BAT

Brockmann Analytics and Trading

My Investment Process

They say that the definition of insanity is doing the same thing over and over again, expecting different results. Many investors follow a path of listening intently to the "Best Experts" suggestions and advice of the day. I do not. As we know, 2008 didn't turn out so well for them. Neither did 2000-2002, 1998, 1994 and 1987. Many investors will read the research of noted Analysts, Economist and Market Pundits or key into television commentators and their guests' comments. Their works are not part of my process.

> Please read the attachment at the end entitled: Uncertainly and the Dart to ascertain my opinion of experts.

Following a closer examination of the Tetlock study and others, I realized I should be cautious with "Experts" ' advice. Instead, I study supply and demand, which is reflected in the price. The price is the final arbitrator. It doesn't matter what the analyst or the company says. All that really matters is the price and the relationship it has with others. The comments and reactions of all participants will be reflected in the price eventually.

> At this time, please read the attachment report entitled: Momentum Investing. Finally, Accessible for Individual Investors

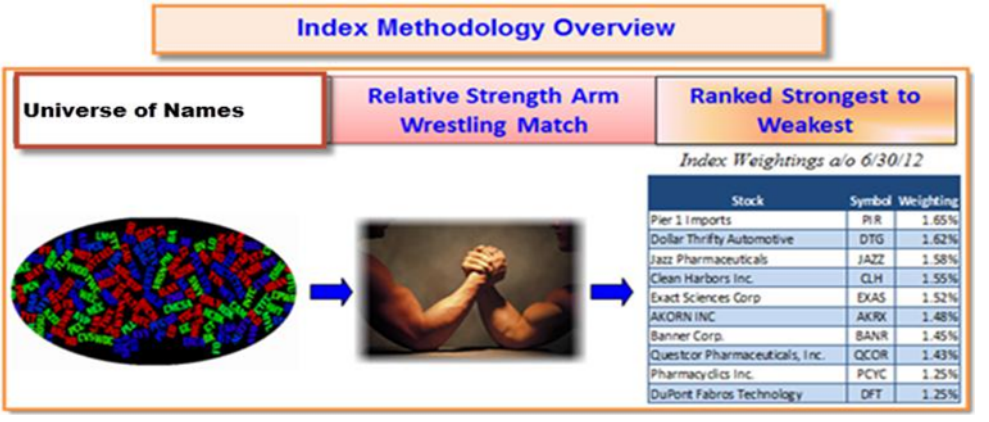
From the report, we find that assets that have been performing well for the past 6-12 months will continue to perform well for the next 6-12 months. Similarly, assets that have performed poorly over the same time frame will continue to do so.

> At this time, please read the attachment: Why Relative Strength.

"Simplicity is the ultimate sophistication"- Leonardo da Vinci. I agree with da Vinci.

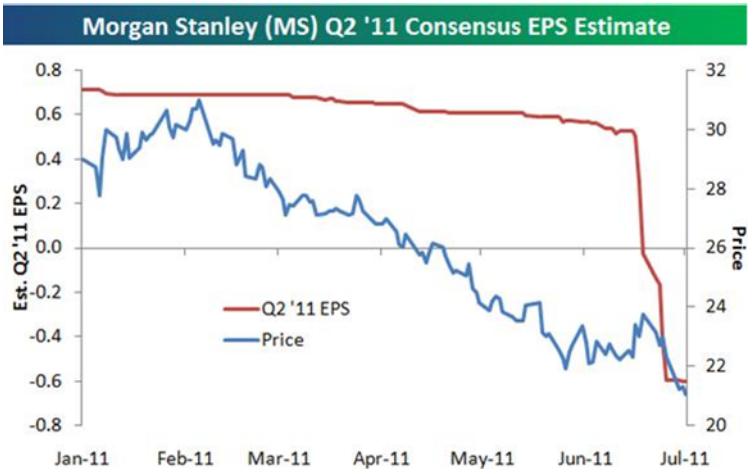
My selection process is simple yet very robust and, more importantly, adaptive in nature. The image below offers a brief pictorial of my process. We start with a selected universe of securities. We then rank each one against the other on a price-performance basis until we have a list of the strongest performers ranked to the weakest. This process not only gives us the strongest to consider but also the weakest to be avoided

This process lends itself well to the study of different asset classes. Are bonds leading or equities? How does International Equities rank against Domestic? Is Apple stronger than Google? How does CIBC rank against its peers? Should I look at the Gold or Health Care sector? Should I be in cash? Over time, as price changes, so does the ranking.

