

Cover	begin	analysis options	other options	Volume analysis	Basics-hypothesis	Target	S&P500 intro	Volume in markets	.
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MID-BOOTCAMP PROJECT

VOLUME STUDY IN S&P500 INDEX



Volume and S&P500

Cover	begin	analysis options	other options	Volume analysis	Basics-hypothesis	Target	S&P500 intro	Volume in markets	
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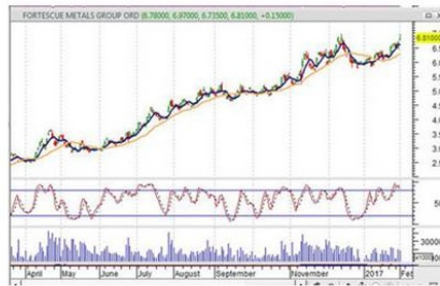
Where do I begin?



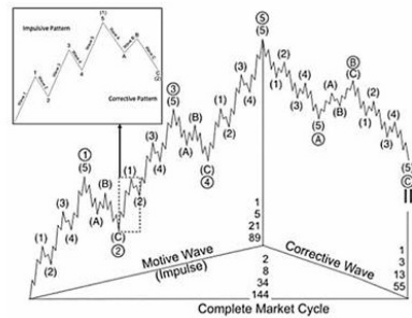
Cover	begin	analysis options	other options	Volume analysis	Basics-hypothesis	Target	S&P500 intro	Volume in markets	
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A lot of different analysis options

- Chart analysis:
 - Figures
 - Indicators



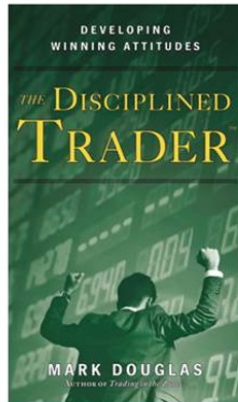
- Elliot Waves



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More options for stock investment:

- Psychology based strategies
- Other



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VOLUME ANALYSIS

- Let's study volume trends
- Generated by biggest market players (funds, investment banks) changing their portfolio/investing more money
- Focus on sectors, not specific companies
- Thinking in the medium-term



begin	analysis options	other options	Volume analysis	Basics-hypothesis	Target	S&P500 intro	Volume in markets	Companies by sector	.
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BASICS

- ✓ Analysis of volumes by sector
- ✓ Quartely base (period)
- ✓ Search for abnormal increments in volume in the current quarter

HYPOTHESIS TO TEST

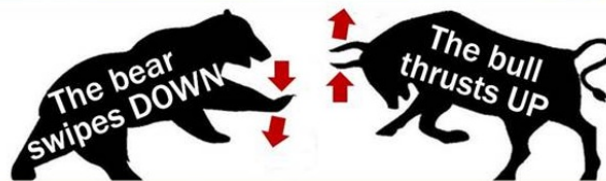
- Check if there is a relationship between volume in the current quarter and profitability (price) in the next quarter.

analysis options	other options	Volume analysis	Basics-hypothesis	Target	S&P500 intro	Volume in markets	Companies by sector	Weight is dynamic	.
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TARGET

- Beat the market (perform better than the index)
- But not trying to predict the future

The Bull Market



The Bear Market

Volume and S&P500

other options	Volume analysis	Basics-hypothesis	Target	S&P500 intro	Volume in markets	Companies by sector	Weight is dynamic	Data sources	.
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S&P500. Most important index in the world

- 500 companies listed
- Each company have a weight in the index (and it varies, it's not fixed)

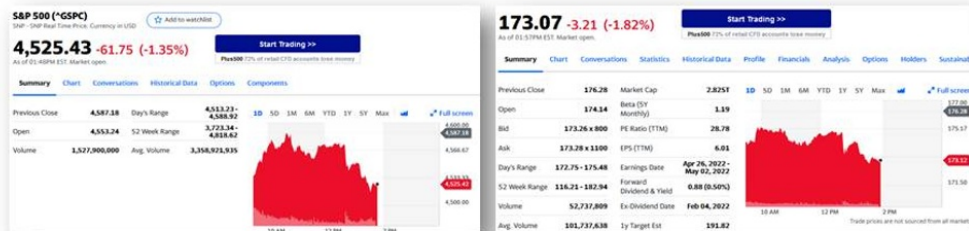
Components of the S&P 500

#	Company	Symbol	Weight	Price
1	Apple Inc.	AAPL	7.073341	173.31
2	Microsoft Corporation	MSFT	6.015558	302.94
3	Amazon.com Inc.	AMZN	3.619725	3,182.90
4	Alphabet Inc. Class A	GOOGL	2.193055	2,783.36
5	Alphabet Inc. Class C	GOOG	2.036688	2,783.24
6	Tesla Inc	TSLA	1.95194	918.19
7	NVIDIA Corporation	NVDA	1.718835	262.66
8	Berkshire Hathaway Inc. Class B	BRK.B	1.519935	319.25
9	Meta Platforms Inc. Class A	FB	1.41331	229.56
10	UnitedHealth Group Incorporated	UNH	1.207806	488.58

