Exploring the Correlation and Predictability of a Foreign Market Portfolio against the US Market

Objectives

Main objective is to understand the relationship between global markets and the S&P 500 returns, and to ascertain the crucial factors that impact market performance.

Importance

- Determine the possible effects of global economic trends and events on the U.S. economy.
- Examining the correlation between U.S. and foreign markets can offer valuable insights for making investment decisions, establishing trade policies, and developing economic strategies.
- This research brings insights into the interconnectivity of global economic forces and their potential impact on US markets.

Methodology

- A Foreign market portfolio is constructed using four regional ETFs that correspond to Latam, Africa, Europe, and Asia, encompassing a total of 34 countries.
- The weight of each ETF is calculated using the GDP of each country in the ETF with respect to its weight, using a dataset from January 2016 to December 2022.
- Using regression analysis, this study examines the relationship between foreign markets and S&P 500 returns by applying a lagged return approach to world portfolios.
- To ensure reliability, an out-of-sample regression is conducted on the world portfolio.

Findings

#1 *Weak relationship between the U.S. Market & the foreign market portfolio*

- R-squared value is 0.022, indicating weak prediction power.
- T-statistic of the Independent variable is significant at an absolute value of more than 1.96.
- Model is weak since most the variation cannot be explained but the independent variable is statistically insignificant.

#2 *Negative Out of Sample Regression*

	Year	OOS_Pred_Mean	OOS_Error_Mean	OOS_Pred_OLS	OOS_Error_OLS
0	2016	NaN	NaN	NaN	NaN
1	2016	NaN	NaN	NaN	NaN
2	2016	NaN	NaN	NaN	NaN
3	2016	NaN	NaN	NaN	NaN
4	2016	NaN	NaN	NaN	NaN
...	...	...	...	...	...
1506	2021	0.067490	1.152510	-0.111518	1.331518
1507	2021	0.068255	-0.338255	-0.034961	-0.235039
1508	2021	0.068031	-0.008031	-0.057809	0.117809
1509	2021	0.068025	-0.218025	0.147375	-0.297375
1510	2021	0.067881	-0.377881	0.130126	-0.440126

#3 *Relationship between the U.S. Market and specific regions*

- Asia region has the highest correlation with the US.
- The low R-squared value of 0.023 indicates limited explanatory power of the independent variable over the dependent variable.
- The Independent variable is statistically significant as indicated by its T-statistic, making it a decent predictor.

Conclusion

- The results from the study shows us that **Foreign markets cannot help predict US market returns**.
- Potential reasonings: Strength and reliability of the US Dollar, technological differences biases foreign investors towards US denominated industries.
- "Market's size justifying a higher investment mode," (Calof & Beamish, 1995) external environments encourage industry front-runners to consolidate in the market with largest market cap, the USA.
- Further studies: Identification of certain industries that foreign markets fall short in compared to the S&P, whether eliminating these industries can create a better prediction.

UNIVERSITY OF TORONTO