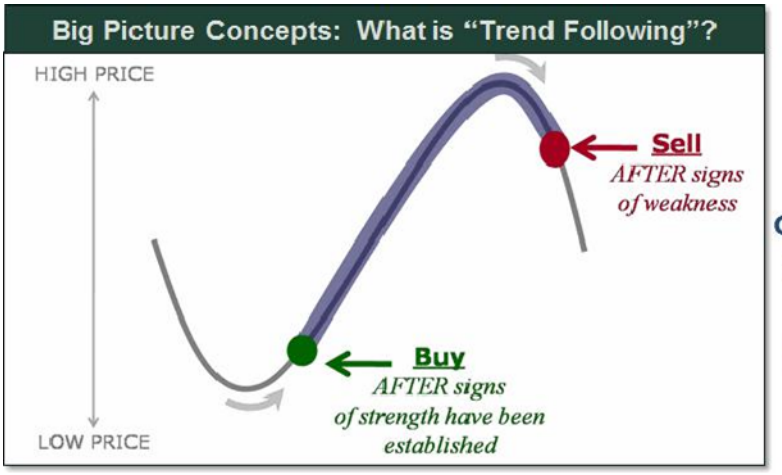


We throw out the old adage of Buy Low and Sell High. Instead, we Buy High and Sell Higher. History is full of examples of securities that have faltered while analysts continued to issue buy recommendations. Names such as Nortel, Enron and Research in Motion would all have been sold long before hitting bottom because they were performing poorly and others were outpacing them. We want to take the emotion out of the investment equation. Just what Sgt. From the old television show Dragnet, Joe Friday would say, "just the facts, ma'am, just the facts." The facts show up in the price.

The graph below, courtesy of Bespoke Investment Group, tells a great story. There are two lines on the chart, one for price and one for analysts' consensus earnings estimate. Price is dropping rapidly. The consensus estimate is moving down very grudgingly—until earnings are reported when it plummets. Now the analysts have figured out what price knew all along. The particular example here shows an earnings miss, but the price is often anticipatory on the upside as well. **When you sort stocks by relative strength, it becomes very apparent that they are typically strong because they have superior fundamentals.**

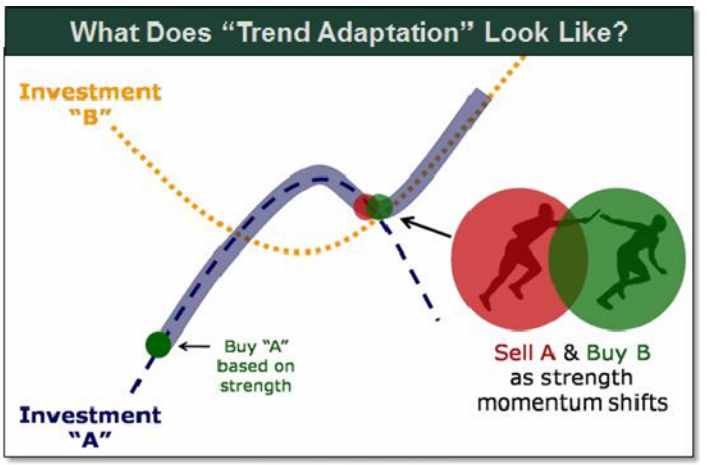


I follow the trend. Up or Down. In a sense, I am a mercenary. I am willing to change to the winning side as required.



By its nature, a "trend following" approach will not often lend itself to a cost basis at a low price, or an exit price at a high, for a given security.

A disciplined implementation strategy of adapting consistently to trends over time as they change, can provide for robust returns without a need for pinpointing tops and bottoms.

