Trading & Financial Analysis

Team: Four-ward Thinking

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Project Overview

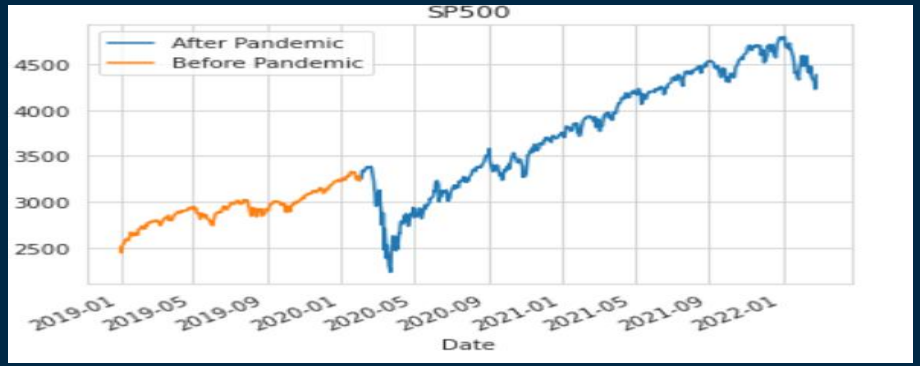
- Financial Analysis
- Build and test the Moving Average trading strategy
- Analyze the movement of the stocks using Value at Risk (VaR) and test the relationship with other macro indicators analysis

Trend Analysis

"The trend is your friend except at the end where it bends."

