

In [1]:

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

In [2]:

```
path = r'D:\Career\Udemy\DA\individual_stocks_5yr'
company_list = ['AVB_data.csv', 'CAG_data.csv', 'DOV_data.csv', 'FIS_data.csv']
all_data = pd.DataFrame()
for i in company_list:
    current_df = pd.read_csv(path+'/' + i)
    all_data = pd.concat([all_data, current_df])
all_data.head()
```

Out[2]:

	date	open	high	low	close	volume	Name
0	2013-02-08	127.51	129.085	127.51	128.84	956469	AVB
1	2013-02-11	128.84	130.370	128.84	129.78	1257369	AVB
2	2013-02-12	129.63	130.900	129.30	130.83	685652	AVB
3	2013-02-13	131.10	131.230	129.88	130.23	590502	AVB
4	2013-02-14	129.41	130.820	129.41	130.05	621740	AVB

In [3]:

```
all_data.shape
```

Out[3]:

```
(5036, 7)
```

In [4]:

```
all_data.columns
```

Out[4]:

```
Index(['date', 'open', 'high', 'low', 'close', 'volume', 'Name'], dtype='object')
```

In [5]:

```
tech_list = all_data['Name'].unique()
```

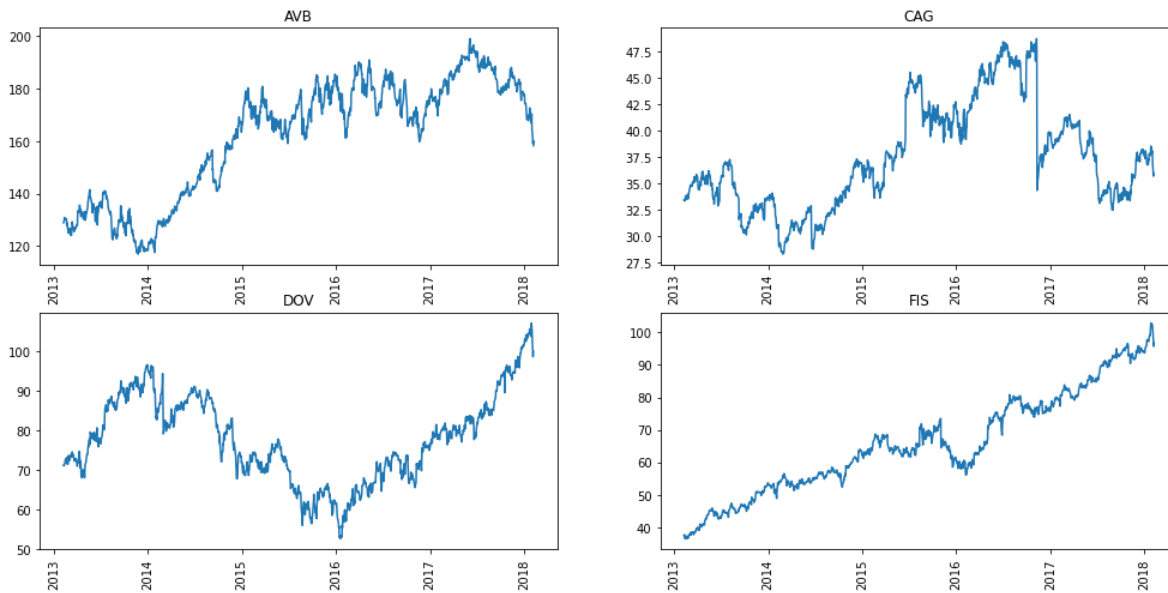
In [6]:

```
all_data['date'] = pd.to_datetime(all_data['date'])
```

## Closing Price

In [7]:

```
plt.figure(figsize = (17,8))
for i,company in enumerate(tech_list,1):
    plt.subplot(2,2,i)
    df = all_data[all_data['Name'] == company]
    plt.plot(df['date'],df['close'])
    plt.xticks(rotation = 'vertical')
    plt.title(company)
```



## Volume

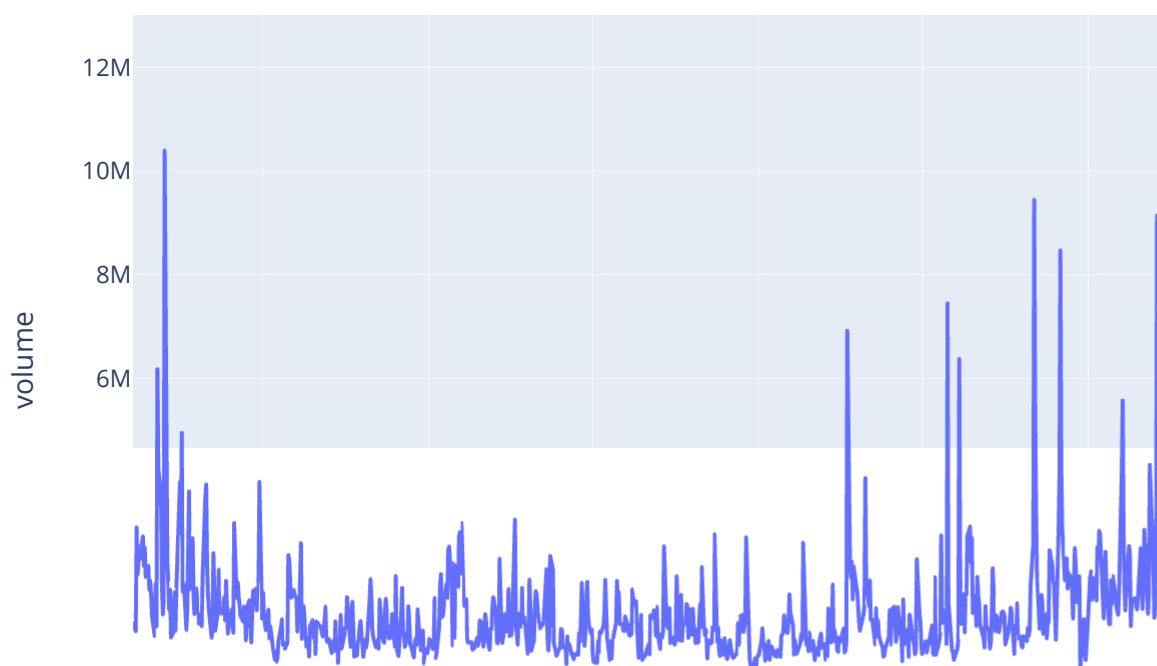
In [8]:

```
import plotly.express as px
```

