# Passive ETFs, Price Discovery & Informed Trading

UC San Diego
RADY SCHOOL OF MANAGEMENT
The Brandes Center

**Passive ETFs, Price Discovery & Informed Trading**

*In July 2026, Dr. Ziwei Zhao, Assistant Professor of Finance at the University of Lausanne, led a discussion of the research paper she co-authored with Dr. Charles Trzcinka at Indiana University, "The Impact of Active Managers on the Pricing of Underlying Assets in ETFs." She shared her work with members of The Brandes Center's Advisory Board and guests. The duo's complete report is available here.*

**Executive Summary**

- ETF ownership appears to raise the hurdle for profitable, single-stock information trading by drawing liquidity-oriented investors toward ETFs and away from individual stocks. At the same time, this may leave stock-level pricing opportunities for informed, active managers.

- Active mutual-fund trades become more predictive of subsequent, factor-adjusted alpha as ETF ownership rises. The effect is strongest for stocks moving into the Russell 2000 Index; a long-short strategy based on trades in those stocks generated approximately 130 basis points of alpha per quarter during the 2012 to 2020 study period.

- The results are concentrated among managers with stronger recent performance. Trades by funds with strong recent performance become significantly more informative, while trades by lower-performing managers do not improve and may become less predictive. The findings are therefore consistent with differences in stock-selection skills or trading capability, rather than a broad benefit available to all active managers.

- The effect is driven primarily by purchases and persists for roughly three months. Its persistence, along with the fact that results remain after controlling for ETF price/NAV discrepancies, is consistent with managers gathering and trading on fundamental information—not merely exploiting a short-lived ETF flow or liquidity premium.

- Active trading appears to offset some ETF-related pricing inefficiency, but not all of it. The opportunity is strongest in less frequently traded stocks, where information may be incorporated into prices more slowly. Volatility, illiquidity, and trading costs can still limit managers' ability to exploit these opportunities.

- For institutions, the findings argue against an "all active" or "all passive" conclusion. Passive investing may remain the rational default for many investors, while the growth of passive ownership may intensify competition and concentrate the remaining opportunities among a smaller group of genuinely capable active managers who continue to contribute to price discovery.

**Background, Data & Methodology**

Zhao and her co-author tested whether active mutual fund managers' trades become more informative when ETF ownership of a stock increases. If their trades become more informative as ETF ownership rises, that would suggest ETFs reshape the opportunities available to informed traders, rather than simply improving information efficiency.

The study covers U.S. stocks and active mutual funds. It combines:

- ETF holdings data from ETF Global [i]
- Stock and return data from CRSP (the Center for Research in Security Prices)
- Quarterly mutual-fund holdings from the Thomson-Reuters Mutual Fund Ownership database. The dataset contained around 4,500 domestic active equity mutual funds between January 2012 and December 2020.
- Daily institutional trading data between 2012 and 2015 from Ancerno [ii] for a supplementary test

The research team used mutual fund holdings data to infer trading activity during a quarter; the primary results were drawn from this data. As a complement, the team also used actual mutual fund trading data from Ancerno.

While the Ancerno traders were anonymized, the data contained information on stocks bought or sold, number of shares, pricing and dates. Both data sets confirmed the primary finding: as ETF ownership of a stock increases, mutual fund trades better predict their subsequent four-factor alpha.

**Dr. Ziwei Zhao** is an Assistant Professor of Finance at the University of Lausanne in Switzerland. She earned her Ph.D. in Finance from Indiana University and a Master of Science in Finance from Johns Hopkins University.

Her research interests include exchange traded funds, mutual funds, behavioral finance and wealth inequality. Dr. Zhao has been a recipient of the "Doctoral Student Research Productivity Award" at Indiana University and the American Finance Association's "Doctoral Student Travel Grant."

She also has been selected to present and discuss her findings at annual conferences sponsored by the Financial Management Association (FMA) and the Managed Funds Association (MFA).

A couple caveats: with the principal sample in the study running through 2020, the relationships and conclusions may or may not continue to hold as passive ownership and ETF structure evolve. Also, the key identification strategy exploits the annual reclassification of stocks between the Russell 1000 and Russell 2000 Indexes. Stocks moving into the Russell 2000 generally experience a larger increase in passive ETF ownership because more passive money and ETFs track that index. The authors use this reassignment as an instrument for changes in ETF ownership. They then test whether mutual-fund trades predict the stocks' subsequent four-factor, risk-adjusted returns.

**Why ETFs May Affect Single-Stock Price Discovery**

Mutual funds and ETFs may own stocks passively, but passive ETFs are actively traded throughout the day and offer investors a liquid way to obtain diversified exposure. As investors move from individual stocks into ETFs, some of the liquidity-oriented trading that once occurred in single names may migrate to the ETF market.

That migration can make it more difficult for an informed trader to execute a single-stock position. With fewer liquidity traders in the individual-stock market, a market maker may be more concerned that an incoming order contains private information. Spreads can widen, raising the cost of acting on information. The trades that remain viable are more likely to be those backed by sufficiently strong information or superior execution.

Amid the shift toward ETF trading, Zhao warned, "Once we have fewer liquidity traders or retail traders trading individual stocks, it may become more costly." For this reason, Zhao emphasized that ETF ownership may increase both the difficulty of active trading and the information content of the trades that survive. The result is not necessarily a market with no active investors. It may be a market in which marginal active investors leave and the remaining active trades become more selective.

**The Empirical Evidence: Active Trades in ETF-Heavy Stocks**

Zhao summed up the paper's central finding this way: "When ETF ownership rises, which stock trades still carry information? The core result we have is that trades by active mutual funds can actually predict future alpha better when ETF ownership is high."

She added: "ETF ownership raises the hurdle for trading on single-stock information and the trades that survive are more informative." The strongest results appear on the buy side. See Exhibit 1 on the next page.

Zhao noted that mutual funds are less able to express negative views through short sales, making sell-only trades harder to interpret. In the small-cap and mid-cap portion of the sample, she highlighted an economically large buy-trade effect in one causal subsample: the estimated coefficient was approximately 0.085. Zhao noted that this estimate comes from a relatively small group of stocks and should not be interpreted as an 8.5% investment return or generalized to the broader market.

**Exhibit 1| Active Trades Carried More Signal in ETF-Heavy Stocks**

| Sample | Coefficient | t-stat | Takeaway |
|---|---|---|---|
| **All Trades** | 0.044/0.040 | 1.74*/1.83* | Positive |
| **Buy Only** | 0.084/0.085 | 3.28***/3.41*** | Strongest |
| **Sell Only** | 0.060/0.054 | 0.95/0.98 | Weak |

*=significant at the 10% level; ***=significant at the 1% level
Sources: ETF Global; CRSP; Thomson-Reuters Mutual Fund Ownership. Jan. 2012 to Dec. 2020

The trade-level data provide another important insight. When many mutual funds trade the same stock, the opportunity appears thinner. When relatively few mutual funds trade the stock, the payoff was larger. Zhao characterized this as an "underexplored" opportunity set: ETF-heavy stocks with limited active-fund attention may be the places where the remaining information advantage is greatest.

**Persistence Matters: Not Merely a Short-Term Flow Effect**

The signal Zhao and her co-author discovered does not disappear immediately. She said the predictability continued into the following quarter and remained visible across the first, second, and third months after the trade, although it weakened over time. "We are trying to argue this is more persistent predictability—more consistent with a delayed incorporation of stock-level information than something purely driven by flow or demand," she said.

A short-lived price reaction could reflect index rebalancing, ETF demand, or momentum that is quickly arbitraged away. A signal that persists for months is more consistent with information entering prices gradually, particularly in less-liquid, mid-cap and small-cap stocks. Zhao nonetheless acknowledged that signal construction, liquidity filters, turnover, and capacity remain open implementation questions.

**A Selection Story: Not a Broad Victory for Active Management**

Zhao was careful not to claim that rising passive ETF investment improves the prospects of active managers generally. "This is not a story saying it's easier for all active managers," she emphasized. "This is a story saying, given the trend, given the popularity, there is a group of active mutual fund managers that can still somehow make money out of the situation, and some of the opportunities are actually created by the popularity of ETF ownership."

How do her findings support this interpretation? First, the predictive effect was concentrated among funds with stronger recent performance. (She defined strong-performing funds as those who had outperformed their peers over the prior six months.) Second, the concentration of active-fund participation within styles rose after ETF ownership increased. Zhao connected this to the Berk–Green capacity story: successful managers attract capital, and capital can eventually exhaust the most attractive ideas. A recent performance screen may therefore identify managers who currently have the skill or trading capability to exploit the opportunity, but it does not guarantee that the advantage will persist as assets grow.

Execution also matters. In stocks with wider spreads, a manager with a strong trading desk may have an advantage even when the underlying investment idea is not unique. This reinforces an institutional-investor point: manager selection cannot focus only on security analysis or historical alpha. It may need to include information acquisition, portfolio construction, liquidity management and trading capability.

Zhao said, "Transaction costs matter a lot when it comes to such trades. So, if a mutual fund has a [good] trading desk, that's definitely a strength. When the spread is really wide, for example, if you execute at a lower price, that's definitely an advantage."

**Active Managers May Partly Offset ETF-Related Pricing Inefficiency**

Zhao also asked what happens *after* informed active managers trade. If higher ETF ownership is associated with pricing distortions, do active trades subsequently help correct them? Across four measures of efficiency, mutual-fund trading appeared to improve three. The evidence is therefore consistent with active managers counterbalancing some ETF-related effects, but not fully.

Zhao summed it up, "It probably is not a full repair of every ETF-related distortion—especially among stocks that are less liquid and more volatile. Active managers have a very good reason not to touch those stocks.

*"Transaction costs matter a lot when it comes to such trades. So, if a mutual fund has a [good] trading desk, that's definitely a strength."*

-Dr. Ziwei Zhao

“So, if ETF ownership increases [for that group of stocks], the price likely will stay inefficient.” In other words, the market’s corrective mechanism appears to be selective: it works best where the opportunity is large enough and implementation is feasible.

**Implications for Institutional Portfolios**

The research does not refute the practical case for passive investing. For many investors, low costs, diversification, transparency and limited governance demands remain powerful advantages. Instead, the implications suggest passive and active investing may be complementary. Passive investors can supply broad, low-cost exposure, while a smaller group of active managers performs the price discovery that allows the market portfolio to remain informative. The relevant institutional question is whether an institution can identify the limited set of managers with the information, process, and execution ability to exploit the opportunities that passive ownership creates or leaves behind. These findings could change how investment committees evaluate active management. A passive allocation may be appropriate in highly liquid, heavily researched segments where opportunities are scarce and the benchmark has been difficult to beat. Active management may deserve more attention in smaller or less liquid stocks, in markets with greater information frictions, or where the institution has unusual access to specialist managers. Even then, the opportunity must be evaluated net of fees, turnover, market impact, capacity, and governance costs.

**The Future of Active Management**

The question that naturally followed was how many active traders the market needs to address mispricings and provide reasonable price discovery. “I don’t have a perfect answer,” Zhao said. “But as far as I know, it would be terribly wrong to close out all the active managers and then open up the space for all the passive managers. Don’t get me wrong,” she added. “If my mom comes to me and asks me where to invest, I would still point her to the S&P 500 passive ETF, but I do think we need some active managers there.” Zhao also raised the possibility that the relevant active investors may not be traditional mutual funds. Hedge funds, active ETFs and leveraged ETFs are largely absent from the data in her study. She also suggested that active ETFs may increasingly attract talented managers because they offer transparency, liquidity, and a different vehicle for implementing focused strategies.

**Conclusion**

Passive ETF growth may reduce the number of active investors who can profitably trade individual stocks, but it may also make the trades of surviving informed investors more valuable. For institutional investors, the practical conclusion may be: use passive where the index is an efficient, low-cost solution, but examine whether specific markets, securities, or managers offer an exploitable opportunity. The future of active management may be smaller, more specialized and expressed through vehicles and data sources that differ from the traditional mutual fund.

## Endnotes & Disclosures

[i] According to the authors, ETF Global is an independent provider of exchange-traded-fund reference data and quantitative research to the investment, academic and governmental sectors worldwide.

[ii] Ancerno provides pre- and post-trade analysis products and consulting services serving roughly 500 global, institutional clients, according to The Trade: https://www.thetradenews.com/guide/abel-noser-ancerno/

This document is for general information and educational purposes only, and must not be considered investment advice or a recommendation that the reader is to engage in, or refrain from taking, a particular investment-related course of action. Any such advice or recommendation must be tailored to your situation and objectives. You should consult all available information, investment, legal, tax and accounting professionals, before making or executing any investment strategy. You must exercise your own independent judgment when making any investment decision.

**Past performance is not a guarantee of future results.**

**No investment strategy can assure a profit or protect against loss.**

Diversification does not assure a profit or protect against a loss in a declining market. All information contained in this document is provided "as is," without any representations or warranties of any kind. We disclaim all express and implied warranties including those with respect to accuracy, completeness, timeliness, or fitness for a particular purpose.

All investments involve risk. There can be no guarantee that the strategies, tactics, and methods discussed in this document will be successful. It should not be assumed that any security transactions, holdings or sector discussed were or will be profitable, or that the investment recommendations or decisions we make in the future will be profitable or will equal the investment performance discussed herein. Data contained in this document may be obtained from a variety of sources and may be subject to change. We disclaim any and all liability for such data, including without limitation, any express or implied representations or warranties for information or errors contained in, or omissions from, the information. We shall not be liable for any loss or liability suffered by you resulting from the provision to you of such data or your use or reliance in any way thereon. Investments in private credit securities may include additional risks that investors should be aware of such as credit risk, prepayment risk, possible illiquidity and default, as well as increased susceptibility to adverse economic developments. Please note that all indices are unmanaged and are not available for direct investment. Nothing in this document should be interpreted to state or imply that past results are an indication of future performance. Investing involves substantial risk. It is highly unlikely that the past will repeat itself. Selecting an advisor, fund, or strategy based solely on past returns is a poor investment strategy. The Regents of the University of California and UC San Diego are not connected or affiliated with, nor do they endorse, favor, or support any product or service of Brandes Investment Partners, L.P.

3Q26


**THE BRANDES CENTER**
9500 Gilman Dr. #0553
La Jolla CA 92093

**CONNECT WITH US**
rady.ucsd.edu/brandes
brandes@rady.ucsd.edu


To receive new research and information about upcoming events, contact us or use the QR code below:

UC San Diego
**RADY SCHOOL OF MANAGEMENT**
The Brandes Center