
AN EXPLANATION OF FUTURES MARKET VOLATILITY DURING THE COVID-19 CRISIS

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ABSTRACT

Using a trivariate structural vector autoregressive (SVAR) model on S&P 500 index futures and NASDAQ 100 index futures contracts, this paper examines the effects of fundamental shocks and noise trading shocks on returns, volatility, and volume during the COVID-19 crisis in 2020. We find the increased pandemic volatility is primarily due to fundamental transitory shocks, with significant and long-lasting impacts on volatility following the market crash. Noise trading is a secondary factor in creating the increased volatility.

Keywords: noise trading, fundamental shocks, SVAR model, volatility

1. INTRODUCTION

The stock market in the United States and around the world experienced unprecedented levels of volatility after the outbreak of COVID-19 in early 2020. After peaking at a record high in early February 2020, the U.S. stock market experienced a wave of market crashes starting on Monday, February 24th, 2020. By the time the World Health Organization officially announced the pandemic on March 11, 2020, the S&P 500 index had dropped about 20% from its February high. On March 16, 2020, all the major indices, including the Dow Jones Industrial Average (DJIA), the S & P 500 and the NASDAQ Composite dropped about 12%. However, after falling to the relatively lowest level on March 23, 2020, the stock market rebounded and then kept setting new record highs later in the year.

With such extreme movements in the financial market, it is crucial to understand the root causes of the increased volatility. Thus, the pandemic has triggered a growing literature examining its impact on the financial market. Some studies focus on how the increased market volatility was linked to the announcements of COVID-19 cases (Albulescu 2021, Zhang et al. 2020). The number of cases were utilized by investors as a source of information to make investment decisions. One question that remains is whether the increased volatility during the COVID-19 crisis can be attributed to noise trading. According to De Long, Shleifer, Summers, and Waldmann (1990), investors can be categorized into rational investors and noise traders based on the types of information they utilize to make investment decisions. Rational investors make investment decisions based on fundamental shocks, while noise traders make investment decisions based on non-fundamental shocks. Therefore, noise traders invest based on unfounded rumors rather than fundamentals, which causes stock prices to diverge from their fundamental values, leading to volatility.

Lee (1998) further decomposes fundamental shocks into permanent fundamental shocks and transitory fundamental shocks. Permanent fundamental shocks come from permanent changes in earnings, dividends, and discount factors in the stock valuation process, thus inducing a long-run nonzero cumulative effect on those factors. Transitory fundamental shocks, on the other hand, result from temporary changes in the above factors, ultimately inducing a long-run zero cumulative effect on those factors. Contrarily, non-fundamental (noise trading) shocks are driven by innovations that do not influence earnings, dividends, or