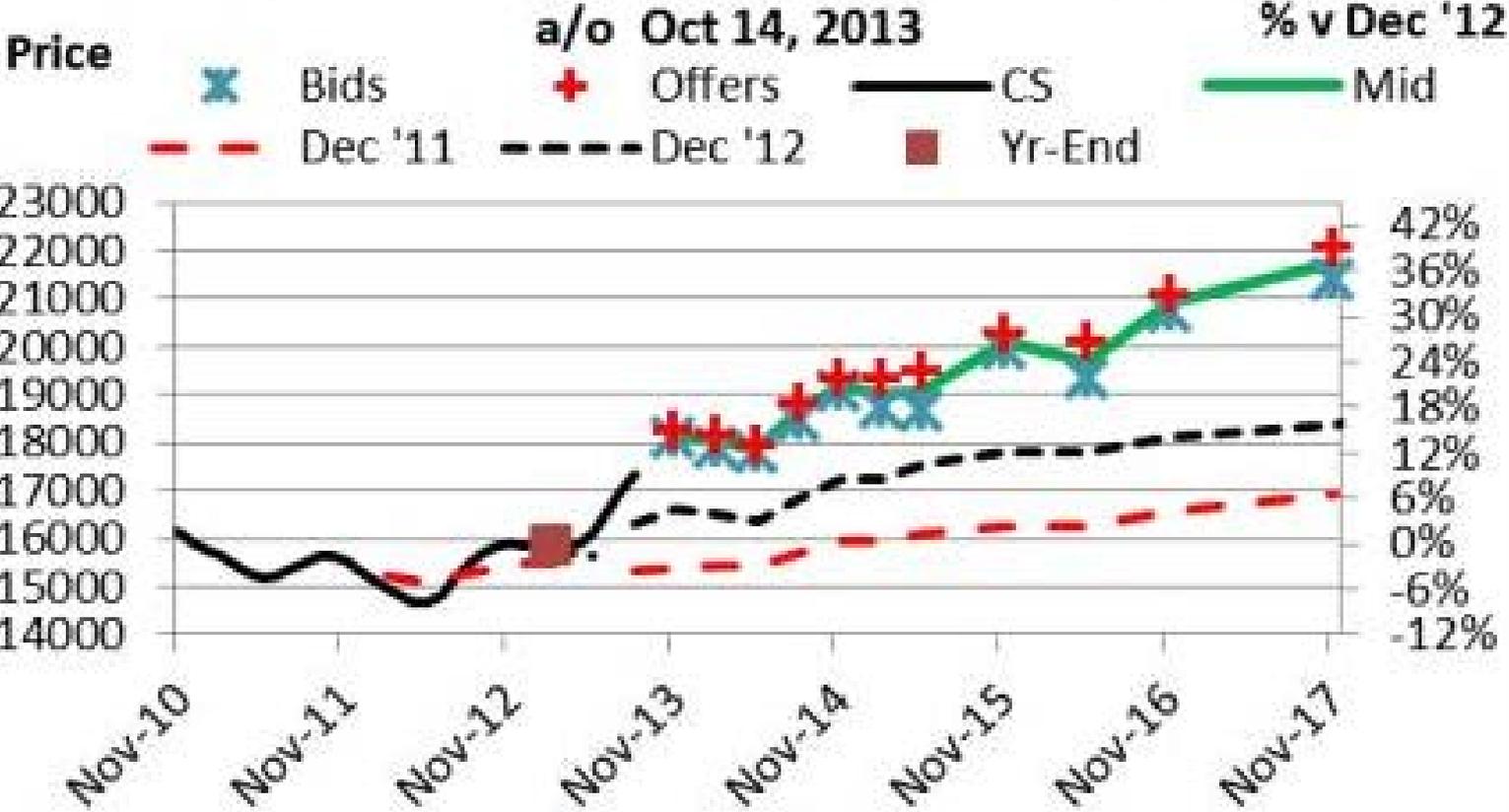
Figure 1

# Ten-Year Expectations And 30-Year Mortgage Rate



# CME Home Price Futures Market

## CUS Case Shiller Index/CME Futures



# Implications of Keynesian Beauty Contest Metaphor for Speculative Trading

- On Aug. 4, 2011, the market, as measured by the Standard & Poor's 500-stock index, fell by almost 5 percent. The next day was quiet, but the following Monday, the index dropped almost 7 percent. In successive days, it rose 4.7 percent, fell 4.4 percent and rose 4.3 percent. after the near-default.
- Keynesian beauty contest
- Peculiar timing of public reaction to near default may repeat this month

