In [1]:
```
import pandas as pd
```

In [2]:
```
pip install quandl
```

```
Requirement already satisfied: quandl in c:\users\junhe\anaconda3\lib\site-pa
ckages (3.5.0)
Requirement already satisfied: inflection>=0.3.1 in c:\users\junhe\anaconda3
\lib\site-packages (from quandl) (0.4.0)
Requirement already satisfied: python-dateutil in c:\users\junhe\anaconda3\li
b\site-packages (from quandl) (2.8.0)
Requirement already satisfied: requests>=2.7.0 in c:\users\junhe\anaconda3\li
b\site-packages (from quandl) (2.22.0)
Requirement already satisfied: more-itertools in c:\users\junhe\anaconda3\lib
\site-packages (from quandl) (7.2.0)
Requirement already satisfied: pandas>=0.14 in c:\users\junhe\anaconda3\lib\s
ite-packages (from quandl) (0.25.1)
Requirement already satisfied: numpy>=1.8 in c:\users\junhe\anaconda3\lib\sit
e-packages (from quandl) (1.16.5)
Requirement already satisfied: six in c:\users\junhe\anaconda3\lib\site-packa
ges (from quandl) (1.12.0)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\junhe\anaconda3
\lib\site-packages (from requests>=2.7.0->quandl) (2019.9.11)
Requirement already satisfied: idna<2.9,>=2.5 in c:\users\junhe\anaconda3\lib
\site-packages (from requests>=2.7.0->quandl) (2.8)
Requirement already satisfied: urllib3!=1.25.0,!=1.25.1,<1.26,>=1.21.1 in
c:\users\junhe\anaconda3\lib\site-packages (from requests>=2.7.0->quandl) (1.
24.2)
Requirement already satisfied: chardet<3.1.0,>=3.0.2 in c:\users\junhe\anacon
da3\lib\site-packages (from requests>=2.7.0->quandl) (3.0.4)
Requirement already satisfied: pytz>=2017.2 in c:\users\junhe\anaconda3\lib\s
ite-packages (from pandas>=0.14->quandl) (2019.3)
Note: you may need to restart the kernel to use updated packages.
```

In [3]:
```
import quandl
```

In [4]:
```
mydata = quandl.get("BOE/XUDLBK93", authtoken="W_5enFAPeCixzYcm_cT4")
```

In [5]:
```
mydata
```

Out[5]:

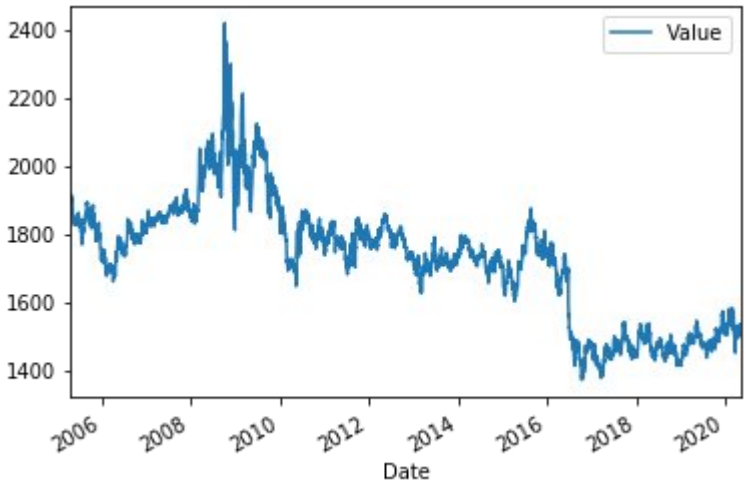
| Date | Value |
|---|---|
| 2005-04-27 | 1909.9607 |
| 2005-04-28 | 1914.5745 |
| 2005-04-29 | 1904.4610 |
| 2005-05-03 | 1895.4267 |
| 2005-05-04 | 1893.5406 |
| ... | ... |
| 2020-05-06 | 1517.9671 |
| 2020-05-07 | 1503.0564 |
| 2020-05-11 | 1512.3967 |
| 2020-05-12 | 1507.9097 |
| 2020-05-13 | 1496.6336 |

