1. Title: COVID-19 and Investor Behavior

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3. Abstract

In the beginning of January 2020, the Chinese authorities identified a novel type of the coronavirus, which rapidly spread from China all over the world. The World Health Organization characterized the spread of the novel coronavirus officially as a pandemic on March 11th. The impact of the virus on businesses and economies is tremendous, but at the same time difficult to assess. A direct economic consequence of the pandemic is the temporary lockdown of almost all major economies worldwide. While the aggregate effect on the stock market (Baker et al, 2020b; Ramelli and Wagner, 2020) and the spending behavior of households (Baker et al, 2020a) have been documented, little is known about the behavior of retail investors during such a turbulent time. It is, however, important to investigate the behavior of investors at the micro-level under these unprecedented conditions of a pandemic outbreak to allow for a better understanding of aggregate market outcomes.

In this project, we explore how retail investors respond to the outbreak of COVID-19, or any pandemic for that matter, as the last pandemic dates back to times before data recordings on a large scale were the standard. We investigate how a pandemic influences trading patterns and financial risk-taking based on a large sample of trading records of retail investors.

The financial literature on the impact of terror attacks on investor behavior shows a reduced flow to risky assets in the aftermath of terrorist activity (e.g., Wang and Young, 2020). The outbreak of the pandemic is comparable to terroristic attacks in many regards: it is an exogenous shock, that has drastic consequences on everyday life, raises public fear, and causes great (economic) uncertainty. At the same time, however, evidence in the finance literature suggests that (some) individual investors treat trading as a fun and exciting activity (Dorn & Sengmueller, 2009; Dorn et al., 2015; Gao & Lin, 2015; Kumar, 2009). In this context, boredom is among the primary motivators for engaging in gambling activity (e.g. Carroll & Huxley, 1994; Clarke et al., 2007; Coman, Burrows & Evans, 1997; Hing & Breen, 2001; McNeilly & Burke, 2000; Williams & Hinton, 2006). Considering that the lockdowns around the globe come along with reduced pastimes opportunities and increased boredom, investors may also increase their trading activities. Against this inconclusive background it is highly interesting to investigate how individual investors behave in times of the outbreak of a pandemic.

We find that investors significantly increase their trading activities as the pandemic unfolds, both at the extensive and at the intensive margin. We observe that the number of investors who first open an account with the broker increases, while at the same time established investors increase their average trading activities. A 100% increase in COVID-19 cases is associated with a ~14% increase in the average weekly trading intensity. The increase in trading is especially pronounced for male and older investors and affects stock and index trading. The increase is largest during the period from February 23rd to March 22nd. CFD trading and the trading of crypto currencies are less affected. Following the 9.99%-percentage drop of the Dow on March 12th, investors significantly reduce the usage of leverage across all asset classes, except cryptocurrencies. Investors also marginally increase their tendency to engage in short selling across all asset classes.

4. Data description: transaction level trading data

We use transactional-level brokerage data from a UK-based discount broker that offers an online trading platform to retail investors. The broker allows its clients to trade stocks and contracts for
difference (CFD) on stock market indices, cryptocurrencies, commodities\(^1\), foreign exchange rates, and single name stocks. Our data sample contains all trades that the investors executed with the broker between May 1\(^{st}\), 2019 and April 17\(^{th}\), 2020. The data contain the exact time-stamp and instrument of the trade, an indicator for long or short positions, the executed rate, the leverage, and the investment. The dataset quotes all trades in USD irrespective of the currency in which the underlying instrument trades and contains net returns of closed positions after adjusting for stock splits, dividends, and transaction costs. In total, the dataset contains 59,433,322 transactions executed by 529,753 investors.

Additionally, the dataset comprises the orderdata of investors. The orderdata contain the exact time-stamp and instrument of the order, an indicator for market or limit order, and the stop loss or take profit percentages, if any. Moreover, the dataset contains the deposits to and withdrawals from the brokerage accounts that investors initiate. Lastly, the dataset includes basic demographic information, such as age and gender.

We obtain data on the number of cases and deaths due to COVID-19 from the European Centre for Disease Prevention and Control. In addition, we hand collect information on lockdowns and other restrictions on public life.

5. **JEL codes for the project**

   G10, G11, G12, G40, G41.

6. **Key-words**

   Trading Behavior; Risk-Taking; Pandemic; COVID-19

\(^1\) We exclude CFDs on oil from our analysis due to a large number of potential confounding effects, such as the debate on production quantities between Russia and Saudi, and restrict commodities to gold as a safe haven instrument.