



**Housing, Stability and  
the Macroeconomy:  
International Perspectives**

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**Comment on Andrea Ferrero, “House Price Booms,  
Current Account Deficits and Low Interest Rates”**

**Ed Leamer, UCLA**

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# Caveat: I am an outsider

- It's unfair to have me comment on this paper, both to me and to Andrea Ferrero.
  - I do not have the experience to offer an insider's perspective on this work.
  - I have limited willingness to master all the details of this model.
  - I have to find some other way to fill my allotted time.
  - Warning: I have always worked at the intellectual periphery of the profession.....

# My List of Culprits

Who Helped Americans Buy Homes They Couldn't Afford?

- The Greenspan Fed
- The Rating Agencies
- Securitizers
- Fannie Mae and Freddie Mac
- Mortgage Originators
- Chinese Savers

# Greenspan's List of Culprits

- Chinese Savers
- Chinese Savers
- Chinese Savers

# Ferrero's List of Culprits "Credit Shocks"

- Securitizers
- Mortgage Originators
- Chinese Savers

..factors other than monetary policy were the key driver behind the housing boom and the deterioration of the current account." Ferrero, page 6.

Foreshadowing:

Were these factors influenced by monetary policy?

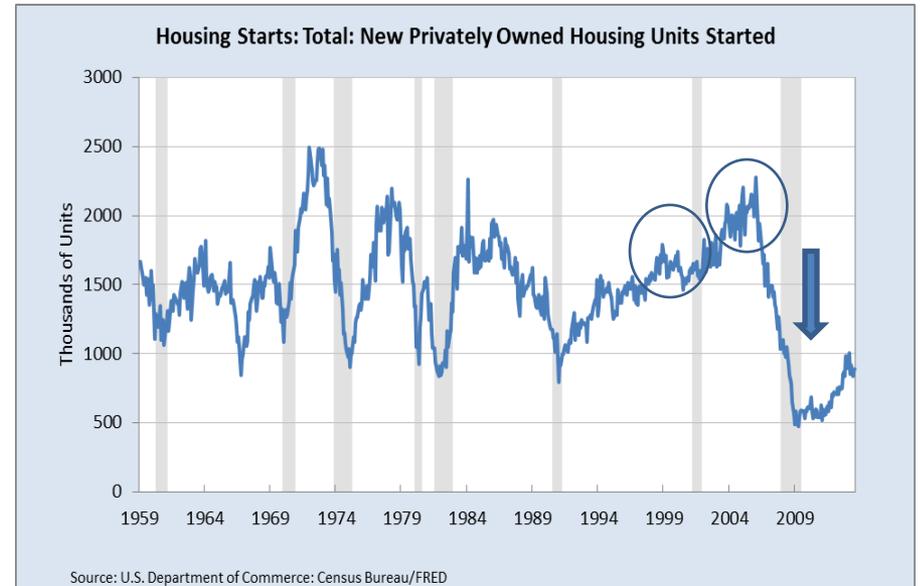
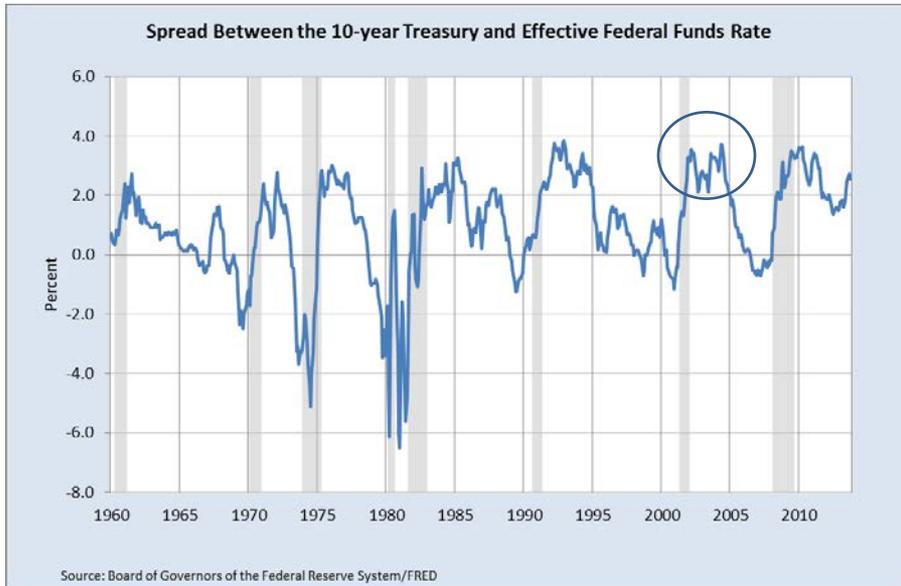
Were there interest rates that would have cooled things down, and what other damage would those high interest rates have done?

