# Import packages

import pandas as pd

import numpy as np

import matplotlib.pyplot as plt

# Create df variable and call df.head

df = pd.read\_csv('RSFHFSN (1).csv',parse\_dates=True,index\_col=0)

df.head()

# Plot df

df.plot()

A graph showing a line of blue lines

Description automatically generated

# imported ETS model package

from statsmodels.tsa.exponential\_smoothing.ets import ETSModel

# Change freq index to “MS”

df.index.freq = 'MS'

# Create different models based on error and seasonal parameters

model1 = ETSModel(df['RSFHFSN'],error='additive',initialization\_method='estimated')

fit1 = model1.fit()

fcast1 = fit1.forecast(12)

model2 = ETSModel(df['RSFHFSN'],error='multiplicative',initialization\_method='estimated')

fit2 = model2.fit()

fcast2 = fit2.forecast(12)

model3 = ETSModel(df['RSFHFSN'],error='additive',seasonal='additive',initialization\_method='estimated')

fit3 = model3.fit()

fcast3 = fit3.forecast(12)

model4 = ETSModel(df['RSFHFSN'],error='multiplicative',seasonal='multiplicative',initialization\_method='estimated')

fit4 = model4.fit()

fcast4 = fit4.forecast(12)

model5 = ETSModel(df['RSFHFSN'],error='multiplicative',seasonal='additive',initialization\_method='estimated')

fit5 = model5.fit()

fcast5 = fit5.forecast(12)

model6 = ETSModel(df['RSFHFSN'],error='additive',seasonal='multiplicative',initialization\_method='estimated')

fit6 = model6.fit()

fcast6 = fit6.forecast(12)

# Plot all the models alongside the original data

df.plot(label='Original Data')

fcast1.plot(label='Fcast Simple Exp A Error')

fcast2.plot(label='Fcast Simple Exp M Error')

fcast3.plot(label='Fcast Simple Exp (A,A)')

fcast4.plot(label='Fcast Simple Exp (M,M)')

fcast5.plot(label='Fcast Simple Exp (M,A)')

fcast6.plot(label='Fcast Simple Exp (A,M)')

plt.legend()

plt.show()

A graph with blue lines and text

Description automatically generated