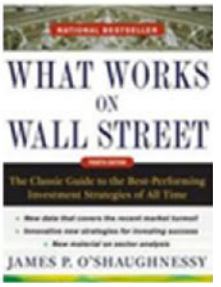


source: Arrow Funds

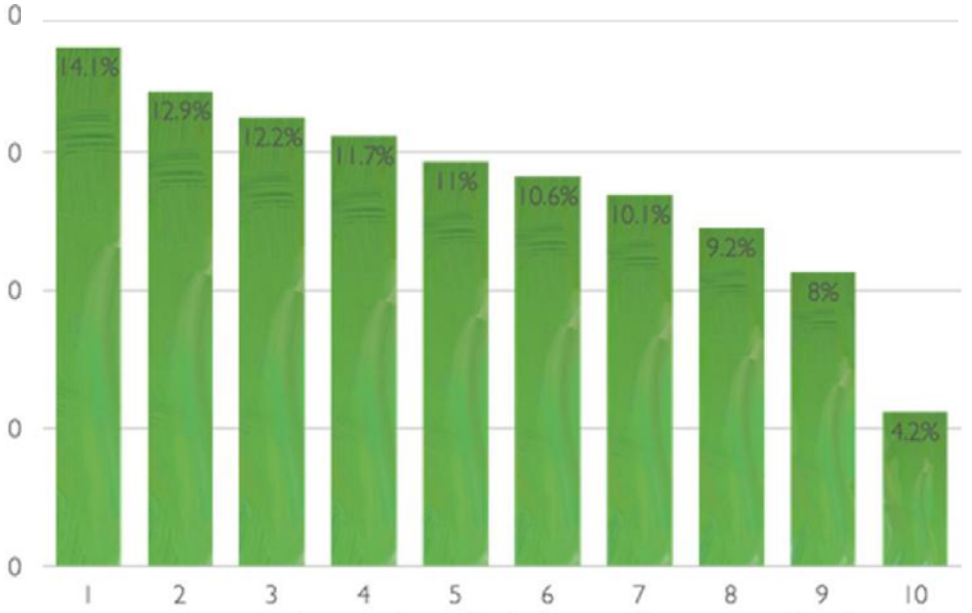
I also use a charting technique called Point and Figure (PnF) developed by Charles Dow, first editor of the Wall Street Journal and creator of the Index that bears his name: the Dow Jones Industrial Index. It looks only at the price. For me, your typical line chart only shows market noise. Again I go back to Sgt. Friday... Just the facts and the comment by da Vinci.

What Works On Wall Street

"We see that relative strength is among the only pure growth factors that actually beats the market consistently, and by a wide margin."



"A $10,000 investment on December 26, 1926, in the top decile of stocks from All Stocks with the best six-month price appreciation (relative strength) is worth $527,831,563 at the end of 2009, a compound return of 14.11 percent a year. This return dwarfed an investment in the All Stocks universe, which turned $10,000 into $38,542,780 over the same period, an average compound return of 10.46 percent."



- Average annual compound return by decile, 6-month momentum, All Stocks universe, January 1, 1927 to December 31, 2009

My investment philosophy and style is captured in the following quotes:

"Prices are never too high to begin buying and never too low to begin selling," Jessie Livermore

"When the facts change, I change my mind. What do you do, sir?" --John M Keynes

"A man should look for what is, and not for what he thinks should be" —Albert Einstein

I don't bother trying to figure out what the market will do going forward. I simply follow trends as they present themselves. I systematically use relative strength to identify the trends we want to follow: the strongest ones. We stay with the trend as long as it continues, whether for a short or extended period. When a trend weakens, as evidenced by its relative strength ranking, we knock that asset out of the portfolio and replace it with a stronger asset.

This briefly highlights the process behind my security selection and evaluation. I am not in the business of making predictions but rather in the business of identifying leadership and adapting to those changes. Relative strength does not work all the time but works overtime. A disciplined implementation strategy of adapting consistently to trends over time as they change can provide for robust returns without a need for pinpointing tops and bottoms. It has proven to be an effective approach and is what I use.

Should you have any questions, I would be more than happy to answer them for you.

