Accounting for the Anomaly Zoo: a Trading Cost Perspective

DISCUSSANT
Ingrid Tierens, Goldman Sachs
ANOMALIES: FACT OR FICTION?

Decades of empirical finance research papers suggest anomalies exist.

However,

• Data mining
• Post publication decay
• Implementation considerations

Nothing left?

Anomalies prevalent in investment management
FOCUS OF PAPER: IMPLEMENTATION CONSIDERATIONS

Two intertwined components

1) Implementation costs

2) Portfolio construction
1) IMPLEMENTATION COSTS

Paper’s back-of-the-envelope calculation

\[ \text{[Net Return]} \approx \text{[Gross Return]} - 2 \times \text{[Each Leg’s Turnover]} \times \text{[Bid-Ask Spread]} \]

\[
= 30 \text{ bps} - 2 \times 0.15 \times 100 \text{ bps} \\
= 0 \text{ bps per month}
\]
Expected shortfall for Russell 2000 vs. S&P 500
(Goldman Sachs Shortfall Model estimates for a $500 mn portfolio traded over a full trading day)

Sources: Russell, Standard & Poor’s, Goldman Sachs Securities Division data
TRADING COST MODELING

- Portfolio rebalancing decision
- Buyside trading desk
- Other execution strategy
  - Algo parent order
  - Tranches
  - Algo tranche
  - Algo child orders
  - SOR parent order
  - SOR venue orders
  - Exchanges
  - Dark pools
  - Venue executions

Expected Shortfall

- Stock symbol
- Order size
- Start time
- End time or participation rate
- Volume over execution horizon
- Bid-Ask Spread over execution horizon
- Volatility

= Trader decisions
TRADING COSTS BY ORDER SIZE

Source: Goldman Sachs Securities Division, based on aggregated and non-attributed US orders from March 2013 to November 2013

Distribution of expected shortfall for S&P 500 and Russell 2000 constituents

Sources: Russell, Standard & Poor’s, Goldman Sachs Securities Division data as of September 25, 2019

Source: Goldman Sachs Securities Division, based on aggregated and non-attributed US orders from March 2013 to November 2013
2) PORTFOLIO CONSTRUCTION

Equal-weighted long-short quintile portfolios

However,

• Weights of expensive-to-trade names?
• Turnover?

\[ \text{[Net Return]} \approx \text{[Gross Return]} - 2 \times \text{[Each Leg’s Turnover]} \times \text{[Bid-Ask Spread]} \]
ALTERNATIVE PORTFOLIO CONSTRUCTION APPROACHES

[Net Return] ≈ [Gross Return] - 2 x [Each Leg’s Turnover] x [Bid-Ask Spread]

- Value-weighted instead of equal-weighted
- Buy/hold spread thresholds
- Fully integrating implementation costs into portfolio construction
FULLY INTEGRATED PORTFOLIO CONSTRUCTION

Legacy Portfolio
Stock Alphas
Portfolio Constraints

Shortfall Model
Optimizer
Risk Model

Optimal Portfolio
Trade List

User Input
3rd Party or Proprietary Data / Tools
User Output
REAL WORLD EVIDENCE

Using proprietary trading data, e.g.


- “Capacity of Smart Beta Strategies from a Transaction Cost Perspective”, Ronald Ratcliffe, Paolo Miranda and Andrew Ang, The Journal of Index Investing, Winter 2017

But other considerations to keep in mind
SUGGESTIONS FOR FURTHER RESEARCH

- Investability considerations
- Shorting considerations
- Capacity considerations

May lead to additional insight into:

- What is driving anomalies?
- Which anomalies can survive?