Analysis of Stocks

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Table of Contents

Dataset Information

- Data contains the live stock value of 3 major companies. Microsoft, Apple and Tesla. S&P500 is presented as well

- Stock value was tracked live from 2018-2023 daily by Yahoo finance

- Values and percentage change is shown

- SP_500 is a stock market index used to track 500 companies stock performance in the United States

- Capital Asset Pricing model uses the slope coefficient β as a regression model for a measure of relative risk

- Calculated by excess return on stock(ex.app%chng) vs stock return on the market(S&P%chng)

Problem Statement

Stock play a significant role in the world of finance and investment. Deciding on which stocks to invest in can completely alter a person's life. They are critical to the financial well being of individuals and communities. Yet it is hard to determine how stocks will change after time.

Investment Decision-Making: stock reports provide crucial information and analysis that investors use to make informed investment decisions. They offer insights into the financial health, performance, and outlook of a company, helping investors assess whether a particular stock is a suitable addition to their portfolio.

Risk Assessment: Stock reports help investors evaluate the risk associated with a particular investment. They provide information about a company's financial stability, debt levels, and exposure to market risks, allowing investors to gauge the potential downside of an investment.

Performance Evaluation: Stock reports offer a historical and current performance analysis of a company's stock. Investors can assess how a stock has performed over time and compare it to benchmarks or industry peers to gauge its relative strength or weakness.

Microsoft

| Volume			Percentiles			Lower	Upper
							10000000
Mean	30235422.86		10%	18139870			
Standard Err	359526.7943		25%	22212475		10000000	20000000
Median	27058300		50%	27062700		20000000	30000000
Mode	34620200		75%	34372075		30000000	40000000
Standard De	12827601.63		90%	45951930		40000000	50000000
Sample Vari	1.64547E+14		95%	55538940		50000000	60000000
Kurtosis	5.811679524		99%	81805605		60000000	70000000
Skewness	2.023029715					70000000	80000000
Range	102252900					80000000	90000000
Minimum	8989200					90000000	100000000
Maximum	111242100					1E+08	110000000
Sum	38489693300					1.1E+08	120000000
Count	1273					1.2E+08	130000000
Largest(1)	111242100						
Smallest(1)	8989200						
Confidence	705330.6941						

Bin	Frequency
10000000	2
20000000	212
30000000	564
40000000	308
50000000	102
60000000	42
70000000	22
80000000	11
90000000	9
100000000	5
110000000	0
120000000	1
130000000	0