Volume analysis	Basics-hypothesis	Target	S&P500 intro	Volume in markets	Companies by sector	Weight is dynamic	Data sources	Volume change VS Price change 2016Q4
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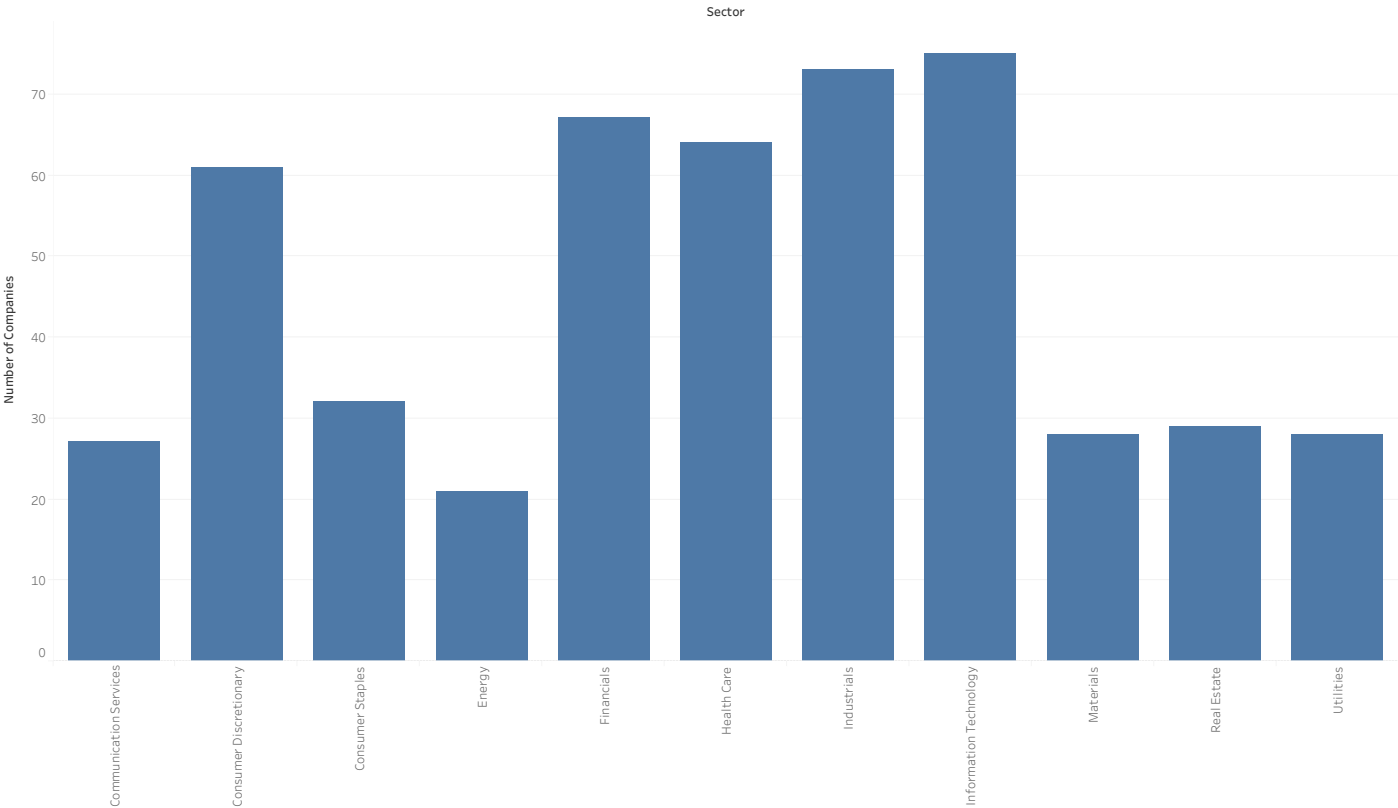
Billions of shares are traded in the stock markets everyday

Effective = volume x price



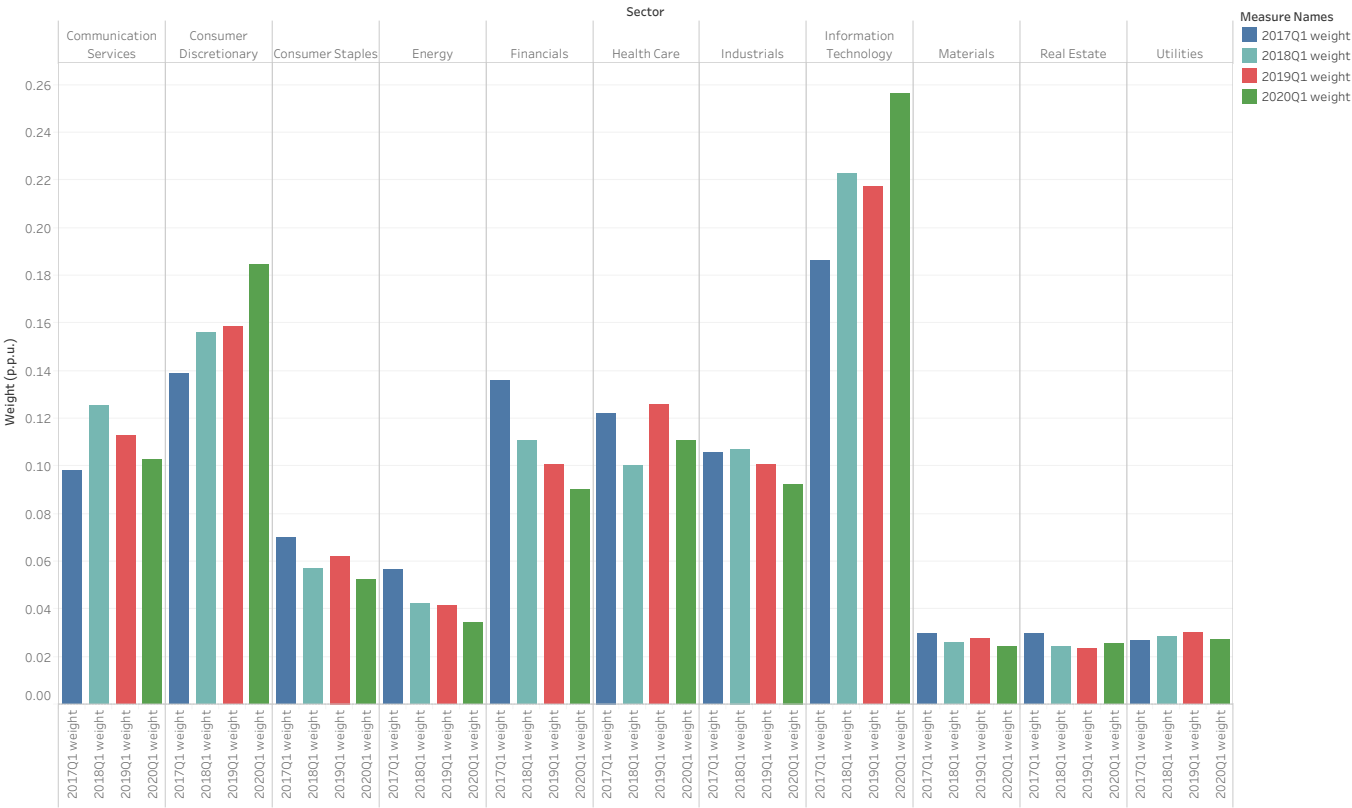
Volume and S&P500

Basics-hypothesis	Target	S&P500 intro	Volume in markets	Companies by sector	Weight is dynamic	Data sources	Volume change VS Price change 2016Q4	Volume change VS Price change 2017Q1	.
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Volume and S&P500

Target	S&P500 intro	Volume in markets	Companies by sector	Weight is dynamic	Data sources	Volume change VS Price change 2016Q4	Volume change VS Price change 2017Q1	Comparative between 2 consecutive periods
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Volume and S&P500

