The Impact of Covid-19 in the Performance of Stock Market Indices

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Motivation:
During December of 2019, the world became aware of a new global-scale threat called at first as Coronavirus, which changed the lives of millions of people around the globe. The coronavirus had multiple impacts regarding public policies, economic production, and population dynamics at macro and micro scale levels across countries, the magnitude of these changes remains unknown since the Coronavirus (now called Covid-19) strikes pretty fast at almost every nation of the world (directly or indirectly).

In the financial sector, one important aspect of the process of decision-making is uncertainty and risk (Escobari & Jafarinejad, 2019), where returns of the financial assets are attached to the concept of rationality (Blanchard & Watson, 1982). According to this, the economic logic would indicate that the introduction of new information over the individuals which are part of the stock markets might affect the capital accumulation process in the sector, therefore, if this new information provides the notion to increase risk among the investment processes, a probable effect would be the reduction of the value and number of transactions around the stock market, especially when the information might include a global scale risk.

At this point, the motivation relies on the importance to establish and measure the impact of coronavirus in the performance of the stock markets, especially in the case of the first affected countries by the virus, China, United States, Italy, Spain, South Korea, and Japan.

Methodology and Data Description
To accomplish the main objective daily data will be used regarding the index of the most important stock market of each country, the selection by country is determined by the higher value in the current price levels of these markets. Also, contamination spread of Covid-19 across countries on a daily basis will also be gathered to conform a panel-data base.

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The growth-rate transformation of these stock market indices constitutes the variables of interest considering a set of multiple simultaneous equations where each index is influenced by its past values, additional variables to consider in the analysis may include commodity prices and exchange rates.

This interrelation between the variables can be empirically analyzed with the regression framework of a panel Vector Auto-Regressor (VAR) model where the indices are determined endogenously. Since Covid-19 affects the expectations of risk and uncertainty across the markets, it is included as an exogenous variable in the VAR model. Within this, it’s possible to measure the impact in the performance of the stock market index by each country. The estimation of this model should satisfy the test of stability, and it should account for heteroscedasticity and serial correlation in the econometrical procedure. The interrelation in terms of causality can be established with Granger-Causality tests.

The period of the analysis is established in a daily periodicity obtained from the 1st of January of 2015 and April 1st of 2020. Sample splitting might be required since the coronavirus started to become worldwide documented only in January of 2020.

**Data Sources:**

- World trading data. [https://www.worldtradingdata.com/](https://www.worldtradingdata.com/)
- IEX Cloud. [https://iexcloud.io/](https://iexcloud.io/)
- Coronavirus Resource Center – John Hopkins University. - [https://coronavirus.jhu.edu/map.html](https://coronavirus.jhu.edu/map.html)
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