

Report on Bachelor Thesis

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

Student:	Robert Kaplan
Advisor:	PhDr. Ladislav Křišťoufek, Ph.D.
Title of the thesis:	The fractal dimension and forecasting of financial time series

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

The bachelor's thesis examines the hypothesis that the fractal dimension level can be used for forecasting of the financial series. As the fractal dimension is a measure of roughness of the series, it should be able to distinguish between local inefficiencies and thus possible forecasting possibilities. To show so, Robert studies various stock indices and analyzes relationship between the fractal dimension level and performance of AR and ARMA forecasting models. Further, the hit ratio of a simple trading strategy based on local persistence (low fractal dimension) is analyzed as well. And finally, a trading strategy for a threshold fractal dimension is studied. The results indicate that there is a potential for the fractal dimension trading strategies to be profitable. However, the performance varies quite strongly across the indices.

The thesis studies quite a demanding topic which is well above the bachelor's level of studies. Various autoregressive models can be taken as a standard. The biggest issue I see in the thesis is presentation of results which, I believe, could have been prepared better. Also, confidence intervals around the conditional mean values of the forecasting performance measures would be of a big help. For these reasons, **I suggest grade A, albeit a bit weaker one, in the case of a successful defense.**

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

CATEGORY	POINTS
<i>Literature</i> (max. 20 points)	19
<i>Methods</i> (max. 30 points)	23
<i>Contribution</i> (max. 30 points)	24
<i>Manuscript Form</i> (max. 20 points)	16
TOTAL POINTS (max. 100 points)	82
GRADE (1 – 2 – 3 – 4)	1

NAME OF THE REFEREE: PhDr. Ladislav Křišťoufek, Ph.D.

DATE OF EVALUATION: 8.6.2014

Referee Signature