Dividends_Portfolio

September 29, 2021

1 Stocks Dividends Portfolio

1.1 Stocks with Dividend

[1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import math

import warnings
warnings.filterwarnings("ignore")

# fetch dividend
import yfinance as yfd
# fix_yahoo_finance is used to fetch data
import fix_yahoo_finance as yf
yf.pdr_override()
```

[2]:
```
# input
symbols = ['ALX','BLK','SPG','LMT']
start = '2007-01-01'
end = '2019-01-01'

# Read data
df = yf.download(symbols,start,end)['Adj Close']

# View Columns
df.head()
```

```
[**********100%**********]  4 of 4 downloaded
```

[2]:

Date	ALX	BLK	LMT	SPG
2007-01-03	208.987381	112.491104	61.646606	58.193890
2007-01-04	211.089661	113.702179	61.485687	58.176723
2007-01-05	208.987381	113.673111	61.706947	56.832024
2007-01-08	206.252060	115.768974	62.826824	57.072353

```
2007-01-09  203.383163  116.501350  62.766479  58.256832
```

[3]:
```
df.tail()
```

[3]:
```
                 ALX         BLK         LMT         SPG
Date
2018-12-24  281.160370  353.485718  240.515366  154.867905
2018-12-26  287.372498  372.500122  246.792572  160.651596
2018-12-27  287.989899  378.919647  254.805847  161.297440
2018-12-28  289.272217  379.339813  256.247650  162.039688
2018-12-31  289.462189  383.824707  256.816528  161.933655
```

[4]:
```
from datetime import datetime
from dateutil import relativedelta

d1 = datetime.strptime(start, "%Y-%m-%d")
d2 = datetime.strptime(end, "%Y-%m-%d")
delta = relativedelta.relativedelta(d2,d1)
print('How many years of investing?')
print('%s years' % delta.years)
```

```
How many years of investing?
12 years
```

[5]:
```
for s in symbols:
    df[s].plot(label = s, figsize = (15,10))
plt.legend()
```

[5]:
```
<matplotlib.legend.Legend at 0x1e4c5133d68>
```

[6]:
```
for s in symbols:
    print(s + ":",  df[s].max())
```

```
ALX: 388.36132799999996
BLK: 565.389099
SPG: 196.977982
LMT: 345.199554
```

[7]:
```
for s in symbols:
    print(s + ":",  df[s].min())
```

```
ALX: 66.632317
BLK: 67.951302
SPG: 16.625681
LMT: 40.680321
```

[8]:
```
returns = pd.DataFrame()
for s in symbols:
    returns[s + " Return"] = (np.log(1 + df[s].pct_change())).dropna()

returns.head(4)
```

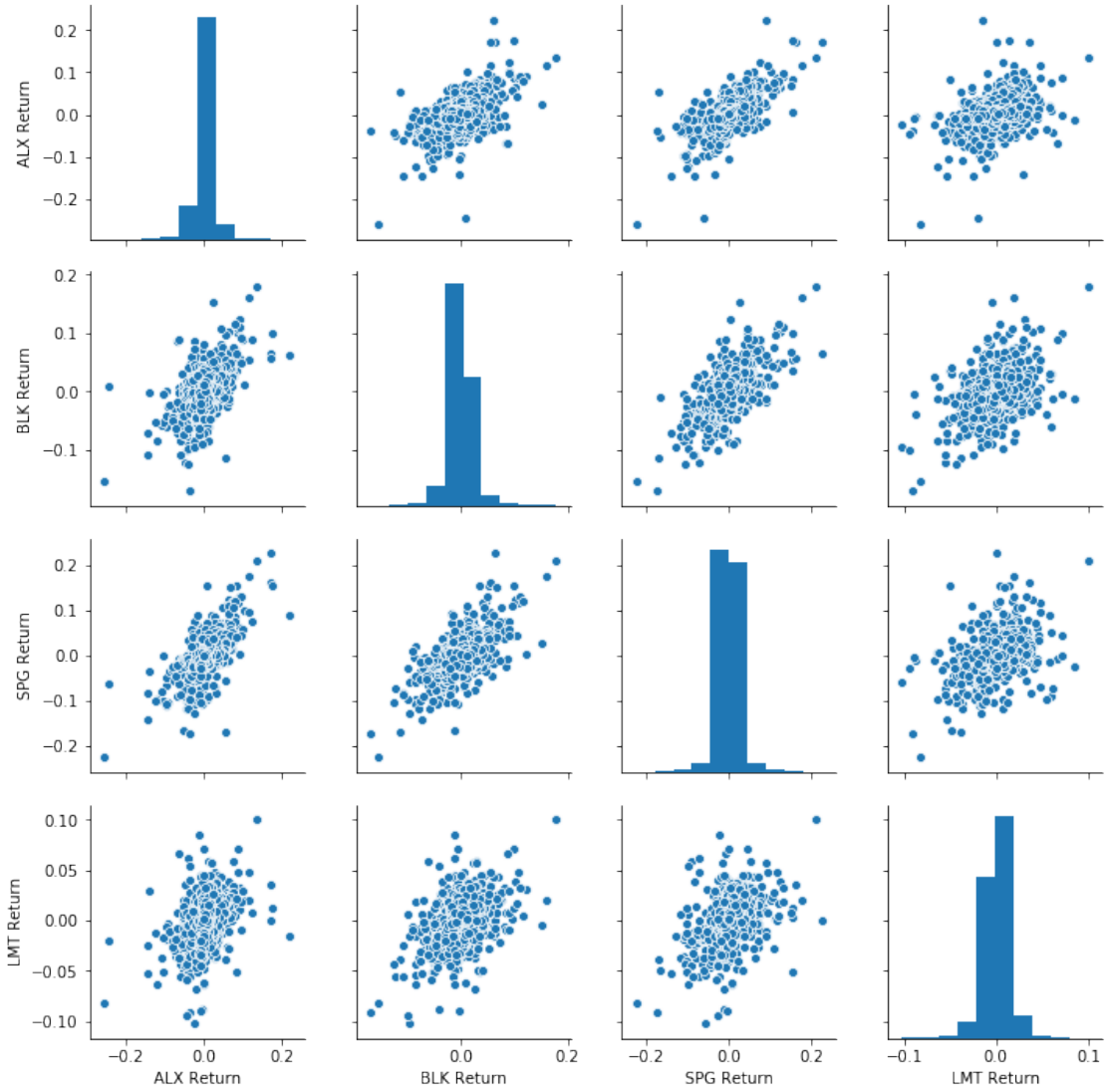
[8]:

Date	ALX Return	BLK Return	SPG Return	LMT Return
2007-01-04	0.010009	0.010708	-0.000295	-0.002614

```
2007-01-05   -0.010009   -0.000256   -0.023385    0.003592
2007-01-08   -0.013175    0.018270    0.004220    0.017986
2007-01-09   -0.014007    0.006306    0.020542   -0.000961
```

[9]:
```
sns.pairplot(returns[1:])
```

[9]:
```
<seaborn.axisgrid.PairGrid at 0x1e4c7181278>
```



[10]:
```
# dates each bank stock had the best and worst single day returns.
print('Best Day Returns')
print('-'*20)
print(returns.idxmax())
print('\n')
```

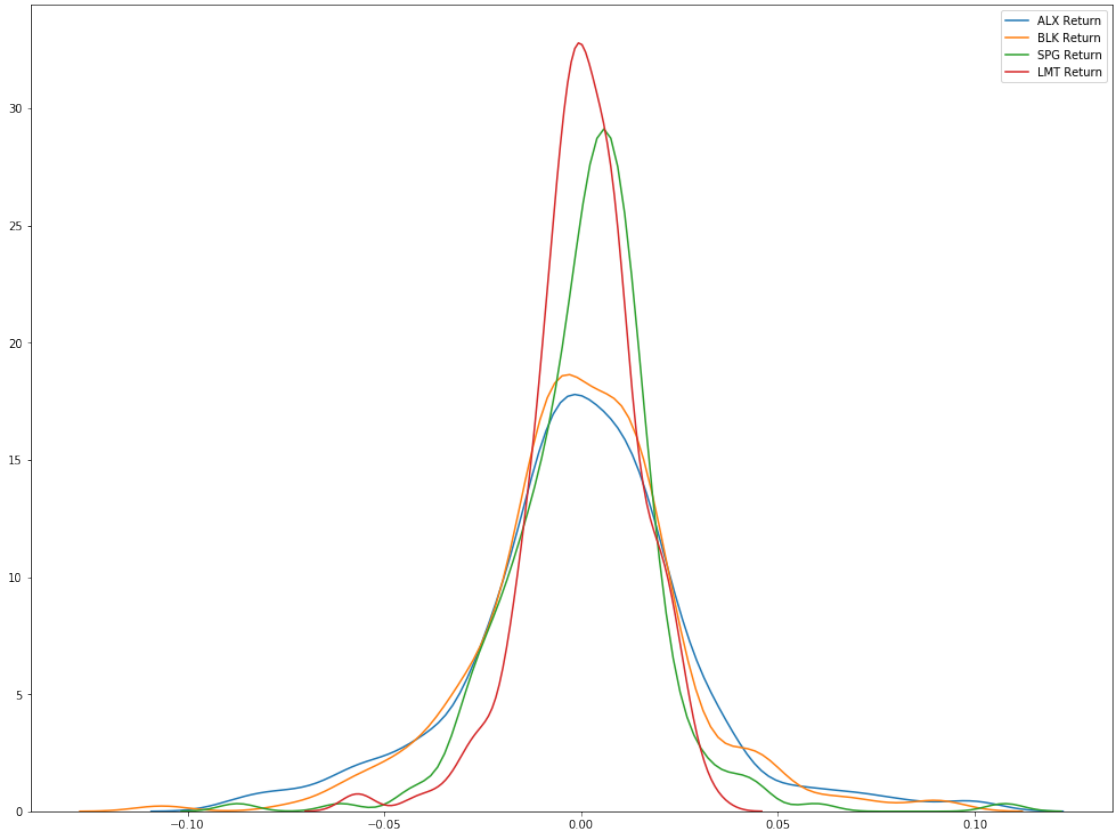
```
print('Worst Day Returns')
print('-'*20)
print(returns.idxmin())
```

```
Best Day Returns
--------------------
ALX Return   2009-05-04
BLK Return   2008-10-28
SPG Return   2008-11-24
LMT Return   2008-10-28
dtype: datetime64[ns]


Worst Day Returns
--------------------
ALX Return   2008-12-01
BLK Return   2008-10-15
SPG Return   2008-12-01
LMT Return   2008-10-21
dtype: datetime64[ns]
```

[11]:
```
plt.figure(figsize=(17,13))

for r in returns:
    sns.kdeplot(returns.ix["2011-01-01" : "2011-12-31 "][r])
```



[12]:
```
returns.corr()
```

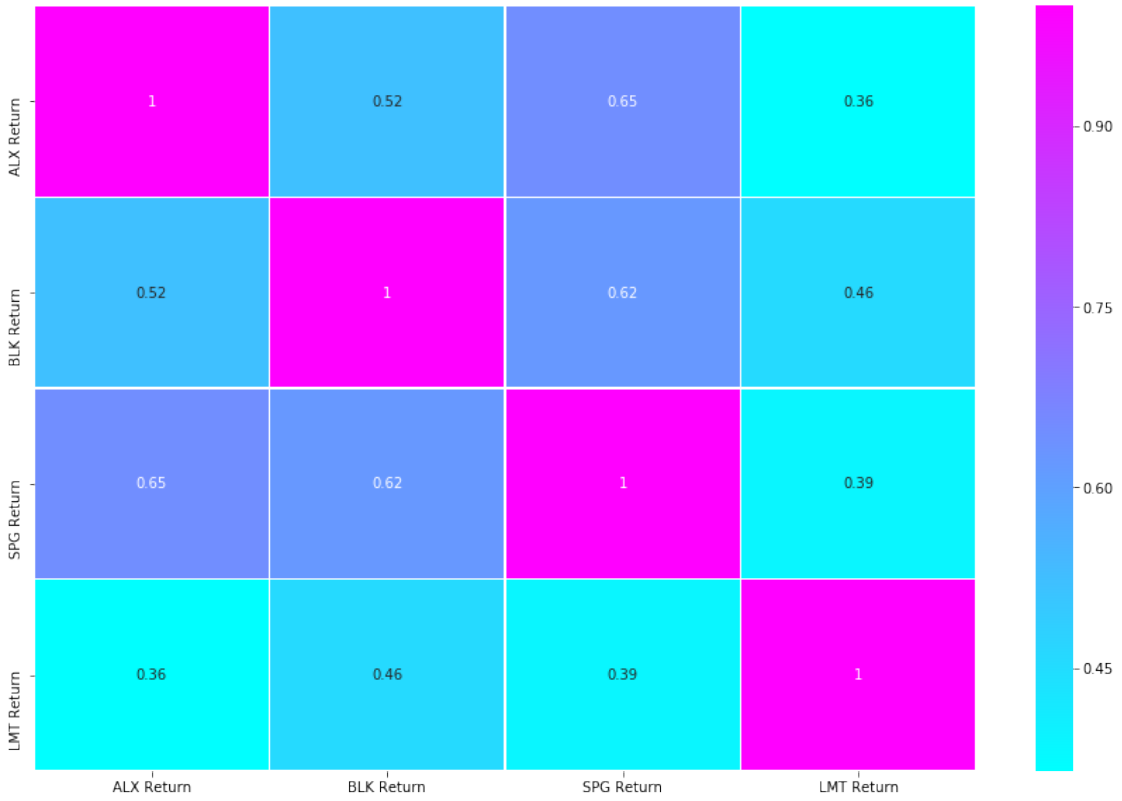
[12]:

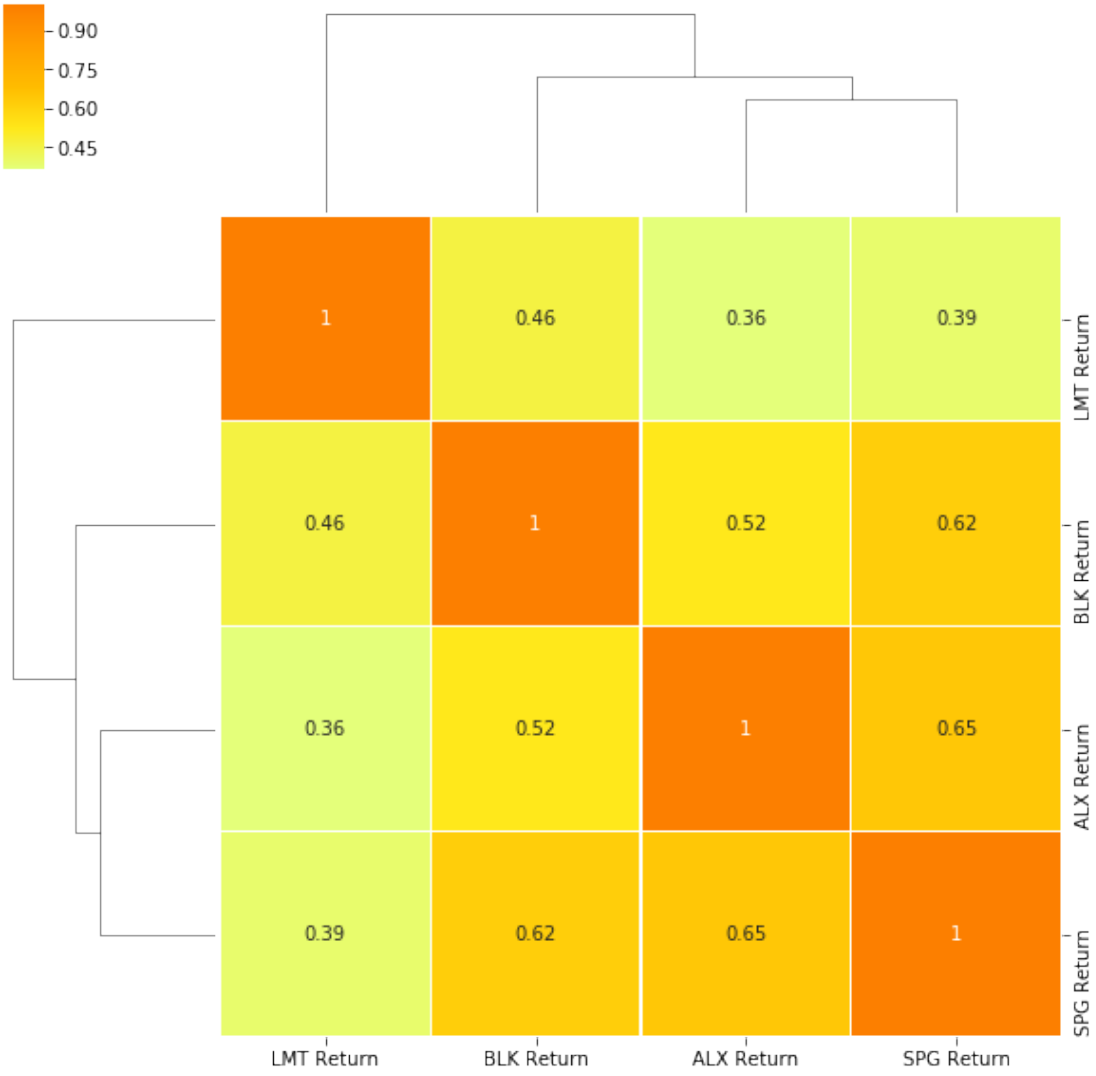
	ALX Return	BLK Return	SPG Return	LMT Return
ALX Return	1.000000	0.522902	0.646432	0.364725
BLK Return	0.522902	1.000000	0.620884	0.458822
SPG Return	0.646432	0.620884	1.000000	0.388229
LMT Return	0.364725	0.458822	0.388229	1.000000

[13]:
```
# Heatmap for return of all the banks
plt.figure(figsize=(15,10))
sns.heatmap(returns.corr(), cmap="cool",linewidths=.1, annot= True)

