Prof. Dr. Markus Rudolf
WHU – Otto Beisheim School of Management
Allianz Endowed Chair of Finance

Stand / Date: 21.02.2019

THEMENVORSCHLÄGE FÜR ABSCHLUSSARBEITEN MSc 2020
THESIS TOPIC SUGGESTIONS MSc 2020

Liebe Studenten,

Neben denn untengenannten Themen können Sie gerne ein eigenes Thema für Ihre Abschlussarbeit vorschlagen. In Bezug auf das Schreiben einer Abschlussarbeit in Kooperation mit einem Unternehmen behält sich der Lehrstuhl vor die Auswahl der Studenten gemäß Qualifikation zu treffen. Die Übersicht wird aktualisiert, falls wir weitere Themen von den Unternehmen erhalten. Wir wünschen Ihnen viel Erfolg und freuen uns auf Ihre Bewerbung.

Dear students,

In addition to the topics listed below, you certainly can propose your own topic for your thesis. As regards the writing of a thesis in cooperation with a company, the Chair will select the students based on qualification. The overview will be updated, if we receive additional topic suggestions of the companies. We wish you success for your thesis and look forward to receiving your application.

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ABSCHLUSSARBEITEN IN KOOPERATION MIT UNTERNEHMEN
THESES IN COOPERATION WITH COMPANIES

moneymeets GmbH

1. **The implication of a commission ban to the market of financial advice**

   In the UK, the Financial Services Authority decided to prohibit the payment of commissions to advisors in 2013. Some market participants expect the upcoming MiFid II regulation also to (explicitly or implicitly) apply a commission ban to advisory services in Europe. Against this backdrop, the aim of this thesis shall be to examine the effects of the commission ban (like e.g. a decreasing number of financial advisors or an increase of the expected minimum portfolio value) in the UK. Furthermore, the thesis should include a comparative analysis of the financial services industry in Europe and the UK. In the end, the thesis should conclude on the effects of a commission ban on the European market of financial advice.

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THEMENVORSCHLÄGE DES LEHRSTUHLS
TOPIC PROPOSALS OF THE CHAIR

2. **Forward premium puzzle: A dynamic interaction between currency carry trades and stocks (Alex Kusen)**
   The forward premium puzzle is closely related to problems in finding a connection between trade and exchange rate exposure. The uncovered interest parity (UIP) predicts a one-to-one relationship between interest rate differentials and expected changes in exchange rates. Empirical findings suggest that this outcome does not hold when domestic nominal interest rates exceed foreign interest rates. Therefore, an interesting examination is the relationship between daily returns of currency carry trades and stocks. Tse and Zhao (2012) confirm that currency carry trading is correlated with stock return movements due to volatility spillovers. The objective of the thesis is to include interactions between variables in a multi-country setting. Consequently, a vector auto regression (VAR) model can be applied to capture possible interdependencies and analyze dynamic interactions between variables through structural shocks. A recommended starting point is Brunnermeier, M.K., S. Nagel and L.H. Pedersen (2008). Carry Trades and Currency Crashes. NBER Working Paper 14473; Yang, J.J.W. (2002). The information spillover between stock returns and institutional investors' trading behavior in Taiwan. *International Review of Financial Analysis*, 11(4):533-547; Baillie, R.T. and S.S. Chang (2011). Carry trades, momentum trading and the forward premium anomaly. *Journal of Financial Markets*, 14(3):441-464; and Tse, Y. and L. Zhao (2012). The Relationship between Currency Carry Trades and U.S. stocks. *Journal of Future Markets*, 32(3):252-271.

3. **Style investing in commodity markets (Tobias Burggraf)**
   Style premiums, or factor-based, investing has been applied in equity markets for over 20 years and has become increasingly popular, mainly in long-only applications (i.e., smart beta). Still, style investing appears to have a smaller footprint in commodities markets than in equities, both in the academic literature and in investment practice. This study could examine whether factors such as momentum, carry and low-volatility exist in the commodities market and whether investors should consider these commodity factor premiums when determining their strategic asset allocation. Furthermore, one could test if commodity factor premiums exhibit significantly better risk-adjusted performance than the simple commodity market portfolio and if it adds significant value to a conventional stock / bond portfolio. Starting points in the literature could be: Ung & Kang (2013), "Alternative Beta Strategies in Commodities"; and FT (2019), "Commodities trading booms as new strategy emerges".

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4. **Stock return predictors in different dimensions (Quynh Pham)**
   The evidence that stock returns are somewhat predictable has been well documented in the empirical literature. A considerable number of researchers have attempted to investigate stock return predictors for a long time. Some variables known to predict returns include the log dividend-price ratio, consumption-wealth ratio, output gap, and recently the ratio of gold to platinum prices. The objective of this project is to examine which variables among others, predict stock returns more reliably in the context of different dimensions, namely time horizons, industries, and/or countries. The project should also provide an explanation on why certain variables having stronger predictive power. Recommended readings are Fama, Eugene F., and Kenneth R. French, (1988). Dividend yields and expected stock returns. Journal of Financial Economics, 22: 3-25; Lettau, M., Ludvigson, S.C., (2001). Consumption, Aggregate Wealth and Expected Stock Returns. Journal of Finance 66: 815-849; and Darien Huang (2017), Gold, Platinum, and Expected Stock Returns, European Finance Association meeting, working paper.

5. **Research Productivity in Business, Finance, and Economics (Sebastian Seidens)**
   This thesis sets out to analyse the output of academic researchers over a 10-year span from 1970 to 1979. Thereby the student compares 20 leading journals across the fields of Business, Finance and Economics. The aim of the thesis is to systematically review these papers in terms of their authorships and their respective research institutions. The thesis could analyse trends and developments within and across these disciplines. While the student will get assigned a list of the relevant journals, data for these journals could be assembled almost entirely from common databases such as EBSCO.

6. **Defining Research Excellence across Academic Disciplines (Sebastian Seidens)**
   The thesis sets out to conduct research on the different academic disciplines. Thereby the student could work with the Scimago Journal & Country Rank (SJR) database. The aim of the thesis is to develop a research based approach to comprise a list of journals that could be considered as leading in the respective fields. The main categories could be defined as: Humanities, Social Science, Natural Science, Formal Science and Applied Science. Each of these fields has subcategories that could be attributed to the former. The thesis could analyse trends and developments in the “Impact Factor” of the different journals across time and create a list of the most important journals by discipline. The student has open access to the data required in order to conduct the study.

7. **On the Relationship between Liquidity and Expected Returns (Sebastian Seidens)**

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This thesis sets out to examine the pricing ability of a liquidity factor. The liquidity factor could for instance be the bid-ask spread. There exists a long list of studies relating liquidity and expected returns in asset pricing. The student should provide a compelling overview of the empirical literature. The thesis itself can then either be meta or empirical. In a meta-study, the student could focus on trends regarding the liquidity factor, while in an empirical study, the student could point towards the robustness of previous findings. Either way, it will be crucial to demonstrate differences in proxies used to estimate liquidity. For a first overview, the following literature can be consulted: Amihud and Mendelson (1986), Asset Pricing and the Bid-Ask Spread. Journal of Financial Economics 17, pp. 223–49; Pastor and Stambaugh (2003), Liquidity risk and expected stock returns. Journal of Political Economy 111, pp. 642–685.

8. **Technical Analysis and the Search for Alpha (Sebastian Seidens)**
   This thesis sets out to examine the profitability of technical trading rules in an empirical study. Thereby, the student could elaborate on the theory of random walk, market efficiency and return predictability. Conclusions drawn upon these theories could then be translated into technical trading rules and tested empirically. For a first overview, the following literature can be consulted: Brock, Lakonishok and LeBaron (1992), Simple technical tradingrules and the stochastic properties of stock returns. Journal of Finance 47, 1731–1764, Allen and Karjalainen (1998), Using genetic algorithms to find technical trading rules. Journal of Financial Economics 51, pp. 245-271; Bajgrowicz and Scaillet (2012), Technical trading revisited: False discoveries, persistence tests, and transaction costs. Journal of Financial Economics 106, pp. 473-491.

9. **The efficiency of international capital markets in a digitalized world (Alexander Deneke)**
   Literature has investigated the correlation and transmission of international stock and equity markets (e.g. Eun, Cheol and Shim, 1989; Longin, Francois and Solnik, 2001). At the same time, we can observe that individual investors increasingly move their capital to online trading platforms (Barber and Odean, 2002; Breitmayer et al., 2018). This happens in a more and more digitalized world, where information can be passed on within seconds. As capital market efficiency can be reduced via local herding (Kristoufek and Vosvrda, 2013) and herding behavior is likely to occur in a more and more digitalized world, this paper should examine the efficiency of international capital markets in present times. The methodology should follow Kristoufek and Vosvrda (2013) and apply the Hurst component H as well as the fractal dimension D. For calculating H, the rescaled range analysis can be used analogously to Mandelbrot and Wallis (1969).

