Market dynamics and momentum in the Taiwan stock market

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ARTICLE INFO	ABSTRACT
	Prior literature widely documents that the Taiwan stock market exhibits no momentum premium. We attribute this phenomenon to the frequent transitions of the market and hypothesize that the momentum strategy can be profitable when the effect of market dynamics is taken into consideration. Confirming this notion, we document significantly positive momentum profits in Taiwan when the market continues in the same state. The momentum strategy during periods of market transitions, however, exhibits significant reversals. We provide evidence in support of the overconfidence hypothesis in explaining our findings by showing that the significantly positive momentum profit is concentrated in stocks that attract more investor attention. Further investigations show that our results are robust to the inclusion of several conditioning variables, suggesting the uniqueness and importance of market dynamics in momentum investing in Taiwan. © 2016 Elsevier B.V. All rights reserved.

1. Introduction

Numerous studies demonstrate evidence of time-series predictability in momentum profits based on several state variables, including business cycles (Chordia and Shivakumar, 2002), market states (Cooper et al., 2004), investor sentiment (Antoniou et al., 2013; Stambaugh et al., 2012), market volatilities (Wang and Xu, 2015), and market liquidity (Avramov et al., 2014). These studies point to rational theories or behavioral biases to explain the momentum phenomenon.[1] In addition to these state variables, Asem and Tian (2010) propose that transitions in the market state play an important role in driving momentum profits. Extending Cooper et al.'s (2004) findings, they show that momentum profits are sensitive not only to market states but also to changes in market conditions.[2]

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[1] For example, Chordia and Shivakumar (2002) argue from the risk-based perspective that momentum profits are explained by common macroeconomic variables that are associated with business cycles. The evidence of significant momentum profits following periods of market gains (Cooper et al., 2004), highly liquid markets (Avramov et al., 2014), and optimistic periods (Antoniou et al., 2013) is consistent with Daniel et al.'s (1998) hypothesis of overconfidence, Hong and Stein's (1999) slow diffusion hypothesis, and Barberis et al.'s (1998) model of investor sentiment. The negative relation between market volatilities and momentum proposed by Wang and Xu (2015), however, may be driven by either behavioral or rational forces.

[2] Daniel and Moskowitz (2014) also investigate the impact of market changes on momentum profits but with particular focus on extreme market environments. They show that when the market experiences a long market downturn and starts to rebound, losers experience strong gains, resulting in a "momentum crash." This feature, however, does not apply equally to winners during good times.

Asem and Tian's (2010) investigation provides an important insight into the understanding of the momentum phenomenon by comparing three alternative hypotheses proposed by Daniel, Hirshleifer, and Subrahmanyam (hereafter DHS, 1998), Hong and Stein (hereafter HS, 1999), and Sagi and Seasholes (hereafter SS, 2007). They propose that the three models all predict that conditioning on past UP market states, momentum profits are higher when the market continues in the UP state than when it transits to the DOWN state. Following DOWN market states, the DHS model hypothesizes that because overconfidence is due to price declines following sells, the magnitude of overconfidence persists when the market continues in the DOWN state, leading to higher momentum profits when the market continues in the DOWN state than when it transits to the UP state. The HS and SS models, however, both predict higher momentum profits when subsequent market state is UP, regardless of the past market state. Asem and Tian's (2010) result is thus in favor of the DHS model and rejects the HS and SS models in explaining momentum profits.

We extend Asem and Tian's (2010) research by investigating whether changes in market conditions influence momentum profits in the Taiwan stock market. We choose this particular market because of its two important features. First, extensive literature shows that, unlike the U.S. market and most other developed markets, emerging or Asian markets (such as the Taiwan market) exhibit no momentum premium (Chui et al., 2003, 2010; Du et al., 2009; Hameed and Kusnadi, 2002). By taking market states into account, Du et al. (2009) find that the unprofitability of momentum in Taiwan is due to the frequency and severity of DOWN markets. Following UP markets, the momentum strategy is profitable in Taiwan. However, whether this predictive pattern can be captured by any behavioral or rational model and whether the predictability of market dynamics is applicable to a market without the existence of momentum is still unclear in the literature and thus deserves further investigation.

