KU LEUVEN

FACULTY OF SCIENCE

Candlestick Patterns

Analysis of their predictive power on intraday market data (preliminary title)

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in Mathematics

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Foreword

In this intermediate report, I would like to thank Prof. Dr. P. Leoni, Prof. Dr. W. Schoutens and KU Leuven for purchasing and providing me with the financial data necessary for this work.

Popularising Summary

To be added.

Summary

To be added.

List of Abbreviations

OHLC Open, High, Low and Close

List of Symbols

Contents

Chapter 1

Introduction and literature study

Some ideas:

- taxes?
- trend definition: (exponential) moving average –> which period?
- Stop loss?
- Comparison with reference index performance?
- volume?
- real body: divide by open or close? volume or no normalization also a valid option to explore
- ATR as additional filter
- make use of slope (E)MA, count + and - to define trend
- Bollinger band –> widening
- make use of machine learning to classify trends? quite advanced. manual training set creation?

Measuring performance:

- set/variable holding period? –> transaction costs?
- buy at opening, sell at closing?
- buy and hold not a useful benchmark on intraday trading (Fock, Klein, Zwergel)
- compare against randomized buy signals (Fock, Klein, Zwergel) (hold for 30 minutes)

Introduction:

- explanation of candlesticks
- developed in the late 18th century in Japan by Munehisa Honma, a rice trader. Unknown in the west until Nison published Japanese Candlestick Charting Techniques in 1991. as such, quite a bit of literature is from the east.

- current literature mainly about daily candles, but they can encapsulate any period of time
- believed to possess some predictive power
- known to almost every investor in Taiwan (Goo, Chen, Chang)
- some papers find evidence of predictive power (Goo, Chen, Chang), (Lu, Shiu, Liu), others find none (Fock, Klein, Zwergel)
- results not easily comparable because of different datasets, trading rules, definitions, statistical tests, transaction costs, time periods, ...
- Historical data may produce upward bias (Ball, Kothari, Wasley 2005)
- technical analysis is futile under weak efficient market hypothesis

Statistical tests:

- Z-test
- t-test
- bootstrap
- GLM
- F
- Duncan's multiple range test

Definitions:

- interesting definition of small, medium, long length in (Goo, Chen, Chang) and (Fock, Klein, Zwergel)

Chapter 2

Baseline predictive power of candlestick patterns

Chapter 3

Improving predictive power through additional filters

Chapter 4

Machine learning

Chapter 5

Conclusion

Chapter 6

References

Appendix A

Candlestick pattern definitions

here

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