Spring 2022 Presentation

Undergraduate Student Investment Management Fund

Team A

Friday, April 29th, 2022

Team Introduction

ASU W. P. Carey School of Business
Arizona State University

Former Fund Manager

Jacob Mosier

Fund Analysts

Jacob Nance

Rushini Randeniya

Jack Kreber

Jacob Henwood

Peyton Morris

Jakob Krygier

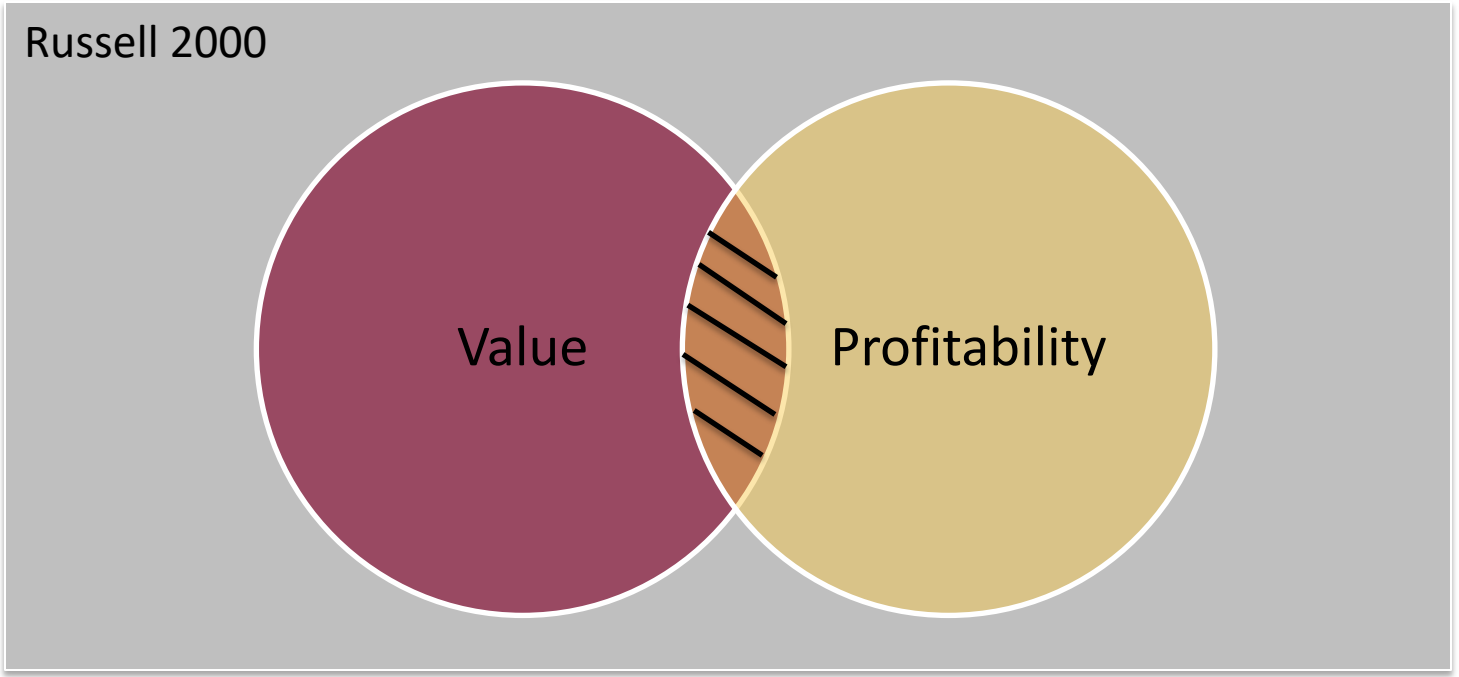
Aparna Bezawada

Jonathan Kim

Table of Contents

Investment Thesis

Investment Thesis



Intangible-Augmented Value Measure

New B/M = B_{it}^{INT}/Market Cap

$$B_{it}^{\text{INT}} = B_{it} + \text{Int}_{it},$$

$$\text{Int}_{i,t} = \text{Int}_{i,t}^{know} + \text{Int}_{i,t}^{org}.$$

INTANGIBLE VALUE

Andrea L. Eisfeldt
Edward Kim
Dimitris Papanikolaou

Working Paper 28056
http://www.nber.org/papers/w28056

$$\text{Int}_{i,t}^{know} = (1 - \delta_{R\&D})\text{Int}_{i,t-1}^{know} + R\&D_{i,t},$$

$$\text{Int}_{i,t}^{org} = (1 - \delta_{SG\&A})\text{Int}_{i,t-1}^{org} + \theta SG\&A_{i,t},$$

Cash-Based Profitability Measure

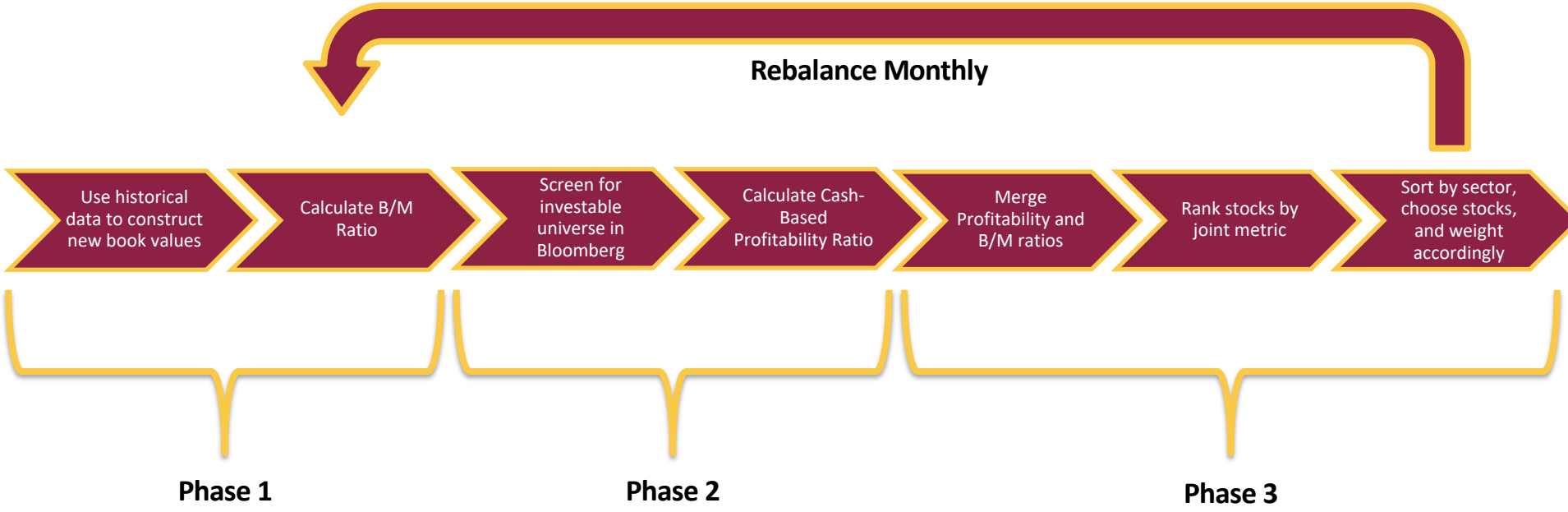
Cash-based operating profitability
= Operating profitability
− Δ(Accounts receivable (RECT))
− Δ(Inventory (INVT))
− Δ(Prepaid expenses (XPP))
+ Δ(Deferred revenue (DRC+DRLT))
+ Δ(Trade accounts payable (AP))
+ Δ(Accrued expenses (XACC)).

$$\text{Profitability Metric} = \frac{\text{Cash Based Profitability}}{\text{Total Assets}}$$

Accruals, cash flows, and operating profitability in the cross section of stock returns☆

Ray Ball[a,*], Joseph Gerakos[a], Juhani T. Linnainmaa[b,c], Valeri Nikolaev[a]

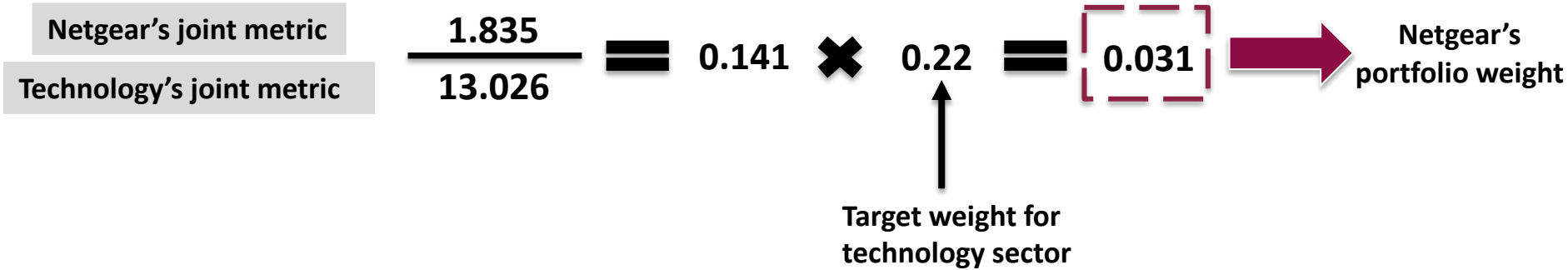
Portfolio Construction Overview



Individual Security Allocation

Within each sector, securities hold weights proportional to their joint metric.

