Summary of *Do limits to arbitrage explain the benefits of volatility-managed portfolios?*

Pedro Barroso, Andrew Detzel (JFE, 2021)

2025.05.23 LiZiming

1. **What are the research questions?**
   - Whether limits to arbitrage can explain abnormal returns generated by volatility-managed portfolios?
2. **Why are the research questions interesting?**
   - Volatility-managed portfolios have been shown to generate high risk-adjusted returns, which contradict standard asset pricing theory.
   - If these returns cannot be captured in practice due to market frictions, appeal and theoretical implications of such strategies need to be reconsidered.
3. **What is the paper's contribution?**
   - Contribute to literature on market portfolio's performance and limits to arbitrage.
     - Prior literature: predictive relation between monthly realized volatility and future returns is insignificant unconditionally(Yu and Yuan, 2011).
     - Extend: sentiment trading generate abnormal returns of volatility-managed market portfolio.
   - Contribute to literature on volatility management strategies.
     - Prior literature: estimating parameters relevant for volatility management is difficult in real time (Cederburg et al., 2020; Liu et al., 2019).
     - Extend: transaction costs eliminate the alpha produced by volatility management.
   - Contribute to literature on sentiment and anomaly return.
     - Prior literature: anomaly returns are relatively high in times of high sentiment for similar reasons (Antoniou et al., 2013; Stambaugh and Yuan, 2017).
     - Extend: anomalies are relatively high when sentiment is high.
4. **What hypotheses are tested in the paper?**
   - H1: After accounting for transaction costs, volatility-managed non-market portfolios do not generate positive abnormal returns.
   - H2: Abnormal returns of volatility-managed portfolios are concentrated in stocks with low arbitrage risk and few short-sale impediments.
   - H3: Performance of volatility-managed market portfolio is higher during periods of high investor sentiment.

   a) Do these hypotheses follow from and answer the research questions?

   - Yes.

   b) Do these hypotheses follow from theory? Explain logic of the hypotheses.

   - H1 stems from limits to arbitrage literature (Shleifer and Vishny 1997), which posits that transaction costs and market frictions can prevent arbitrageurs from exploiting mispricings.
   - H2 and H3 build on behavioral finance literature, especially the sentiment-trading model (Yu and Yuan 2011), which suggests that mispricing may be due to investor underreaction during high-sentiment periods.

5. **Sample: comment on the appropriateness of the sample selection procedures.**
   - The paper uses a long historical dataset (1926–2015) covering major U.S. equity factors.
6. **Comment on the appropriateness of variable definition and measurement.**
   - Arbitrage risk is proxied by idiosyncratic volatility; short-sale impediments are proxied by institutional ownership.
7. **Comment on the appropriateness of the regress/predict model specification.**
   - Arbitrage risk is proxied by idiosyncratic volatility; short-sale impediments are proxied by institutional ownership.
8. **What difficulties arise in drawing inferences from the empirical work?**
   - Survivorship bias or look-ahead bias may affect factor performance evaluations.
9. **Describe at least one publishable and feasible extension of this research.**
   - Machine learning-based cost-mitigation techniques that adaptively adjust exposure based on liquidity or predicted transaction costs.