Undergraduate Student Investment Management Fund

Spring 2019 Presentation
Friday, April 26
Team Overview

**Fund Manager**

Jerry Zhang

**Fund Analysts**

- Michael Calabro
- Nicholas DeSantangilo
- Yanni Dong
- Abbas Haider
- Lukas Stogsdill
- Li Yang
- Isaac Zolot
Investment Thesis & Implementation
Momentum theory posits that past winners will continue to win while past losers will continue to lose.

Source: Kenneth R. French Data Library
Continuous vs. Discrete Returns

Notice reversals and shocks
Notice same beginning and end price
Notice difference in magnitude of daily changes

Source: Da, Gurun, & Warachka (2014)
Calculating Information Discreteness

Our fund’s investment thesis is derived from Da, Gurun, & Warachka’s (2014) analysis on momentum investing conditioned on information discreteness.

To calculate information discreteness:

\[ ID = \text{sign}(\text{Annual Return}) \times [\%\text{neg}-\%\text{pos}] \]

- **Information Discreteness**
- **Sign of the cumulative return over t-12 to t-2**
- **Percentage of days during formation period with negative returns minus positive returns**

Source: Da, Gurun, & Warachka (2014)
Discussion on Investment Quintiles

Sort by Annual Return

Russell 3000

“Losers” Min %
Quintile 4
Quintile 3
Quintile 2

“Winners” Max %
(570 stocks)

Sort by ID

“Losers”
Quintile 4
Quintile 3
Quintile 2
“Winners”
(114 stocks)

Filter by:
- Market Cap Limits
- Charter Constraints
- News Checks

Investable Universe
Portfolio Construction Process

Cumulative market cap with respect to target portfolio: Consumer Discretionary

Target Portfolio Characteristics

Target # of Stocks In Our Portfolio: 70

Target Aggregate Market Cap: $350B

Example: Consumer Discretionary

Single Security Actual Market Cap

Target Aggregate Market Cap: $350B

Security contribution (%) to portfolio sector weighting
Portfolio Construction Process

Cumulative market cap with respect to target portfolio: Consumer Discretionary

<table>
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<th>Market Cap Weighting</th>
<th>ID Rank</th>
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Target Sector Weighting

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Target Sector Weighting

Thesis  Construction  Rebalance & Returns  Shadow Portfolios
Rebalancing

ID

Annual Return

Q1 Q2 Q3 Q4 Q5

Q1 Q2 Q3 Q4 Q5

Buy
Hold
Sell
Hold Range
Buy Range
Returns and Attribution
Market Cap Tilt

- **Russell 3000**: 1.012 T
- **Our Portfolio**: 159.2 M
- **Russell 2000**: 5.0 B

- **Market Cap Tilt**
  - 159.2 M
  - 500.0 M
  - 159.2 M
Portfolio Returns

<table>
<thead>
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<td><strong>Our Portfolio</strong></td>
<td></td>
<td></td>
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<td><strong>Russell 3000</strong></td>
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<tr>
<td><strong>Returns</strong></td>
<td>10.87%</td>
<td>10.36%</td>
<td>6.53%</td>
</tr>
</tbody>
</table>
Sector Contribution

Information Technology: 7.27%
Health Care: -0.27%
Financials: 1.36%
Industrials: 1.69%
Communication Services: 1.06%
Consumer Discretionary: 0.56%
Consumer Staples: -0.12%
Energy: -0.84%
Materials: -0.17%
Utilities: 0.47%
Real Estate: -0.28%

Portfolio vs Russell 2000
Selection

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Technology</td>
<td>2.50%</td>
</tr>
<tr>
<td>Health Care</td>
<td>-0.17%</td>
</tr>
<tr>
<td>Financials</td>
<td>0.80%</td>
</tr>
<tr>
<td>Industrials</td>
<td>0.99%</td>
</tr>
<tr>
<td>Communication Services</td>
<td>-0.16%</td>
</tr>
<tr>
<td>Consumer Discretionary</td>
<td>-0.12%</td>
</tr>
<tr>
<td>Consumer Staples</td>
<td>0.41%</td>
</tr>
<tr>
<td>Energy</td>
<td>-0.28%</td>
</tr>
<tr>
<td>Materials</td>
<td>-0.34%</td>
</tr>
<tr>
<td>Utilities</td>
<td>0.41%</td>
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<td>Real Estate</td>
<td>-0.47%</td>
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Shadow Portfolios
Shadow Portfolios

00 Our Portfolio
- Sort by Annual Return
- Sort by ID
- Sector Neutral

01 Pure Momentum
- Sort by Annual Return
- Purchase Top 60 Securities

02 Sector Agnostic
- Sort by Annual Return
- Sort by ID
- Sector Agnostic

03 News Count Momentum
- Sort by Annual Return
- Sort by Count of Press Mentions
Shadow Portfolio Returns

<table>
<thead>
<tr>
<th></th>
<th>Returns</th>
<th>σ²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sector Agnostic</td>
<td>14.38%</td>
<td>6.62 σ²</td>
</tr>
<tr>
<td>News Count Momentum</td>
<td>12.65%</td>
<td>6.29 σ²</td>
</tr>
<tr>
<td>Pure Momentum</td>
<td>13.00%</td>
<td>7.53 σ²</td>
</tr>
<tr>
<td>Our Portfolio</td>
<td>10.87%</td>
<td>5.64 σ²</td>
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Thesis
Construction
Rebalance & Returns
Shadow Portfolios
Thank you. Any questions?
Appendix
Turnover

- Rebalance One: 5.09%
- Rebalance Two: 4.63%
- Rebalance Three: 9.76%
- Rebalance Four: 8.00%
Outperformance

- Out performance over R3
- Out performance over R2
Information Technology Portfolio Weights

Weights

Tickers

TEAM  GDDY  JKHY  PAYC  OKTA  HUBS  COUP  CSOD  EPAY  EVBG
Sector Returns

![Sector Returns Chart]

- **Communication Services**
- **Consumer Discretionary**
- **Consumer Staples**
- **Energy**
- **Financials**
- **Health Care**
- **Industrials**
- **Information Technology**
- **Materials**
- **Real Estate**
- **Utilities**

Legend:
- **Portfolio**
- **R2**
- **R3**
Sector Weights

- Communication Services
- Consumer Discretionary
- Consumer Staples
- Energy
- Financials
- Health Care
- Industrials
- Information Technology
- Materials
- Real Estate
- Utilities

Bar chart showing sector weights for Portfolio, R2, and R3.
Allocation

- Information Technology: 0.97%
- Health Care: 0.02%
- Financials: 0.31%
- Industrials: -0.05%
- Communication Services: 0.19%
- Consumer Discretionary: 0.02%
- Consumer Staples: -0.62%
- Energy: -0.20%
- Materials: 0.03%
- Utilities: 0.04%
- Real Estate: 0.05%
Discussion on Investment Quintiles

Russell 3000

Sort by Annual Return

“Losers”
Min: -95%
Quintile 4
-18% to -3%
Quintile 3
-3% to 11%
Quintile 2
11% to 33%

“Winners”
Max: 1648%
(570 stocks)

Sort by ID

“Losers”
Quintile 4
Quintile 3
Quintile 2
“Winners”
(114 stocks)

Filter by:
- Market Cap Limits
- Charter Constraints
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Investable Universe

Arizona State University
Student Investment Management Fund

Thesis
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