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Optimal Housing, Consumption, and Investment Decisions over the Life-Cycle

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- Broader dilemmas involving housing?
  - Cascading in prices
  - Feedback mechanisms from credit markets
    - Development of financial markets => price level
    - Endogenous feedback, credit constraints
  - Demographic developments
  - Disconnect between buying and rental prices

- Modeling challenges involving housing?
  - Including all asset groups
  - Softening assumptions about interaction between prices, volatility and assets
    - Including realistic financial markets
  - Interaction with policy-relevant variables (r)
  - Heterogeneity
  - Matching empirical moments

- Modeling challenges involving housing?
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  - ☺ Matching empirical moments (?)

- Starting point of paper:
  - Large literature exploring pricing of assets when volatility is time-varying
    - Recent work on impact of housing decisions and prices on asset prices
  - Little research on optimal portfolio choice in presence of volatility risk (i.e. changing investment opportunities); Liu (2002), Chacko and Viceira (2005)
  - # assets types limited and assumptions about correlations between processes restrictive
  - Discrete time gives approximate solutions

- Missing components in PFC models:
  - Housing investment
  - Housing consumption
  - Fluctuating interest rate (at least, combined with housing)
  - "Realistic" utility
  - Assumptions about relation volatility and excess returns

- Contribution of paper
  - Continuous time
  - Extend Chacko and Viceira (RFS, 2005) [and Liu (2002)] to include
    - Housing (buying, renting)
    - More realistic process for relations between asset returns
  - Extend Cocco (2005) to include:
    - Imperfect correlation between house prices and "aggregate" shocks, renting, varying interest rate

- Assumptions behind the model:
  - All asset prices follow Brownian motion, incl. P_H, r
  - P_H, P_S, and r imperfectly but constantly correlated
  - Housing investment and consumption separable
  - Rental cost of housing proportional to current house price
  - Short interest rate (r) alone drives variation in investment opportunities (because Sharpe ratios for B, S, H are assumed constant)
  - No idiosyncratic income risk!

- Findings:
  - Closed-form solution: if EIS=1 or EIS=1/γ, (γ=RRA)
  - Else: closed-form approximate solution
  - Quantitative analysis:
    - Variation in *life-time* human capital drive changes in S, H, B
    - Large correlation between HC and P_H drives out housing investment
  - Study value of full flexibility in housing:
    - Replacing FFIH adjustment by deterministic housing reduces welfare by 20-25%
  - Study impact of "value of terminal wealth" on PFC
  - Consumption/wealth ratio little sensitive to r and p_H

- Comments:
  - Economic story telling
    - What is this paper essentially about
    - Make clear what your contribution is
  - Reduce your claims
    - Closed form "only" for restricted version
    - Is this more tractable or precise than discrete time grid searches
  - Relation human capital and housing (p.17)??

- Comments:
  - Can you estimate the model as in Chacko and Viceira (2005)?
  - Quantify demand for all types of assets and their hedging demand over myopic demand for ranges of RRA and IES
  - Robustness analyses
    - When IES ≠1, check how outcomes vary for a range of parameter values