Spring 2022 Presentation

Undergraduate Student Investment Management Fund

Team A

Friday, April 29th, 2022
Team Introduction

Former Fund Manager

Jacob Mosier

Fund Analysts

Jacob Nance  Rushini Randeniya  Jack Kreber  Jacob Henwood

Peyton Morris  Jakob Krygier  Aparna Bezawada  Jonathan Kim

April 29th, 2022
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Investment Thesis
Investment Thesis

Russell 2000

Value

Profitability
Intangible-Augmented Value Measure

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

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

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

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

\[ \text{Int}_{i,t}^{\text{org}} = (1 - \delta_{SG&A}) \text{Int}_{i,t-1}^{\text{org}} + \theta_{SG&A} A_{i,t}, \]
Cash-Based Profitability Measure

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

Profitability Metric = \[
\frac{\text{Cash Based Profitability}}{\text{Total Assets}}
\]
Portfolio Construction Overview

Rebalance Monthly

Phase 1: Use historical data to construct new book values
Phase 2: Calculate B/M Ratio
Phase 3: Screen for investable universe in Bloomberg

Calculate Cash-Based Profitability Ratio
 Merge Profitability and B/M ratios
 Rank stocks by joint metric
 Sort by sector, choose stocks, and weight accordingly
Within each sector, securities hold weights proportional to their joint metric.

Example: Netgear, Inc (NTGR) – Technology

\[
\frac{1.835}{13.026} \times 0.22 = 0.031
\]

Target weight for technology sector
Sector Allocation

Russell 2000

- Materials: 4%
- Real Estate: 8%
- Technology: 13%
- Industrials: 15%
- Health Care: 17%
- Financials: 16%
- Energy: 7%
- Communications: 3%
- Utilities: 3%
- Staples: 4%

Russell 3000

- Real Estate: 4%
- Materials: 3%
- Technology: 27%
- Industrials: 9%
- Health Care: 15%
- Financials: 11%
- Energy: 4%
- Communications: 8%
- Discretionary: 11%
- Staples: 6%

Our Portfolio

- Real Estate: 3%
- Materials: 1%
- Technology: 22%
- Industrials: 10%
- Health Care: 14%
- Financials: 12%
- Energy: 2%
- Communications: 6%
- Discretionary: 15%
- Staples: 10%

As of April 9, 2022
Performance
Portfolio Return

\[ R_{\text{SIM}} = 2.04\% \]
\[ R_{\text{SIM}} - R_{\text{IWN}} = 4.77\% \]
\[ R_{\text{SIM}} - R_{\text{R3000}} = 8.71\% \]
Portfolio Return

Portfolio Returns November 30, 2021 - April 25, 2022
## Attribution

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

Turnover by Month

<table>
<thead>
<tr>
<th>Month</th>
<th>Turnover</th>
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<tbody>
<tr>
<td>January</td>
<td>20.34%</td>
</tr>
<tr>
<td>February</td>
<td>20.40%</td>
</tr>
<tr>
<td>March</td>
<td>40.30%</td>
</tr>
<tr>
<td>April</td>
<td>13.20%</td>
</tr>
</tbody>
</table>
SWX Case Study
SWX Stock

- **Icahn’s offer**
  - March 14, 2022
  - Close: 77.41

- **October 14, 2021**
  - Close: 69.49

- **October 13, 2021**
  - Close: 64.92

- **March 1, 2022**
  - Close: 69.59

- **February 10, 2022**
  - Close: 66.94

- **$82.50 offer**
  - March 14, 2022
  - Close: 77.41

- **Sale date**
  - April 13, 2022
  - Close: 82.50

- **Centuri Group**
  - March 1, 2022
  - Close: 69.59

- **Icahn bid**
  - October 14, 2021
  - Close: 69.49

- **April 29th, 2022**

Student Investment Management Fund - Team A
Thank You.

Questions?
### Benchmark Performance

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Entire Horizon (11/30-4/25)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our Fund</td>
<td>2.04%</td>
</tr>
<tr>
<td>AVUV</td>
<td>1.35%</td>
</tr>
<tr>
<td>IWN</td>
<td>-2.73%</td>
</tr>
<tr>
<td>DFSVX</td>
<td>2.11%</td>
</tr>
<tr>
<td>VISVX</td>
<td>0.81%</td>
</tr>
</tbody>
</table>
Sector Return Attribution

Utilities: 11.31% 42.16%
Energy: 2.30% 42.54%
Real Estate: -14.06% 2.96%
Materials: 15.55%-
Communication Services: -18.48% 11.88%
Consumer Staples: 8.38% 24.41%
Industrials: -3.71% -5.96% -5.80%
Financials: 4.85%
Health Care: -19.58% -8.27%
Consumer Discretionary: -15.75% -11.21%
Information Technology: -12.71% 3.43%

IWN SIM Fund
### Sector Return Contribution

<table>
<thead>
<tr>
<th>Sector</th>
<th>IWN Return</th>
<th>SIM Fund Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Care</td>
<td>-1.94%</td>
<td>0.53%</td>
</tr>
<tr>
<td>Consumer Discretionary</td>
<td>-1.00%</td>
<td>0.55%</td>
</tr>
<tr>
<td>Communication Services</td>
<td>-1.68%</td>
<td>-0.71%</td>
</tr>
<tr>
<td>Consumer Staples</td>
<td>-1.25%</td>
<td>-0.39%</td>
</tr>
<tr>
<td>Industrials</td>
<td>-0.84%</td>
<td>0.33%</td>
</tr>
<tr>
<td>Financials</td>
<td>-1.56%</td>
<td>0.73%</td>
</tr>
<tr>
<td>Materials</td>
<td>-0.54%</td>
<td>0.24%</td>
</tr>
<tr>
<td>Real Estate</td>
<td>-0.70%</td>
<td>0.23%</td>
</tr>
<tr>
<td>Energy</td>
<td>-0.39%</td>
<td>0.11%</td>
</tr>
<tr>
<td>Utilities</td>
<td>0.36%</td>
<td>0.54%</td>
</tr>
<tr>
<td>Information Technology</td>
<td>-3.00%</td>
<td>-2.00%</td>
</tr>
</tbody>
</table>

**Legend:**
- Yellow = IWN
- Red = SIM Fund
# Sector Holdings Over Time

<table>
<thead>
<tr>
<th>Number of securities per sector per month</th>
<th>December</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>10</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Materials</td>
<td>15</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Industrials</td>
<td>20</td>
<td>7</td>
<td>8</td>
<td>8</td>
<td>8</td>
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<tr>
<td>Disc</td>
<td>25</td>
<td>8</td>
<td>8</td>
<td>8</td>
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<tr>
<td>Staples</td>
<td>30</td>
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<td>8</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Health Care</td>
<td>35</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>3</td>
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<tr>
<td>Financials</td>
<td>40</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
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<tr>
<td>Tech</td>
<td>45</td>
<td>7</td>
<td>8</td>
<td>8</td>
<td>8</td>
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<tr>
<td>Comm</td>
<td>50</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Utilities</td>
<td>55</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Real Estate</td>
<td>60</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>50</td>
<td>49</td>
<td>49</td>
<td>47</td>
</tr>
</tbody>
</table>
Investment Quintiles

Russell 2000

Sort by joint metric

Quartile 4 ➔ Quartile 3 ➔ Quartile 2 ➔ Quartile 1

Investable Universe

Filter by
- Market cap limits
- Charter constraints
- News checks
### Parameters of Interest

\[
\begin{align*}
\text{Int}_{i,t}^{know} &= (1 - \delta_{R&D})\text{Int}_{i,t-1}^{know} + R&D_{i,t}, \\
\text{Int}_{i,t}^{org} &= (1 - \delta_{SG&A})\text{Int}_{i,t-1}^{org} + \theta \text{SG&A}_{i,t}, \\
\text{Int}_{i,t} &= \text{Int}_{i,t}^{know} + \text{Int}_{i,t}^{org}.
\end{align*}
\]

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>$\delta_{R&amp;D}$</td>
<td>Sector-specific (Hall); $= 0.15$ for sectors without defined rate</td>
</tr>
<tr>
<td>$\delta_{SG&amp;A}$</td>
<td>$= 0.2$ by assumption (Eisfeldt)</td>
</tr>
<tr>
<td>$\theta$</td>
<td>$= 0.3$ by assumption (Eisfeldt)</td>
</tr>
</tbody>
</table>
Team Introduction

Torren Baker, Fund Analyst
Thinh 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

- Choice Set
- Expected Alpha
- Experience
- Relevance
Investment Thesis

<table>
<thead>
<tr>
<th>Period</th>
<th>Full Sample</th>
<th>Small</th>
<th>Medium</th>
<th>Big</th>
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<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>t-Stat</td>
<td>alpha</td>
<td>t-Stat</td>
</tr>
<tr>
<td>1 week</td>
<td>0.092%</td>
<td>2.66</td>
<td>0.084%</td>
<td>2.43</td>
</tr>
</tbody>
</table>

- **4.78%**
- **4.37%**
- **20.96%**
- **8.84%**
- **3.48%**

**Annualized Alphas**
How Do We Find Retail Trades?

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

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

<table>
<thead>
<tr>
<th>Data Collection</th>
<th>Data Lag</th>
<th>Holding Period</th>
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<tbody>
<tr>
<td>(t\ (-5))</td>
<td>(t\ (0))</td>
<td>(t\ (+1))</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(t\ (+6))</td>
</tr>
</tbody>
</table>
Portfolio Administration

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

SIM Fund Group 2

Volume, Price, Market-Cap Bounded

Academically Motivated

Criteria
Non-Criteria

Unbounded Sector Weighting
Criteria Pseudo Performance

Total Returns Versus Criteria

-20 -15 -10 -5 0 5


Total Return (P) CRITERIA PORT

Graph showing total returns versus criteria.
Non-Criteria Performance

Total Return Versus Non-Criteria

<table>
<thead>
<tr>
<th>Date</th>
<th>Total Return (P)</th>
<th>NONCRITERIA PORT</th>
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<tbody>
<tr>
<td>11/30/2021</td>
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<td>12/10/2021</td>
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<td>12/30/2021</td>
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<td></td>
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<tr>
<td>2/8/2022</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/18/2022</td>
<td></td>
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</table>
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.

