Maslowian Portfolio Theory
A Coherent Approach to Strategic Asset Allocation for Private Investors

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Brussels

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EXISTING THEORIES

Normative Theories $\Longrightarrow$ *All Investments in One Portfolio*

e.g. Mean-Variance (Markowitz 1952a)

Descriptive Theories $\longrightarrow$ *Many Sub − Portfolios*

e.g. Behavioural Portfolio Theory (Shefrin and Statman 2000)

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MISSING . . .

People making choices based on the normative theories

. . . OR . . .

Normative theories that allow for portfolio segmentation (mental accounts)

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MASLOWIAN PORTFOLIO THEORY – MaPT
THE IDEA

CORE IDEA

Investments serve a purpose in life. The life-goals are the purpose of the investments, and money is only a means to attain a life-goal, it is not a goal in itself.

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MASLOWIAN PORTFOLIO THEORY (MaPT)
THE INVESTMENT PORTFOLIO

Human Needs	Investments/MaPT
Physiological Needs	liquid/cash
Safety Needs	insurance, retirement savings
Love Needs	mixed portfolios for projects
Esteem Needs	mixed portfolios for projects
Self Actualization	broker account(?)

TABLE 1: Maslowian Portfolio Theory.

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TARGET ORIENTED INVESTMENT ADVICE—TOIA
A MATHEMATICAL IMPLEMENTATION + EXAMPLES
TOIA IS NOT MV OPTIMAL
MASLOW'S THEORY IS CONTESTED
MiFID

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FURTHER SCOPE POSSIBLE AND NECESSARY
OPENING THE BOX OF PANDORA . . .

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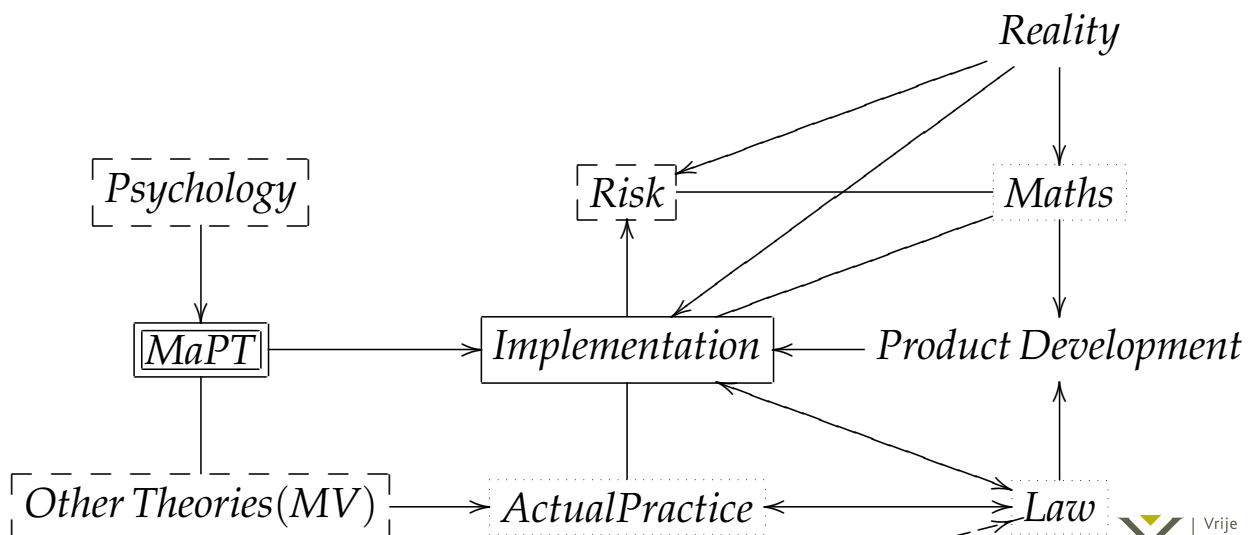
WHERE TO FOCUS?
A FEW MODEST STEPS ARE TAKEN

- Problem formulation by F. Van den Spiegel in 2000
- Refereed Publications:
  - investment horizon is relevant: (De Brouwer and Van den Spiegel 2001)
  - analogy (first ideas): (De Brouwer 2006)
  - MaPT: (De Brouwer 2009)
  - TOIA: (De Brouwer 2011)

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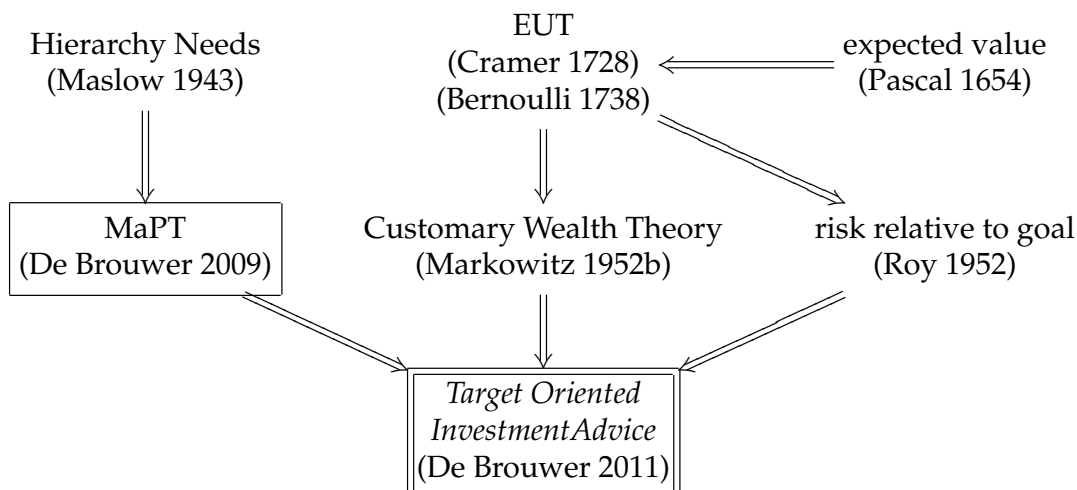# TARGET ORIENTED INVESTMENT ADVICE (TOIA)
THE LOGIC

FIGURE 1: Milestones for the formulation of TOIA.
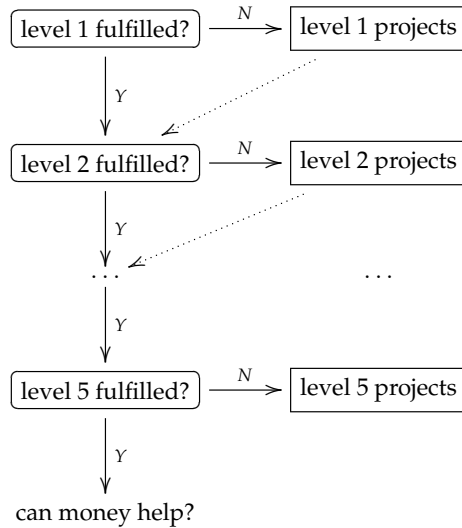
THE STEPS WITHIN TOIA (I)

FIGURE 2: A scheme to fill in the need levels.

THE STEPS WITHIN TOIA (II)
"DEFINE PROJECTS" FRAMED
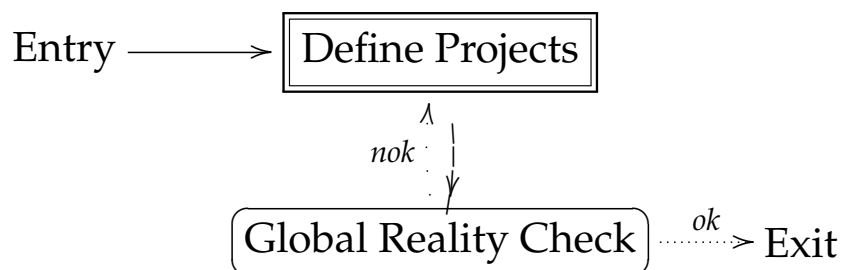
FIGURE 3: The basic scheme to get a set of realistic investment projects in appropriate proportions. The important "Define Projects" segment is Figure 2.

