Today's Agenda

Using OLS regressions to analyze the stock market

Download the stock market data from Moodle

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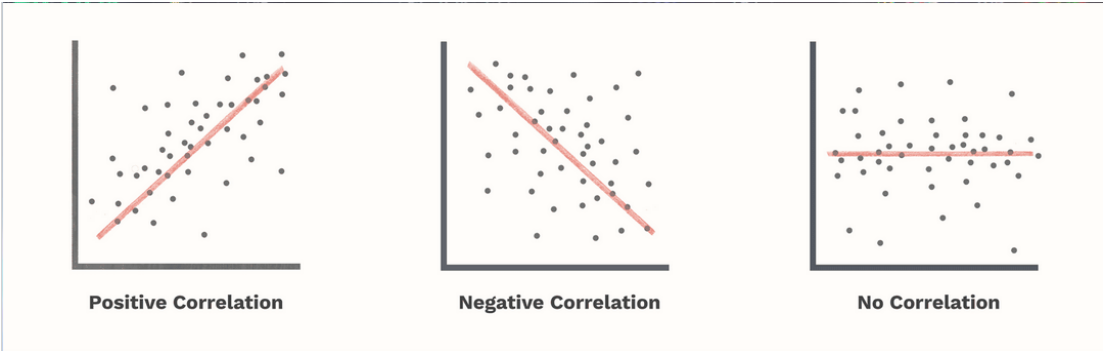
Analyzing the Stock Market with OLS

Analyzing the Stock Market with OLS



Analyzing the Stock Market with OLS

What does the 'beta' tell us about a stock?

Analyzing the Stock Market with OLS

KEY TAKEAWAYS

- Beta indicates how volatile a stock's price is in comparison to the overall stock market.
- A beta greater than 1 indicates a stock's price swings more wildly (i.e., more volatile) than the overall market.
- A beta of less than 1 indicates that a stock's price is less volatile than the overall market.
- A beta of 1 indicates the stock moves identically to the overall market.

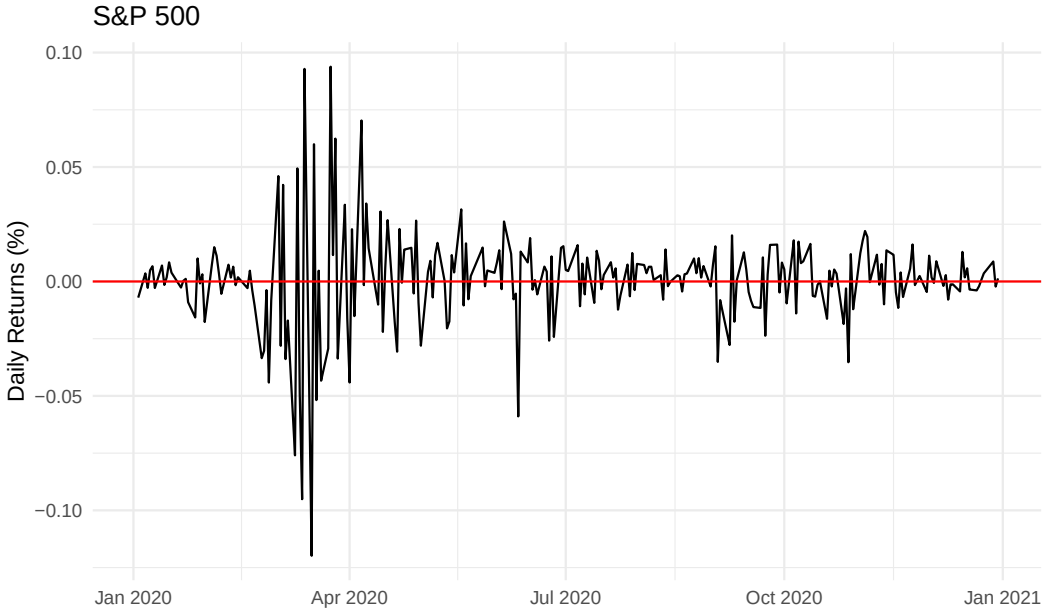
Analyzing the Stock Market with OLS

What does the 'alpha' tell us about a stock?

