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

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The paper’s motivation

- Imagine the CAPM holds in reality, but the academic researcher does not know about the CAPM

- Average returns are

\[
\text{Average excess return of stock } n = \left( \text{scalar that depends on investors’ wealth and risk aversion} \right) \times \left( \text{covariance of stock } n \text{ with value-weighted market portfolio} \right)
\]

- The typical approach is to look for firm characteristics correlated with covariances

⇒ For example, if characteristic C is a proxy for covariance, then by forming a high-minus-low portfolio you "discover" the market factor
The paper’s motivation

- **Investor allocations** are

\[
\text{Portfolio allocation of investor } i = \left( \text{scalar that depends on investors' wealth and risk aversion} \right) \times \left( \text{value-weighted market portfolio} \right)
\]

- Another approach is to look for **investor characteristics** correlated with investors’ wealth and risk aversion

  ⇒ *For example, if characteristic C is a proxy for risk aversion, then by forming a high-minus-low portfolio you "discover" the market factor.*
Contributions

What this paper does

1. Use investor characteristics to form proxies for priced risk factors

   ⇒ Data on Norwegian investors, 1997-2018

2. Explain differences in average returns across stocks in a multi-factor model

What this paper finds

1. Investor factors subsume firm factors

   ⇒ Ex: a Norwegian momentum factor is no longer important once you have investor age and wealth factors

2. Determinants of investors’ exposures to age and wealth factors include exposures to macroeconomic risk and stock market experience
The main asset pricing results are based on factor spanning tests.

How realistic is the assumption that a long-short portfolio of Norwegian stocks is tradable?

Ex: short-selling costs in Norwegian stocks? Trading costs when rebalancing factor portfolios?
Are results robust to using model misspecification-robust cross-sectional asset pricing tests of Kan, Robotti, and Shanken (2013)?

⇒ Investor factors should lead to a significant cross-sectional $R^2$ and a significant increase in cross-sectional $R^2$ relative to firm factors.

Minor comment: insignificant firm factors in CAPM regressions may still be significant in investor-factor regressions.

⇒ No reason to exclude them from factor spanning tests in Panel B of Tables 3 and IA.5.
Investor factors produce the highest Sharpe ratios out-of-sample.

They bootstrap pairs of contiguous returns, use first returns to compute weights, and evaluate performance on second returns.

⇒ Despite the randomness, you are using future data to compute current allocations → dangers of k-fold cross-validation in finance applications.
Figure 3 reports the average realized Sharpe ratio across bootstrap simulations

⇒ I was expecting the bootstrap to provide the significance of the differences in Sharpe ratios?

An out-of-sample test should

1. compute each month the maximum Sharpe ratio portfolio allocation for different set of factors using only past returns (e.g., using a telescopic sample)

2. compute the performance of each portfolio

3. compute the significance of the realized Sharpe ratio differences using the Ledoit and Wolf (2008) test
Minor comments

1. Notation: The investor’s loading on $d_k, \eta_k$, are the same as the time fixed effects (see page 8 versus page 25)

2. Figure 1: The two firm example is helpful, but I think adding the cross-sectional median and interquartile range over time would be useful to the reader (and also complement the summary statistics in Table 1)

3. Table 4 has "Business education dummy" and Table 5 has "Finance education dummy", but the notes to tables have the same description for this variable → are the two variables equivalent?

4. Figure 4: I think the row panels could easily be combined to produce a 2-by-1 figure

⇒ Figures with three different lines would still be clear
Conclusion

- Interesting paper with intuitive results, nicely executed, and well written

- I think the authors could be even more ambitious regarding their asset pricing results

- I encourage everyone to read it!