Histogram of volume

- Descriptive data for amount of shares sold
- The histogram is left-skewed indicating higher amounts of stocks were sold less often
- Mean is 30235422.86 with a high range
- Minimum is 8989200
- Maximum is 111142100
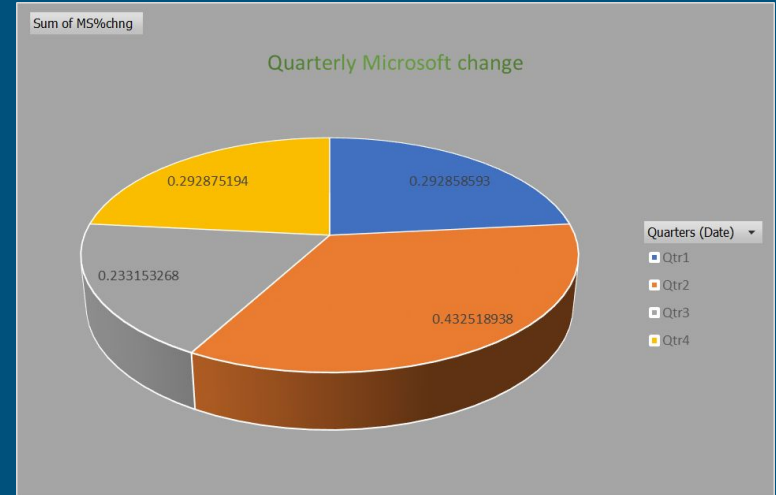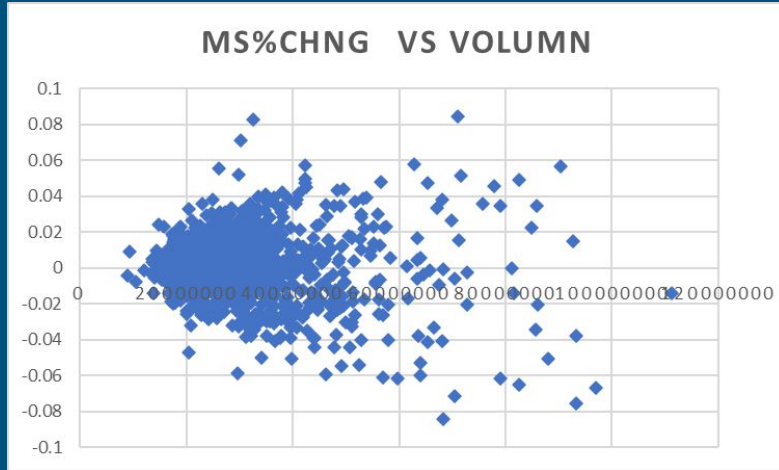
- Scatter plot indicates there is no correlation between microsoft change against volume
- Shown in the graph on the right, the second quarter shows the most growth
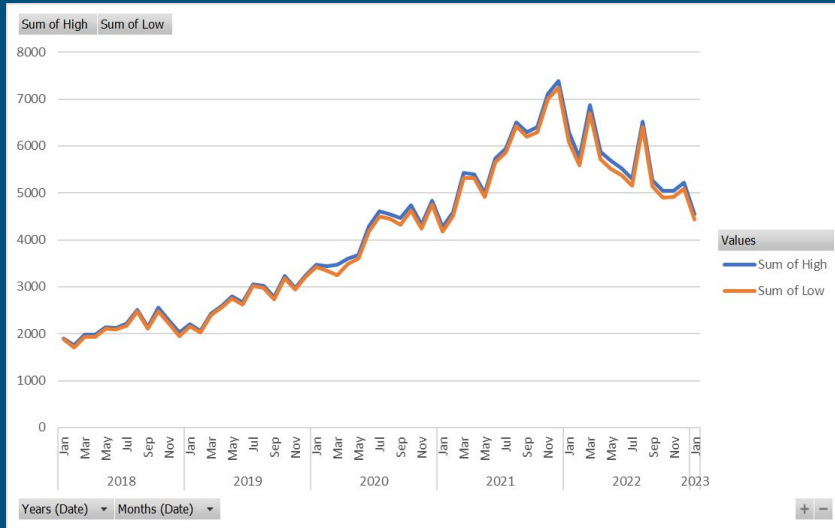
Line graph for Series of Sum of High stock value vs Sum of low are very similar in value. Indicating Microsoft does not fluctuate much
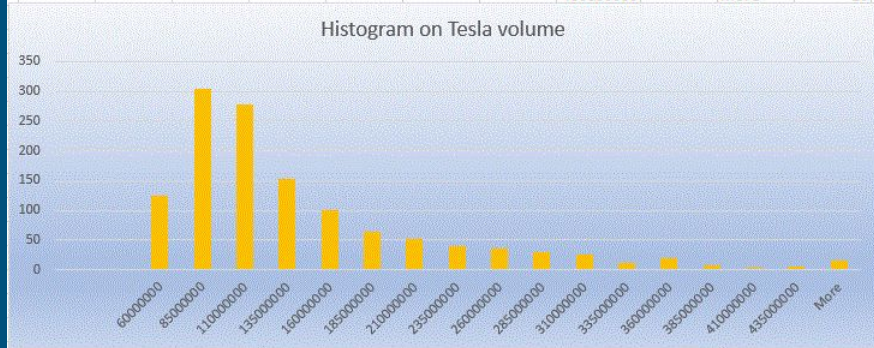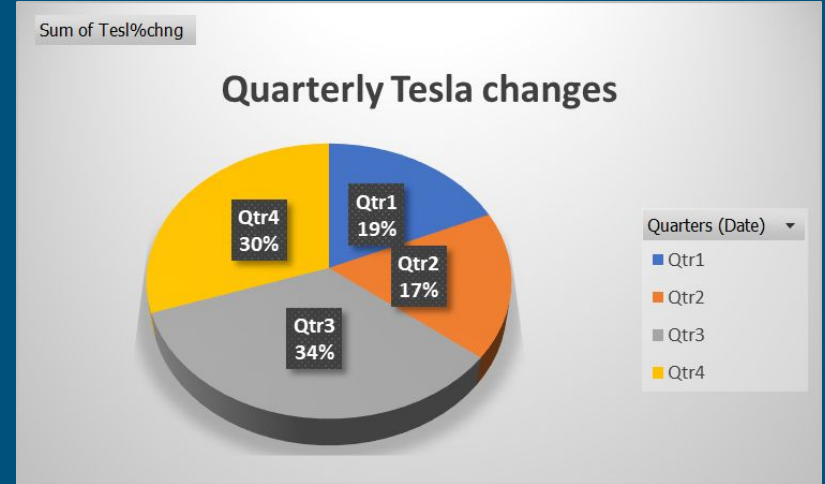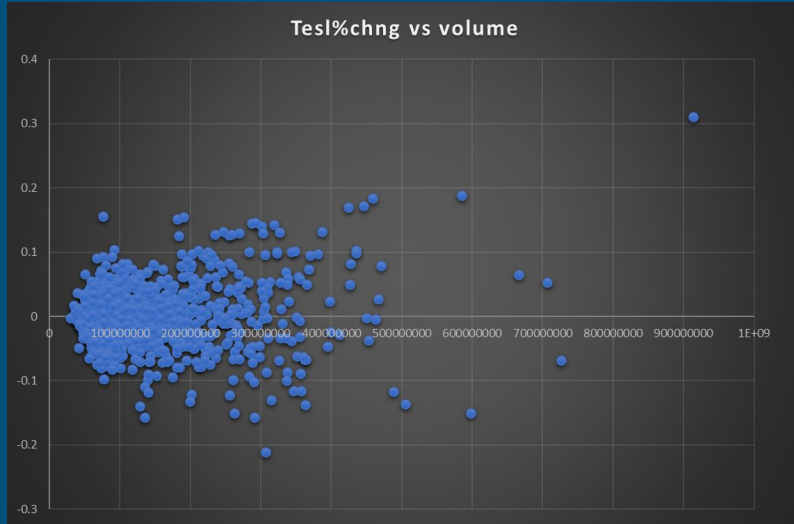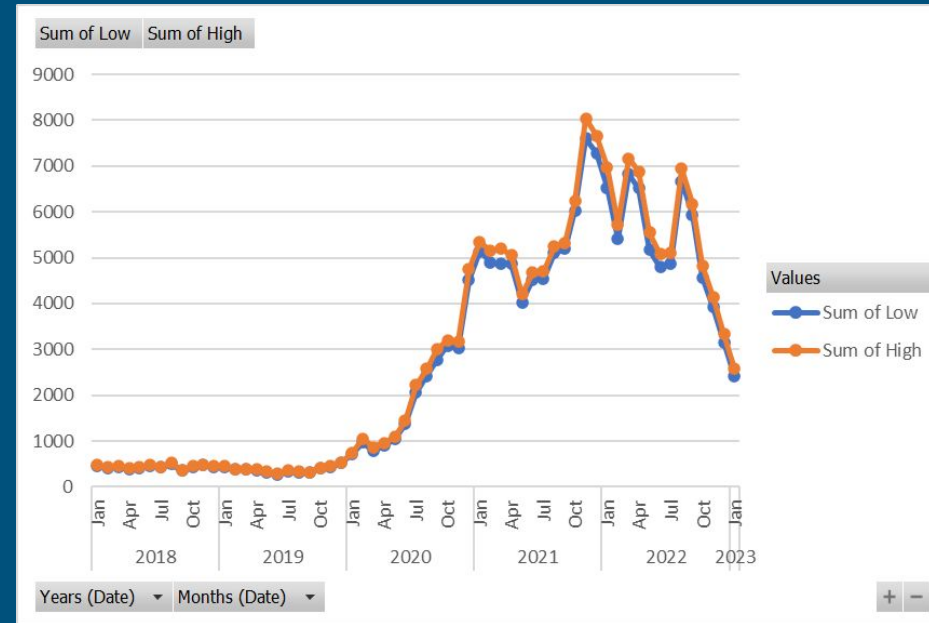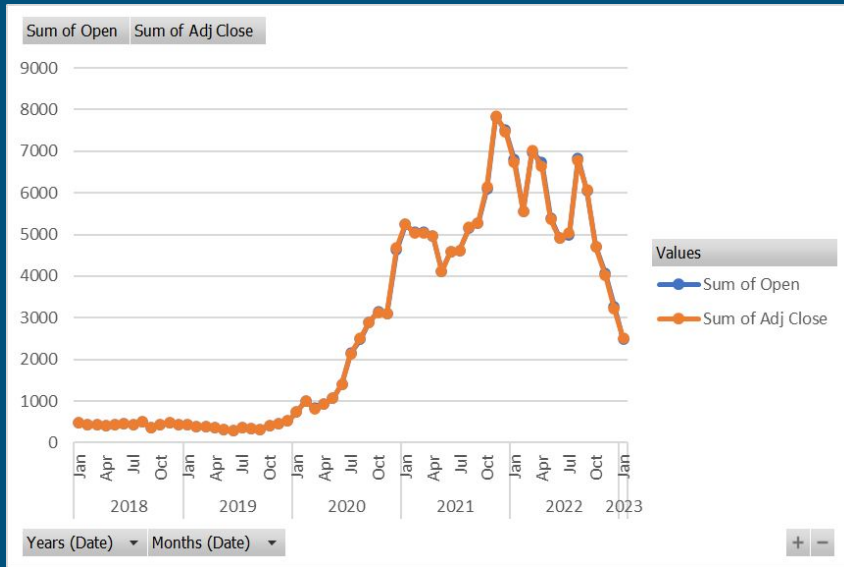
Tesla stock analysis

Descriptive data

- The histogram is left-skewed indicating higher amounts of stocks were sold less often
- Mean is 1.33 E+08 with a high range
- Minimum is 29401800
- Maximum value is 9.14 E+08