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THE MATHS OF TOIA
THE LOGIC

Risk-Reward Optimization
(Markowitz 1952a)

TOIA
(De Brouwer 2011)

Risk relative to target
(Fishburn 1977)
(Roy 1952)

Lex Parsimoniae
(W. of Ockham 1320)
& transparency

coherent risk metrics
(Artzner et al. 1997)

TOIA Maths
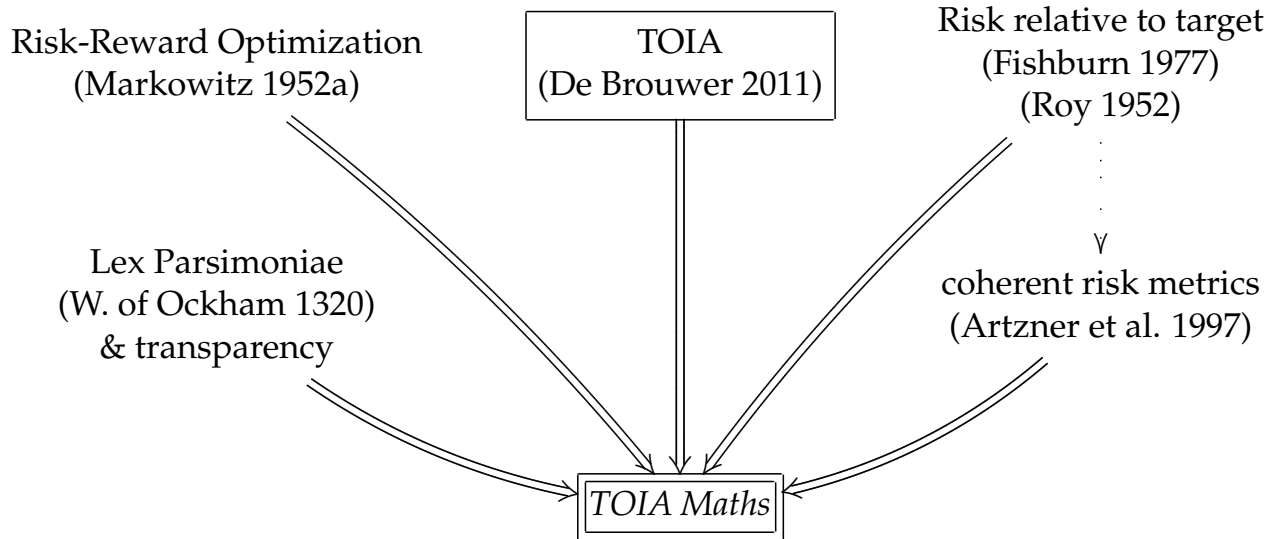
FIGURE 4: An Implementation of TOIA.

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INTERPRETATION OF ES, VaR AND σ
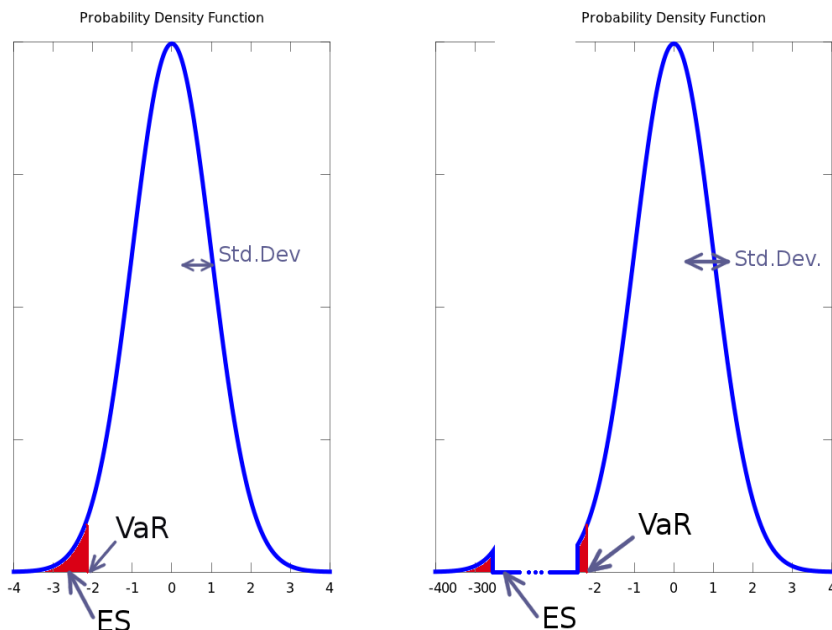
FIGURE 5: Interpretation of ES, VaR and σ.

