Cloud_Services_Portfolio

September 29, 2021

1 Cloud Services Portfolio Risk and Returns

```python
[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")

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

```python
[2]: # input
     # Cloud Services Stock
     symbols =␣
      ↪['AMZN','AAPL','GOOGL','FB','NFLX','CRM','INTC','DVMT','ADBE','CLDR','EQIX','FEYE','FIVN','
     start = '2016-01-01'
     end = '2019-01-01'
```

```python
[3]: df = yf.download(symbols,start,end)['Adj Close']
```

```
[*********************100%***********************]  14 of 14 downloaded
```

```python
[4]: #df = pd.DataFrame()
     #for s in symbols:
     #    df[s] = yf.download(s,start,end)['Adj Close']
```

```python
[5]: 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?')
```

```python
print('%s years' % delta.years)
```

How many years of investing?
3 years

```python
[6]: number_of_years = delta.years
```

```python
[7]: days = (df.index[-1] - df.index[0]).days
     days
```

[7]: 1092

```python
[8]: df.head()
```

[8]:

	AAPL	ADBE	AMZN	CLDR	CRM	EQIX
2016-01-04	98.446655	91.970001	636.989990	NaN	76.709999	272.723938
2016-01-05	95.979675	92.339996	633.789978	NaN	77.050003	279.475769
2016-01-06	94.101387	91.019997	632.650024	NaN	76.290001	284.744537
2016-01-07	90.129868	89.110001	607.940002	NaN	74.300003	279.365265
2016-01-08	90.606438	87.849998	607.049988	NaN	73.230003	285.352509

	FB	FEYE	FIVN	GOOGL	INTC	NFLX
2016-01-04	102.220001	21.870001	8.25	759.440002	30.453503	109.959999
2016-01-05	102.730003	21.639999	8.52	761.530029	30.310141	107.660004
2016-01-06	102.970001	20.530001	8.41	759.330017	29.638180	117.680000
2016-01-07	97.919998	19.010000	8.04	741.000000	28.527191	114.559998
2016-01-08	97.330002	18.320000	8.02	730.909973	28.231529	111.389999

	PAYC
2016-01-04	35.970001
2016-01-05	34.869999
2016-01-06	34.990002
2016-01-07	35.540001
2016-01-08	33.259998

```python
[9]: df.tail()
```

[9]:

	AAPL	ADBE	AMZN	CLDR	CRM
2018-12-24	144.656540	205.160004	1343.959961	10.37	121.330002
2018-12-26	154.843475	222.949997	1470.900024	11.00	130.839996
2018-12-27	153.838562	225.139999	1461.640015	10.95	135.199997
2018-12-28	153.917389	223.130005	1478.020020	10.88	134.679993
2018-12-31	155.405045	226.240005	1501.969971	11.06	136.970001

	EQIX	FB	FEYE	FIVN	GOOGL
2018-12-24	332.392975	124.059998	15.390000	39.259998	984.669983
2018-12-26	342.442657	134.179993	16.090000	42.520000	1047.849976

```
2018-12-27   339.618958   134.520004   16.180000   43.009998   1052.900024
2018-12-28   345.952637   133.199997   16.090000   43.209999   1046.680054
2018-12-31   345.668335   131.089996   16.209999   43.720001   1044.959961


                   INTC          NFLX          PAYC
2018-12-24   42.528996   233.880005   111.540001
2018-12-26   45.065708   253.669998   120.220001
2018-12-27   45.231571   255.570007   121.750000
2018-12-28   45.612076   256.079987   121.239998
2018-12-31   45.787697   267.660004   122.449997
```

```
[10]: plt.figure(figsize=(12,8))
      plt.plot(df)
      plt.title('Cloud Services Stocks Closing Price')
      plt.legend(labels=df.columns)
```
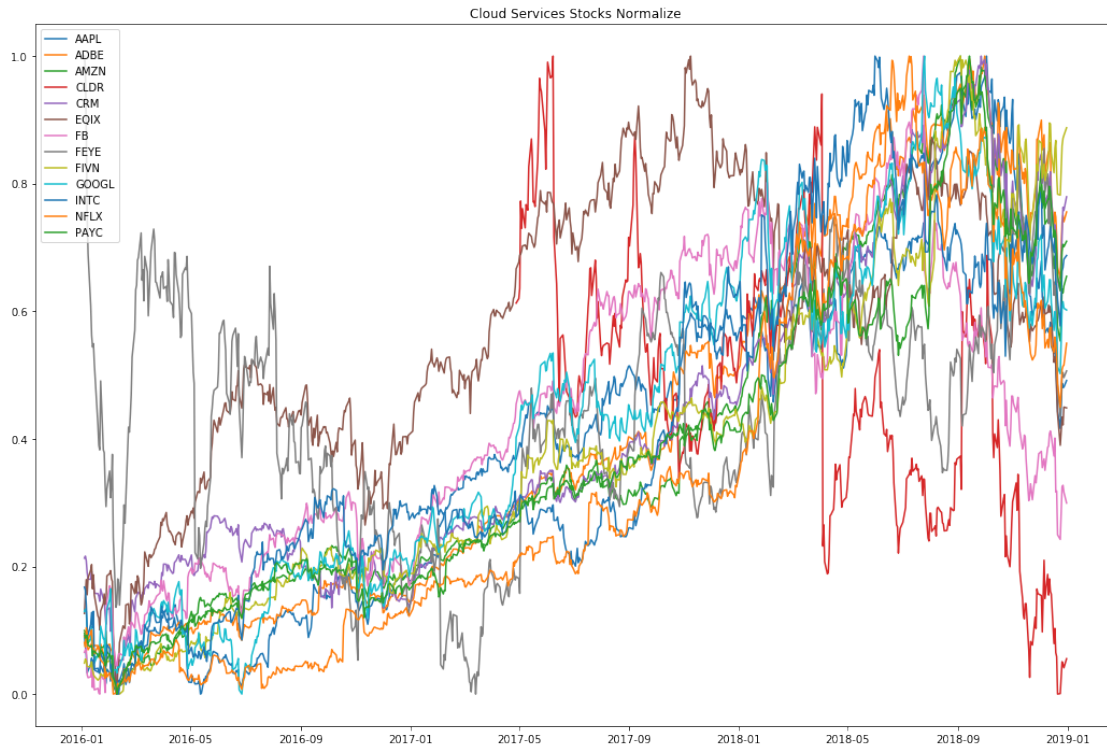
```
[10]: <matplotlib.legend.Legend at 0x25532b8f518>
```
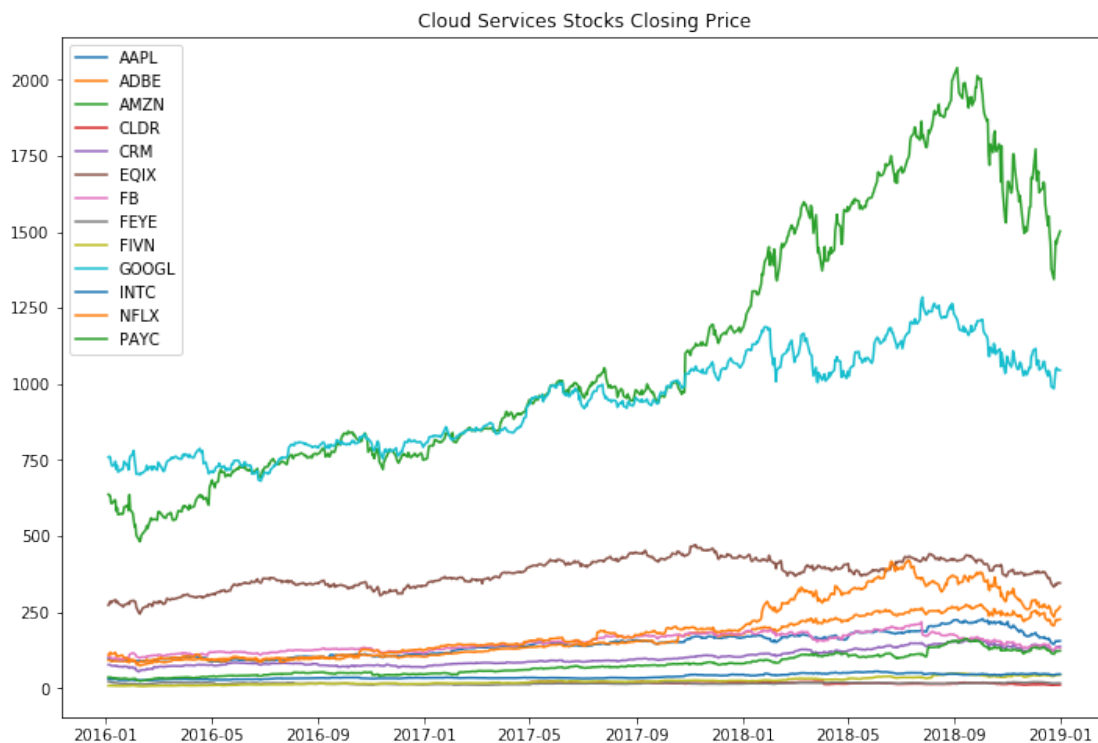


