# **Covid, Market Volatility and Liquidity**

**Natasha Karwal, Minh Nguyen, Abdul Tarawally**

## Introduction:

The purpose of this project is to explore the effects of Covid-19 on across the world. Specifically, this data analysis will provide the COVID crisis impact on market volatility and liquidity. Data has been pulled from John Hopkins’s GitHub repository and financial exchanges with APIs using R.

## Research Question:

What impact will coronavirus indicators have on stock market for technology sector?

## Visually illustrate/summarize the data.

Independent variables: confirmed total(Covid cases), vixclose

Dependent variables: closing stock prices

From the correlation matrix: Main consideration has been variable independency and low correlation (<0.54) among predictors.

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## Brief description of dataset

We will be working with live data between January 22, 2020 to present. We will update the dataset using APIs in R. The independent/response variable that we are interested in is the vixclose which is the average closing volatility index of the week. Currently, the dependent variables include: category; stock open, high, low and close; vix open, high, and low; confirmed cases; and, deaths total. As we progress, some of these variables might be taken out and new variables might be added.

COVID-19 data was cloned from John Hopkins’s GitHub repository using R. The two datasets utilized were the time\_series\_19\_covid-Confirmed and time\_series\_19\_covid-Deaths. From this data we collected the number of cases that occurred within countries reported by the World Health Organization.

Recent stock market prices for the financial analysis were obtained through the Alpha Advantage API using R. We pulled data market data for two categories: Technology and Hospitality. Technology-related companies include: Alphabet, Amazon, Apple, Facebook, Microsoft, Netflix and Zoom. Hospitality-related companies include: Darden, Hilton, Marriott, McDonald, Royal Caribbean, and Starbucks.

## Transformation of variables with justification:

The data will be converted from daily into weekly and lagged by 1. We will be exploring other transformation methods as we run more tests.

## Variable of particular interest that would be emphasized:

As of now, confirmed cases and deaths total are the two variable that we are interested in emphasizing since the project goal is understand the impact of Covid-19 on the financial markets.

## How much details in modeling fitting and diagnostics do I want to include in the presentation?

## How to present the results? Given the time limit, how to balance the material.

We will be using relevant graphs, charts and data to present the results. If time permits, our presentation will be created using Shiny App in R. This will allow us to create a easier to grasp dashboard.