S&P500 intro	Volume in markets	Companies by sector	Weight is dynamic	Data sources	Volume change VS Price change 2016Q4	Volume change VS Price change 2017Q1	Comparative between 2 consecutive periods	Another similar comparative	.
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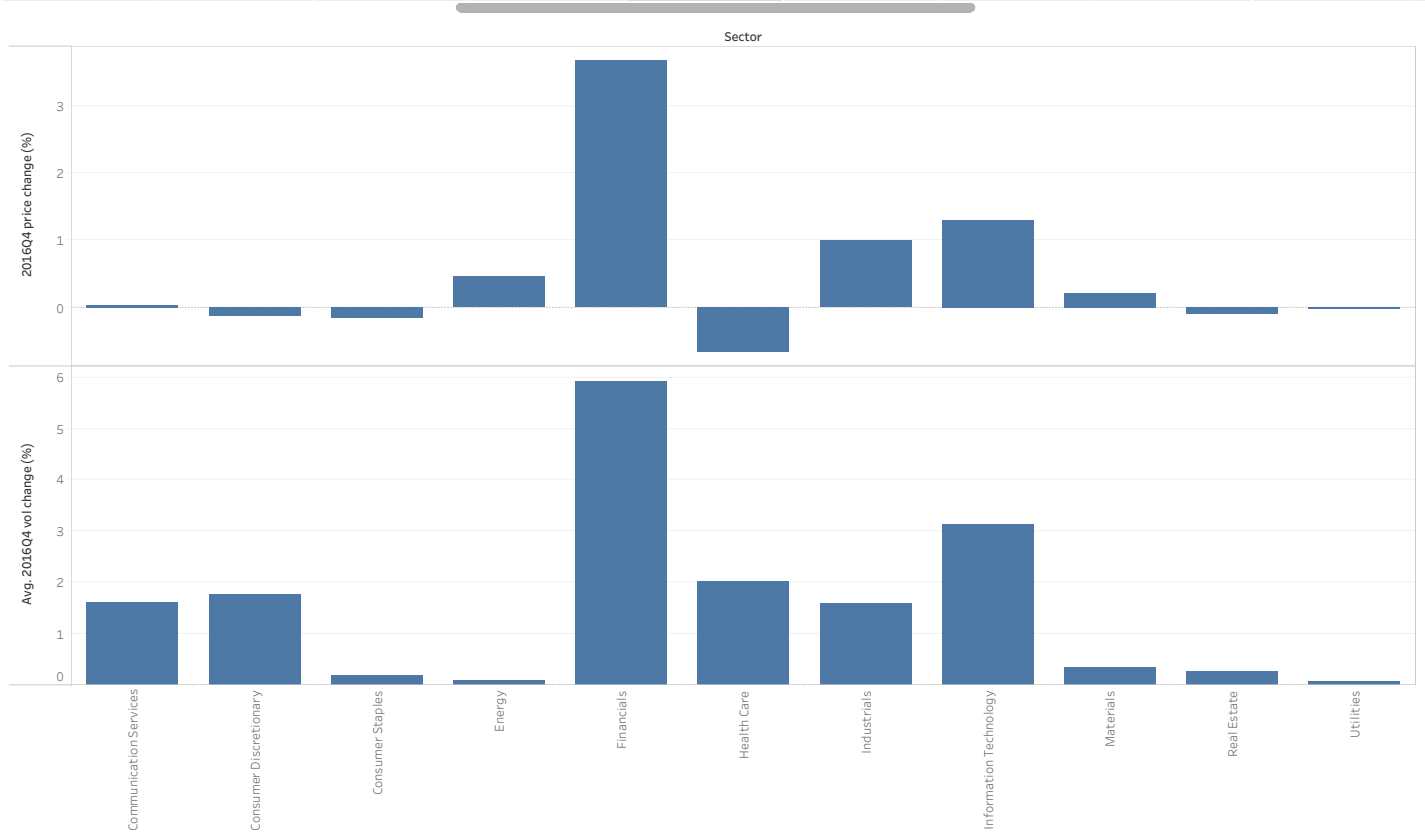
DATA AVAILABLE

- Tons of sources of quotes, but only few of quality for free.
- Most of them require API's.
- File of 5 years quotes from Kaggle (not a primary source).



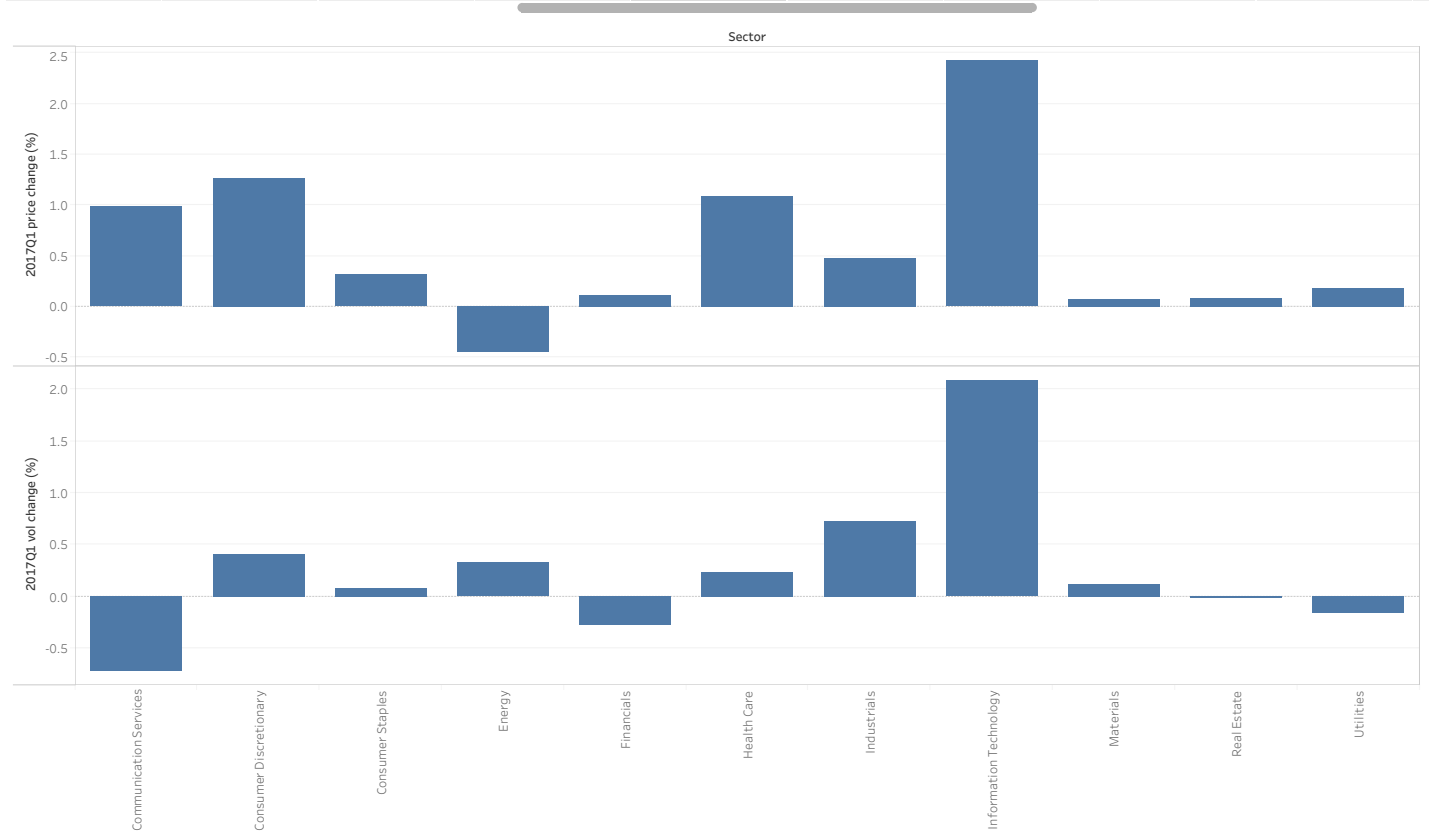
Volume and S&P500

Volume in markets	Companies by sector	Weight is dynamic	Data sources	Volume change VS Price change 2016Q4	Volume change VS Price change 2017Q1	Comparative between 2 consecutive periods	Another similar comparative	2019Q4	
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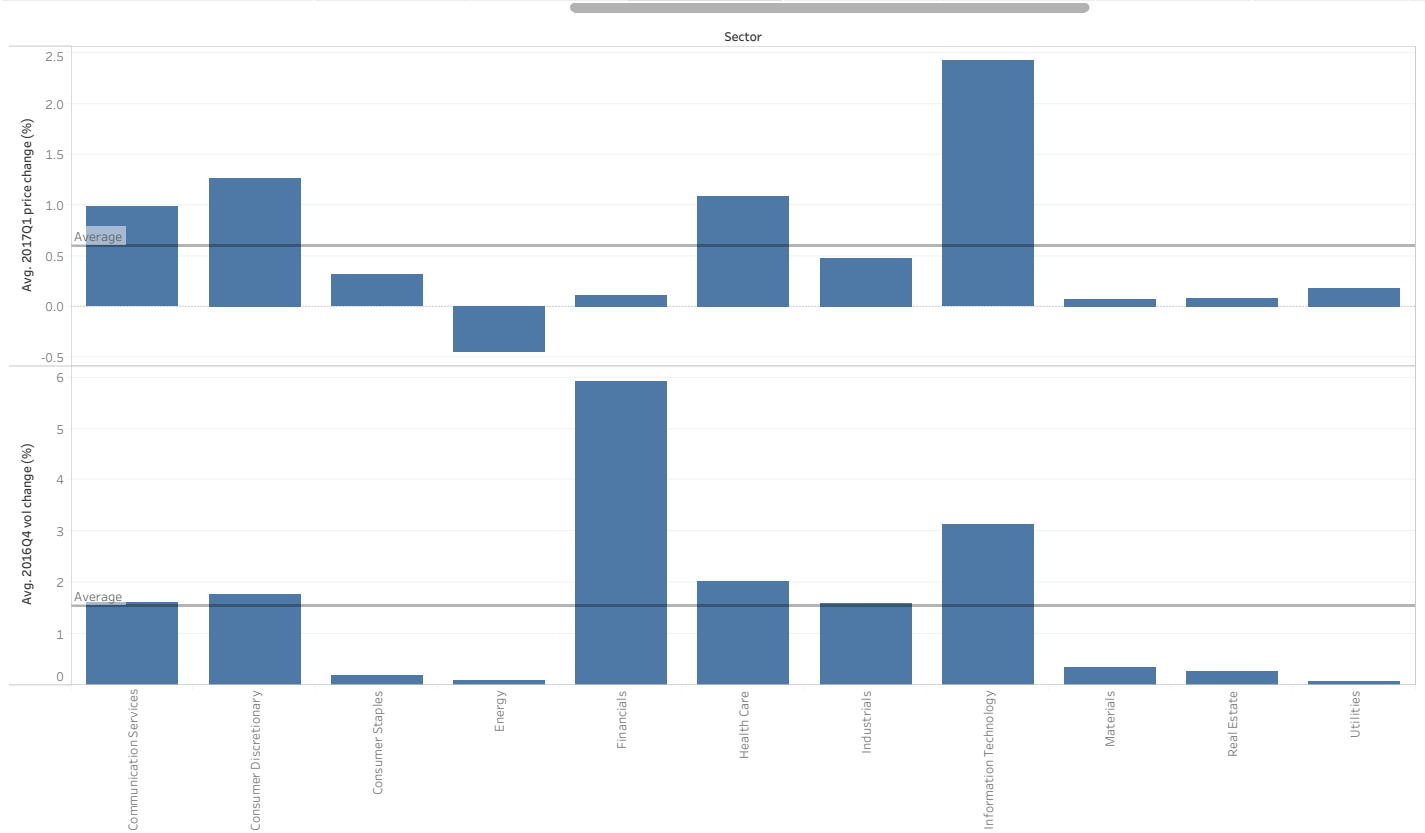
Volume and S&P500

