# Report on Bachelor Thesis

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

| Student: | **Štěpán Koníř** |
|---|---|
| Advisor: | **PhDr. Ladislav Krištoufek, Ph.D** |
| Title of the thesis: | **Private Equity funds and their performance in the post-crisis period** |

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

*Please provide your assessment of each of the following four categories, summary and suggested questions for the discussion. The minimum length of the report is 300 words.*

**Contribution**

The thesis aims at understanding, how the dynamics of the private equity funds (PE) was affected by the post-crisis environment. The main findings are that (1) the growth of the industry profitability was hampered by the low interest rate environment, (2) the post-crisis growth rate cannot be proved to be larger than the pre-crisis rate and (3) building on the additional dataset, it was shown that the industry profitability was positively affected by the low interest rate environment, which, however, the author interprets as a risk for the performance into the future.

The thesis consists of dominant theoretical part (35 pages), describing the PE, their nature, strategies, history, performance measures etc. As well as the macroeconomic conditions and development since the Great Recession. The practical part is shorter (7 pages of data description and 10 pages with core empirical analysis).

The theoretical part shows an extensive knowledge of the topic by the author. I value this, since the PE industry is very heterogenous and difficult to describe, yet the author is able to offer a deep insight into the topic. **The depth and extent of the description presents an important part of the contribution of the thesis**, serving as a source of knowledge about the PE industry for a potential reader. In some parts, the theory may seem even too extensive, as it is not necessary (in the presented extent) for conducting the empirical analysis and could be shortened or replaced by referring to the literature.

The empirical part is less extensive, and the methods used do not provide very conclusive results, despite building on interesting datasets. To evaluate impact of structural shifts in time series (transition to low interest rate environment, reaching post-crisis environment), a static model is used, where the observations are pooled, and the shift is measured only by using dummy variables for part of the observations. Such approach does not use the information about the dynamic properties of the time series, especially the autocorrelation. Although the presented results may not be completely wrong, they face multiple challenges which raise questions about the validity (see more below).

Unfortunately, it is difficult to understand the difference between the three hypotheses until the reader digs deep into the methods. Despite this, they represent an interesting view on the same issue (effect of the low interest rate environment on PE industry) using different model specification and different datasets. The last finding as stated at the end of the section six is particularly interesting: the positive effect of the low interest rate environment on PE industry after the most recent crisis seems to be bigger than a similar effect after the dot-com crisis. The last finding may be in contrast with the answer to the first hypothesis. The difference lies in the fact that the first hypothesis deals with changes in growth rates, whereas the third hypothesis deals with the growth rates themselves. This is difficult to understand and should be more emphasized throughout the empirical part.

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**Methods**

The empirical part builds on two separate datasets. The ability to obtain and use the data represents another contribution of the thesis, given the limited data availability related to the PE industry. The variable selection is made carefully, utilizes the rich explanation in the theoretical part, and is also supported by the literature.

Only the variable Dexp.m.p, comparing whether the Fed funds rate is below its long-term average, is not well explained: why to take the fixed average level, as the rate followed a downward-sloping trend in the period? A kind of cyclical deviation from a dynamic trend (somehow filtered) could represent a better measure of the bond market (or the monetary policy) situation. Since this variable is core for the second hypothesis (impact of low interest rate environment), it can be considered as too important to be defined in such a simplistic way. The analysis should use more competitive measures for the variable to ensure the low interest rate environment is well captured.

An important caveat of the empirical analysis is the differencing, which was done because of the identified non-stationarity in some time series. The differencing alters the interpretation of the results. In this case, the original variables already represented the growth rates, therefore the differencing of growth rates bring challenges to interpret the results correctly while still maintaining the original intended contribution. Although this issue is admitted, it is not considered further in the interpretation of the results, i.e. that identified was a significant negative effect of **change** in prevailing low environment to a **change** in the growth rate (author claims to have differenced all variables, which I read that including the dummy variables?).

Finally, the most crucial issue of the estimation is (as long as I understood the models described) that a simple cross-sectional OLS was used to model the time-series data. That means, all observations were pooled independently of their serial autocorrelation. Although the serial autocorrelation was identified, instead of introducing lagged variables into the model, only robust standard errors were used to handle the issue. As long as the dynamic component of the model is omitted, the hypotheses are hardly be addressed properly: how can shifts in the environment (transition to low interest rate environment, comparing performance prior and after the crisis etc.) be evaluated without using dynamic models?

The third hypothesis is somehow related to the prior two ones. It compares the impact of the low interest rate environment in both pre-crisis and post-crisis period, using the additional Bloomberg dataset and difference-in-difference method. The similar challenges regarding using the static model for time series appear. Moreover, the answer of the third hypothesis is seemingly not consistent with the answer to the first hypothesis, which is however explained only at the very end of the conclusion. This should be more emphasized and elaborated on.

Despite the inaccuracies of the empirical part, it needs to be admitted that the use of the time-series models may reach beyond the bachelor level of studies. The manner how the presented OLS is evaluated, using all necessary tests and handling their results, shows that the author manages the basics of the econometrics tools. Abstracting to little unfortunate selection of dataset to be applied to, the modelling is otherwise correct, which should be also emphasized.

**Literature**

The literature is used well throughout the thesis. There is a separate section covering the core sources, but the referencing is used also in other sections, where needed. However, on the other hand, some parts of the theoretical sections contain rich text without any referencing, which raises questions whether the content is all author's own original or whether some referencing, even to a basic literature, should

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be done. Where the literature is referred to in terms of "… several papers concluded that …", it should be accompanied by the actual literature references (see the last article of the section four).

**Manuscript form**

The manuscript contains multiple mistakes. Not only typos, but in several cases, whole sentences are wrongly inserted or partially missing – for example the first article in the section 3.2. Already the abstract is written in rather unclear style, it is unclear what are the results. The English abstract is in some parts different from the Czech one and cannot be understood per se. Furthermore, the page numbering is completely missing, which makes the orientation in the text difficult. The text is overall rather difficult to follow, which is however partly due to a detailed description of all relevant information.

**Summary and suggested questions for the discussion during the defense**

The thesis is strong in the theoretical part, which may be seen as the core contribution: summarizing the core elements and stylized facts about the PE. The empirical work trying to answer interesting hypotheses; however, the methods are not chosen well. Despite this, the effort to address them using at least the methods relevant for the bachelor level of studies may be considered as valuable, as the methods are used properly (abstracting from the fact that they are not very suitable for the intended purpose).

Questions:
- What is your expectation about the future trend in the PE industry, in case the monetary policy normalization (increasing rates) continued? And what if the opposite – if the monetary policy would turn back to extremely low rates? Please use your findings to support your views.

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

| CATEGORY | | POINTS |
|---|---|---|
| *Contribution* | *(max. 30 points)* | 20 |
| *Methods* | *(max. 30 points)* | 20 |
| *Literature* | *(max. 20 points)* | 18 |
| *Manuscript Form* | *(max. 20 points)* | 13 |
| **TOTAL POINTS** | *(max. 100 points)* | **71** |
| **GRADE** | **(A – B – C – D – E – F)** | **C** |

*NAME OF THE REFEREE: Adam Kučera*

*DATE OF EVALUATION: 2018/08/29*

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*Referee Signature*

## EXPLANATION OF CATEGORIES AND SCALE:

**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    |

**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    |

**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    |

**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     | GRADE |
|-----------|-------|
| 91 – 100  | A     |
| 81 - 90   | B     |
| 71 - 80   | C     |
| 61 – 70   | D     |
| 51 – 60   | E     |
| 0 – 50    | F     |