Volume			Percentiles			Lower	Upper		Bin	Frequency
			10%	60200400		3E+08	60000000			0
Mean	1.33E+08		25%	76009800		4E+08	85000000			0
Standard E	2518922		50%	1.03E+08		5E+08	110000000		60000000	125
Median	1.03E+08		75%	1.57E+08		6E+08	135000000		85000000	305
Mode	1.3E+08		90%	2.55E+08		7E+08	160000000		1.1E+08	279
Standard I	89872929		95%	3.1E+08		8E+08	185000000		1.35E+08	153
Sample Va	8.08E+15		99%	4.51E+08		9E+08	210000000		1.6E+08	101
Kurtosis	10.07051						235000000		1.85E+08	63
Skewness	2.478659						260000000		2.1E+08	52
Range	8.85E+08						285000000		2.35E+08	40
Minimum	29401800						310000000		2.6E+08	36
Maximum	9.14E+08						335000000		2.85E+08	30
Sum	1.69E+11						360000000		3.1E+08	25
Count	1273						385000000		3.35E+08	12
Largest(1)	9.14E+08						410000000		3.6E+08	20
Smallest(:	29401800						435000000		3.85E+08	7
Confidenc	4941698								4.1E+08	4
									4.35E+08	5
							460000000		More	16

Histogram on Tesla volume

- Scatter plot indicates as Tesla volume increases, so does Tesla % changes
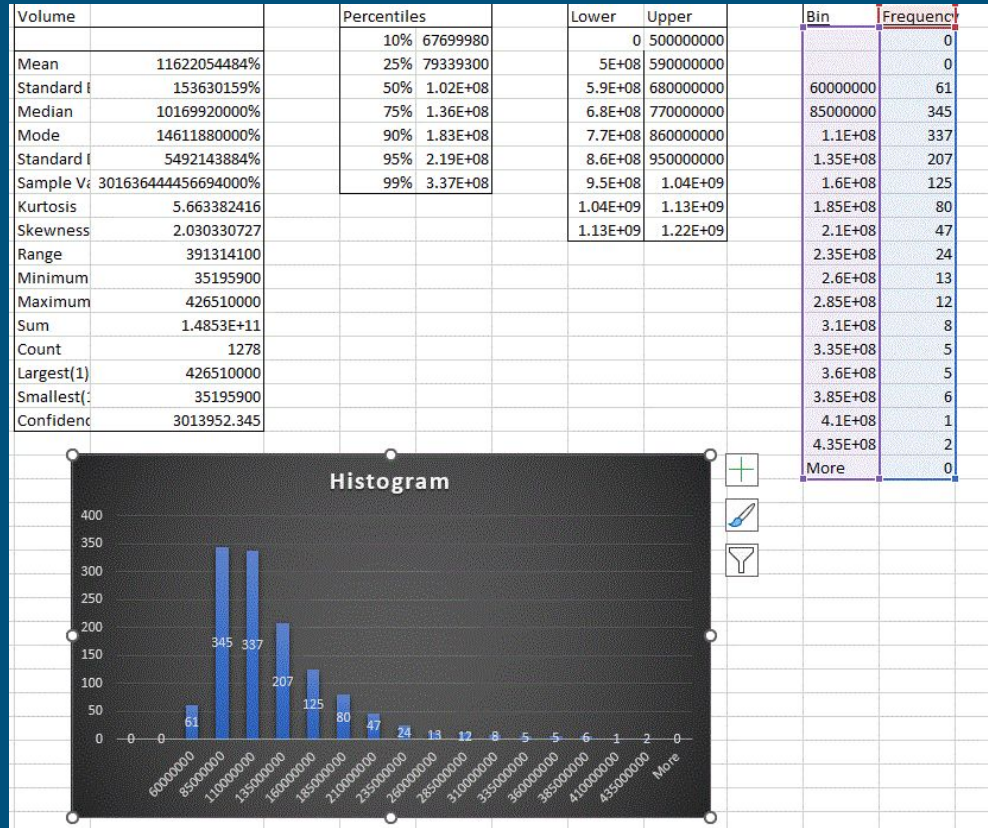- Shown in the graph on the right, the third quarter shows the most growth