# My Opinion: Housing Volumes

## A Steeply Sloped Yield Curve After a Recession

### Transfers Housing Sales Intertemporally

- Usually, sales that didn't occur in the recession are captured in the aftermath, but if the recession didn't involve a housing downturn, then the sales come from the future, not the past.
- The steep slope of the yield curve after the recession of 2001 was not unusual, but there was no housing downturn in that recession.



**The Fed affects the timing, not the totals, of homes and cars.**

That makes policy a complicated intertemporal control problem: the medicine administered today reduces the efficacy of the medicine tomorrow.

# Opinion: Home Prices

Low Real Rates of Interest Cause Elevated Values of All Assets

- We are still very much in the price-discovery phase as investors try to figure out where real interest rates are going, and how much the value of risky assets should be marked up.
- Some or possibly much of the rise in home prices has been due to this real interest rate effect.
- Adjusting to a new low-rate environment inevitably comes with some turmoil, possibly some overshooting of asset values.

# Opinion

## The Greatest Problem Was in Subprime Originations

- The Subprime loans were not tied to 10-year Treasuries; they were tied to the 3-month Treasuries or LIBOR
  - Subprime loans were 2-28 products, with 2 years of teaser rates and 28 years of reality, and some of these mortgages had 100% loan to value ratios.
  - Borrowers were qualified on the teaser rates and could not afford the homes if reality hit, which the originators completely understood.
  - No matter, a new 2-28 product would be issued every two years as long as the home appreciated enough to lower the loan-to-value rate to a comfortable level. This business model generated fees for the banking originators who sold off the AAA rated junk to unsuspecting investors, and these originators didn't worry that the party might end. While the party was going on, they just wanted to enjoy it
  - The subprime loan was basically a lease product with the lease ending when appreciation ended.
- The reality interest rates were provided by the Chinese. The teaser rates were provided by the Fed.

# Opinion

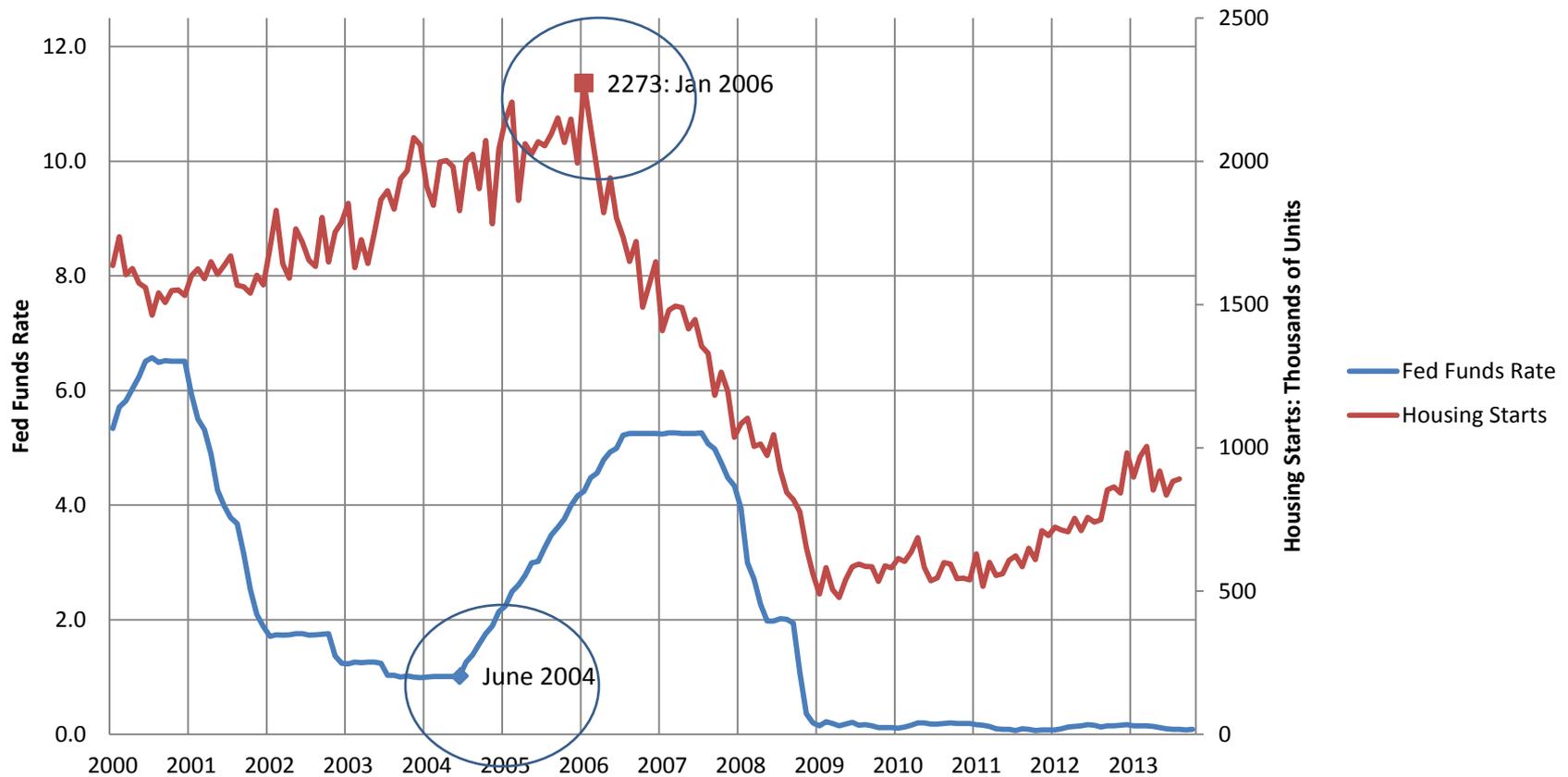
## The Much Higher Shares of Subprime and Adjustable Rate Mortgages Tied to Short-term Interest Rates in 2003-2006 Increased and accelerated the Impact of the Fed Funds Rate on Housing

- Historically it was the steepness of the yield curve that mattered.
  - A steep yield curve provides intermediation profits for every new loan, and allows relaxed lending standards because losses on delinquencies and defaults are offset by intermediation profits.
  - When the yield curve flattened or inverted as a consequence of an increase in the Fed Funds rate, banks were forced to elevate their lending standards, often at a leisurely pace.
- With so many new mortgages tied to short-term interest rates in 2003-2006, an increase in the Fed Funds rate would have directly and immediately reduced the number of qualified potential new buyers.
- **IMPORTANT POINT: The historical sensitivity of housing to the Fed Funds rate is not necessarily a good indicator of the impact of a rise in the Fed Funds rate on housing in 2002 and 2003. DON'T TRUST THOSE ECONOMETRIC MODELS (Indeed, *never* trust the causal conclusions from nonexperimental correlations.)**
- The question is not “What would have happened if the Fed had followed the Taylor rule?” The question is “What short-term rates would have been required to cool housing and what collateral damage would those have done, if any?”

# Opinion

The Party Ended When the Fed Raised Interest Rates  
At least it can be said that the Fed “Granger Caused” the Bust

## Housing Starts and the Fed Funds Rate



# Ferrero Offers a DSGE Model For Thinking About These Issues

- Two Countries
  - The differences between home and foreign countries are not so clear to me. The home country has shocks; the foreign doesn't?
- Three Final Goods: An importable, an exportable and "homes".
  - What Ferrero calls "Homes" are fixed and thus are said to represent land.
  - But permanent structures are not built on this land.
  - Might be better to call it baseline well-being.
- Demand Side: A representative household maximizes expected discounted utility net of disutility of work
  - A stochastic preference parameter multiplies the fixed amount of land.
  - If the land variable is called base-line well-being, then this preference parameter could be called "mood".
    - The household borrows to consume extra when a bad mood strikes.
- Supply Side: The output of the exportable is a function of a complex aggregate labor supply which varies over time.
  - The representative household is composed of a continuum of workers each of whom earns a different wage rate
    - Workers set wages for themselves to take advantage of their market power,
    - This is a socialist model in which utility accrues to the collective (the household) not the individual.
    - There are no poor or rich; we are all in this together.
  - There is also a continuum of monopolistically competitive firms that produce "intermediate" goods, which are packaged into a final product by competitive retailers.
- Time is discrete. Markets clear once a year.
- A home-country central bank sets the short-term nominal interest rate.
- Borrowing constraint
  - Smoothing of consumption in this stochastic environment is done by buying or selling one-year bonds at a rate determined by the domestic monetary authorities.
  - Borrowing plus year-end debt service is limited by the expected end-of year housing value times a stochastically varying loan-to-value ratio.
- Exogenous shocks
  - Preference for housing (mood)
  - Tightness of the borrowing constraint (foreign willingness to take risk?)
  - Monetary policy innovation.

# Any Model Leaves Things Out.

## Here are some things that I think Ferrero leaves out:

- There is no investment; savings is entirely precautionary
  - If there are homes, they are built anew every year, combining land with nondurable dwellings.
  - International flows of financial capital are only about smoothing consumption, not growing the economy or investing in new technologies or building new homes with a 30 year life.
- Foreign ownership of land is not allowed
  - All the land is owned by the representative domestic household
  - Thus land does not enter the budget constraint : the household pays itself for the use of the land it owns.
- Homeownership is 100%
- There is no government
  - There are no taxes, no sovereign debt, no tax subsidies for home ownership, no Fannie or Freddie.
- There are spot markets where the two goods can be exchanged, but no futures markets.
- There is no money, either as a store of value or a medium of exchange.
  - The allowable exchanges are done by barter; there is no demand for money for transactions.
  - One-year bonds are the only store of value
  - I am used to international trade intertemporal general equilibrium models in which only relative prices matter, including the relative price of the same good at two different time periods. In these models there is nothing to tie down the price level. I cannot see what determines the price level here.
- The “monetary” authorities have no competition in financial intermediation.
  - Borrowers and lenders can contract only with the monetary authorities, not with each other.
- There are no broken contracts; no debt delinquencies; no defaults; no foreclosures.
  - There is no reason for a borrowing constraint.
- The borrowing constraint ignores accumulated debt.
  - The budget constraint is relaxed when the price of land is high, even though this doesn't affect the budget constraint or the credit worthiness of the borrower.

# Simulation of Calibrated Models

This method of creating knowledge leaves me uncomfortable.

- These are only numerical theorems.
- Doing theory is a great way of organizing the thinking, but a theorem isn't truth.
  - A theorem has value because it isn't true. It makes simplifying assumptions to allow us to “see” clearly what isn't so clear in a complex reality.
  - A theorem has a domain of usefulness and a domain in which it is misleading.
    - Whether the difference between the assumptions of a theorem and reality are material in specific circumstances is an extremely difficult judgment call.
    - I wonder when Ferrero's model works and when it doesn't.

# The Proof of this Pudding Is Not In the Tasting (It may taste great but make you sick.)

- The question is whether or not this makes us intellectually healthier
  - Do we better understand what was happening, what we could have done differently, and how we should behave differently going forward?
- The answer to this question is a highly personal.
  - Ferrero's answer is yes.
  - Many macro economists would also probably say yes.
  - For me, there are too many concerns
    - The model is missing many features that I regard to be central, and it makes many assumptions about human behavior that seem very doubtful to me.
    - Calibration doesn't add any credibility. Calibration lacks any "humility" or any potential warnings that the model doesn't correspond well with reality. No R-squares.
    - The profession needs to demand more sensitivity analyses, in both traditional econometric exercises and in the calibration exercises. Is it a sturdy conclusion, or a fragile one? Here, we cannot tell what another model might say.
  - As for me, this paper hasn't moved the needle yet
    - That is likely my fault. It may move the needle as I learn more.
- Final question for the author: How has your work on this paper changed your mind? What do you think you know now, that you didn't know before. (Not about the model or the technical issue of solving the model, but about the real world.)