In [3]:
```python
import numpy as np
import pandas as pd
from pandas_datareader import data as web
import matplotlib.pyplot as plt
```

In [ ]:

In [4]:
```python
# import fund data before covid from web

tickers = ['0P0000XV6I.BO']
kotak1 = pd.DataFrame()
for k in tickers:

 kotak1[k] = web.DataReader(k,'yahoo', start = '2018-1-1', end = '2019-12-30')['Adj
```

In [5]:
```python
kotak1
```

Out[5]:

Date	0P0000XV6I.BO
2018-01-01	88.976997
2018-01-02	88.303001
2018-01-03	88.819000
2018-01-04	89.761002
2018-01-05	90.764999
...	...
2019-12-23	77.971001
2019-12-24	77.851997
2019-12-26	78.108002
2019-12-27	78.805000
2019-12-30	79.246002

486 rows × 1 columns

In [29]:
```python
kotak1.describe()
```

Out[29]:

	0P0000XV6I.BO
count	486.000000
mean	77.616876
std	5.444684
min	67.924004
25%	73.273247
50%	77.267998

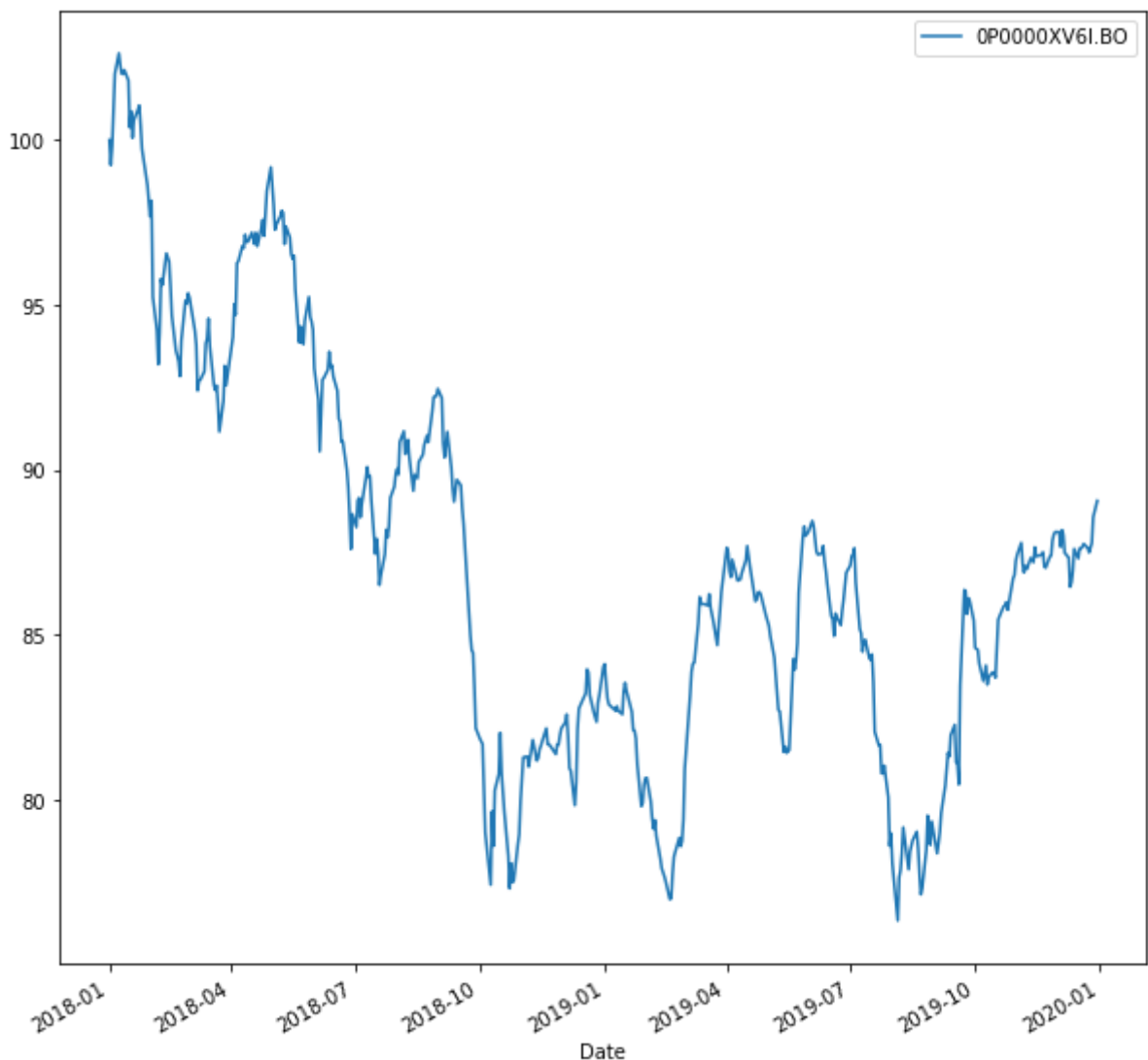|	0P0000XV6I.BO
75%	81.121000
max	91.317001

In [6]:
```python
# normlizie to 100
kotak1.iloc[0]
```

Out[6]:
```
0P0000XV6I.BO    88.976997
Name: 2018-01-01 00:00:00, dtype: float64
```

In [7]:
```python
(kotak1/kotak1.iloc[0]*100).plot(figsize = (10,10))
```

Out[7]:
```
<AxesSubplot:xlabel='Date'>
```


In [8]:
```python
# import fund data during covid from web
tickers = ['0P0000XV6I.BO']
kotak2 = pd.DataFrame()
for k in tickers:

    kotak2[k] = web.DataReader(k,'yahoo', start = '2020-1-1', end = '2021-12-30')['Adj
```

In [9]:
```python
kotak2
```

Out[9]:

	0P0000XV6I.BO
Date	
2020-01-01	79.869003
2020-01-02	80.761002
2020-01-03	81.221001
2020-01-06	80.144997
2020-01-07	80.852997
...	...
2021-12-24	183.302994
2021-12-27	183.095001
2021-12-28	185.001007
2021-12-29	186.033005
2021-12-30	186.106995

496 rows × 1 columns

In [30]:
```
kotak2.describe()
```

Out[30]:

	0P0000XV6I.BO
count	496.000000
mean	117.432246
std	42.597974
min	54.231998
25%	82.910753
50%	108.293499
75%	156.659504
max	193.117996

In [10]:
```
kotak1_re = (kotak1/kotak1.shift(1))-1
kotak1_re.head(2)
```

Out[10]:

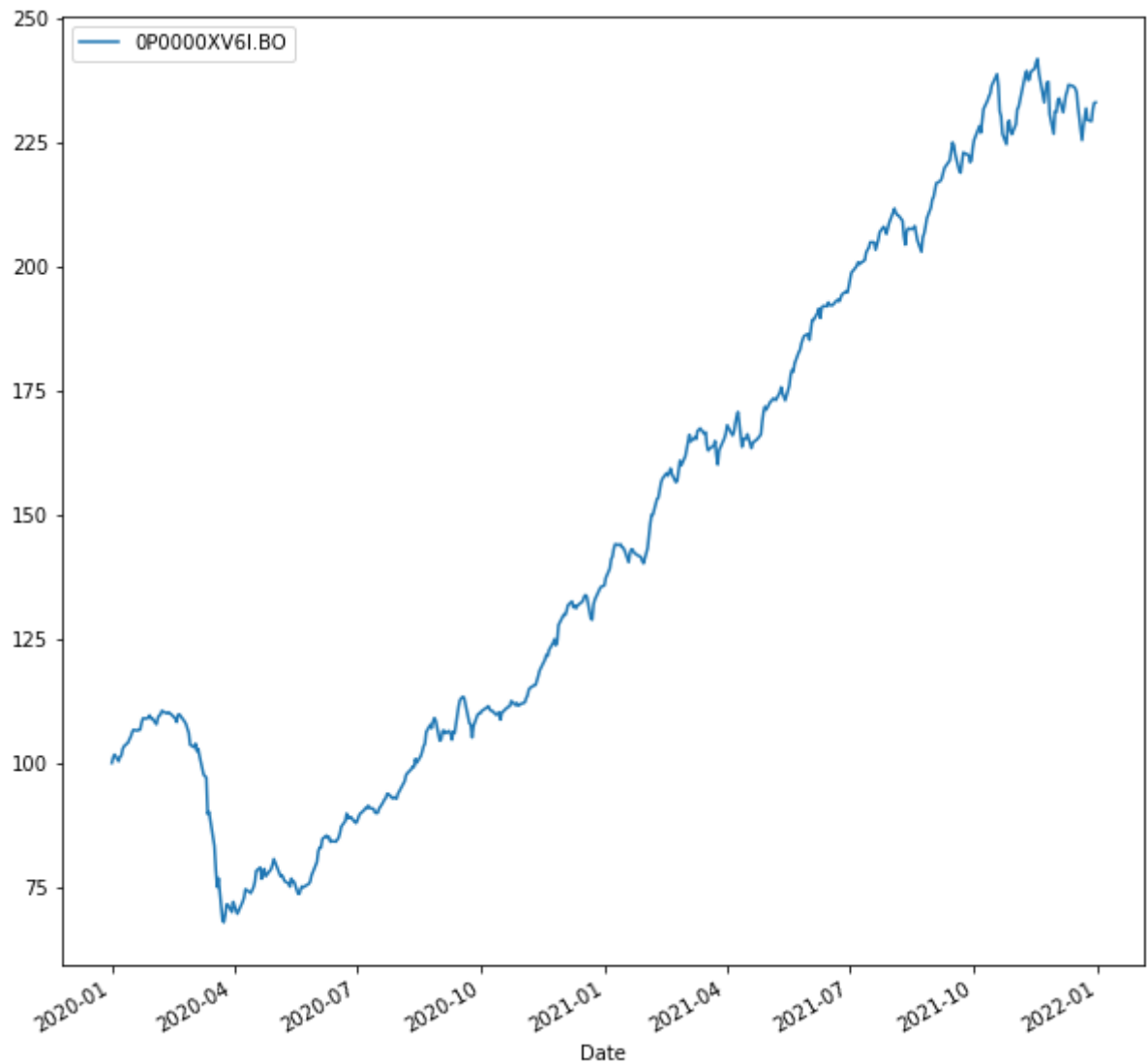|	0P0000XV6I.BO
Date	
2018-01-01	NaN
2018-01-02	-0.007575