Line graph for Series of Sum of High stock value vs Sum of low are very similar in value. Indicating Tesla does not fluctuate much. Compared to Microsoft, the difference is larger. Sum of open and adjusted close are also similar
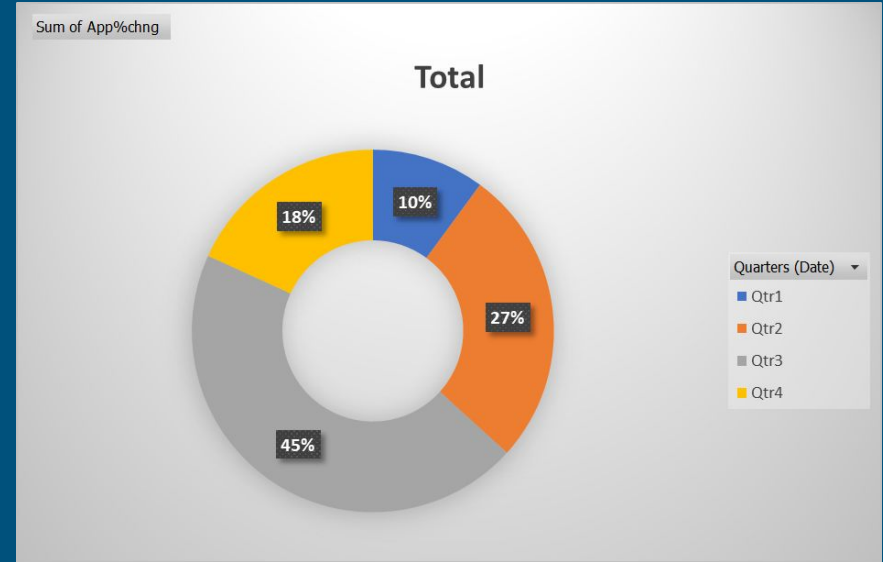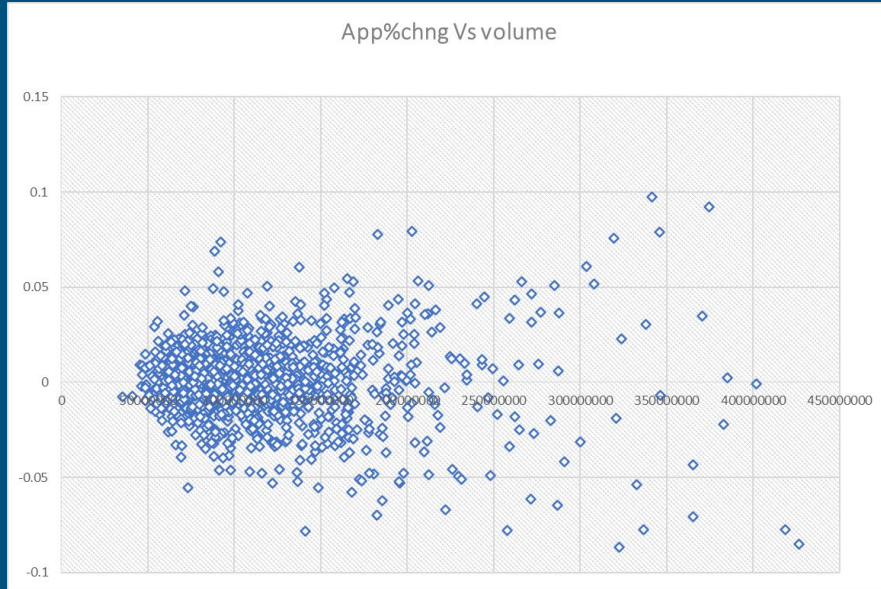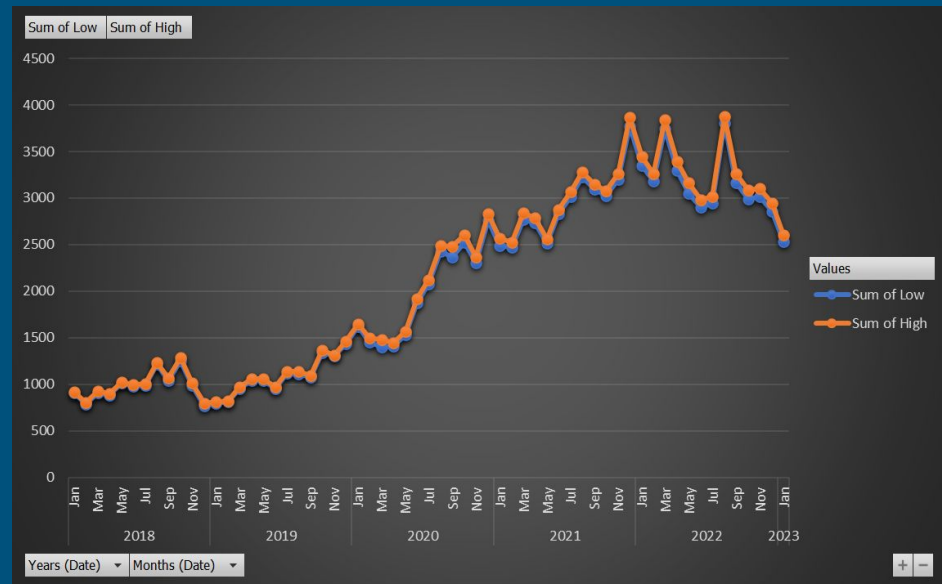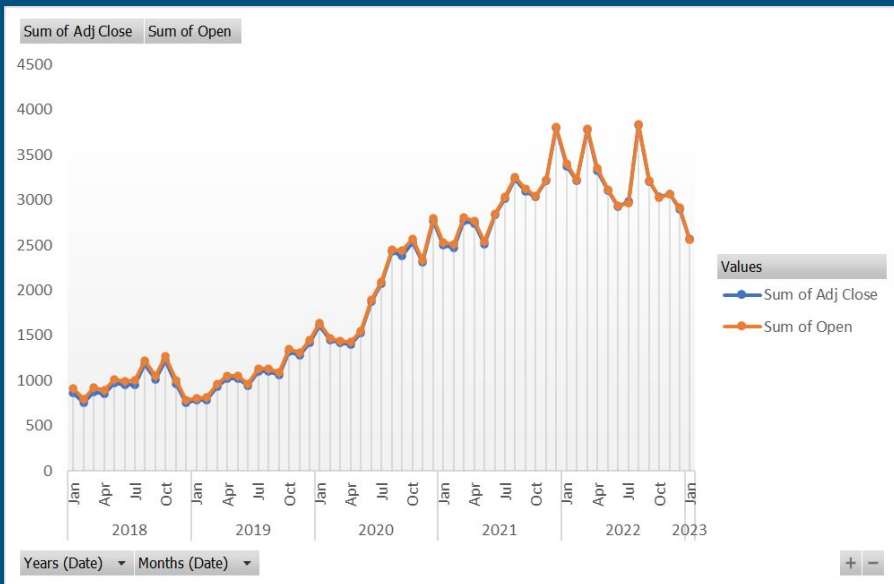
Apple stock analysis

Descriptive analysis

- The histogram is left-skewed indicating higher amounts of stocks were sold less often
- Mean is 1.16+E09
- Minimum is 35195900
- Maximum value is 4265100000

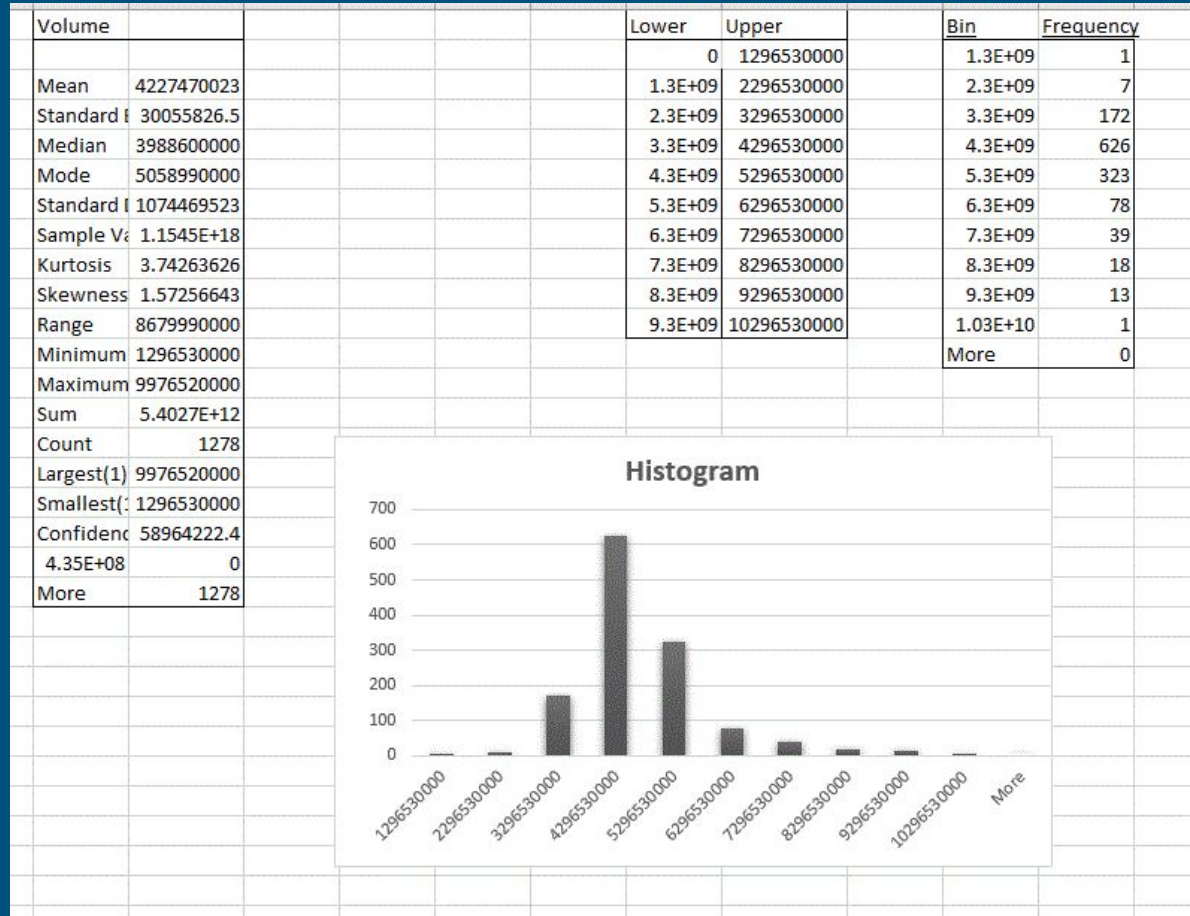| Volume		Percentiles		Lower	Upper	Bin	Frequency
		10%	67699980	0	500000000		0
Mean	11622054484%	25%	79339300	5E+08	590000000		0
Standard	153630159%	50%	1.02E+08	5.9E+08	680000000	60000000	61
Median	10169920000%	75%	1.36E+08	6.8E+08	770000000	85000000	345
Mode	14611880000%	90%	1.83E+08	7.7E+08	860000000	1.1E+08	337
Standard	5492143884%	95%	2.19E+08	8.6E+08	950000000	1.35E+08	207
Sample Va	301636444456694000%	99%	3.37E+08	9.5E+08	1.04E+09	1.6E+08	125
Kurtosis	5.663382416			1.04E+09	1.13E+09	1.85E+08	80
Skewness	2.030330727			1.13E+09	1.22E+09	2.1E+08	47
Range	391314100					2.35E+08	24
Minimum	35195900					2.6E+08	13
Maximum	426510000					2.85E+08	12
Sum	1.4853E+11					3.1E+08	8
Count	1278					3.35E+08	5
Largest(1)	426510000					3.6E+08	5
Smallest(1	35195900					3.85E+08	6
Confidenc	3013952.345					4.1E+08	1
						4.35E+08	2
						More	0

