In [2]:
```
import pandas as pd
from prophet import Prophet
import matplotlib.pyplot as plt
```

In [3]:
```
file_path = r"C:\Users\HP\OneDrive\Desktop\NLP\Data\ML471_S4_Datafile_Practice.c
df = pd.read_csv(file_path)
```

In [4]:
```
df['Date'] = pd.to_datetime(df['Date'])

prophet_df = df[['Date', 'Close', 'Volume']].copy()
prophet_df.rename(columns={'Date': 'ds', 'Close': 'y'}, inplace=True)
```

In [5]:
```
train_size = int(len(prophet_df) * 0.8)
train_df = prophet_df.iloc[:train_size]
```

In [6]:
```
model = Prophet(
    yearly_seasonality=True,
    weekly_seasonality=False,
    daily_seasonality=False
)

model.add_regressor('Volume')

model.fit(train_df)
```

```
08:56:55 - cmdstanpy - INFO - Chain [1] start processing
08:56:55 - cmdstanpy - INFO - Chain [1] done processing
```

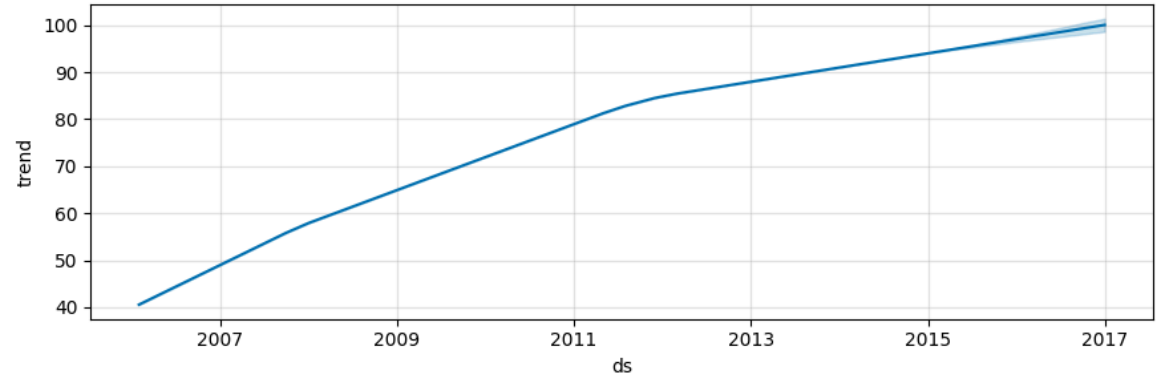
Out[6]:
```
<prophet.forecaster.Prophet at 0x22245340590>
```

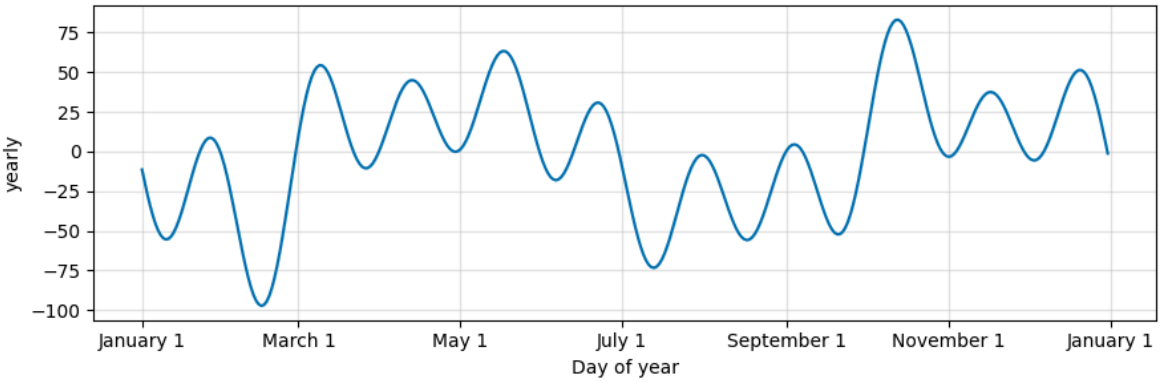
In [7]:
```
future = model.make_future_dataframe(
    periods=len(prophet_df) - train_size,
    freq='M'
)

future['Volume'] = prophet_df['Volume'].values
```

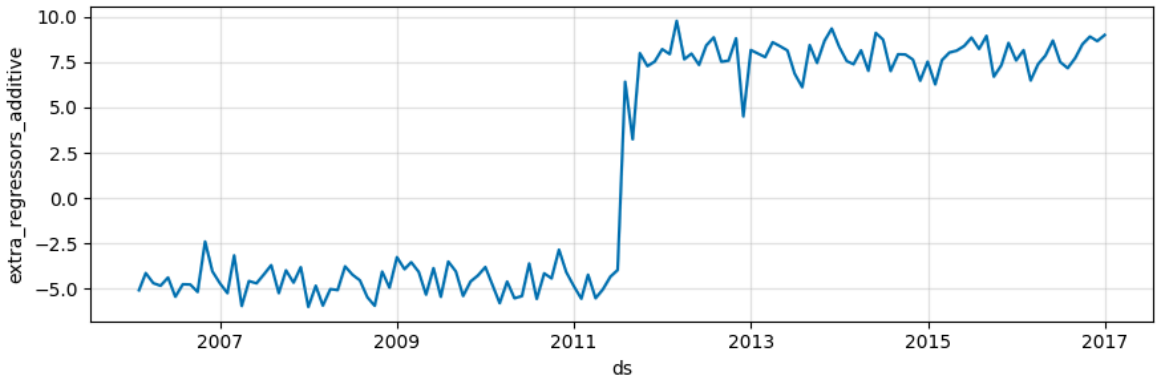
```
c:\Users\HP\AppData\Local\Programs\Python\Python312\Lib\site-packages\prophet\for
ecaster.py:1875: FutureWarning: 'M' is deprecated and will be removed in a future
version, please use 'ME' instead.
  dates = pd.date_range(
```

In [8]:
```
forecast = model.predict(future)
```

In [9]:
```
model.plot_components(forecast)
plt.show()
```


trend
100
90
80
70
60
50
40
2007
2009
2011
2013
2015
2017
ds


yearly
75
50
25
0
−25
−50
−75
−100
January 1
March 1
May 1
July 1
September 1
November 1
January 1
Day of year


extra_regressors_additive
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
2007
2009
2011
2013
2015
2017
ds