How Do ETFs Affect Stock Volatility?

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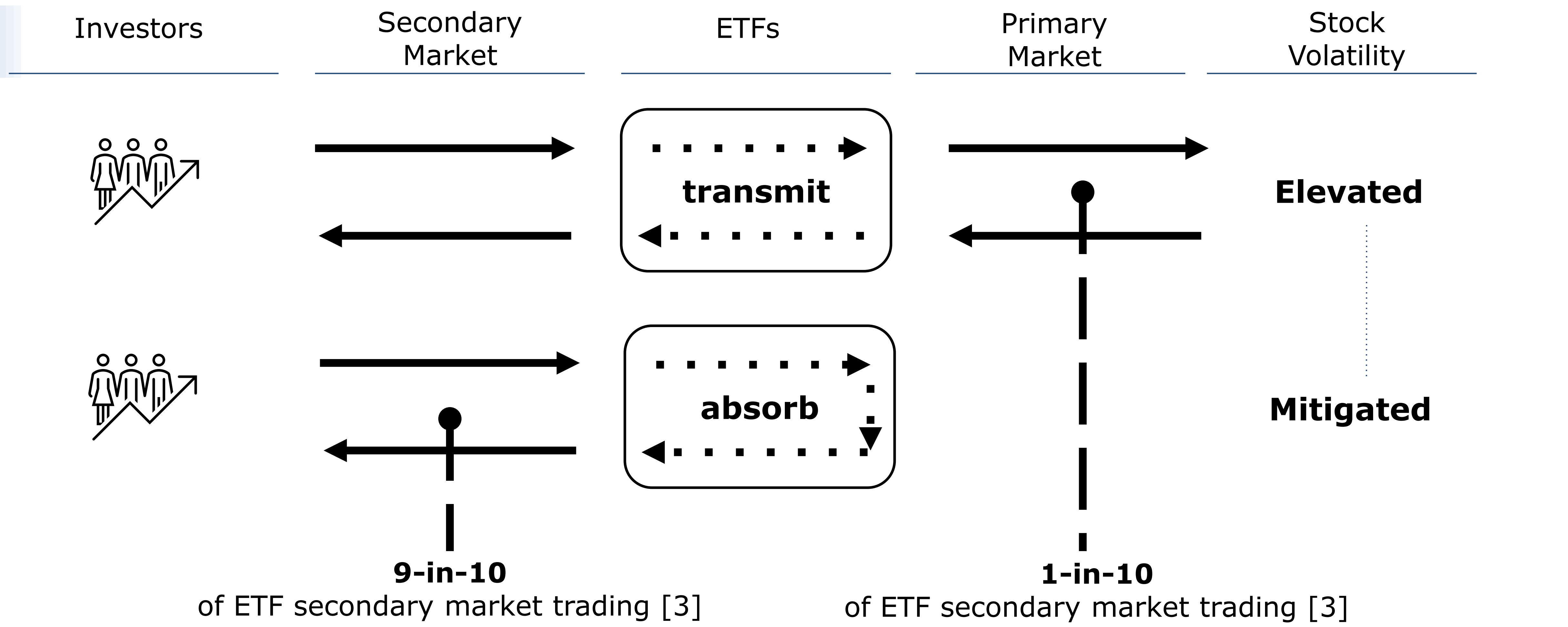
1. Two Mechanisms

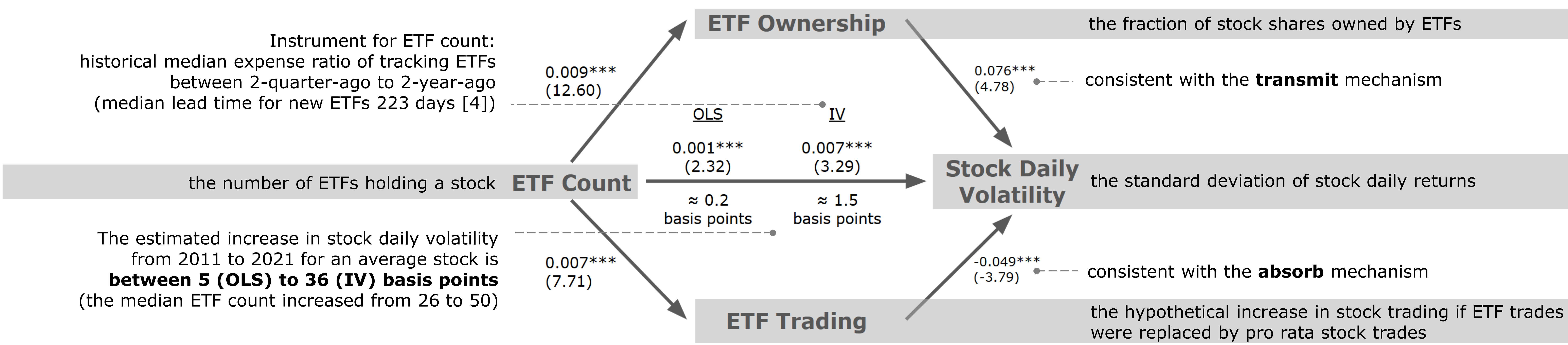
<u>ETFs **increase** stock volatility</u>
When demand shocks drive up ETF prices over the value of ETFs, ETF traders **transmit** shocks via arbitrage - selling ETFs and buying ETF portfolio.

<u>ETF **decrease** stock volatility</u>
ETF traders supply liquidity and **absorb** shocks, by bearing inventory risk from incoming orders until offsetting orders arrive.

I reconcile the seemingly opposing evidence (e.g. [1] and [2]), by taking into account **two forms of ETF activities – ETF ownership and ETF trading**.



2. Main Results: Mechanisms Co-exist, But New ETFs Increase Volatility



3. Sample & Stylized Facts

Sampling period: 2011 – 2021

- ETFs: US ETFs that invest in domestic equity
- Stocks: US common stocks
- ETF total market cap is only ~5% of stock total market cap, but ETF total dollar volume is ~25% of stock total dollar volume.
- 4 ETFs (SPY, QQQ, DIA, IWM) drive ~25% of ETF total market cap but ~85% of ETF total dollar volume.

4. Extended Results

ETFs transfer volatility from intra-day to inter-day

- ETF count is negatively associated with daily price range (the difference between daily high and low prices, scaled by mid prices).

Both mechanisms co-exist even within one ETF

- Volatility increases for newly included stocks in the NASDAQ 100 index, relative to matched NYSE stocks.
- The inclusion effects are positively associated with the QQQ size but negatively with the QQQ volume.

5. Key References

[1] Ben-David, I., Franzoni, F., & Moussawi, R. (2018). Do ETFs Increase Volatility? Journal of Finance.

[2] Box, T., Davis, R., Evans, R. B., & Lynch, A. A. (2021). Intraday Arbitrage Between ETFs and Their Underlying Portfolios. Journal of Financial Economics.

[3] 2019 Investment Company Fact Book, Investment Company Institute, Figure 4.5

[4] Release Nos. 33-10695 “Exchange-Traded Funds”, SEC