The momentum effect on Chinese real estate stocks: Evidence from firm performance levels

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A B S T R A C T

This paper investigates the momentum effects under different firm performance levels for Chinese real estate stocks using quantile regression with a dummy variable estimator. This paper finds that regardless of the momentum horizon, the momentum effects are positive under high-performing individual stocks, but they are negative under low-performing individual stocks. While prior literature only finds that this asymmetric phenomenon appears under different market states, and the findings on different horizons are inconsistent. Furthermore, this paper finds that the positive (negative) momentum effect under high (low) firm performance levels is stronger than that under bullish (bearish) markets. This implies that superior (inferior) fundamental business performance and bullish (bearish) markets can cause the stock prices to go up (down); however, the effect of the former is stronger than that of the latter. Moreover, this paper finds that the relation between future returns and past turnover ratios is positively correlated under high-performing stocks, but negatively correlated under low-performing stocks. Based on the above findings, this paper regards past turnover ratios as a leading indicator of stock returns and suggests two profitable investment portfolios which are superior to the average returns of real estate stocks.

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1. Introduction and background

Studies on the momentum effect suggest that stock returns relate to their own lagged cumulative stock returns. The literature refers to this phenomenon as the momentum effect, whereas the lagged cumulative stock returns are called the momentum factors (Jegadeesh and Titman, 1993, 2001). If the momentum effect is positive, investors can earn abnormal profits through a momentum strategy; namely, buying past winners and selling past losers (Jegadeesh and Titman, 1993). On the other hand, if the momentum effect is negative, investors can employ a contrarian strategy of selling past winners and buying past losers to earn profits (DeBondt and Thaler, 1985).

There is a body of literature to explain the momentum effect. The first key factor of the momentum effect is the industry factor (Moskowitz and Grinblatt, 1999). After controlling for the industry factor, Stevenson (2002) studies real estate securities in 11 markets[1] and finds a positive momentum effect. Notably, Stevenson (2002) and Lee and Kuo (2010) indicate that the horizon of the momentum

effect on real estate securities is different than that on general securities. Jegadeesh and Titman (1993, 2001) and Conrad and Kaul (1998) indicate that the long-horizon (24–36 months) momentum effect is negative for general securities, while Stevenson (2002) finds the long-horizon momentum effect is positive for real estate securities. This difference has induced more studies to identify the momentum effect on real estate securities (Hung and Glascock, 2008; Lee and Kuo, 2010).

For example, Chui et al. (2003) finds that momentum factor is the main determinant of REITs returns for the US stock market. Moreover, Hung and Glascock (2008) investigate the REITs momentum effect under different market states and find that the REITs momentum effect is positive under up markets and negative under down markets. This finding is consistent with the conclusion of general stocks examined by Cooper et al. (2004). However, Lee and Kuo (2010) divide market states into bullish, range-bound, and bearish markets, and partly support Hung and Glascock's finding. However, Lee and Kuo find that the above asymmetric phenomenon only persists for a period of 3 to 6 months, which is shorter than Hung and Glascock's results.

Although numerous studies investigate the momentum effect on real estate securities, most studies focus on REITs and clarify the reasons, such as firm size (Chui et al., 2003) and dividend distribution (Hung and Glascock, 2008), why the momentum effect differs across REITs and general securities. However, little is known about the

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reasons why the momentum effect differs across real estate stocks and general stocks. Hence, we will concentrate our attention on real estate stocks and focus us the Chinese market.

China has become one of fastest economic growth countries in the last 10 years and was recognized as one of the BRICs[2] by international investment banks (Goldman Sachs) in 2001. In addition, the Chinese real estate industry has also experienced the booming process.[3] However, there are numerous unique features in the Chinese real estate industry, and these features have attracted the attention of both scholars and practitioners.[4] First, people in China can only obtain a land-use-right, but cannot obtain land ownership. Second, the Chinese government often employs macroeconomic policies to influence the real estate industry. Third, China experiences opposite trends in its stock and real estate markets[5] (Zhang and Fung, 2006). Fourth, China lacks REITs. At this stage, the China Securities Regulatory Commission (CSRC) has not approved the issuing of REITS, and there are few studies about the momentum effect in REITs. Furthermore, Eichholtz (1996) indicates that international diversification can reduce the risk of real estate stock portfolios even more than it can reduce the risk of general stock and bond portfolios. Remarkably, China is also one of the few countries whose stock markets were negatively correlated with the American stock market (Kang et al., 2002). From the viewpoint of international investors, China real estate stocks offer a good approach to indirectly invest in China's real estate market, considering the restrictions on direct investment in Chinese physical real estate by foreign investors. Hence, the research on the momentum effect in Chinese real estate stocks is not only interesting to finance scholars but also timely for investment practitioners (Lee and Kuo, 2010).

The related literature about the momentum effect in Chinese real estate stocks is still limited, and the momentum effect in Chinese real estate stocks is unique compared to that in Chinese general stocks and other markets' real estate securities. First, to the best of our knowledge, Lee and Kuo (2010) is the only other investigation on the momentum effect in Chinese real estate stocks. Second, Lee and Kuo find that a positive momentum effect only occurs at 3 to 6 months; whereas Kang et al. (2002) demonstrate that a three- to 12-month momentum effect is positive for Chinese A-shares, and Stevenson (2002) indicates that a three- to 60-month momentum effect is positive for real estate securities in 11 markets. Thus, the momentum effect in Chinese real estate stocks is unique and gives rise to the research motivation of this paper.

