Intraday Random Walk and Price Reversals in
Hang Seng Index Futures and S&P 500 Futures

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Abstract

This thesis examines whether the intraday price behavior of two index futures contracts can be described by the random walk model. With the increased availability of high frequency data, empirical studies on a wide range of issues in the financial markets using intraday data now becomes feasible. According to recent literature, there are studies that provide considerable evidence to challenge the validity of the random walk model in the intraday price movements. Evidence seems to point out that financial markets may appear more complex and dynamic and may exhibit temporal discrepancies when high frequency data are studied. The present study carries out a study of transaction data in two index futures markets, namely, the HSI futures market and the S&P 500 futures market. In the study of intraday price movements, we adopt a new approach to examine the random walk model for the intraday futures price movements. We focus on the daily time at which intraday prices achieve a daily high or daily low. The frequency distributions of daily high time and daily low time are examined over a theoretical model using this approach. It is discovered that the random walk process is rejected for the S&P 500 futures as well as HSI futures, i.e. the price movements are significantly different from a random walk model, especially in the first 15 minutes when the market opens. We further investigate the opening prices and subsequent prices for both futures contracts, in order to determine whether the deviation observed in the first 15-minute time interval is attributed to the overreaction subsequent to the overnight information. For those trading days with price gap up or down at market open, the intraday price reversals are observed within 2-hour after morning open. The opportunity of profiting from this observation is explored. The findings is that after taking into account of the transaction costs, the price reversals are found to be marginally economical significant.
Table of Contents

Declaration.......................................................................................................... i
Abstract............................................................................................................... ii
Acknowledgements........................................................................................... iii
Table of Contents.............................................................................................. iv
List of Tables..................................................................................................... vii
List of Figures................................................................................................... ix
List of Symbols.................................................................................................. x
List of Abbreviation........................................................................................... xi

Chapter 1 Introduction ..................................................................................... 1
  1.1 Background................................................................................................ 1
  1.2 Research Objectives
      Intraday Price Movement........................................................................ 4
      Intraday Price Reversals and Overreaction........................................... 5
  1.3 Contributions of the Study...................................................................... 6
  1.4 Organization of the Thesis...................................................................... 7

Chapter 2 Literature Review .......................................................................... 9
  2.1 Intraday Price Dependence
      2.1.1 Evidence from the Stock Markets................................................. 12
      2.1.2 Evidence from the Futures Markets............................................ 14
      2.1.3 Evidence from the Foreign Exchange Markets.......................... 16
  2.2 Intraday Patterns
      2.2.1 Patterns in Return and Volatility
            Evidence from the Stock Markets.................................................. 17
            Evidence from the Futures Markets............................................. 18
      2.2.2 Patterns in Trading Activity
            Evidence from the Stock Markets.................................................. 19
            Evidence from the Futures Markets............................................. 19
2.2.3 Other Intraday Patterns
   Evidence from the Stock Markets 20
   Evidence from the Futures Markets 21

2.3 Intraday Overreaction and Price Reversals 22
   2.3.1 Overreaction Hypothesis 22
   2.3.2 Short-run Overreactions 24
   2.3.3 Evidence from the Stock Markets 25
   2.3.4 Evidence from the Futures Markets 26

Chapter 3 Using Daily High/Low Time to Test for Intraday Random Walk

3.1 Introduction 29
3.2 The Daily High/Low Time 31
3.3 Data and Preliminary Statistics 32
   3.3.1 Data 32
   3.3.2 Preliminary Statistics 35
3.4 Theoretical Distribution of the Daily High/Low Time 38
   3.4.1 Distribution under Uniform Trading Speed 38
      Arc Sine Law 38
   3.4.2 Distribution under Time-varying Intraday Trading Speed 40
3.5 Testing the Random Walk Hypothesis 43
   3.5.1 Test under Uniform Trading Speed 43
   3.5.2 Test under Time-varying Trading Speed 49
   3.5.3 Further Investigation on Intraday Price Movements 55

Chapter 4 Intraday Price Reversals and Overreaction

4.1 Introduction 59
4.2 Data and Methodology 63
   4.2.1 Data 63
   4.2.2 Cumulative Abnormal Return after Market Opening 63
      Hypothesis Testing on Intraday Price Reversals 65
      Regression Analysis on “Magnitude Effect” 66
   4.2.3 Some Adjustments on Calculating Cumulative Abnormal Return 68
4.3 Empirical Results
  4.3.1 Event days 69
  4.3.2 Rebound after Overreaction 70
  4.3.3 Statistical Significance of Rebound 74
  4.3.4 Second Part of Overreaction Hypothesis 80
  4.3.5 Bid-ask spread 84
  4.3.6 Panic Trading when Market Opens 89
  4.3.7 Economical Significance of Rebound 89

Chapter 5 Summary and Conclusions .................................................................94
  5.1 Summary 94
  5.2 Conclusions 95

Appendix A A Visual Display of the Data Series ...............................................97
Appendix B Goodness-of-fit Tests ......................................................................99
Appendix C Bootstrap Methodology ..................................................................114
References .............................................................................................................117
Curriculum Vitae ..................................................................................................124