iShares ETFs World Map with Cost-Return Analysis

Coursera Project

IBM Applied Data Science Capstone

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Problem / Objective

1. Potential investors
2. Product management
3. Sales management of a bank

… might want to [A] compare returns and costs of ETFs, or even [B] exclude certain assets due to bad returns in the past (investors).

▶ iShares (BlackRock)
  ➢ one of the largest issuers for ETFs
  ➢ product range which represents indices all over the world

▶ Objective
  ➢ Return visualisation by continent/region (World Map)
 ➢ Cost comparison over different Asset Classes of all iShares ETFs

Data (source)

Methodology / Data (usage)

▶ **Choropleth Map** for *YTD (%)-Return*: Location does <u>not</u> exist for all ETFs in the data file as such as MSCI World UCITS ETF (Ticker URTH) and they will not be represented by the choropleth map (Folium) at all. Same problem occurs with ETFs containing more than just one country (broad). An additional choropleth map might be needed to separate regions.

▶ *Cost-Return* **Scatter Plot**: Do higher priced ETFs also generate higher returns? Plenty of time periods available for returns (YTD, 1Y, 3Y, 5Y)

▶ **Box Plot** for *Gross Expense Ratio (%)*: Annual GER is in iShares Excel file. How volatility in a specific market impacts the price cannot be determined.

▶ *Monthly Return (%)* **Heat Map**: Price data <u>not</u> available in the iShares file. Yahoo, or Bloomberg (if you have access to a Terminal) as an alternative source.
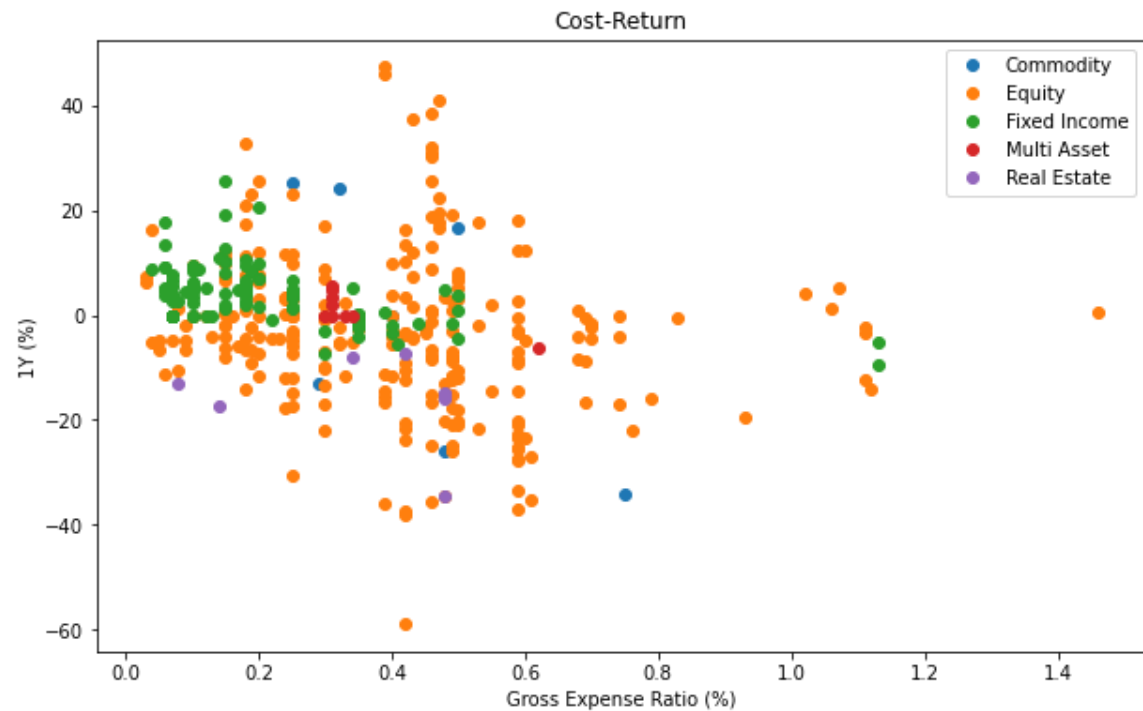
Results
Choropleth Map: YTD Return (%)
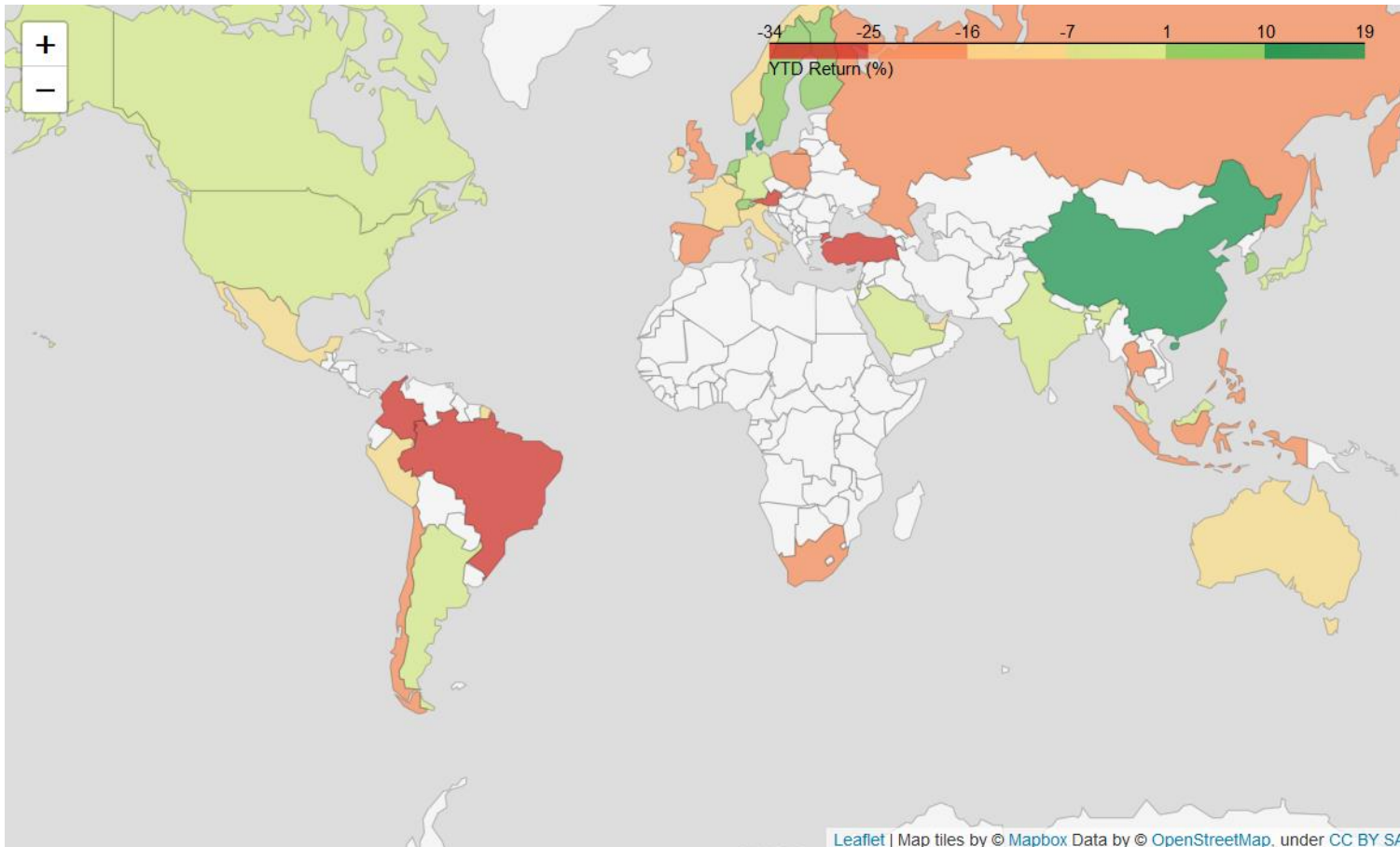
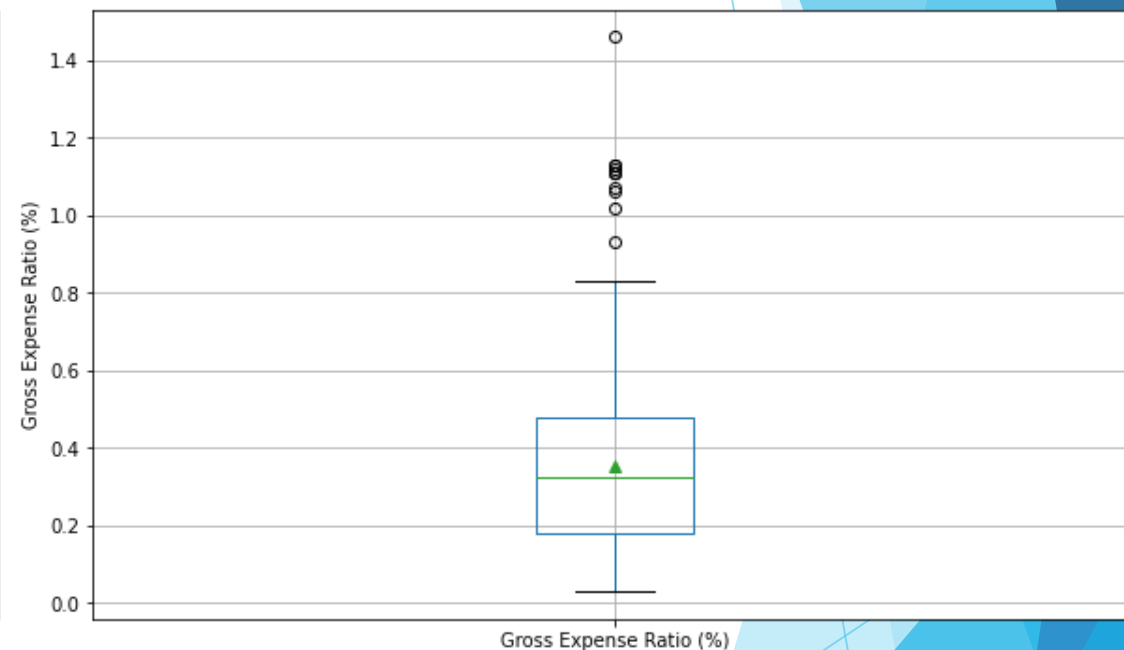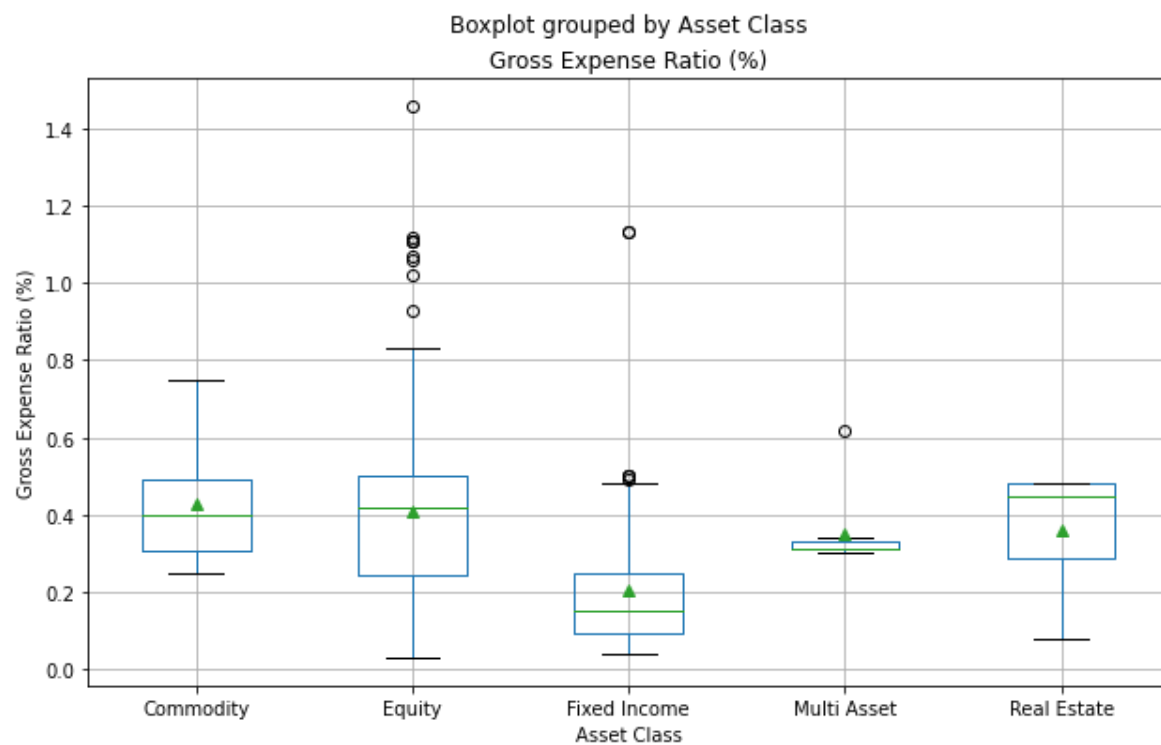Data as of per 04.09.2020 (data source iShares.com)

