

Report on Bachelor / Master Thesis

Institute of Economic Studies, Faculty of Social Sciences, Charles University in Prague

Student:	Jakub Šedivý
Advisor:	Ing. Aleš Maršál
Title of the thesis:	Pairs trading at CEE markets

OVERALL ASSESSMENT (provided in English, Czech, or Slovak):

Please provide your assessment of each of the following four categories. The minimum length of the report is 300 words.

In his thesis, Jakub Šedivý studies the performance of distance- and cointegration-based pairs trading on three CEE stock markets; Prague Stock Exchange, Bucharest Stock Exchange and Budapest Stock Exchange. Almost nine years of data are analyzed using rolling window with 15-month formation period and 6-month trading period. Position is opened when the observed spread is more than 2 standard deviations from its expected value and closed either when it equals its expected value, or at the end of the trading period. The author concludes that pairs trading seems to be inappropriate for the studied markets due to the market size, dynamics and asset structure.

Contribution

At this point I see the main contribution in the advancement of the authors' knowledge, skills and experience. Yet, the results might be a good starting point for further research in this area. The topic of the thesis is nontrivial and important at the same time. Therefore I would support the author in continuing his research and providing more detailed analysis in his later studies.

I think that the contribution would be bigger, if there was more detailed description of the pairs trading and the pairs searching methodology as well as more figures illustrating the practical application and possible risks of the strategy. Alternative trading rules should be at least discussed, as they might affect the profitability of the strategy.

Methods

The pairs trading methodology is based on literature and seems to be applied carefully, although its description is a little confusing due to the manuscript form imperfections. The only problem I found is the definition of the returns, cumulative returns and sum of squared deviations on p.15-16. I would be glad for an explanation, as there are two sums over $t, t=1, \dots, T$ as well as I would expect sum of log-returns, not sum of returns as defined in the thesis. Then, there are some minor inaccuracies, e.g. on p.13: „alpha is therefore ratio..“, where alpha is a vector, or on p.13: „ z_t will often cross the zero line, such event is called mean reversion“. Further, trend-stationarity is not defined, which can cause confusion.

The analysis of results is, in my opinion, more problematic, especially due to the definition of three benchmark scenarios. I would prefer simple results presentation and then comparison with the results of the benchmark studies. Next, I would appreciate a discussion of the possible changes in the trading rules, as mentioned in the previous section. For example, what would happen if the trades could be closed sooner than when the spread equals its expected value? Figure 4 on p.36 could be a motivation for that question. I think that the strategy is deprecated prematurely, a more detailed discussion would be useful.

Literature

Cited literature is recent, well used and its extent is sufficient for a Bachelor thesis.

Manuscript form

The manuscript form is the main weakness of the thesis. Below, I provide some suggestions for improvement:

- The abstract should be shortened.

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- The Data section should be presented right before the Empirical Results.
- The individual sections are a bit blended, so that in the introduction there is a bit of literature review and a bit of methodology, but not enough to provide a complete overview of the topic or the methods or the current state of the research. In the Data section there is a bit of the methodology, which continues in the Theory section and is completed in the Methodology section. Something is repeated, something is not. I would suggest a clear structure, where logically ordered sections have their specific purpose and do not cover anything on the top of that.
- Some of the notation is confusing, e.g. p.8, eq. 3 index "i", or returns equations as mentioned in the Methods part above. On p.17, eq.14 and 15: „t“ is time, not trend, eq.16 on p.17 needs description.
- The chart format in figure 1 on p.9 is suboptimal, as the upper layer hides the lower one.
- Finally, I would suggest more thorough proofreading.

On the other hand, the Literature Review and the Conclusion are nicely written and the Appendix provides relevant information.

SUMMARY OF POINTS AWARDED (for details, see below):

CATEGORY	POINTS
<i>Contribution</i> (max. 30 points)	20
<i>Methods</i> (max. 30 points)	19
<i>Literature</i> (max. 20 points)	20
<i>Manuscript Form</i> (max. 20 points)	8
TOTAL POINTS (max. 100 points)	67
GRADE (1 – 2 – 3 – 4)	2

NAME OF THE REFEREE: *Lucie Kraicová*

DATE OF EVALUATION: 06.09.2017

Referee Signature

EXPLANATION OF CATEGORIES AND SCALE:

LITERATURE REVIEW: *The thesis demonstrates author's full understanding and command of recent literature. The author quotes relevant literature in a proper way.*

Strong Average Weak
20 10 0

METHODS: *The tools used are relevant to the research question being investigated, and adequate to the author's level of studies. The thesis topic is comprehensively analyzed.*

Strong Average Weak
30 15 0

CONTRIBUTION: *The author presents original ideas on the topic demonstrating critical thinking and ability to draw conclusions based on the knowledge of relevant theory and empirics. There is a distinct value added of the thesis.*

Strong Average Weak
30 15 0

MANUSCRIPT FORM: *The thesis is well structured. The student uses appropriate language and style, including academic format for graphs and tables. The text effectively refers to graphs and tables and disposes with a complete bibliography.*

Strong Average Weak
20 10 0

Overall grading:

TOTAL POINTS	GRADE		
81 – 100	1	= excellent	= výborně
61 – 80	2	= good	= velmi dobře
41 – 60	3	= satisfactory	= dobře
0 – 40	4	= fail	= nedoporučuji k obhajobě