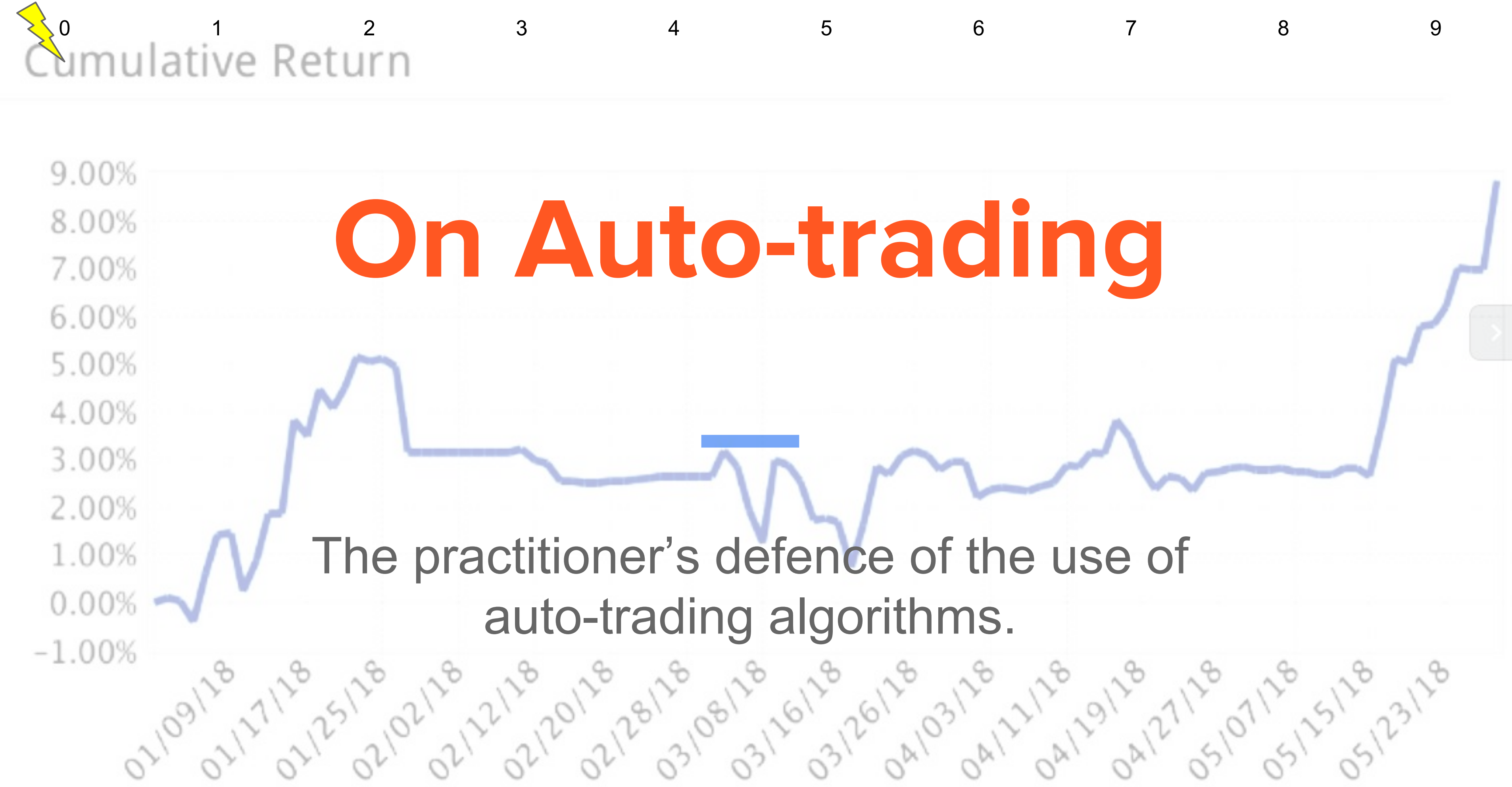
On Auto-trading

The practitioner’s defence of the use of auto-trading algorithms.



Lightning talk take home points

Just remember this:

Market participants should consider auto-trading their strategies.

A rising rate environment can work in the investor's favor by changing markets.

Be vigilant in recognizing your biases in real-time.

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Bias affects us all

Head of Quantitative Strategies

Sizemore Capital Management (2008) - dba PhysicianCapitalPartners.com (2015)

Dallas, Texas

Family offices, municipal pensions

<u>Background:</u>

Cardiac anesthesiologist by training

U Tx School of Public Health grad school ← Data Science in disguise!

US Citizen & EU resident (Spain)

Result ➔ Different biases and strengths/weakness when approaching the market.

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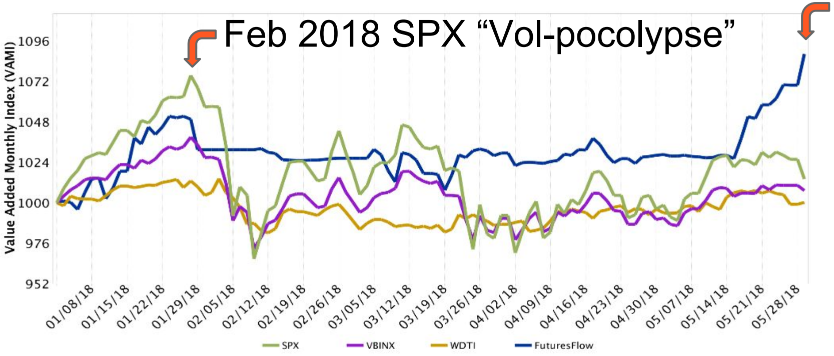
Street Cred

	SPX	FuturesFlow
Ending VAMI	1,013.97	1,088.18
Max Drawdown:	10.10%	4.18%
Peak-To-Valley:	01/26/18 - 02/08/18	01/23/18 - 03/19/18
Recovery:	Ongoing	45 Days
Sharpe Ratio:	0.27	2.73
Sortino Ratio:	-0.02	3.78
Calmar Ratio:	0.48	8.08
Standard Deviation:	1.09%	0.54%
Downside Deviation:	0.85%	0.31%
Correlation:	0.15	-
Mean Return:	0.02%	0.08%
Positive Periods:	61 (57.55%)	62 (58.49%)
Negative Periods:	45 (42.45%)	44 (41.51%)

Risk Measures **Benchmark Comparison**



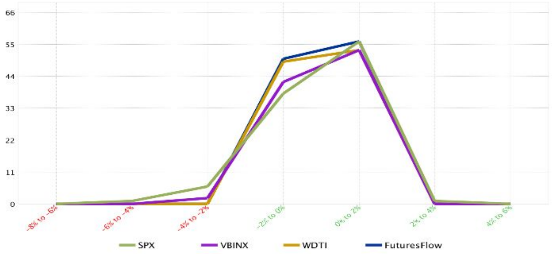
Feb 2018 SPX “Vol-pocolypse”

Auto-trading strategy (2018-05-29)

Risk Analysis

	SPX	VBINX	WDTI	FuturesFlow
Ending VAMI	1,013.97	1,007.16	1,000.25	1,088.18
Max Drawdown:	10.10%	6.38%	3.16%	4.18%
Peak-To-Valley:	01/26/18 - 02/08/18	01/26/18 - 02/08/18	02/01/18 - 02/12/18	01/23/18 - 03/19/18
Recovery:	Ongoing	Ongoing	Ongoing	45 Days
Sharpe Ratio:	0.27	0.15	-0.17	2.73
Sortino Ratio:	-0.02	-0.44	-1.48	3.78
Calmar Ratio:	0.48	0.39	0.03	8.08
Standard Deviation:	1.09%	0.61%	0.33%	0.54%
Downside Deviation:	0.85%	0.49%	0.24%	0.31%
Correlation:	0.15	0.17	0.09	-
Mean Return:	0.02%	0.01%	0.00%	0.08%
Positive Periods:	61 (57.55%)	62 (58.49%)	57 (53.77%)	62 (58.49%)
Negative Periods:	45 (42.45%)	44 (41.51%)	49 (46.23%)	44 (41.51%)

Distribution of Returns



PortfolioAnalyst

But I thought I was diversified?
60/40 (VBINX) Sharpe = 0.15

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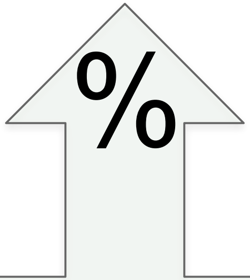
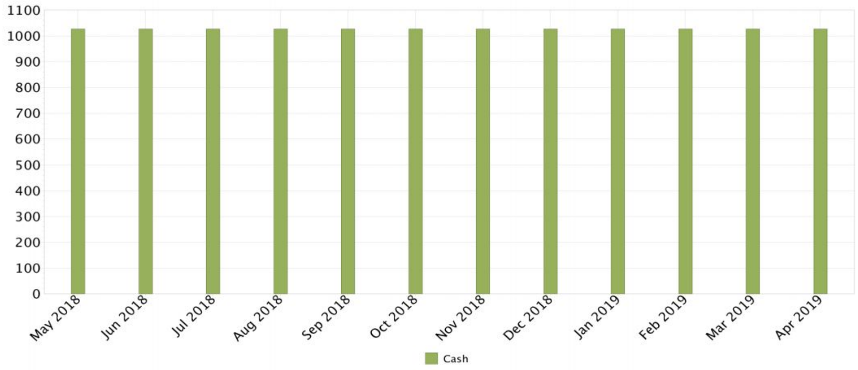
Street Cred



Rising interest rates
+
High valuations

Wall of Worry:
stocks
bonds
RE
PE
direct investment
gold

Projected **Income**



Symbol	Description	Frequency	Quantity	Price	Value	Current Yield %	Estimated Annual Income
Cash							
USD	Credit Interest	Monthly		1.00		1.19	12,326.40
Total						**1.19**	**12,326.40**

...But **with futures,**
rising rates =
more monthly income.

Current Yield %
1.19
1.19

PortfolioAnalyst

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Goal = “Minimize and Match” (or exceed)

...Drawdowns and S&P 500 performance.

Focus on absolute and risk-adjusted returns

Pay for performance fee structure

Close at $300MM

2 kinds of auto-trading algos

YOUR STRATEGY

(insert your backtested code here … AKA “I’ve never seen a bad backtest.”)

AND

YOUR EXECUTION

(Use Interactive Brokers IBALGO)

Why you should auto-trade

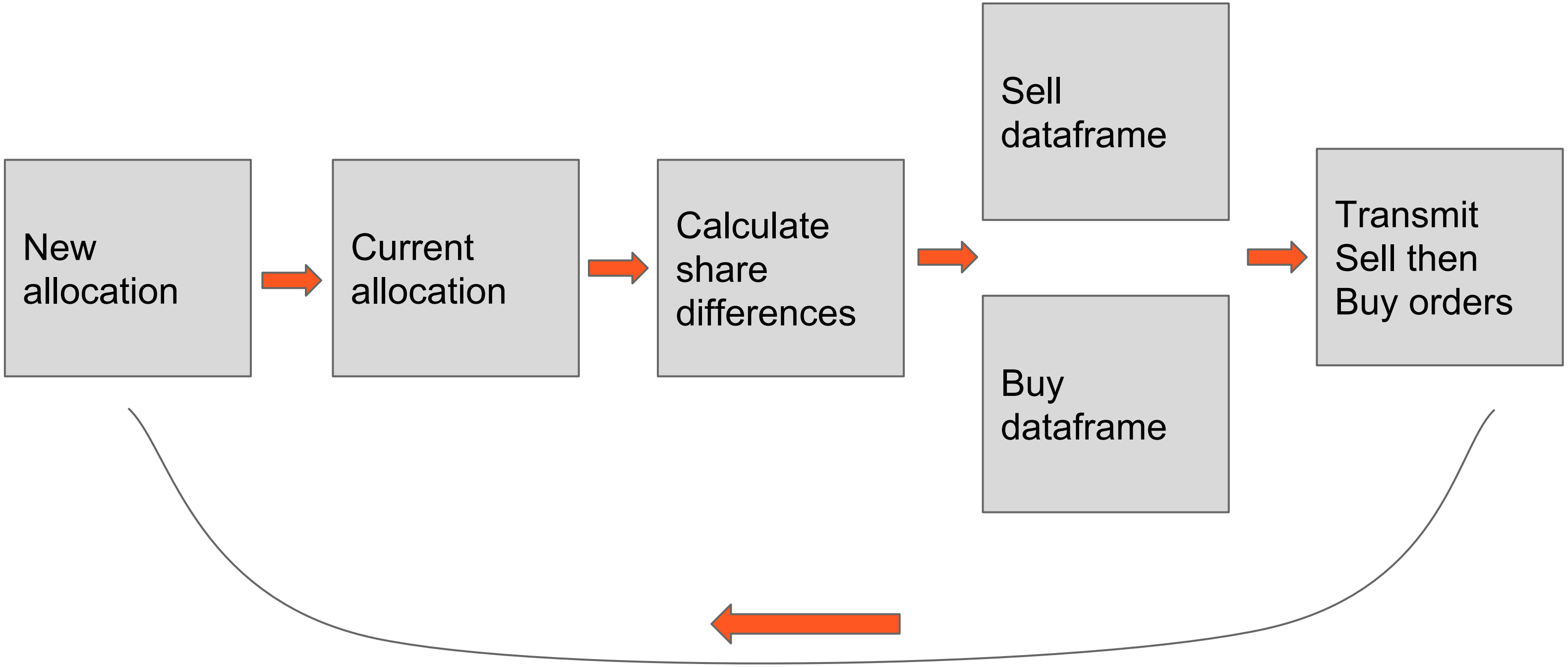
Because it probably improves performance (anecdotal evidence)

How?

- *****Reduces order transmission variance*****
- **IBALGO probably fills better than human trader**
- **Reduces costs - slippage, human trader time**

Auto-trading logic

Download full code - https://github.com/PhilGuerra/autotrade.



R and Python with Reticulate & ib_insync

```
Sys.setenv(RETICULATE_PYTHON = "/opt/Python-3.6.3")
library(reticulate)
insync <- import("ib_insync")
ib <- insync$IB()
ib$connect( port = "4001" )
####################
### SELL ORDERS ###
####################
if (nrow(sell.df) > 0 ) {

  for (i in 1:nrow(sell.df)) {
    conContract = insync$Contract()
    conContract$symbol = sell.df[i,1]
    conContract$secType = "STK"
    conContract$exchange = "SMART"
    conContract$currency = "USD"
    ib$qualifyContracts(conContract)
    print(conContract)

    order = insync$MarketOrder(action = 'SELL',
                               totalQuantity = sell.df[i,4],
                               algoStrategy = 'Adaptive',
                               algoParams = list(insync$TagValue('adaptivePriority', 'Normal'))) ### R and Python! ###

    print(order)
    trade = ib$placeOrder(conContract,order)

  }

}
```

(How to say “TagValue” in R & IBAPI)

Thank you

Who	For
Charles Sizemore CFA	Sizemore Capital CIO
Our clients	Developing a thought partnership that works
R Finance Committee	Opportunity to present and share code
R Studio	R Studio and Reticulate package
Interactive Brokers	IBAPI written in native Python, IBALGO
Quandl	Futures data
Hull Investments	High-caliber research
Michael Kapler	SIT and rtsviz packages
Ewald de Wit	Ib_insync module for interfacing with IBAPI
Package authors / maintainers	IBrokers, FinancialInstrument,Quantmod, zoo, many more!

DISCLOSURES = NONE
PAST PERFORMANCE DOES NOT GUARANTEE FUTURE RETURNS.