KU LEUVEN

FACULTY OF SCIENCE

# Candlestick Patterns

## Analysis of their predictive power on intraday stock market data

**Wout NOTERMANS**

Supervisor: Prof. Dr. P. Leoni
Affiliation *(optional)*

Co-supervisor:
Prof. Dr. W. Schoutens
Affiliation *(optional)*

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# Foreword

# Popularising Summary

# Summary

# List of Abbreviations

# 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

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**Faculty of Science**
Celestijnen 200H - box 2100
3001 Leuven (Heverlee), BELGIUM
Tel. + 32 16 32 14 01
www.kuleuven.be