Companies by sector	Weight is dynamic	Data sources	Volume change VS Price change 2016Q4	Volume change VS Price change 2017Q1	Comparative between 2 consecutive periods	Another similar comparative	2019Q4	2020Q1!	
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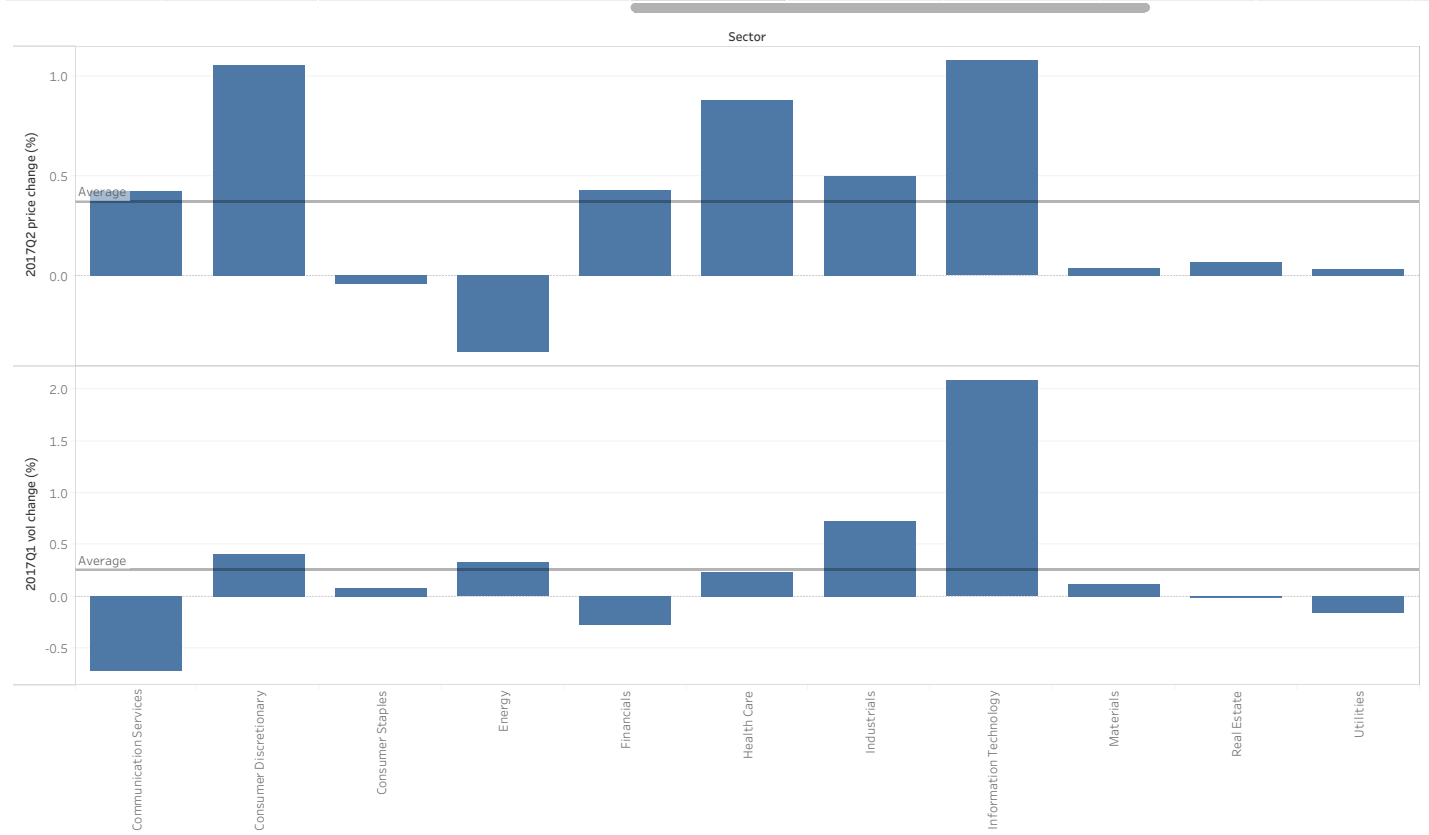
Volume and S&P500

Weight is dynamic	Data sources	Volume change VS Price change 2016Q4	Volume change VS Price change 2017Q1	Comparative between 2 consecutive periods	Another similar comparative	2019Q4	2020Q1!	Heath Care sector	
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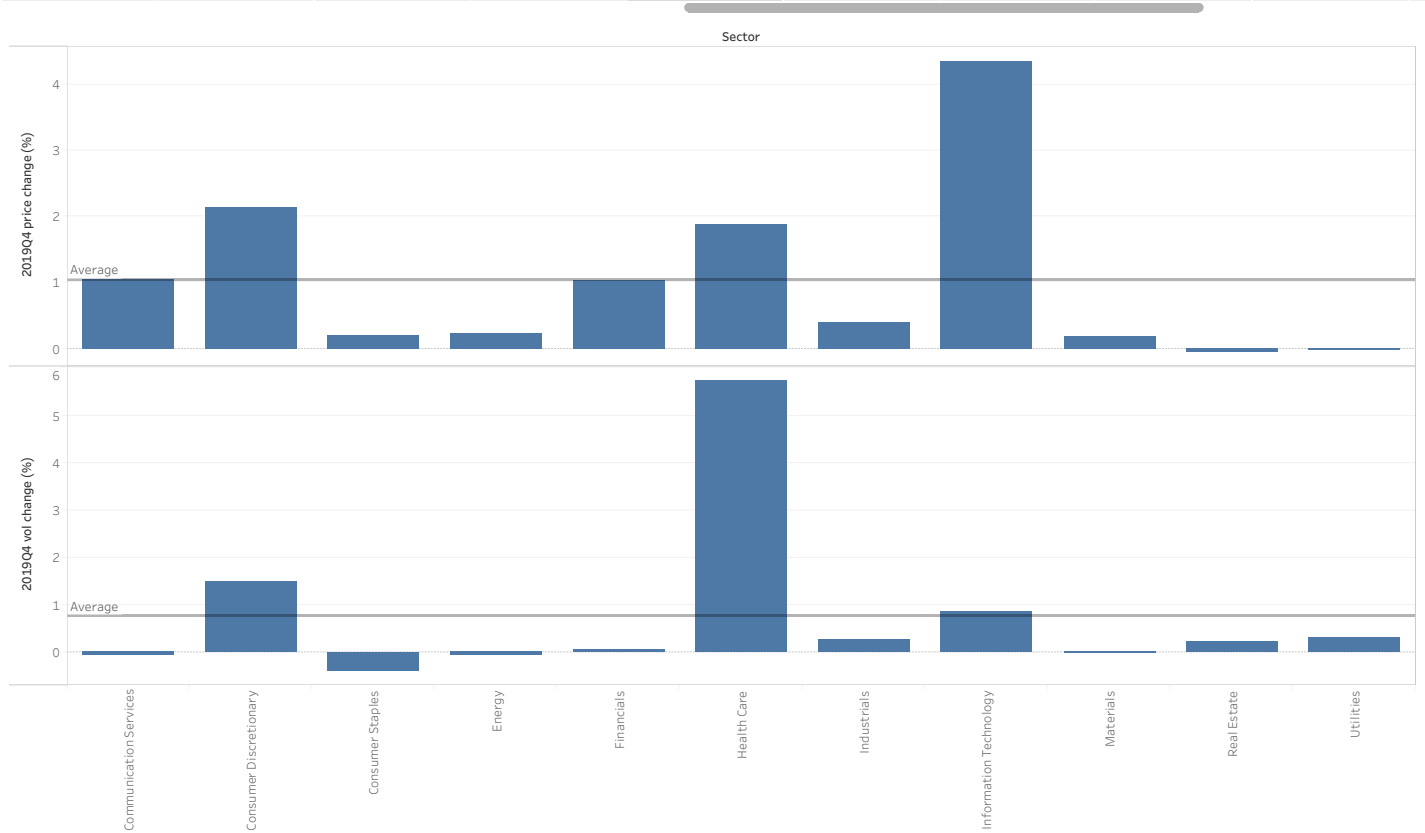
Volume and S&P500

