Essays on Technical Analysis in Stock Markets

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To my husband Yu Li

and my son Anthony Fangbo Li

Abstract

Although technical analysis is widely used by practitioners, current academic evidence on its efficiency is largely mixed. This thesis carries out four independent studies to contribute to this strand of literature.

In a true out-of sample test, the first study finds no evidence that several well-known technical trading strategies predict stock markets over the period from 1987 to 2011. Further analysis shows that this poor out-of-sample performance most likely is not due to the market becoming more efficient – instantaneously or gradually over time – but is probably a result of bias.

Moreover, current studies largely concentrate on price-based technical indicators. In contrast, the widely used technical market indicators have drawn limited attention. This raises the risk of data snooping, since so many indicators are proposed. The second study reviews and examines the profitability of a wide range of 93 market indicators. I[1] give these technical market indicators the benefit of the doubt, but even then I find little evidence that they predict stock market returns.

Many so-called return predictability anomalies disappear over time because investors arbitrage profits away through their trading. Is this the case in technical analysis? The third study investigates what would happen if a completely new technical trading rule – Bollinger Bands – appeared that investors had never used before but which became more popular over time. I find although trading on Bollinger Bands had been extremely profitable before their introduction to public in 1983, its profitability has gradually decreased ever since and has largely disappeared since the influential publication on Bollinger Bands in 2001. Moreover, the profitability

[1] The first three studies of this thesis are joint work with my supervisors Professor Ben Jacobsen and Dr. Yafeng Qin, while the last study is my individual work. Therefore as individual papers, it should be "we" instead of "I". In this thesis, however, I use "I" throughout for the sake of consistency.

disappeared in the US market first, where Bollinger Bands originated, and then in other international markets.

The last study finds while commonly used technical trading strategies generate positive returns in most of the 50 sample countries, the same strategies show no merit in countries such as the United States and the United Kingdom. Further cross-country investigation shows that the returns of technical analysis are higher in countries where investors are less culturally individualistic, in markets that are less developed and/or integrated, and where information uncertainty is greater.

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