Assignment 5

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

In [3]:
```
unemployment = pd.read_csv("UNRATE.csv")
inflation = pd.read_csv("T10YIE.csv")
```

In [11]:
```
unemployment['DATE'].dtype
```

Out[11]:
```
dtype('O')
```

In [5]:
```
inflation.head()
```

Out[5]:

	DATE	T10YIE
0	2008-09-08	1.98
1	2008-09-09	1.93
2	2008-09-10	1.95
3	2008-09-11	1.97
4	2008-09-12	1.95

In [12]:
```
unemployment['DATE'] = pd.to_datetime(unemployment['DATE'])
inflation['DATE'] = pd.to_datetime(inflation['DATE'])
```

In [15]:
```
unemployment.sort_values(by = 'DATE').head(20)
```

Out[15]:

	DATE	UNRATE
0	1948-01-01	3.4
1	1948-02-01	3.8
2	1948-03-01	4.0
3	1948-04-01	3.9
4	1948-05-01	3.5
5	1948-06-01	3.6
6	1948-07-01	3.6
7	1948-08-01	3.9
8	1948-09-01	3.8
9	1948-10-01	3.7
10	1948-11-01	3.8
11	1948-12-01	4.0
12	1949-01-01	4.3
13	1949-02-01	4.7
14	1949-03-01	5.0
15	1949-04-01	5.3
16	1949-05-01	6.1
17	1949-06-01	6.2
18	1949-07-01	6.7
19	1949-08-01	6.8

In [16]:
```
df = unemployment.merge(inflation, on="DATE", how="left")
```

In [17]:
```
df.head()
```

Out[17]:

	DATE	UNRATE	T10YIE
0	1948-01-01	3.4	NaN
1	1948-02-01	3.8	NaN
2	1948-03-01	4.0	NaN
3	1948-04-01	3.9	NaN
4	1948-05-01	3.5	NaN

In [18]:
```
df.dropna(inplace=True)
```

In [32]:
```
df['T10YIE'] = df['T10YIE'].str.strip()
```

In [34]:
```
df = df[df['T10YIE'] != '.']
```

In [ ]:
```
df['T10YIE'] = df['T10YIE'].astype('float')
```

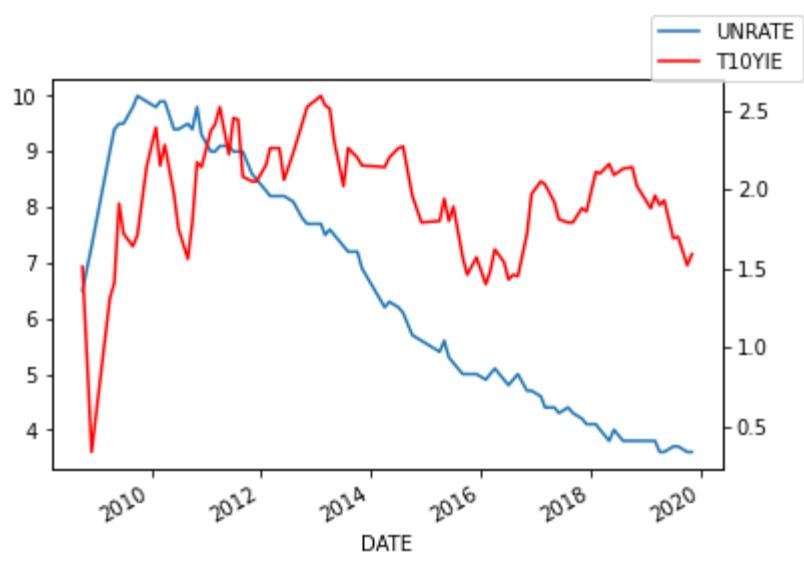
In [37]:
```
df.describe
```

Out[37]:
```
<bound method NDFrame.describe of           DATE  UNRATE  T10YIE
729 2008-10-01     6.5    1.51
731 2008-12-01     7.3    0.34
735 2009-04-01     9.0    1.31
736 2009-05-01     9.4    1.41
737 2009-06-01     9.5    1.91
..         ...     ...     ...
856 2019-05-01     3.6    1.93
858 2019-07-01     3.7    1.69
859 2019-08-01     3.7    1.70
861 2019-10-01     3.6    1.52
862 2019-11-01     3.6    1.59

[87 rows x 3 columns]>
```

In [38]:
```
print(f"Correlation between unemployment rate and inflation: {df['UNRATE'].corr(df['T10YIE'])}")
```

```
Correlation between unemployment rate and inflation: 0.28597575434797057
```

In [40]:
```
import seaborn as sns
import matplotlib.pyplot as plt

ax = df.plot(x="DATE", y="UNRATE", legend=False)
ax2 = ax.twinx()
df.plot(x="DATE", y="T10YIE", ax=ax2, legend=False, color="r")
ax.figure.legend()
plt.show()
```



In [ ]:
```
```