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Market states, expectations, sentiment and momentum: How naive are investors?

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ABSTRACT

Following Cooper et al. (CGH) 2004 we test whether market states are relevant for predicting UK momentum profits. However, rather than simply categorising up/down markets based on actual prices as CGH, we suggest that investors may view expectations and/or sentiment as important. Contrary to the findings for the US, we find that momentum returns are not related to CGH-defined market states. Similar findings hold for an expectations-based split. In contrast, for the whole sample period, construction and retail sentiment indicators explain differences in momentum profits. However, robustness tests suggest that their explanatory power is driven by the post-subprime crisis period.

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1. Introduction

Following the seminal work of Jegadeesh and Titman (henceforth JT) (1993), considerable attention has been devoted both to the identification of momentum profits and to explanations as to why such profits may exist. JT (1993) demonstrate that stock returns exhibit momentum over medium horizons, such that a zero investment strategy involving shorting past recent (six-month) losers and buying past recent (six-month) winners generates excess returns of the order of 1% per month in the following six-month period. Subsequent work has demonstrated similar findings over a range of markets, with extensive evidence of momentum over short-to-medium horizons, ranging from 3 to 12 months.[1] The evidence suggests that momentum abnormal returns are now a stylized fact and cannot be attributed to data mining. As a result, several papers have sought to explain the existence of momentum returns either arguing that such returns are a compensation for risk (see, for example, Conrad & Kaul, 1998) or by using a behavioural model based on inherent biases on the part of some investors (see, for example, Barberis, Shleifer, & Vishny, 1998; Daniel, Hirshleifer, & Subrahmanyam, 1998; Hong & Stein, 1999).

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[1] For example, Rouwenhorst (1998) finds similar results to JT (1993) for 12 European countries over the period 1980 to 1995; van der Hart, Slagter, and Dijk (2003) find similar results to JT in examining 32 emerging markets; Griffin, Ji, and Martin (2003) examine 40 markets including the US and find that macroeconomic risks do not explain findings; Galariotis, Holmes, and Ma (2007) find similar evidence for the UK stock market; Chui et al. (2010) consider the role of cross cultural differences in momentum profits and find momentum profits in 37 of the 41 countries included in their sample; Gupta, Locke, and Scrimgeour (2010) using data for 51 countries and including more than 51,000 stocks find momentum profits using the conventional momentum strategy and using industrial and 52-week high momentum strategies; and Badreddine, Galariotis, and Holmes (2012) find that while transactions costs are important, once these are taken into account even for (highly liquid) UK optioned stocks, momentum profits persist for some strategies.

In this paper we concentrate on the behavioural approach to explaining momentum profits, since recent evidence is more consistent with this view (see for example Asem, 2009; Chui, Titman, & Wei, 2010; Hvidkjaer, 2006; JT, 2001) and in particular on one important aspect of the recent literature which argues that momentum profits are related to the prior state of the market. Specifically, consideration will be given to the approach adopted by Cooper, Gutierrez, and Hameed (2004, hereafter CGH), which examines whether the profitability of momentum strategies differs depending on whether the market as a whole was 'up' or 'down' in the period prior to the momentum portfolio holding period. However, unlike CGH, we not only examine the extent to which momentum profits are affected by whether the market has gone up or down, but also whether it has gone up or down *relative to* expectations. In addition, contrary to the CGH arguments that momentum performance is conditional only on past market states, we further test whether investor sentiment is relevant by using a range of sentiment measures. Given the arguments that sentiment is highly relevant in financial markets (see, for example, Shleifer & Summers, 1990; Barberis et al., 1998; Barber, Odean, & Zhu, 2009) this is an important consideration for this most robust of anomalies.

CGH draw on the behavioural theories of Daniel et al. (1998) and Hong and Stein (1999) to argue that there will be greater short-run momentum following market increases than following market decreases. The empirical evidence presented by CGH supports their argument, with short-run momentum profits exclusively following up-markets over the period 1929–1995 for the US market.[2] Thus they argue "consistent with Daniel et al. (1998) and Hong and Stein (1999), the state of the market is critically important to the profitability of momentum strategies" (CGH, 2004, p1347). More specifically, they argue that as in Daniel et al. (1998), aggregate overconfidence will be greater following an up-market, and that if, as supported by Hong and Stein (1999), decreasing risk aversion leads to greater momentum profits, then, if risk aversion and wealth are inversely related, momentum profits will be higher following an up-market than following a down-market. The state of the market has also been shown to be of importance in other areas. For example, Rosen (2006) argues that investors may be overly optimistic in 'hot markets'. He provides evidence of merger momentum and shows that bidder stock prices have a greater tendency to increase when the stock market is doing better: "mergers announced during hot stock markets tend to get a better reaction from the market than those announced in a cold market" (Rosen, 2006, p1013). Similarly, there is evidence of over-optimism in hot IPO markets (see, for example, Helwege & Liang, 1996) and Holmes, Kallinterakis, and Leite Ferreira (2013) find that herding is more evident during periods when returns are low, compared to periods when returns are high.