Data sources	Volume change VS Price change 2016Q4	Volume change VS Price change 2017Q1	Comparative between 2 consecutive periods	Another similar comparative	2019Q4	2020Q1	Heath Care sector	2020Q2	
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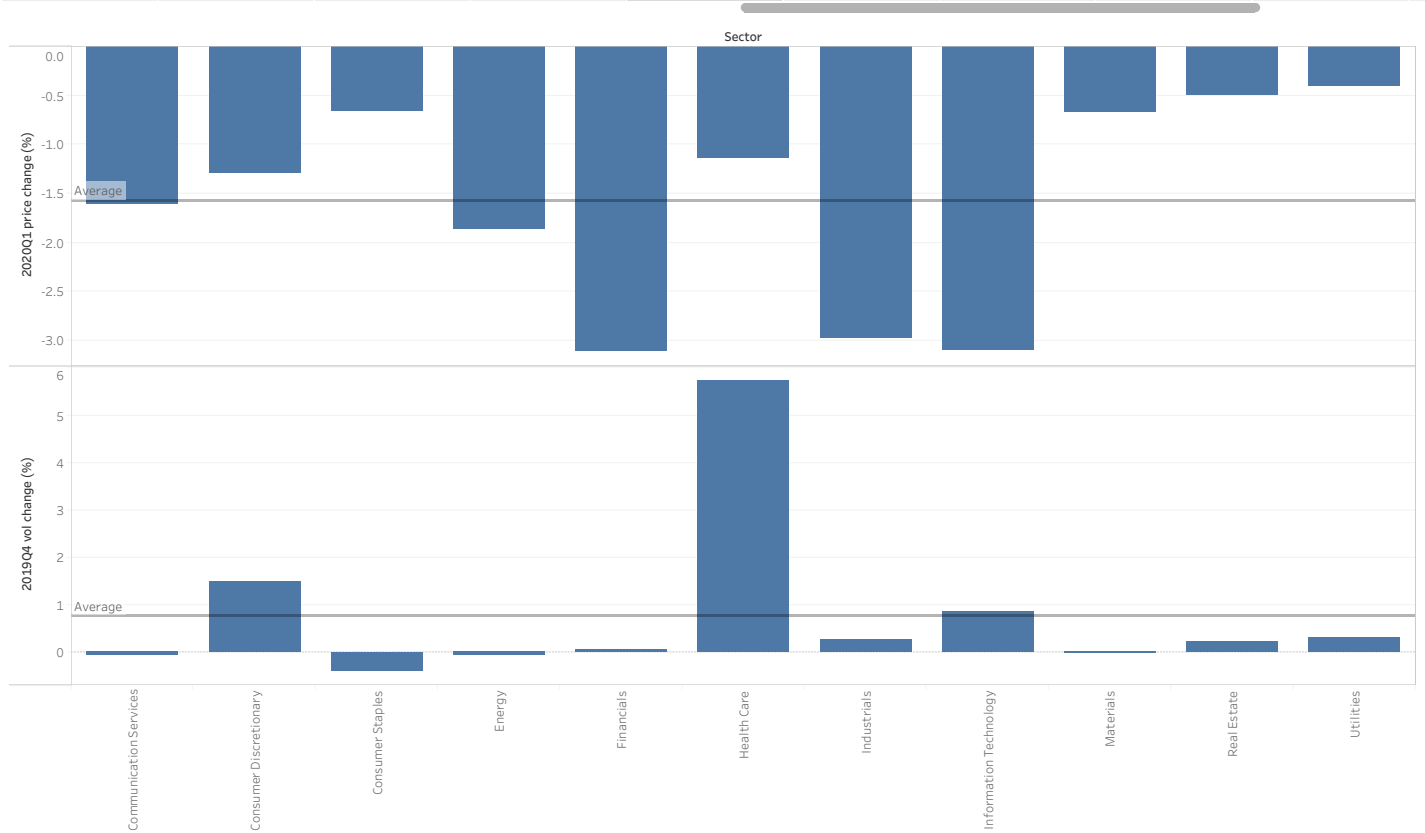
Volume and S&P500

Volume change VS Price change 2016Q4	Volume change VS Price change 2017Q1	Comparative between 2 consecutive periods	Another similar comparative	2019Q4	2020Q1	Heath Care sector	2020Q2	Correlation between quarters	
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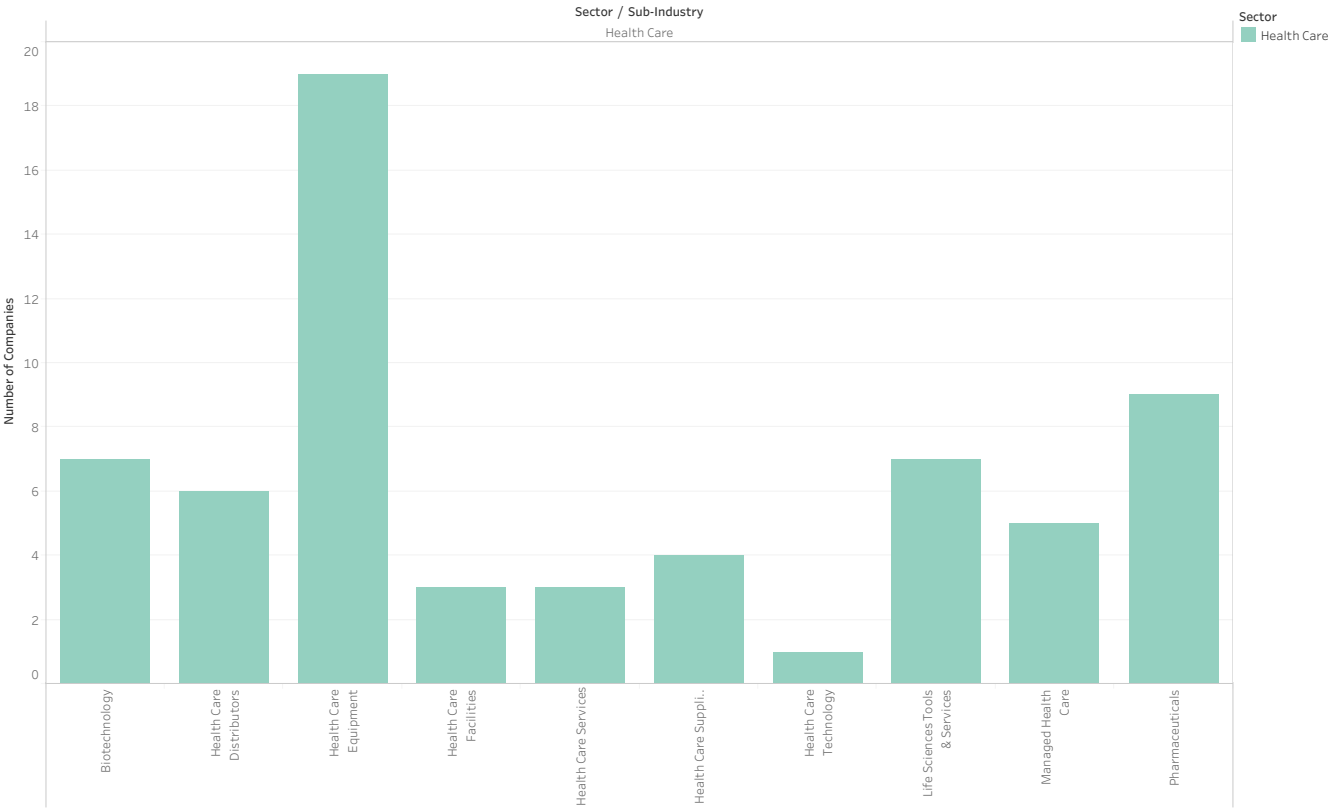
Volume and S&P500