Analyzing the Stock Market with OLS

KEY TAKEAWAYS

- Alpha refers to excess returns earned on an investment above the benchmark return.
- Active portfolio managers seek to generate alpha in diversified portfolios, with diversification intended to eliminate unsystematic risk.
- Because alpha represents the performance of a portfolio relative to a benchmark, it is often considered to represent the value that a portfolio manager adds to or subtracts from a fund's return.


S&P 500
Daily Returns (%)
0.10
0.05
0.00
−0.05
−0.10
Jan 2020
Apr 2020
Jul 2020
Oct 2020
Jan 2021

Analyzing the Stock Market with OLS

1. Calculate the rate of return for the stock you are analyzing (e.g. BIG) AND the market (e.g S&P 500)
   - = (Current / Last) - 1

2. Regress the returns of the stock (the outcome) on the returns of the market (the predictor)

Analyzing the Stock Market with OLS

Market: S&P 500

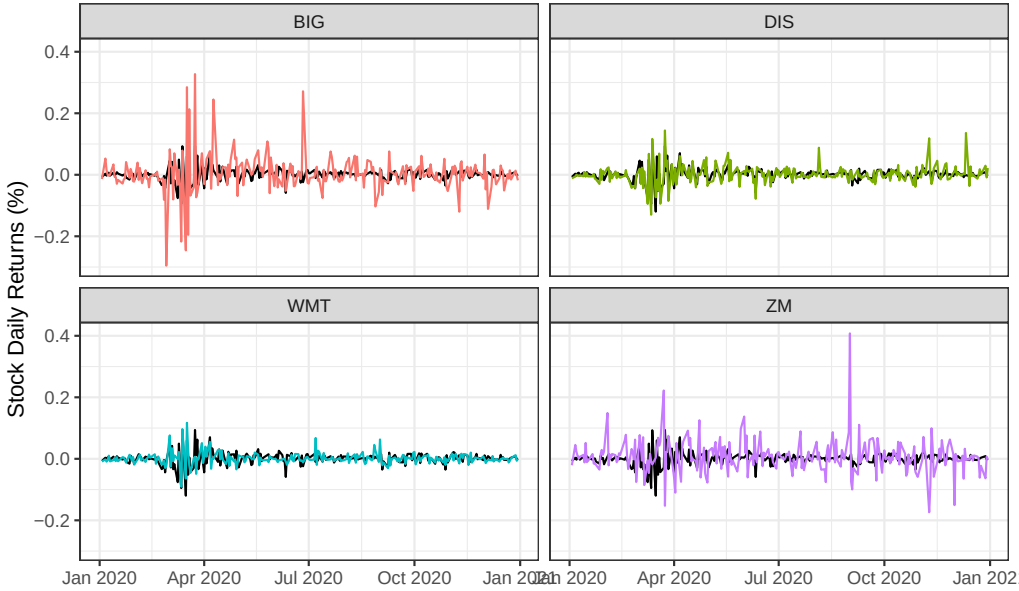
Analyze: Walmart, Disney, Zoom and Big Lots

For Each Stock:

1. Fit regressions and format in a table
2. Line plot: Market vs Stock Returns
3. $100 investment in 2020?

	ZM	WMT	DIS	BIG
	(1)	(2)	(3)	(4)
SP500	−0.18	0.51*	1.05*	1.42*
	(0.16)	(0.05)	(0.06)	(0.15)
Constant	0.01*	0.001	0.0005	0.003
	(0.003)	(0.001)	(0.001)	(0.003)
Observations	251	251	251	251
Adjusted R^2	0.001	0.31	0.54	0.26
Residual Std. Error (df = 249)	0.05	0.02	0.02	0.05
F Statistic (df = 1; 249)	1.27	114.21*	292.83*	86.89*

Note: *p<0.05


BIG
DIS
WMT
ZM
Stock Daily Returns (%)
0.4
0.2
0.0
−0.2
Jan 2020
Apr 2020
Jul 2020
Oct 2020
Jan 2021
Jan 2020
Apr 2020
Jul 2020
Oct 2020
Jan 202

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invest_sp500	invest_wmt	invest_dis	invest_zm	invest_big
$114.56	$123.24	$122.25	$514.26	$166.08