Thus, there is considerable evidence to support the view that the recent performance of the market affects the magnitude (or, indeed, existence) of profits in relation to various market phenomena. In light of this, the extent to which momentum profits are affected by market states is clearly worthy of investigation in a market other than the US. In this paper we examine the issue for the UK market.[3] However, the CGH classification of the previous market state as either an 'up-market' or a 'down-market' may not be the most appropriate method by which to analyse the issue of the impact of aggregate market overconfidence. The approach taken by CGH only compares the *actual* market price at the beginning of the holding period, time t, with the *actual* market price at an earlier date, $t - i$, where i takes on the value of 12, 24 or 36 months. If the market price at time t (MP_t) is greater than MP_{t-i}, then the market is said to be up. In contrast, if MP_t is less than MP_{t-i} then the market is said to be down.[4] However, expectations and anchoring play an important role in finance and, particularly, in the behavioural finance literature.[5] In a market in which investors are rewarded for risk-taking (whatever the return generating process) the *expectation* at time $t - i$ is that MP_t will be greater than MP_{t-i}, i.e. by investing in a risky portfolio a positive return will be earned.[6] Despite this, expectations have no role in the CGH approach: they simply compare *actual* prices at two points in time. Rather than comparing the actual market price at two points of time, from both a rational and a behavioural perspective it is more relevant to compare the *actual* market price at the beginning of the holding period, t, with the *expectation* at time $t - i$ of what the market price will be at time t.

This view is consistent with the notion of disappointment aversion as proposed by Gul (1991). Disappointment aversion is based on the idea that individuals have a reference point which evolves endogenously. As Fielding and Stracca (2007) state "Reflecting the idea that pain is more urgent than pleasure, the disappointment related to *outcomes below expectations* is assumed (and normally found) to be stronger than the elation related to *outcomes exceeding expectations*." (p251, emphasis added).[7] If expectations are important, then a comparison should be made between MP_t and $E(MP_{t,t-i})$, where the latter is the value that the market price is expected to have at time t, with the expectation formed at time $t - i$. To illustrate why this distinction might be important, consider the following situation:

$$E\left(MP_{t,t-i}\right) > MP_t > MP_{t-i} \qquad (1)$$

Here the price at the beginning of the holding period is greater than the actual price at time $t - i$, but is less than the value expected at time $t - i$ for MP at time t. In these circumstances, investors may view the market as being 'down' (relative to expectations) even though the price of the market has risen over the period $t - i$ to t. Consequently, to the extent that the prior market state and associated aggregate market confidence affects momentum profits as suggested by CGH, it is possible that the up/down split they use may not be accurately capturing investors' *perceptions* of the market state. A priori it is not possible to determine whether changes in actual prices or deviations from expectations are more important. It is possible that investors are relatively naïve and that the comparison of actual prices at times t and $t - i$ may be more important than the comparison of MP_t and $E(MP_{t,t-i})$. However, it is equally the case that trading strategies may be based more on variations from expectations, in which case a comparison of the actual and expected prices would be more relevant. Ultimately, it is an empirical issue as to which, if any, comparison is more relevant, one of the central issues that this paper seeks to address.

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[2] Results are presented for mean returns, a CAPM model and a Fama–French 3 factor (FF3F) model. The main results presented in the paper are based on the state of the market in the three-year period prior to holding the momentum portfolio. They also present results based on the state of the market over a one-year and a two-year period prior to holding the portfolio. The only case where there is evidence of momentum profits during a down-market is for the FF3F model using the one-year definition of the state of the market.

[3] The London Stock Exchange is chosen for analysis in this paper for a number of reasons. First, it is one of the largest exchanges in the world in terms of market capitalization, trading value and number of trades (see http://www.world-exchanges.org/statistics); second it is the most international of stock exchanges (see http://www.londoncapitalventures.com/) and; third, it is a market where momentum profits have been evident in a number of studies (see, for example, Liu, Strong, and Xu (1999), Hon and Tonks (2003) and relevant references in Footnote 1). Investigation of the issues for this market will be of interest to a wide range of investors, both domestic and overseas.

[4] CGH also consider the market state as a continuous variable and find a non-linear relationship exists. However, the results from the use of a continuous variable for market state show a positive relationship between momentum profits and lagged market returns.

[5] Anchoring refers to the tendency when making estimates to start at an initial value (the anchor point) and adjust away from that point. In many situations, different initial values lead to individuals making different final estimates. See Tversky and Kahneman (1974).

[6] This is consistent with the findings of CGH. In their sample more than 84% of periods are classified as UP using a 36 month lag and over 72% are UP when using a 12 month lag.

[7] Fielding and Stracca (2007) examine behavioural explanations of the equity premium puzzle and suggest that a combination of myopic loss aversion and disappointment aversion provide "an attractive explanation of the equity premium puzzle" (p252).