

# Report on Bachelor Thesis

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

<b>Student:</b>	<b>Vladimír Nahodil</b>
<b>Advisor:</b>	<b>doc. PhDr. Ladislav Krištofek, Ph.D.</b>
<b>Title of the thesis:</b>	<b>Entropy as a measure of predictability of financial time series</b>

## **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.

### **Contribution**

The thesis takes a topic that has been studied earlier in the literature, specifically whether the entropic measures can be successfully used price changes predictions, and presents the results for a large set of stocks and indices with a special attention towards statistical validity, which is not always the case in the topical literature. The contribution thus mainly lays in performing the analysis properly and presenting it intelligibly. The uncovered relationships are not too surprising but what is important, the results hold for the out-of-sample analysis, i.e. actual forecasting. The only lacking thing from my perspective is the investment strategy based on entropic measures because it does not allow for short-selling. Otherwise, the thesis contributes strongly to the topical literature and I believe that the results are good enough to be published in a scientific journal.

### **Methods**

The utilized methodologies are above scope of the bachelor's studies – both entropic measures and Hurst exponent. Important part of the work also laid in coding which has been handled properly. It needs to be noted that the author also proposed his own nearest neighbor forecasting algorithm to accompany the industry standard ARMA model. Forecasting accuracy is measured using two methods – RMSE and hit-rate – which makes the results more reliable (they remain qualitatively the same here as expected).

### **Literature**

The topical literature is covered in sufficient detail. Utilized methods are referenced accordingly. I see no missing important sources.

### **Manuscript form**

The thesis structure is logical and clear. I really appreciate the nice figures with fully descriptive captions which help a reader to orientate in the text even if not an expert. I see no problems here.

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

<b>CATEGORY</b>	<b>POINTS</b>
<i>Contribution</i> (max. 30 points)	28
<i>Methods</i> (max. 30 points)	30
<i>Literature</i> (max. 20 points)	20
<i>Manuscript Form</i> (max. 20 points)	20
<b>TOTAL POINTS</b> (max. 100 points)	<b>98</b>
<b>GRADE</b> (1 – 2 – 3 – 4)	<b>1</b>

**NAME OF THE REFEREE:** doc. PhDr. Ladislav Křištofuk, Ph.D.

**DATE OF EVALUATION:** 5.6.2017



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**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	<b>1</b>	= excellent	= výborně
61 – 80	<b>2</b>	= good	= velmi dobře
41 – 60	<b>3</b>	= satisfactory	= dobře
0 – 40	<b>4</b>	= fail	= nedoporučuji k obhajobě