



Master Thesis Evaluation

Reviewer form

Student name: *Merve Birlik*

Title of the thesis: *Risk Management of Internationally Diversified Portfolio*

Year of the defence: *2018*

Supervisor name and affiliation: *Ing. František Poborský, Ph.D. FFÚ VŠE*

Reviewer name and affiliation: *Ing. Tamara Ajrapetova, MSc. FFÚ VŠE*

THESIS CONTENT SUMMARY:

This diploma thesis aimed to analyse the risk-return relationship of internationally managed diversified portfolios with those that are locally diversified. The author looked at positions that are hedged with forward contracts, either fully or partially. The main question the author was trying to answer was if the investor's preference should be given to diversified portfolios or not. At the same time, the main hypothesis of the research is that the priority should be given to portfolios that have exposure to different markets. The work covers literature connected to portfolio construction and management, factor models such as CAPM, different investment strategies and various performance measurements such as Sharpe ratio, Information ratio etc. The empirical analysis is done on equally weighted portfolios covering several regions Eurozone, United States, Brazil and South-Africa. Domestic portfolio in this case is defined as Eurozone. Local portfolios are approximated by stock indexes in local currencies. The analysis is based on correlations between the stock indexes and stock indexes and currency indices covering investment period of 5 years. The main conclusion of the thesis supports Modern Portfolio Theory and suggests that investors should diversify their portfolios not only sector wise, but also country wise and give priority to fully hedged positions.

OBJECTIONS AND REMARKS:

I find the aim of the thesis relevant for discussion and justified by the previous literature. The conclusions reached by the author, come broadly in-line with the expectations. However, I have several remarks to the analysis that have been carried out.

Literature review: literature review covers relevant resources, both books and journals. The author have offered to the reader extensive summary of the findings in each of the papers. However, I was missing critical evaluation and connection between the concepts that you were discussing as well as between what they found out and what was missing in their research that you were trying to cover. Limitations of the models discussed and papers analysed were not explicitly specified. One other point worth mentioning is that usually for such research papers, the preference should be given to the most current articles instead of books.

From the perspective of the portfolio management, you have discussed in great detail the process of portfolio construction and its subsequent management and rebalancing, however I would suggest adding the technicalities (math and models) of optimal portfolio construction or in other words how optimization is done (objectives, constraints).

Data: in your work you mention that you choose stock indexes that have wide coverage, however when we look at the US index representation you chose Dow with only 30 stocks and high exposure to heavy Industrials opposed to Standard & Poor's 500 which is much more diversified. The same applies to choosing Stoxx 50 over Stoxx 600. In addition, usually if risk-free rates are used as proxies, they have to be clearly stated, as this choice greatly affects the results.

Hypothesis and Methodology: You have clearly set forward your hypothesis and they were based on the prior literature. However, in your methodology I was missing the definition of how you constructed the optimally diversified portfolio. In essence, MPT and CAPM optimizes portfolio by minimizing variance or alternatively other risk measures Beta, VaR etc. (this acts as constraint) and simultaneously has objective to maximize return. Thus, putting equal weights into each of the regional indexes could have produced inefficient portfolio based on the theory.

I was also missing some detail on treatment of missing values or outliers if there were any. Lastly, it is usually advised to use geometric mean for calculation of the returns overtime.

Findings: The conclusion of the paper, confirms findings in previous literature and is logical. But, I would like to give some remarks. Firstly, correlations should be tested on statistical significance. The same applies to the testing of differences between the earnings of the portfolios, e.g. Chi-square testing. In Table 9G, we see the result for different portfolios, firstly I would expect to see quite a substantial difference in the returns of Eurozone vs. diversified portfolios, and diversified hedged vs. unhedged. However, the numbers do not show substantial difference. Secondly, Sharpe ratios look a little bit too high. If you have used standard deviations stated in Table 9F, there might be issue of time conversion as the volatility would represent monthly volatility and returns would be for the holding period. In addition, the returns that you are considering are only price movement returns, it would be better to take Total return indexes such as MSCI.

Formatting of the work: I would suggest to improve the following:

- The formulas should not be copy pasted into the work as pictures from third sources. They should have captions and should be properly referenced.
- In your time series plots on pages 41-45, the x-axis should have "Time" formatting.
- Proper referencing in the footnotes and end-text.

QUESTIONS FOR THE DEFENCE:

- 1) Could you please justify why you have chosen Dow 30 over Standard & Poor's index? The same applies to Stoxx 50 vs. Stoxx 600. Please also comment on the proxies for bonds that you have used.
- 2) Could you please elaborate more on the way you have constructed your portfolios? More specifically how the weights were given and why?
- 3) Have you considered hedging costs in your assessment? Would you say they are important for investors that are investing into Emerging Markets?
- 4) Are there any limitations in your findings and methods?

ASSESSMENT:

Criterion	Excellent	Very good	Good	Insufficient
Aim formulation and fulfilment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Work with literature	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Methods and data used	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Results and their discussion	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Formal aspects	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Proposed overall grading: 3 - Good				

Prague, 06.06.2018



Signature