The New York Times

September 4, 2011





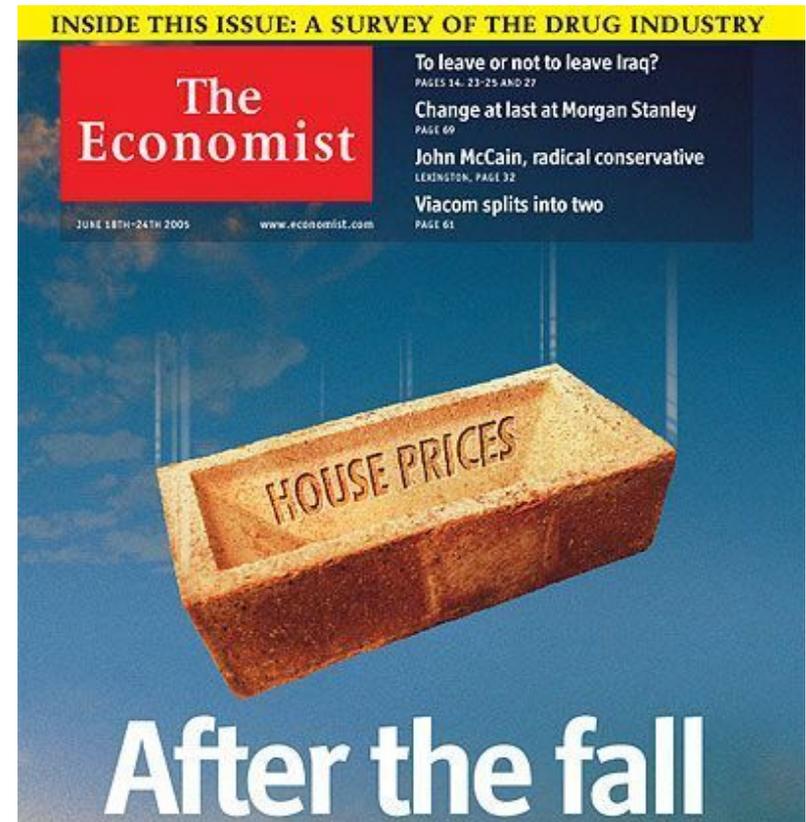
# Alan Greenspan, Aug 7, 2011 (just before the nearly 7% drop)

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- “What I think the S.& P. thing did was to hit a nerve that there’s something basically bad going on, and it’s hit the self-esteem of the United States, the psyche.” “And it’s having a much profounder effect than I conceived could happen.”
- He was talking about what other investors were thinking, not about the substance of the S.& P. downgrade.

# *The Economist* June 16, 2005

- “PERHAPS the best evidence that America's house prices have reached dangerous levels is the fact that house-buying mania has been plastered on the front of virtually every American newspaper and magazine over the past month.”