- Scatter plot indicates as Apple volume increases, so does Apple % changes
- Shown in the graph on the right, the third quarter shows the most growth
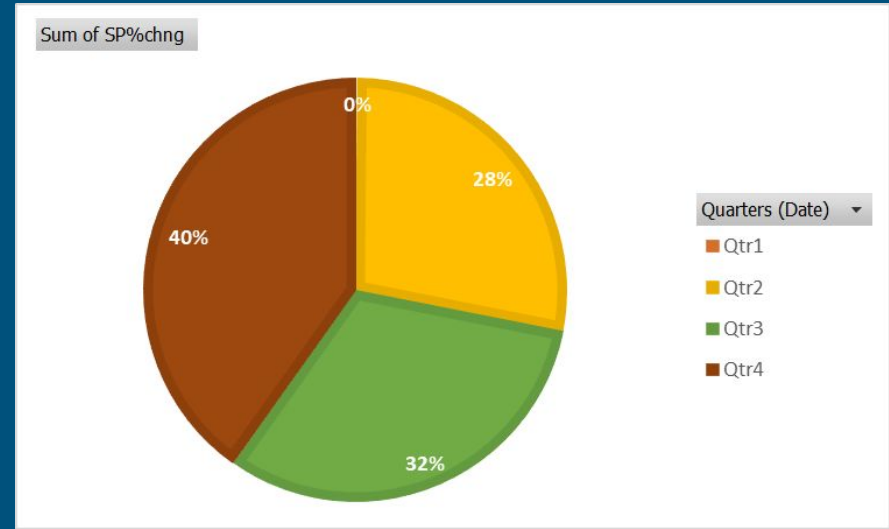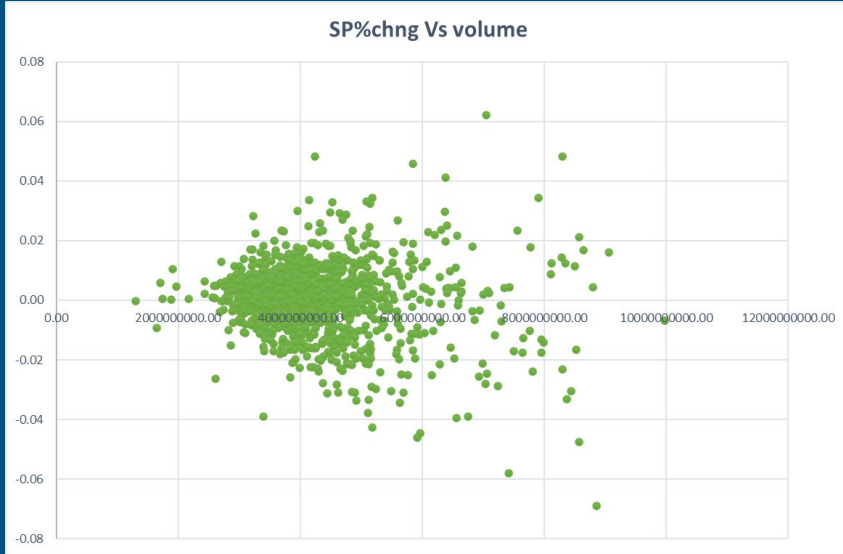
Line graph for Series of Sum of High stock value vs Sum of low are very similar in value. Indicating apple does not change
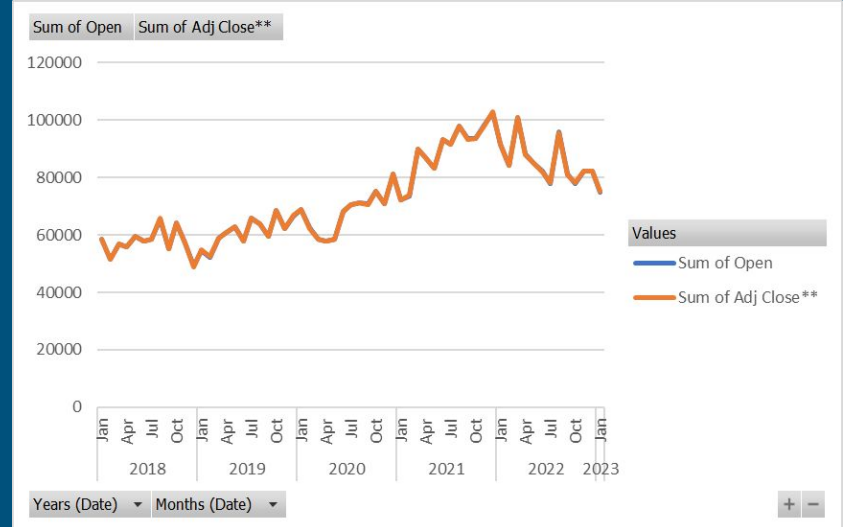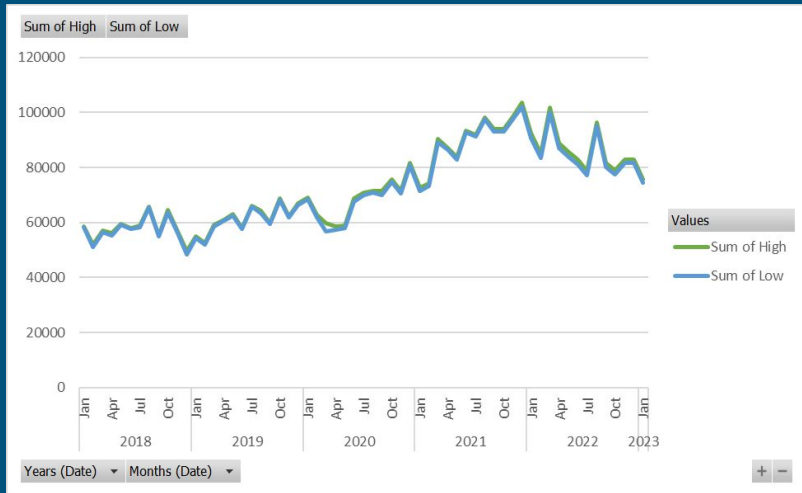Sum of open and adjusted close are also similar

