1 Introduction

1.1 General motivation

In recent decades in finance and particularly in asset allocation quantitative methods gained considerably in importance. This trend is fostered by the rising processing power of computers. The impact of those quantitative approaches on investment decisions is controversial. Irrespective of numerous exceptionally successful applications for example in portfolio theory, misleading quantitative models also inspired the securitization of debt obligations and the underestimation of risks. The blind reliance on quantitative models has turned out to be inadequate.

Quantitative tools can only be as smart as the input. Even a perfect quantitative model depends on the input variables. Furthermore, the models are often also calibrated with these data. As a result, the expression "garbage in, garbage out" is common in finance. Additionally, a smart model has to be developed. Again, negligent underlying assumptions and econometric imperfections create problems. An example for both is the mortgage backed securities market (MBS) and the securitization of these papers in collateral debt obligation (CDO) structures. Firstly, the securitization of MBS included diversification estimates that did not prove of value. If the housing market in California deteriorates, all house prices fall and diversification is mainly not applicable. Secondly, many investors analysed a short period to generate risk and return estimates in addition to rating agencies' seal of approval. However, a quantitative assessment of a short period does not give an appropriate indication of risks. In many cases, a change of the situation or the macroeconomic framework for instance rejects the prior analysis. In conclusion, the abilities of quantitative methodologies must be implemented advisedly.

The emergence of a new asset class is a challenge for asset managers. On the one hand generally first movers receive an additional risk premium. On the other hand an assessment of an emerging asset class without several years of history is complex. The enrichment of asset allocation by catastrophe bonds (cat bonds) at the end

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of the 1990s was such a case.[1] Kielholz and Durrer (1997) claimed that investments in cat bonds improve the risk-return pattern of an investment portfolio. From today's perspective a clever investment, but for asset managers the assessment of return, risk and correlation estimates proved to be problematic. A potential underestimation of risk often results as tail risks cannot be observed in short time periods. Such an event also affected cat bonds in 2009. According to some special purpose vehicle structures (SPVs), the counterparty risk of big insurance companies was taken into consideration by investors leading to a sharp decline in this illiquid asset class. As a consequence, quantitative assessments of short term periods of an asset class for asset allocation purposes are inappropriate.

Scenario methodologies are a qualitative approach to address this issue. In absence of historic data over a longer period, the modelling of potential futures is a key element to derive estimates. Furthermore, these estimates are forward-looking and can include innovation or mission drifts of a problem set. Obviously, emerging asset classes are subject to innovation and changes such as regulation or investment guidelines. In addition, scenario planning fits into the regime thinking of asset allocation. Moreover, it allows a quantification of specific parameters in the developed scenarios. In conclusion, a scenario process might be an adequate tool in cases where quantitative assessments are inopportune. Looking into the future is very useful at the beginning of any decision making process including investment decisions.

The idea for introducing a scenario analysis approach into asset allocation came up with the following problem. Microfinance is a currently emerging asset class with similarities to cat bonds. The analysis of return expectations and underlying risks is complex. Furthermore, there is only little experience regarding investments in this sector and the objects' characteristics change continuously. As mentioned, in such an environment quantitative analysis tools are limited. For this reason, a qualitative methodology such as scenario analysis comes to the fore.

[1] Catastrophe bonds – debt instrument mainly issued by insurance companies to distribute the risks of natural disasters.

1.2 Research questions

The main objective of this work is to examine the appropriateness of quantitative and especially qualitative methods to integrate new asset classes into an asset allocation framework. Additionally, the study gives a detailed introduction into microfinance – a new asset class – and assesses the attractiveness of this asset class in an asset allocation framework focusing not only on quantitative methods but also on qualitative methods. Therefore, two main research areas develop. First, an assessment of quantitative and qualitative methods to integrate new asset classes into an asset allocation framework applies. Secondly, both methodologies are illustrated with microfinance representing a new asset class.

Research topic 1: Integration of new asset classes into asset allocation

Research question 1.1: Are quantitative methods a comprehensive approach to integrate new asset classes into an asset allocation framework?

Research question 1.2: Are qualitative methods such as scenario analysis a comprehensive approach to integrate new asset classes into an asset allocation framework?

Research topic 2: Microfinance in an asset allocation context

Research question 2.1: Is microfinance an attractive asset class in an asset allocation framework based on quantitative methods?

Research question 2.2: Is microfinance an attractive asset class based on the qualitative method scenario analysis?

1.3 Outline

Research question 1 is discussed complementary with research question 2. Firstly, chapter 2 gives an introduction to asset allocation based on μ/σ-optimization and the shortfall concept. Furthermore, a categorization of investor types is outlined. Thereafter, chapter 3 provides an overview of scenario methodologies. Moreover, the approach of combining asset allocation and scenario analysis is described. Thirdly, a detailed insight into microfinance is provided in chapter 4. Besides the idea of microfinance, a market overview and the current market conditions are described. Furthermore, an assessment of selected microfinance investment vehicles

is conducted and the problems of a common quantitative integration into asset allocation are discussed. Fourthly, a detailed description of a core element of this study is outlined. Chapter 5 describes the scenario analysis microfinance executed by a comprehensive pool of experts during 2009. This process generates qualitative information about microfinance scenarios and also enables deriving quantified asset allocation input parameters. Fifthly, in chapter 6 the input parameters from the scenario process as well as from the quantitative index analysis are integrated into an asset allocation framework. Finally, chapter 7 concludes this study referring to the research question and explicitly describes implications for asset allocation practitioners.