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
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<tbody>
<tr>
<td>0.33</td>
<td>0.1</td>
<td>0.12</td>
<td>0.3</td>
<td>0.12</td>
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</table>

Consistent Retail Buying

Rolling Average: 0.194

<table>
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<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.05</td>
<td>-0.04</td>
<td>-0.03</td>
<td>-0.05</td>
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</tbody>
</table>

One Day Spike

Rolling Average: 0.154

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<tr>
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<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
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</thead>
<tbody>
<tr>
<td>0.94</td>
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</table>

Signal Strength

<table>
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<th>Type</th>
<th>Measure of Excess Return</th>
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<tr>
<td>5</td>
<td>0.37%</td>
</tr>
<tr>
<td>4</td>
<td>0.51%</td>
</tr>
<tr>
<td>3</td>
<td>0.38%</td>
</tr>
<tr>
<td>2</td>
<td>0.31%</td>
</tr>
<tr>
<td>1</td>
<td>0.33%</td>
</tr>
</tbody>
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Implementation Adjustment
Change of Implementation

**Phase 1**
- Market Cap: 500M - 15.5B
- Maintained a small-cap strategy
- Strongest excess returns

**Phase 2**
- Average Buying Pressure
- Lifted 15.5B Market Cap Ceiling
- Consisting Buying Pressure
- Focused on securities with the highest average buying pressure over the week
- Highest Decile
- Adoption of the Russell 3K as our benchmark
- Driven by pseudo portfolios
- Focus on firms with 4 or 5 days of retail buying pressure
- Driven by data study
Aggregate Portfolio Performance

Total Return Versus *Blended Benchmark*

![Graph showing total return versus blended benchmark](image-url)
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?

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

**Institutional Order Flow:**

1) **Midpoint** $10.0150
   - **Ask** $10.03
   - **Bid** $10.00

2) **Midpoint** $8.700
   - **Ask** $9.00
   - **Bid** $8.40

*Sent Through Exchanges & Dark Pools

**Retail Order Flow:**

- **Midpoint** $10.0150
  - **NBO** $10.03
  - **NBB** $10.00

- **Midpoint** $8.700
  - **NBO** $9.00
  - **NBB** $8.40

*Sent Through Wholesalers

Retail Buy:
- $10.0290
- $8.9990

Retail Sell:
- $10.0010
- $8.4010
Thank You
Appendix
### Excess Returns in “K” Weeks

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

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

#### Panel B: Predict CRSP Return $k$ Weeks Ahead

<table>
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<th># of Weeks Ahead</th>
<th>Mroibvol</th>
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<th>Mroibtrd</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Coef.</td>
<td>t-Stat</td>
<td>Coef.</td>
<td>t-Stat</td>
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<tr>
<td>1 week</td>
<td>0.00096</td>
<td>16.29</td>
<td>0.00081</td>
<td>13.20</td>
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<td>2 weeks</td>
<td>0.00058</td>
<td>9.99</td>
<td>0.00052</td>
<td>8.57</td>
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<tr>
<td>4 weeks</td>
<td>0.00032</td>
<td>5.92</td>
<td>0.00028</td>
<td>5.05</td>
</tr>
<tr>
<td>6 weeks</td>
<td>0.00024</td>
<td>4.18</td>
<td>0.00017</td>
<td>2.93</td>
</tr>
<tr>
<td>8 weeks</td>
<td>0.00021</td>
<td>3.50</td>
<td>0.00011</td>
<td>1.80</td>
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<tr>
<td>10 weeks</td>
<td>0.00011</td>
<td>2.04</td>
<td>0.00005</td>
<td>0.81</td>
</tr>
<tr>
<td>12 weeks</td>
<td>0.00008</td>
<td>1.39</td>
<td>0.00010</td>
<td>1.76</td>
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</table>
# Excess Returns of Price Groups

<table>
<thead>
<tr>
<th>Price Groups</th>
<th>Mroib Measure</th>
<th>Mroibvol</th>
<th>Mroibvol</th>
<th>Weekly Return Diff</th>
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<tbody>
<tr>
<td></td>
<td>Coef.</td>
<td>$t$-Stat</td>
<td>Interquartile</td>
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<tr>
<td>Low</td>
<td>0.0014</td>
<td>13.34</td>
<td>1.432</td>
<td>0.205%</td>
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<tr>
<td>Medium</td>
<td>0.0007</td>
<td>10.00</td>
<td>1.289</td>
<td>0.089%</td>
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<tr>
<td>High</td>
<td>0.0002</td>
<td>3.23</td>
<td>0.961</td>
<td>0.020%</td>
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</tbody>
</table>
(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

GameStop stock price
Non-Criteria vs Benchmark

Non-Criteria Versus Benchmark

Benchmark
Non-Criteria

(%)