Another important feature of the Taiwan stock market is its participants. Barber et al. (2009) find that individual investors account for over 90% of the trading volume in this market with an annual turnover rate of 300% to 600%. They attribute such active trading behavior to investor overconfidence. Thus the Taiwan stock market serves as a natural experiment to test the DHS model of overconfidence in explaining momentum profits. Taken together, we hypothesize that the profitability of momentum in Taiwan is pronounced only when the market continues in the same state, regardless of past market states being UP or DOWN. The momentum strategy following market transitions, however, is expected to generate reversals rather than momentum patterns.

We confirm this hypothesis by showing that the combination of past and subsequent market states has strong explanatory ability for momentum profits in the Taiwan stock market. Following UP markets, the average momentum profit is significant at 0.858% per month when the market continues in the UP state and is insignificant at 0.130% per month when the market transits to the DOWN state. The results indicate that Du et al.'s (2009) evidence of significant momentum profits following UP markets is concentrated in periods of consistent UP market states. Following DOWN markets, the average monthly momentum profits are 0.923% and −2.227% when subsequent market states are DOWN and UP, respectively. The momentum profit in consistent DOWN markets mainly comes from the continuing underperformance of losers, implying that when the market continues going down, investors' overconfidence in trading loser stocks sustains and leads to subsequent profitability of the momentum strategy. The overall results thus suggest that market transitions decrease momentum profits following both UP and DOWN markets.

Taking a closer look at the numbers of months for different conditions of market dynamics, we find that the absence of momentum profit in Taiwan documented in prior literature is attributed to the frequent transitions of the market. Over the period from January 1971 to December 2014, Taiwan experienced 284 months of market continuations and 231 months of market transitions, with corresponding momentum profits of 0.879% and −0.775% for the two conditions. This evidence not only indicates that momentum profit exists when the market continues in the same direction but also demonstrates significant reversals when the market transits to a different state. More importantly, because of the high percentage of market transitions (45% of our sample period), the pronounced momentum profits during market continuations is offset by the frequent and significant losses of momentum during market transitions, resulting in the overall (unconditional) absence of the momentum effect in Taiwan.

Although our results based on market dynamics are consistent with the prediction of the DHS model, no evidence directly connects investor overconfidence to momentum profits in Taiwan. To tackle this issue, we provide two further tests that are associated with overconfidence and underreaction to understand the nature of the relation between momentum and market dynamics. The first one is built based on investors' trading behavior proposed by Hou et al. (2009), who adopt a stock's average monthly turnover over the prior year to measure the degree of investor attention. They hypothesize that investor attention plays a dual role in inducing momentum profits. On the one hand, investor attention interacts with overconfidence to generate price overreaction because investors can only overreact to information when they pay attention to a stock. On the other hand, investors may underreact to information if they pay limited attention to the stock. Consequently, if momentum profits are induced because of investor overreaction that is related to overconfidence, the effect will be stronger among stocks that attract more investor attention (with higher turnover). By contrast, the underreaction-driven momentum should be stronger among stocks that attract less investor attention (with lower turnover).

By grouping stocks according to their values of turnover, we repeat our analysis separately for different turnover groups and find that the pronounced momentum profit following market continuations exists only in the high turnover group. Specifically, when the market continues in the same state, the momentum profits are 1.055%, 0.188%, and 0.007% for high, median, and low turnover groups, respectively. The reversal phenomenon of the momentum strategy following market transitions, however, decreases with stocks' turnover. The average returns are −1.157%, −0.677%, and 0.400% for low, median, and high turnover groups, respectively. This finding confirms our conjecture that the effect of market dynamics on momentum is consistent with the prediction of investors' overreaction resulting from their overconfident trading behavior.