Semi – Annual Presentation

Undergraduate Student Investment Management Fund – Team A

Friday December 4th, 2020
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.

Short horizon insiders outperform long horizon insiders, additionally short horizon insiders have greater predictive power.

Measuring Insider Horizon and Strength

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

\[ \text{Annual net insider order flow} = \frac{P_{i,j,y} - S_{i,j,y}}{P_{i,j,y} + S_{i,j,y}} \]

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

\[ \text{STR}_{i,j,t} = \frac{P_{i,j,t} - S_{i,j,t}}{VOL_{j,t}} \]

<table>
<thead>
<tr>
<th></th>
<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>
<td></td>
</tr>
<tr>
<td>Lower STR</td>
<td>Weaker Purchase</td>
<td>Higher STR</td>
<td>Stronger Purchase</td>
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</table>

Comparison of Monthly Returns

Return comparison between different horizons (HOR), constrained to a strong purchase signal based on strength index (STR).

Horizon (HOR) =  
- Long
- Medium
- Short

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.

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.

\[ UNEXP_{i,j,t} = CURRENT_{i,j,t} - (Mean\ IOF)_{i,j,t} \]

<table>
<thead>
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<tbody>
<tr>
<td>LH</td>
<td>Unexpected Sales</td>
<td>Unexpected Sales</td>
<td>Expected Purchase</td>
<td>Unexpected Purchases</td>
<td>Unexpected Purchases</td>
</tr>
<tr>
<td>SH</td>
<td>from LH</td>
<td>from SH</td>
<td>from LH</td>
<td>from SH</td>
<td>from LH</td>
</tr>
</tbody>
</table>

Returns of Unexpectedness

Unexpectedness (UNEXP) = \[ \text{Long Horizon Insider} \]

\[
\text{Unexpectedness (UNEXP)} = \frac{\text{Expected} + \text{Unexpected}}{2}
\]

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 fillings 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 calendar month
Equities Universe

- 100% equities
- > $500M market cap
- At least 4 years old
- Daily volume > 50k shares

Selected Universe

Total of 1900 Equities
Data Process In Depth
## Portfolio Weighting

<table>
<thead>
<tr>
<th>Horizon</th>
<th>Factor</th>
<th>Assigned Weight</th>
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</thead>
<tbody>
<tr>
<td>Short Horizon</td>
<td>Strength (STR)</td>
<td>1.5% allocation</td>
</tr>
<tr>
<td>Long Horizon</td>
<td>Unexpectedness (UNEXP) Strength (STR)</td>
<td>2% allocation</td>
</tr>
</tbody>
</table>
To mitigate turnover, equities are held for one month. This is consistent with Akbas, Jiang, and Koch.
### Building Portfolio

- Began trading on 11/24
- 3 trades so far
- 30 possible trades in November

### Awaiting New Trades

- Expect to see SH trades almost daily
- LH unexpected trades rare
Thank You. Questions?