—Ed Seykota

Trend Analysis

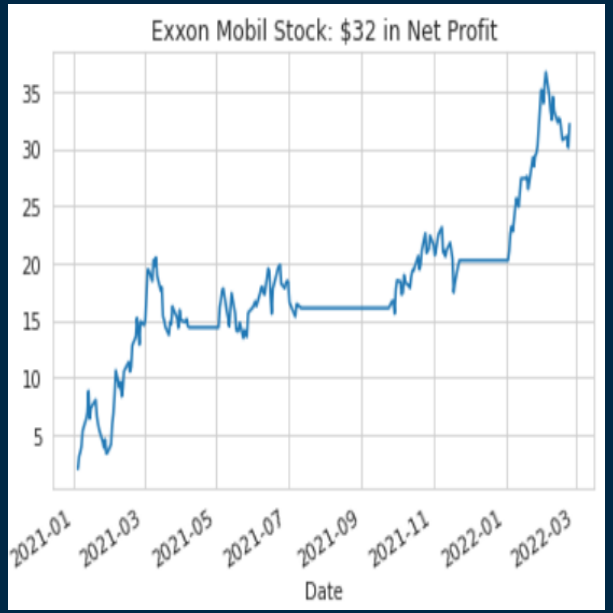


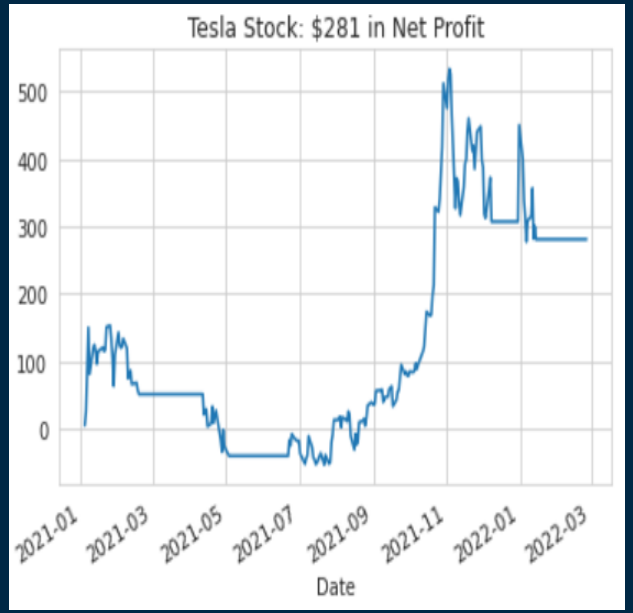
Trading Strategy

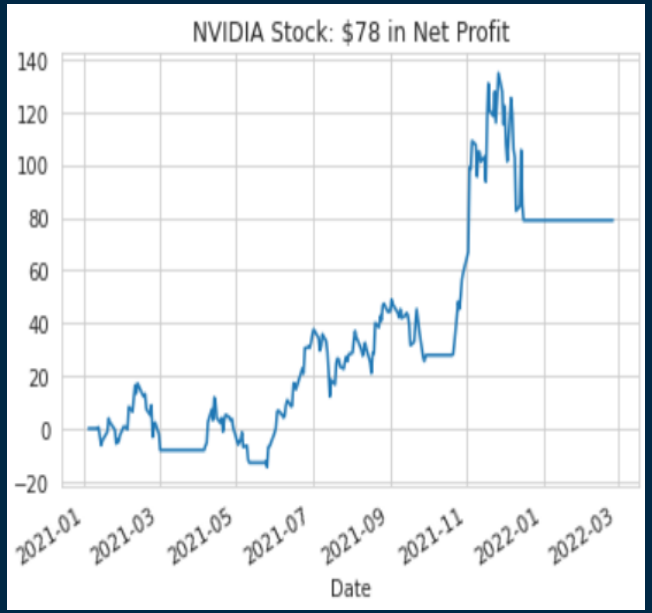
Moving Average (MA) Visualization

Trading Strategy

Cumulative Net Profit (01/2021 – 02/2022)







Trading Strategy

Value At Risk (VaR)

VaR	Tesla	NVIDIA	Exxon Mobil
5% quantile	- 6.6%	- 4.8%	- 3.7%

Macro-level Analysis

Auto-Regressive Integrated Moving Average (ARIMA) Model

NVIDIA Stock:

Dep. Variable:	Close_nvda	**No. Observations:**	787
Model:	ARIMA(3, 0, 3)	**Log Likelihood**	-2303.593
Date:	Tue, 22 Mar 2022	**AIC**	4623.186
Time:	13:43:37	**BIC**	4660.532
Sample:	0	**HQIC**	4637.544
	- 787		
Covariance Type:	opg		

	coef	std err	z	P>|z|	[0.025	0.975]
const	120.6304	84.797	1.423	0.155	-45.569	286.830
ar.L1	1.5013	0.136	11.004	0.000	1.234	1.769
ar.L2	-0.1735	0.262	-0.663	0.508	-0.687	0.340
ar.L3	-0.3281	0.141	-2.323	0.020	-0.605	-0.051
ma.L1	-0.5746	0.133	-4.306	0.000	-0.836	-0.313
ma.L2	-0.3925	0.148	-2.646	0.008	-0.683	-0.102
ma.L3	0.1571	0.025	6.365	0.000	0.109	0.205
sigma2	20.2579	0.516	39.275	0.000	19.247	21.269

Ljung-Box (L1) (Q):	0.00	**Jarque-Bera (JB):**	2092.51
Prob(Q):	0.97	**Prob(JB):**	0.00
Heteroskedasticity (H):	41.52	**Skew:**	0.60
Prob(H) (two-sided):	0.00	**Kurtosis:**	10.90

Macro-level Analysis

Ordinary Least Squares (OLS) Model

NVIDIA Stock:

Dep. Variable:	growth_nvda	**R-squared (uncentered):**	0.085
Model:	OLS	**Adj. R-squared (uncentered):**	0.073
Method:	Least Squares	**F-statistic:**	7.147
Date:	Tue, 22 Mar 2022	**Prob (F-statistic):**	7.89e-11
Time:	13:43:42	**Log-Likelihood:**	-1962.9
No. Observations:	781	**AIC:**	3946.
Df Residuals:	771	**BIC:**	3992.
Df Model:	10		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
lag1_growth_oil_price	0.0139	0.027	0.517	0.605	-0.039	0.067
lag2_growth_oil_price	0.0692	0.027	2.571	0.010	0.016	0.122
lag3_growth_oil_price	0.0793	0.027	2.903	0.004	0.026	0.133
lag4_growth_oil_price	-0.0253	0.027	-0.925	0.355	-0.079	0.028
lag5_growth_oil_price	-0.0069	0.027	-0.251	0.802	-0.061	0.047
lag1_growth_sp	-0.5360	0.088	-6.113	0.000	-0.708	-0.364
lag2_growth_sp	0.0969	0.090	1.076	0.282	-0.080	0.274
lag3_growth_sp	0.0058	0.090	0.065	0.948	-0.170	0.182
lag4_growth_sp	0.0042	0.086	0.049	0.961	-0.165	0.174
lag5_growth_sp	0.0726	0.085	0.858	0.391	-0.094	0.239

Omnibus:	47.411	**Durbin-Watson:**	1.925
Prob(Omnibus):	0.000	**Jarque-Bera (JB):**	170.187
Skew:	-0.119	**Prob(JB):**	1.11e-37
Kurtosis:	5.274	**Cond. No.**	4.41

Moving Four-ward

Limitations

1.Last two years, the global economy witnessed unusual events from COVID to an expansionary monetary policy, which significantly affected financial markets.
2. Stock markets can be random and cannot be predicted using one strategy. Thus, using other trading strategies to complement these tools can produce better results.

Extensions

Modelling to Predict the future movements based on diffrenet macro and micro level indicators .

THANKS

Our GitHub Project Page: