Research Question Proposal

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What is the relationship between short interest rate and stock returns?

What is 'short interest'

"A short interest is the quantity of stock shares that investors have sold short but not yet covered or closed out."

-- Investopedia

An increase in short interest means more people believe the stock price will decrease.

Important Investment Application

"If heavily shorted stocks underperform the market, an investor should avoid stocks with a high short interest ratio when selecting stocks for a portfolio.

If an investor already owns a stock that develops sustained high short interest, the clear and strong advice is to sell the stock immediately, unless adverse tax consequences are present."

-- D. Rapach, et al, "Short Interest and Aggregate Stock Returns", Journal of Financial Economics, forthcoming, 2016

Will the stock price drop?

- *"We find that the higher the short interest ratio, the lower is the subsequent performance."*

  -- P. Asquith, et al, "Short Interest, Institutional Ownership, And Stock Returns,", Journal of Financial Economics, 2005

- *"We show that short interest is arguably the strongest known predictor of aggregate stock returns. A one-standard-deviation increase in SII corresponds to a six to seven percentage point decrease in the future annualized market excess return."*

  -- D. Rapach, et al, "Short Interest and Aggregate Stock Returns", Journal of Financial Economics, forthcoming, 2016

DATA

★ Compustats

Company Name	Short Interest Ratio	Market Cap, $mm	Market-to-book	Prior 12-month Return	Industry
NYSE-Amex					
CVD Equipment Corp	99.3%	$653 mm	1.10	-42.37%	Semiconductor processor
UAL (United Airlines)	58.3%	$638 mm	-0.18	-85.48%	Airline
Prepaid Legal Services	54.7%	$401 mm	11.46	50.00%	Legal services
Federal Agricultural Mortgage	33.5%	$269 mm	-0.17	-30.86%	Consumer finance
Fleetwood Enterprises	33.3%	$304 mm	2.74	-34.34%	Recreational vehicle producer
Jo Ann Stores	32.7%	$293 mm	1.01	258.38%	Retail fabric stores
Metris	32.1%	$517 mm	0.82	-79.00%	Credit card issuer
BMC Industries MN	30.2%	$260 mm	0.44	-34.74%	Electronics
SWS Group	29.2%	$338 mm	1.33	-10.80%	Finance
Fleming Companies	28.9%	$976 mm	1.45	-70.85%	Supermarket supplier
Northwestern Corp.	28.7%	$464 mm	-1.02	-56.64%	Electricity and gas distribution
Nautilus Group	28.5%	$1,077 mm	5.32	-43.37%	Exercise equipment
Sunrise Assisted Living	28.1%	$602 mm	1.29	1.93%	Retirement housing
Action Performance	27.9%	$562 mm	2.45	-32.88%	Motorsports merchandise
Administaff	26.6%	$280 mm	2.41	-76.70%	Temporary staffing
Univision Communications	26.2%	$5,025 mm	3.23	-9.74%	Spanish-language TV
American Italian Pasta	25.7%	$916 mm	3.08	-2.16%	Pasta producer and marketer
Chico Fas	24.4%	$1,490 mm	6.21	112.68%	Women's clothing retailer
Salton	23.3%	$157 mm	0.64	-19.63%	Small appliance retailer
Duane Reade	23.3%	$812 mm	2.46	-42.37%	Drug store chain
Footstar	23.2%	$492 mm	1.74	-76.55%	Shoe retailer
Nasdaq					
Biosite	48.3%	$415 mm	3.85	72.74%	Diagnostic product developer
Cognizant Tech Solutions	46.1%	$452 mm	2.73	123.02%	IT outsourcing
Polymedica	45.0%	$310 mm	1.58	24.96%	Medical products retailer
Eresearch Technology	43.1%	$176 mm	4.34	120.05%	Cardiac clinical research
Cabot Microelectronics	39.6%	$1,045 mm	4.89	-12.99%	Polishing compound producer
Neoware Systems	37.7%	$146 mm	4.01	676.54%	Thin client appliances/software
FPIC Insurance Group	37.6%	$141 mm	0.85	-53.65%	Liability insurance provider
American Capital Strategies	33.0%	$1,058 mm	1.54	-17.53%	Buyout fund
Sirius Satellite Radio	31.6%	$289 mm	9.54	-87.78%	Satellite radio
Expedia	31.1%	$1,337 mm	2.75	131.13%	Internet travel agency
New Century Financial	31.0%	$864 mm	2.24	67.51%	Subprime mortgages
Silicon Laboratories	29.5%	$1,366 mm	8.77	13.70%	Integrated circuit designer
THQ	29.3%	$1,177 mm	2.88	-53.21%	Video games for PCs
J2 Global Comm	28.9%	$178 mm	3.14	460.99%	Communications services
Zix Corp.	28.7%	$97 mm	10.12	-42.52%	E-mail management/ protection
AAIPharma	28.0%	$411 mm	4.13	-16.54%	Drug marketing
XM Satellite Radio Holdings	27.4%	$661 mm	1.12	-78.26%	Satellite radio
Hot Topic Inc.	26.6%	$848 mm	5.27	27.67%	Clothing retailer for teenagers
Invision Technologies	25.8%	$403 mm	1.70	15.03%	Airline security systems
Shuffle Master	25.8%	$330 mm	6.56	7.78%	Gambling industry supplier
Cell Therapeutics	25.3%	$181 mm	4.17	-64.91%	Biotech (cancer)
Kroll Inc	25.3%	$656 mm	1.44	30.03%	Risk consulting and security

NEW METHOD

Old:

★ Four-factor linear regression
★ Time series (VAR)

Proposing:

★ Random forest

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Random Forest

➔ Explanatory variable

◆ Equally weighted short interest and other market indicators and moments

➔ Response variable

◆ Categorise stock return into large rise(2), rise(1), no change(0), drop(-1), and large drop(2)

➔ Two classifications

◆ one with explanatory variable "short interest" and one without

➔ Make variable importance plots

➔ Compare accuracy of predictions

Thank You