Sincerely,
Brockmann Analytics & Trading

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Uncertainty and the Dart-Throwing Chimpanzee

April 11, 2011

I ran across a wonderful review of Dan Gardner's new book, Future Babble. He discusses why pundits make predictions, why people listen to them, and why you would ultimately be better off with a dart-throwing chimpanzee. The fact is that experts are terrible at predictions:

In *Future Babble*, Gardner acknowledges his debt to political scientist Philip Tetlock, who set up a 25-year experiment in which he enrolled 286 experts who made their living "commenting or offering advice on political and economic trends". He signed a non-discloser statements and framed the questions in a way that the outcome could be measured. By the end of the study. Tetlock had quantified 82,631 different predictions and later checked how well they did. Not so well. Tetlock concluded that most of his experts would have been beaten by "a dart-throwing chimpanzee." Tetlock found that the experts wearing rose-tinted glasses "assigned probabilities of 65 percent to rosy scenarios that materialized only 15 percent of the time." Doomsters did even worse: "They assigned probabilities of 70 percent to bleak scenarios that materialized only 12 percent of the time." After Tetlock tallied up the data, the predictive failures of the pundits became obvious. Although they were paid for their keen insights into world affairs, they tended to perform worse than random chance. Most of Tetlock's questions had three possible answers; the pundits, on average, selected the right answer less than 33 percent of the time. In other words, a dart throwing chimp would have beaten the vast majority of professionals. Tetlock also found that the most famous pundits in his study tended to be the least accurate, consistently churning out overblown and overconfident forecasts. Eminence was a handicap.

In my correspondence with Gardner he wrote me***...."In my original plan for the book, I had a chapter on financial gurus. Most of it was written but we dropped it simply to keep the book short, which was necessary, in a practical sense, but also a shame. Some of the money guys I interviewed -- very big names, at one time or another -- were the finest illustrations of the sort of expert we should flee from. But they were confident. Oh lord, were they confident. Absolutely unshakable. No matter what happened, they were right all along. Truly amazing."***

Why, then, do people even listen?

Besides making fun of the failures of the prognosticating class, Gardner also explains why so many of us keep falling for false prophesy: Humans beings hate uncertainty. Gardner offers myriad insights from research in cognitive psychology and behavioural economics that explains how and why we

succumb to our desires for certainty. "Whether sunny or bleak, convictions about the future satisfy the hunger for certainty," writes Gardner. "We want to believe. And so we do."

It's fine, I suppose, if you listen to forecasts for entertainment. But knowing the track record of forecasters, why in the heck would you ever base your investment policy on a forecast? I'm not talking about just extreme forecasts like the rosy scenario or gloom-and-doom. A pie chart that allocates assets based on a forecast of expected returns and expected correlations is no less a forecast—and no more likely to be accurate.

An Expert Pondering His Next Move in the Market

Source: www.blingcheese.com

Just because we hunger for certainty doesn't mean it is available. The only thing I can forecast with any certainty is that things will continue to change in unpredictable ways. Price represents a market's best guess about what might happen down the road, rightly or wrongly. Price is an informed guess; people are putting real money on the line. Research shows that predictive markets are often more accurate than experts. Relative strength is just a handy way to measure price and gauge what market participants are doing. There's no guarantee that they will do the same thing tomorrow, but perceptions generally change gradually over time as new information comes to light, or new thinking about old information emerges. Staying with strong relative strength trends and departing when they weaken is the simplest way to stay in synch with the changing flow of information in the market.

Wilfred P Brockmann, FCSI, Vice President Investment Advisor CIBC Wood Gundy

Momentum Investing

Finally Accessible for Individual Investors

By Tobias J. Moskowitz, PhD

Known to financial academics for many years, momentum investing is a powerful tool for building portfolio efficiency, diversification, and above-average returns. Until recently, momentum investing has been difficult to access for most investors, but that is changing.

A couple firms recently launched products that give more investors access to momentum. Some are technical, such as Dorsey-Wright's ETF; others, such as MSCI, are based on proprietary models. AQR Capital Management recently launched a transparent momentum style index with a set of funds designed to track the index.[1]

This article explores this newly available investment style and examines how it offers to enhance an investor's portfolio.

Momentum Investing Defined

Momentum is the tendency of investments to exhibit persistence in their relative performance. Investments that have performed relatively well continue to perform relatively well; those that have performed relatively poorly continue to perform relatively poorly. Momentum investing, however, involves more than buying a handful of hot stocks. It is a disciplined, systematic investing style that applies across asset classes.

Momentum investing calls for identifying securities with good relative performance in rising, neutral, and falling markets and tries to predict which of those securities will continue to outperform, regardless of market trend. Momentum, however, is not a pure trend-following strategy. It makes no bets on rising or falling markets; it works whether markets are trending up or down.