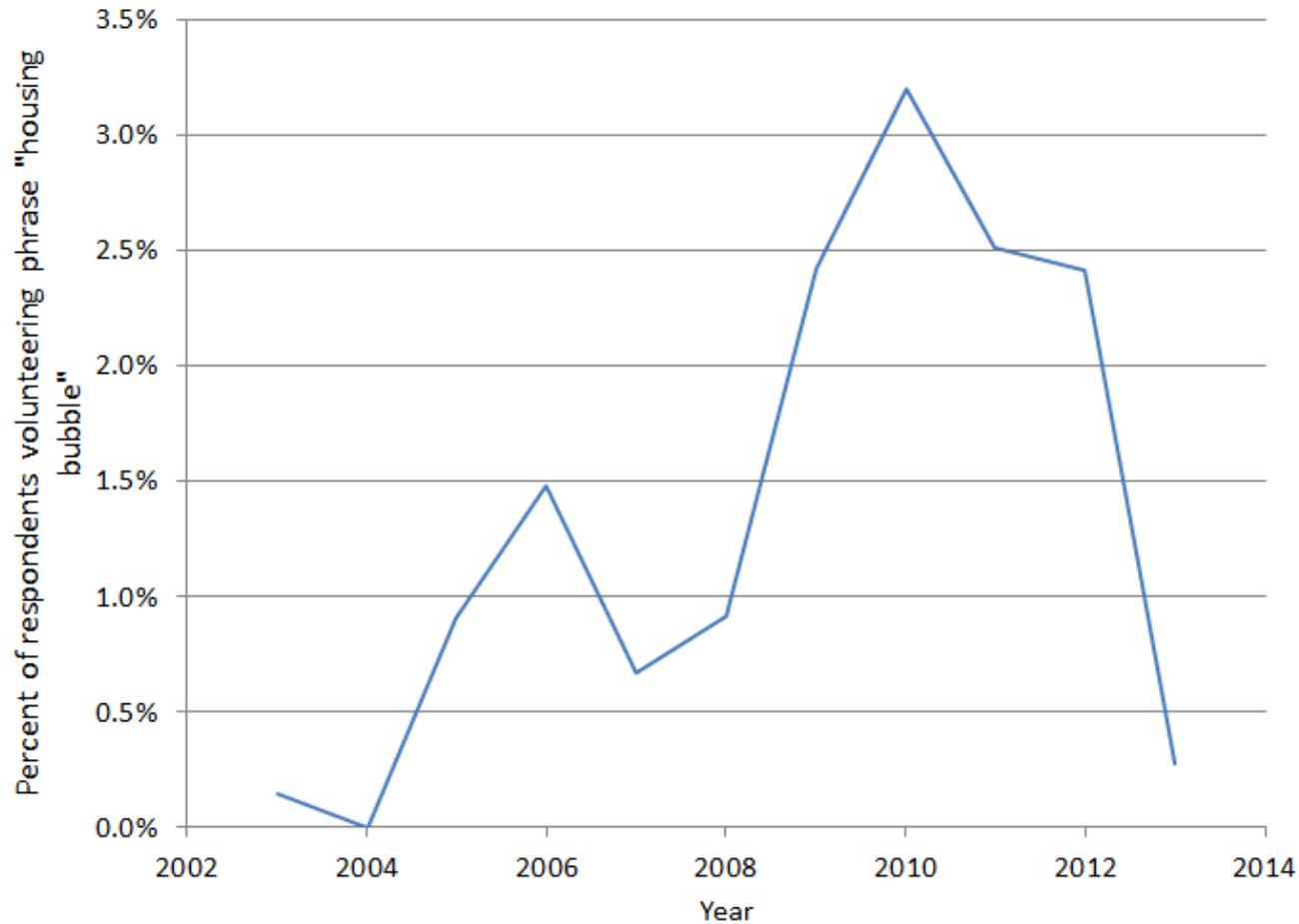
# Time Magazine, June 13, 2005

- “HOME \$WEET HOME:  
Why We’re going gaga over  
real estate
  - Will your house make you  
rich?
  - Super hot markets.
  - Is it time to buy or sell?
  - The case for renting



