Fear sentiment connectedness and hedging opportunities: Evidence from a multiperiod study

The financial market dynamics are influenced by investor fear. Investors make irrational decisions out of fear of losing in the stock market, causing volatility and price swings that are hard to predict. It is essential for every investor or trader who wishes to successfully traverse the complex world of investing to have a solid understanding of the influence that fear has on their stock returns.

The spread of COVID-19 and the ongoing conflict between Russia and Ukraine has increased the fear sentiment among investors, which resulted in equity withdrawal and diversification of invested portfolios to relatively safer assets. Through this study, we aim to investigate the dynamic fear sentiment connectedness among the 21 major countries. These countries are – Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Spain, Turkey, UK, Ukraine and USA.

The outbreak of coronavirus in late 2019 in Wuhan, China, and its rapid spread adversely affected economies and financial markets globally. The market condition worsened when the World Health Organization announced the COVID-19 outbreak as a global pandemic on 11 March 2020. Interestingly, investors worldwide had begun decreasing their equities holdings as a precaution against a potential market slowdown even before the official announcement. Following the announcement, many countries implemented strict lockdowns to curb the spread by shutting down all economic activities except essential ones. These restrictions significantly contributed to the investor's fear. As a result of these restrictions, a significant downturn in domestic and major global indices (such as S&P500, DJIA and Nasdaq index) was seen. Similarly, previous investigations suggest that geopolitical conflicts influence the decision making of investors. The uncertainty caused by geopolitical threats puts pressure on economies and stock markets as investors become more risk-averse. This risk aversion behaviour due to the fear of geopolitical risk causes stock values to fall, particularly in the short run. This same phenomenon can be observed in early 2022 when Russia invaded Ukraine. The financial market globally reacted adversely to the invasion. Fear among investors, specifically European, about what if this war expends to European countries? This geopolitical uncertainty increased fear and resulted in a short-term decline in the financial market globally.

In this work, we have developed a fear sentiment index that measures fear sentiment among investors using six coronavirus sentiment proxies and a war index (a measure of geopolitical risk) for 21 major economies. These data have been collected from the RavenPack Database. The sentiment proxies are – fake news, infodemic, media coverage, media hype, panic, sentiment and war index. The period of study is from 1 January 2020 to 31 July 2023. This period has been divided into two categories i.e., PRE and POST. The PRE period considers data from 1 January 2020 to 31 December 2021, while POST covers the rest, i.e., 1 January 2022 to 31 July 2023. Principal component analysis (PCA) has been applied to all seven indices of each country for both periods to develop a common measure of fear sentiment for the respective country, and we termed this a fear index. In the next step, we used the TVP-VAR (time-varying parameter – vector autoregression) model to investigate the dynamic connectedness among the countries in both study periods. This estimation gives the total fear sentiment connectedness index (FSCI) for studied countries in the PRE and POST periods. In addition, optimal portfolio weight and hedging effectiveness have been estimated using the S&P500 and respective country fear index. Lastly, the predictive power of the FSCI index is tested using OLS regression.

The TVP-VAR result gives us information about the countries' fear sentiment dynamics (TO, FROM and NET) and the total connectedness index (FSCI) over the period. The TO, FROM and NET dynamics help us to understand fear shock dynamics among the countries. The largest fear-transmitting countries in the PRE sample period were United Kingdom, USA, Germany, China, India, Italy, France and Canada, while in the POST sample period USA, Germany, United Kingdom, Canada, Japan, Italy, India, France, Russia, China and South Korea are the largest fear transmitter. Similarly, the largest fear-receiving countries in the PRE sample period are Saudi Arabia, Indonesia, Mexico, Ukraine, Japan, South Africa, Argentina, Spain, Brazil, Turkey, Russia, South Korea and Australia, while in the POST sample period, Saudi Arabia, Mexico, Spain, Indonesia, Turkey, Australia, South Africa, Ukraine, Brazil and Argentina. Interestingly, the direction of fear transmission in both periods is broadly from developed to developing economies. The fear transmission among countries varies significantly in both periods. The heterogeneous impact of COVID-19 and the Russia-Ukraine conflict on countries has been observed. Furthermore, the optimal portfolio weight in the PRE sample period ranges from 0.71(S&P500/China) to 0.83(S&P500/Ukraine), while in the POST sample period, the optimal portfolio weight is ranging from 0.88(S&P500/Ukraine)

to 0.95(S&P500/Japan). Likewise, hedging effectiveness in the PRE sample period indicates that the risk reduction can be realized between 51%(South Africa) to 75%(Italy), while in the POST sample period, the risk reduction can be realized between 2%(Italy) to 38%(Ukraine). Finally, the OLS regression model has been used to examine the investor's FSCI ability to predict stock return. The results in both periods are statistically significant. The findings will provide insight and motivate investors, portfolio managers, and others looking to maximize the risk-adjusted returns in the stock market by diversifying their portfolios.