Price Momentum: Was It There?

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Momentum has been one of the most long-lasting anomalies in the finance literature. Its existence and sources has been of intense interests. This paper is the first to examine momentum strategy in a period longer than any existing studies, 1694 to 1984. Momentum is found to be profitable in the United Kingdom during this period and the profits are not only positive in January, but also larger than the overall returns.

INTRODUCTION

Since Jegadeesh and Titman (1993), there is much research examining momentum, a simple zero-cost investment strategy at the intermediate horizon: selling short past losers and buying past winners generates returns of about one percent per month. This phenomenon draws a lot of attention as it conflicts the traditional paradigm of market efficiency. As such, subsequent studies primarily focus on three possible explanations: data mining, risk, and behavioral argument. See the next section of literature review for detailed descriptions.

This paper addresses data mining of momentum profitability. The data spans from 1694 to 1984 for the United Kingdom; the duration is longer than for any momentum studies including those examining the United States. Momentum in the United States is the most explored in the literature. Such studies rely on the Center for Research in Security Prices (CRSP) going back as far as 1926. Researchers examining international countries use Datastream International, PACAP, etc., and usually begin the coverage in 1970s (see Rowenhorst (1998), (1999); Chan, Hameed, and Tong (2000); Griffin, Ji, Martin (2003), etc.).

With such long series of data for the United Kingdom, I provide new evidence on momentum profitability. Empirical results include the following: for the United Kingdom from 1694 to 1984, momentum strategies constructed over various formation horizons generate significantly positive returns. Moreover, such returns are negative in January and positive from February to December.

This paper makes contributions in that it documents the prevalence of momentum in both time and location dimensions. Such results help to eliminate data mining as one explanation for momentum profitability. More research might focus on examining risk-based and behavioral arguments.

The study is organized as follows: Section 2 contains a review of the literature on momentum; Section 3 describes data and portfolio formation; Section 4 presents empirical findings; and Section 5 concludes.

LITERATURE REVIEW

In addition to the studies addressing data mining listed in the previous section, many scholars have explored if momentum profits are compensation for commensurate risk inherent in the strategy. On one hand, Jegadeesh and Titman (1993, 2001), Fama and French (1996), and Grundy and Martin (2001) are the leading representatives arguing that the Capital Asset Pricing Model and the Fama-French three-factor model cannot account for momentum profits.

However, proponents of risk-based explanation include Conrad and Kaul (1998), Chordia and Shivakumar (2002), etc. Conrad and Kaul (1998) argue that differences in expected returns explains momentum. Chordia and Shivakumar (2002) further discover that conditional macroeconomic variables can forecast momentum. Liu and Zhang (2008) find that the growth rate of industrial production captures momentum profits. There is recent research on the relation between macroeconomic risk and the cross section of returns (see Cooper and Priestley (2011), Moller and Rangvid (2015), and Savor and Wilson (2013)), and thereby the momentum effect.

Leading behavioral models include Barberis, Shleifer, and Vishny (1998), Daniel, Hirshleifer, and Subrahmanyam (1998), and Hong and Stein (1999). Constructed to capture various market irregularities including momentum, all three models are based on imperfect revision and processing of information. In the meantime, risk-based models explaining momentum include Berk, Green, and Naik (1999), Johnson (2002), etc. There are studies finding support for the models, e.g., Durham, Hertzel, and J. Spencer Martin (2005) for Barberis, Shleifer, and Vishny (1998), Daniel and Titman (1999) for Daniel, Hirshleifer, and Subrahmanyam (1998), and Hong, Lim, and Stein (2000) for Hong and Stein (1999).

On the international front, Griffin, Ji, and Martin (2003) suggest that neither the unconditional nor the conditional application of the five-factor model of Chen Roll, and Ross (1986) can explain momentum profits. Similarly, Liew and Vassalou (2000) show that although the size and value effects can be linked to macroeconomic growth, little evidence is found to support such an explanation for the momentum effect.

DATA AND PORTFOLIO FORMATION

Data

I extract the data from the database of the Global Financial Data Inc. From the series of month-end closing values of the United Kingdom market indexes, I compute market returns from 1694 to 1984. If the same closing value remains for four months or longer, it is considered a data error and only the earliest value is retained and subsequent identical values are considered missing. Such processed return indexes are used to further generate returns. If any return is higher than 10, it is considered a data error and coded missing.

Portfolio Formation

Momentum portfolios are formed as follows. For the typical six-month ranking, at the beginning of every month *t*, measure compound market returns from the past six months: *t*-7, *t*-6, ..., *t*-2. Momentum phenomenon suggests that, if such compounded return is positive, the market is expected to continue to go up, so buy the market index. Otherwise, sell short. Such holdings last one month, *t*, and are liquidated at the end of the month, *t*. Momentum return is computed as the return from month *t*. Such analysis is also conducted for ranking periods of 3, 9, and 12 months.

RESULTS

Profitability

Table 1 shows the average monthly momentum profits for the United Kingdom from 1695 onward. Over different formation periods of 3, 6, 9, and 12 months, momentum strategy generates significantly positive returns. For the typical six-month ranking, momentum profit is 0.34% per month with a *t*-statistic

of 5.82. With formation period lengthened from 3 to 12 months, momentum returns increase monotonically: 0.24, 0.24, 0.36, and 0.46, respectively. Such returns are also statistically significant at 1% level, with the only exception of the result for 12-month formation being significant at 10% level.

Seasonality

Table 2 has United Kingdom momentum returns in January and non-January months. Panel A shows that, for all ranking periods, momentum earns unanimously positive returns in January. In addition, such returns are also statistically significant at 5% level for 6- and 9-month ranking. Although it is not statistically significant for 3- and 12-month ranking, the sign of positive returns for all ranking periods is in direct contrast with results from the United States where January results are negative. Studies uncovered seasonal pattern for momentum in the United States include: Jegadeesh and Titman (1993, 2001), Grinblatt and Moskowitz (2004), etc.

Comparing Panel A with Table 1 shows even more interesting results in that momentum is not only positive, but also stronger in January with higher returns than the overall results in Table 1.

Panel B contains United Kingdom momentum returns in February to December months. Not surprisingly, all the returns are lower than the overall results in Table 1. Across all ranking horizons, momentum is significantly positive, with *t*-statistics ranging from 3.98 to 5.77.

SUMMARY

I use a dataset that had not been examined in the momentum literature to examine momentum in the United Kingdom. I find that, for the very long period of 1694 to 1984, momentum is significant in the United Kingdom. Moreover, the seasonality exhibits a different pattern than that for the United States: momentum strategy generates positive returns in January and the magnitude is even larger than the overall return. Collectively, the results show that data mining is driving momentum and the strategy is effective in both time and location dimensions.

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