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10. **How does the compensation structure influence investors' behavior and performance? (Alexander Deneke)**

    Research shows that many investors do not want to make financial investment decisions on their own. Thus, they take part in mutual fund investing for example. A lot of literature on mutual fund performance exists. However, research has called for further investigations on the performance and welfare of investors under different compensation models (Guercio and Reuter, 2014). This proposal gives the student the possibility to choose between different contributions to research. One could be to examine the difference in performance and behavior of investors among different compensation structures. Another aim could be to identify the optimal compensation structure for investors among different investment platforms such as mutual funds or online trading platforms. In fact, an increasing number of retail investors make use of online trading platforms for managing their investments (Barber and Odean, 2002). Thus, this field might be of particular interest. A good starting point is the literature on the principal-agent theory.

11. **The impact of estimation error on the performance of risk-based portfolios (Nabil Alkafri)**

    Risk-based allocation strategies, such as risk-parity, inverse volatility, maximum diversification, and minimum variance, among others, employ the sample covariance matrix to obtain the portfolio weights. Risk-based allocation strategies have become extremely popular among investors during the last decade. For instance, a recent research published by JP Morgan (Kolanovic et al., 2015) indicates that the total amount managed with a risk parity approach is close to $500 BN as of August 2015. This number does not include the assets managed by investment vehicles that are pursuing minimum-variance and maximum-diversification strategies. Furthermore, most Commodity Trading Advisors (CTA funds) are also using a risk-based weighting scheme to perform their asset allocation.

    Despite the increasing popularity of risk-based investment strategies, there has been a shortage of scientific evidence evaluating the impact of second moment forecasting errors on the outcome of risk-based portfolio optimizations. Estimation error is of upmost importance in portfolio construction and performance, as small changes in the estimates could lead to very unstable portfolios with high turnover ratios (see Michaud (1989) & Chopra and Ziemba (1993)).

    The candidate should first summarize the most prominent risk-based allocation strategies and note their differences. Second, the study should investigate the impact of estimation error on the performance of risk-based portfolios in a simulation setting.

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Finally, the study should assess the impact by comparing the out-of-sample performance as compared to the in-sample performance of these portfolios.
The candidate should be willing to review the literature on estimation error (esp. in the context of risk-based portfolios) and be willing to acquire some basic knowledge of MATLAB.

Related References:

Ardia, D; Bolliger, G.; Boudt, K.; & Gagnon-Fleury, J. P. (2017), the impact of covariance misspecification in risk-based portfolios, in: Annals of Operations Research, 2017, Vol. 254, No. 1-2, pp. 1-16.
Kolanovic, M., Kaplan, B., & Mehra, A. (2015). Technical selling: How low can it push equities? J.P. Morgan market and volatility commentary note. Available at: www.jpmorganmarkets.com.
Michaud, R. O. (1989), The Markowitz Optimization Enigma: Is 'Optimized' Optimal?, in: Financial Analysts Journal, 1989, Vol. 45, No. 1, pp. 31-42.

12. **Volatility forecasting in the context of portfolio allocation (Nabil Alkafri)**

Properly forecasting the conditional covariance matrix of portfolio constituents is central for asset allocation decision making. This is especially the case for (global) minimum variance portfolios, which merely depend on the covariance matrix forecast of asset returns. It is possible to come up with forecasts based on a decomposition of the conditional covariance matrix into the conditional correlation matrix and a diagonal matrix of conditional standard deviations. Using univariate GARCH models to estimate conditional standard deviations it is possible to compare models for forecasting the (multivariate) conditional correlation matrix like the DCC model or the EWMA model.
The exact way of evaluating forecast accuracy remains a big problem. Engle and Colacito (2006) as well as Patton and Sheppard (2009) have shown that the portfolio volatility is minimized when the correct forecast is applied. Becker et al (2015), on the other hand, contribute to the previous literature by considering the role played by loss functions in multivariate volatility model selection, where the model's forecasts will be used in portfolio optimization. The authors argue that portfolio-variance-based evaluation for model selection does not appear to provide a strong enough discrimination between the competing models.
In this master thesis, it is expected, that, based on Becker et al (2015), models designed to generate forecasts of the conditional correlation matrix are being investigated and implemented empirically, while accounting for volatility clustering. The evaluation and comparison of the diverse forecasting methods in this thesis has to be based on a minimum variance portfolio allocation framework similar to that in Becker et al (2015).

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The candidate should be willing to review the literature on correlation forecasting (esp. in the context of conditional heteroscedasticity) and be willing to acquire some basic knowledge of MATLAB.

Related References:

Becker, R.; Clements, A. E.; Doolan, M. B.; & Hurn, A. S. (2015): Selecting volatility forecasting models for portfolio allocation purposes, International Journal of Forecasting, Vol. 31, No. 3, p. 849-861.