sns.clustermap(returns.corr(), cmap="Wistia",linewidths=.1, annot= True)
```

[13]:
```
<seaborn.matrix.ClusterGrid at 0x1e4c79dc0f0>
```

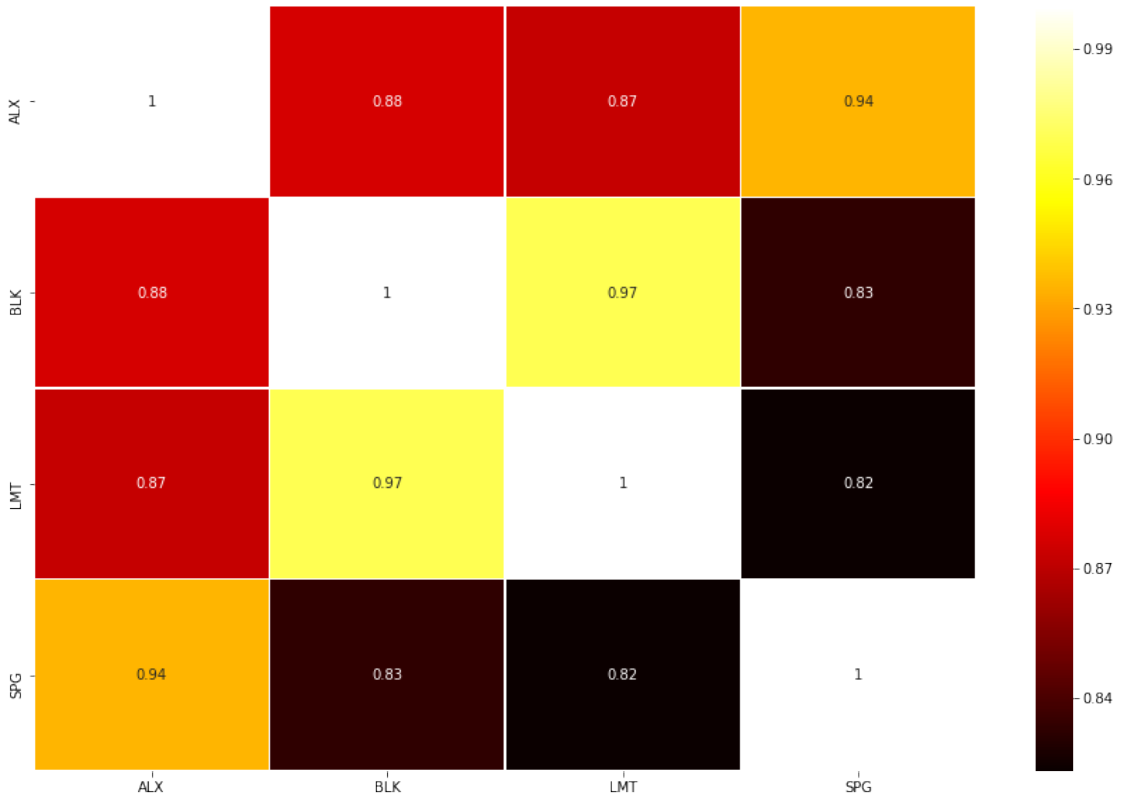

ALX Return
BLK Return
SPG Return
LMT Return
1
0.52
0.65
0.36
0.52
1
