



The predictive power of Japanese candlestick charting in Chinese stock market



Shi Chen, Si Bao, Yu Zhou*

School of Finance and Statistics, East China Normal University, Dongchuan Road, Shanghai 200241, PR China

HIGHLIGHTS

- We study the predictive power of four pairs of Japanese two-day candlestick patterns in Chinese stock market.
- Candlestick length is taken into consideration in the pattern recognition algorithms.
- This paper proposes daily average absolute return and daily average relative return as the measurement standard.
- Five of the eight candlestick patterns have significant predictive power for both medium and large market value stocks.
- Predictive power decreases as predicting period prolongs.

ARTICLE INFO

Article history:

Received 21 November 2015

Received in revised form 11 February 2016

Available online 6 April 2016

Keywords:

Candlestick patterns

Technical analysis

Daily average return

Step-SPA test

ABSTRACT

This paper studies the predictive power of 4 popular pairs of two-day bullish and bearish Japanese candlestick patterns in Chinese stock market. Based on Morris' study, we give the quantitative details of definition of long candlestick, which is important in two-day candlestick pattern recognition but ignored by several previous researches, and we further give the quantitative definitions of these four pairs of two-day candlestick patterns. To test the predictive power of candlestick patterns on short-term price movement, we propose the definition of daily average return to alleviate the impact of correlation among stocks' overlap-time returns in statistical tests. To show the robustness of our result, two methods of trend definition are used for both the medium-market-value and large-market-value sample sets. We use Step-SPA test to correct for data snooping bias. Statistical results show that the predictive power differs from pattern to pattern, three of the eight patterns provide both short-term and relatively long-term prediction, another one pair only provide significant forecasting power within very short-term period, while the rest three patterns present contradictory results for different market value groups. For all the four pairs, the predictive power drops as predicting time increases, and forecasting power is stronger for stocks with medium market value than those with large market value.

© 2016 Elsevier B.V. All rights reserved.

1. Introduction

Technical analysis has been popular among market participants since Charles H. Dow first introduced the Dow theory in the late 1800s [1], it includes a variety of techniques such as chart analysis, pattern recognition analysis, seasonality and cycle analysis. In contrary to fundamental analysis, technical analysis focuses on forecasting future price movement based on past market prices, turnover volume, and technical indicators. The academic literature has been critical of technical

* Corresponding author.

E-mail address: saizy714@qq.com (Y. Zhou).

analysis, because its basic idea of predicting stock price future movement violates the efficient market hypothesis. Jensen [2] gives the definition of an efficient market: “A market is efficient with respect to information set Θ_t if it is impossible to make economic profit by trading on the basis of information set Θ_t ”, a variety of famous theories are based on the market efficiency hypothesis, such as the random walk model and the famous Black–Scholes Pricing formula. Some studies advocate this hypothesis and provide reports of negative evidence for technical analysis, including Levy [3], Malkiel [4], Bessembinder and Chan [5], Sullivan et al. [6], and Olson [7].

However, there are also increasing amount of evidences which show the weak efficient market hypothesis does not hold under some circumstances, and many strategies which can give predictive power for security price movement have been published. For example, Jegadeesh and Titman [8] propose the momentum strategy of buying past winners and selling past losers, which realize significant abnormal return over a period of more than two decades. Shi et al. [9] investigate the profitability of loser, winner and contrarian portfolios in Chinese stock market, they discover that regardless the market is bullish or bearish, there exists significant long-term contrarian effect with holding horizons more than 12 months. Lo, Mamaysky and Wang [10] employ kernel regression to recognize technical patterns such as head-and-shoulders, and find that technical patterns do provide incremental information in US stock market. Neely et al. [11] find that technical indicators perform matching or exceeding predictive power for equity risk premium than macroeconomic variables do, and it could capture some useful information that macroeconomic variables do not contain in predicting equity risk premium. Papailias and Thomakos [12] propose a moving average strategy with dynamic stop loss, and find it profitable for the price series of DJIA, S&P500, and EUR/USD exchange rate. H. Zhu et al. [13] study the profitability of moving average strategy and trading range break rules for the index of SHCI and SZCI in Chinese stock market, they find that the best trading rule can outperform the buy-and-hold strategy without transaction costs taken into consideration, but it cannot outperform the buy-and-hold strategy in practice because of transaction fee. Wang et al. [14] study the performance of more than 7000 traditional technical trading rules on two Chinese stock market indexes, after correction the influence of data-snooping effect, they find technical trading rules have significant predictive power for one index, but this power is lost for another one, they also discover that the predictive ability increases during financial bubble. Wang and Zheng [15] find that based on the incremental stationary property of security price, several popular technical indicators can be proved stationary, they harness this property and discover several profitable high frequency trading strategies in China futures markets.

