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# Are moving average trading rules profitable? Evidence from the European stock markets

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## Abstract

This article examines the profitability of several simple technical trading rules for 16 European stock markets over the 1990 to 2006 period. Our results indicate that increasing moving average rules indeed have predictive power being able to discern recurring price patterns for profitable trading, even after accounting for the effects of data snooping bias. To assess the profitability of different technical trading rules and strategies, we adopt the White's (2000) Reality Check (RC) test that quantifies the data snooping bias and adjusts for its effects. Our empirical results also support the hypothesis that technical trading rules can outperform the buy and hold strategy after accounting for transaction costs.

# Notes

<sup>1</sup> The interest rate is the 1-month interbank offered rate for all countries except for Greece and Sweden, where we used the Treasury Bill 1-month rate for the beginning of the sample when the interbank rate was not available.

<sup>2</sup> We could have divided by 260 or 52 weeks with 5 working days each; however, that would overestimate the returns of various trading strategies vis-à-vis the buy-and-hold strategy.

<sup>3</sup> There are ETFs for all of the countries in this article. Among the major European ETF providers (Barclays Global Investors – iShares family of ETFs, Société Générale group's Lyxor ETFs and Deutsche Bank's X-trackers) one could trade ETFs in Austria, Belgium, France, Germany, Italy, the Netherlands, Spain, Sweden, Switzerland and UK). In addition, the NASDAQ OMX Nordic including exchanges in Copenhagen, Stockholm, Helsinki provide many tradable stock indexes for Denmark, Sweden and Finland plus future contracts on various indexes. The Athens Stock Exchange with cooperation with FTSE International provides many tradable Greek stock indexes. The Irish Stock Exchange launched the ISE 20 ETF, which tracks the ISEQ 20 index in April 2005. The Oslo Børs Benchmark Index is a tradable index which comprises the most traded shares listed on Oslo Børs. Finally, The PSI-20 is a benchmark tradable stock index that trade on Euronext Lisbon stock exchange for Portugal. In addition, the future contracts are available for almost all of these indexes.

<sup>4</sup> The signal function should be written as  $s_t$  because it depends on the past of the original series  $P_t$ , i.e., and on the unknown parameters  $\beta_k$  that have to be estimated. However, since in our case, we do not have any parameter estimation, the performance measures are calculated directly from the returns generated by the trading rules/strategies, and for notational convenience, we decided to suppress the arguments.

<sup>5</sup> As an additional robustness check, we have also run the Superior Predictive Ability (SPA) test of Hansen ([2005](#)) which generalizes the RC test. This test gives a lower and upper bound to the RC test and it is more robust to the inclusion of poor trading rules/strategies. The p-values for the SPA tests are quite similar to those of the RC and lead to the same conclusion. Therefore, for the sake of brevity, these results are not reported but they are available upon request from the authors.

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