Year – End Presentation

Undergraduate Student Investment Management Fund – Team A

Friday April 23rd, 2021
Team Introduction

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Investment Thesis

Akbas, Jiang, and Koch hypothesize that investment horizon of an insider establishes a pattern for expected trading behavior, thus helping them to identify unexpected trades.

Bill Gates from 1996 - 2013 Vs.
Trades from short horizon insiders are informative.

- **Insider**
  - **Short Horizon (SH)**: Informative
  - **Long Horizon (LH)**: Uninformative
  - Deviation from (LH): Uninformative

When long horizon insiders deviate from their expected patterns of buying/selling, these trades are even more informative than the typical short horizon insider’s trade.

Measuring Insider Horizon and Strength

Akbas, Jiang, and Koch use Horizon (HOR) and Strength (STR), these two variables help them measure insider trading.

\[
HOR_{i,j,t} = \left( \frac{\sum_{y=T-10}^{\text{year}(t-1)} IOF_{i,j,y}}{N} \right) \times (-1)
\]

\[
STR_{i,j,t} = \frac{P_{i,j,t} - S_{i,j,t}}{VOL_{j,t}}
\]

<table>
<thead>
<tr>
<th>-1</th>
<th>-0.5</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long Horizon</td>
<td>Mid Horizon</td>
<td>Short Horizon</td>
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</table>

<table>
<thead>
<tr>
<th>Lower STR</th>
<th>Higher STR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weaker Purchase</td>
<td>Stronger Purchase</td>
</tr>
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</table>
Unexpectedness in Long Horizon Insiders

Unexpectedness determines how far a given purchase of a long horizon insider deviates from the benchmark expectation associated with the insider's investment horizon.

\[ UNEXP_{i,j,t} = CURRENT_{i,j,t} - \text{HOR}_{i,j,t} \]

<table>
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<th>-1</th>
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<tbody>
<tr>
<td>LH</td>
<td>Unexpected</td>
<td>Unexpected</td>
<td>Expected</td>
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<td></td>
<td>Sales from</td>
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<td>Purchase</td>
<td>Purchases</td>
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<tr>
<td></td>
<td>LH</td>
<td>SH</td>
<td>from LH</td>
<td>from SH</td>
<td>from LH</td>
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</tbody>
</table>

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Strategy Implementation
Portfolio Construction Overview

Phase 1
- Collect historical data on universe of equities
- Historical insider data processed to calculate historical horizon (HOR)

Phase 2
- Scraper runs on SEC filings collecting current data
- Calculate: Short and Long horizon trades based on UNEXP and STR
- Invest in equities that match HOR and STR criteria
- Hold and rebalance every month
## Portfolio Weighting

<table>
<thead>
<tr>
<th>Horizon</th>
<th>Factor</th>
<th>Assigned Weight</th>
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<tbody>
<tr>
<td>Short Horizon</td>
<td>Strength (STR)</td>
<td>1.5% allocation</td>
</tr>
<tr>
<td>Long Horizon</td>
<td>Unexpectedness (UNEXP)</td>
<td>2% allocation</td>
</tr>
<tr>
<td></td>
<td>Strength (STR)</td>
<td></td>
</tr>
</tbody>
</table>

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Portfolio Allocation

Passive Portfolio
91.74%
4/22/21

Active Portfolio
7.5%
4/22/21

Cash Portfolio
0.76%
4/22/21

Funds Portfolio

Equity Portfolio
Performance
Performance

Active Portfolio vs. Russell 3000

- Active Portfolio Return: 22.90%
- IWW Return: 15.28%
- Excess Return: 7.62%

Total Portfolio vs. Russell 3000

- Total Portfolio Return: 16.76%
- IWW Return: 15.28%
- Excess Return: 1.48%
Performance

Active Portfolio vs. S&P 500

- Active Portfolio Return: 22.90%
- SPY Return: 14.60%
- Excess Return: 8.30%

Total Portfolio vs. S&P 500

- Total Portfolio Return: 16.76%
- SPY Return: 14.60%
- Excess Return: 2.16%
Attribution
Average Weights (Active Portfolio)

Active Portfolio Average Allocation
by Market Cap

- Large: 47.22%
- Mid: 26.39%
- Small: 26.39%

Active Portfolio Average Allocation
by Sector

- Financials: 33.99%
- Real Estate: 17.42%
- Industrials: 10.75%
- Consumer Staples: 8.63%
- Health Care: 8.31%
- Consumer Discretionary: 8.26%
- Utilities: 6.72%
- Materials: 3.55%
- Communication Services: 1.75%
- Information Technology: 1.64%

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Student Investment Management Fund – Team A
 Attribution (Short Horizon Signals)
Attribution (Long Horizon Signals)
Exceptions
Exceptions (Top 3)

HHC 24.64% (HPR); 10.50% (IWM)
Purchased: 1/11/21   Sold: 2/11/21
News: Accelerated plans for future buildings throughout the United States.
Signals:  STR: 1.51    HOR: -0.15    UNEXP: 0.78
         Signals:  STR: 0.0004,  HOR: -0.33,  UNEXP: 0.67

MYE 21.79% (HPR); 7.04% (IWM)
Purchased: 11/25/20  Sold: 12/30/20
News: Over the last year has paid out more than three quarters of its free cash flow generated. Upgraded to overweight by Keybanc on 12/18.
         Signals:  STR: 0.002,  HOR: -0.33,  UNEXP: 0.67

UMBF 21.73% (HPR); 6.67% (IWM)
Purchased: 2/4/21    Sold: 3/8/21
News: Benefitted from rising interest rates and a strong financial sector
         Signals:  STR: 0.0011,  HOR: -0.88,  UNEXP: 0.12
QDEL -23.07% (HPR); 1.93% (IWM)
Purchased: 2/23/21   Sold: 3/22/21
News: CEO announced worst-case estimates for revenue that marked a 49% drop from the previous quarter; decline in COVID cases/tests; analysts dropped EPS estimates by an average of 17%
Signals: STR: 0.0008   HOR: -0.055   UNEXP: 0.95

INSM -22.74% (HPR); -0.31% (IWM)
Purchased: 3/9/21   Sold 4/12/21
News: Japan approved special treatment ARIKAYCE for nontuberculous mycobacterial (NTM) lung disease; already approved in Europe/US.
Signals: STR: 0.0008   HOR: -0.14   UNEXP: 0.86

PFSI -10.64 (HPR); -1.72% (IWM)
Purchased: 3/10/21   Sold: 4/12/21
News: Stock positions dropped by 6% from institutional holdings
Signals: STR: 0.06   HOR: -0.15   UNEXP: 0.85
Signal Decay

Average Cumulative Returns (Market Adjusted)

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Thank You. Questions?