The second important factor for the momentum effect is the horizon. Jegadeesh and Titman (1993, 2001) and Conrad and Kaul (1998) indicate that the short- (1 month) and long-horizon (24–36 months) momentum effects are negative, but the medium-horizon (3–12 months) momentum effects are positive in the US stock market. Daniel et al. (1998) and Hong and Stein (1999) propose two leading behavioral models to explain different momentum effects of different horizons. The former is based on investors' overconfidence, but the latter is based on investors' underreaction and overreaction.[6] Similarly, both indicate that the horizon of the momentum effect is related to investor sentiment.

Furthermore, the third important factor for the momentum effect is market state. Cooper et al. (2004) indicates that different market states will cause different momentum effects. Cooper et al. regards up and down markets as different market states. They find that investors are overly optimistic to new information during up markets, and thus, cause market overreaction. Therefore, the momentum effect is positive on stock returns during up markets but has no effect during down markets. As a result, Cooper et al. suggests that after considering the different market states, the empirical results of the momentum effect become more robust. Furthermore, Cooper et al. applies positive or negative previous average returns of the market index to discriminate up or down markets,[7] and up or down markets also mean positive or negative market performance levels. Thus, the research of Cooper et al. can be regarded as a concept that divides different market performance levels to identify different momentum effects. Moreover, Lee and Kuo (2010) investigate the momentum effect of real estate stocks by dividing market states into bullish, range-bound, and bearish markets[8] and find an asymmetric phenomenon of the momentum effect, which is a positive momentum effect under bullish markets but a negative under bearish markets.

However, compared to the methods of Cooper et al. (2004) and Lee and Kuo (2010) for dividing different market performance levels, the first purpose of this paper is to further extend the prior literature by dividing firm performance levels[9] to identify the momentum effects. On comparison between dividing market and firm performance levels, the former represents the response of aggregate investor sentiment in different market conditions, while the latter represents the response of individual investor sentiment in different firm performing levels. For the method of dividing market performance levels, since some investors do not have profits (losses) under bullish (bearish) markets, the aggregate investor sentiment may not show significance in this case. On contrary, for the method of dividing firm performance levels, investors will have high probability profits (losses) under high- (low-) firm performing levels and the individual investor sentiment would show significance. Hence, dividing firm performance levels may have a higher capability of representing individual investor sentiment than dividing market states. This paper expects that the different "firm performance levels" will result in differences in individual investor's sentiment; individual investors will apply different investment strategies, which will ultimately cause different momentum effects.

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[2] The term BRICs refer to the fast-growing developing economies of Brazil, Russia, India, and China.

[3] From 1997 to 2008, the investment capital on the real estate industry increased from 300 billion RMB to 3.1 trillion RMB, a more than tenfold increase (data collected from the China Statistical Yearbook 2009).

[4] As the BRICs emerge, many investors may wonder whether the same phenomenon that one sector differs from the market average still exists in China's real estate stocks and others, while scholars may wonder whether the same phenomenon of one sector differing from the market average can be supported with empirical evidence from China's stock market and others. Hence, more studies are interested in comparing the differences between one sector with the whole market for BRICs. For example, Bianconi and Yoshino (2012) investigate firm market performance and volatility in a Brazil's real estate stocks; Zhou and Sornette (2004) examine the antibubble and prediction of China's stock market and real-estate, and find that the Chinese stock markets are quite different and are decoupled from Western markets (including Tokyo).

[5] The Shanghai Synthesis Stock Index decreased about 70% from October 2007 to October 2008 while the national average house selling price index (HSPI) showed positive growth from 2007/Q1 to 2008/Q2 in China.

[6] Daniel et al. (1998) provide a model in which investor overconfidence can generate a positive momentum effect in the short horizon, and as subjective public information is gradually diffused, the overvalued stock price will be revised and then the momentum effect will become negative in the long horizon. In Hong and Stein's (1999) model, the interaction of investors with limited rationality ("newswatchers" and "momentum traders") and the slow diffusion of information generate initial underreaction and subsequent overreaction, and the momentum effect will be observed as positive in the short horizon and as negative in the long horizon.

[7] Cooper et al. (2004) determines whether the previous 12-, 24-, and 36-month average returns of the market index are positive or negative to discriminate up or down markets.

[8] According to the definition by Lee and Kuo (2010), a bullish market is a continuous uptrend on stock indices and requires a larger cumulative up-range and longer-lasting time for an uptrend; a bearish market means a continuous downtrend in stock indices and requires a larger cumulative down-range and longer-lasting time for a downtrend; a range-bound market is a narrow fluctuation of the stock indices within this duration and cannot be identified clearly as a bullish or a bearish market. This paper also follows the definition by Lee and Kuo (2010) for bullish, bearish, and range-bound markets.

[9] This paper regards "firm performance levels" as stock performance levels. For example, a high performing firm means that a stock is performing well. We are not looking at the underlying financial statement variable for a given firm.