

Quantitative Momentum
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Less Religion; More Reason

p.9 Both fundamental (value and quality) and technical (momentum and trend) schools of thought have worked historically, but they oppose each other (two sides of the same coin)

Why Can Active Investment Work?

p.16 Excess returns of value stocks not due to higher risk, but mispricing driven by investor psychology-- occasionally the market misprices assets below their fundamental/intrinsic value

p.18 Two aspects of real world markets not considered by EMH

1. Limits of arbitrage

2. Investor psychology

Behavioral Bias + Market Frictions = Mispriced Assets

p.22 Identify market opportunities created by poor investors with bad psychology, and which savvy investors cannot participate because their cost of arbitrage is too expensive

p.23 arbitrage: a cost-free investment that generates profits with no risk

p.24 Biggest risk for "smart investors" (i.e. large institutions) is the balance between long-term performance and career risk

Three limits to arbitrage:

1. Fundamental risk

2. Noise trader risk

3. Implementation cost

p.25 Heebner's CGM Focus Fund

p.26 "Smart managers avoid long-term market opportunities if their investors are focused on short-term performance."

THOUGHT: a major advantage of small retail investors is that they don't have to answer to short-term expectations

p.27 Long-term performance = sustainable alpha + sustainable investors

sustainable alpha: mispricings driven by the behavior of others

sustainable investors: those who manage their own behavior well and don't revert to "short-termism"

p.29 Market participants systematically make poor decisions--that is they exhibit bad behavior--by buying expensive growth stocks and selling cheap value stocks. The expectations in these decisions are that past earnings growth will continue into the future (high for expensive growth and low for cheap value). But this has not been the case.

p.31 Actions of best players: must invest capital on behalf of others who suffer from short-term expectations (cannot take advantage of long-term opportunities such as the value anomaly)

p.32 "In theory, value investing is easy--buy and hold cheap stocks for the long haul--but in practice, true value investing is almost impossible."

p.35 Value vs. growth highlights that sustainable active investing can identify long-term strategies that outperform

Two required elements for sustainable performance:

1. Process that exploits systematic investor errors in expectations

2. Have a long time horizon with a willingness to be different

- p.37 Diversification between value and growth
- p.39 Purpose of momentum: captures diversification benefits of a growth portfolio with an active stock selection process that is sustainable

Momentum Investing Is Not Growth Investing

- p.43 momentum: a continuation of past relative winners
- p.44 Early papers on momentum effect
 - Levy: Relative Strength as a Criterion for Investment Selection (1967)
 - Jegadeesh and Titman: Returns to Buying Winners and Selling Losers (1993)
 - Carhart: On Persistence in Mutual Fund Performance (1997)
- p.45 Fama refers to momentum as the "premier anomaly"
"Price momentum had nothing to do with fundamentals, so even a halfwit could pursue a successful strategy focused solely on relative price performance, since this simple metric seemed to predict future prices. This finding conflicted with even the weakest form of EMH."
- p.47 The disposition effect: selling to realize a gain
- p.48 Growth stocks are those with high prices relative to past fundamentals, while momentum stocks are those with strong relative performance to all other stocks independent of fundamentals
Random momentum portfolios outperform random growth portfolios with similar volatility. Drawdowns also tend to be lower for momentum portfolios
- p.49 Only a 21% overlap between firms in the growth and high momentum portfolios
- p.55 Why does momentum work: Behaviorally, investors may underreact to positive news reflected in strong relative performance
Barberis paper concludes that value and momentum are driven by biases that mirror one another
 - Value driven by an overreaction problem (investors are quick to draw conclusions from a small amount of recent data)
 - Momentum is driven by an under reaction (investors are slow to update their views based on new evidence--they have limited attention)
- p.59 Momentum and value are similar
 - strong historic risk adjusted returns
 - premiums are driven by a combination of hidden systematic risk factors and elements of mispricing
 - metrics serve to signal stocks that will move in a favorable direction
 - limited ability for large, smart investors to take advantage
 - both can under-perform over short periods of time and thus pose serious career risk

Why All Value Investors Need Momentum

- p.62 Fama: momentum is the "premier anomaly" (also see "Multifactor Explanations of Asset Pricing Anomalies" p.81)
- p.63 Diversification between deep value and deep momentum
- p.65 Markowitz mean-variance optimization
- p.68 Asness, Moskowitz and Pederson "Value and Momentum Everywhere": value and momentum premiums exist across a wide variety of asset classes and markets
- p.73 The combination of value and momentum creates a more robust strategy and limits downside performance than either one individually

The Basics of Building a Momentum Strategy

- p.79 "And the great paradox is that faithful value investors--those who are probably the least likely to actually implement a momentum approach--stand to gain the most by complementing their value portfolio with a momentum strategy."
- p.81 Bruce Lehman paper on short-term (one-week) reversals in returns. Stocks with positive returns in a given week have negative returns in the following week.
- p.83 DeBondt and Thaler: long-term momentum (3 to 5 years) also shows reversals in returns
- p.85 Jegadeesh and Titman: best strategy is using a 12 month lookback and a three month holding period
Excess returns dissipate for holding periods longer than 12 months
- p.86 Ignore the previous months return (in 12 month lookback) to limit the impact of short-term reversals
- p.89 Shorter holding periods and more highly concentrated portfolios tend to generate better momentum returns (hold fewer stocks and rebalance more frequently)
- p.91 Scalability of best momentum strategies may be limited to smaller asset managers

Maximizing Momentum: The Path Matters

- p.95 Stocks with "smoother" return paths perform better than those with "jumper" paths
- p.97 "lottery stocks": those with very recent short-term out-performance that end up performing poorly in the future
- p.99 "Lottery bias plays a role in market mispricing. Stocks that are perceived as lotteries tend to do poorly because investors bid them past fundamental value."
- p.101 Focus on path dependency to improve the momentum effect
Gurun and Warachka information discreteness equation for measuring momentum quality
 $ID = \text{sign}(\text{past return}) * [\% \text{negative} - \% \text{positive}]$
- p.105 Avoid mispricing associated with lottery-like stocks
Exploit limited attention which leads to systematic underreaction

Momentum Investors Need to Know Their Seasons

- p.108 tax loss selling and window dressing may drive some of the short-term behavior of certain stocks
- p.109 Window Dressing Hypothesis: Managers sell their losing stocks before quarter end to avoid these stocks showing up on their quarterly holdings
- p.114 The spread between high and low momentum stocks is greatest at quarter end
- p.116 Implication from tax loss selling and window dressing is that there are smarter occasions to rebalance that one can take advantage of to improve momentum strategy

Quantitative Momentum Beats the Market

- p.121 Filtering Process
 - 1) Large and mid-cap stocks (~1000 stocks)
 - 2) Generic momentum screen (uses the academic 12_2) and rank (top 10% or about 100 stocks)
 - 3) Quality screen (Frog-In-Pan Algorithm) that looks for stable momentum (100 stocks are reduced by half to about 50 stocks)
 - 4) Rebalanced quarterly before quarter ending months, portfolio is also equal weighted
- p.126 "We must emphatically emphasize that investors need to be prepared for the enhanced volatility and drawdown risks associated with momentum strategies--that is the primary reason why this system is

expected to work in the future--but this enhanced risk is more than offset by the additional expected returns, which is what makes momentum anomalous."

p.123 Asness "Facts, Fiction, and Momentum Investing" looks at the ability of momentum to survive trading costs

Notes from Jack's Presentation at AAIL (12 November 2016)

- Momentum screen is the most important
- process is limited to large and mid-cap stocks to preserve liquidity (top 40% by market cap of NYSE market), currently this is approximately \$2 billion in market cap and above
- Dissecting Anomalies (Fama-French paper) that states "momentum is the premier anomaly"
- long/short portfolios: net market exposure is zero
- Frequency of rebalancing matters a lot with momentum strategies, as assets are held for longer periods of time they tend to converge to the market return
- Momentum anomaly tends to be driven by "boring" momentum stocks (Frog-In-Pan paper)