

Executive Summary

Our capstone project examines the domestic stock market and its top five dominant sectors by market capitalization as represented by Vanguard index ETFs. The individual ETFs examined are VTI, VGT, VCR, VIS, VHT, and VFH and they serve as proxies for the domestic stock market as a whole and the technology and information, consumer discretionary, industrial, healthcare, and financial sectors, respectively. Our project sources current and historical price data about these funds in addition to data about domestic economic features such as GDP, unemployment rate, interest rates, etc. to analyze how the domestic market as well as its sectors respond to different economic features. As part of these analyses, our project includes the creation of a machine learning binary classification model to predict whether the fund prices will increase or decrease based on different economic features. Additional analyses include investment risk and return across the funds and how historical fund prices compare to historical total revenue trends in the United States. Analyses and findings will be presented in a Power BI dashboard.

Questions that our project will address:

1. What model can best predict a stock index based on multiple economic features?
2. How do different sectors respond to the model used for the stock market as a whole?
3. What economic features are most correlated with stock prices, if any?
4. How does investment risk vary across sectors?
5. How does return on investment (ROI) vary across sectors?