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EXAMPLE 1
THE MECHANICS OF A RISK-REWARD METHOD
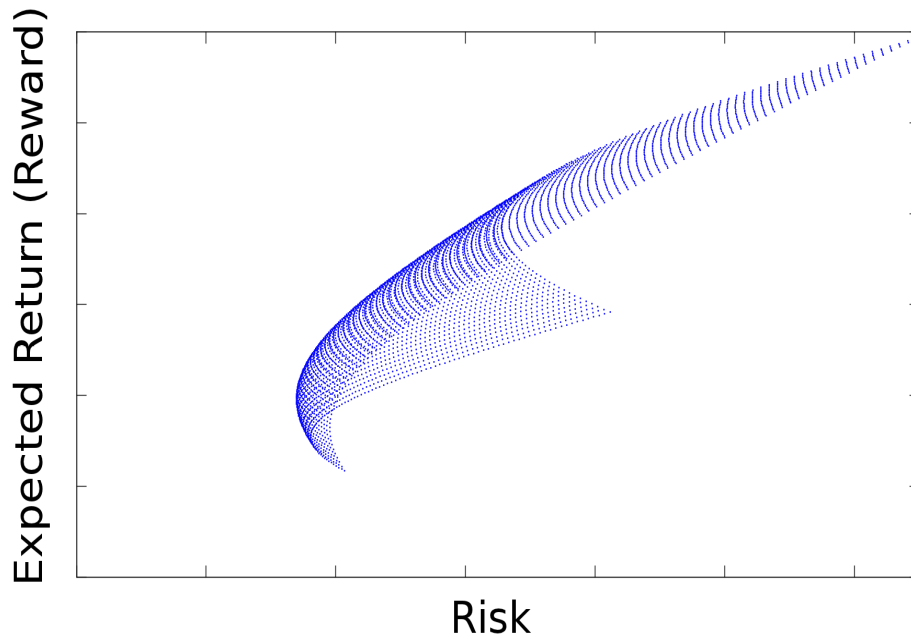
FIGURE 6: Portfolios in the risk/reward plane.

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EXAMPLE 1
GAUSIAN EQUITIES, BONDS AND CASH—INFLATION ADJUSTED
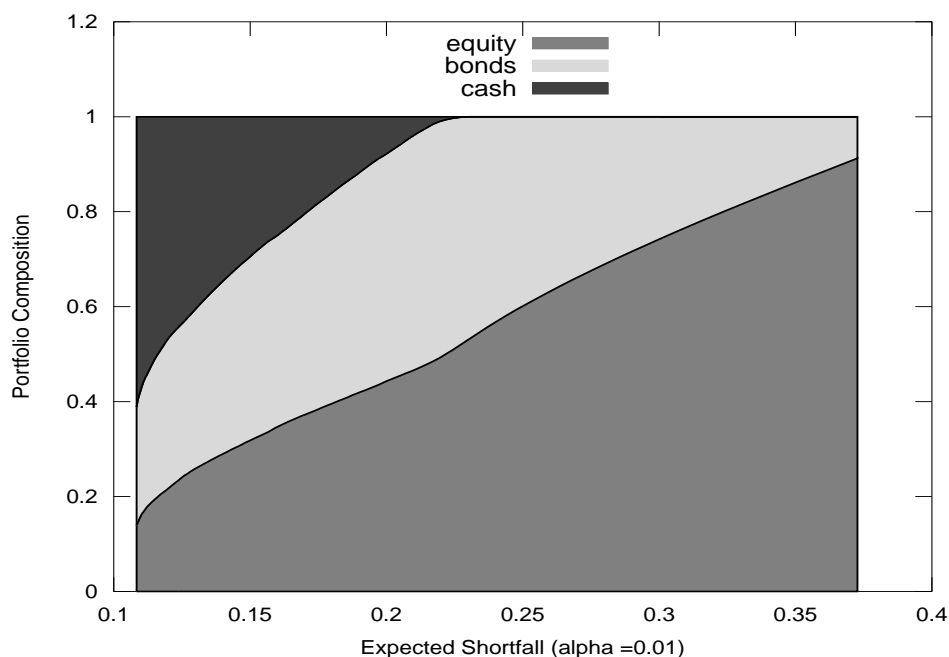
FIGURE 7: Recommended portfolios in function of ES.

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EXAMPLE 2: NON-GAUSSIAN ASSETS
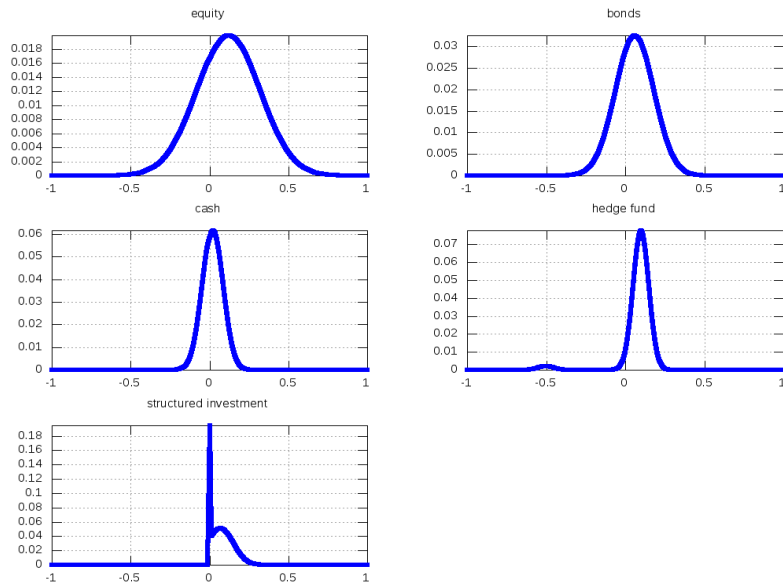
FIGURE 8: The pdfs in the example (the y-axis for the structured fund is truncated—this fund is a long call plus a deposit).

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EXAMPLE 2: NON-GAUSSIAN ASSETS
MEAN-ES AND MEAN-VAR OPTIMIZATION
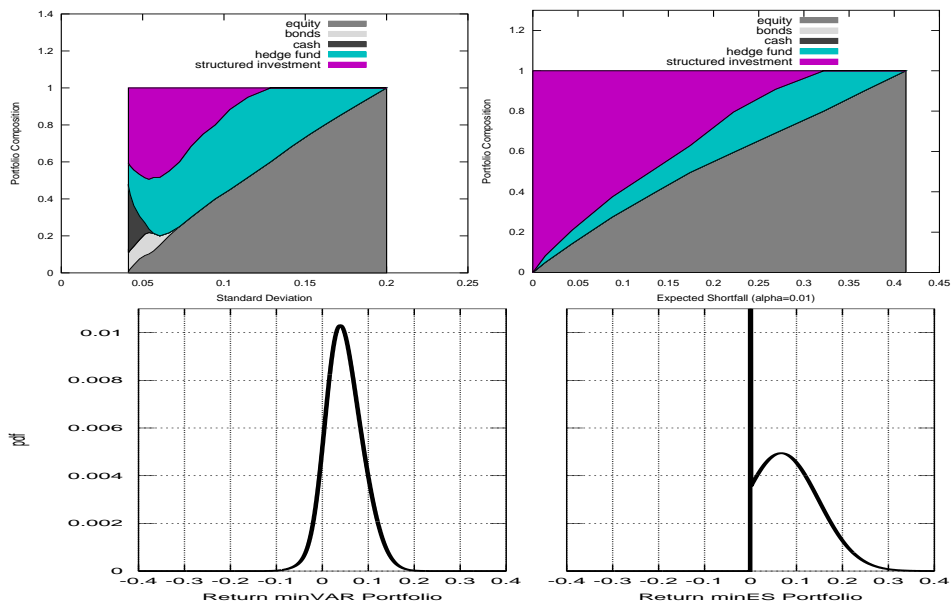
FIGURE 9: The min-VAR and min-ES portfolios compared.

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EXAMPLE 3: A COMPLEX EXAMPLE

Goal	τ	T	CF	V_0	α	ES_{max}
school	€ 100,000	1	€ 0	€ 100,000	0.01	10% of τ
yacht	€ 120,000	5	€ 0	€ 100,000	0.1	20% of τ
retirement	€ 200,000	10	€ 10,000	€ 100,000	0.01	minimal
extra	€ 50,000	10	€ 0	€ 50,000	0.05	€ 5,000

TABLE 2: The investment parameters for in Example 3. The investor wants to invest V_0 (plus annually CF) and wants it to grow to τ in T years, the expectation of the average of the $\alpha 100\%$ worst outcomes is to be limited to ES_{max}.

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EXAMPLE 3: FEEDBACK TO INVESTOR

Goal	Equities	Bonds	Cash	ES	Feedback
school	12.8%	24.4%	62.8%	10.8%	add
yacht	100%	0%	0%	18%	reduce
retirement	21%	30%	49%	€ 3161.20	ES
extra	100%	0%	0%	€ 3836.07	is less
total portfolio	50.46%	16.12%	33.42%	—	

TABLE 3: An overview of the ES-optimal portfolio compositions, as well as their proportion of the total portfolio. In the last two columns one finds respectively the percentage of the sub-portfolio at $t = 0$ (i.e. at the moment of writing the financial plan), and the Expected Shortfall as obtained after optimization.
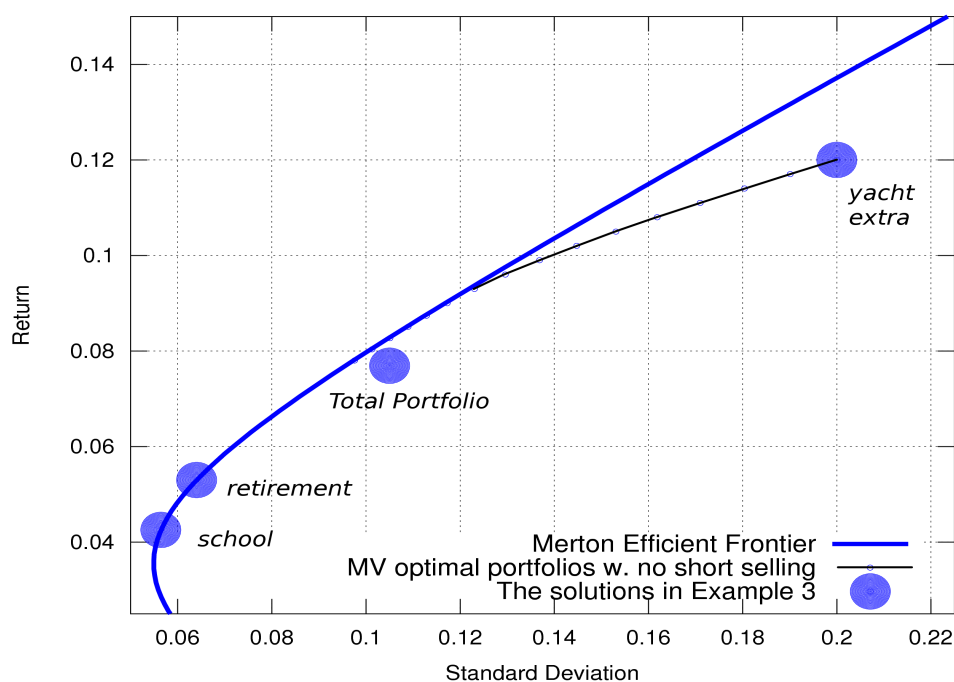
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EXAMPLE 3: A COMPLEX EXAMPLE

FIGURE 10: An example with four target portfolios.

