# Data Science Final Project

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Potential Topics of Investigation

1. How is financial asset price associated with macro-economic factors and fundamental factors relevant to a particular company?

2. How is financial asset price associated with technical indicators generated from the price action of the asset itself?

3. How can we achieve an optimal asset allocation strategy in an investment portfolio with exposures in different asset classes?

## Topic 1

The Problem - How is financial asset price associated with macro-economic factors and fundamental factors relevant to a particular company?

Data - Asset price data, macro-economic data and company-specific financial data are available on Bloomberg, directly downloadable in Excel with Bloomberg formula inputs.

Null Hypothesis - There is no association between macro-economic factors/company-specific fundamental factors and the price of the financial asset related to the same company.

Alternative Hypothesis - With a combination of favorable macro-economic data such as economic growth and investment growth, as well as superior company-specific financial data such as earnings and free cash-flows, the financial asset related to the company will be more likely to outperform during a particular period of time.

## Topic 2

The Problem - How is financial asset price associated with technical indicators generated from the price action of the asset itself?

Data - Asset price data and technical indicators data are available on Bloomberg, directly downloadable in Excel with Bloomberg formula inputs.

Null Hypothesis - There is no association between technical indicators and the price movement of a financial asset.

Alternative Hypothesis - There are some technical indicators generated from the price and volume data of a financial asset that provide profitable trading signals for the asset when they have exhibited certain patterns and trends over time.

**Topic 3**

The Problem - How can we achieve an optimal asset allocation strategy in an investment portfolio with exposures in different asset classes?

Data - Price data in different asset classes are available on Bloomberg, directly downloadable in Excel with Bloomberg formula inputs. We can also compute portfolio statistics like annualized returns, standard deviation of returns and correlation among different asset classes in the portfolio based on the historical price data.

Null Hypothesis - There is no specific asset allocation strategy in an investment portfolio that can achieve superior risk-adjusted returns consistently over time.

Alternative Hypothesis - There are certain ways of allocating different assets in an investment portfolio that can achieve superior risk-adjusted returns consistently over time.

Thank you