Optimal Wealth Allocation for an Ordinary Household

Master's Thesis

at Institut für schweizerisches Bankwesen
der Universitt Zürich

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Research proposal

Working Title: "Optimal wealth allocation for an ordinary citizen"

Research context

The theory of asset allocation is good developed. However, an ordinary citizen would find it hard to use since he faces with many constraints and factors unknown to institutional investors or HNWIs (High Net Worth Individuals): essential transaction cost of trading, low volumes, different returns preferences, different needs etc. For instance, if a person works in the construction industry, she better does not buy the shares of a construction company, in order to diversify her income.
There are different questions and that are not posed while concerning to the institutional (or those who behave like institutional) investors. For example, is the education an asset? It can't be sold or handed over, but supplies with the cash-flows (higher salary, for instance). Could the professional and educational background of the spouse be taken into account? In case the incomes from their professions are weak correlated, they might be less risk-averse.
The lack of expertise in finance of the ordinary citizen is often misused by financial consultants, especially if their remuneration depends on the profit their company makes out of the products and solutions sold on investors.
Besides, banks and assurance companies can't qualitatively consult each of the low-income individuals, for it would be too expensive. Moreover, it often comes to a profound consultation only in case when they buy a mortgage or life insurance. Also, the ordinary citizens tend to make decisions concerning their investments on the low frequency (month, quarter or even year) basis.

Aim of the work

The aim of the proposed investigation is to provide this class of investors with appropriate theoretical framework and with algorithms/numerical procedures giving a concrete asset allocation proposal for such an investor in Switzerland and Germany. That is taking into account the costs concerning asset management and

relation between assets (correlation between assets, their law environment etc) in these countries.
The results of this thesis may be applied to providing the low or middle-income persons with the independent wealth allocation advice.

Methodical approach

First, the standard portfolio optimization theory will be considered. Further, the characteristics of such an investor will be taken into account and implemented into the optimization problem. The techniques of how to specify the risk preferences of an individual are well developed and will be just taken over.
It is planned to program the algorithms with the help of Matlab and to write the text with LaTeX.

Progress schedule

1-st month: Literature processing, model draft
2-nd month: Comparison to the other models and concepts
3-rd month: Writing the text, practical application
4-th month: Writing the text
5-th month: Writing the text, Interpretation of the results
6-the month: Correction. Shaping of the work according to the formal requirements

Preliminary structure

1. Introduction. Problem statement, overview over the research field.
2. Model. Formalizing of the solution.
3. Comparison. The advantages and disadvantages of the model. Comparison to the other solutions.
4. Application. Programming the solution of the problem with the help of MATLAB.

5. Overview. The outline of the achieved results.

Research proposal was written in November 2009, before starting with the master's thesis

Executive summary

1. Statement of the problem

The theory of asset allocation is well developed. However, an ordinary citizen may find it hard to use since he is faced with many constraints and factors unknown to institutional investors or High Net Worth Individuals (HNWIs): essential transaction cost of trading, low volumes, different returns preferences, different needs etc. Furthermore, this group of investors has assets which can not be traded, but still generate cash flows, like skills and jobs, etc.
These groups of assets should be also taken into account when optimizing portfolio. For instance, bad performance of the bank stocks may be correlated with the income of the banking clerks.
On the other hand, in recent years there has been made an advance in the application of neuroscience in finance, and understanding what the risk is, there have been a large number of free-of-charge online services that provide consumers with information on financial markets.

2. Goal setting

The aim of the proposed investigation is to provide this class of investors with appropriate theoretical framework and with algorithms/numerical procedures that give a concrete asset allocation proposal for such an investor in Switzerland and Germany. That is, also taking into account the costs concerning asset management (transaction costs, taxes etc) in these countries.
The results of this thesis may be applied to providing low or middle-income persons with independent wealth allocation advice, both by themselves or by a financial intermediator.

3. Approaches and methods

First, we conduct qualitative analysis on why small investors differ in their behaviour from other groups and examine, which assumptions in the standard the-

ories like Modern Portfolio Theory are violated in their case. Then we provide information on the conditions, costs, and taxes to participate on the financial markets and which knowledge and tools are available. Finally, we make computations and calibrate a portfolio-rebalancing strategy that may suit the needs of a private investor.

4. Results

We formalized our idea of optimizing a portfolio of tradeable and non-tradeable assets into the model. We gathered information on the investing environment for private investors and used it to compute different portfolio-rebalancing strategies that account for taxes, transaction costs, and usual frequency of making financial decisions. The Matlab codes that were written specially for this thesis are available on the page http://litvak.eu/mastersthesis.htm.