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## When ETFs make things more volatile

Izabella Kaminska Apr 28 20:02 6 comments

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Do ETFs impact the volatility of the underlying stocks they are based on?

A new paper by Itzhak Ben-David, Francesco Franzoni and Rabih Moussawi suggests they do.

From the abstract (our emphasis):

We study whether exchange traded funds (ETFs)—an asset of increasing importance—impact the volatility of their underlying stocks. Using identification strategies based on the mechanical variation in ETF ownership, **we present evidence that stocks owned by ETFs exhibit significantly higher intraday and daily volatility. We estimate that an increase of one standard deviation in ETF ownership is associated with an increase of 16% in daily stock volatility. The driving channel appears to be arbitrage activity between ETFs and the underlying stocks.** Consistent with this view, the effects are stronger for stocks with lower bid-ask spread and lending fees. **Finally, the evidence that ETF ownership increases stock turnover suggests that ETF arbitrage adds a new layer of trading to the underlying securities.**

Some of the really interesting observations relate to the factors that encourage arbitrage trading and thus volatility in the underlying stocks.

The authors asked, for example, whether high lending costs would make arbitrageurs less likely to engage in arbitrage transactions, on the basis that short selling costs would eat into profits or because unavailability of shares would make it more difficult to put the arbitraging trades on. As a consequence, a presumption was made that the effects of arbitrage trades on intraday volatility and turnover would be stronger when lending fees were lower.

According to the authors, data gathered in the research presented evidence of this effect.

As the paper noted:

For both intraday volatility and turnover, the effect of absolute mispricing is

weaker, for a given level of ETF ownership, when lending fees are higher (even-numbered columns). **In other words, when stock lending fees are high, ETF ownership does not increase intraday volatility as much for a given level of mispricing.**

It's a significant finding because of how counter-intuitive it is. The ordinary presumption would be that active arbitrageurs make markets less volatile, because their presence erodes the price distortions that can appear between the markets being arbitrated.

Yet the findings here are that arbitrage activity between ETFs and the stocks they represent leads to an increase in stock volatility.

It's almost as if the demands of arbitraging the ETF in a risk-free manner for intermediaries leaks volatility from what would otherwise be a freely floated unit open to subject its own supply and demand fundamentals over to the underlying market.

Or as the authors put it: "liquidity shocks in the ETF market are propagated via arbitrage trades to the prices of underlying securities, adding a new layer of non-fundamental volatility."

Furthermore, the authors find that the higher the ETF ownership in general the higher the volatility and turnover of the underlying.

As they conclude:

These results emphasize an unintended consequence of financial innovation. New securities with values that are derived from existing securities, such as ETFs, are attractive for arbitrage trades. **Liquidity trading in the ETFs generates volatility that is passed down via arbitrage to the underlying securities.**

While the effects that we point out are obtained in the universe of US stocks, we believe that they can be extended to other asset classes. In this sense, our work relates to a growing literature highlighting the role of index trading in generating non-fundamental volatility and comovement.

A useful way to think about this is that ETF units are like altcoins — designed to be transacted easily — but which borrow their store of value from the underlying stocks they are linked to. In that sense, they are to the stocks and commodities they follow, what Paypal and Bitcoin are to underlying currencies they attempt to exchange more easily.

In the case of Bitcoin, of course, the relationship is unpegged, meaning the volatility associated with any liquidity preference (relative to the item it is substituting) is expressed entirely in the freely floated unit of Bitcoin. That's mainly because a) the Bitcoin market is not collateralised with any currency at all and b) because it does not make any promises about linked returns.

This is quite the opposite with Paypal, which to some degree is as much an ETF as it is a payment platform. The only difference being that its value is linked not to stocks or commodities but to the currency the company helps people transact. This linkage is assured by a collateralisation framework and a guarantee to customers that they will always get back what they put in.

A growing Paypal collateral float on that basis implies growing demand for liquid units. In other words, the larger the float gets, the greater the liquidity preference in the market, but also — due to the linkage — the greater the support provided to the underlying currency, which might otherwise not be demanded to the same degree.

The key message being: even though the two units are designed to mimic each other in value, the supply and demand fundamentals of both are probably very different. Volatility emerges in the underlying because the asset's linkage to the more liquid unit ends up passing down an externality to its value.

On that basis, the easier an ETF is to arbitrage, the greater the chance that an alien “liquidity” value, which cannot be anticipated by the fundamentals of that market, is transferred to the valuation of the stock, and thus the more volatile it becomes.

Conversely, the more difficult the ETF is to arbitrage, the more likely that the stock is being valued according to its true fundamentals, which account for its real liquidity in the market.

Though, of course, if you believe Blackrock, real liquidity is irrelevant, because ETFs represent the true market no matter what.

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