台積電股市成長圖

整理表格成只有Date和Close的表格並畫圖標示

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

In [2]:
```
stockNo = '2330.TW'
start_date = '2020-01-01'
df = yf.download(stockNo, start=start_date)
df = df.reset_index()
df
```

```
[**********100%**********]  1 of 1 completed
```

Out[2]:

	Date	Open	High	Low	Close	Adj Close	Volume
0	2020-01-02	332.5	339.0	332.5	339.0	329.640198	31754120
1	2020-01-03	344.0	345.0	335.5	339.5	330.126404	41811268
2	2020-01-06	333.0	334.5	332.0	332.0	322.833496	45343057
3	2020-01-07	332.5	333.0	326.5	329.5	320.402496	50879181
4	2020-01-08	325.0	333.0	325.0	329.5	320.402496	37567748
...	...	...	...	...	...	...	...
269	2021-02-05	638.0	641.0	631.0	632.0	632.000000	53267273
270	2021-02-17	663.0	668.0	660.0	663.0	663.000000	107614290
271	2021-02-18	664.0	665.0	656.0	660.0	660.000000	53109010
272	2021-02-19	656.0	657.0	647.0	652.0	652.000000	50279585
273	2021-02-22	660.0	662.0	650.0	650.0	650.000000	37102468

274 rows × 7 columns

In [3]:
```
import matplotlib.pyplot as plt
import seaborn; seaborn.set()
```

In [4]:
```
aveng_close = df['Close'].mean() # 觀測平均值
plt.figure(figsize=(15, 5))
plt.plot(df['Date'], df['Close'], label='TW')
plt.axhline(y = aveng_close, color='r', ls='--', alpha=0.5, label='aveng_close') #製作平均值虛線
plt.title('TW Stock', fontsize=20, color='g')
plt.xlabel('DATE', fontsize=15, color='g')
plt.ylabel('CLOSE', fontsize=15, color='g')
plt.legend(facecolor='white', fontsize=20)
plt.show()
```

In [5]:
```
df2 = df.tail(9) # 為了製作近期2月圖示，抓取後9個
df2 = df2.set_index('Date') #index設定為Date
df2
```

Out[5]:

Date	Open	High	Low	Close	Adj Close	Volume
2021-02-01	595.0	612.0	587.0	611.0	611.0	67462398
2021-02-02	629.0	638.0	622.0	632.0	632.0	78429188
2021-02-03	638.0	642.0	630.0	630.0	630.0	48738970
2021-02-04	626.0	632.0	620.0	627.0	627.0	46371900
2021-02-05	638.0	641.0	631.0	632.0	632.0	53267273
2021-02-17	663.0	668.0	660.0	663.0	663.0	107614290
2021-02-18	664.0	665.0	656.0	660.0	660.0	53109010
2021-02-19	656.0	657.0	647.0	652.0	652.0	50279585
2021-02-22	660.0	662.0	650.0	650.0	650.0	37102468

In [6]:
```
aveng_close = df2['Close'].mean()
plt.figure(figsize=(15, 5))
plt.plot(df2['Close'], label='2330.TW')
plt.axhline(y = aveng_close, color='r', ls='--', alpha=0.5, label='aveng_close')
plt.fill_between(df2.index, aveng_close, df2['Close'],
                 where=df2['Close'] >= aveng_close, color='gray',
                 alpha=0.5, interpolate=True)  #填補顏色強調成長趨勢
#增添箭頭及註釋文字
date_0222 = df2.index[-1] #以日期為x
plt.annotate(
    'Keep going down',
    xy=(date_0222, 650),
    xycoords='data',
    xytext=(date_0222, 660),
    textcoords='data',
    horizontalalignment='center',
    arrowprops=dict(facecolor='r', arrowstyle='fancy')
)

plt.title('TW Stock', fontsize=20, color='g')
plt.xlabel('DATE', fontsize=15, color='g')
plt.ylabel('CLOSE', fontsize=15, color='g')
plt.legend(facecolor='white', fontsize=20)
plt.show()
```