NeelkanthMehta-Project_02-May_05_2018

May 3, 2018

1 Project 2: Choosing a Stock Exchange

As usual, we will start by importing libraries

```
In [1]: # Importing standard Libraries
        import numpy as np
        import pandas as pd
        import matplotlib.pyplot as plt
        import datetime as dt
        import seaborn as sns
```

```
In [2]: # Importing external libraries
        import quandl as ql
        import mpl_finance as mpl
        import fix_yahoo_finance as yahoo
```

Setting start and end dates

```
In [3]: startdate = dt.date(2008,4,1)
        enddate   = dt.date(2018,3,31)
```

- Since matplot.finance module has been removed I have used 'fix_yahoo_finance' module that is available here:https://pypi.org/project/fix-yahoo-finance/0.0.11/
- Alternatively, pandas-datareader module could be used; installation instructions available here: https://pandas-datareader.readthedocs.io/en/latest/
- Since we are downloading data from yahoo-free source, I can't guarentee the following code will execute flawlessly everytime. I believe, there would be some limit as to number of times on can invoke API requests. If happens, please find .csv file enclosed along with this file containing the database. In this case, please ignore the following command and follow the command that follows.

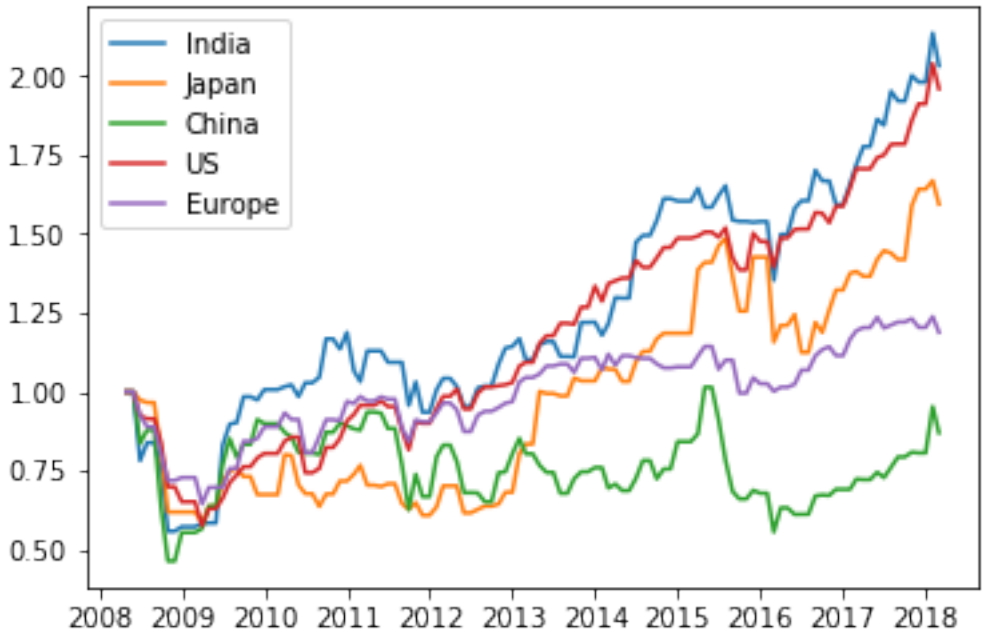
```
In [5]: # NIFTY 50 index representating India
        nifty50 = yahoo.download('^NSEI', start=startdate, end=enddate)
        NIFTY50 = nifty50['Adj Close'].asfreq('M').ffill()

        # NIKKEI 225 index representating Asian Tigers
        N225 = yahoo.download('^N225', start=startdate, end=enddate)
        NIKKEI = N225['Adj Close'].asfreq('M').ffill()
```

```
        # Hang Seng representing China
        HS = yahoo.download('^HSCE',start=startdate, end=enddate)
        HSCE= HS['Adj Close'].asfreq('M').ffill()

        # S&P 500 reoresenting US
        GSPC = yahoo.download('^GSPC', start=startdate, end=enddate)
        SP500 = GSPC.ix[1:,['Adj Close']].asfreq('M').ffill()

        # FTSE 100 representing Europe
        FTSE = yahoo.download('^FTSE', start=startdate, end=enddate)
        FTSE100 = FTSE.ix[1:,['Adj Close']].asfreq('M').ffill()
```

```
/home/neelkanth/yes/lib/python3.6/site-packages/ipykernel_launcher.py:15: DeprecationWarning:
.ix is deprecated. Please use
.loc for label based indexing or
.iloc for positional indexing

See the documentation here:
http://pandas.pydata.org/pandas-docs/stable/indexing.html#ix-indexer-is-deprecated
  from ipykernel import kernelapp as app
/home/neelkanth/yes/lib/python3.6/site-packages/ipykernel_launcher.py:19: DeprecationWarning:
.ix is deprecated. Please use
.loc for label based indexing or
.iloc for positional indexing

See the documentation here:
http://pandas.pydata.org/pandas-docs/stable/indexing.html#ix-indexer-is-deprecated
```

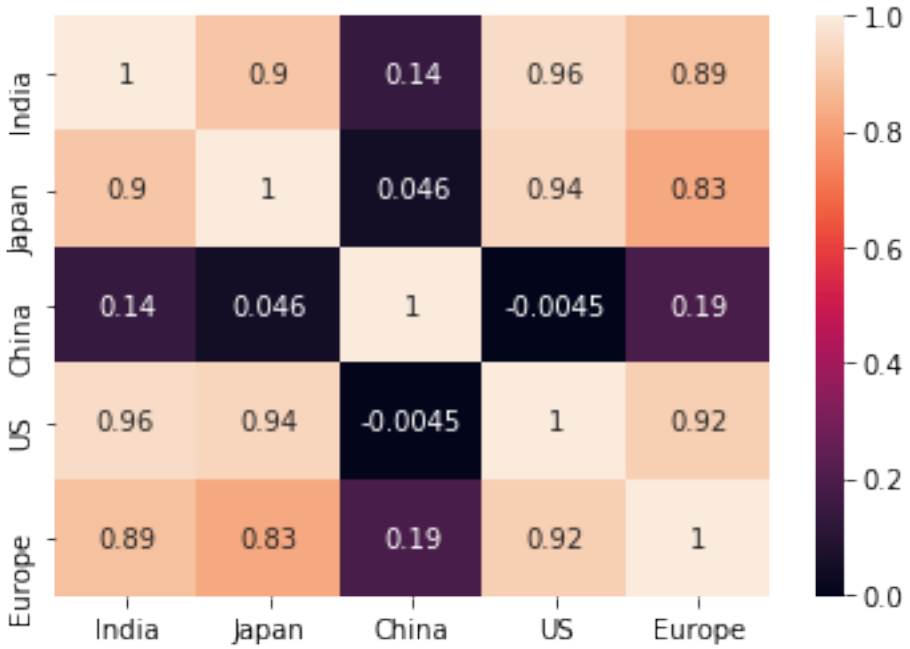
```
In [11]: # import os
         # loc = os.chdir("/home/neelkanth/Documents/WQU/dataset.csv") # Please change the direc
         # df = pd.read_csv('dataset.csv', sep=',',names=['NIFTY50','NIKKEI','HSCHE','SP500','FT
         # data.head()
```

```
In [12]: # Concatnating all the Indices and plotting
         df = pd.concat((NIFTY50,NIKKEI,HSCE,SP500,FTSE100),axis=1)
         plt.plot(df/df.iloc[0,:])
         plt.legend(['India','Japan','China','US','Europe'], loc='best')
         plt.show()
```



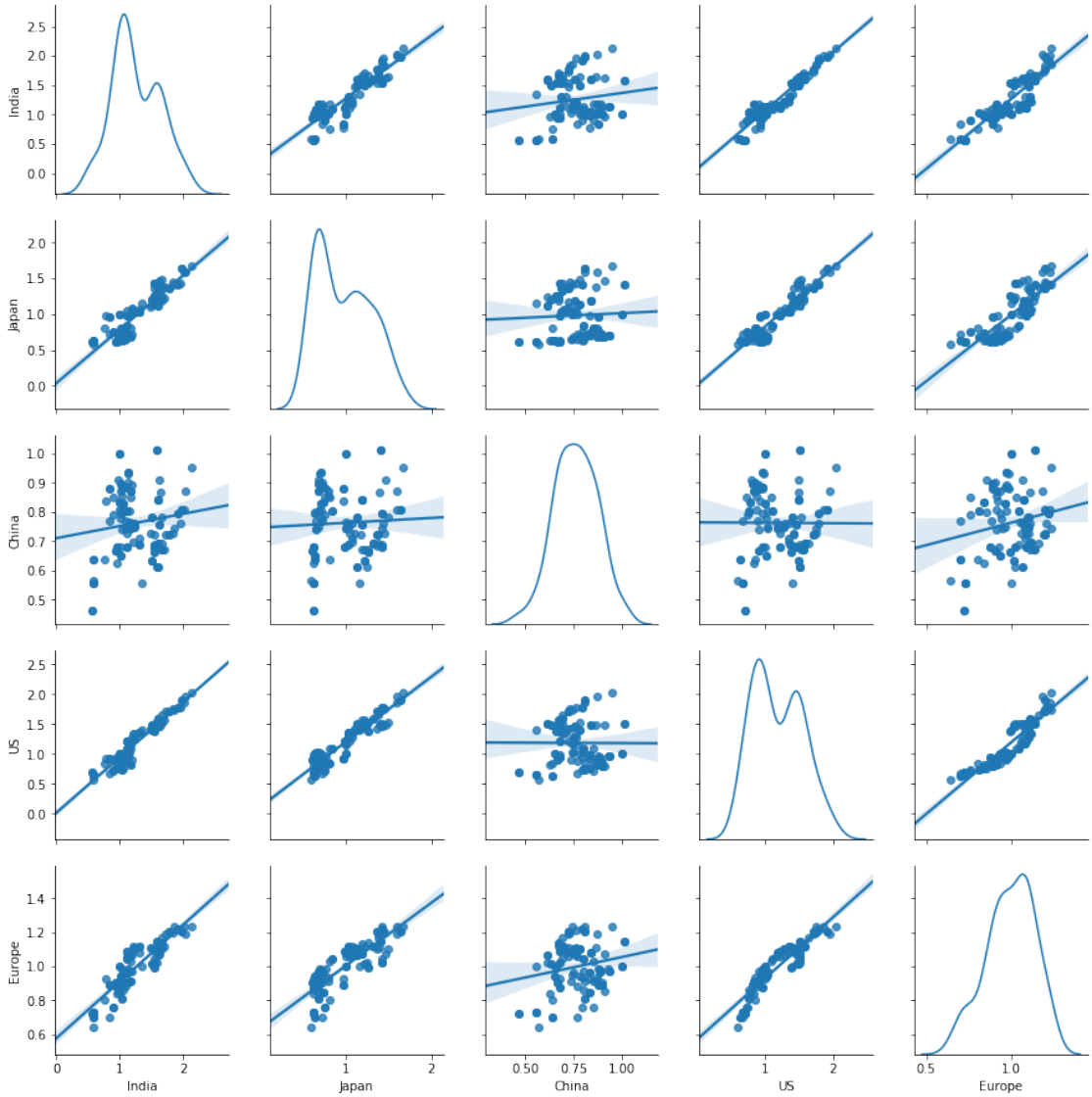
Correlogram

```
In [13]: df_corr = df/df.iloc[0,:]
         df_corr.columns = ['India','Japan','China','US','Europe']
         correlogram = df_corr.corr()

In [14]: # Plotting heatmap
         sns.heatmap(correlogram,annot=True)

Out[14]: <matplotlib.axes._subplots.AxesSubplot at 0x7f6ce4f2cb38>
```



In [15]:
```
# Plotting pairplots
sns.pairplot(df_corr,diag_kind='kde',kind='reg', palette='husl')
```

Out[15]:
```
<seaborn.axisgrid.PairGrid at 0x7f6ce434b2e8>
```


India
Japan
China
US
Europe
India
Japan
China
US
Europe