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Deliverable I

**Project and Purpose.**

The idea of this project is to analyze different financial models and their underlying assumptions. It is known that these assumptions generally do not hold but the models are still widely used. Models such as the Capital Asset Pricing Model (CAPM) estimate the required/expected return of a security. Among others, it assumes that the market is efficient, investors are rational, risk-adverse and utility maximizing [6]. This project will evaluate the assumptions of several models resulting from CAPM; how well they hold and if the model still valid.

**Dataset and Data Source.**

Several datasets have been collected to evaluate the financial models. Data for long-term bond yields [1] will be used to calculate the risk-free rate used in most of the models. Stock market data from Standard’s and Poor 500 [2]-[4] will be used to retrieve data on different firms, sectors, etc. to evaluate the models and their assumptions. Time series analysis can be conducted on each firm in the index using source [3]. This data was collected from *DataHub.io* and *Kaggle*. The models and assumptions being analyzed are based on sources [5] and [6].

**Rationale.**

Financial markets have many moving pieces and are quite complicated. Many people have researched financial markets and firms in the markets and have created models to explain how and why securities are trading at their price. To create the models it is necessary to create assumptions which can be logically drawn upon. Many of these assumptions are oversimplifications, yet they are still used. I plan to evaluate the assumptions, and whether or not the models are valid (even with flawed assumptions).

**References Cited.**

1. *10 year US Government Bond Yields (long-term interest rate).* (2020). Retrieved from [URL](https://datahub.io/core/bond-yields-us-10y#python) on February 9, 2020.
2. *Standard and Poor’s (S&P) 500 Index Data including Dividend, Earnings, and P/E Ratio*. (2020). Retrieved from [URL](https://datahub.io/core/s-and-p-500) on February 9, 2020.
3. *S&P 500 companies historical prices with fundamental data.* (2016). Retrieved from [URL](https://www.kaggle.com/dgawlik/nyse/version/3#prices-split-adjusted.csv) on February 9, 2020.
4. *S&P 500 Companies with Financial Information (2019).* Retrieved from[URL](https://datahub.io/core/s-and-p-500-companies-financials#python) on February 9, 2020.
5. Corporate Finance (Fourth Edition), 2017, by Berk, J. and DeMarzo, P., Pearson, ISBN: 978-0- 13408-327-8
6. Derivatives Markets (Third Edition), 2013, by McDonald, R.L., Pearson Education, ISBN: 978-0-32154-308-0