

Asset Pricing with Heterogeneous Inattention

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Introduction

- ① Very nice paper, very well written.
- ② I learned a lot reading it and the papers it cites.
- ③ Very hard to solve this type of model.

The big question addressed in this paper:

- Rachedi: Can inattention account for the bulk of asset prices?

Answers:

- Not really ...

Provides the answer using the following model.

Marry heterogenous agent model of Krusell, Smith (JPE, 1998) with inattention or Reis (JME, 2006)

- Krusell, Smith (JPE, 1998)
 - ∞ horizon model in discrete time (thanks!).
 - Measure one of ex-ante homogeneous agents.
 - Heterogeneity in employment status, labor productivity.
 - Incomplete markets (capital, bond), borrowing constraints \Rightarrow wealth heterogeneity.
 - Repre firm facing agg. productivity shocks.
- Reis (JME, 2006)
 - At t agents (can decide to) pay a fee to see what is going on.
 - If so they choose s and plan for s periods ahead.
 - Between t and $t + s$ they follow the plan (and are blind).
 - Non-trivial to make this consistent with the KS setup.

Table VI: Asset pricing moments

Variable	Moment	$\chi = 0.024$	$\chi = 0$	$\chi = 0.048$	$\theta = 8$	Data
A. Stock and bond returns						
Stock return	Mean	3.16	1.13	3.37	3.85	8.11
	Std. dev.	6.68	2.21	6.86	7.08	19.30
Risk-free return	Mean	1.84	1.12	1.86	2.04	1.94
	Std. dev.	3.57	2.61	4.02	4.33	5.44
B. Equity premium						
Equity premium	Mean	0.93	0.01	1.01	1.25	6.17
	Std. dev.	6.44	1.11	6.68	6.97	19.49
Sharpe ratio	Mean	0.14	0.01	0.15	0.18	0.32

Table X: The role of borrowing constraints

Variable	Benchmark	Tight Constraints	Loose Constraints
A. Inattentive economy - $\chi = 0.024$			
% Stockholders	73.4	60.5	90.1
Gini index wealth	0.64	0.73	0.49
Equity premium	0.93	6.06	0.08
B. Attentive economy - $\chi = 0$			
% Stockholders	98.5	91.2	98.7
Gini index wealth	0.41	0.54	0.36
Equity premium	0.01	4.85	0.004

(Important?) Comment on Writing

Presentation of the paper:

- One line summary: Can inattention account for the bulk of asset prices? No ...
- Paper reads a bit like: I plugged inattention into a KS model and it didn't quite work.

(Important?) Comment on Writing

I would suggest the following presentation:

- The big questions addressed in this paper are:
 - ① Why is the equity premium so high?
 - ② Where are asset returns so volatile?
- Findings:
 - ① Inattention gets us close to answering these in a KS model.
(Probably would need to add some more features.)
Alternatively: Inattention **alone** explains x% of the EP.
 - ② Model better relative to existing lit along these dimensions ...
- Follow BCF (AER, 01) rather than Pijoan-Mas (JEEA, 07).

Production Based Asset Pricing

Heterogeneous agent models:

- KS (MacroDyn, 1997) - low EP, borrowing constraints important.
- Pijoan-Mas (JEEA, 2007) - KS with habits, high EP and Sharpe only with unrealistically tight BC's, habits secondary.
- Gomes, Michaelides (RFS, 2008) - ala KS, lot of heterogeneity (life-cycle, income shocks, endo participation, prefs);
 - implicit capital gains (losses) through stochastic depreciation;
 - borrowing constraints important (loosening increases r^f);
 - **no excess-return predictability**, $\sigma_{\Delta C}$ too high for both participants and non-participants (calibration issue?), what is σ_I ?
- Guvenen (Emca, 2009) - EZ preferences, exo limited part, repre agent flavor; cannot address part, σ_I low, σ_C high.
- Favilukis (JFE, 2013) - limited part model, he is after time trends, Favilukis, Lin (JME, 2013), ... - firm heterogeneity.

Representative agent models: many ...

Your Results

- BC's important with inattention as well.
- Relative to Gomes, Michaelides (RFS, 2008):
 - ① You get limited participation (they also do).
 - ② You get predictability (they don't).
 - ③ You get the low (but opposite) $\sigma_{\Delta C}$ (they don't).
 - ④ Probably there is more ...
 - ⑤ What about σ_I (and other BC stats) in your model? It is hard to get the correct σ_I and EP in a production based model.
- How about the success of Chien, Cole, Lustig?

Extra Features - Capital Gains

- Net capital return:

$$r_t^e = \frac{MPK_t + (1 - \delta)q_t}{q_{t-1}} - 1.$$

- BCF (2001) - need movements in q .
- Your paper - perfectly elastic capital supply, i.e., $\forall t : q_t = 1$, yet high volatility of r^e ($\sim 1/3$ of the data).
- Where does it come from? σ of TFP, L, K ? Compare to data. You have high $\sigma_Y = 1.89\%$ quarterly. What data is that?
- What is σ of MPK (dividends) and q (S&P500) in data?
- Add stochastic depreciation shocks? I.i.d. just to see ... Maybe inattention will amplify TFP shocks more. Maybe will help with $\sigma_{\Delta C}$.

Further Comments

- What does it mean: " ... median household pays attention to the stock market every 3 months." Clarify in the intro. Also: This is Italy, what about the U.S., which your model is calibrated to?
- How do people behave - collect some information and decide with imperfect information (possibly with further costs associated with portfolio rebalancing), or is it a 0-1 decision. Does it matter?
- Intuitions in the intro could be better: (i) why the level of obs. costs does not matter, (ii) why borrowing constraints matter.
- Who pays the unemployment benefit? Are there taxes?
Goods mkt clearing missing in the CE definition.
- The definition of agg. state. What exactly is d_t - number of periods to my new attention point? Why is c_t needed there and what exactly is it? Consumption *path*?

Further Comments

- Quant. analysis:
 - Calibration well discussed, but tables would be useful:
 - (i) parameters set outside of the model, (ii) parameters set (calibrated) so as to match moments - how is the fit? Why not exact fit on labor income? It is exogenous in your model ...
 - Fit of the forecasting regression is low relative to KS. Is that a problem? See den Haan (JEDC, 2010).
 - What fraction is constrained? With negative wealth? Data fit?
 - With no costs *virtually all* HH access the market. Why not *all*?
- Utility:
 - Why not do $RA \in \{2, 5, 8\}$? IES very low with $RA = 8$.
 - Is Epstein-Zin doable?
 - Labor adjustment missing, only exogenous extensive margin - does it matter?

Minor Comments

- Divide up paragraphs.
- Bansal, Yaron (2004), Campbell, Cochrane (1999) not *that* related.
- Get rid of cont-time leftovers in equation (4).
- Why is idio uncertainty higher in recessions? Transition closer to .5?
- Equations (9) - (14) are not correctly referred to in the text below.
- What is g^h in CE definition?
- Section III.B first part could be clearer.
- Add the 2 distributions to Figure 1 (wealth/attention).
- Figure 2 (left part) a bit surprising ... Explain? Expand?
- The calculation at the beginning of section IV.B odd.

Summary

- Very nice paper.
- My take:
 - ① Inattention gets us closer to understand asset-pricing puzzles.
 - ② Does not take us all the way (not surprisingly).
 - ③ Need other features if (better) data fit is the ultimate goal.