Chapter 5: Conclusions, Limitations & Outlook

5.1 Chapter Introduction

This final chapter answers the research questions which have been established in the beginning of this dissertation. Also the limitations of this study are outlined. The chapter finishes with suggestions for further research.

5.2 Conclusion

To reach the overall aim of this dissertation, the construction of a portfolio which earns higher returns by simultaneously lower systematic risk than the market portfolio, four research questions have been established.

- Is it possible to determine differences among the international stock markets regarding the beta-return relationship?

The answers to this question contribute further knowledge about international stock markets. Furthermore, the findings enable private and institutional investors who are interested in the optimisation of their portfolio structure. The author discovered that most of the previous research undertaken in this field was limited to single countries. By reviewing a huge number of academic articles it also came to light that research was subject to biases especially on how data was gathered (data snooping) or on how it was generated (e.g. calculations of beta).

To answer the first research question the Global Market has been analysed by using a comprehensive (1,800 stocks) and inherently consistent proxy. The data was gathered from a Professional Terminal by Bloomberg L.P., a leading, internationally accepted provider of financial data. Furthermore, the Global 1800 index allowed for a valid investigation across 24 countries. It came to light that US stocks account for

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29.3% of the index in April 2011 which validates the findings of Odien & Solnik (1993) and invalidates the findings of studies using single country indices as a market proxy. This study found proof that the importance of countries within the Global Market is quite stable over time. Furthermore, it reflects that China is still a market of the future. This derives from the growing importance of the Hong Kong market as most of the listed companies are headquartered in China.

In general, the univariate analysis indicates only small time-varying betas. In the representative cross-section (except inefficient markets like Greece), it has been proven that a decrease in beta risk is followed by lower returns and therefore the attributed beta-return relationship remains quite stable over time. On the other hand, remarkable differences were found between the international stock markets regarding this relationship. This is foremost explained by the comparative advantages of the individual countries figured out during this study. In addition, the differences regarding the risk-return efficiency can be quantified by implementing a beta-return ratio.

- Do industry-sector-specific differences exist with regard to the beta-return relationship?

As STOXX Ltd., the provider of the proxy index also allows for an investigation across industries, it was possible to give important and valid evidence about differences between 19 supersectors. First of all, it is recognisable that the Global Market shows a relatively homogenous allocation of supersectors. Only the supersector “Industrial Goods & Services” stands out in its importance as it accounts for 14.89% while the majority proportions between 6.61% (“Technology”) and 4.11% (“Chemicals”). Similar to the findings about countries regarding the time-variation of beta, the systematic risk of a supersector is rather stable over time. Only in cases of natural disasters or other economic incidents the betas vary more intensively.

So, to answer the secondary research question, the differences between supersectors are quite serious in regards to the beta-return relationship. Interestingly, some sectors show a quite efficient risk-return relation like “Telecommunications”, “Chemicals” and “Food &Beverages” which are steadily able to outperform the market while others, like the three sectors of the financial industry and “Construction & Materials”, are steadily risk-return inefficient. These differences have been quantified by using the beta-return ratio.

- What are the implications for an effective and efficient equity asset allocation?

To build an effective and efficient portfolio it can be concluded, that first of all investments should be made in countries and sectors with the best beta-return ratio. To give evidence, three portfolios have been build which analysed the 95 top performers according to the categories highest risk, lowest positive beta and lowest positive risk-return ratio. The results demonstrate that the CAPM holds true as the highest beta stocks gained the highest returns while the low beta portfolio underperformed the Global Market. However, the major outcome and the answer to third research question is, that the third portfolio strongly outperformed the market in both periods April 2011 (excess returns: +33.40%) and November 2010 (+33.43%) while it was exposed to a dramatically lower systematic risk (April 2011: -0.53; November 2010: -0.62). As a result, a risk-return efficient portfolio is presented and the necessary and proper diversification across countries and supersectors was illustrated. Moreover, a diversification across countries is more important than a diversification across supersectors as but a few exceptions the countries are heavily dependent on one or two sectors.

- Is it effective to build a future-oriented investment strategy upon an ex-post beta/return analysis?

The examination, how many of the best performers in each category in November 2010 are still under the top 95 in April 2011 brought interesting but disappointing results. All of the predictors were not able to forecast future developments adequately. Anyhow, beta seems to be more stable than previous returns and beta-return ratios as 32.63% of the 2010-stocks were listed in the 2011-portfolio as well. Previous returns and the beta-return ratio both reached a strike rate of 26.32 which is by far not effective.

5.3 Limitations

The first limitation of this study is the data sample. Even though it allocates the most liquid stocks of the World's largest publicly listed companies, it is still not a perfect proxy for the World Stock market. The interesting emerging economies like the BRIC states, India and the Arabian markets are disregarded by this index. The Chinese market is only regarded by those companies listed in Hong Kong which does not sufficiently reflect this huge economy.

The second limitation is due to the cross-sectional analysis. While this gives a very good impression about the total market and allows for the explanation how external incidents affect supersectors and countries, it limits the statistical significance in regards to the predictability of stock behaviour.

A third limitation might lie in the literature review. Whilst all of the journals and books used for this work are of highest quality and helped to explain the findings of the analysis, the research about international and cross-sector stock market behaviour is scarce. Thus, it was quite difficult to compare findings and to validate them.

5.4 Future Research

Due to the limitations mentioned above further research is highly recommended. This work brought to light how a portfolio should be structured and diversified across countries and supersectors. While the data used in this work is based on yearly returns and corresponding betas, in further longitudinal studies, weekly or monthly data should be analysed. This should assist to find those stocks which are favourable within the supersectors and allow for a future-oriented investment strategy as this research question could not be answered satisfactorily. In addition, research conducted on a wider time period will make the findings even more valid.

Moreover, further research should focus on stock market anomalies from an international viewpoint. This should bring up more important information to verify und understand the findings of this dissertation. It should help to improve the predictability of stock returns. Due to the results of this works that betas are less time-varying than returns the power of the beta-return ratio will increase to find those market-outperformers which are stable and risk-return efficient over time.