

Stock_Alpha_Chart

September 29, 2021

1 Stock Alpha Chart

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[1]: # Library
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt

import warnings
warnings.filterwarnings("ignore")

from pandas_datareader import data as pdr
import yfinance as yf
yf.pdr_override()

[2]: start = '2016-01-01' #input
end = '2020-07-01' #input
symbol1 = '^GSPC' #input
symbol2 = 'AMD' #input

[3]: market = yf.download(symbol1, start=start, end=end)['Adj Close']
stocks = yf.download(symbol2, start=start, end=end)['Adj Close']

[*****100%*****] 1 of 1 completed
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[4]: market_returns = market.pct_change().dropna()
stocks_returns = stocks.pct_change().dropna()

[5]: def alpha(stocks_returns , market_returns):
    m = np.matrix([stocks_returns , market_returns])
    beta = np.cov(m)[0][1] / np.std(market_returns)
    alpha = np.mean(stocks_returns ) - beta * np.mean(market_returns)
    return alpha

[6]: # Compute the running Alpha
running = [alpha(stocks_returns[i-90:i], market_returns[i-90:i]) for i in
↳range(90, len(stocks_returns))]
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# Plot running Alpha up to 100 days before the end of the data set
_, ax1 = plt.subplots(figsize=(12,8))
ax1.plot(range(90, len(stocks_returns)-100), running[: -100])
ticks = ax1.get_xticks()
ax1.set_xticklabels([stocks.index[int(i)].date() for i in ticks[: -1]]) # Label
    ↳ x-axis with dates
plt.title(symbol1 + ' Alpha')
plt.xlabel('Date')
plt.ylabel('Alpha')

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[6]: Text(0, 0.5, 'Alpha')