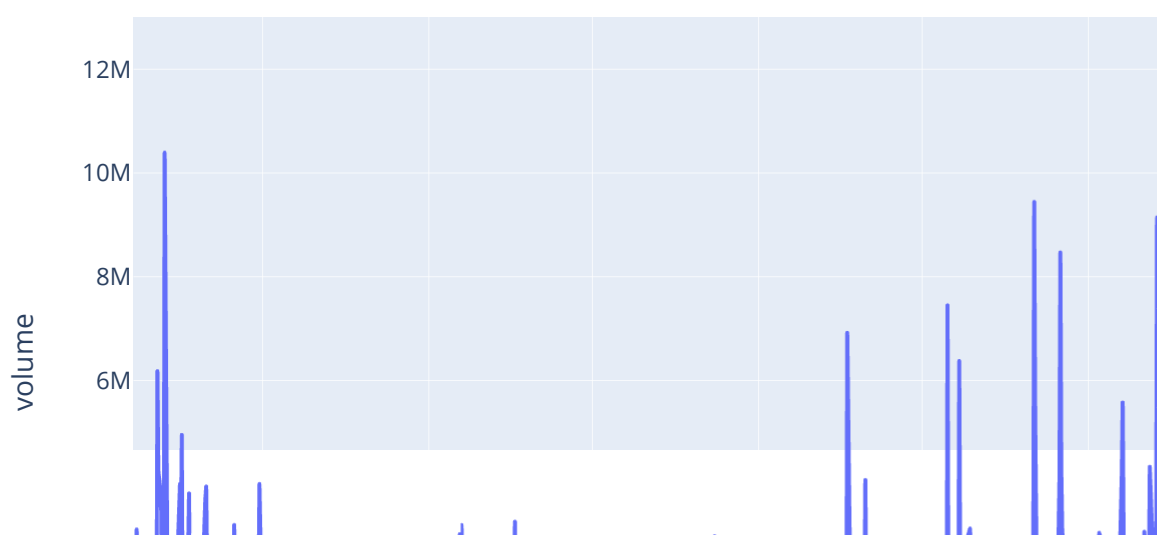
In [9]:

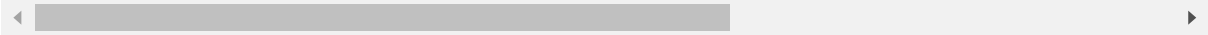
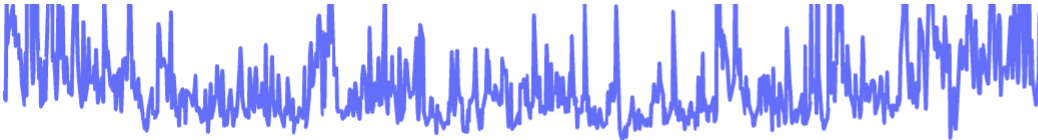
```
for i in tech_list:  
    df = all_data[all_data['Name'] == company]  
    fig = px.line(df,x = 'date',y = 'volume',title = company)  
    fig.show()
```

FIS

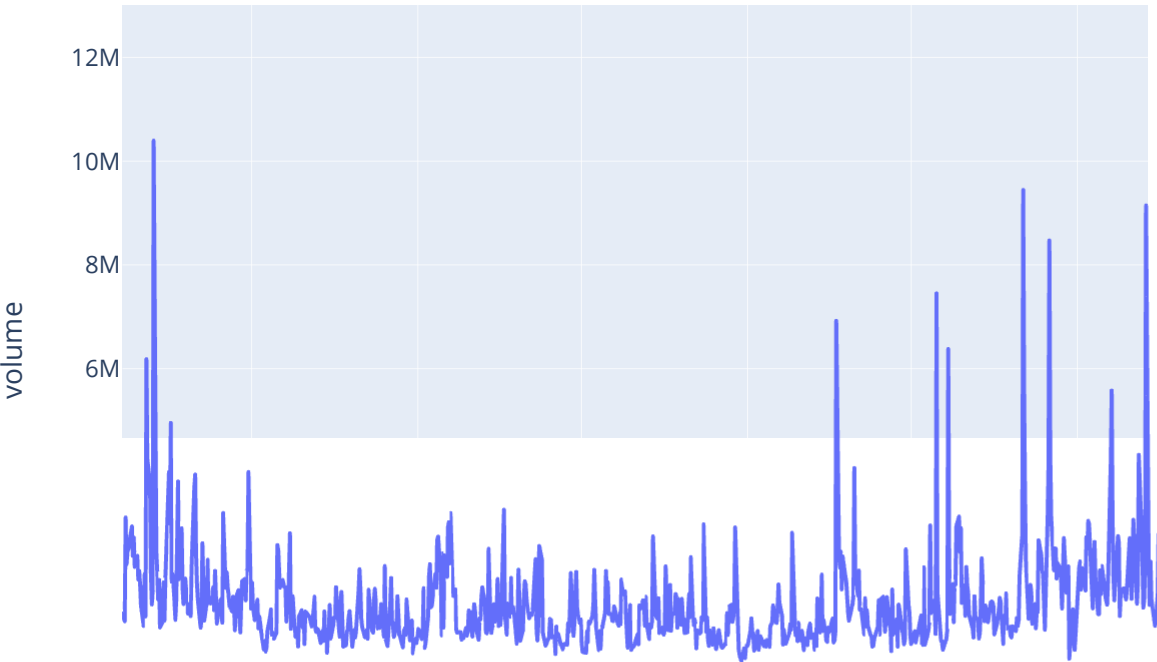


FIS

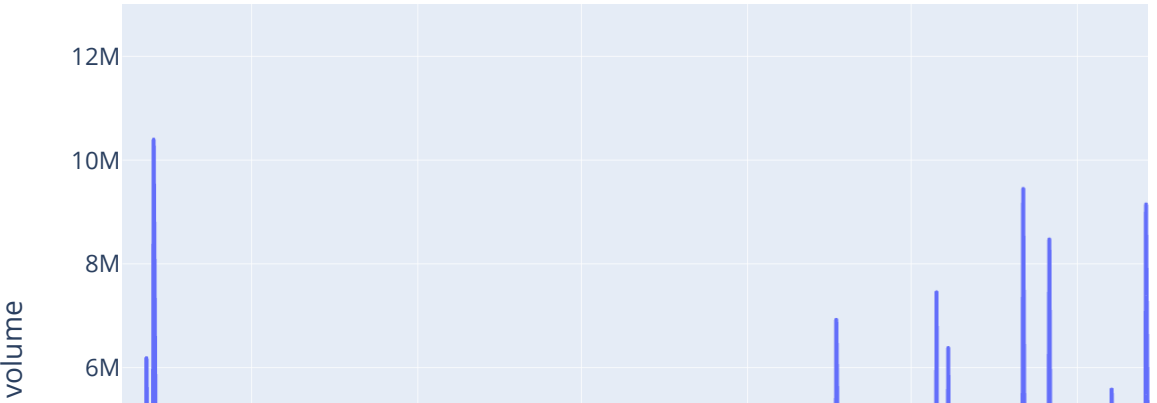


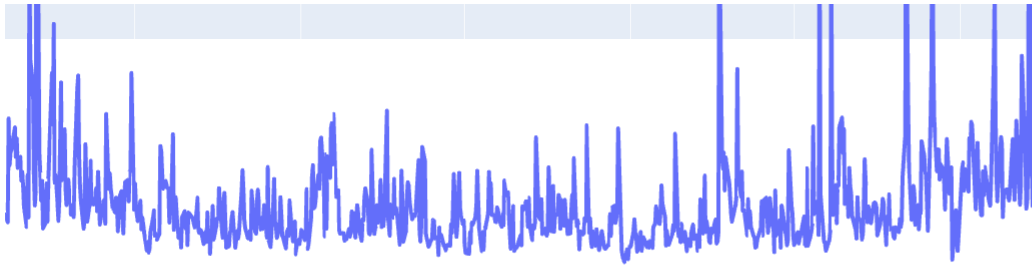


FIS



FIS





## Daily Returns

In [10]:

```
a = pd.read_csv(r'D:\Career\Udemy\DA\individual_stocks_5yr\GOOGL_data.csv')
a.head()
```

Out[10]:

	date	open	high	low	close	volume	Name
0	2013-02-08	390.4551	393.7283	390.1698	393.0777	6031199	GOOGL
1	2013-02-11	389.5892	391.8915	387.2619	391.6012	4330781	GOOGL
2	2013-02-12	391.2659	394.3440	390.0747	390.7403	3714176	GOOGL
3	2013-02-13	390.4551	393.0677	390.3750	391.8214	2393946	GOOGL
4	2013-02-14	390.2549	394.7644	389.2739	394.3039	3466971	GOOGL

In [11]:

```
a['Price_change'] = a['close'] - a['open']
```

In [12]:

```
a.head()
```

Out[12]:

	date	open	high	low	close	volume	Name	Price_change
0	2013-02-08	390.4551	393.7283	390.1698	393.0777	6031199	GOOGL	2.6226
1	2013-02-11	389.5892	391.8915	387.2619	391.6012	4330781	GOOGL	2.0120
2	2013-02-12	391.2659	394.3440	390.0747	390.7403	3714176	GOOGL	-0.5256
3	2013-02-13	390.4551	393.0677	390.3750	391.8214	2393946	GOOGL	1.3663
4	2013-02-14	390.2549	394.7644	389.2739	394.3039	3466971	GOOGL	4.0490

In [13]:

```
a['one_day_%_change'] = ((a['close'] - a['open'])/a['close']) * 100
a.head()
```

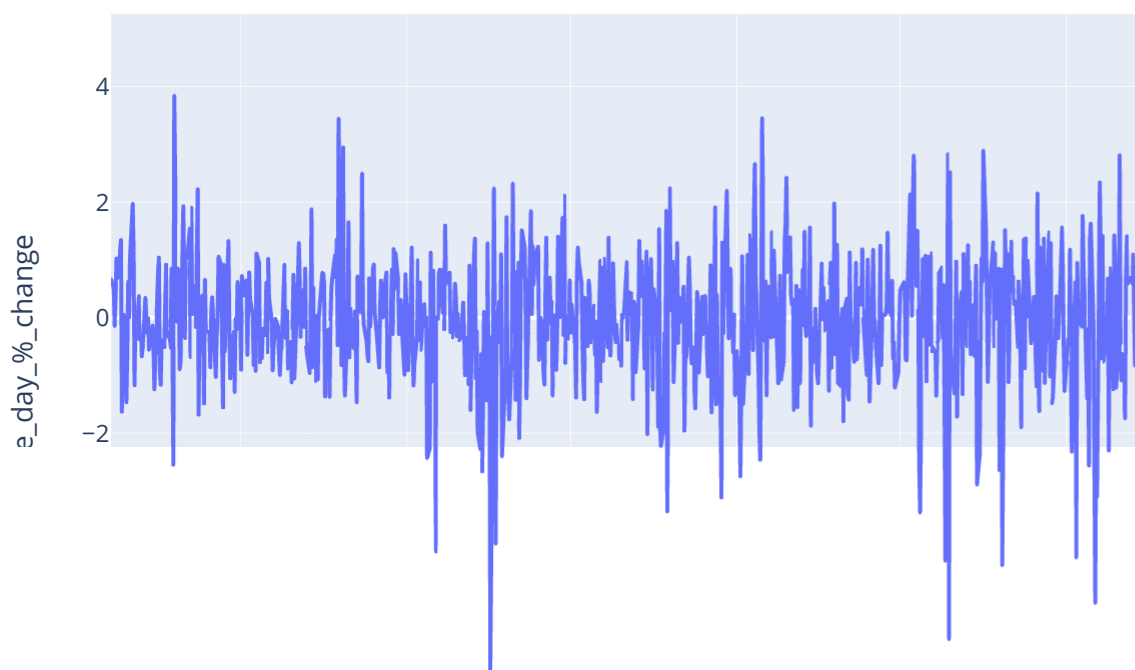
Out[13]:

	date	open	high	low	close	volume	Name	Price_change	one_day_%_
0	2013-02-08	390.4551	393.7283	390.1698	393.0777	6031199	GOOGL	2.6226	0
1	2013-02-11	389.5892	391.8915	387.2619	391.6012	4330781	GOOGL	2.0120	0
2	2013-02-12	391.2659	394.3440	390.0747	390.7403	3714176	GOOGL	-0.5256	-0
3	2013-02-13	390.4551	393.0677	390.3750	391.8214	2393946	GOOGL	1.3663	0
4	2013-02-14	390.2549	394.7644	389.2739	394.3039	3466971	GOOGL	4.0490	1

In [14]:

```
fig = px.line(a,x = 'date',y = 'one_day_%_change',title = company)
fig.show()
```

FIS



# Monthly mean of closing Price

In [15]:

```
b = a.copy()
b.head()
```

Out[15]:

	date	open	high	low	close	volume	Name	Price_change	one_day_%_
0	2013-02-08	390.4551	393.7283	390.1698	393.0777	6031199	GOOGL	2.6226	0
1	2013-02-11	389.5892	391.8915	387.2619	391.6012	4330781	GOOGL	2.0120	0
2	2013-02-12	391.2659	394.3440	390.0747	390.7403	3714176	GOOGL	-0.5256	-0
3	2013-02-13	390.4551	393.0677	390.3750	391.8214	2393946	GOOGL	1.3663	0
4	2013-02-14	390.2549	394.7644	389.2739	394.3039	3466971	GOOGL	4.0490	1

In [16]:

```
b.dtypes
```

Out[16]:

```
date                object
open               float64
high              float64
low               float64
close             float64
volume            int64
Name              object
Price_change       float64
one_day_%_change   float64
dtype: object
```

In [17]:

```
b['date'] = pd.to_datetime(b['date'])
```

In [18]:

```
b.set_index('date', inplace = True)
```

In [19]:

b.head(10)

Out[19]:

	open	high	low	close	volume	Name	Price_change	one_day_%_cha
date								
2013-02-08	390.4551	393.7283	390.1698	393.0777	6031199	GOOGL	2.6226	0.66
2013-02-11	389.5892	391.8915	387.2619	391.6012	4330781	GOOGL	2.0120	0.51
2013-02-12	391.2659	394.3440	390.0747	390.7403	3714176	GOOGL	-0.5256	-0.13
2013-02-13	390.4551	393.0677	390.3750	391.8214	2393946	GOOGL	1.3663	0.34
2013-02-14	390.2549	394.7644	389.2739	394.3039	3466971	GOOGL	4.0490	1.02
2013-02-15	394.0937	397.0266	393.9285	396.8414	5453980	GOOGL	2.7477	0.69
2013-02-19	398.3930	403.9035	398.0376	403.8284	5857528	GOOGL	5.4354	1.34
2013-02-20	403.0527	404.8895	396.2929	396.6262	5522500	GOOGL	-6.4265	-1.62
2013-02-21	399.3990	403.1277	396.0056	398.1628	7008464	GOOGL	-1.2362	-0.31
2013-02-22	400.0296	401.0256	397.2969	400.2549	4103315	GOOGL	0.2253	0.05

In [20]:

b.shape

Out[20]:

(1259, 8)



In [21]:

```
b['2013-02-08':'2013-02-22']
```

Out[21]:

	open	high	low	close	volume	Name	Price_change	one_day_%_cha
date								
2013-02-08	390.4551	393.7283	390.1698	393.0777	6031199	GOOGL	2.6226	0.66
2013-02-11	389.5892	391.8915	387.2619	391.6012	4330781	GOOGL	2.0120	0.51
2013-02-12	391.2659	394.3440	390.0747	390.7403	3714176	GOOGL	-0.5256	-0.13
2013-02-13	390.4551	393.0677	390.3750	391.8214	2393946	GOOGL	1.3663	0.34
2013-02-14	390.2549	394.7644	389.2739	394.3039	3466971	GOOGL	4.0490	1.02
2013-02-15	394.0937	397.0266	393.9285	396.8414	5453980	GOOGL	2.7477	0.69
2013-02-19	398.3930	403.9035	398.0376	403.8284	5857528	GOOGL	5.4354	1.34
2013-02-20	403.0527	404.8895	396.2929	396.6262	5522500	GOOGL	-6.4265	-1.62
2013-02-21	399.3990	403.1277	396.0056	398.1628	7008464	GOOGL	-1.2362	-0.31
2013-02-22	400.0296	401.0256	397.2969	400.2549	4103315	GOOGL	0.2253	0.05

In [22]:

```
b['close'].resample('M').mean()
```

Out[22]:

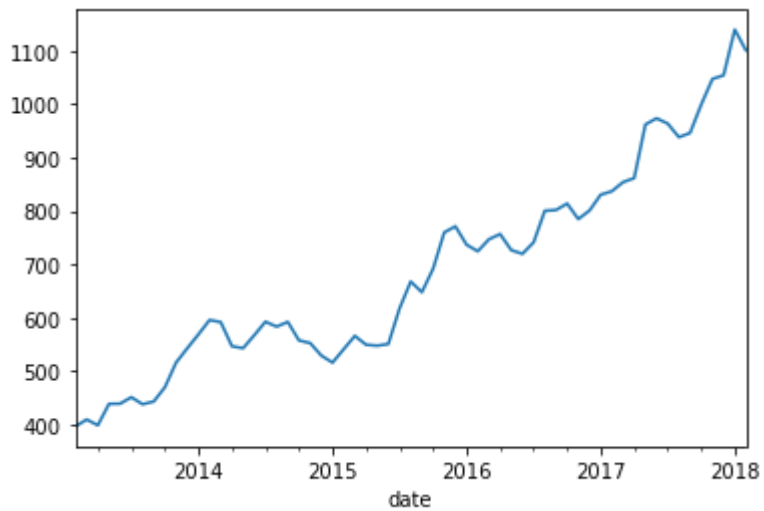
```
date
2013-02-28    396.413514
2013-03-31    409.400805
2013-04-30    398.601241
2013-05-31    438.757368
2013-06-30    439.067380
...
2017-10-31    999.145000
2017-11-30   1046.983333
2017-12-31   1053.917500
2018-01-31   1139.394286
2018-02-28   1100.604000
Freq: M, Name: close, Length: 61, dtype: float64
```

In [23]:

```
b['close'].resample('M').mean().plot()
```

Out[23]:

<AxesSubplot:xlabel='date'>

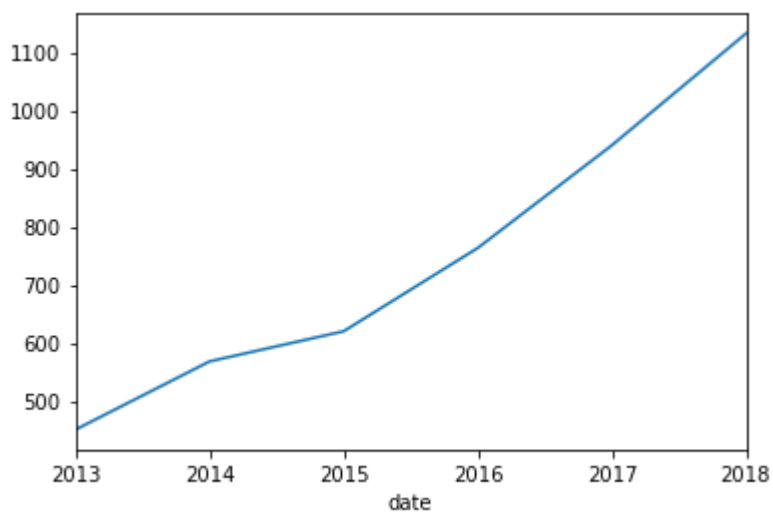


In [24]:

```
b['close'].resample('Y').mean().plot()
```

Out[24]:

<AxesSubplot:xlabel='date'>

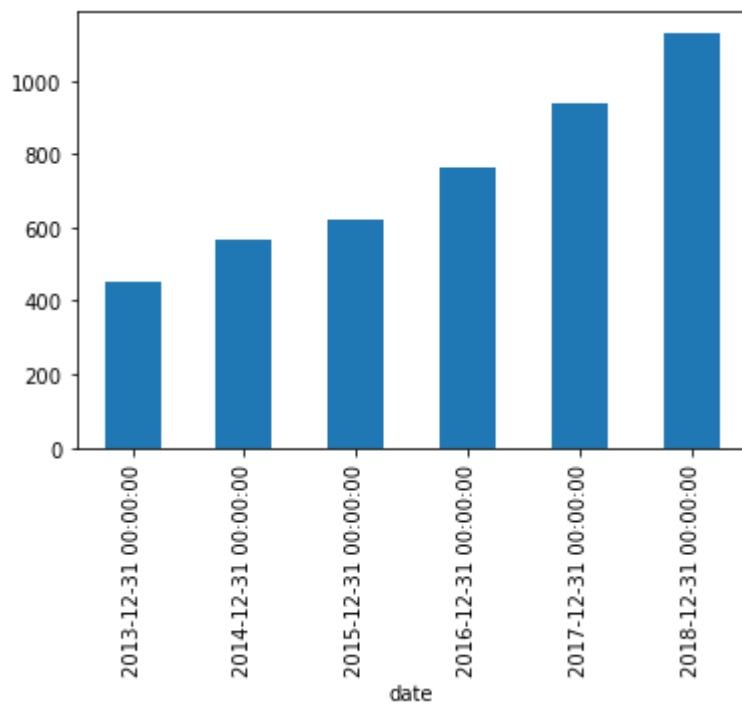


In [25]:

```
b['close'].resample('Y').mean().plot(kind = 'bar')
```

Out[25]:

<AxesSubplot:xlabel='date'>



## Multi variate Analysis

In [26]:

```
path = r'D:\Career\Udemy\DA\individual_stocks_5yr'
```

In [27]:

```
import os
file_list = os.listdir(path)
file_list
```

```
'ALL_data.csv',
'ALXN_data.csv',
'AMAT_data.csv',
'AMD_data.csv',
'AME_data.csv',
'AMGN_data.csv',
'AMG_data.csv',
'AMP_data.csv',
'AMT_data.csv',
'AMZN_data.csv',
'ANDV_data.csv',
'ANSS_data.csv',
'ANTM_data.csv',
'AON_data.csv',
'AOS_data.csv',
'APA_data.csv',
'APC_data.csv',
'APD_data.csv',
'APH_data.csv',
'APTV_data.csv'.
```

In [28]:

```
full_df = pd.DataFrame()
for i in file_list:
    current_df = pd.read_csv(path+'/' + i)
    full_df = pd.concat([full_df, current_df])
```

In [29]:

```
full_df.head()
```

Out[29]:

	date	open	high	low	close	volume	Name
0	2013-02-08	15.07	15.12	14.63	14.75	8407500	AAL
1	2013-02-11	14.89	15.01	14.26	14.46	8882000	AAL
2	2013-02-12	14.45	14.51	14.10	14.27	8126000	AAL
3	2013-02-13	14.30	14.94	14.25	14.66	10259500	AAL
4	2013-02-14	14.94	14.96	13.16	13.99	31879900	AAL

In [30]:

```
full_df.shape
```

Out[30]:

```
(624076, 7)
```

In [32]:

```
amp = pd.read_csv(r"D:\Career\Udemy\DA\individual_stocks_5yr\AMP_data.csv")
amp.head()
```

Out[32]:

	date	open	high	low	close	volume	Name
0	2013-02-08	66.21	66.62	66.08	66.49	862562	AMP
1	2013-02-11	66.40	66.69	66.17	66.49	635993	AMP
2	2013-02-12	66.71	67.54	66.60	67.49	1445989	AMP
3	2013-02-13	67.50	68.22	67.32	67.89	1173707	AMP
4	2013-02-14	67.58	69.12	67.58	69.04	1572907	AMP

In [34]:

```
cag = pd.read_csv(r"D:\Career\Udemy\DA\individual_stocks_5yr\CAG_data.csv")
cag.head()
```

Out[34]:

	date	open	high	low	close	volume	Name
0	2013-02-08	33.25	33.455	33.140	33.38	2919543	CAG
1	2013-02-11	33.49	33.530	33.265	33.37	3441645	CAG
2	2013-02-12	33.47	33.500	33.260	33.30	4307639	CAG
3	2013-02-13	33.42	33.600	33.350	33.48	3441691	CAG
4	2013-02-14	33.63	33.900	33.590	33.78	4943491	CAG

In [35]:

```
dov = pd.read_csv(r"D:\Career\Udemy\DA\individual_stocks_5yr\DOV_data.csv")
dov.head()
```

Out[35]:

	date	open	high	low	close	volume	Name
0	2013-02-08	70.90	71.35	70.77	71.13	921228	DOV
1	2013-02-11	71.10	71.56	71.01	71.06	1079451	DOV
2	2013-02-12	71.16	71.70	71.04	71.46	1121815	DOV
3	2013-02-13	71.46	71.83	71.23	71.61	948596	DOV
4	2013-02-14	71.48	71.89	71.29	71.86	1049107	DOV

In [36]:

```
swk = pd.read_csv(r"D:\Career\Udemy\DA\individual_stocks_5yr\SWK_data.csv")
swk.head()
```

Out[36]:

	date	open	high	low	close	volume	Name
0	2013-02-08	76.36	76.74	76.13	76.24	861724	SWK
1	2013-02-11	76.13	76.24	75.80	75.93	979015	SWK
2	2013-02-12	76.13	77.87	75.96	77.49	1825631	SWK
3	2013-02-13	77.56	77.64	77.05	77.48	1083623	SWK
4	2013-02-14	77.17	78.23	76.94	77.81	1460324	SWK

In [37]:

```
close = pd.DataFrame()
close['amp'] = amp['close']
close['cag'] = cag['close']
close['dov'] = dov['close']
close['swk'] = swk['close']
close.head()
```

Out[37]:

	amp	cag	dov	swk
0	66.49	33.38	71.13	76.24
1	66.49	33.37	71.06	75.93
2	67.49	33.30	71.46	77.49
3	67.89	33.48	71.61	77.48
4	69.04	33.78	71.86	77.81

In [39]:

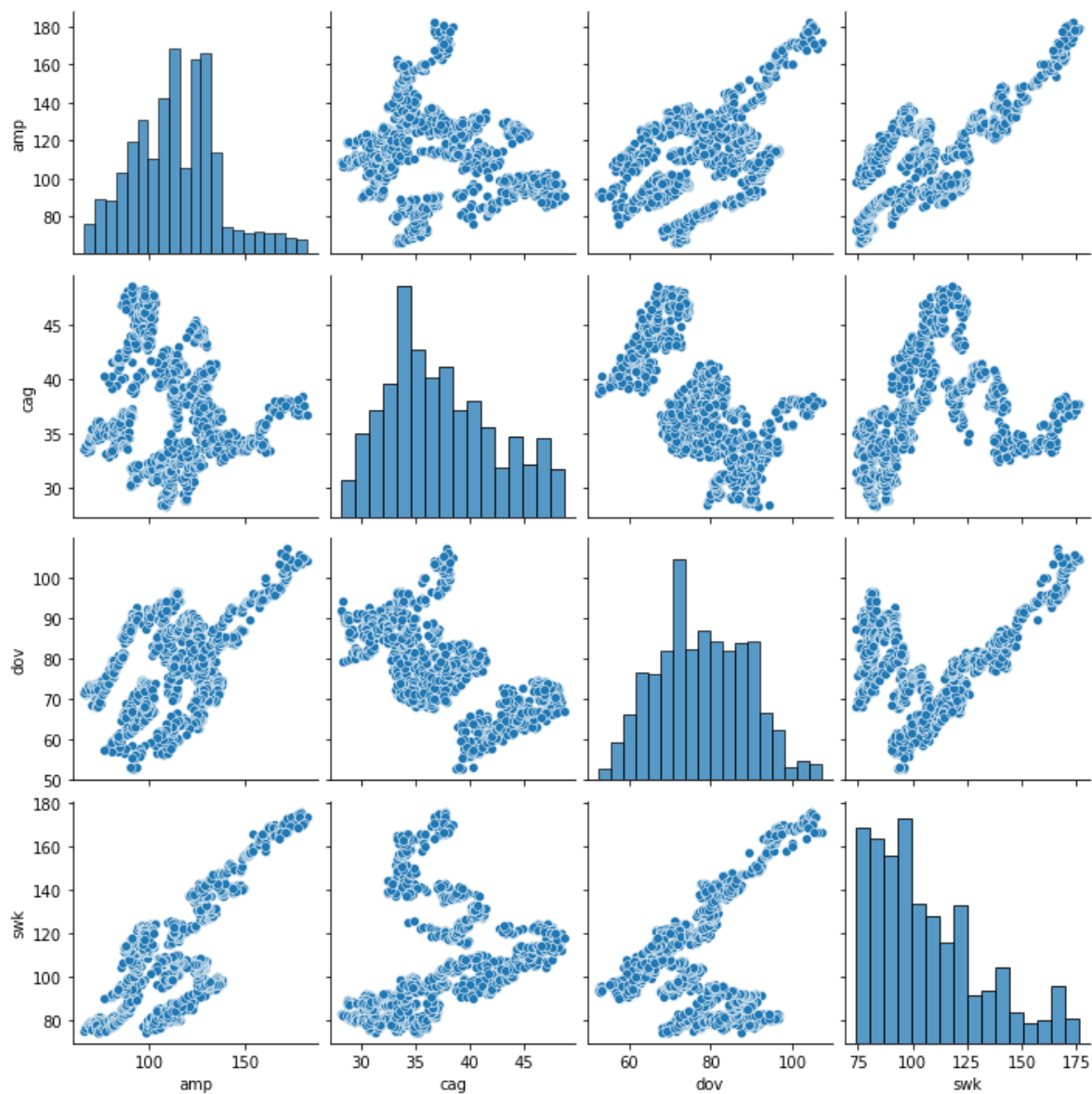
```
import seaborn as sns
```

In [40]:

```
sns.pairplot(close)
```

Out[40]:

&lt;seaborn.axisgrid.PairGrid at 0x22dcaf353a0&gt;

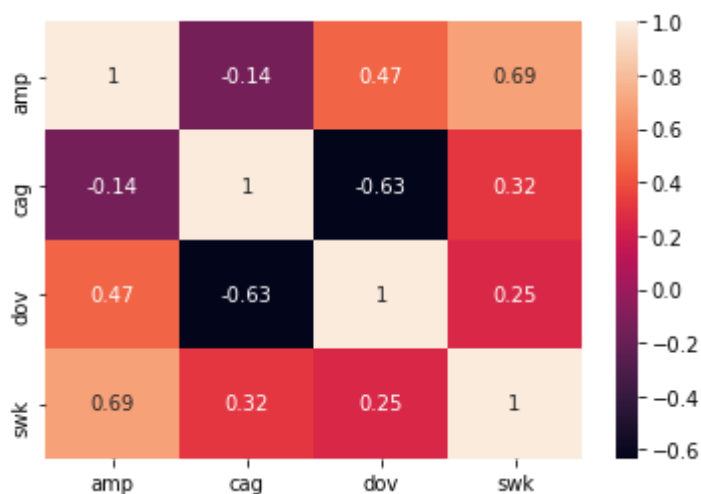


In [41]:

```
sns.heatmap(close.corr(),annot = True)
```

Out[41]:

&lt;AxesSubplot:&gt;



## Daily Return

In [42]:

```
Daily_df = pd.DataFrame()
Daily_df['amp_change'] = ((amp['close'] - amp['open'])/amp['close']) * 100
Daily_df['cag_change'] = ((cag['close'] - cag['open'])/cag['close']) * 100
Daily_df['dov_change'] = ((dov['close'] - dov['open'])/dov['close']) * 100
Daily_df['swk_change'] = ((swk['close'] - swk['open'])/swk['close']) * 100
```

In [43]:

```
Daily_df.head()
```

Out[43]:

	amp_change	cag_change	dov_change	swk_change
0	0.421116	0.389455	0.323352	-0.157398
1	0.135359	-0.359604	-0.056290	-0.263401
2	1.155727	-0.510511	0.419815	1.755065
3	0.574459	0.179211	0.209468	-0.103252
4	2.114716	0.444050	0.528806	0.822516

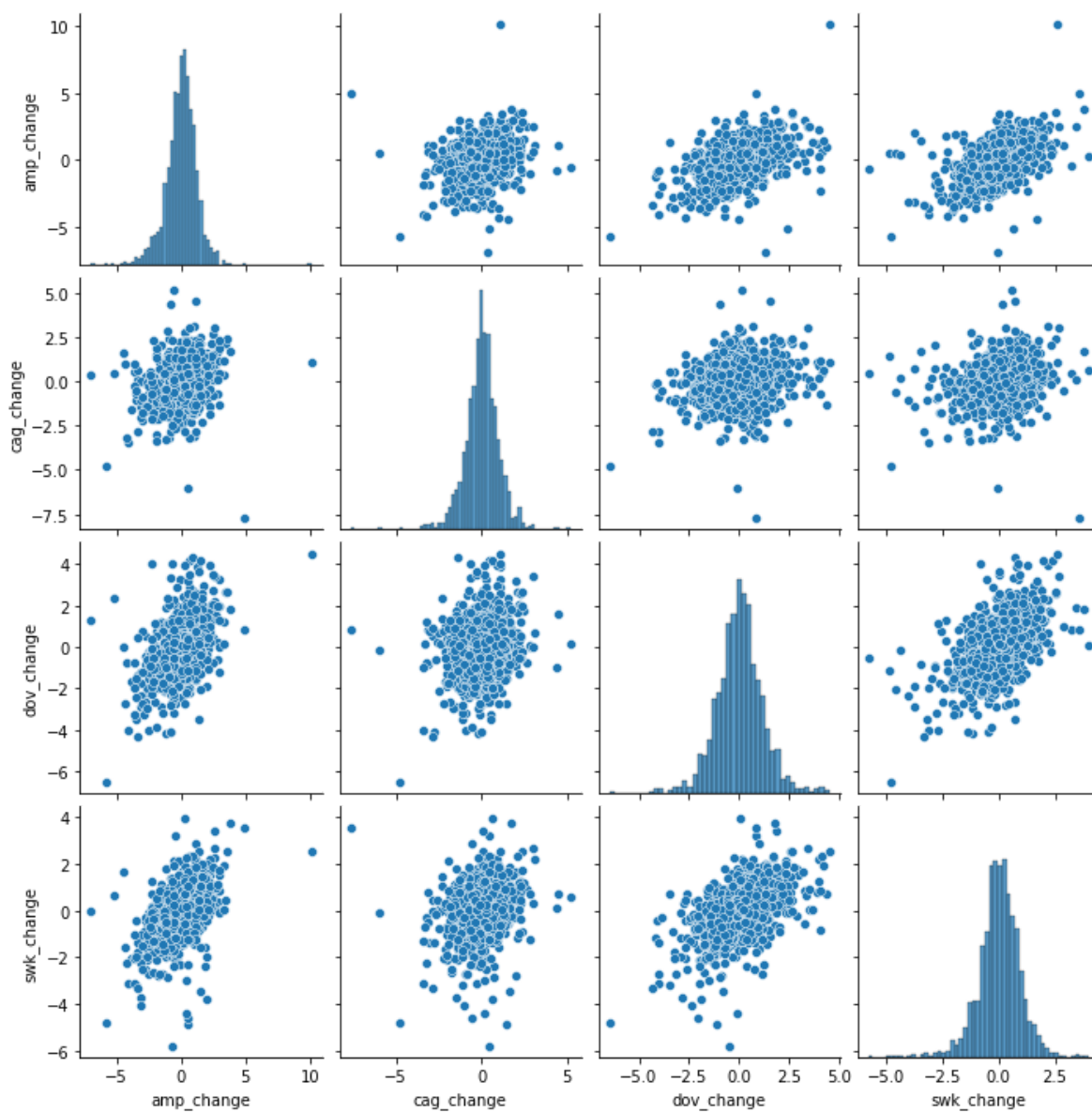


In [44]:

```
sns.pairplot(Daily_df)
```

Out[44]:

<seaborn.axisgrid.PairGrid at 0x22dcbb05d00>

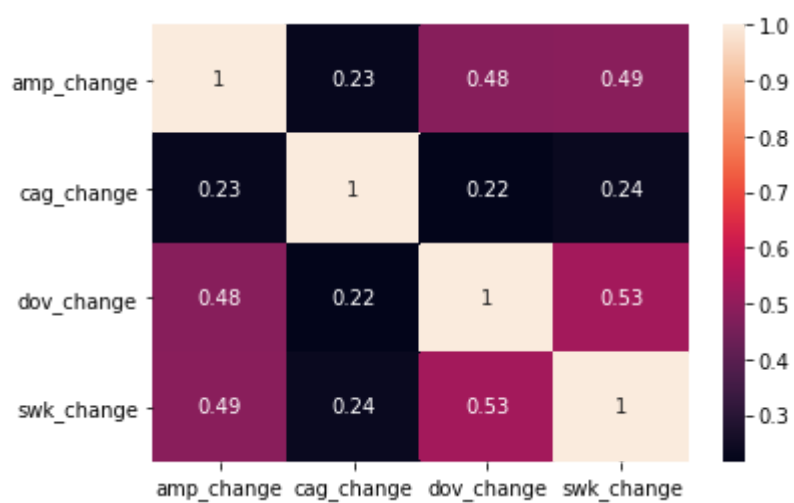


In [45]:

```
sns.heatmap(Daily_df.corr(),annot = True)
```

Out[45]:

<AxesSubplot:>

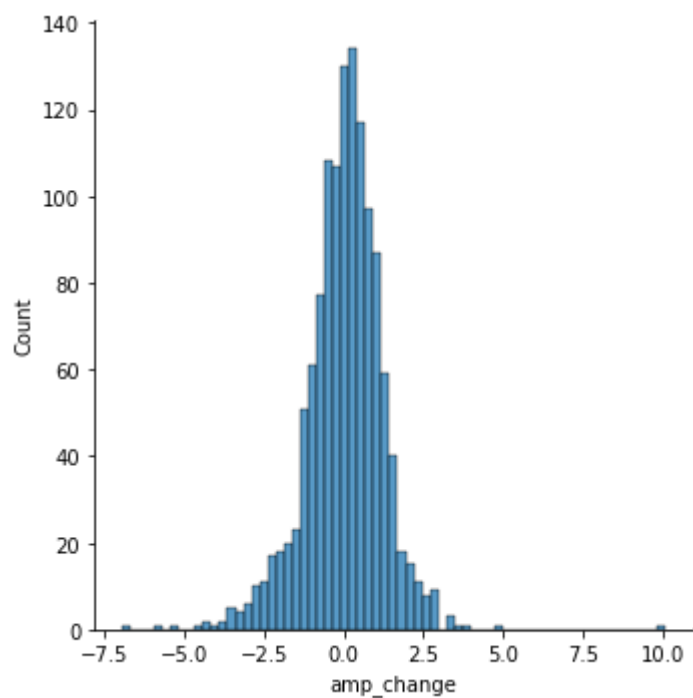


In [46]:

```
sns.displot(Daily_df['amp_change'])
```

Out[46]:

<seaborn.axisgrid.FacetGrid at 0x22dccce67f0>



In [ ]: