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## Exchange Traded Funds (ETFs): Hyperactive rather than passive

AGNIESZKA GEHRINGER and KAI LEHMANN

Passive investing is now more popular than ever. ETFs became a prominent vehicle for this investment style and have enjoyed a remarkable increase in popularity. There are 4,700 equity-ETFs worldwide by now, which bring together USD 3.4 trillion, and the tendency is growing.

These products obviously possess some desirable features, like low costs, high price transparency, as well as the possibility to map and track different strategies and markets. But they are also used for active trading, which has nothing to do with passive investing.

John (Jack) Bogle is known as a father of passive investment. The idea behind his first index fund launched on the New Year's Eve 1975 was the conviction that in the long-run the benefits of active stock picking will be outstripped by costs generated in the process. If one is willing to profit from the long-run development of the stock market, it makes more sense to follow the broad market, rather than to actively search for mispricing and, as a consequence, to over- and underweight single titles. In other words, the market is "too efficient" for an active equity selection. In all this, the time-horizon is

essential, according to Bogle. Short-term orientation – warns the pioneer of passive investing – would lead the idea of his approach ad absurdum. Investment needs a long time horizon. Otherwise it is pure speculation.

### How does the ETF-trading work?

The declared goal of most ETFs is to follow the performance of a certain market index, like the DAX or the S&P500.<sup>1</sup> To this end, the so called ETF sponsors give out ETF shares, which represent a claim on the underlying pool of shares included in the index. ETFs are created in the primary market first and are then continuously traded in the secondary market, normally the stock exchange.<sup>2</sup> The continuous supply- and demand activity can lead the ETF-price to deviate from the net asset value (NAV) of the underlying titles and, as a consequence, from the performance of the reference index.

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<sup>1</sup> ETFs cover different categories of securities, like equities, bonds, commodities and currencies. However, the biggest share of the ETF-market (ca. 85% of the overall market capitalization) concentrates on equity market indices.

<sup>2</sup> In this way, ETFs are linked to both mutual funds – which create and redeem the funds' shares at the end of each trading day – and closed-end funds – the shares of which are traded (bought/sold) during the trading day.



Should the ETF-price and the NAV drift too far away from each other, arbitrage is supposed to close the gap again.

Contrary to the classic investment funds – where the creation and redemption of fund shares take place directly between the investment company and the customer, and where the determination of the NAV is made once a day – outstanding ETF-shares are traded continuously in the stock exchange. In what follows, we analyze this trading activity in more detail. We are particularly interested in two questions. First, to which extent is the continuous availability of ETF-prices the reason for ETFs to be used for trading – contrary to the idea of passive investing? Second, how does trading of ETFs look like around events leading to high volatility in the capital markets?

### Our method

In order to answer the aforementioned questions, we choose the three biggest equity-ETFs for each of the three stock indices, namely DAX, S&P 500, and FTSE 100.<sup>3</sup> We analyze the trading activity of these ETFs around three well-known events, which lead to intensified trading in the market as a whole: the flash-crash on June 24, 2015, the day after the so called Brexit-referendum (June 24, 2016), and the day after the US presidential election (November 9, 2016).<sup>4</sup>

We want to identify differences in trading activity between the chosen event days and „normal“ trading days. To this end, we define event-windows of 31 trading days around each event day, with 15 trading days before and 15

days after the event day. Within this event-window we measure deviations in trading activity as ETF-shares traded on each of the event days as a percentage of average daily traded shares during the event-window.<sup>5</sup> A positive value implies an intensified ETF trading activity, whereas a negative value would indicate a relatively weak trading activity. Given that we analyze three ETFs per equity index, we weigh their impact with the respective trade volumes observed on each trading day.

Table 1 shows the turnover ratios, which in the case of ETFs are calculated as average values of ETF-shares traded daily between January 1, 2014 and March 31, 2017 as a percentage share of the respective averages of outstanding ETF-shares. Whereas most of the ETFs show a turnover ratio of around one percent, the biggest US ETF SPY is an exception. With a turnover ratio of 12.41 % it is by far the most traded ETF fund. This means that around one eighth of the overall roughly USD 200 billion of outstanding shares is exchanged each day, or alternatively that after each eight days the outstanding shares will have completely changed the owner.

With respect to our hypothesis, however, it is even more important to note that the trading of ETF shares is higher than the trading of the stocks of the underlying indices. For the latter, the turnover ratio ranges between 0.29 % (FTSE 100) and 0.88 % (S&P 500). This means that ETFs are on average much more traded than the stocks in the indices.

ETFs are traded more actively not only on average. Especially around the selected events we observe a much higher trading in ETF-shares, compared to both the average trading of ETF-

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<sup>3</sup> Table 3 in the Appendix shows descriptive statistics of the analyzed ETFs.

<sup>4</sup> On the election days, i.e. June 23, 2016 and November 8, 2016, the election outcomes were not yet known and were hardly predictable, due to very narrow pre-election polls. This is the reason why the market reactions could be observed first on the day following the elections.

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<sup>5</sup> For the reference indices we have chosen the same procedure, meaning that the trading activity is represented by the number of traded stocks.



shares and that of shares in the underlying indices (Table 2 and Figures 1–3). Specifically, the volumes of traded ETF-shares on the DAX were – depending on the event – between 262 % and 364 % higher than on average. To the contrary, trading in the stocks included in the DAX increased by “only” about 200 % compared with its average during the 31-days around the flash-crash on August 24, 2015 and Brexit in June 2016. This implies that around three times more shares were traded at both events than on an average trading day. On the occasion of the US presidential election in November 2016, trading in the DAX stocks was even lower and increased by only 101 % compared with the normal trading.

For the ETFs on the FTSE 100 index the results are similar as for DAX-ETFs. The trading activity on the day following the Brexit referendum was 486 % higher than usual. This is much more than a 240% increase in trading recorded for FTSE 100 stocks on the day after the Brexit referendum.

For the US, the values are somewhat lower, for both the ETFs and the S&P 500 trading volume. However, accounting for the much higher absolute volumes, the increased trading activity

**Table 1: Relative trading volumes in the period January 1, 2014 and March 31, 2017 (turnover ratio)**

| Germany     |        | USA            |         | UK               |        |
|-------------|--------|----------------|---------|------------------|--------|
| DAXEX GY    | 0.72 % | SPY US         | 12.41 % | ISF LN           | 1.09 % |
| XDAX GY     | 0.67 % | IVV US         | 1.26 %  | VUKE LN          | 0.99 % |
| ETFDAX GY   | 3.25 % | VOO US         | 1.08 %  | L100 LN          | 0.84 % |
| Average ETF | 1.55 % | Average ETF    | 4.91 %  | Average ETF      | 0.97 % |
| Average DAX | 0.42 % | Average S&P500 | 0.88 %  | Average FTSE 100 | 0.29 % |

Source: Own calculations Flossbach von Storch Research Institute, Bloomberg.

**Table 2: Relative deviation of trading volume on event days compared with average trading volume in the event window**

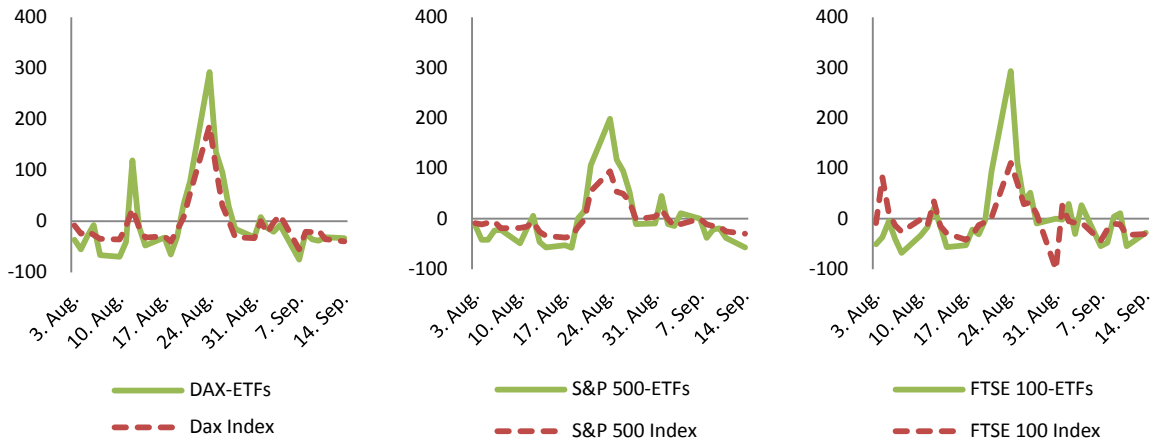
| Date       | Germany        |       | USA                |       | UK*                 |       |
|------------|----------------|-------|--------------------|-------|---------------------|-------|
| 24.08.2015 | DAX-stocks     | 188 % | S&P 500-stocks     | 106 % | FTSE 100-stocks     | 111 % |
| 24.08.2015 | DAX-ETF-shares | 293 % | S&P 500-ETF-shares | 198 % | FTSE 100-ETF-shares | 293 % |
| 24.06.2016 | DAX-stocks     | 194 % | S&P 500-stocks     | 118 % | FTSE 100-stocks     | 240 % |
| 24.06.2016 | DAX-ETF-shares | 364 % | S&P 500-ETF-shares | 195 % | FTSE 100-ETF-shares | 486 % |
| 09.11.2016 | DAX-stocks     | 101 % | S&P 500-stocks     | 55 %  | FTSE 100-stocks     | 95 %  |
| 09.11.2016 | DAX-ETF-shares | 262 % | S&P 500-ETF-shares | 177 % | FTSE 100-ETF-shares | 240 % |

\*For FTSE 100-ETFs there is increased trading activity on 09.11.2016 as well as on the following day.

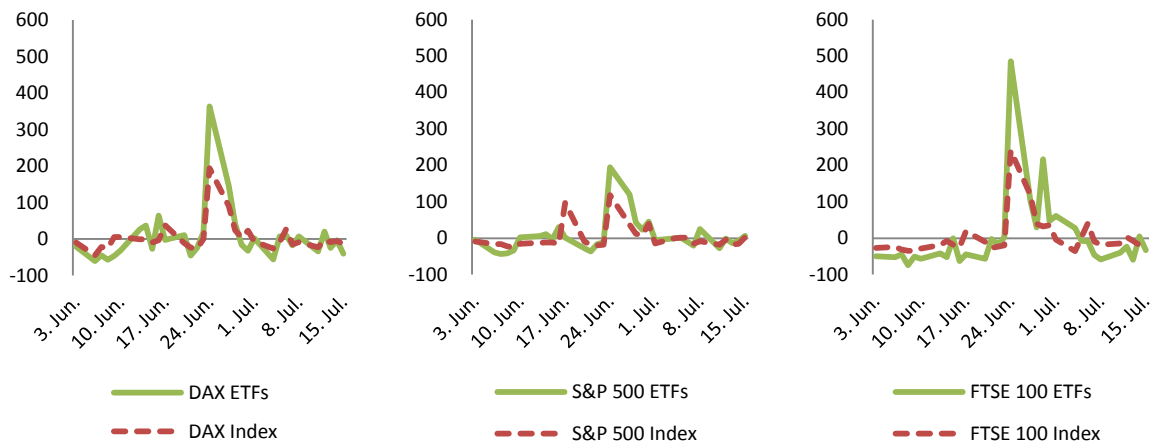
Source: Own calculations Flossbach von Storch Research Institute, Bloomberg.



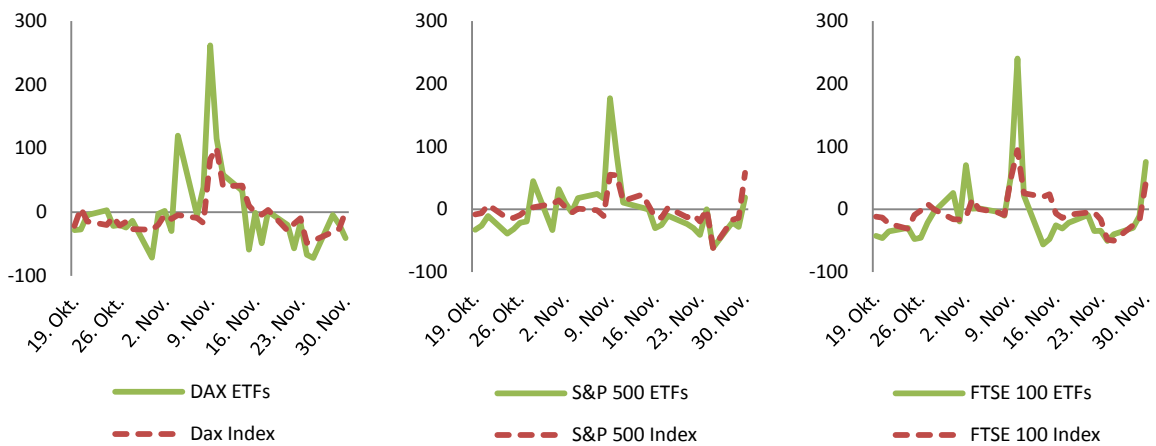
**Figure 1: Relative daily trading volumes between August 3, 2015 and September 14, 2015 – Event on August 24, 2015**



**Figure 2: Relative daily trading volumes between June 3, 2016 and July 15, 2016 – Event on June 24, 2016**



**Figure 3: Relative daily trading volumes between October 19, 2016 and November 30, 2016 – Event on November 9, 2016**



Source: Own calculations Flossbach von Storch Research Institute, Bloomberg



by between 177 % and 198 % for the ETFs - compared with 55 % to 118 % for the S&P 500 stocks - is still impressive. All in all, our results clearly show that trading volumes of ETF-shares around stress events surged compared with „normal“ ETF-trading, and with trading of shares included in the stock market indices.