0.62
0.46
0.65
0.62
1
0.39
0.36
0.46
0.39
1
ALX Return
BLK Return
SPG Return
LMT Return
0.90
0.75
0.60
0.45

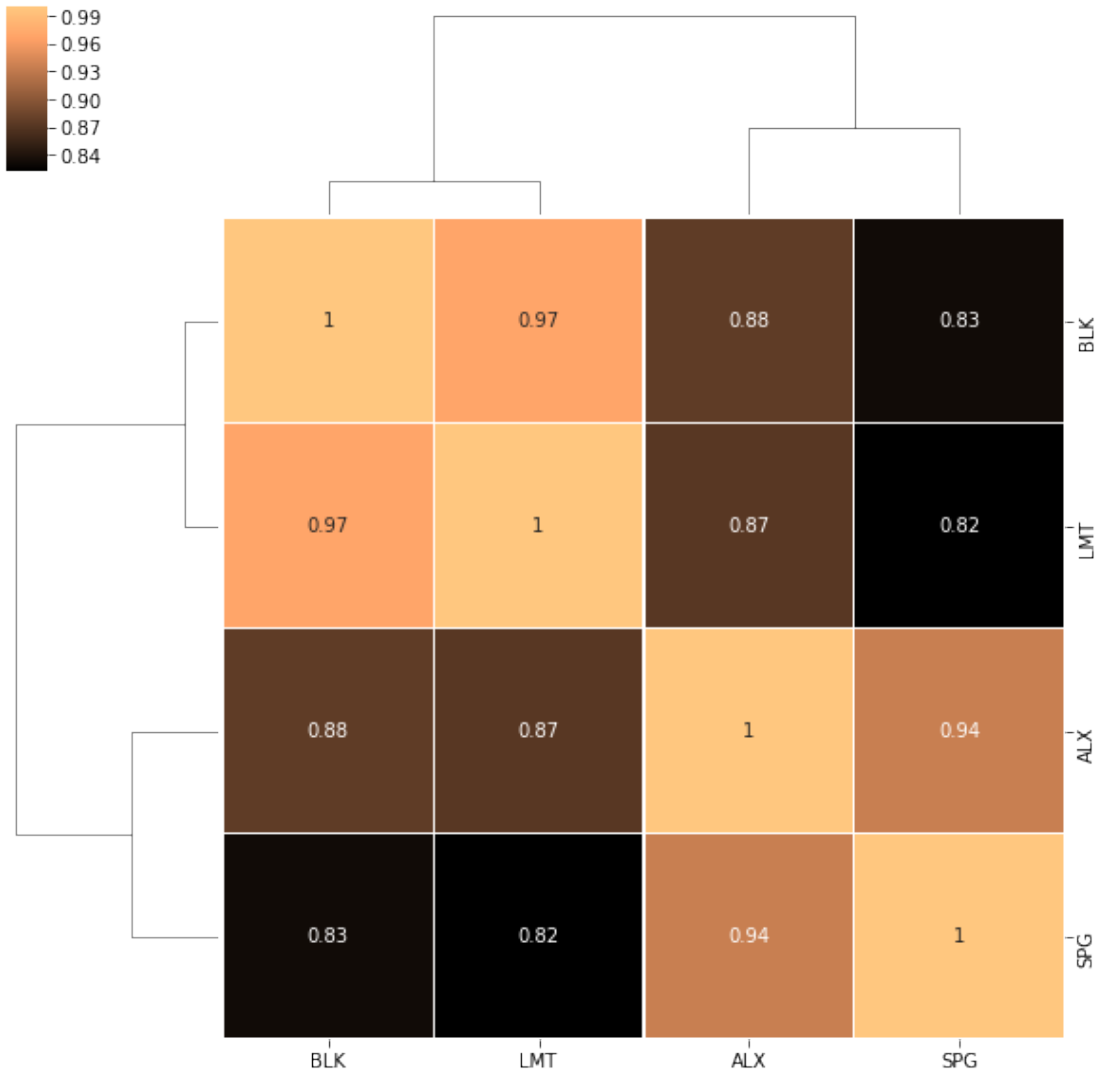


[14]:
```
plt.figure(figsize=(15,10))
sns.heatmap(df.corr(), cmap="hot",linewidths=.1, annot= True)

sns.clustermap(df.corr(), cmap="copper",linewidths=.1, annot= True)
```

[14]: <seaborn.matrix.ClusterGrid at 0x1e4c8017e48>


ALX
BLK
LMT
SPG
1
0.88
0.87
0.94
0.88
1
0.97
0.83
0.87
0.97
1
0.82
0.94
0.83
0.82
1
ALX
BLK
LMT
SPG
0.99
0.96
0.93
0.90
0.87
0.84



[15]:
```
Cash = 100000
print('Percentage of invest:')
percent_invest = [0.25, 0.25, 0.25, 0.25]
for i, x in zip(df.columns, percent_invest):
    cost = x * Cash
    print('{}: {}'.format(i, cost))
```

```
Percentage of invest:
ALX: 25000.0
BLK: 25000.0
LMT: 25000.0
SPG: 25000.0
```

[16]:
```
print('Number of Shares:')
percent_invest = [0.25, 0.25, 0.25, 0.25]
for i, x, y in zip(df.columns, percent_invest, df.iloc[0]):
    cost = x * Cash
    shares = int(cost/y)
    print('{}: {}'.format(i, shares))
```

```
Number of Shares:
ALX: 119
BLK: 222
LMT: 405
SPG: 429
```

[17]:
```
print('Beginning Value:')
percent_invest = [0.25, 0.25, 0.25, 0.25]
for i, x, y in zip(df.columns, percent_invest, df.iloc[0]):
    cost = x * Cash
    shares = int(cost/y)
    Begin_Value = round(shares * y, 2)
    print('{}: ${}'.format(i, Begin_Value))
```

```
Beginning Value:
ALX: $24869.5
BLK: $24973.03
LMT: $24966.88
SPG: $24965.18
```

[18]:
```
print('Current Value:')
percent_invest = [0.25, 0.25, 0.25, 0.25]
for i, x, y, z in zip(df.columns, percent_invest, df.iloc[0], df.iloc[-1]):
    cost = x * Cash
    shares = int(cost/y)
    Current_Value = round(shares * z, 2)
    print('{}: ${}'.format(i, Current_Value))
```

```
Current Value:
ALX: $34446.0
BLK: $85209.08
LMT: $104010.69
SPG: $69469.54
```

[19]:
```
result = []
percent_invest = [0.25, 0.25, 0.25, 0.25]
for i, x, y, z in zip(df.columns, percent_invest, df.iloc[0], df.iloc[-1]):
    cost = x * Cash
    shares = int(cost/y)
    Current_Value = round(shares * z, 2)
    result.append(Current_Value)
```

```
print('Total Value: $%s' % round(sum(result),2))
```

```
Total Value: $293135.31
```

[22]:
```
stock = yfd.Tickers('ALX BLK SPG LMT')
stock
```

[22]:
```
Tickers(LMT=Ticker object <LMT>, BLK=Ticker object <BLK>, ALX=Ticker object
<ALX>, SPG=Ticker object <SPG>)
```

[25]:
```
s1_dividend = stock.ALX.dividends['2007-01-01':].sum()
s2_dividend = stock.BLK.dividends['2007-01-01':].sum()
s3_dividend = stock.SPG.dividends['2007-01-01':].sum()
s4_dividend = stock.LMT.dividends['2007-01-01':].sum()
```

[26]:
```
data = [s1_dividend, s2_dividend, s3_dividend, s4_dividend]
```

[27]:
```
print('Total Dividends:')
data = [s1_dividend, s2_dividend, s3_dividend, s4_dividend]
for i, x in zip(df.columns, data):
    print('{}: {}'.format(i, x))
```

```
Total Dividends:
ALX: 270.5
BLK: 91.06999999999998
LMT: 63.44815
SPG: 62.46000000000001
```

[39]:
```
print('Dividends with Shares:')
percent_invest = [0.25, 0.25, 0.25, 0.25]
data = [s1_dividend, s2_dividend, s3_dividend, s4_dividend]
for i, x, y in zip(df.columns, percent_invest, data):
    cost = x * Cash
    shares = int(cost/y)
    total_dividend_cost = shares * y
    print('{}: ${}'.format(i, round(total_dividend_cost,2)))
```

```
Dividends with Shares:
ALX: $24886.0
BLK: $24953.18
LMT: $24998.57
SPG: $24984.0
```

[40]:
```
dividend = []
percent_invest = [0.25, 0.25, 0.25, 0.25]
data = [s1_dividend, s2_dividend, s3_dividend, s4_dividend]
for i, x, y in zip(df.columns, percent_invest, data):
```

```
    cost = x * Cash
    shares = int(cost/y)
    total_dividend_cost = shares * y
    dividend.append(total_dividend_cost)
print('Total Dividends: $%s' % round(sum(dividend),2))
```

```
Total Dividends: $99821.75
```

[52]:
```
print('Total Money: $%s' % round((sum(dividend) + sum(result)),2))
print('Total Profit: $%s' % (round((sum(dividend) + sum(result)),2) - Cash))
```

```
Total Money: $392957.06
Total Profit: $292957.06
```