Stock_Kelly_Fraction_Chart

September 29, 2021

1 Stock Kelly Fraction Chart

```python
[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()
```

```python
[2]: start = '2019-01-01' #input
     end = '2020-07-01' #input
     symbol = 'AMD' #input
```

```python
[3]: stocks = yf.download(symbol, start=start, end=end)['Adj Close']
```

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

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

```python
[5]: def kelly_fraction(stock_returns):
         # returns = np.array(stock_returns)
         wins = stock_returns[stock_returns > 0]
         losses = stock_returns[stock_returns <= 0]
         W = len(wins) / len(stock_returns)
         R = np.mean(wins) / np.abs(np.mean(losses))
         kelly_f = W - ( (1 - W) / R )
         return kelly_f
```
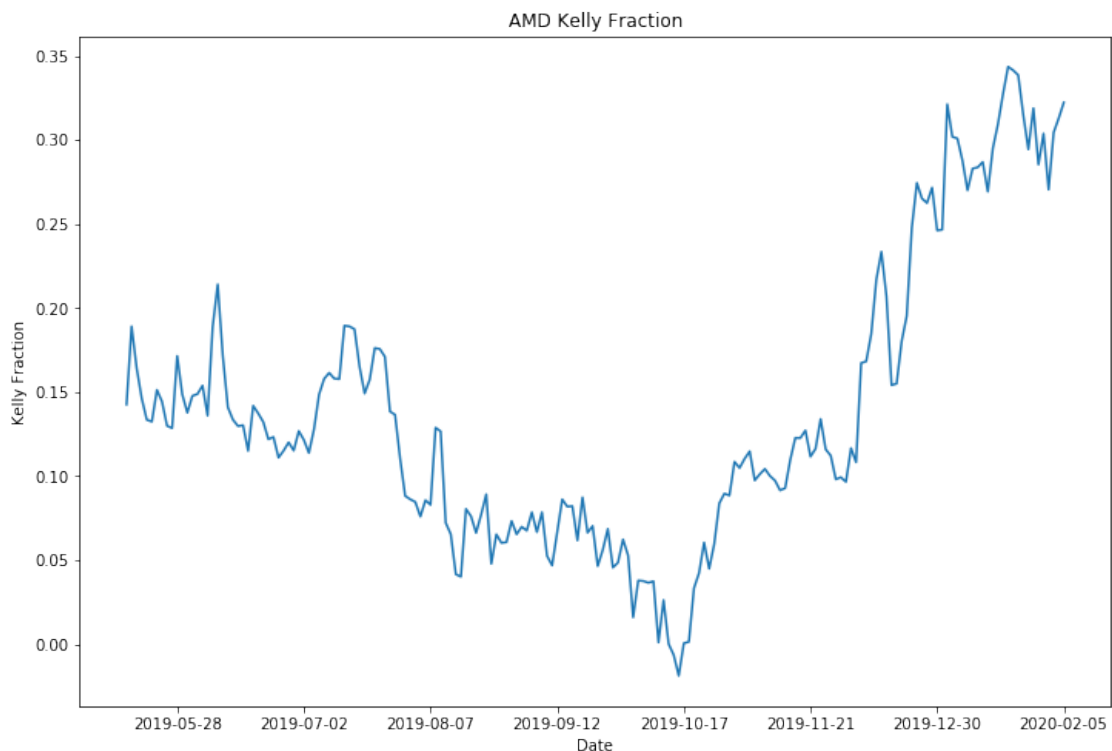
```python
[6]: # Compute the running Kelly Fraction
     running = [kelly_fraction(stocks_returns[i-90:i]) for i in range(90,
      →len(stocks_returns))]
```

```
# Plot running Kelly Fraction 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(symbol + ' Kelly Fraction')
plt.xlabel('Date')
plt.ylabel('Kelly Fraction')
```

[6]: Text(0, 0.5, 'Kelly Fraction')

[7]: ```
kf = kelly_fraction(stocks_returns)
kf
```

[7]: 0.12757930844285986

[8]: ```
running
```

[8]: [0.14264599630942115,
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