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Equity market momentum: A synthesis of the literature and suggestions for future work

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ABSTRACT

I review the literature on equity market momentum, a seminal and intriguing finding in finance. This phenomenon is the ability of returns over the past one to four quarters to predict future returns over the same period in the cross-section of equities. I am able to document about ten different theories for momentum, and a large volume of empirical work on the topic. I find, however, that after a quarter century following the discovery of momentum by Jegadeesh and Titman (1993), we are still no closer to finding a discernible cause for this phenomenon, in spite of the extensive work on the topic. More needs to be done to develop tests that are focused not so much on testing one specific theory, but on ruling out alternative explanations.

Introduction

One of the key lines of research in finance is to understand the time series and cross-sectional behavior of equity market returns. Perhaps one of the most robust findings in this area is stock market momentum, which is the tendency of stocks' relative performance over the next three to twelve months to be predictable from their relative performance in the past three to twelve months. Following [Jegadeesh and Titman's \(1993\)](#) discovery of the momentum phenomenon, copious amounts of theoretical and empirical research have been devoted to try and understand this pattern in stock returns. The focus of this review article is to consider alternative explanations for momentum that have been proposed in the literature and to evaluate the progress that has been made in terms of ascertaining causes for this phenomenon.

The phenomenon of momentum is intriguing because it directly contradicts the notion of a fairly weak form of capital market efficiency; that markets do not have memory with respect to past prices. That such a straightforward source of paper profits presents itself in markets is naturally something that has attracted the interest of several scholars. Indeed, I was able to document several potential explanations for momentum considered in the literature. The rationales proposed are motivated principally in one of three ways. These are:

- Pure underreaction to information
- Continuing overreaction to information
- Required (expected) returns that vary with past returns

In addition to theoretical work, a large number of empirical studies analyze facets of momentum in domestic and international equities, as well as other asset classes.

In reviewing this literature I maintain as a central theme that our learning about momentum is hampered when so many explanations accumulate without any attempt to test for mutual exclusivity of the predictions. I argue that effort should be focused on ruling out alternative explanations for momentum and trying to hone in on the “true” explanation(s) rather than allowing the finding

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to get “over-identified” via multiple stories for the same phenomenon.

My choice of papers to review is admittedly subjective. Nonetheless I believe the paper takes first things first and can potentially be a useful starting point to focus future research on momentum. This paper is organized as follows. [Section 2](#) reviews the basic findings. [Section 3](#) summarizes the prevailing explanations for momentum. [Section 4](#) considers empirical work. [Section 5](#) provides brief concluding remarks.

The basic findings

[Jegadeesh and Titman \(1993\)](#) demonstrate a momentum effect (prediction from three to twelve months of past returns). The basic finding is “winners” (the top decile of performers) over the past three to twelve months continue to outperform “losers” (the bottom decile) over the next three to twelve months as well. The phenomenon is documented by doing the following. First, sort stocks each month into deciles based on performance over the past J months (with J ranging from three to 12 months). Then form overlapping portfolios that hold these stocks for the next K months (the range of K is identical to that of J). Thus, in each month t , the position taken in month $t-K$ is closed out. The documented profits are about 12% per year when J and K range between six and 12 months and are thus substantial. This basic momentum phenomenon also obtains in monthly cross-sectional Fama-MacBeth regressions for gross returns ranging from the past three to 12 months as explanatory variables (see, for example, [Brennan et al., 1998](#)). An interesting result documented by [Jegadeesh and Titman \(1993\)](#) is that momentum profits tend to reverse when the holding period K is raised to 24 months or higher. [Fama and French \(1996\)](#) as well as [Pukthuanthong et al. \(2018\)](#) find that factor models (such as those based on size and book/market, or on principal components extracted from covariance matrices) are not able to explain momentum profits.

In other work, [Rouwenhorst \(1998\)](#) finds out-of-sample evidence of a momentum effect in many European countries. [Grundy and Martin \(2001\)](#) show that momentum has both firm-specific and systematic-factor-related components. [Asness et al. \(2013\)](#) find that momentum effects are pervasive not only in international equities but also in markets for other assets such as government bonds, commodity futures, and foreign currencies. More recently, [Chang et al. \(2018\)](#) document a curious phenomenon in Japan: While there is no evidence of “standard” momentum, a version of momentum that uses only residual returns does obtain in Japan. This finding deserves further investigation, but overall, the evidence of momentum is robust and strong, in- and out-of-sample, and in cross-country settings.

Explanations for momentum

Why should such a strong return pattern such as momentum persist? A natural possibility is investor misreaction due to behavioral biases. Prominent behavioral attempts to explain the phenomenon are [Daniel et al. \(1998\)](#) (DHS), [Barberis et al. \(1998\)](#) (BSV), and [Hong and Stein \(1999\)](#) (HS). DHS attempts to explain patterns using overconfidence and self-attribution. Overconfidence about private signals causes overreaction. However, agents assess arriving public signals with a self-serving bias that overweights private signals and underweights public signals, indicating a continuing overreaction, followed by a slow correction. These latter phenomena lead to momentum and the long-term reversals accord with the findings of [Jegadeesh and Titman \(1993\)](#).

In BSV, extrapolation from random sequences, in which investors expect patterns in small samples to continue, results in overreaction and reversals in response to small-sample patterns, whereas conservatism, wherein agents attach insufficient weight to new information, creates momentum through underreaction. In HS there is momentum because a class of “news-watchers” get informed sequentially, and fail to condition on market prices. Further, momentum traders, who trade mechanically in the direction of past price changes, create overreaction because they continue trading even after news is fully incorporated into prices, followed by reversals when they close out their positions. [Hong and Stein \(2007\)](#) note that when newswatchers observe different signals but do not condition on the market price, they create volume, which is suggestive of the view that momentum should be strong when volume is high.

[Brav and Heaton \(2002\)](#) consider uncertainty about the economy's parameters such as the asset value's mean and rational Bayesian learning to explain predictable return patterns. Thus, if agents are unsure whether mean shifts have occurred and they have, there is underreaction and hence, momentum. Equally, there can be overreaction to recent data if agents believe a structural shift to occur and they do not.

[Hong et al. \(2007\)](#) suggest that investors use overly-simplified models to evaluate stocks, ignoring the true, more complex model. For example, agents may think stock prices are simple functions of some macro variables when they are not. An investor who believes in a particular model uses this model to make persistent forecast errors while ignoring a persistent but pertinent information signal; this leads to momentum. Further, an investor who naively uses an extrapolation model, can materially change beliefs after seeing a break in a sequence of positive earnings, leading to large price reactions.

[Da et al. \(2014\)](#) argue that momentum arises because investors underreact to information arriving in small bits much like the proverbial frog in a pan that underreacts as the water is slowly brought to boil. They show that stocks where past returns accumulate gradually exhibit more momentum than stocks where returns are accumulated in a lumpy fashion.

In yet another behavioral explanation for momentum, [Grinblatt and Han \(2005\)](#) argue that the disposition effect causes this pattern. Specifically, a reluctance to sell losers and an eagerness to sell winners (the disposition effect) both cause price to underreact to true fundamental news for losing stocks. They show that momentum is related to unrealized capital gains in their setting, as their model predicts.

[Antoniu et al. \(2013\)](#) argue that momentum arises because of cognitive dissonance. Investors react properly to news which confirms their beliefs but underreact to news that disconfirms their beliefs. On average, therefore, they underreact, which gives rise to

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