### **Conclusion**

The idea of passive investment is based on the assumption that the investor is not able either to systematically detect mispricing of single titles, or to time buying and selling them successfully. However, many financial market participants pervert this basic idea by actively, indeed hyper-actively, trading ETF-shares. The latter are apparently not only used for long-run investment. Easy trading with a „mouse-click“ may lead many investors to actionism.

High liquidity is per se useful to rapidly incorporate information into the asset values. However, at this point we are not able to univocally distinguish whether high ETF-trading is the symptom of “smart”, information-based activity, or mere „noise trading“. There is first empirical evidence though confirming that an average ETF-investor is not particularly successful in his trading activities.<sup>6</sup> In this sense, the intensive trading we detected may well be detrimental for the investor. ETF-trader should heed the old saying: “Too much trend-chasing leads to the poorhouse”.

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<sup>6</sup> See Bhattacharya et al. (2017), “Abusing ETFs”, *Review of Finance*, Vol 21 (3), 1217-1250.



## Appendix

Table 3: Descriptive statistics on the analyzed ETFs and on average for all ETFs traded in the respective markets

| Ticker           | Name                        | Inception date | Market capitalisation in millions of € | Average daily volume in Q1 2017 in shares |
|------------------|-----------------------------|----------------|--|---|
| <b>Germany</b>   |                             |                |  |   |
| DAXEX GR Equity  | iShares Core DAX UCITS ETF  | 03.01.2001     | 8.353                                  | 43.151                                    |
| XDAX GR Equity   | db x-trackers DAX UCITS ETF | 10.01.2007     | 4.315                                  | 11.437                                    |
| ETFDAX GR Equity | Deka DAX UCITS ETF          | 31.03.2008     | 2.454                                  | 7.738                                     |
| <b>all ETFs</b>  |                             |                | <b>139.787</b>                         | <b>973.323</b>                            |
| <b>USA</b>       |                             |                |  |   |
| SPY US Equity    | SPDR S&P 500 ETF Trust      | 22.01.1993     | 224.397                                | 76.919.660                                |
| IVV US Equity    | iShares Core S&P 500 ETF    | 19.05.2000     | 95.212                                 | 3.449.949                                 |
| VOO US Equity    | Vanguard S&P 500 ETF        | 09.09.2010     | 59.595                                 | 2.264.287                                 |
| <b>all ETFs</b>  |                             |                | <b>2.200.862</b>                       | <b>1.004.498.056</b>                      |
| <b>UK</b>        |                             |                |  |   |
| ISF LN Equity    | iShares Core FTSE 100       | 27.04.2000     | 5.555                                  | 4.344.572                                 |
| VUKE LN Equity   | Vanguard FTSE 100 UCITS ETF | 23.05.2012     | 3.033                                  | 482.933                                   |
| L100 LN Equity   | Lyxor FTSE 100 ETF C-GBP    | 15.05.2007     | 645                                    | 159.984                                   |
| <b>all ETFs</b>  |                             |                | <b>219.741</b>                         | <b>24.814.208</b>                         |

Source: Own calculations Flossbach von Storch Research Institute, Bloomberg



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*Publisher:* Flossbach von Storch AG, Research Institute, Ottoplatz 1, 50679 Cologne, Germany; Phone +49 221 33 88-291, [research@fvsag.com](mailto:research@fvsag.com), *Directors:* Dr. Bert Flossbach, Kurt von Storch, Dirk von Velsen; *Registration:* No. 30 768 in the Commercial and Companies Register held at Cologne District Court; *VAT-No.* DE200075205; *Supervisory authority:* German Federal Financial Services Supervisory Authority, Marie-Curie-Straße 24 – 28, 60439 Frankfurt / Graurheindorfer Straße 108, 53117 Bonn, [www.bafin.de](http://www.bafin.de); *Authors:* Dr. habil. Agnieszka Gehringer & Dr. Kai Lehmann; *Editorial deadline:* 6 June 2017