- The histogram is left-skewed indicating higher amounts of stocks were sold less often
- Mean is 4227470023
- Minimum is 12956530000
- Maximum value is 9976520000

| Volume					Lower	Upper		Bin	Frequency
					0	1296530000		1.3E+09	1
Mean	4227470023				1.3E+09	2296530000		2.3E+09	7
Standard E	30055826.5				2.3E+09	3296530000		3.3E+09	172
Median	3988600000				3.3E+09	4296530000		4.3E+09	626
Mode	5058990000				4.3E+09	5296530000		5.3E+09	323
Standard I	1074469523				5.3E+09	6296530000		6.3E+09	78
Sample Va	1.1545E+18				6.3E+09	7296530000		7.3E+09	39
Kurtosis	3.74263626				7.3E+09	8296530000		8.3E+09	18
Skewness	1.57256643				8.3E+09	9296530000		9.3E+09	13
Range	8679990000				9.3E+09	10296530000		1.03E+10	1
Minimum	1296530000							More	0
Maximum	9976520000								
Sum	5.4027E+12								
Count	1278								
Largest(1)	9976520000								
Smallest(	1296530000								
Confidenc	58964222.4								
4.35E+08	0								
More	1278								

Histogram

- Scatter plot indicates there as volume increases, so does SP%Chng
- Shown in the graph on the right, the 4th quarter shows the most growth

Line graph for Series of Sum of High stock value vs Sum of low are very similar in value. Indicating Tesla does not fluctuate much. Compared to Microsoft, the difference is larger. Sum of open and adjusted close are also similar
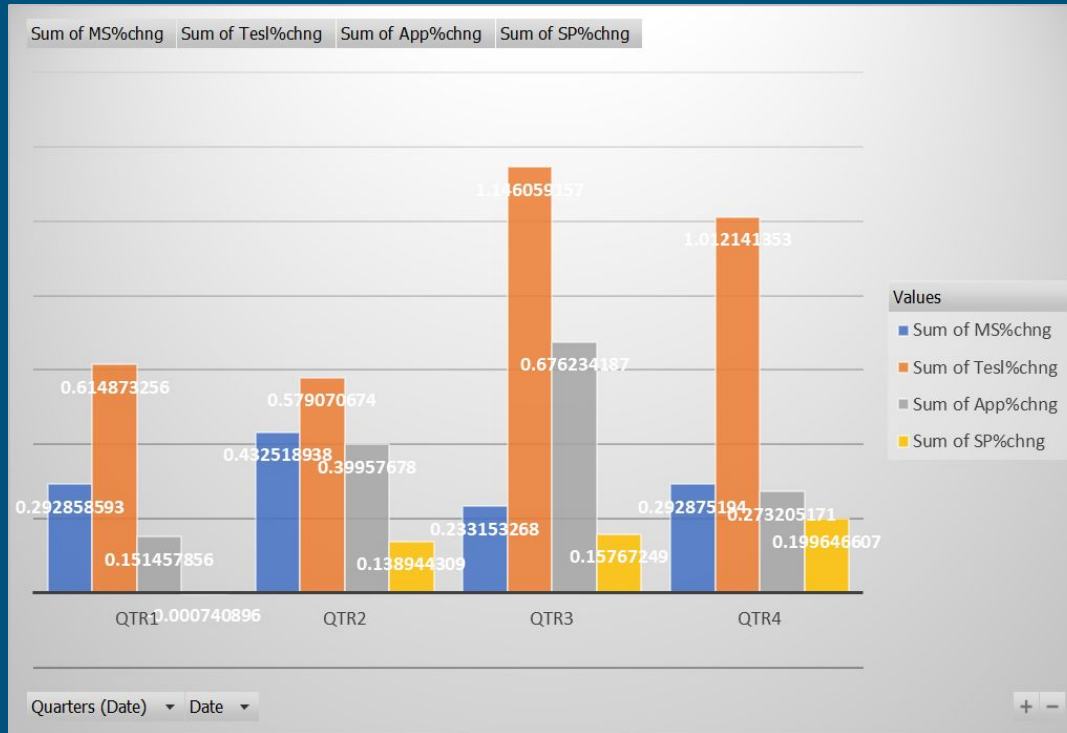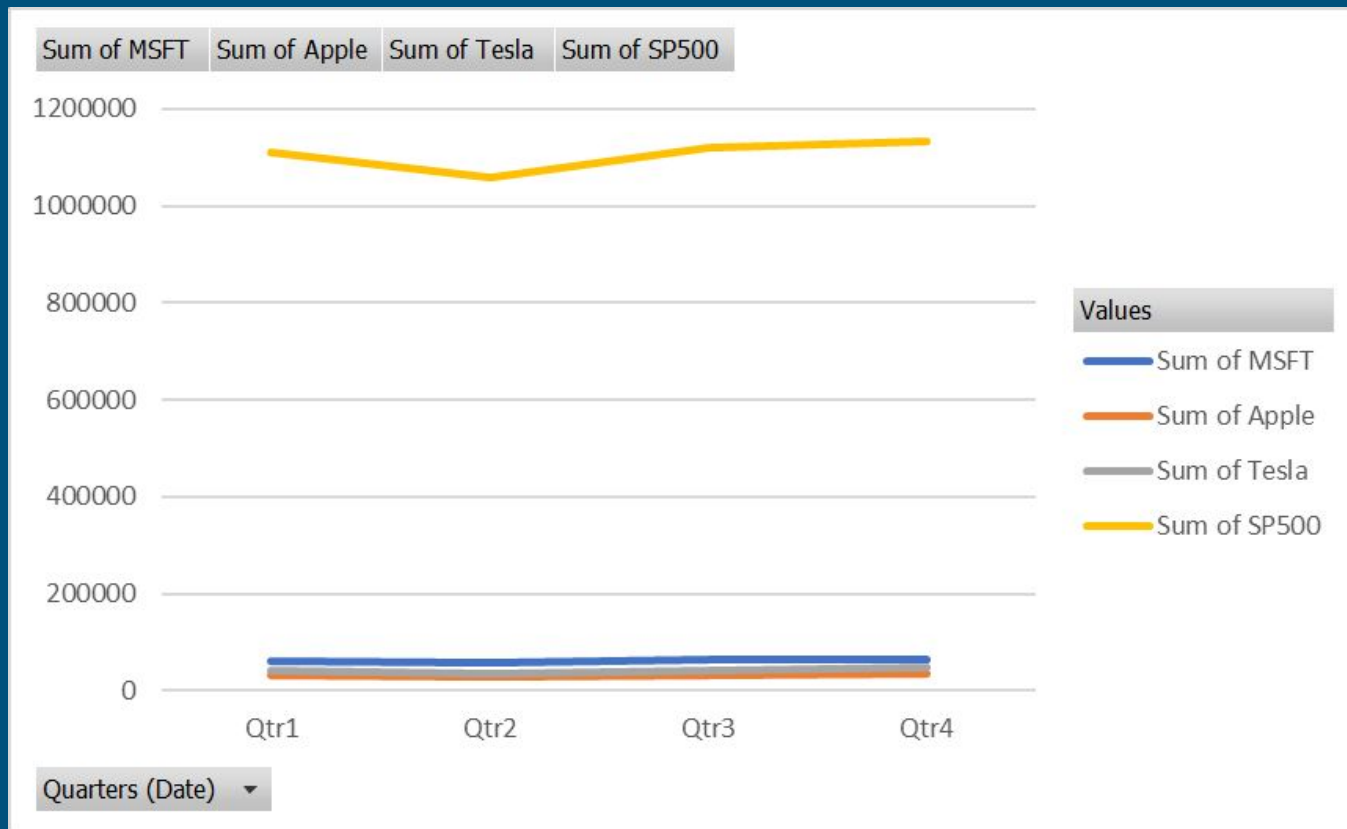
- It is shown that Tesla has the highest amount of changes and growth
- In contrast, SP_500 has the lowest amount of changes
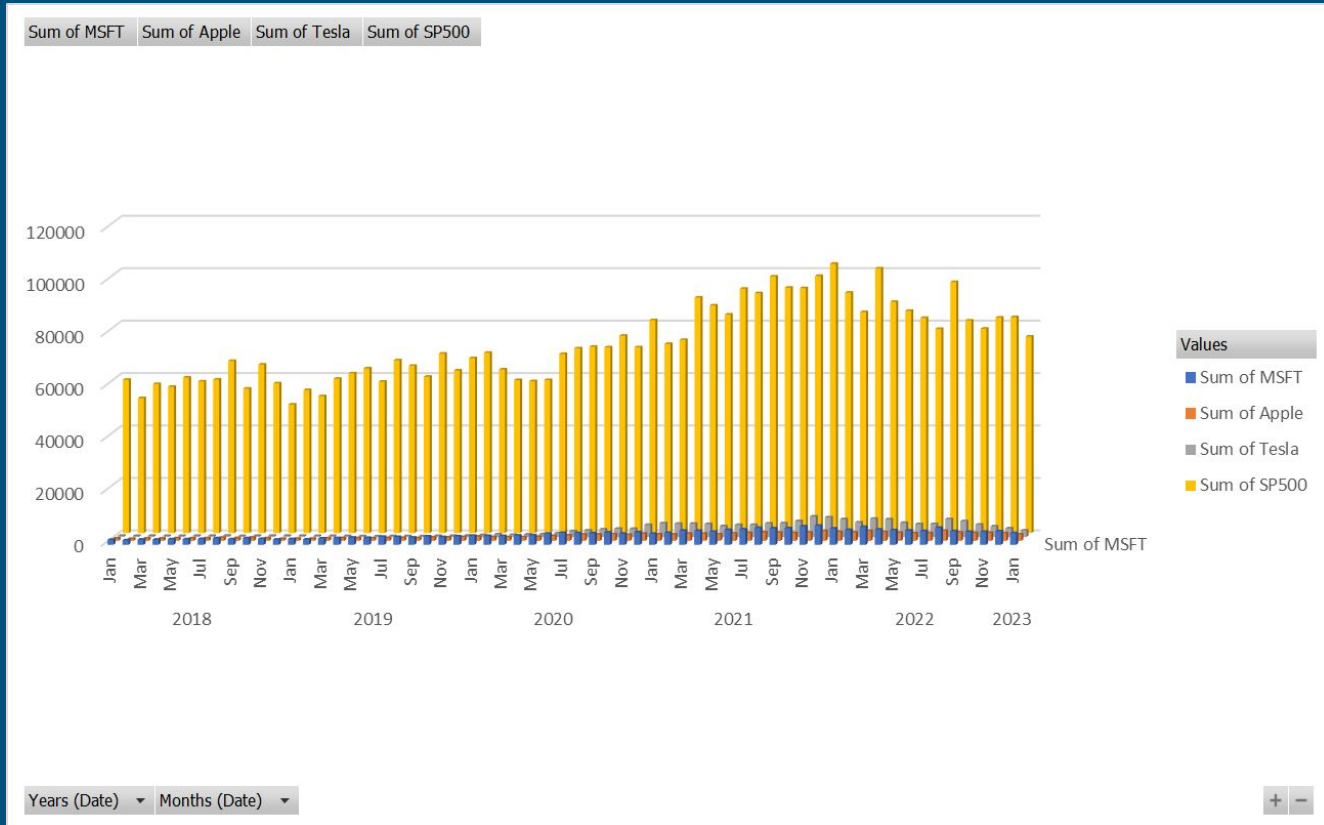
- It is shown that SP_500 stocks sell much more than the rest of the stocks
- Apple has the lowest amount of monthly stock sells and purchases