3804 rows × 1 columns

In [6]:
```
import matplotlib.pyplot as plt
%matplotlib inline
```

In [7]:
```
mydata.plot()
```

Out[7]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x1da921e9208>
```




In [8]:
```
mydata = quandl.get("BOE/XUDLBK93", authtoken="W_5enFAPeCixzYcm_cT4",returns
="numpy")
```

In [9]:
```
mydata
```

Out[9]:
```
rec.array([('2005-04-27T00:00:00.000000000', 1909.9607),
           ('2005-04-28T00:00:00.000000000', 1914.5745),
           ('2005-04-29T00:00:00.000000000', 1904.461 ), ...,
           ('2020-05-11T00:00:00.000000000', 1512.3967),
           ('2020-05-12T00:00:00.000000000', 1507.9097),
           ('2020-05-13T00:00:00.000000000', 1496.6336)],
          dtype=[('Date', '<M8[ns]'), ('Value', '<f8')])
```

In [10]:
```
mydata = quandl.get("BOE/XUDLBK93", authtoken="W_5enFAPeCixzYcm_cT4",start_da
te="2015-01-01",end_date="2020-05-12")
```

In [11]:
```
mydata.head(10)
```

Out[11]:

| Date | Value |
|---|---|
| 2015-01-02 | 1702.0821 |
| 2015-01-05 | 1690.7256 |
| 2015-01-06 | 1670.4901 |
| 2015-01-07 | 1661.7351 |
| 2015-01-08 | 1654.6764 |
| 2015-01-09 | 1647.2541 |
| 2015-01-12 | 1641.6076 |
| 2015-01-13 | 1642.1798 |
| 2015-01-14 | 1646.0770 |
| 2015-01-15 | 1637.2643 |

In [12]:
```
mydata = quandl.get("BOE/XUDLBK93", authtoken="W_5enFAPeCixzYcm_cT4",collapse
="monthly")
```

In [13]:
```
mydata
```

Out[13]:

| Date | Value |
|---|---|
| 2005-04-30 | 1904.4610 |
| 2005-05-31 | 1832.5238 |
| 2005-06-30 | 1852.5487 |
| 2005-07-31 | 1801.7243 |
| 2005-08-31 | 1871.8595 |
| ... | ... |
| 2020-01-31 | 1578.5806 |
| 2020-02-29 | 1544.9761 |
| 2020-03-31 | 1512.1738 |
| 2020-04-30 | 1525.0126 |
| 2020-05-31 | 1496.6336 |

182 rows × 1 columns

In [14]:
```
mydata = quandl.get("BOE/XUDLBK93", authtoken="W_5enFAPeCixzYcm_cT4",collapse
="weekly")
```

In [15]:
```
mydata
```

Out[15]:

| Date | Value |
|---|---|
| 2005-05-01 | 1904.4610 |
| 2005-05-08 | 1895.4389 |
| 2005-05-15 | 1849.1054 |
| 2005-05-22 | 1838.2845 |
| 2005-05-29 | 1824.4118 |
| ... | ... |
| 2020-04-19 | 1522.4933 |
| 2020-04-26 | 1522.8300 |
| 2020-05-03 | 1534.4856 |
| 2020-05-10 | 1503.0564 |
| 2020-05-17 | 1496.6336 |

786 rows × 1 columns

In [16]:
```
mydata = quandl.get("BOE/XUDLBK93", authtoken="W_5enFAPeCixzYcm_cT4",collapse
="annual")
```

In [17]:
```
mydata
```

Out[17]:

| Date | Value |
|---|---|
| 2005-12-31 | 1723.4664 |
| 2006-12-31 | 1820.0100 |
| 2007-12-31 | 1863.4824 |
| 2008-12-31 | 1810.7291 |
| 2009-12-31 | 1882.9779 |
| 2010-12-31 | 1753.2817 |
| 2011-12-31 | 1792.1618 |
| 2012-12-31 | 1719.6932 |
| 2013-12-31 | 1744.9023 |
| 2014-12-31 | 1701.3032 |
| 2015-12-31 | 1743.5294 |
| 2016-12-31 | 1478.5130 |
| 2017-12-31 | 1440.8145 |
| 2018-12-31 | 1423.8712 |
| 2019-12-31 | 1525.2530 |
| 2020-12-31 | 1496.6336 |

In [18]:
```
mydata = quandl.get("BOE/XUDLBK93", authtoken="W_5enFAPeCixzYcm_cT4",transfor
mation="rdiff")
```

In [19]:
```
mydata
```

Out[19]:

| Date | Value |
|---|---|
| 2005-04-28 | 0.002416 |
| 2005-04-29 | -0.005282 |
| 2005-05-03 | -0.004744 |
| 2005-05-04 | -0.000995 |
| 2005-05-05 | 0.005539 |
| ... | ... |
| 2020-05-06 | -0.001271 |
| 2020-05-07 | -0.009823 |
| 2020-05-11 | 0.006214 |
| 2020-05-12 | -0.002967 |
| 2020-05-13 | -0.007478 |

3803 rows × 1 columns

In [20]:
```
series = quandl.get("BOE/XUDLBK93", authtoken="W_5enFAPeCixzYcm_cT4",start_da
te="2005-01-01",end_date="2020-05-12")
```

In [21]:
```
import matplotlib.font_manager as fm
font1= {'family':'Consolas','size':30,'color':'black'}
font2= {'family':'Verdana','size':22,'color':'darkred'}
font3= {'family':'Candara','size':22,'color':'blue'}


plt.figure(figsize = (20,10))
plt.plot(series, color='green')


plt.title('Spot Exchange Rate, South Korean Won Into Sterling',fontdict=font
1)
plt.ylabel('Price (£)',fontdict=font2)
plt.xlabel('date',fontdict=font3)
plt.show()
```


In [ ]: