Refined Questions of Interest

Do stocks that experienced relatively larger increases in passive ownership after 2010 exhibit higher average return volatility, measured using daily and annual vol, compared to stocks that experienced relatively smaller increases in passive ownership over the same period?

Do stocks that experienced relatively larger increases in passive ownership after 2010 also experience larger increases in return volatility, measured using daily and annual vol, relative to stocks with smaller increases in passive ownership?

Important context: virtually every stock with a sizable ($1bn+) market capitalization has had an increase in passive ownership over time. So, to perform our analysis, **we will be comparing stocks with the highest amount increase in passive ownership with those who have had the lowest increase in passive ownership** (regardless of the latter group most likely having had an absolute increase in the % of float owned by passive managers like the former) from our basket of stocks (S&P 500, NASDAQ 100, or CRSP Index).

Comparison Across Papers

The current literature agrees that increased levels of passive investment are associated with higher stock level volatility, though it is unclear how much of the relationship is causal. Proposed mechanisms for this volatility differ, as do implications for short / long-term market efficiency.

- Haddad, Huebner, and Loualiche (2025) conclude that increased passive ownership reduces demand elasticity which raises price impact and volatility, and that active investors do not fully offset this effect.
- Ben-David, Franzoni, and Moussawi (2014) and Krause, Ehsani, and Lien (2014) focus on a different mechanism, arguing that ETFs increase volatility in their included stocks because of ETF arbitrage activity and liquidity shocks.
- The studies above focus on short-term volatility amplification rather than long-run price distortions, whereas Haddad, Huebner, and Loualiche (2025) suggest that passive investment leads to less informative prices and impairs market efficiency in the long-run.
- The Larsen (2023) paper looks at stocks added to the S&P 500 from 2015 to 2017 and aligns with the other studies by finding that these stocks experienced higher volatility and return co-movement following inclusion, consistent with increased passive buying, but offers mixed evidence on whether these changes impair overall market efficiency.

Defining Terms

ETF: Exchange traded fund, a collection of assets that can be traded together like an individual stock. Type of passive investment vehicle.

NAV: Net asset value, the summed total value of stocks held in a passive investment vehicle.

ETF Arbitrage: Leveraging a price difference between an ETF and its NAV by swapping underlying securities for ETF shares and then selling for a profit, or vice versa. This helps align the ETF price with its NAV.

ETF liquidity: Refers to how easily an ETF can be bought and sold without impacting the ETF's market price.

Volatility spillover: The volatility in once asset transmitting volatility in another (ex. from an underlying asset to an ETF including that asset)

Preliminary Data Scraping:

- Stooq.com: data source for stock ticker information and we have scraped data for the stock tickers: MSFT, AAPL, AMZN, NVDA, TSLA, AMC, BYND, GME, RILY, and SPCE. We scraped from when they were first listed on stock exchanges but plan to only use data as far back as January 1st, 2010. Inside the CSV files, there is daily information of the open, close, high, low, and volume statistics for each ticker. We have a solid understanding of how Stooq works now, and it will be easy for us to pull data for the entire basket once we decide on it.
- Form 13Fs:
    - We're building a python script that connects with [sec.gov](sec.gov)'s API to pull all 13F-HR and 13-HR/A filings from the beginning of 2010 (first filing would be first quarter of '10) for BlackRock, Vanguard, and State Street, where the output will be .csv files.
    - From there, we'll use another script to pull the data specifically for the three managers' holdings of the tickers above to see how their % of float has changed over time. We'll then add up the % of float owned by each of the managers to construct our "passive ownership label," and graph this against our volatility calculations.

Example Visualizations:

Annual Realized Volatility (%)

Rolling Volatility (Annualized, %)