Example: Netgear, Inc (NTGR) – Technology



Sector Allocation

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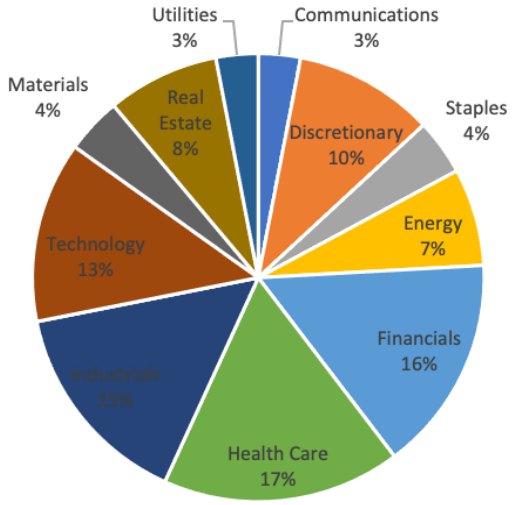
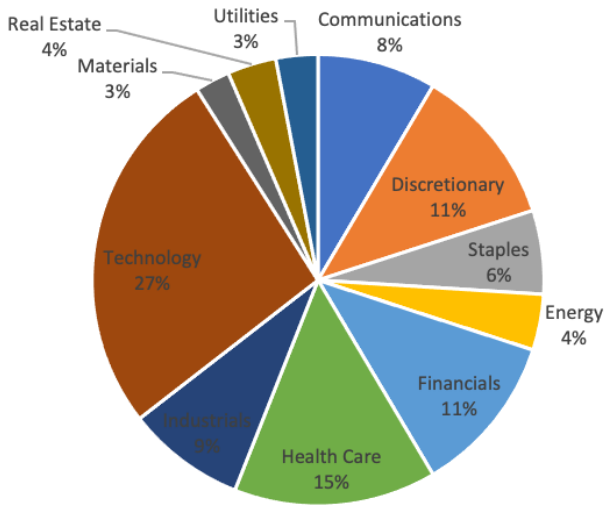
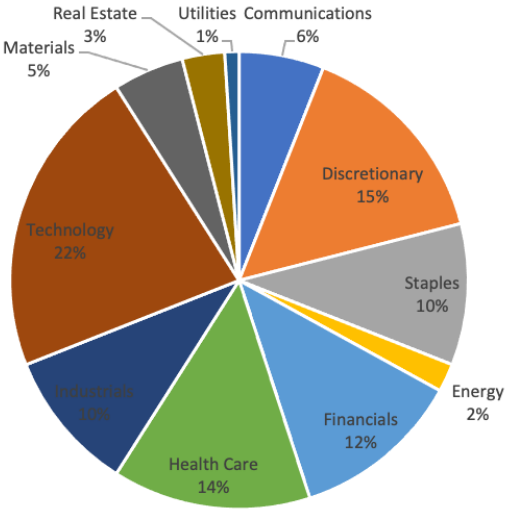
Russell 2000



Russell 3000



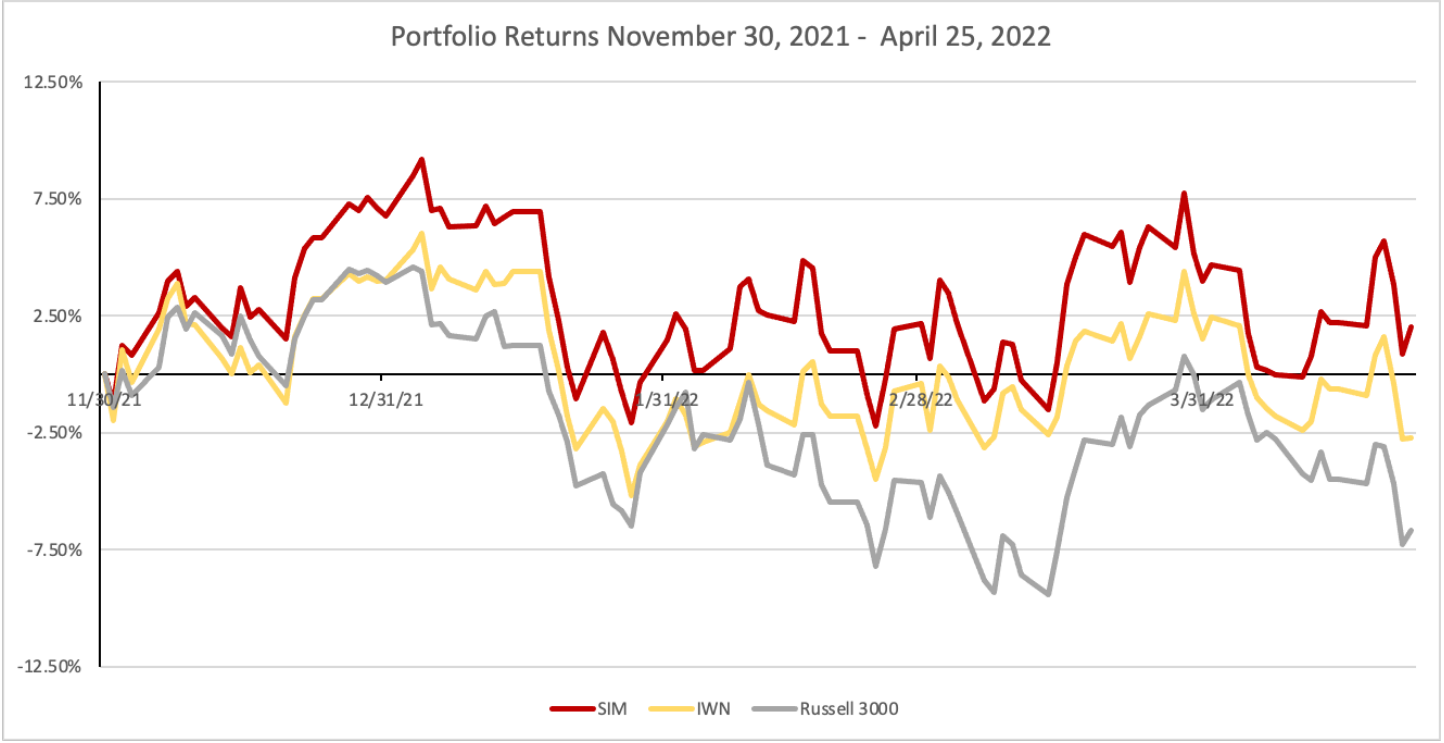
Our Portfolio



As of April 9, 2022

Performance

Portfolio Return

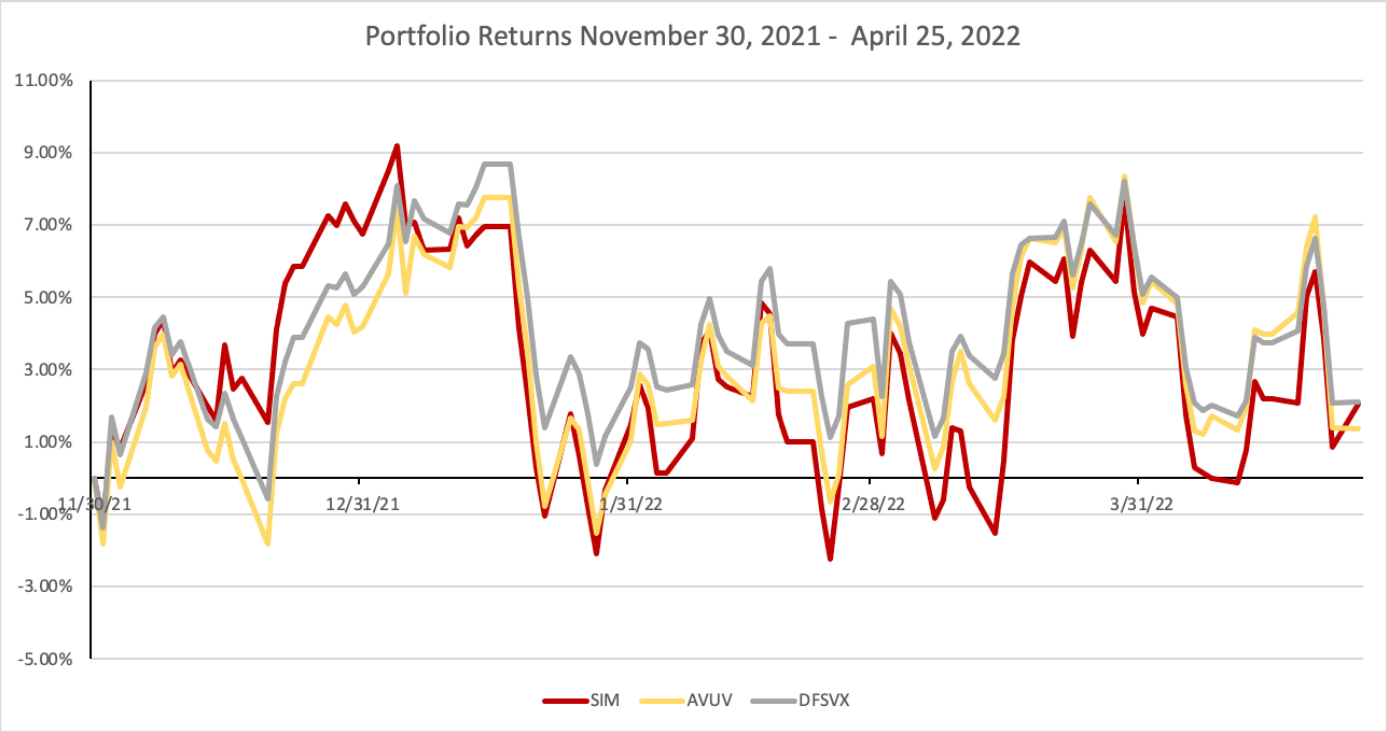


$R_{SIM} = 2.04\%$

$R_{SIM} - R_{IWN} = 4.77\%$

$R_{SIM} - R_{R3000} = 8.71\%$

Portfolio Return



Process

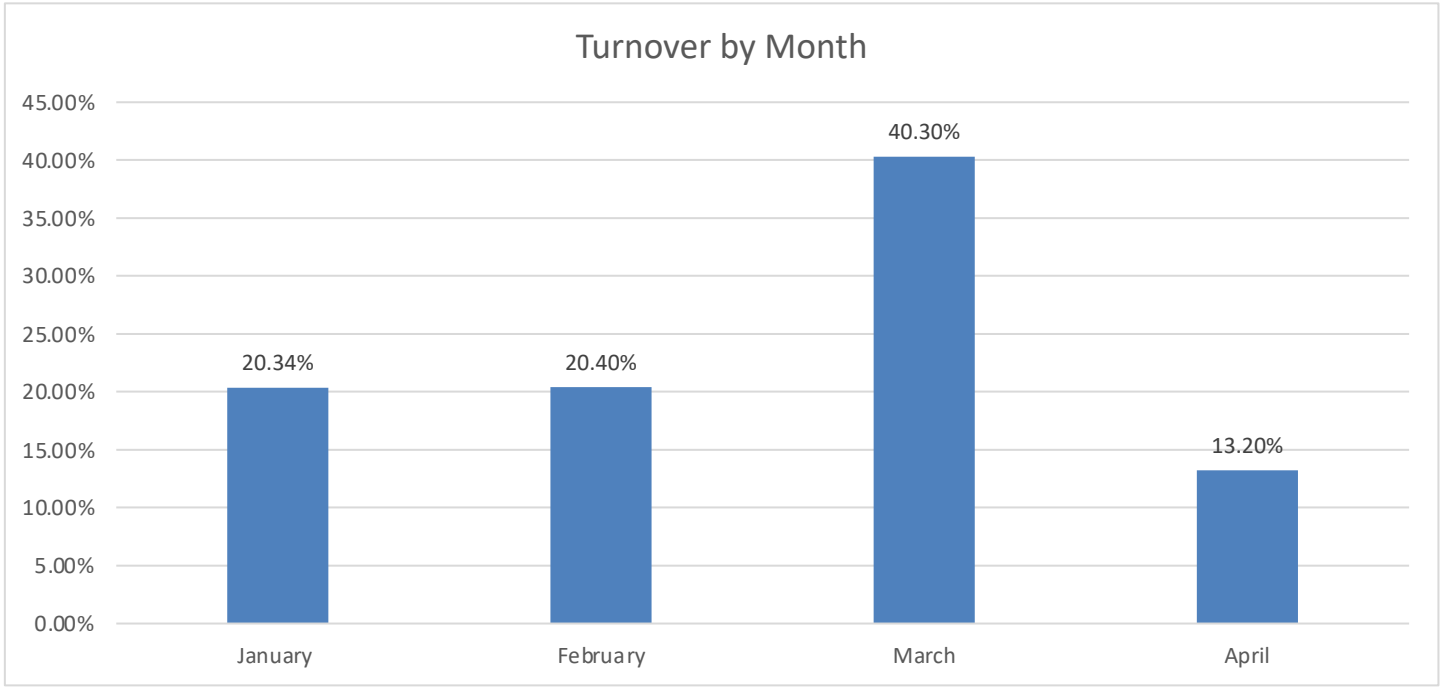
Attribution

SIM vs ISHARES RUSSE by GICS Sectors in USD Time Custo 03/07/22 - 04/07/22

Version MAC | Edit Model | Attribution Model Returns-Based | Local Alloc Local Return Allocation | FX Alloc None

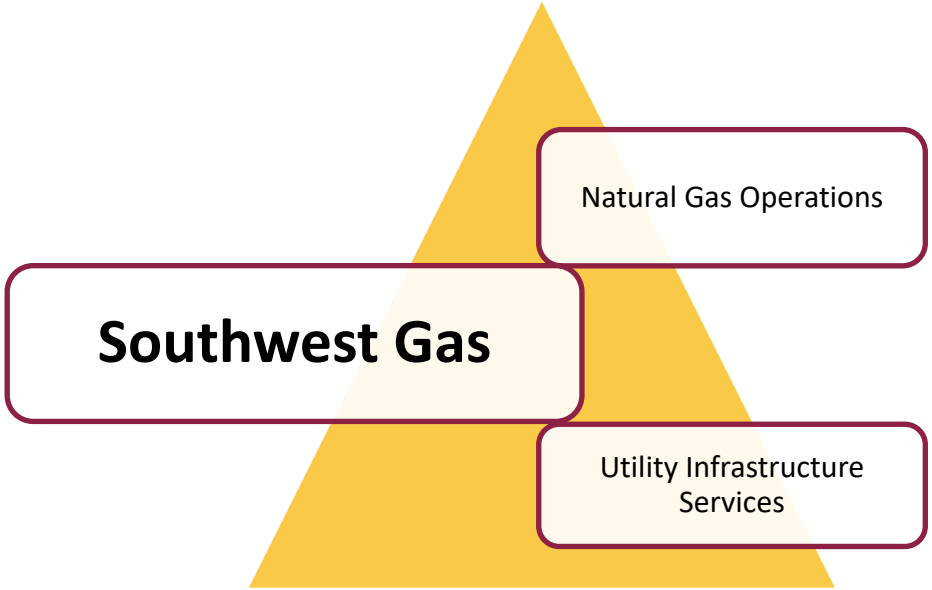
Name	Avg % Wgt			Tot Rtn			CTR			Alloc	Selec	Curr	Tot Attr
	Port	Bmrk	+/-	Port	Bmrk	+/-	Port	Bmrk	+/-				
SIM	100.00	100.00	0.00	1.29	1.71	-0.42	1.29	1.71	-0.42	0.62	-1.03	0.00	-0.42
▸ Communication Services	5.97	3.40	2.57	7.22	6.96	0.26	0.41	0.22	0.19	0.16	-0.02	0.00	0.14
▸ Consumer Discretionary	15.52	7.18	8.33	0.75	0.78	-0.04	0.14	0.07	0.08	-0.05	-0.02	0.00	-0.07
▸ Consumer Staples	8.99	2.99	6.00	5.75	5.30	0.46	0.51	0.16	0.35	0.23	0.03	0.00	0.26
▸ Energy	2.14	9.36	-7.23	20.95	6.57	14.38	0.40	0.58	-0.18	-0.36	0.28	0.00	-0.07
▸ Financials	11.21	25.81	-14.60	-0.73	-2.78	2.06	-0.06	-0.67	0.62	0.66	0.25	0.00	0.90
▸ Health Care	13.16	8.85	4.31	7.61	5.07	2.54	0.93	0.44	0.50	0.19	0.26	0.00	0.45
▸ Industrials	10.83	15.32	-4.49	-4.61	1.19	-5.80	-0.49	0.21	-0.70	0.03	-0.65	0.00	-0.61
▸ Information Technology	22.31	5.37	16.93	-2.62	1.23	-3.84	-0.54	0.07	-0.62	-0.04	-0.90	0.00	-0.95
▸ Materials	5.12	4.53	0.59	4.93	3.16	1.77	0.24	0.14	0.10	0.00	0.10	0.00	0.10
▸ Real Estate	2.93	11.62	-8.68	-10.45	3.04	-13.48	-0.30	0.33	-0.64	-0.12	-0.40	0.00	-0.52
▸ Utilities	1.11	5.33	-4.22	5.38	3.08	2.30	0.06	0.16	-0.10	-0.06	0.02	0.00	-0.03
▸ Not Classified	0.71	0.22	0.49	0.00	0.00	0.00	0.00	0.00	0.00	-0.02	0.00	0.00	-0.02

Turnover

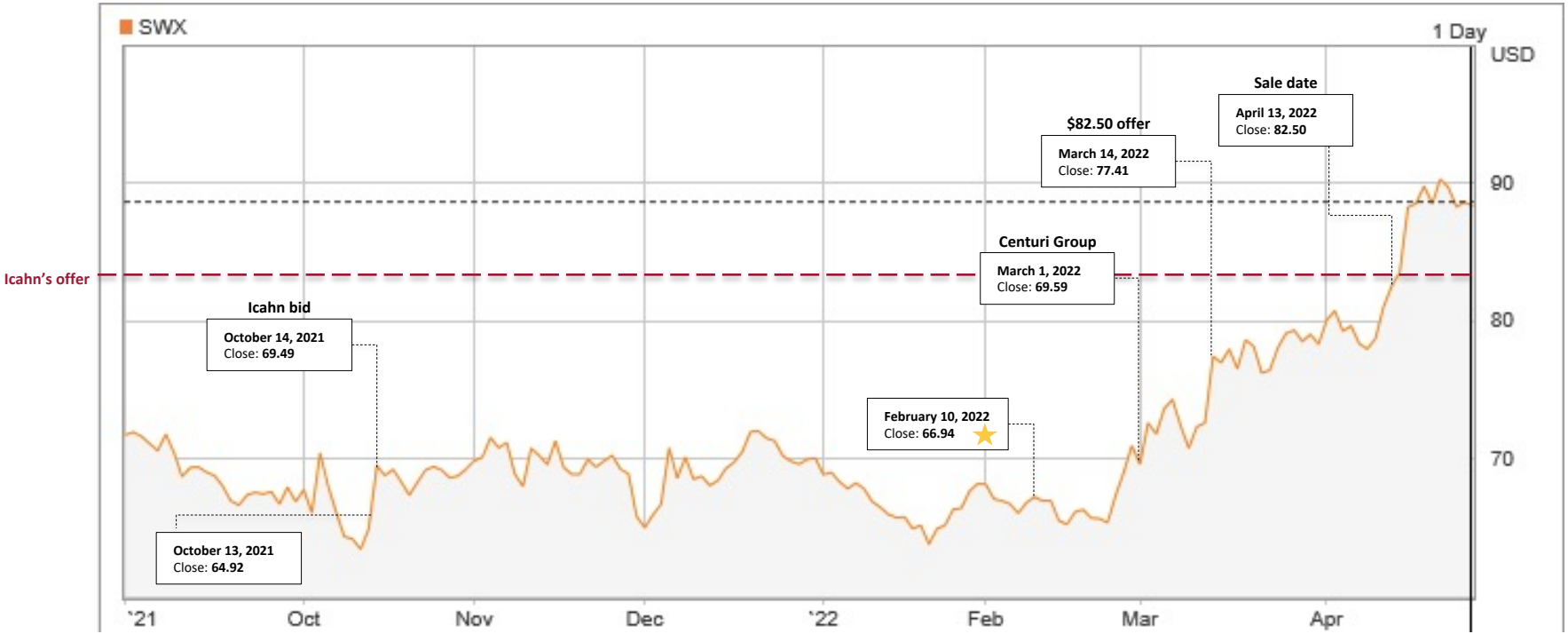

Turnover by Month
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
20.34%
20.40%
40.30%
13.20%
January
February
March
April

SWX Case Study

Southwest Gas (SWX)



SWX Stock


SWX
1 Day
USD
Sale date
April 13, 2022
Close: 82.50
$82.50 offer
March 14, 2022
Close: 77.41
Centuri Group
March 1, 2022
Close: 69.59
Icahn's offer
Icahn bid
October 14, 2021
Close: 69.49
February 10, 2022
Close: 66.94
October 13, 2021
Close: 64.92
90
80
70
'21
Oct
Nov
Dec
'22
Feb
Mar
Apr

Thank You.

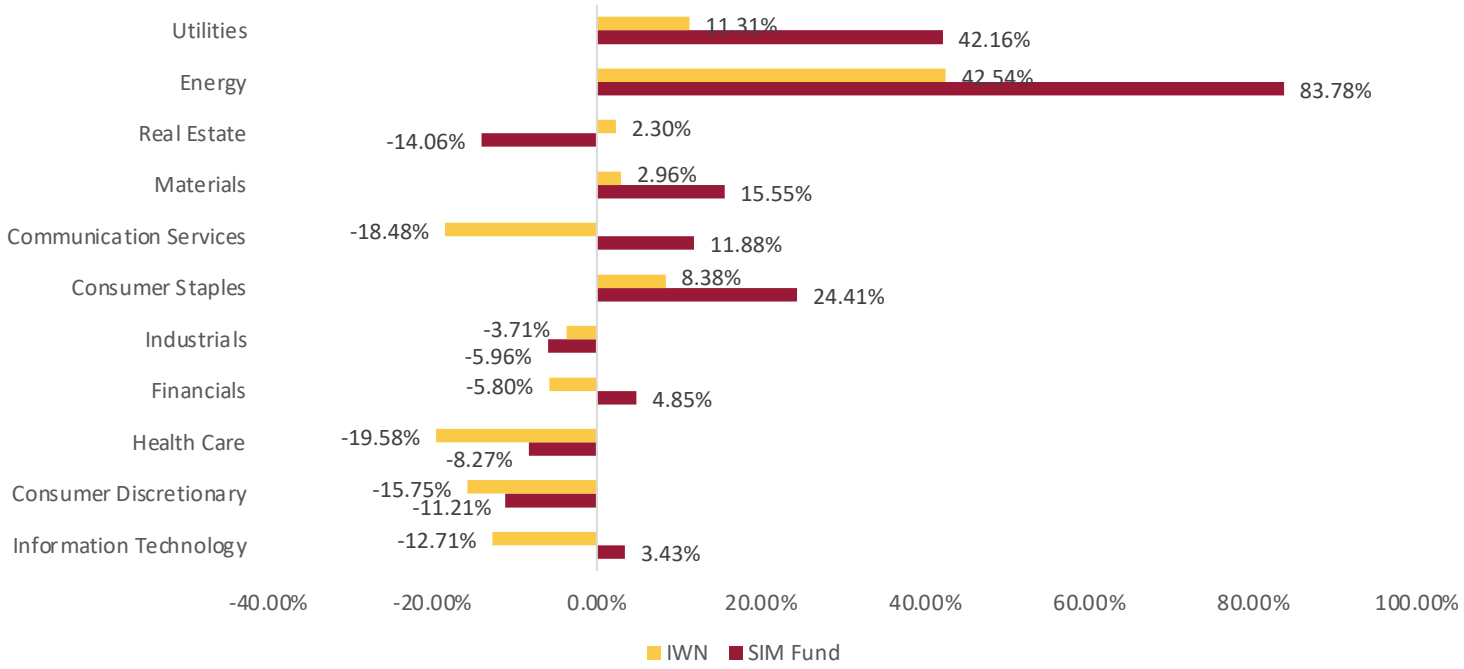
Questions?

Appendix

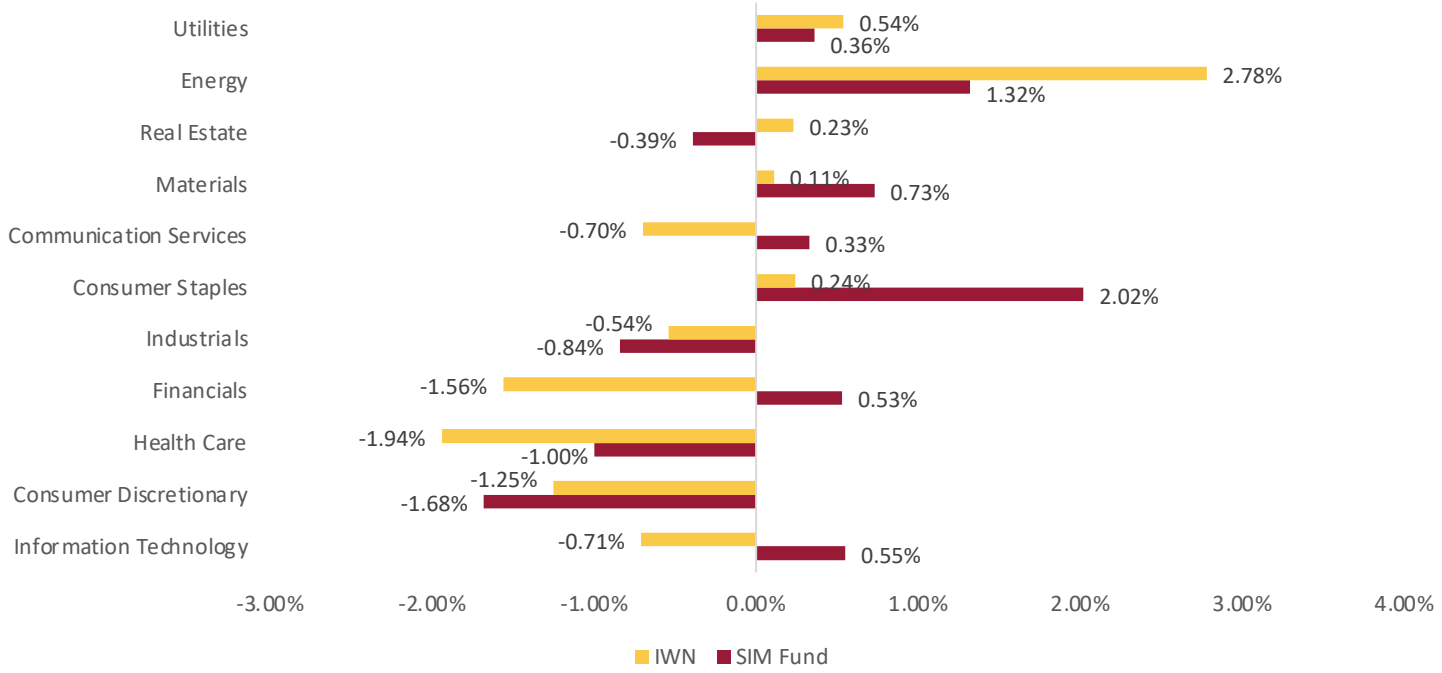
Benchmark Performance

Benchmark	Entire Horizon (11/30-4/25)
Our Fund	2.04%
AVUV	1.35%
IWN	-2.73%
DFSVX	2.11%
VISVX	0.81%

Sector Return Attribution



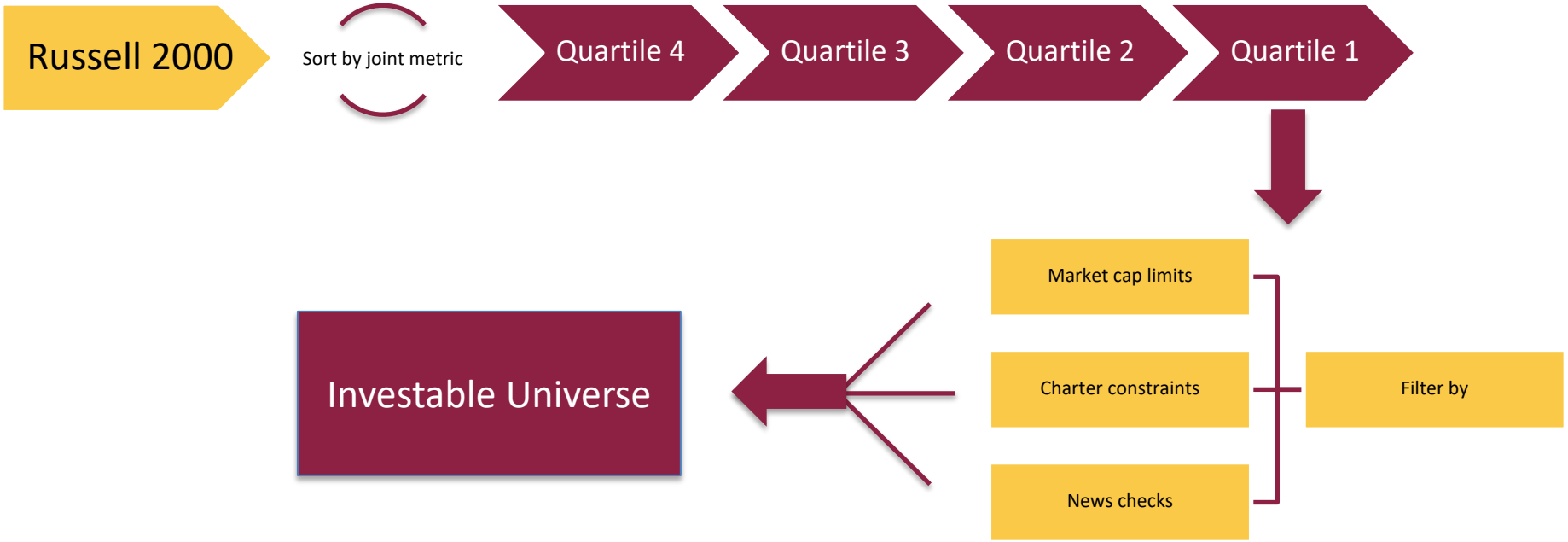
Sector Return Contribution



Sector Holdings Over Time

Number of securities per sector per month		December	January	February	March	April
Energy	10	2	2	2	3	2
Materials	15	3	3	3	3	3
Industrials	20	7	8	8	8	8
Disc	25	8	8	8	8	8
Staples	30	8	8	7	6	6
Health Care	35	5	4	4	3	3
Financials	40	3	3	3	4	4
Tech	45	7	8	8	8	8
Comm	50	3	2	2	2	2
Utilities	55	2	2	2	2	1
Real Estate	60	2	2	2	2	2
Total		50	50	49	49	47

Investment Quintiles



Parameters of Interest

$$\text{Int}_{i,t}^{know} = (1 - \delta_{R\&D})\text{Int}_{i,t-1}^{know} + R\&D_{i,t},$$
$$\text{Int}_{i,t}^{org} = (1 - \delta_{SG\&A})\text{Int}_{i,t-1}^{org} + \theta SG\&A_{i,t},$$
$$\text{Int}_{i,t} = \text{Int}_{i,t}^{know} + \text{Int}_{i,t}^{org}.$$

Parameters of Interest	
$\delta_{R\&D}$	Sector-specific (Hall); = 0.15 for sectors without defined rate
$\delta_{SG\&A}$	= 0.2 by assumption (Eisfeldt)
θ	= 0.3 by assumption (Eisfeldt)

Final Presentation

Undergraduate Student Investment Management Fund – Team B

April 29, 2022

Team Introduction

Torren Baker,
Fund Analyst

Thanh Nguyen,
Fund Analyst

Ahmet Sozmen,
Fund Analyst

Alexandre Tilly,
Fund Analyst

Alec Barron,
Fund Analyst

Eric Peterson,
Fund Analyst

Ethan Kibsey,
Fund Analyst

Preston Morris,
Fund Analyst

Jacob Mosier,
Fund Manager

The Interest

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- Choice Set
- Expected Alpha
- Experience
- Relevance

Investment Thesis

Investment Thesis Evidence

Boehmer, Jones,, Zhang, Zhang. "Tracking Retail Investor Activity." The Journal of Finance, 76(5), 2249-2305. https://doi.org/10.1111/jofi.13033.

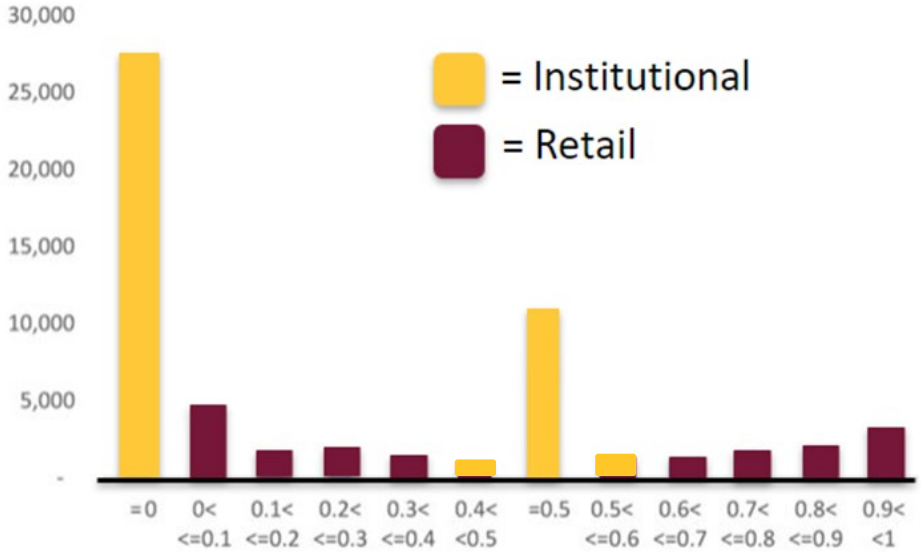
Panel A: Form Portfolios on the Previous Week's Marketable Retail Order Imbalance Based on Number of Shares Traded

Holding	Full Sample				Small		Medium		Big	
Period	Mean	*t*-Stat	alpha	*t*-Stat	alpha	*t*-Stat	alpha	*t*-Stat	alpha	*t*-Stat
1 week	0.092%	2.66	0.084%	2.43	0.403%	9.16	0.170%	6.24	0.067%	1.78

4.78% | 4.37% | 20.96% | 8.84% | 3.48%

Annualized Alphas

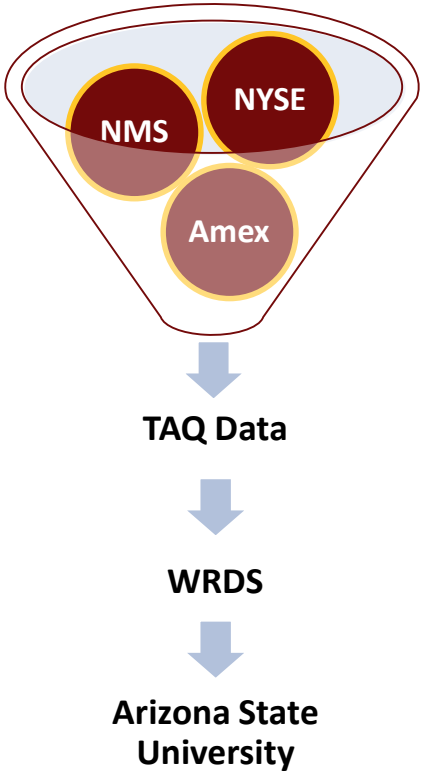
How Do We Find Retail Trades?



$$\text{Retail Order Imbalance} = \frac{\text{Retail Buy Vol.} - \text{Retail Sell Vol.}}{\text{Retail Buy Vol.} + \text{Retail Sell Vol.}}$$

Initial Strategy Implementation

Where Do We Get Our Data?



Step "0"

1) Extract the NBBO
2) Data cleansing & exported to CSV file
3) Apply constraints
4) NBBO file and trade files merged
5) Clean final table
6) Create zip file
7) Export to team

Seeding & Rebalancing Mechanics

1. Receive Data [Daily]
2. Python Data Cleansing
3. Order Sheet
   A. Deciles
   B. Rolling Window
4. Implementation
   A. Market Cap, Price, Volume
   B. Sector constraints
   C. News check
   D. Consider trading costs
5. Submit Buy/Sell List

Issues Encountered

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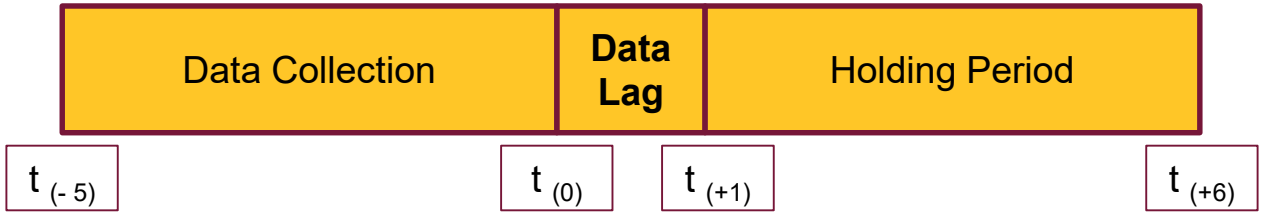
Pre-Existing

- Data arrival – four days of trading
- Data lag due to collection period
- Transaction costs

During Implementation

- Technical difficulties with WRDS
- Intraday price volatility
- ASU SIM Fund investment charter



Portfolio Administration

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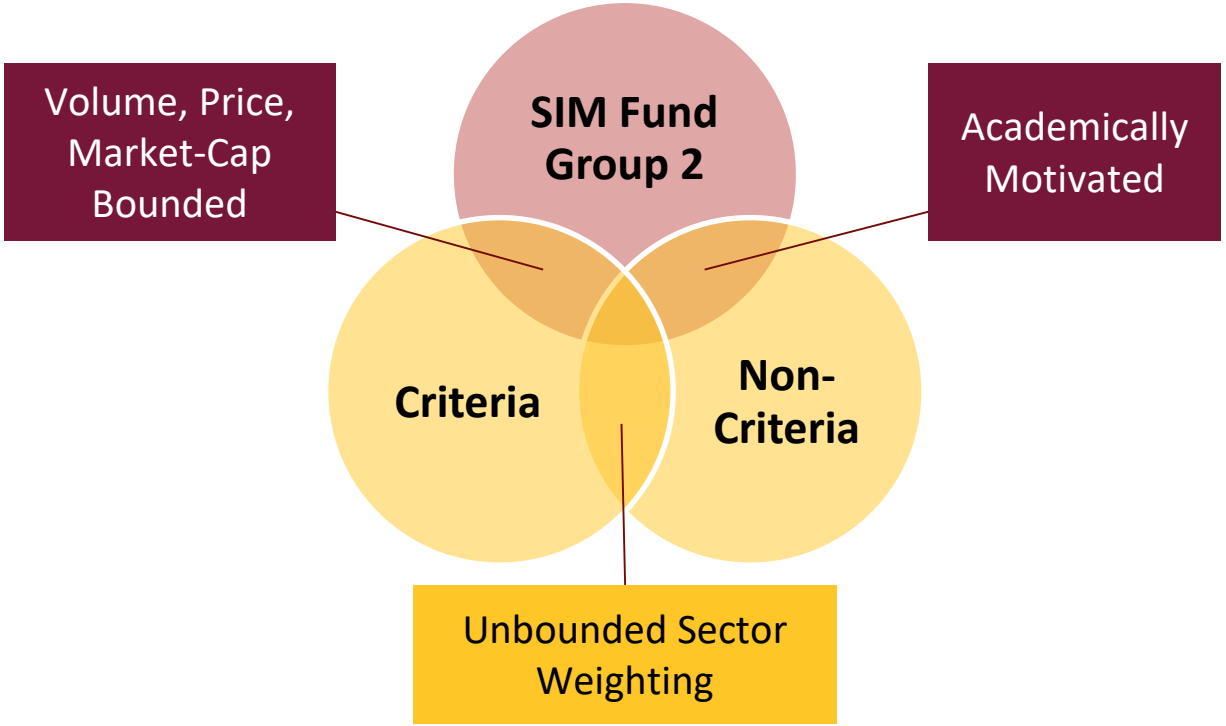
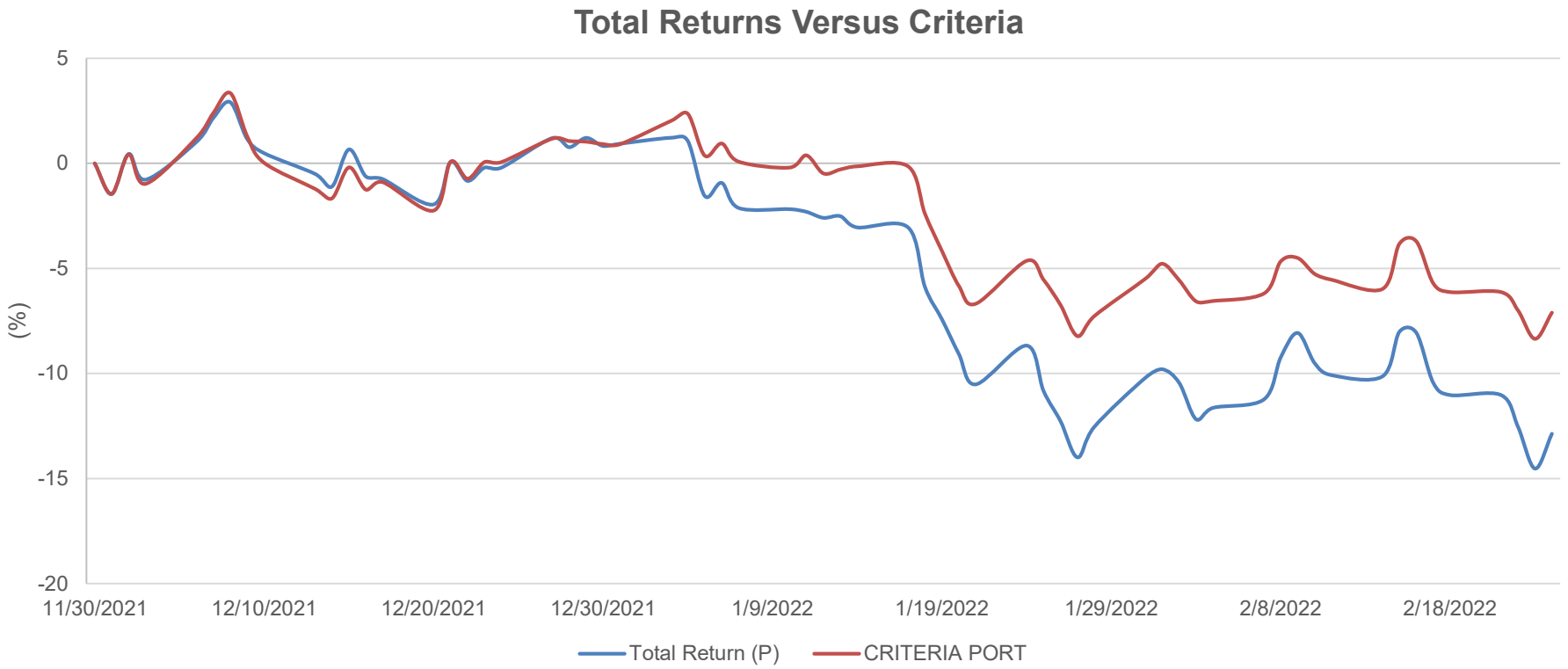
Weekly Meetings

- ✓ Portfolio performance
- ✓ Comparison of pseudo portfolio returns
  - Used to determine the effect of portfolio constraints
  - Built into stock selection process
- ✓ News checks

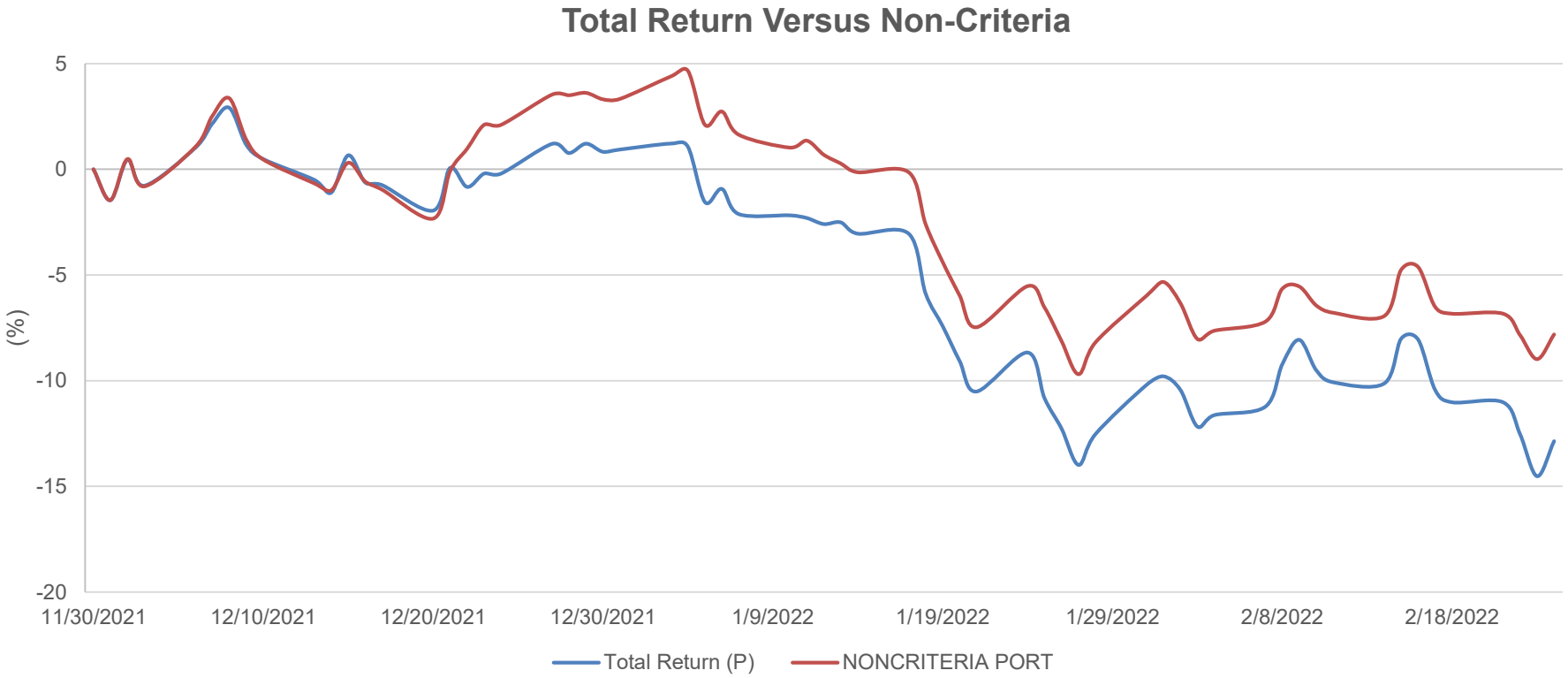
Pseudo Portfolios



Criteria Pseudo Performance



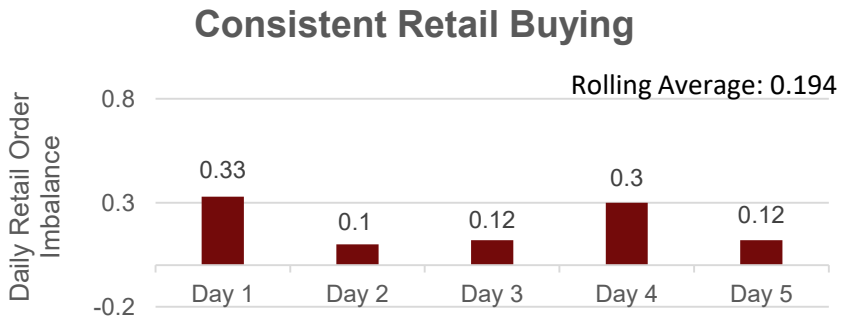
Non-Criteria Performance

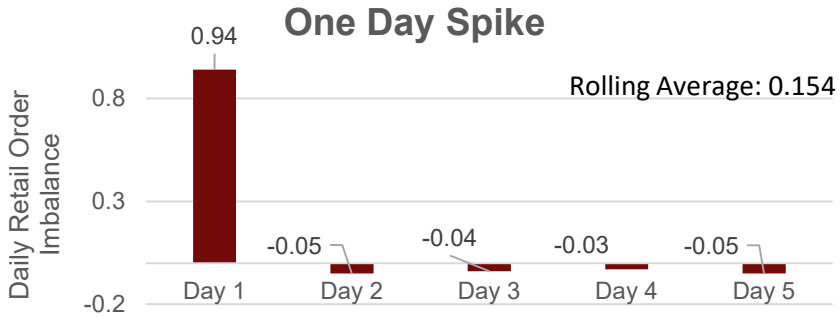


Data Study

- Study reason: inconsistency of returns and strength of our indicator.
- The "type" counts the number of previous five days are positive.
- Measure of excess return across the following week.

Signal Strength	Average Excess Return
5	0.37%
4	0.51%
3	0.38%
2	0.31%
1	0.33%





Implementation Adjustment

Change of Implementation

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Phase 1

Market Cap: 500M - 15.5B

- Maintained a small-cap strategy
- Strongest excess returns

Average Buying Pressure

- Focused on securities with the highest average buying pressure over the week
- Highest Decile

Phase 2

Lifted 15.5B Market Cap Ceiling

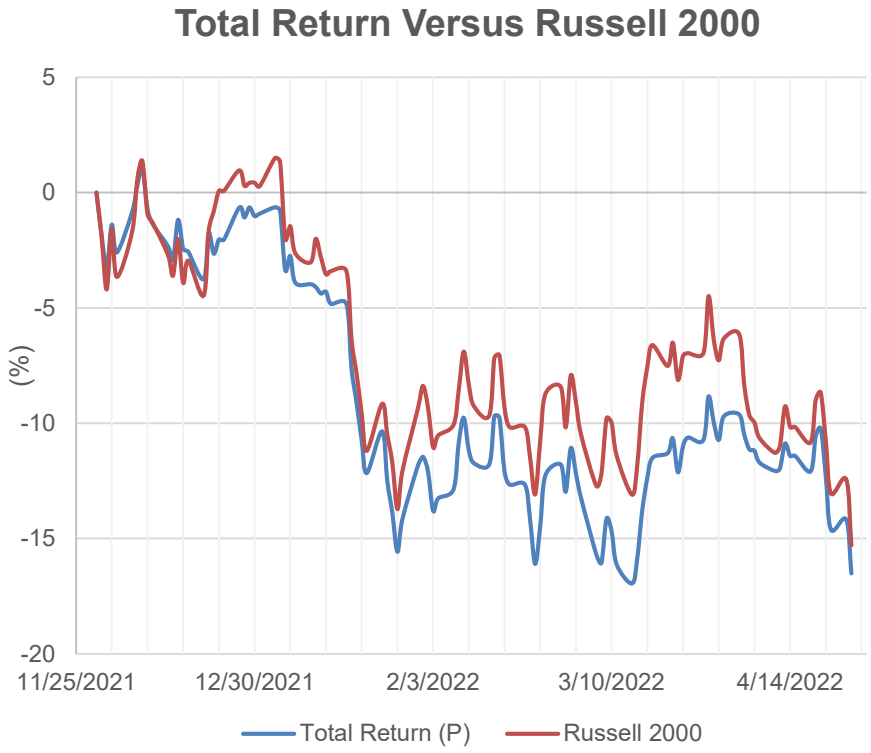
- Adoption of the Russell 3K as our benchmark
- Driven by pseudo portfolios

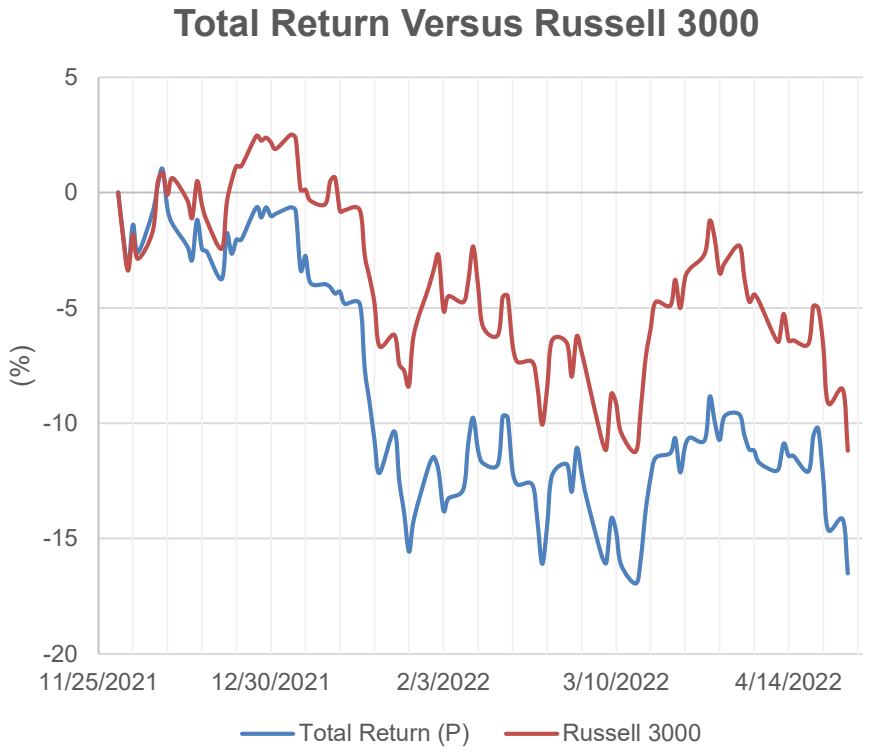
Consisting Buying Pressure

- Focus on firms with 4 or 5 days of retail buying pressure
- Driven by data study

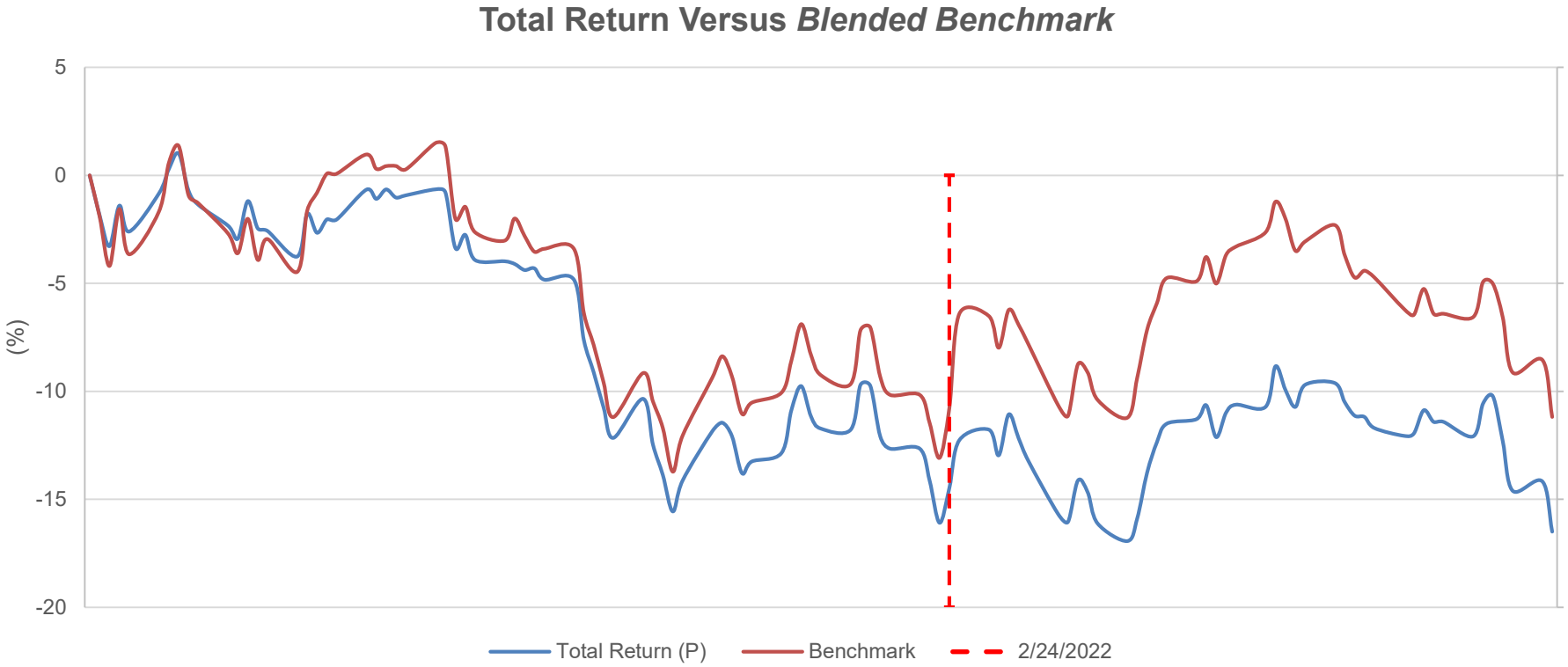
Portfolio Performance

Aggregate Portfolio Performance





Aggregate Portfolio Performance



Lessons Learned

Active Strategies are Costly to Implement

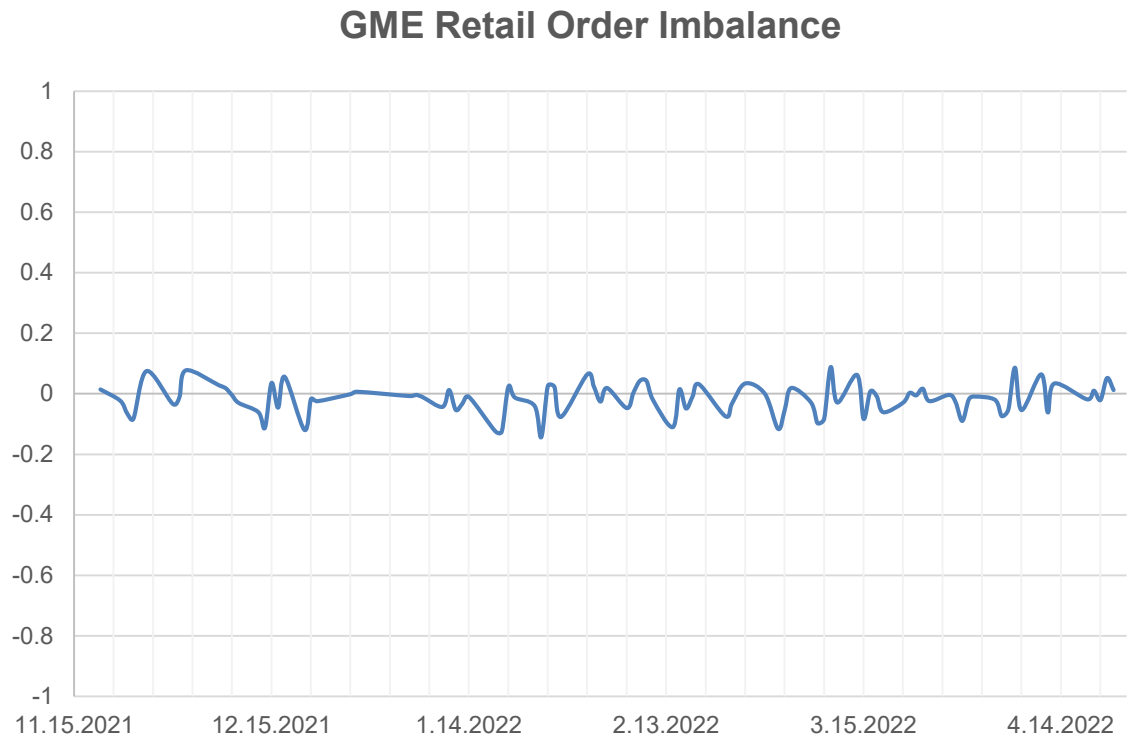
No Alpha is Guaranteed

Sector Neutrality Can Hinder Performance

Questions?

What About Meme-Stocks?

- GameStop (GME)
  - In data, not enough retail buy pressure
- AMC Entertainment (AMC)
  - Excluded from data
- Bed, Bath, & Beyond (BBBY)
  - In data, not enough retail buy pressure
- Nokia (NOK)
  - Excluded from data



Scalability?

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With $100,000...

- Data Accessibility
- Data Prices
- High Turnover
- Bid-Ask Spread & Transaction Costs

With $100,000,000...

- “Instant” Data Accessibility
- Price Impact
- High Turnover
- Bid-Ask Spread & Transaction Costs

Costly to Scale

Order Flow & Price Improvement

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Institutional Order Flow:

Ask → $10.03

1) *Midpoint* → *$10.0150*

Bid → $10.00

Ask → $9.00

2) *Midpoint* → *$8.700*

Bid → $8.40

**Sent Through Exchanges & Dark Pools*

Retail Order Flow:

National Best Bid & Offer

NBO → $10.03

Midpoint → *$10.0150*

NBB → $10.00

NBO → $9.00

Midpoint → *$8.700*

NBB → $8.40

**Sent Through Wholesalers*

Retail Buy:
$10.0290

(1)

Retail Sell:
$10.0010

Retail Buy:
$8.9990

(2)

Retail Sell:
$8.4010

Thank You

Appendix

Excess Returns in “K” Weeks

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Panel A: Predict Bid-Ask Average Return k Weeks Ahead

# of Weeks Ahead	Mroibvol		Mroibtrd	
	Coef.	t-Stat	Coef.	t-Stat
1 week	0.00092	15.60	0.00076	12.30
2 weeks	0.00055	9.35	0.00048	7.89
4 weeks	0.00031	5.56	0.00026	4.66
6 weeks	0.00022	3.90	0.00015	2.60
8 weeks	0.00021	3.47	0.00011	1.75
10 weeks	0.00010	1.82	0.00002	0.35
12 weeks	0.00007	1.29	0.00009	1.52

Panel B: Predict CRSP Return k Weeks Ahead

# of Weeks Ahead	Mroibvol		Mroibtrd	
	Coef.	t-Stat	Coef.	t-Stat
1 week	0.00096	16.29	0.00081	13.20
2 weeks	0.00058	9.99	0.00052	8.57
4 weeks	0.00032	5.92	0.00028	5.05
6 weeks	0.00024	4.18	0.00017	2.93
8 weeks	0.00021	3.50	0.00011	1.80
10 weeks	0.00011	2.04	0.00005	0.81
12 weeks	0.00008	1.39	0.00010	1.76

Excess Returns of Price Groups

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Mroib Measure	Mroibvol			
Price Groups	Coef.	*t*-Stat	Interquartile	Weekly Return Diff
Low	0.0014	13.34	1.432	0.205%
Medium	0.0007	10.00	1.289	0.089%
High	0.0002	3.23	0.961	0.020%

Sample Weekly Portfolio Return

Evidence of Paper (Anecdotes)

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(1) Price Relevant Information

- Retail investor with industry specific knowledge
  - Perfectly legal knowledge about various suppliers, competitors, or buyers in the industry.
  - Business knowledge as an informant to their portfolios.
  - Quickly adjust their portfolio before widely known professionals and institutional investors.

(2) Short-Term Momentum

"How a New Wave of Retail Investors is Redefining Stock Pricing," Wharton

Non-Criteria vs Benchmark