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DIFFERENT FROM MARKOWITZ (1952)

1. *ES ≠ VAR*
   - ES is coherent
2. Mental Accounting is Not Optimal
   - How to test? Which *T*?
   - If so: a small price to pay (as a premium for an additional insurance): reduces model risk, diversification in diversification, ring-fencing, framework that counteracts behavioural biases, etc.

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MASLOW'S THEORY IS CONTESTED

- criticisms
  - nativism
  - hierarchy
  - B-needs do not emerge from a deprivation
  - lower needs are unworthy
  - Maslow mixes evolutionary function, developmental sequence and cognitive priority
  - self-actualization (might) not be a distinctive motive
- not contested
  - separate needs
  - framing in addressing needs

Maslow is well known and well adapted to financial thinking.

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THE SUITABILITY REQUIREMENT
IN THE MARKETS IN FINANCIAL INSTRUMENTS DIRECTIVE (MiFID)

Rules for Know-Your-Customer: *suitability requirements* guide the industry to a one-risk-profile-per-investor approach based on a questionnaire

1. increases model risk (all in one portfolio)
2. soft-focus concept of "risk-tolerance" (not defined and changeable)
3. empowers emotions to become decisive ⇒ stimulates bubbles and crashes
4. little understanding of the investor's targets
5. questionnaire = the worst MCDM to find something that does little matter and use it as the only parameter for the only decision, and map this arbitrary parameter in arbitrarily to an arbitrary set of investments.

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FURTHER RESEARCH

1. efficient investment strategies (ongoing at e.g. VUB)
2. commercial wrapping (how to avoid incomplete cover of needs)
3. implications on product development
4. alternatives for TOIA, robustness of TOIA, . . .
5. . . .

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DISADVANTAGES OF TOIA
ADVANTAGES OF TOIA
SUMMARY

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DISADVANTAGES OF TOIA

1. portfolios are not necessarily MV-optimal
   1. because of **mental accounting** …however in a *very* abstract way (multiple horizons in MaPT/TOIA!)
   2. **ES used in stead of VAR** …however this is much more logical, coherent and intuitive
2. **time consuming** for advisers
3. **computing time intensive** to optimize portfolios
4. **if applied, should be complete** – *all* needs should be covered (facilitated by Maslow's framework)
5. More research is needed (e.g. efficient investment strategies)

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ADVANTAGES OF TOIA

1. creates a **natural language** to guide the investor;
2. investment advice that **serves a purpose**, that makes sense for the investor, helps people to realize goals;
3. **no use of ill-defined concepts** such as "risk tolerance", no need for magical beliefs about the ability to define, determine and use this parameter;
4. provides a framework to hold onto, to temper emotions
   1. **portfolio returns are not/less deteriorated** by behavioural biases
   2. **bubbles and crashes are tempered**—if TOIA is widely used
5. ideal method to **build trust and a long term relationship** between advisor and investor
6. TOIA **reduces model risk** (diversification within diversification)

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CONCLUSIONS

- MaPT **puts investing in a frame: the frame of life**! Investments are a subordinated aspect of life and are no target in their own right
- MaPT is …
  - **valid**
  - **normative**
  - **coherent**
  - **applicable in practice** (TOIA)
- MaPT and its implementation TOIA have distinctive advantages: they
  - **answer to real needs**
  - create a **natural language** in communication with investors
  - are a rational approach **to mitigate some behavioural biases**, while other biases are used to help the investor

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Introduction
Main Thesis: MaPT
Broadening the Scope
Further Research
Conclusions

Disadvantages of TOIA
Advantages of TOIA
Summary

Thanks for Your Attention!

and big thanks to Promotor, Comission and Jury for this great learning experience!

Philippe welcomes communication at `philippe@de-brouwer.com`

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Back-matter

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NOMENCLATURE I

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MCDM   Multi Criteria Decision Method, page 27

MiFID   Markets in Financial Instruments Direc tive, page 27

MV   Mean-Variance criterion, as proposed by (Markowitz 1952a), page 31

pdf   probability density function, page 21

TOIA   Target Oriented Investment Advice, page 13

VAR   Variance, page 31