Engle, R. F. (2009): Anticipating Correlations: A New Paradigm for Risk Management, Princeton, New Jersey: Princeton University Press.

13. **A comparison of portfolio insurance strategies based on a bootstrap-approach (Nabil Alkafri)**

Portfolio insurance (PI) strategies are investment strategies with a downside protection, while preserving an exposure to risky assets. In this thesis, the focus is on the comparison of several PIstrategies (CPPI, OBPI, dynamic-VaR, stop-loss). Other strategies (buy-and-hold and constantmix) serve as benchmarks.

For data-generation, the model-free block-bootstrap approach of Annaert et al. (2009) will be used. All strategies are evaluated and compared using appropriate measures (expected final wealth, standard deviation of final wealth, value at risk, expected shortfall, shortfall probability, and mean excess loss). Transaction costs could be included in the analysis (not mandatory). Clearly, the thesis contains an overview on the relevant literature (discussion of theoretical and empirical results).

The candidate should be willing to review the literature on portfolio insurance strategies and be willing to acquire some basic knowledge of MATLAB.

Related References:

Annaert, J., Osselaer, S. Van, & Verstraete, B. (2009). Performance evaluation of portfolio insurance strategies using stochastic dominance criteria. Journal of Banking and Finance, 33(2), 272–280.

Benninga, S. (1990). Comparing portfolio insurance strategies. Finanzmarkt und Portfolio Management, 4, 20–30.

Black, F., & Jones, R. (1987). Simplifying portfolio insurance. The Journal of Portfolio Management, 14(1), 48–51.

Cesari, R., & Cremonini, D. (2003). Benchmarking, portfolio insurance and technical analysis: A Monte Carlo comparison of dynamic strategies of asset allocation. Journal of Economic Dynamics and Control, 27(6), 987–1011.

Dichtl, H., Drobetz, W., & Wambach, M. (2017). A bootstrap-based comparison of portfolio insurance strategies. The European Journal of Finance, 23(1), 31–59.

Estep, T., & Kritzman, M. (1988). TIPP: Insurance without complexity. The Journal of Portfolio Management, 14(4), 38–42.

Jiang, C., Ma, Y., & An, Y. (2009). The effectiveness of the VaR-based portfolio insurance strategy: An empirical analysis. International Review of Financial Analysis, 18(4), 185–197.

Pain, D. (2008). Recent developments in portfolio insurance. Bank of England Quarterly Bulletin, (1), 37–46.

14. **Simulation-based evaluation of CPPI-strategies (Nabil Alkafri)**

Portfolio insurance strategies are investment strategies with a downside protection, while preserving an exposure to risky assets. In this thesis, the focus is on the well-known Constant Proportion Portfolio Insurance (CPPI) strategy. You compare it with several benchmarks (buy-and-hold, naive mix, stop-loss and TIPP) in a simulation study using different data-generating processes (geometric Brownian motion and AR-GARCH). Parameters will be estimated using daily DAX-returns. You can assume a constant interest rate for the risk-free asset.

The candidate should try several modifications of the CPPI strategy (different time horizons, rebalancing frequencies, floor levels, multiples, etc.) and evaluate the strategies using appropriate measures (expected final wealth, standard deviation of final wealth, value-at-risk, expected shortfall, shortfall probability, mean excess loss). Transaction costs should be considered. Clearly, the thesis contains an overview on the relevant literature (discussion of theoretical and empirical results).

The candidate should be willing to review the literature on portfolio insurance strategies and be willing to acquire some basic knowledge of MATLAB.

Related References:

Annaert, J., Osselaer, S. Van, & Verstraete, B. (2009). Performance evaluation of portfolio insurance strategies using stochastic dominance criteria. Journal of Banking and Finance, 33(2), 272–280.

Benninga, S. (1990). Comparing portfolio insurance strategies. Finanzmarkt und Portfolio Management, 4, 20–30.

Black, F., & Jones, R. (1987). Simplifying portfolio insurance. The Journal of Portfolio Management, 14(1), 48–51.

Cesari, R., & Cremonini, D. (2003). Benchmarking, portfolio insurance and technical analysis: A Monte Carlo comparison of dynamic strategies of asset allocation. Journal of Economic Dynamics and Control, 27(6), 987–1011.

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Estep, T., & Kritzman, M. (1988). TIPP: Insurance without complexity. The Journal of Portfolio Management, 14(4), 38–42.

Pain, D. (2008). Recent developments in portfolio insurance. Bank of England Quarterly Bulletin, (1), 37–46.