In [11]:
```
# normalize to 100
kotak2.iloc[0]
```

0P0000XV6I.BO   79.869003

Out[11]: `Name: 2020-01-01 00:00:00, dtype: float64`

In [12]:
```python
(kotak2/kotak2.iloc[0]*100).plot(figsize=(10,10))
```

Out[12]: `<AxesSubplot:xlabel='Date'>`

In [13]:
```python
plt.plot(kotak1)
plt.plot(kotak2)
plt.show()
```
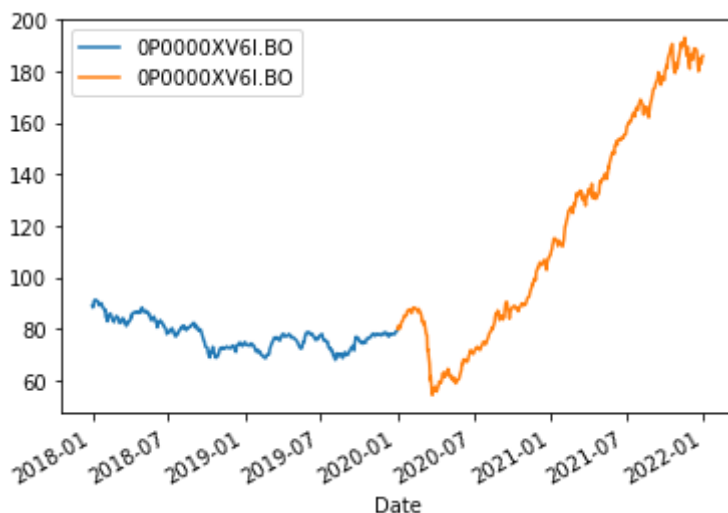
In [14]:
```python
# comparing data before and during covid

ax= kotak1.plot()

kotak2.plot(ax=ax)
```

Out[14]: `<AxesSubplot:xlabel='Date'>`

In [15]:
```python
kotak1_risk = (kotak1/kotak1.shift(1))-1
kotak1_risk.head(2)
```

Out[15]:
0P0000XV6I.BO

Date	
2018-01-01	NaN
2018-01-02	-0.007575

In [17]:
```python
kotak1_ret = kotak1_risk.mean() *250
kotak1_ret
```

Out[17]:
```
0P0000XV6I.BO    -0.051431
dtype: float64
```

In [18]:
```python
final_ret1 = (round(kotak1_ret,4) *100)
final_ret1
```

Out[18]:
```
0P0000XV6I.BO    -5.14
dtype: float64
```

In [19]:
```python
kotak1_risk = kotak1_risk.std()*250**0.5
kotak1_risk
```

Out[19]:
```
0P0000XV6I.BO     0.128834
dtype: float64
```

In [20]:
```python
final_risk1 =(round(kotak1_risk,4)*100)
final_risk1
```

Out[20]:
```
0P0000XV6I.BO    12.88
dtype: float64
```

In [21]:
```python
k1 = pd.DataFrame({'Returns': final_ret1,'Risk': final_risk1})
k1
```

Out[21]:

	Returns	Risk
0P0000XV6I.BO	-5.14	12.88

In [22]:
```python
kotak2_risk = (kotak2/kotak2.shift(1))-1
kotak2_risk.head(2)
```

Out[22]:

0P0000XV6I.BO

Date	
2020-01-01	NaN
2020-01-02	0.011168

In [23]:
```python
kotak2_ret = kotak2_risk.mean() *250
kotak2_ret
```

Out[23]:
```
0P0000XV6I.BO    0.449026
dtype: float64
```

In [24]:
```python
final_ret2 =(round(kotak2_ret,4)*100)
final_ret2
```

Out[24]:
```
0P0000XV6I.BO    44.9
dtype: float64
```

In [25]:
```python
kotak2_risk = kotak2_risk.std() * 250 ** 0.5
kotak2_risk
```

Out[25]:
```
0P0000XV6I.BO    0.205173
dtype: float64
```

In [26]:
```python
final_risk2 = round(kotak2_risk,4)*100
final_risk2
```

Out[26]:
```
0P0000XV6I.BO    20.52
dtype: float64
```

In [27]:
```python
k2 = pd.DataFrame({'Returns' :final_ret2,'Risk' :final_risk2})
k2
```

Out[27]:

	Returns	Risk
0P0000XV6I.BO	44.9	20.52

In [28]:
```python
k2.append()
```

Out[28]:

	Returns	Risk
0P0000XV6I.BO	44.90	20.52
0P0000XV6I.BO	-5.14	12.88

In [ ]:

In [ ]: