

Discussion of

**What Do the Portfolios of Individual Investors Reveal
About the Cross-Section of Equity Returns?**

By Sebastien Betermier, Laurent E. Calvet, Samuli Knüpfer, and Jens
Kvaerner

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Discussant: “J” Jiacui Li

Overview

- Using administrative data on Norwegian household stock holdings:
 1. **Holdings:** investor stock selection systematically differs by age and wealth
 2. **Pricing:** age- and wealth-sorted portfolios have large return spreads and (partially) spans FF5 + momentum factors
 3. **Interpretation:** 1) life-cycle based hedging + 2) sophistication
- Overall assessment:
 - Remarkable empirical work with clear contribution to the literature
 - My comments will be about 1) interpretation and 2) magnitudes

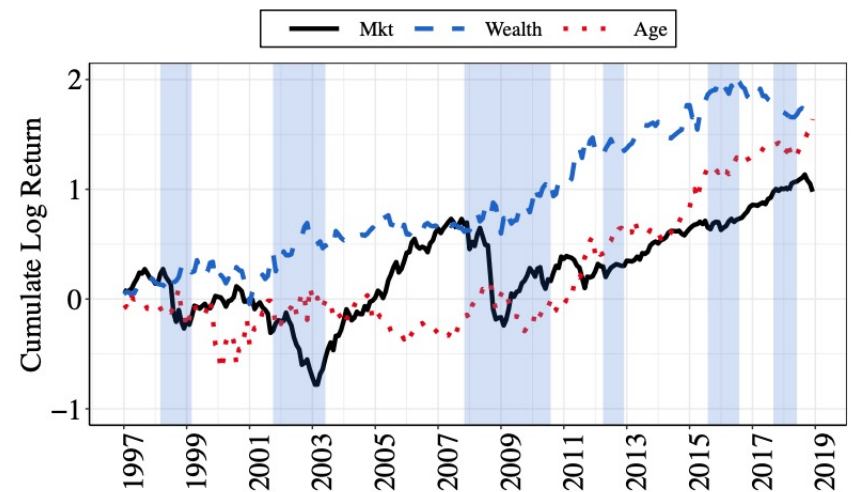
Marginal contribution to the literature

- Existing papers connecting heterogeneous holdings to asset pricing
 - Kojen Yogo (JPE 2019): holdings \leftrightarrow Variation in $Price_t$
 - Balasubramaniam et al (JF forthcoming): factor structure in holdings
- **This paper:** holdings \leftrightarrow cross-sectional $E(Ret_t)$

1. Key results in the paper

Key findings in the paper

- Long/short 30%/30% factors:
 - $Factor^{Age} = Ret^{mature} - Ret^{young}$
 - $Factor^{Wealth} = Ret^{rich} - Ret^{poor}$
- Both have annual CAPM alphas of $\approx 12\%$
- Market + these two factors (partially) span FF5 + momentum in Norway



(c) Age and wealth factors

What is the interpretation?

- Suppose investors hold the tangency portfolio (τ) + loadings on a few zero-investment “deviation portfolios” (d_k)

$$\omega^i = \tau + \sum_{k=1}^K \eta_k^i d_k + u_i;$$

- Then, market factor + the deviation portfolios will explain expected returns
- Well, what are people hedging?
 - For the “age factor”, could be hedging labor income risk (ICAPM)
 - For the “wealth factor”, perhaps can be related to sophistication/sentiment
 - The paper shows some evidence for both mechanisms

2. Comments

1) How much can hedging plausibly explain?

- We are talking about 12% annual return spread
 - Not even long/short decile portfolios. Long/short 30% portfolios!
- This kind of magnitude is difficult to rationalize in structural models with reasonable parameters on preferences and risks
 - Conflict of interest: related to something I'm working on
- To be clear, the paper does not say this is all due to hedging
 - If you really think labor hedging is important, there are more direct tests to run
 - Specifically, how correlated is the age factor with income risk?
 - E.g. like in Santos Veronesi (RFS 2006)
 - Also, try to do a composition on hedging vs. sentiment proxies (Tables 4-5)?

If you don't believe models, do a “gut check” to think about this magnitude

- Suppose you are a personal financial advisor facing a *young* client.
- Imagine how well this conversation will go:
 - **Client:** “What should I invest in?”
 - **You:** “I recommend you buy this 2050 target date fund”.
 - **Client:** “Why is this a good investment?”
 - **You:** “This fund helps hedge your labor income risk. It will underperform other funds by 12% a year. *Hey! It is totally worth it.*”
- I predict that this will be your last conversation with this client.

There is an unfortunate conflict...

- ... between theoretically realistic hedging-based premium and empirically publishable cross-sectional return predictors
- Empirically publishable threshold: $t\text{-stat} > 2$ (some say 3)
 - This paper, with 21 years of data, finds t-stats around 2.5
 - For inferring expected returns ($N^{1/2}$ convergence rate), even using 1963 – 2021 sample (58 years) require roughly **6-7%** annual return for $t\text{-stat} > 2$
- **Conclusion:** if a return predictor is publishable, it is difficult to be (fully) interpreted as hedging premium

2) Understanding the magnitudes

- Suggestion: take demand-based price effects seriously
- Clearly, young/poor households have higher demand for certain stocks
 - How much can their demand move prices?
 - How much expected return spread can this generate?
- $Price^{actual} = Price^{frictionless} + M \cdot ExcessDemand$
 - Everything being equal, higher excess demand \Rightarrow higher price \Rightarrow lower E(ret)
 - We have some idea about the price multiplier M
 - See Gabaix Koijen (2021) and all the references therein
- Additional considerations
 - Household ownership is around 30% of stock market in Norway (OECD)

Whether the magnitudes can arise from demand-based price effects depends...

- ... on the persistence of age/wealth-related holding patterns
- On the extreme, suppose these holding characteristics are fixed forever

- Then the resulting “price wedge” is almost certainly too large:

$$\log\left(\frac{P_t^{actual}}{D_t}\right) = \log\left(\frac{P_t^{frictionless}}{D_t}\right) - E_t\left(\sum_{j \geq 0} \rho^j \cdot r_{t+j}^{Deviation}\right)$$

- However, I suspect these holding characteristics are mean-reverting
 - If sufficiently mean-reverting, then the ebb-and-flow of these household demand can plausibly drive the observed results

Summing up

- This paper shows that correlated variation in Norwegian household stock holdings is related to the cross-section of expected returns
 - Great data + careful empirical work
 - I think more can be done on the mechanism/interpretation front

- *I really enjoyed reading the paper and wish the authors all the best*

Appendix

OCED's numbers on Norwegian direct household ownership

- <https://www.oecd.org/corporate/Owners-of-the-Worlds-Listed-Companies.pdf>
- According to an OECD report, the share of individual ownership in Norwegian stock market is at most 30%
 - In contrast, in U.S., institutional ownership is around 60% (Koijen Yogo)
 - They also “model” the entire non-institutional holding as a residual (of course less satisfying)
- Table A.3 (as of 2017):
 - 34% by government
 - 8% by private corporation
 - 7% by “strategic individuals”
 - Refer to physical persons that are either controlling owners or members of a controlling family or block-holders and family offices.
 - 29% by institutional investors
 - 21% by “Other free-float including retail investors”