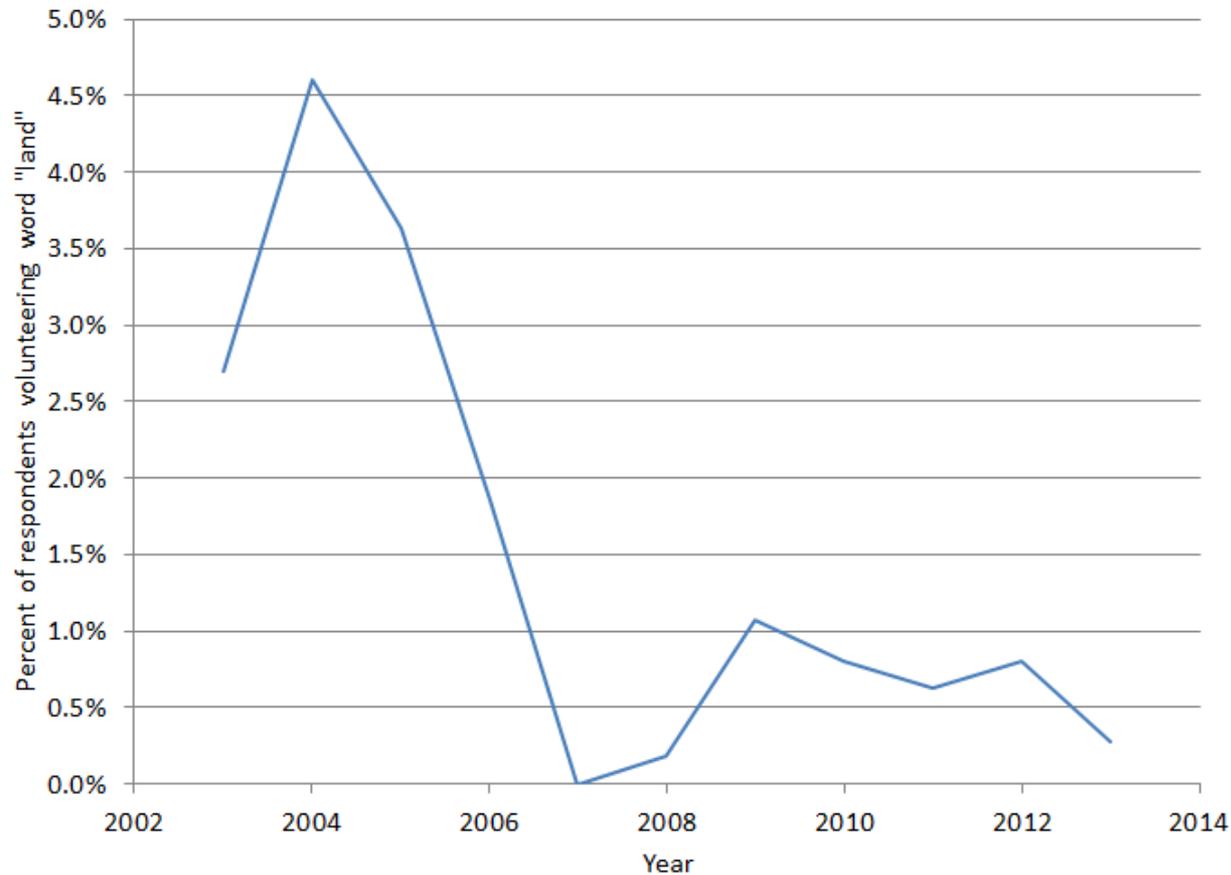


# Percentage of Respondents' Unprompted Use of "Housing Bubble" in Open-ended Questions



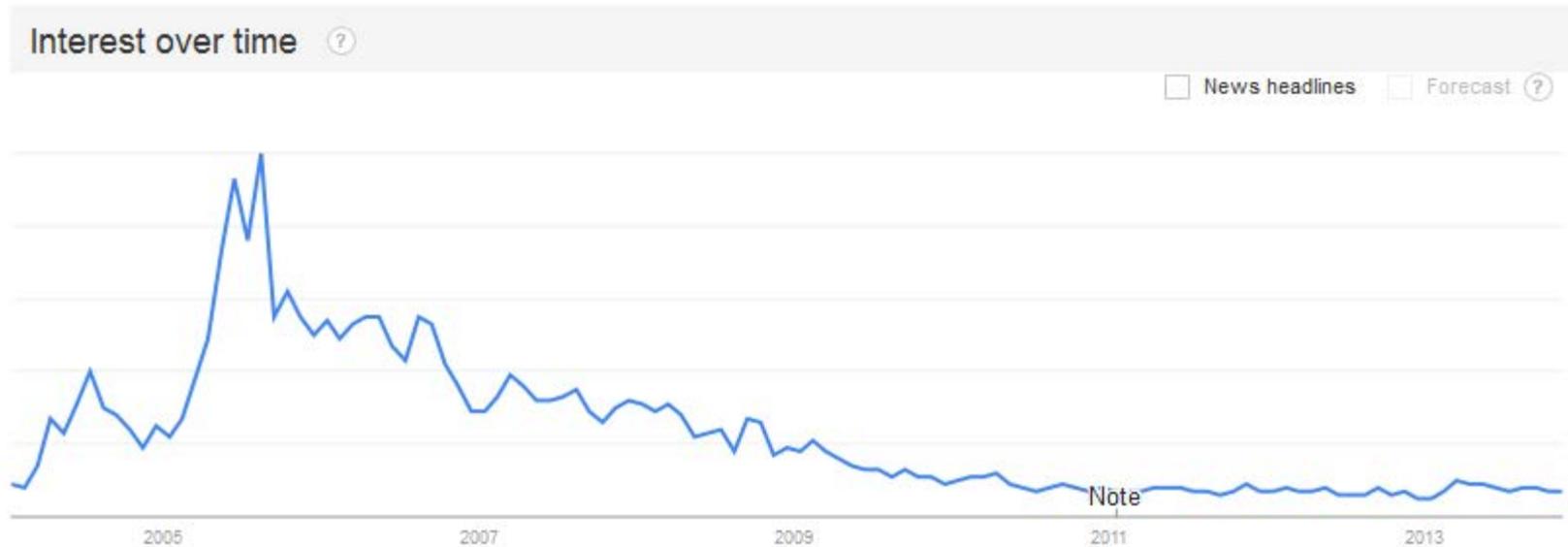


# Percent of Respondents' Unprompted Use of "Land" (usually as in "land shortage") in Open-Ended Questions





# Google Trends: Web Searches for “Housing Bubble” From the US Peak Aug 2005



# Google Trends Search for “Housing Bubble” from Canada