Results
Scatter Plot: Cost-Return

Data as of per 04.09.2020 (data source iShares.com)
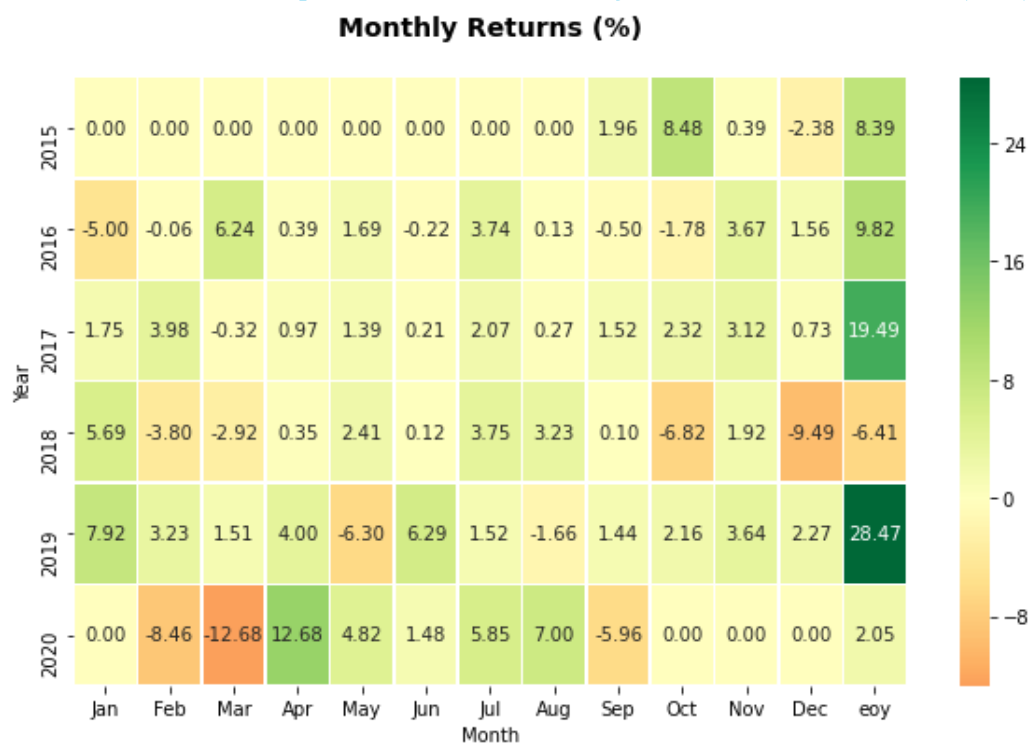
Results
Box Plot: Gross Expense Ratio (%)

Data as of per 04.09.2020 (data source iShares.com)

Results
Heat Map: Monthly Returns (%) 5Y

Price data feed 28.09.2015 to 25.09.2020 approx. past 5 years (source Yahoo.com)

Discussions / Recommendations

▶ For investors, or sales management: choropleth map gives a good indication on the markets and their YTD returns to exclude them and/or give clients a hint for transactions

▶ For product management: annual costs of ETFs from competitor iShares can be analyzed by mean to prize own ETFs accordingly or if own ETFs are prized in/out range

❖ Findings of this project:

➢ Investors or sales management of a bank can see bad performing markets on a world map and can exclude them from their portfolio.

➢ Product management can analyze and compare costs of one of the largest ETF issuers and can prize their own product within that range.

❖ Recommendations: presented visualization methods should not solely be used for investment decisions or product pricing – they might give a hint where to have a closer look

Conclusion / Future directions

- Conlusion:

  - iShares data file is missing volatility and price data (close)

  - Volatility could be added with a Bloomberg Terminal or can be calculated with more price data from Yahoo.

  - To exclude certain regions due to negative returns in the past from your broad ETF or portfolio might not be that easy.

  - It can be complicated to re-build a MSCI World ETF on your own without the few bad performing ETFs (some regions may not even have a liquid ETF available).

- Future directions:

  - Extension of the data file by volatility for a return-risk analysis (scatter plot). With such, the report can be extended for use in portfolio management.

  - The stakeholders might no be able to use all the presented visualizations but may want to extend them (e.g. choropleth map filtered by regions) or want to implement them on a homepage (e.g. monthly return heat map with filter for Ticker).

Thank you!