- When split into quarters, it is shown that SP500 has the largest amount of percentage change
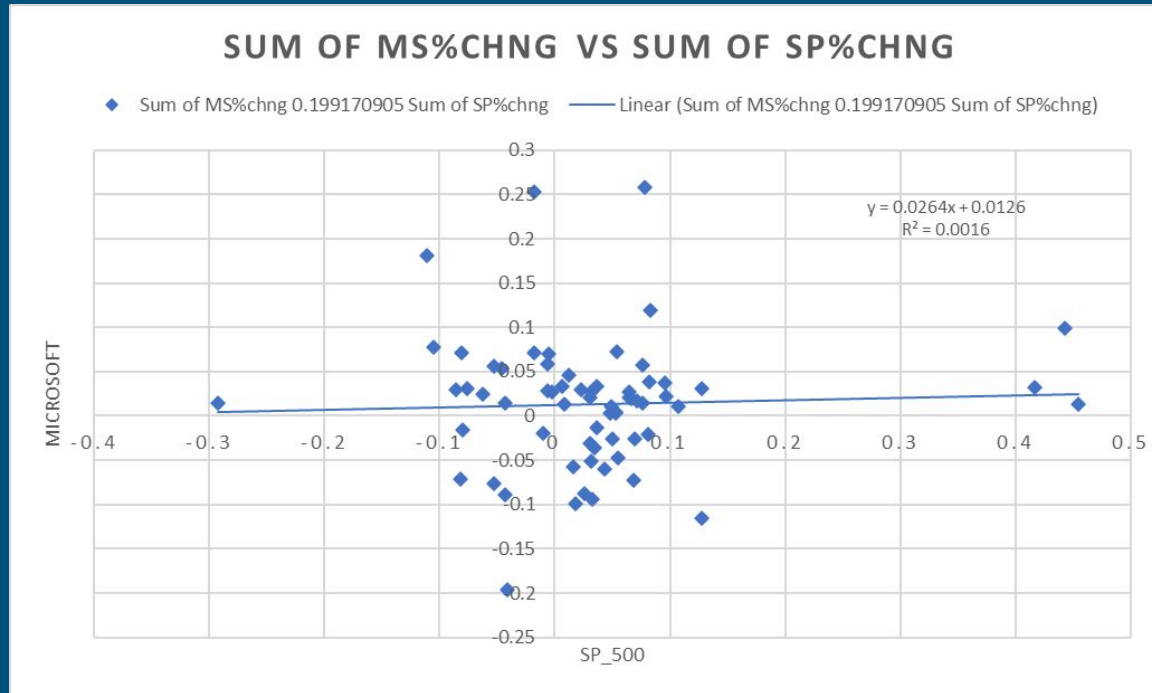
Relative Risk Analysis

