Stock_Appraisal_Ratio_Chart

September 29, 2021

1 Stock Appraisal Ratio Chart

[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 = '2019-01-01' #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']
```

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

[4]:
```
market_returns = market.pct_change().dropna()
stocks_returns = stocks.pct_change().dropna()
```

[5]:
```
# risk free
rf = yf.download('BIL', start=start, end=end)['Adj Close'].pct_change()[1:]
```

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[**********************100%**********************]  1 of 1 completed
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[11]:
```
def appraisal_ratio(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)
```

```
    stock_risk = stocks_returns.std()
    market_risk = market_returns.std()
    Unsystematic_risk = stock_risk - beta*market_risk
    appraisal_r = alpha / Unsystematic_risk
    return appraisal_r
```

[12]:
```
# Compute the running Appraisal Ratio
running = [appraisal_ratio(stocks_returns[i-90:i], market_returns[i-90:i]) for␣
 ↪i in range(90, len(stocks_returns))]

# Plot running Appraisal Ratio 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 + ' Appraisal Ratio')
plt.xlabel('Date')
plt.ylabel('Sterling Ratio')
```

[12]:
```
Text(0, 0.5, 'Sterling Ratio')
```