Team Four Project FinTech BootCamp

TEAM LEADER : SIMAR GADRI

TEAM : HUNTER AMESBURY

BRANDON HUBAH

PETER BLANCHARD

2020/11/09

Problem

Is the Gross Domestic Product and the Human Development Index of a country a significant indicator of stock market returns? And if so would Canada's recent growth make the TSX a valuable exchange to invest in?

We choose seven stock indexes from the ten largest exchanges as well as six edge cases to see if there is a correlation between a country's GDP, HDI and its Stock Indexes.

With these analysis we hope to give investors an edge in which stock exchanges would give the highest returns.

Technologies used in Analytics
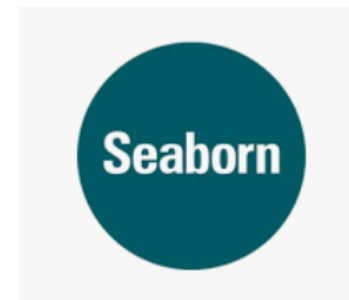
Python

Pandas

Matplotlib

Mapbox

Yahoo Finance API

Hvplot

Seaborn

Numpy

Economies Used: Mainstream Exchanges

Economies Used: Edge Case Exchanges

- Ø CANADA
- Ø CHINA
- Ø INDIA
- Ø JAPAN
- Ø UNITED KINGDOM
- Ø UNITED STATES
- Ø GERMANY

- Ø ISRAEL
- Ø MEXICO
- Ø ARGENTINA
- Ø BRAZIL
- Ø INDONESIA
- Ø HONG KONG

DATA SOURCES USED:

Ø UNITED NATIONS DEVELOPMENT PROGRAMME (website)

Ø YAHOO FINANCE API

Ø WORLD BANK(website)

Procedure For Data Frame Creation

GDP

- World Bank
- Download CSV File From Website
- Read In Data, Set Year As Index, Use Dropna Function To Remove Rows And Columns With Null Or NA Values
- Use DIV Function To Find A Floating Division Of Data Frame, Using Cumprod Find The Cumulative Product Of The Values By Year And Setting Set Year Objects To Integers

STOCK INDEX

- Yahoo Finance API
- Import Ticker Data Using Yahoo Finance API
- Read In And Concat Individual Ticker Data Creating A Useable Data Frame, Using Cumprod Find The Cumulative Product Of The Values By Year And Setting The Index As Such

HDI

- United Nations Development Programme
- Download CSV File From Website
- Read In Data, Set Year As Index, Use Dropna Function To Remove Rows And Columns With Null Or NA Values
- Use DIV Function To Find A Floating Division Of Data Frame, Using Cumprod as in World Bank
- Set Year Objects To Integers

Data Features

Features

§ Gross Domestic Product

§ Yearly Stock Index Closing Price

§ Human Development Index:

- Assessed by using Life expectancy, Gross National Income per Capita and Access to Education

Correlated Data Frame Created

Shows countries' correlations:

- Stock Index / Gross Domestic Product

- Stock Index / Human Development Index

- Gross Domestic Product / Human Development Index

country	idx/gdp	idx/hdi	gdp/hdi
Argentina	-0.136989	0.006539	0.054726
Brazil	-0.268732	-0.234781	0.176173
Canada	0.095483	-0.009620	0.248267
China	0.515486	-0.095411	0.158616
Germany	-0.133388	0.159312	0.145774
ong SAR, China	0.003289	0.042524	0.156098
India	0.720160	-0.129893	0.162280
Indonesia	-0.265965	-0.221990	0.201352
Israel	-0.106457	-0.126894	0.143435
Japan	0.062945	0.171630	0.171630
Mexico	-0.061319	-0.449508	0.156835
nited Kingdom	-0.056102	0.143338	0.217493
United States	0.127481	0.214505	0.133122
Mean	0.038146	-0.040788	0.163523

Conclusion:

Our data analysis has shown that there is a week but not significant correlation between a country's GDP and the performance of its stock index. Reason for no correlation may be a country's GDP is not is as volatile as a stock index. There were some exceptions to the rule. The outliers being India and China's whose GDP had correlation with their respective markets

There was also no correlation between a country's Human Development Index (HDI) and its stock index.

Canada's GDP and Stock Index growth was on par with other economies analyzed. In conclusion Canada's stock market would be a relatively safe place to invest in.