**Project 1**

Team Members

Clay Beaver, Irina Kim, Tunde Adebayo, Bueze “Lucas” Okose

Project Description/Outline

Group#9 project will analyze the performance of 10 US companies that are leaders in their respective industry sector over a period of 5 years (2015 to 2019) alongside the S&P index. We will use tools learnt so far in the boot camp to analyze their monthly returns over the 5 years period. The assets are selected from 10 different industries to minimize “correlation bias”.

We’ll analyze/calculate the following key metrics for the 10 assets and the S&P index:

* Monthly returns (actual)
* Expected returns
* Monthly standard deviations
* Annualized standard deviations
* Their combined Correlation Matrix
* Beta for each asset
* Regression analysis for a single asset

We also intend to investigate the impact of market performance of a single oil and gas asset from our list on unemployment rates in 2 US cities. Alternatively, we’ll investigate the relationship of the single asset performance over the 5 years period on median home sales for the corresponding years in 2 US cities.

Industry sectors and assets included in our analysis are:

1. Market Index: S&P 500 (^GSPC)
2. Banks: Bank of America (BAC)
3. Integrated Oil & Gas: Chevron (CVX)
4. Telecom: AT&T (T)
5. Auto Manufacturer: General Motors (GM)
6. Restaurants: McDonald (MCD)
7. Interactive Media & Services: Facebook (FB)
8. Pharmaceuticals: Johnson & Johnson (JNJ)
9. Airlines: American Airlines (AAL)
10. Soft Drinks: Coca Cola (KO)
11. Hypermarkets and Super Centers: Walmart (WMT)

Research Questions to Answer

* The relative performance of all assets over the 5 years period – A bar graph of monthly returns will be good for this purpose
* What is the relative riskiness level across the industries? This will be shown by comparing volatility of each asset return in relation to each other – returns std deviation in bar graphs
* Can I beat the market…are there assets/industry that doesn’t move with the market in terms of performance? This will be shown by the Beta of each individual asset. Beta is the volatility of an asset in relation to the market or S&P 500? A beta of 1 implies an asset fortune is tied to the market, it moves 100% with the S&P index.
* What is the wisdom in including a mix of these assets in my portfolio? The Correlation Matrix will answer the question of correlation between the industries?
* Can I predict the future price of an asset with the 5 years data included in the analysis? A regression model will serve this purpose with price as the dependent variable and month as the independent variable.
* Option 1: Is there relationship between the performance of an oil and gas asset and employment rate in Houston and another US city with no oil &gas presence - Possibly a scatter graph?
* Option 2: Is there relationship between the performance of an oil and gas asset and median home sales in Houston and another US city with no oil &gas presence - Possibly a scatter graph?

Datasets to Be Used

* Yahoo finance: Stock prices of all assets over the five years period
* Zillow: Median home sales data for 2 US cities for 5 years
* US Bureau of Statistics: Unemployment data for 2 US cities for 5 years
* US Treasury department: Rf rate
* Seeking Alpha: Qualitative information on assets

Initial Statement of Work and Breakdown of Tasks:

**Note:** This is a look ahead towards next day of class and expected to change at the end of the class.

**Clay-** Manage Git Repository, delegate branches and work. Coordinate data cleanup

**Tunde**- Provide a high-level breakdown of deliverables, download raw data for all assets, work on control data by performing alternative method of calculating aggregate metrics.

**Irina**- Research data sources for 5 years (2015-2019) unemployment data for 2 US cities ---Houston and Seattle.

**Lucas**- Research data sources for 5 years (2015-2019) median home sales for 2 US cities ---Houston and Seattle.