Volume change VS Price change 2017Q1	Comparative between 2 consecutive periods	Another similar comparative	2019Q4	2020Q1!	Heath Care sector	2020Q2	Correlation between quarters	LR 2018 & 2019	
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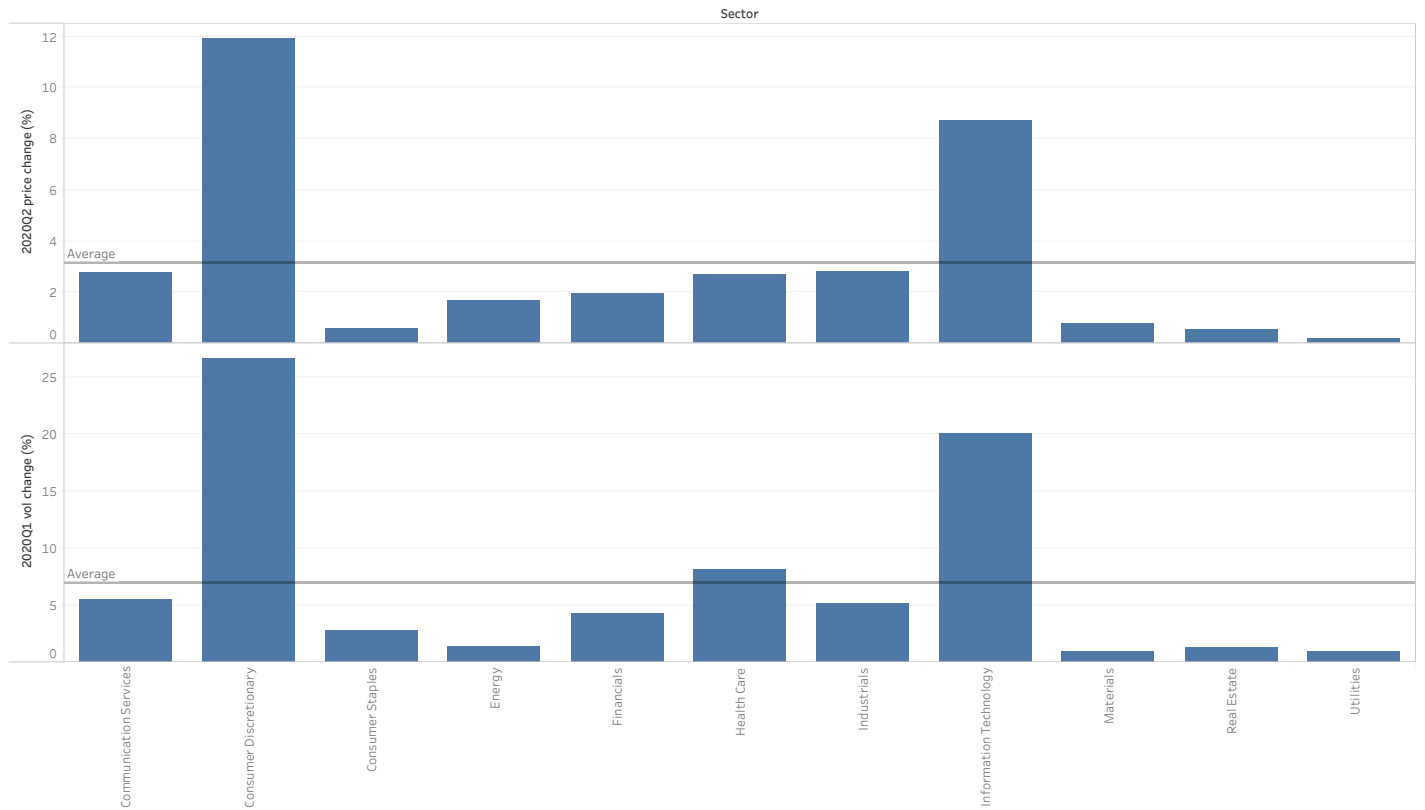
Volume and S&P500

Comparative between 2 consecutive periods	Another similar comparative	2019Q4	2020Q1!	Heath Care sector	2020Q2	Correlation between quarters	LR 2018 & 2019	LR 2020	.
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Volume and S&P500

Another similar comparative	2019Q4	2020Q1	Heath Care sector	2020Q2	Correlation between quarters	LR 2018 & 2019	LR 2020	Comparative	
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Volume and S&P500

2019Q4	2020Q1	Health Care sector	2020Q2	Correlation between quarters	LR 2018 & 2019	LR 2020	Comparative	Conclusions
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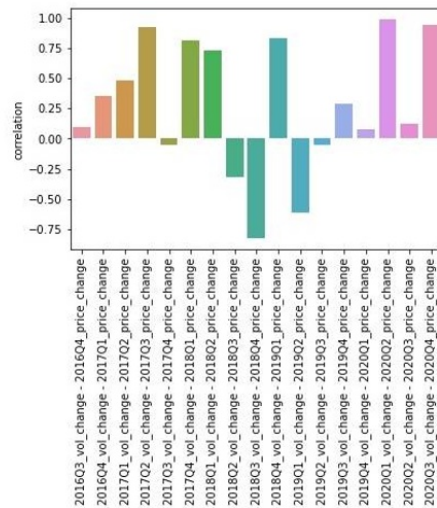
CORRELATION BETWEEN QUARTERS

- Checking change in volume during current quarter and price increase/decrease for the next quarter.