Academic Discovery

Academics have been studying momentum investing for the better part of two decades. As a stand-alone investment strategy, it delivers positive abnormal returns (alpha) above the market's returns, producing even better abnormal performance than either size or value styles (Jegadeesh and Titman 1993; Asness 1994; Fama and French 1996, 2008; Moskowitz and Grinblatt 1999).

Just like size and value, however, momentum captures an important and pervasive dimension of security returns. Momentum's effect exists in nearly all securities, sectors, international markets, and different asset classes. It works in large-cap, mid-cap, and small-cap stocks and among value and growth stocks, too. Momentum is not captured by size or value/growth styles or other possible explanatory factors.

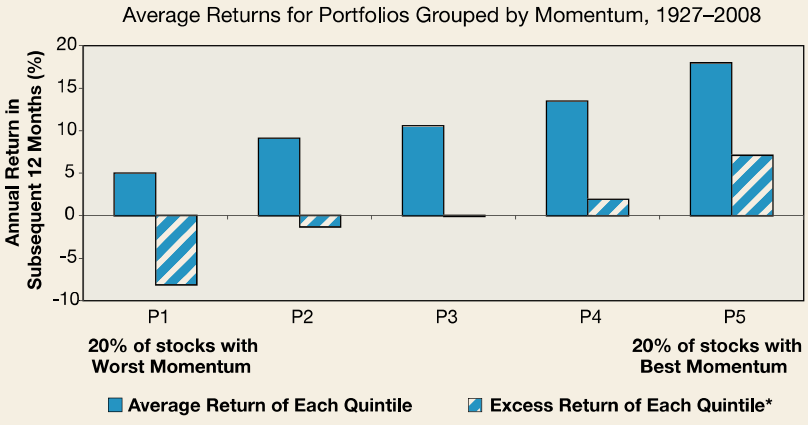
Momentum is particularly beneficial when combined with a value style. Momentum and value each deliver positive excess market returns, but because they are negatively correlated, the combination lowers risk and improves portfolio efficiency.

Momentum has its own correlation structure, too. Stocks with high momentum tend to move together, a co-movement that isn't captured by other sources.

Historical Evidence

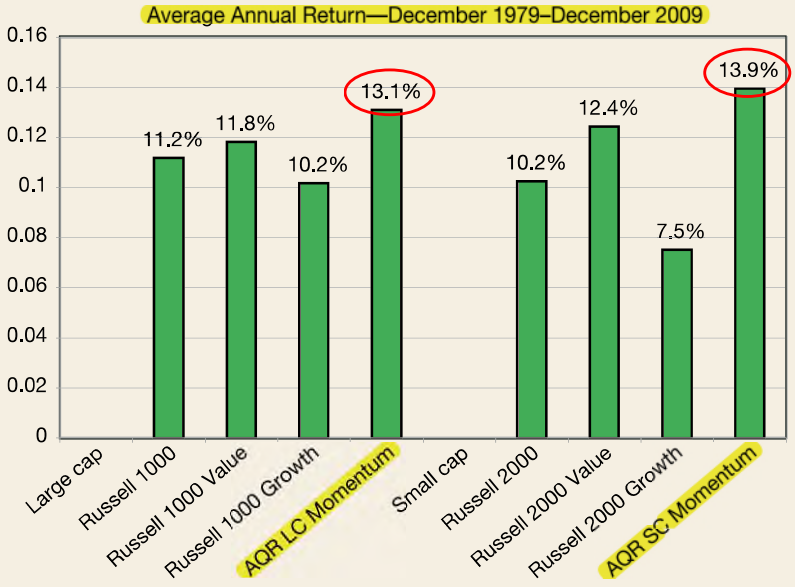
The evidence for momentum is supported by almost two decades of academic research and more than 80 years of data. The first studies were completed in the early 1990s (Jegadeesh and Titman 1993, Asness 1994), More than 300 articles have explored momentum, including 150 articles in the past five years. In a seminal study on value and size, Fama and French (1996) acknowledged a "failure to capture the continuation of short-term returns of Jegadeesh and Titman (1993) and Asness (1994) [aka the momentum effect]." More than

FIGURE 1: HISTORICAL PERFORMANCE OF STOCKS WITH GOOD AND BAD MOMENTUM



Source: Tobias Moskowitz using CRSP data

FIGURE 2: PERFORMANCE COMPARISON OF MOMENTUM, VALUE, GROWTH, AND CORE



Source: Tobias Moskowitz using data from Russell and AQR Capital

a decade later, however, momentum was part of just about every academic model and empirical study related to pricing securities.