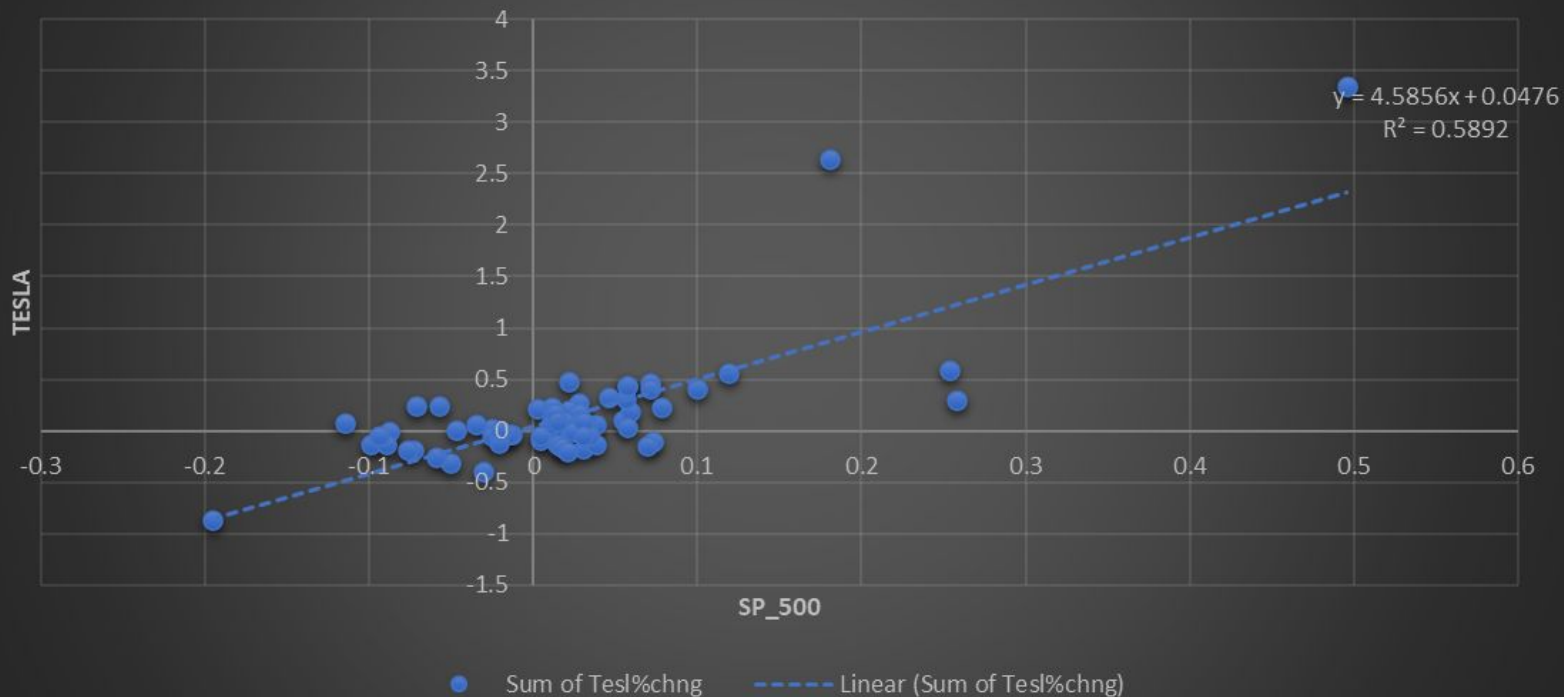Figure shows an R^2 value of 0.0016, a low beta coefficient. Showing that microsoft has low risk and low return

Figure shows an R^2 value of 0.5892, a somewhat high beta
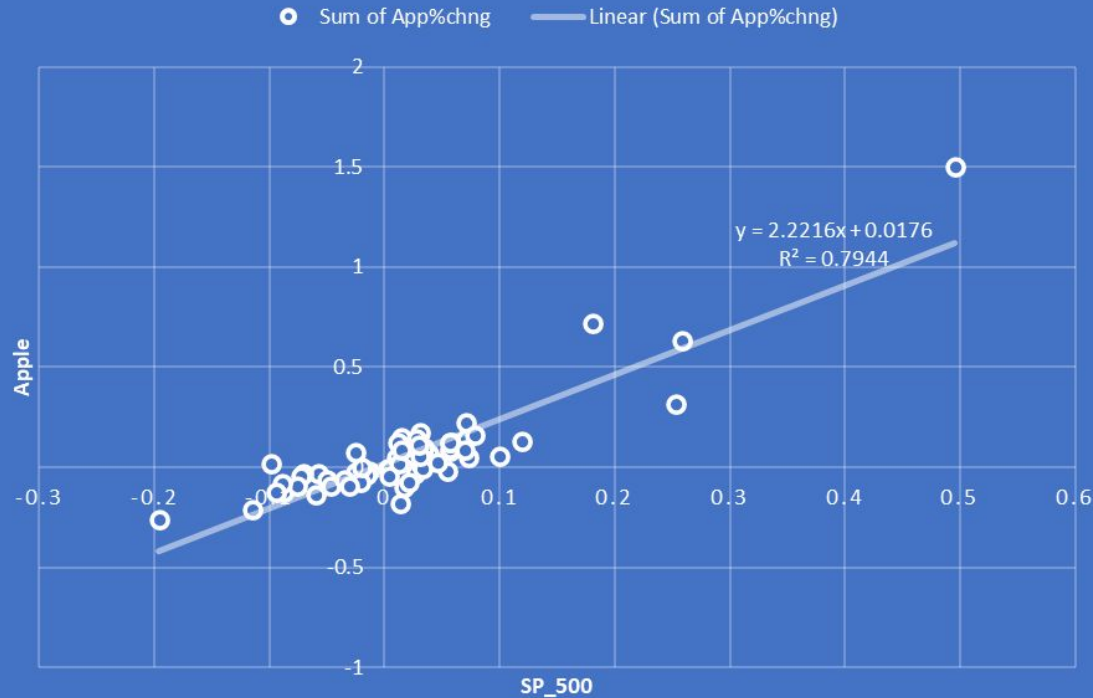coefficient. Showing that Tesla has a medium risk and reward

Figure shows an R^2 value of 0.7944 , a high beta coefficient. Showing that apple stocks have a high risk and as such, a high return.

Conclusion

This comprehensive stock report has provided a detailed analysis of Microsoft, Tesla, and Apple from the years 2018 to 2023. Our objective was to gain insights into the performance, risks, and investment potential of these prominent companies within the ever-evolving financial landscape.

This report serves as a valuable resource for investors, financial analysts, and stakeholders seeking to make informed decisions in the dynamic world of finance and investment. It is essential to remember that while historical data and analysis offer valuable insights, the financial markets are subject to change, and past performance does not guarantee future results.