```
[11]: # Normalize the data
      normalize = (df - df.min())/ (df.max() - df.min())
```

```
[12]: plt.figure(figsize=(18,12))
      plt.plot(normalize)
```

3

```
plt.title('Cloud Services Stocks Normalize')
plt.legend(labels=normalize.columns)
```
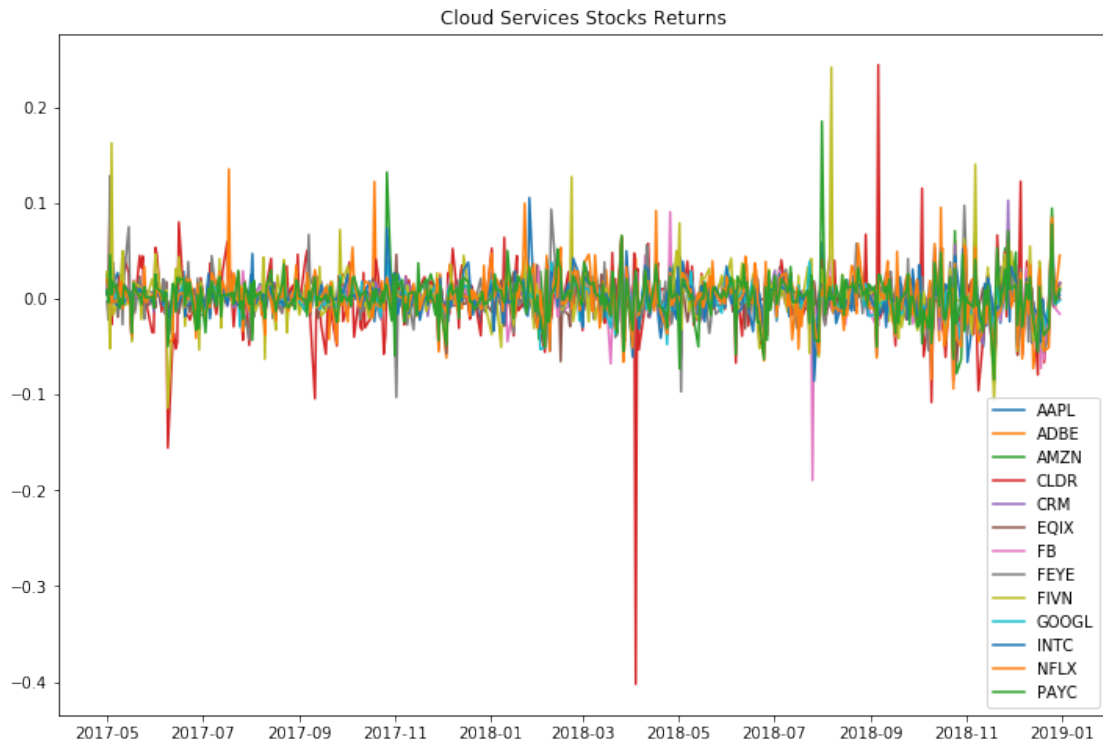
[12]: <matplotlib.legend.Legend at 0x25535e44358>


[13]:
```
stock_rets = df.pct_change().dropna()
```

[14]:
```
plt.figure(figsize=(12,8))
plt.plot(stock_rets)
plt.title('Cloud Services Stocks Returns')
plt.legend(labels=stock_rets.columns)
```

[14]: <matplotlib.legend.Legend at 0x25535c3b080>

Cloud Services Stocks Returns

```
[15]: plt.figure(figsize=(12,8))
      plt.plot(stock_rets.cumsum())
      plt.title('Cloud Services Stocks Returns Cumulative Sum')
      plt.legend(labels=stock_rets.columns)
```

[15]: <matplotlib.legend.Legend at 0x25535cb71d0>

Cloud Services Stocks Returns Cumulative Sum
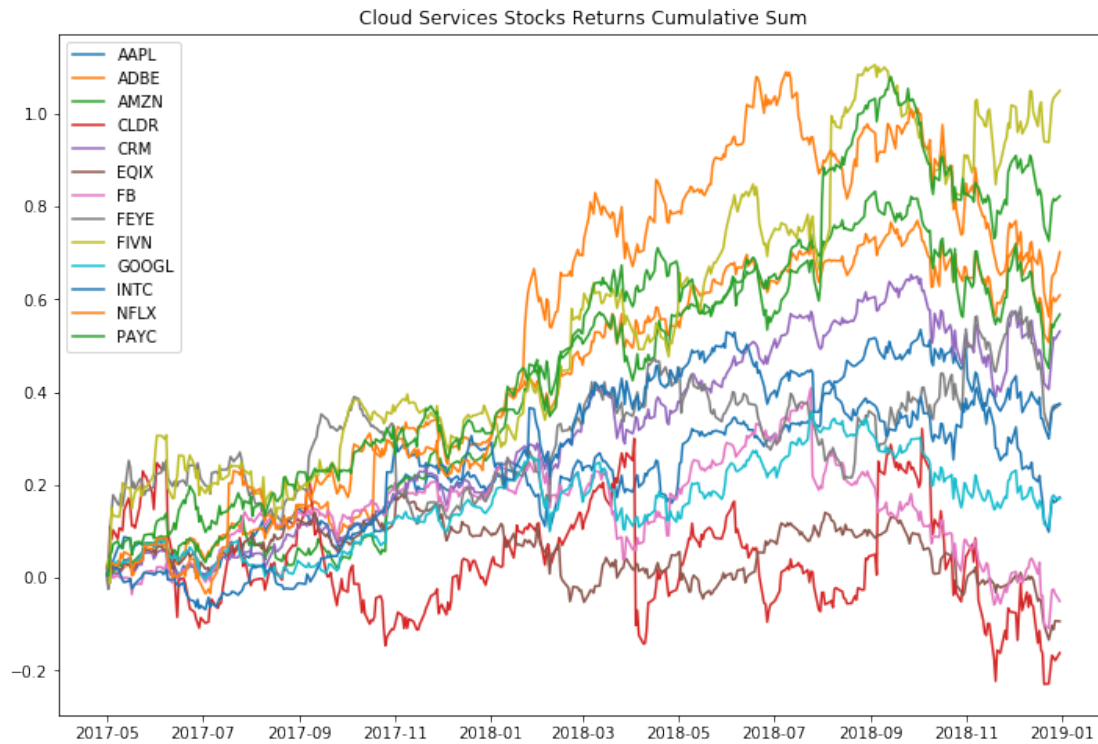
```
sns.set(style='ticks')
ax = sns.pairplot(stock_rets, diag_kind='hist')

nplot = len(stock_rets.columns)
for i in range(nplot) :
    for j in range(nplot) :
        ax.axes[i, j].locator_params(axis='x', nbins=6, tight=True)
```
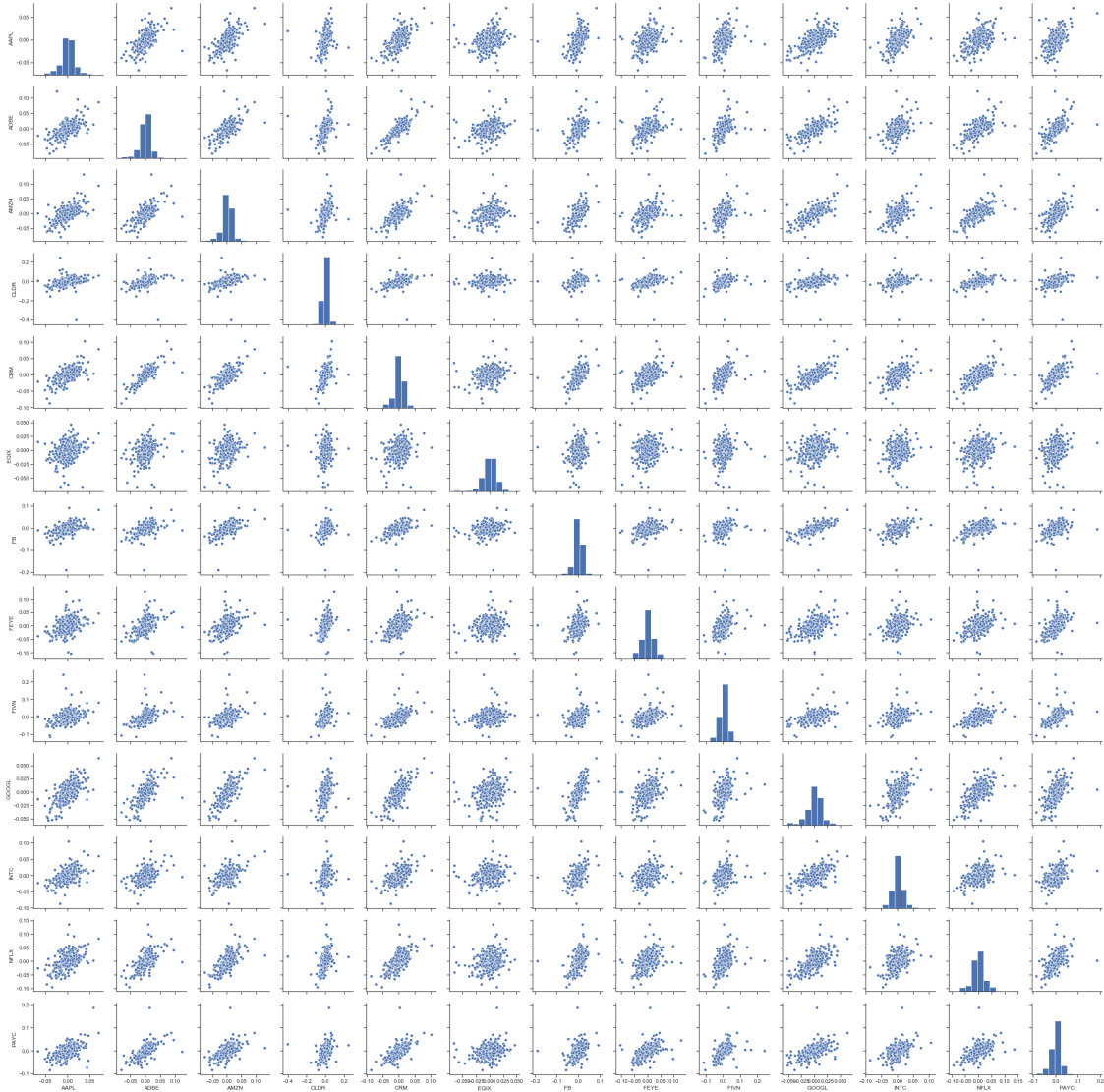
```
[17]:  ax = sns.PairGrid(stock_rets)
       ax.map_upper(plt.scatter, color='purple')
       ax.map_lower(sns.kdeplot, color='blue')
       ax.map_diag(plt.hist, bins=30)
       for i in range(nplot) :
           for j in range(nplot) :
               ax.axes[i, j].locator_params(axis='x', nbins=6, tight=True)
```
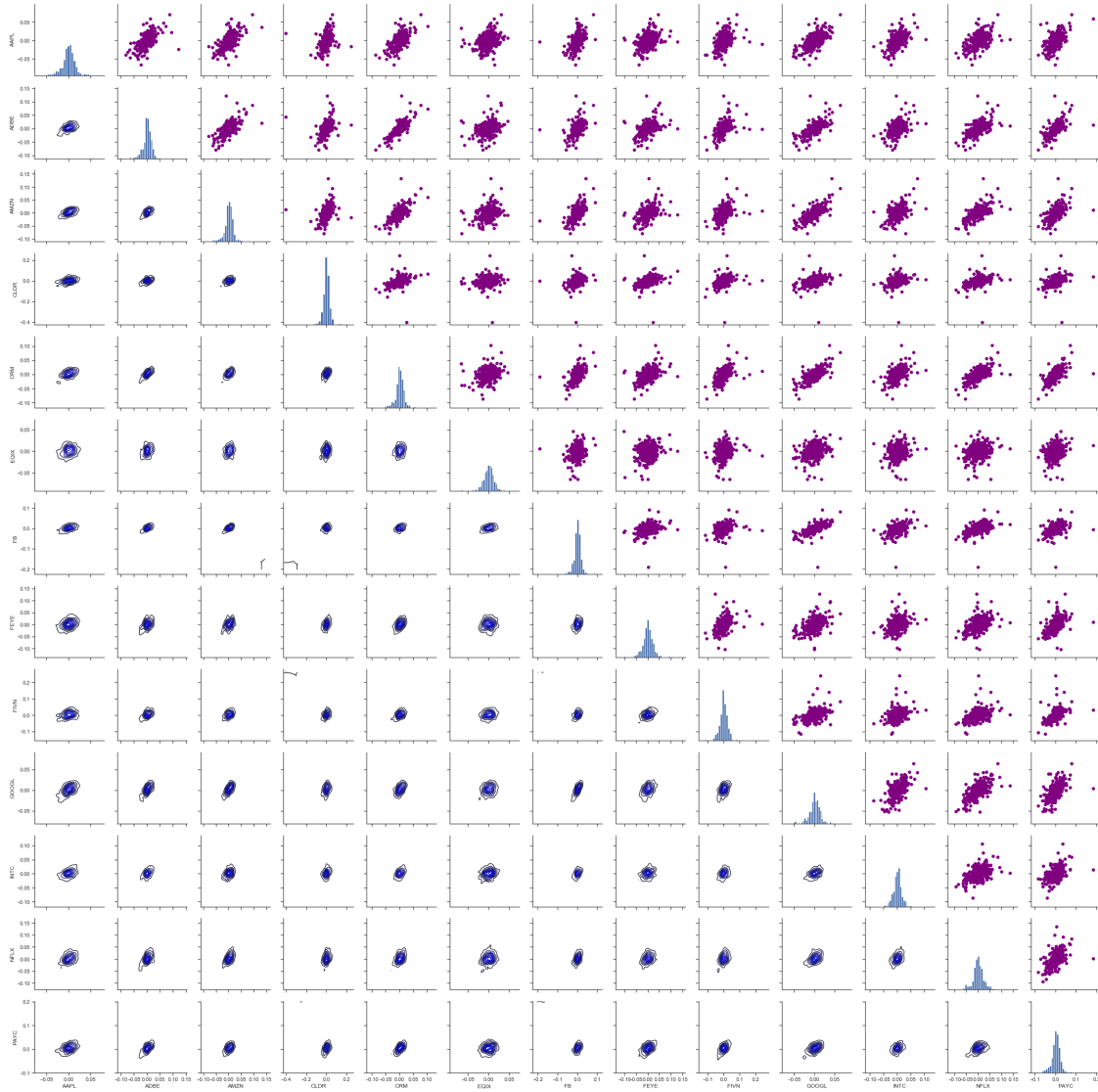
```
[18]: plt.figure(figsize=(7,7))
      corr = stock_rets.corr()

      # plot the heatmap
      sns.heatmap(corr,
              xticklabels=corr.columns,
              yticklabels=corr.columns,
                  cmap="Blues")
```

[18]: <matplotlib.axes._subplots.AxesSubplot at 0x25520cfa780>
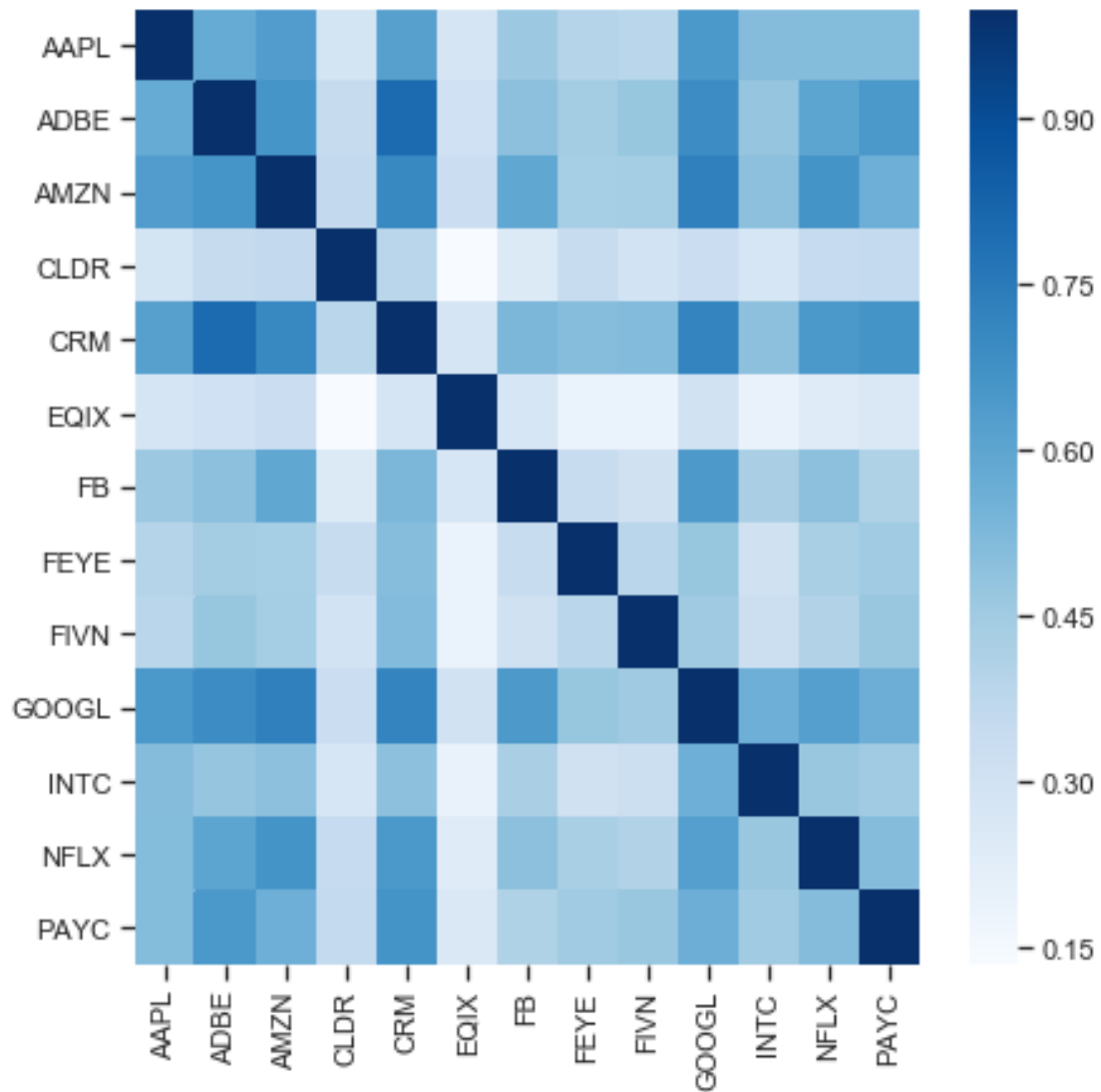
```
[19]: # Box plot
      stock_rets.plot(kind='box',figsize=(12,8))
```

[19]: <matplotlib.axes._subplots.AxesSubplot at 0x2553ac695f8>
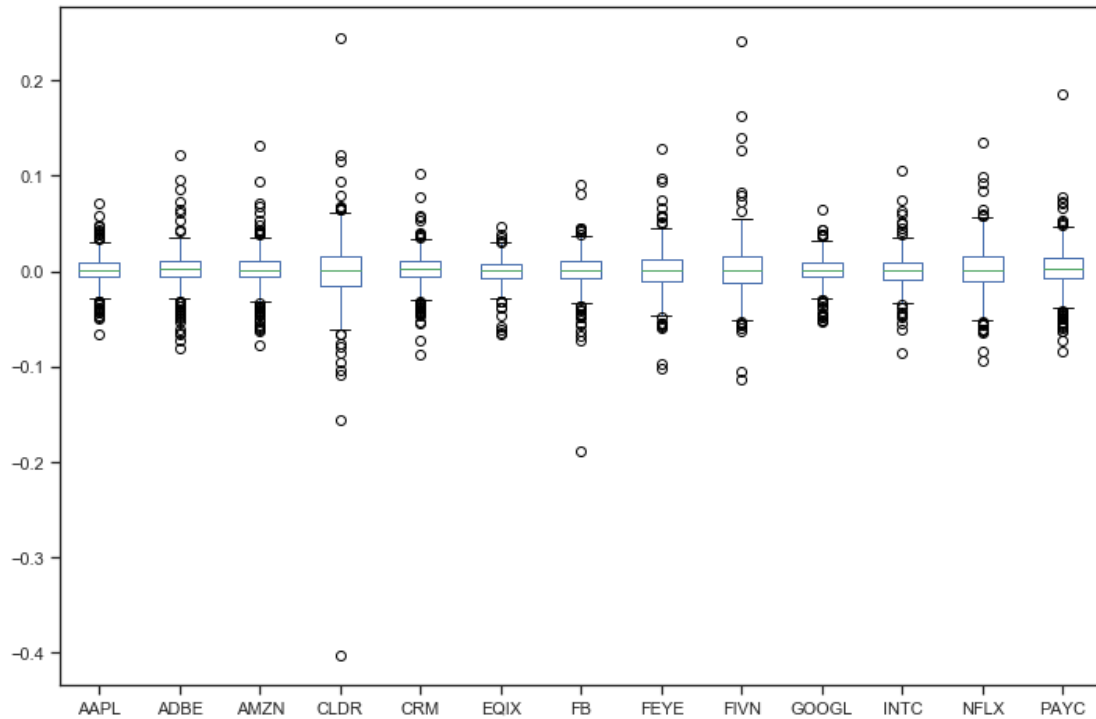
```
[20]: rets = stock_rets.dropna()

      plt.figure(figsize=(12,8))
      plt.scatter(rets.mean(), rets.std(),alpha = 0.5)

      plt.title('Stocks Risk & Returns')
      plt.xlabel('Expected returns')
      plt.ylabel('Risk')
      plt.grid(which='major')

      for label, x, y in zip(rets.columns, rets.mean(), rets.std()):
          plt.annotate(
              label,
              xy = (x, y), xytext = (50, 50),
              textcoords = 'offset points', ha = 'right', va = 'bottom',
              arrowprops = dict(arrowstyle = '-', connectionstyle = 'arc3,rad=-0.3'))
```

Stocks Risk & Returns
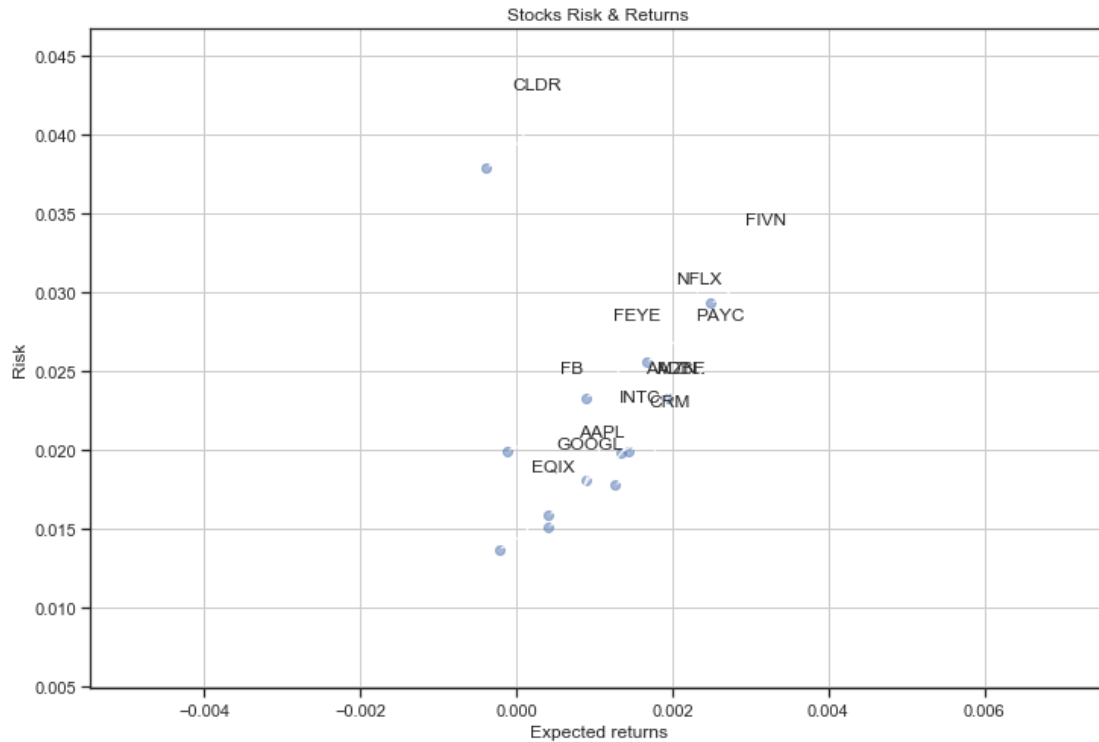
```
[21]: rets = stock_rets.dropna()
      area = np.pi*20.0

      sns.set(style='darkgrid')
      plt.figure(figsize=(12,8))
      plt.scatter(rets.mean(), rets.std(), s=area)
      plt.xlabel("Expected Return", fontsize=15)
      plt.ylabel("Risk", fontsize=15)
      plt.title("Return vs. Risk for Stocks", fontsize=20)

      for label, x, y in zip(rets.columns, rets.mean(), rets.std()) :
          plt.annotate(label, xy=(x,y), xytext=(50, 0), textcoords='offset points',
                      arrowprops=dict(arrowstyle='-',⊔
       →connectionstyle='bar,angle=180,fraction=-0.2'),
                      bbox=dict(boxstyle="round", fc="w"))
```

Return vs. Risk for Stocks

```
[22]: rest_rets = rets.corr()
      pair_value = rest_rets.abs().unstack()
      pair_value.sort_values(ascending = False)
```
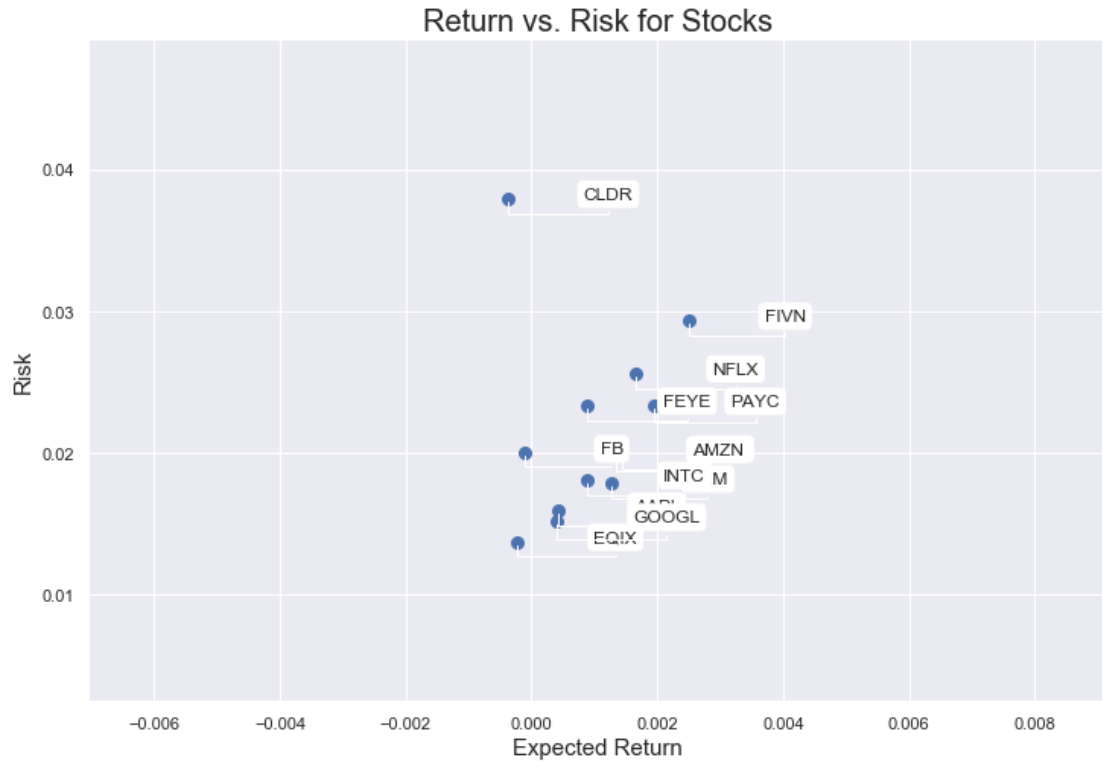
```
[22]: PAYC    PAYC      1.000000
      NFLX    NFLX      1.000000
      ADBE    ADBE      1.000000
      AMZN    AMZN      1.000000
      CLDR    CLDR      1.000000
      CRM     CRM       1.000000
      EQIX    EQIX      1.000000
      FEYE    FEYE      1.000000
      FIVN    FIVN      1.000000
      GOOGL   GOOGL     1.000000
      INTC    INTC      1.000000
      FB      FB        1.000000
      AAPL    AAPL      1.000000
      CRM     ADBE      0.802700
      ADBE    CRM       0.802700
      AMZN    GOOGL     0.733855
      GOOGL   AMZN      0.733855
      CRM     GOOGL     0.720041
      GOOGL   CRM       0.720041
```

```
AMZN   CRM      0.706310
CRM    AMZN     0.706310
GOOGL  ADBE     0.692089
ADBE   GOOGL    0.692089
AMZN   NFLX     0.668401
NFLX   AMZN     0.668401
PAYC   CRM      0.666215
CRM    PAYC     0.666215
ADBE   AMZN     0.663639
AMZN   ADBE     0.663639
NFLX   CRM      0.648659
                  ...
FIVN   FB       0.307634
FB     FIVN     0.307634
EQIX   GOOGL    0.301542
GOOGL  EQIX     0.301542
FIVN   CLDR     0.298341
CLDR   FIVN     0.298341
       AAPL     0.291731
AAPL   CLDR     0.291731
CRM    EQIX     0.284850
EQIX   CRM      0.284850
       AAPL     0.282320
AAPL   EQIX     0.282320
CLDR   INTC     0.276460
INTC   CLDR     0.276460
EQIX   FB       0.274201
FB     EQIX     0.274201
EQIX   PAYC     0.262389
PAYC   EQIX     0.262389
FB     CLDR     0.252010
CLDR   FB       0.252010
EQIX   NFLX     0.241039
NFLX   EQIX     0.241039
EQIX   INTC     0.195254
INTC   EQIX     0.195254
EQIX   FIVN     0.192525
FIVN   EQIX     0.192525
EQIX   FEYE     0.188764
FEYE   EQIX     0.188764
EQIX   CLDR     0.134144
CLDR   EQIX     0.134144
Length: 169, dtype: float64
```

[23]:
```python
# Normalized Returns Data
Normalized_Value = ((rets[:] - rets[:].min()) /(rets[:].max() - rets[:].min()))
Normalized_Value.head()
```

```
[23]:                 AAPL      ADBE      AMZN      CLDR       CRM      EQIX  \
      2017-05-01  0.634196  0.446844  0.491163  0.629965  0.491804  0.638835
      2017-05-02  0.531439  0.392315  0.365261  0.639278  0.484909  0.642778
      2017-05-03  0.462735  0.390851  0.342059  0.767742  0.426091  0.592466
      2017-05-04  0.458688  0.387553  0.354047  0.580775  0.456936  0.608960
      2017-05-05  0.606311  0.404755  0.354589  0.653076  0.486170  0.627250


                      FB      FEYE      FIVN     GOOGL      INTC      NFLX  \
      2017-05-01  0.729129  0.434244  0.400108  0.528185  0.471847  0.499991
      2017-05-02  0.684129  0.351154  0.355244  0.490566  0.543688  0.440657
      2017-05-03  0.653748  1.000000  0.174310  0.555073  0.489012  0.385846
      2017-05-04  0.654306  0.601328  0.778175  0.507949  0.430359  0.456294
      2017-05-05  0.662208  0.607940  0.272465  0.411671  0.444470  0.391788


                      PAYC
      2017-05-01  0.344431
      2017-05-02  0.298411
      2017-05-03  0.483329
      2017-05-04  0.329450
      2017-05-05  0.379518
```

```
[24]: Normalized_Value.corr()
```

```
[24]:            AAPL      ADBE      AMZN      CLDR       CRM      EQIX        FB  \
      AAPL   1.000000  0.577556  0.637037  0.291731  0.619898  0.282320  0.463529
      ADBE   0.577556  1.000000  0.663639  0.349971  0.802700  0.313211  0.498986
      AMZN   0.637037  0.663639  1.000000  0.358453  0.706310  0.327905  0.595047
      CLDR   0.291731  0.349971  0.358453  1.000000  0.383532  0.134144  0.252010
      CRM    0.619898  0.802700  0.706310  0.383532  1.000000  0.284850  0.531105
      EQIX   0.282320  0.313211  0.327905  0.134144  0.284850  1.000000  0.274201
      FB     0.463529  0.498986  0.595047  0.252010  0.531105  0.274201  1.000000
      FEYE   0.396292  0.442358  0.435358  0.340687  0.508069  0.188764  0.342525
      FIVN   0.387536  0.474684  0.441007  0.298341  0.518641  0.192525  0.307634
      GOOGL  0.648306  0.692089  0.733855  0.329382  0.720041  0.301542  0.645672
      INTC   0.511681  0.476872  0.496999  0.276460  0.497242  0.195254  0.425594
      NFLX   0.515645  0.600985  0.668401  0.351394  0.648659  0.241039  0.496826
      PAYC   0.515780  0.648563  0.563362  0.356989  0.666215  0.262389  0.408672


                 FEYE      FIVN     GOOGL      INTC      NFLX      PAYC
      AAPL   0.396292  0.387536  0.648306  0.511681  0.515645  0.515780
      ADBE   0.442358  0.474684  0.692089  0.476872  0.600985  0.648563
      AMZN   0.435358  0.441007  0.733855  0.496999  0.668401  0.563362
      CLDR   0.340687  0.298341  0.329382  0.276460  0.351394  0.356989
      CRM    0.508069  0.518641  0.720041  0.497242  0.648659  0.666215
      EQIX   0.188764  0.192525  0.301542  0.195254  0.241039  0.262389
      FB     0.342525  0.307634  0.645672  0.425594  0.496826  0.408672
      FEYE   1.000000  0.387619  0.475048  0.308747  0.429293  0.455137
```

```
FIVN   0.387619   1.000000   0.458299   0.325703   0.406229   0.472254
GOOGL  0.475048   0.458299   1.000000   0.560624   0.626107   0.565608
INTC   0.308747   0.325703   0.560624   1.000000   0.470787   0.451129
NFLX   0.429293   0.406229   0.626107   0.470787   1.000000   0.509711
PAYC   0.455137   0.472254   0.565608   0.451129   0.509711   1.000000
```

[25]:
```python
normalized_rets = Normalized_Value.corr()
normalized_pair_value = normalized_rets.abs().unstack()
normalized_pair_value.sort_values(ascending = False)
```

[25]:
```
PAYC    PAYC     1.000000
NFLX    NFLX     1.000000
ADBE    ADBE     1.000000
AMZN    AMZN     1.000000
CLDR    CLDR     1.000000
CRM     CRM      1.000000
EQIX    EQIX     1.000000
FEYE    FEYE     1.000000
FIVN    FIVN     1.000000
GOOGL   GOOGL    1.000000
INTC    INTC     1.000000
FB      FB       1.000000
AAPL    AAPL     1.000000
CRM     ADBE     0.802700
ADBE    CRM      0.802700
AMZN    GOOGL    0.733855
GOOGL   AMZN     0.733855
CRM     GOOGL    0.720041
GOOGL   CRM      0.720041
AMZN    CRM      0.706310
CRM     AMZN     0.706310
GOOGL   ADBE     0.692089
ADBE    GOOGL    0.692089
AMZN    NFLX     0.668401
NFLX    AMZN     0.668401
PAYC    CRM      0.666215
CRM     PAYC     0.666215
ADBE    AMZN     0.663639
AMZN    ADBE     0.663639
NFLX    CRM      0.648659
                  …
FIVN    FB       0.307634
FB      FIVN     0.307634
EQIX    GOOGL    0.301542
GOOGL   EQIX     0.301542
FIVN    CLDR     0.298341
CLDR    FIVN     0.298341
```

```
        AAPL     0.291731
AAPL    CLDR     0.291731
CRM     EQIX     0.284850
EQIX    CRM      0.284850
        AAPL     0.282320
AAPL    EQIX     0.282320
CLDR    INTC     0.276460
INTC    CLDR     0.276460
EQIX    FB       0.274201
FB      EQIX     0.274201
EQIX    PAYC     0.262389
PAYC    EQIX     0.262389
FB      CLDR     0.252010
CLDR    FB       0.252010
EQIX    NFLX     0.241039
NFLX    EQIX     0.241039
EQIX    INTC     0.195254
INTC    EQIX     0.195254
EQIX    FIVN     0.192525
FIVN    EQIX     0.192525
EQIX    FEYE     0.188764
FEYE    EQIX     0.188764
EQIX    CLDR     0.134144
CLDR    EQIX     0.134144
Length: 169, dtype: float64
```

[26]:
```python
print("Stock returns: ")
print(rets.mean())
print('-' * 50)
print("Stock risks:")
print(rets.std())
```

```
Stock returns:
AAPL     0.000412
ADBE     0.001447
AMZN     0.001348
CLDR    -0.000384
CRM      0.001261
EQIX    -0.000222
FB      -0.000119
FEYE     0.000886
FIVN     0.002493
GOOGL    0.000406
INTC     0.000891
NFLX     0.001667
PAYC     0.001954
dtype: float64
```

```
----------------------------------------------------
Stock risks:
AAPL     0.015902
ADBE     0.019941
AMZN     0.019881
CLDR     0.037911
CRM      0.017821
EQIX     0.013721
FB       0.019955
FEYE     0.023326
FIVN     0.029311
GOOGL    0.015130
INTC     0.018097
NFLX     0.025599
PAYC     0.023299
dtype: float64
```

[27]:
```python
table = pd.DataFrame()
table['Returns'] = rets.mean()
table['Risk'] = rets.std()
table.sort_values(by='Returns')
```

[27]:
	Returns	Risk
CLDR	-0.000384	0.037911
EQIX	-0.000222	0.013721
FB	-0.000119	0.019955
GOOGL	0.000406	0.015130
AAPL	0.000412	0.015902
FEYE	0.000886	0.023326
INTC	0.000891	0.018097
CRM	0.001261	0.017821
AMZN	0.001348	0.019881
ADBE	0.001447	0.019941
NFLX	0.001667	0.025599
PAYC	0.001954	0.023299
FIVN	0.002493	0.029311

[28]:
```python
table.sort_values(by='Risk')
```

[28]:
	Returns	Risk
EQIX	-0.000222	0.013721
GOOGL	0.000406	0.015130
AAPL	0.000412	0.015902
CRM	0.001261	0.017821
INTC	0.000891	0.018097
AMZN	0.001348	0.019881
ADBE	0.001447	0.019941

```
FB    -0.000119  0.019955
PAYC   0.001954  0.023299
FEYE   0.000886  0.023326
NFLX   0.001667  0.025599
FIVN   0.002493  0.029311
CLDR  -0.000384  0.037911
```

[29]:
```python
rf = 0.01
table['Sharpe Ratio'] = (table['Returns'] - rf) / table['Risk']
table
```

[29]:
```
         Returns      Risk  Sharpe Ratio
AAPL    0.000412  0.015902     -0.602983
ADBE    0.001447  0.019941     -0.428924
AMZN    0.001348  0.019881     -0.435184
CLDR   -0.000384  0.037911     -0.273896
CRM     0.001261  0.017821     -0.490369
EQIX   -0.000222  0.013721     -0.744972
FB     -0.000119  0.019955     -0.507075
FEYE    0.000886  0.023326     -0.390724
FIVN    0.002493  0.029311     -0.256107
GOOGL   0.000406  0.015130     -0.634115
INTC    0.000891  0.018097     -0.503322
NFLX    0.001667  0.025599     -0.325514
PAYC    0.001954  0.023299     -0.345354
```

[30]:
```python
table['Max Returns'] = rets.max()
```

[31]:
```python
table['Min Returns'] = rets.min()
```

[32]:
```python
table['Median Returns'] = rets.median()
```

[33]:
```python
total_return = stock_rets[-1:].transpose()
table['Total Return'] = 100 * total_return
table
```

[33]:
```
         Returns      Risk  Sharpe Ratio  Max Returns  Min Returns  \
AAPL    0.000412  0.015902     -0.602983     0.070422    -0.066331
ADBE    0.001447  0.019941     -0.428924     0.122418    -0.080372
AMZN    0.001348  0.019881     -0.435184     0.132164    -0.078197
CLDR   -0.000384  0.037911     -0.273896     0.244275    -0.402428
CRM     0.001261  0.017821     -0.490369     0.102713    -0.087061
EQIX   -0.000222  0.013721     -0.744972     0.046290    -0.065439
FB     -0.000119  0.019955     -0.507075     0.090613    -0.189609
FEYE    0.000886  0.023326     -0.390724     0.128583    -0.102932
FIVN    0.002493  0.029311     -0.256107     0.241724    -0.114168
GOOGL   0.000406  0.015130     -0.634115     0.064164    -0.052802
```

```
INTC   0.000891   0.018097        -0.503322       0.105519      -0.085890
NFLX   0.001667   0.025599        -0.325514       0.135436      -0.094039
PAYC   0.001954   0.023299        -0.345354       0.185318      -0.084452


       Median Returns   Total Return
AAPL          0.000512       0.966529
ADBE          0.002083       1.393806
AMZN          0.001529       1.620408
CLDR          0.000579       1.654412
CRM           0.001986       1.700333
EQIX          0.000757      -0.082179
FB            0.000696      -1.584085
FEYE          0.000677       0.745799
FIVN          0.000782       1.180287
GOOGL         0.001121      -0.164338
INTC          0.000570       0.385032
NFLX          0.000606       4.522031
PAYC          0.003171       0.998020
```

[34]:
```
table['Average Return Yearly'] = (1 + total_return)**(1 / number_of_years) - 1
table
```

[34]:
```
           Returns       Risk   Sharpe Ratio   Max Returns   Min Returns  \
AAPL      0.000412   0.015902      -0.602983      0.070422     -0.066331
ADBE      0.001447   0.019941      -0.428924      0.122418     -0.080372
AMZN      0.001348   0.019881      -0.435184      0.132164     -0.078197
CLDR     -0.000384   0.037911      -0.273896      0.244275     -0.402428
CRM       0.001261   0.017821      -0.490369      0.102713     -0.087061
EQIX     -0.000222   0.013721      -0.744972      0.046290     -0.065439
FB       -0.000119   0.019955      -0.507075      0.090613     -0.189609
FEYE      0.000886   0.023326      -0.390724      0.128583     -0.102932
FIVN      0.002493   0.029311      -0.256107      0.241724     -0.114168
GOOGL     0.000406   0.015130      -0.634115      0.064164     -0.052802
INTC      0.000891   0.018097      -0.503322      0.105519     -0.085890
NFLX      0.001667   0.025599      -0.325514      0.135436     -0.094039
PAYC      0.001954   0.023299      -0.345354      0.185318     -0.084452


       Median Returns   Total Return   Average Return Yearly
AAPL          0.000512       0.966529                0.003211
ADBE          0.002083       1.393806                0.004625
AMZN          0.001529       1.620408                0.005372
CLDR          0.000579       1.654412                0.005485
CRM           0.001986       1.700333                0.005636
EQIX          0.000757      -0.082179               -0.000274
FB            0.000696      -1.584085               -0.005308
FEYE          0.000677       0.745799                0.002480
FIVN          0.000782       1.180287                0.003919
```

```
GOOGL    0.001121   -0.164338                -0.000548
INTC     0.000570    0.385032                 0.001282
NFLX     0.000606    4.522031                 0.014852
PAYC     0.003171    0.998020                 0.003316
```

[35]:
```python
initial_value = df.iloc[0]
ending_value = df.iloc[-1]
table['CAGR'] = ((ending_value / initial_value) ** (252.0 / days)) -1
table
```

[35]:

	Returns	Risk	Sharpe Ratio	Max Returns	Min Returns
AAPL	0.000412	0.015902	-0.602983	0.070422	-0.066331
ADBE	0.001447	0.019941	-0.428924	0.122418	-0.080372
AMZN	0.001348	0.019881	-0.435184	0.132164	-0.078197
CLDR	-0.000384	0.037911	-0.273896	0.244275	-0.402428
CRM	0.001261	0.017821	-0.490369	0.102713	-0.087061
EQIX	-0.000222	0.013721	-0.744972	0.046290	-0.065439
FB	-0.000119	0.019955	-0.507075	0.090613	-0.189609
FEYE	0.000886	0.023326	-0.390724	0.128583	-0.102932
FIVN	0.002493	0.029311	-0.256107	0.241724	-0.114168
GOOGL	0.000406	0.015130	-0.634115	0.064164	-0.052802
INTC	0.000891	0.018097	-0.503322	0.105519	-0.085890
NFLX	0.001667	0.025599	-0.325514	0.135436	-0.094039
PAYC	0.001954	0.023299	-0.345354	0.185318	-0.084452

	Median Returns	Total Return	Average Return Yearly	CAGR
AAPL	0.000512	0.966529	0.003211	0.111100
ADBE	0.002083	1.393806	0.004625	0.230872
AMZN	0.001529	1.620408	0.005372	0.218900
CLDR	0.000579	1.654412	0.005485	NaN
CRM	0.001986	1.700333	0.005636	0.143146
EQIX	0.000757	-0.082179	-0.000274	0.056220
FB	0.000696	-1.584085	-0.005308	0.059085
FEYE	0.000677	0.745799	0.002480	-0.066778
FIVN	0.000782	1.180287	0.003919	0.469363
GOOGL	0.001121	-0.164338	-0.000548	0.076431
INTC	0.000570	0.385032	0.001282	0.098682
NFLX	0.000606	4.522031	0.014852	0.227884
PAYC	0.003171	0.998020	0.003316	0.326702

[36]:
```python
table.sort_values(by='Average Return Yearly')
```

[36]:

	Returns	Risk	Sharpe Ratio	Max Returns	Min Returns
FB	-0.000119	0.019955	-0.507075	0.090613	-0.189609
GOOGL	0.000406	0.015130	-0.634115	0.064164	-0.052802
EQIX	-0.000222	0.013721	-0.744972	0.046290	-0.065439
INTC	0.000891	0.018097	-0.503322	0.105519	-0.085890

```
FEYE   0.000886  0.023326    -0.390724    0.128583    -0.102932
AAPL   0.000412  0.015902    -0.602983    0.070422    -0.066331
PAYC   0.001954  0.023299    -0.345354    0.185318    -0.084452
FIVN   0.002493  0.029311    -0.256107    0.241724    -0.114168
ADBE   0.001447  0.019941    -0.428924    0.122418    -0.080372
AMZN   0.001348  0.019881    -0.435184    0.132164    -0.078197
CLDR  -0.000384  0.037911    -0.273896    0.244275    -0.402428
CRM    0.001261  0.017821    -0.490369    0.102713    -0.087061
NFLX   0.001667  0.025599    -0.325514    0.135436    -0.094039
```

	Median Returns	Total Return	Average Return Yearly	CAGR
FB	0.000696	-1.584085	-0.005308	0.059085
GOOGL	0.001121	-0.164338	-0.000548	0.076431
EQIX	0.000757	-0.082179	-0.000274	0.056220
INTC	0.000570	0.385032	0.001282	0.098682
FEYE	0.000677	0.745799	0.002480	-0.066778
AAPL	0.000512	0.966529	0.003211	0.111100
PAYC	0.003171	0.998020	0.003316	0.326702
FIVN	0.000782	1.180287	0.003919	0.469363
ADBE	0.002083	1.393806	0.004625	0.230872
AMZN	0.001529	1.620408	0.005372	0.218900
CLDR	0.000579	1.654412	0.005485	NaN
CRM	0.001986	1.700333	0.005636	0.143146
NFLX	0.000606	4.522031	0.014852	0.227884