- Enough data to compare 17 quarters

Results:

- High variability
- Correlation Mean: 0.26
- Frequently positive correlation (12 out of 17)



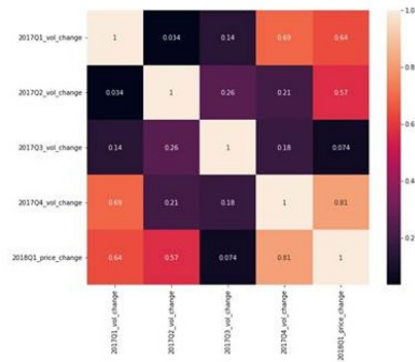
Volume and S&P500

2019Q4	2020Q1	Health Care sector	2020Q2	Correlation between quarters	LR 2018 & 2019	LR 2020	Comparative	Conclusions
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Linear regression: using 4 quarters in a year to predict 1st quarter of next year (target)

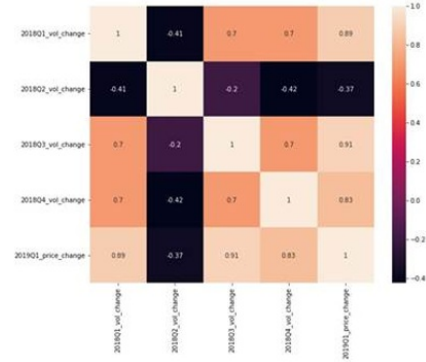
1st Quarter 2018

- R2_square: 0,921



1st Quarter 2019

- R2_square: 0,986

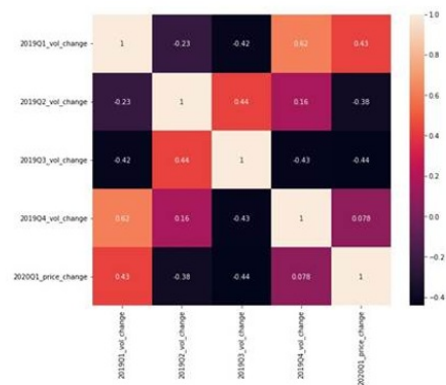


Volume and S&P500

2019Q4	2020Q1	Health Care sector	2020Q2	Correlation between quarters	LR 2018 & 2019	LR 2020	Comparative	Conclusions
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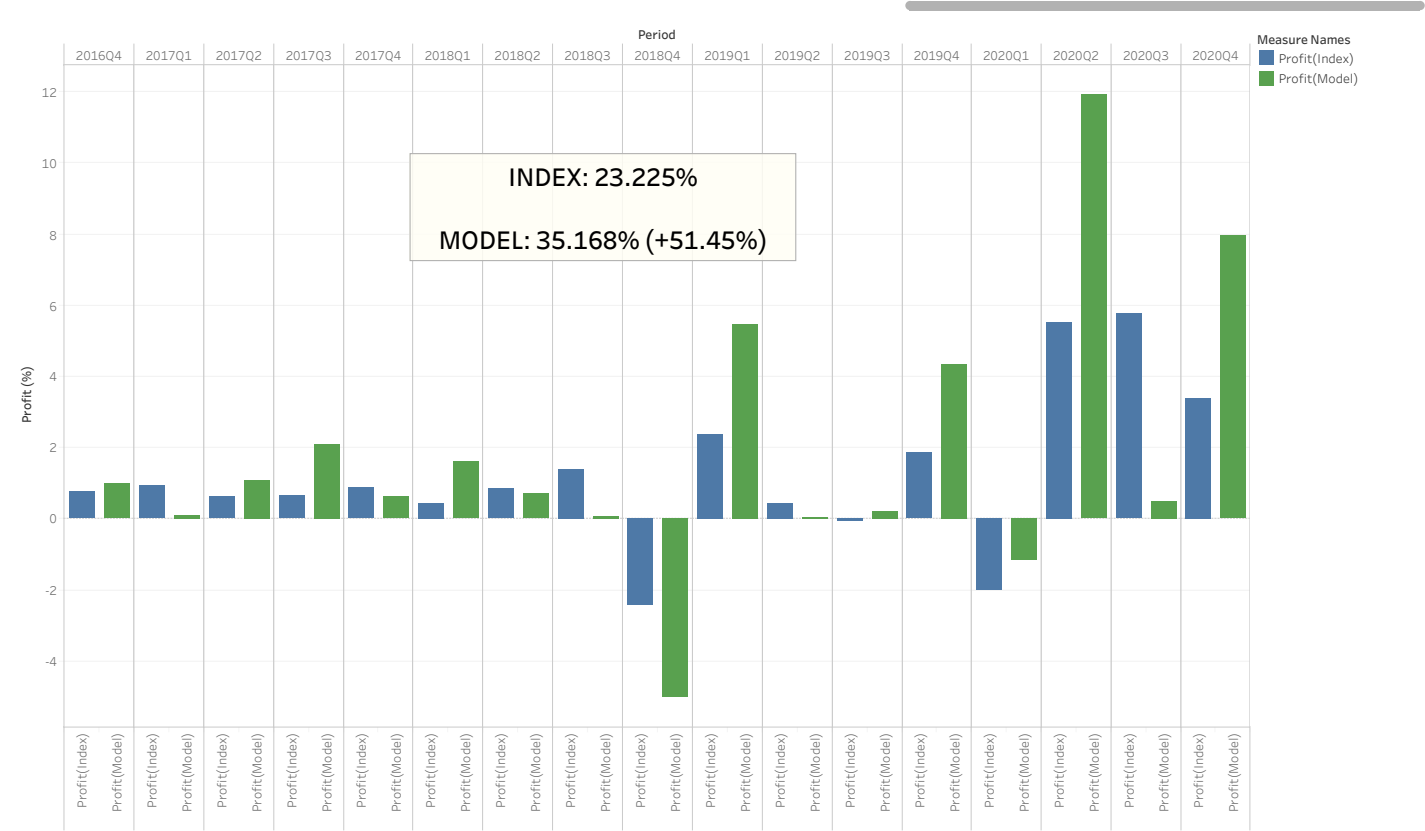
Wait!

- 1st Quarter 2020
- R2_square: **0,499**



Volume and S&P500

2019Q4	2020Q1!	Heath Care sector	2020Q2	Correlation between quarters	LR 2018 & 2019	LR 2020	Comparative	Conclusions
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Volume and S&P500

2019Q4	2020Q1	Health Care sector	2020Q2	Correlation between quarters	LR 2018 & 2019	LR 2020	Comparative	Conclusions
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CONCLUSIONS

- Time frame (2016-2020) with important bias (bullish market, and IT sector soaring)
- No evidence that we can forecast what sectors will perform better in future. Needed a wider time frame (more data!)
- Concerns about what weight should be applied to get the best results (not enough time for tests!)
- As seen, an investment method based on this hypothesis can give good results, but with higher risk (all eggs in the same bag)