Figure 1 shows U.S. stocks by quintile based on recent performance. Over the following year, stocks with the best momentum (P5) outperformed those with the worst momentum (P1), both in absolute terms and relative to the entire equity market. Also, the outperformance of P5 (best momentum) is about as large as the underperformance of P1 (worst momentum), so an investor who could not short still benefited from merely going long recent winners.

Figure 2 shows a comparison of the performance of a long-only momentum portfolio to other long-only equity styles during the 30 years between December 1979 and December 2009. Momentum outperformed the market or a core index portfolio by a wide margin. Among large-cap stocks, momentum outperformed the Russell 1000 by about 2 percent a year. A small-cap momentum index outperformed the Russell 2000 by 3.7 percent a year. Momentum outperformed value by 1.5 percent a year and growth by more than 3 percent a year.

One of momentum's most valuable attributes is its correlation to value and growth strategies. The excess returns of momentum are positively correlated to those of growth and negatively correlated to those of value, making momentum an alternative to growth and an attractive complement to value in a portfolio.

Out-of-Sample Evidence

The original momentum studies focused on U.S. equities during the period 1963–1990. Subsequent studies found momentum as far back as the Victorian age (Chabot et al. 2009) and in the out-of-

TABLE 1: HISTORICAL PERFORMANCE OF MOMENTUM ACROSS ASSET CLASSES, 1975–2008

	Sharpe Ratio of a Long-Short Momentum Strategy	Annualized Return of a Long-Short Momentum Strategy	Time Period Studied
In Individual Stocks			
United States	0.7	10.5%	1975–2008
United Kingdom	0.6	9.0%	1985–2008
Japan	0.2	3.0%	1985–2008
Continental Europe	1.1	16.5%	1988–2008
Stock Market Equal-Weighted	0.9	13.5%	1988–2008
In Other Asset Classes			
Bond Market (Developed)	0.3	4.5%	1975–2008
Currencies	0.5	7.5%	1975–2008
Commodities	0.8	12.0%	1975–2008
Equity Indexes (Developed)	0.6	9.0%	1975–2008
Other Asset Class Equal-Weighted	0.9	13.5%	1975–2008
All Asset Classes	1.1	16.5%	1988–2008

Source: Asness et al. (2009). Data updated through year-end 2008. Hypothetical long-short back-test where each value and momentum portfolio is scaled to an estimated 10-percent annualized volatility based on either AQR or BARRA risk models; gross of transaction and financing costs. Hypothetical performance has inherent limitations.

sample period after the original research was published (Carhart 1997, Jegadeesh and Titman 2001, Grundy and Martin 2001, Asness et al. 2009). Momentum has been found in markets in Europe (Rouwenhorst 1998), in emerging markets (Rouwenhorst 1999), in Asia (Chui et al. 2000), and in 40 different markets globally (Griffin et al. 2005). Momentum also has been documented among other asset classes than individual stocks, e.g., bonds, commodities, and currencies (Asness et al. 2009); industries (Moskowitz and Grinblatt 1999, 2004; Asness et al. 2000), and country indexes (Asness et al. 1997).

Table 1 shows evidence for momentum in a range of global asset classes and markets.

Possible Explanations for Momentum

Momentum has several possible explanations. Momentum's higher returns may be compensation for a unique risk associated with investments that have recently outperformed, though no such risk factor has been convincingly identified. If momentum is not compensation for risk, its existence seems to challenge even the weakest form of the efficient-market hypothesis that past price performance provides no information about future performance. In other words, momentum may be associated with a market inefficiency, perhaps one due to investor behavior.

Several possible behavioral explanations have been put forth, many based on the Nobel Memorial prize-winning work of Daniel Kahneman and Amos Tversky. One explanation posits that investors may be slow to react to new information. Different investors (e.g., a trader vs. a casual investor) receive news from different sources and react to news over different time horizons and in different ways. This "anchoring and adjustment" is a behavioral phenomenon in which individuals update their views only partially when faced with new information, slowly accepting its full impact. Ample evidence supports slow-reaction-to-information theories ranging from market response to earnings and dividend announcements to analysts' reluctance to update their forecasts.