Japanese Candlestick is originally developed by rice traders during 1700s in Japan. Nison [16] brings candlestick chartings to the west by his publication. Morris [17] further gives some quantitative rules to identify candlestick patterns. It is less researched compared with the traditional technical analysis. Results of these researches also reach different places.

Horton [18] studies the profitability of 4 pairs of three-day candlestick patterns on 349 companies, he reaches the conclusion that the use of stars, crows, or doji in trading stocks is of no value. Marshall et al. [19] find that under holding period of 10 days, candlestick charting strategy do not profit for DJIA components from 1992 to 2002. Marshall et al. [20] further show that this strategy also cannot work in Japanese equity market. Fock et al. [21] study the effectiveness of candlestick charting in intra-day trading of two popular futures, the DAX stock index contract, and the Bund interest rate future, and find it not profitable.

While on the other hand, Caginalp and Laurent [22] study the predictive power of eight three-day reversal candlestick patterns on world equity closed end funds and Standard and Poor's 500 components, it is the first scientific test providing strong evidence in favor of candlestick charting strategies on a large unrestricted scale. Goo et al. [23] use candlestick charting strategies on 25 companies in Taiwan stock market, they find some patterns profitable, and they improve the performance through stop loss strategy. Shiu and Lu [24] test the predictive power of 6 two-day candlestick patterns for 69 Taiwan companies, they improve the trading strategy by three factors, and get significant results in favor of candlestick charting strategies. Lu and Shiu [25] analyze the predictive power of 24 two-day candlestick patterns for Taiwan 50 Index component stocks, they find that the six strong reversal patterns recommended by Nison [16] are not profitable, however, they find two new patterns have forecasting power for the stocks they study. Lu et al. [26] further study the profitability of six two-day reversal patterns for Taiwan 50 Index component stocks under the holding strategy of buying on bullish(bearish) patterns and holding until bearish(bullish) patterns occur, the results indicate all the three bullish reversal patterns profitable. and Lu et al. [27] test the profitability of candlestick charting strategies under different trend definitions and different holding strategies, they find the holding strategy is the major factor in the effectiveness of candlestick charting strategies, and under appropriate holding strategy, candlestick chartings have predictive power for the price movement of securities. Zhu et al. [28] study the effectiveness of five pairs of two-day candlestick patterns in Chinese stock market from 1999 to 2009, they find several bullish and bearish patterns are profitable, they also discover that bullish signals are more reliable for stocks with higher liquidity and smaller firm, and bearish signals are more reliable for the stocks with low liquidity and small size.

The inconsistencies among the results above are possibly due to different stock samples, different holding strategies, and different definitions of trend and candlestick pattern recognition algorithms.

In this paper, our study is based on one of the fast-developing emerging markets, the Chinese stock market. The study is based on daily data from 4th, January 2007 to 30th, August 2015. Chinese government launched the nontradable shares reform in 2005, by the end of the year 2006, 96.3% listed companies had finished this reform. Nontradable shares reform marks the further maturity of Chinese stock market. As R. Gu et al. [29] point out, the market behavior may have changed after this reform. Thus we select January 2007 as the starting point of test period. Furthermore, this test period contains the 2008 global economic crisis and the stock market crash in China since June 2015, period length is enough to avoid

Download English Version:

<https://daneshyari.com/en/article/7377596>

Download Persian Version:

<https://daneshyari.com/article/7377596>

[Daneshyari.com](https://daneshyari.com)