How to Maximize Your Return by Investing in the Pharmaceutical and Natural Resource Industries

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Introduction

With growing uncertainty in the stock market, one can be hesitant about what they invest into. With macroeconomic factors such as inflation, interest rates, and market downside creates uncertainty in investing. Because of this uncertainty and risk, it can be suggested that there is a more conservative stance on a portfolio in order to avoid losses. The current economic period allows for a more cautious approach to investing that will avoid the amount of risk taken.

Our senior project is designed to hedge some of these risks, allowing for return to be maximized by investing into high-performing industries.

Stock List

Chevron
VERTEX ENERGY
MERCK
VERTEX
DMC

Investment Strategy

- Our investment strategy is to research the sectors of the market and decide to invest in 2 sectors
- Because of historical returns, we have chosen two sectors: pharmaceutical and natural resources.
- We also wish to have a portfolio consisting of two risky stocks, along with three stable ones. The reasoning for such is to use the potential volatility of the stocks to have more upside potential, with the stable stocks being able to hedge part of the risk involved.

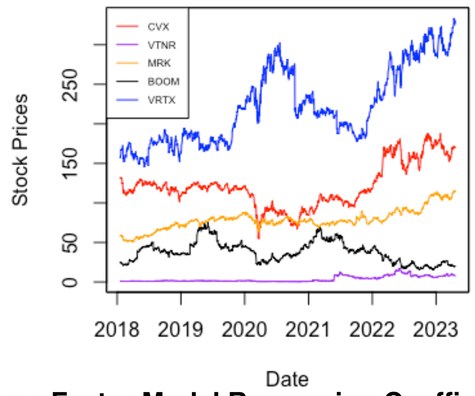
Model Analysis

Portfolio Theory Model: This model was helpful with our research and helping us achieve are investment strategy goals because the portfolio theory model, showed us the variances and historical return average, which helped us decide which stocks are the risky stocks or the stable stocks.

Capital Asset Pricing Model (CAPM): This is an equilibrium model that has a relationship between expected rate of return and covariances. This model is a reliable predictor of the expected return of an asset and how it should be priced. We utilized this model to align with our strategy of picking a risky portfolio with the observed variances to determine if our stocks were considered “risky”.

Three-Factor Model (Fama-French): It is a model that helps limit the number of macroeconomic risks taken that consider inflation, interest rates, and GDP growth. This model is helpful in researching the sectors we wanted to invest in. The three factors that it consists of tells how volatile a particular asset is to one of these macroeconomic variables.

Results



Three Factor Model Regression Coefficients

Coefficients	CVX	VTNR	MRK	BOOM	VRTX
Intercept	-0.2817	1.7576	0.6857	-1.2928	0.6047
Market	1.0453	1.7935	0.4408	1.5020	0.4978
SMB	0.1479	2.8548	-0.7305	1.4857	-0.3841
HML	1.0260	1.7393	0.1126	0.8452	-0.4388

CAPM Model Regression Coefficients

	CVX	VTNR	MRK	BOOM	VRTX
Alphas	0.4293	2.3210	0.3496	1.79	0.4342
Betas	0.2759	2.08	0.7480	-0.9733	0.7417

Chosen Optimal Weights

Model	CVX	VTNR	MRK	BOOM	VRTX
Portfolio Theory	0%	5%	65%	0%	30%
CAPM	5%	35%	10%	15%	35%
Factor Model	5%	45%	25%	5%	20%

Conclusions

- While choosing our stocks, we had the investment strategy of taking some risk in two of our stocks and applying a safer strategy with the remaining three stocks.
- We were able to use the Portfolio Theory Model to find our optimal weights for our portfolio.
- We used the CAPM model to find the alphas and betas of the five stocks that we chose.
- We then used the Factor Model to assess the systematic risk in the market, resulting an effect on the five stocks we chose.
- After testing these analyses, we found that the most ideal model to use in accordance with our investment strategy is the Factor Model. After considering our strategy by picking two risky stocks and three stable ones, the Factor Model satisfied this need.
- With the market volatility, we were able to look at the intercepts to determine what to allocate into each stock to understand which stocks would change most from macroeconomic factors. While the natural gas sector has not shown great returns, the energy and pharmaceutical sectors have.
- By choosing the Three-Factor Model, our ROI is 13.9%, outperforming the remainder of the models.