Second, human beings—and therefore, investors—are prone to what behavioral economists and experimental psychologists call the disposition effect. Investors tend to sell winning investments prematurely to lock in gains and hold on to losing investments too long in the hope of breaking even. The disposition effect creates an artificial headwind: When good news is announced, the price of an asset does not immediately rise to its true value because of premature selling or lack of buying. Similarly, when bad news is announced, the price falls less because investors are reluctant to sell. Research shows a strong tendency toward the disposition effect among individual investors (Odean 1998, Grinblatt and Han 2005), Treasury bond traders (Coval and Shumway 2005), and even mutual fund managers (Frazzini 2006).

The debate about the root causes of momentum continues. A similar debate is ongoing for value investing. Evidence from a range of markets, asset classes, and time periods, however, supports the argument that momentum is not random.

Time Horizon

Momentum is a phenomenon that exists at 6–12 month horizons. Beyond 12 months, momentum wanes, and over 3–5 year horizons we see reversals (e.g., winners begin to lose and losers begin to win). Stocks that outperform for a long period of time generally will become expensive, and expensive stocks tend to underperform less-expensive stocks. This is the value effect, and long-run past performance is a good value-indicator. But assets that have performed well over the past 6–12 months tend to do better over the next 6–12 months than assets that have performed poorly over that same past period. This is the time horizon in which momentum works best.

Momentum in a Portfolio

How does momentum work with other investment strategies within a broader portfolio?

Many investors think about style exposures as part of asset allocation (i.e., large cap vs. small cap, value vs. growth). Momentum can overlay and improve just about any asset allocation strategy.

A momentum strategy tends to move with growth stocks but with higher returns and larger Sharpe ratios. For a typical investor with some growth exposure, shifting assets from growth to momentum results in a more-efficient portfolio with a higher expected return. Because momentum helps identify growth stocks that are more likely to outperform, it helps investors select the best of growth.

Conversely, momentum tends to negatively correlate with value, making it an effectual diversifier for value. A value-momentum combination mitigates the extreme negative return episodes a value investor will face (e.g., the tech boom of the late 1990s and early 2000 or a dismal year like 2008). In effect, the momentum-value combination may cut tracking error by more than half, raising Sharpe ratios by 50 percent and information ratios by as much as two to three times.

Momentum also can be a catalyst to value, i.e., an indicator of when deep-value stocks begin to turn around. Data confirm that value stocks that have been long-term losers but have high recent momentum (6–12 month returns) will go on to outperform by an even wider margin (Asness 1997, Grinblatt and Moskowitz 2004).

Indeed, focusing exclusively on value poses several dangers. For example, a value-focused strategy has substantial tracking error relative to core equity benchmarks. When value periodically

falls out of favor and returns suffer dramatic reversals (e.g., 2008), investors getting pounded in the short term may give up on value strategies at exactly the wrong time. Value investors who make poorly timed decisions may end up worse than investors who hold core index portfolios. Having momentum in the portfolio with value mitigates these substantial losses.

Investors in value may see losing streaks, as may investors in momentum. But investors who combine value and momentum are better-protected because the strategies rarely move together and yet both deliver positive returns on average.

Transactions Costs and Taxes

Academic evidence does not account for trading costs and turnover, but these costs are important. The trading costs of momentum investing are higher than those of value and growth, but they are not high enough to materially change the attractiveness of momentum, both in absolute terms and relative to value and growth.

How to limit transactions costs for a momentum strategy is a topic of academic debate, but the bottom line is that momentum's costs are significantly less than its value-added. Many of these academic studies do not take into account optimal or patient trading, which substantially lowers trading costs (Israel and Moskowitz 2010b).

A case in point is the proliferation of momentum investing for more than a decade among institutional investors. Momentum-focused hedge funds have had huge success, and several of these are among the world's largest hedge funds. Returns to these strategies clearly overcame trading costs.

For a taxable investor, momentum generates about the same effective tax rate as a value strategy on a stand-alone investment basis and less tax than value within a broader asset allocation. This is because momentum generates lots of short-term losses that can be used to offset other gains in a broader portfolio, whereas a value strategy exposes an investor to significant dividend income, which is very tax-inefficient (Israel and Moskowitz 2010a). For particularly tax-sensitive investors, however, 401(k) or other tax-managed accounts might make the most sense for both momentum and value strategies.

Risks

Like any investment, momentum does not deliver positive returns all the time. At times momentum will underperform. These times, however, are usually when value strategies are doing well. Hence the combination of value and momentum creates a stable portfolio.

For example, momentum does well when the market is illiquid and poorly when the market is very liquid (Asness et al. 2009). Thus momentum is valuable for hedging liquidity risk; it pays off when the economy suffers severe illiquidity and value does miserably (e.g., 2008).

Lastly, momentum investing can have a beta to the overall market that varies with time. Specifically, in a down-trending market beta tends to fall below 1 and, conversely, in an up-trending market beta can be higher than 1. When the market takes a large and abrupt turn in the opposite direction, these beta exposures may generate short-term losses—something we witnessed in 2009.

When is a good time to invest in momentum? Timing anything is tricky. I would argue that momentum, like value, is a long-term winning strategy with more than 80 years of supporting evidence across many markets. Momentum's rare tough times tend to be short-lived. And because value often does well when momentum doesn't, combining the two tends to immunize against momentum's short-term losses.

Conclusion

Momentum is a powerful investment style, nearly unmatched in its predictive strength and robustness.

For the better part of the past two decades, academics have considered size, value, and momentum as the three pillars of any portfolio. Size and value have low-cost, accessible, and transparent investment vehicles available to all investors, while momentum's availability until recently has been limited primarily to hedge funds, institutional investors, or expensive active portfolios.

The introduction of investable, low-cost momentum funds that are based on transparent momentum indexes represents a pivotal development in momentum's emergence as an accepted investment strategy. Momentum investing likely is today where value and growth were two decades ago: supported by research, successfully used by leading institutional investors, and finally with an investable index that makes it available to the broader investment community. IW

Tobias J. Moskowitz, PhD, is the Fama Family Professor of Finance at The University of Chicago Booth School of Business and a research associate at the National Bureau of Economic Research. He earned a bachelor's degree in industrial management and industrial engineering and a master's degree in management, both from Purdue University, and a PhD in finance from the University of California, Los Angeles. Contact him at tobias.moskowitz@chicagobooth.edu.

Endnote

[1] Tobias Moskowitz consults for AQR Capital.

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To take the CE quiz online, visit www.IMCA.org.

Why Relative Strength?

With each passing year, global financial markets offer more and more choices to investors. More choice can be good, if investors have a logical framework to analyze this broad universe of securities. We all know that the financial markets offer ample quantities of both risk and return. In fact, it is because of the risk that the return is possible. Financial markets continue to provide the best available opportunities for investors to build and preserve long-term wealth. However, to capitalize on the opportunities in the financial markets, an investor needs to have a systematic investment strategy. Our Relative Strength portfolios offer just such a systematic approach to investing. Relative strength is the investment factor upon which each of our portfolios is built.

We rely on relative strength to manage portfolios because of its adaptive nature and its longterm track record of success[1]. Relative strength is simple in concept, yet powerful in application. Relative strength is simply the comparison of price performance within a universe of securities. Analyzing securities by their relative strength provides a way to identify the leaders from the rest of the pack. It is those market leaders that we want to own.

Relative strength also allows us to identify the laggards. Successful investing also requires avoiding big losers. Relative strength is equally good at identifying long-term winners and losers. Relative strength analysis is not confined just to the financial markets. For example, consider the process by which the Canadian Olympic Track & Field Team is selected. Olympic Trials are held and athletes compete against one another. The winners of the Olympic Trials are selected to represent Canada at the Olympic games. This approach is preferred over other selection methods, such as having a committee of "experts" decide which athletes should be on the team or even selecting the losers of the Olympic Trials to be on the Olympic Team in the hope that "they are due for a bounce." Simply stated, the best way to select future winners is to select current winners. This is essentially what our relative strength models are designed to do: build a portfolio of the market leaders and hold them as long as they remain strong.

[1] www.dorseywrightmm.com, Archived Documented Relative Strength Research