

PORTFOLIO SELECTION FOR PRIVATE PERSONS AND BEHAVIOURAL FINANCE

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PORTFOLIO SELECTION FOR PRIVATE PERSONS AND BEHAVIOURAL FINANCE

Part I

Risk Profiles and Portfolio Theories

Part II

Behavioural Finance

Part I

RISK PROFILES AND PORTFOLIO THEORIES



A NAIVE APPROACH OF FINANCIAL RISK



OUTLINE

- 1 A NAIVE APPROACH OF FINANCIAL RISK
 - Elements of Risk
 - Potential Risk Measures
 - Variance (VAR)
 - Value at Risk (VaR)
 - Expected Shortfall (ES)
- 2 THINKING COHERENTLY ABOUT FINANCIAL RISK
 - Defining Coherency
 - UCITS IV: a Risk Limit based on VaR
 - UCITS IV: a Risk Class based on VAR
- 3 NORMATIVE PORTFOLIO THEORIES
 - Mean-Variance
 - CAPM / MPT
 - Safety First
 - Maslowian Portfolio Theory



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- depending on asset class: equities, bonds, cash, hedge funds, real estate, etc.
- default risk,
- market risk,
- systemic risk
- currency exchange risk,
- fraud risk,
- inflation risk,
-



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VARIANCE(VAR)

DEFINITION (VARIANCE—VAR)

Let X be a real-valued stochastic variable, its variance is then defined as:

$$VAR := E[(X - E[X])^2] \quad (1)$$

$$= E[X^2] - (E[X])^2 \quad (2)$$

$$= \int_{\mathbb{R}} (x - \mu)^2 f_X(x) dx \quad (3)$$

with $\mu := E[X] = \int_{\mathbb{R}} x f_X(x) dx$



VALUE AT RISK (VAR)

DEFINITION (VALUE AT RISK —VAR)

The α VaR is the α quantile = the best of the $100\alpha\%$ worst outcomes = the worst of the $100(1 - \alpha)\%$ best outcomes

Note 1: VaR is linked to a given investment horizon!

Note 2: For returns, generally a minus sign is added



VALUE-AT-RISK (VAR)

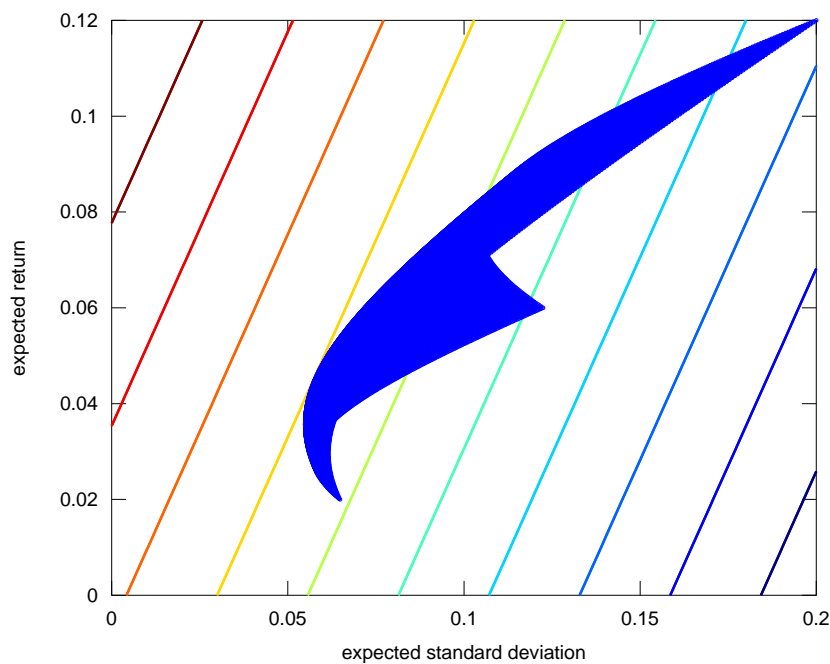


FIGURE: Optimizing risk-reward with VaR.



EXPECTED SHORTFALL (ES)

DEFINITION (EXPECTED SHORTFALL —ES)

The α Expected Shortfall is the *average* of the $100\alpha\%$ worst outcomes

Note 1: ES is inked to a given investment horizon!

Note 2: For returns, generally a minus sign is added



THINKING COHERENTLY ABOUT FINANCIAL RISK



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AN EXAMPLE FOR VAR

EXAMPLE (TOP-DOG)

Assume an asset with an expected return of 100% and a variance of 0.04 (i.e. $\sigma = 0.2$)

EXAMPLE (UNDERDOG)

Assume an asset with an expected return of 1% and a variance of 0.04 (i.e. $\sigma = 0.2$)

Which one is the most risky ?

Note: both ES captures this correctly, also VaR would be ok for distributions with a nice bell-curve.



AN EXAMPLE FOR VAR

EXAMPLE (ONE RISKY BOND)

Assume one bond with a 0.7% probability to default in one year
in all other cases it pays 105% in one year.

*The 1% VaR is -5% \Rightarrow VaR spots **no** risk!*

EXAMPLE (TWO RISKY BONDS)

Consider two identical bonds with the same parameters, but
independently distributed

The 1% VaR of the diversified portfolio is 47.5%!

Note: ES captures this correctly ... but why?



AN EXAMPLE FOR VAR (CONT.)

CONTINUITY IN α

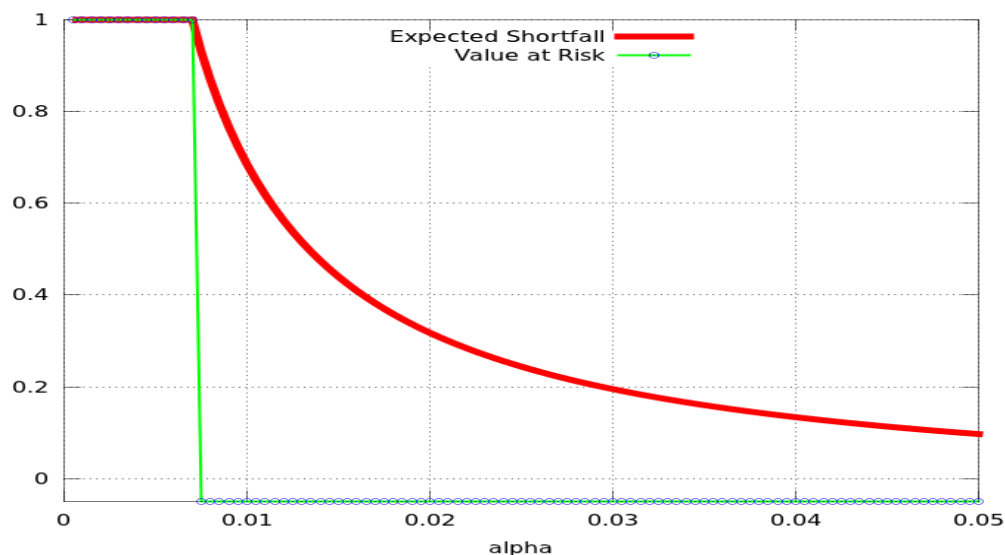


FIGURE: ES and VaR in function of α for one bond.



AN EXAMPLE FOR VAR (CONT.)

CONVECTIVITY (I)

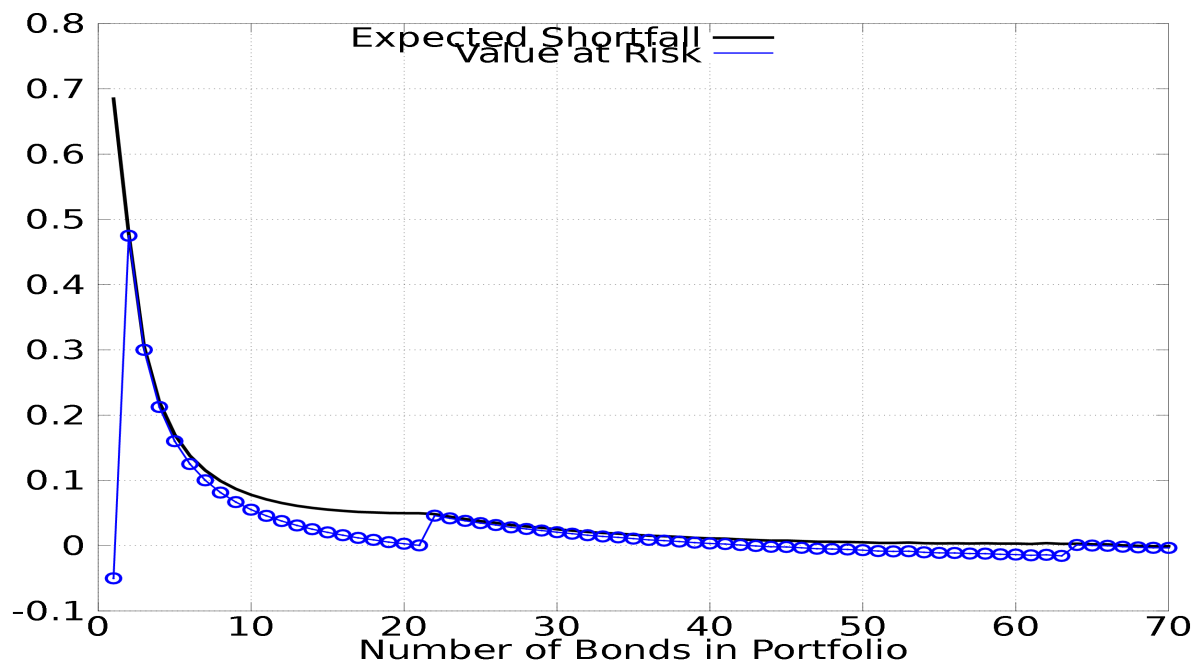


FIGURE: ES and VaR in function of number of bonds.



AN EXAMPLE FOR VAR (CONT.)

CONVECTIVITY (II)

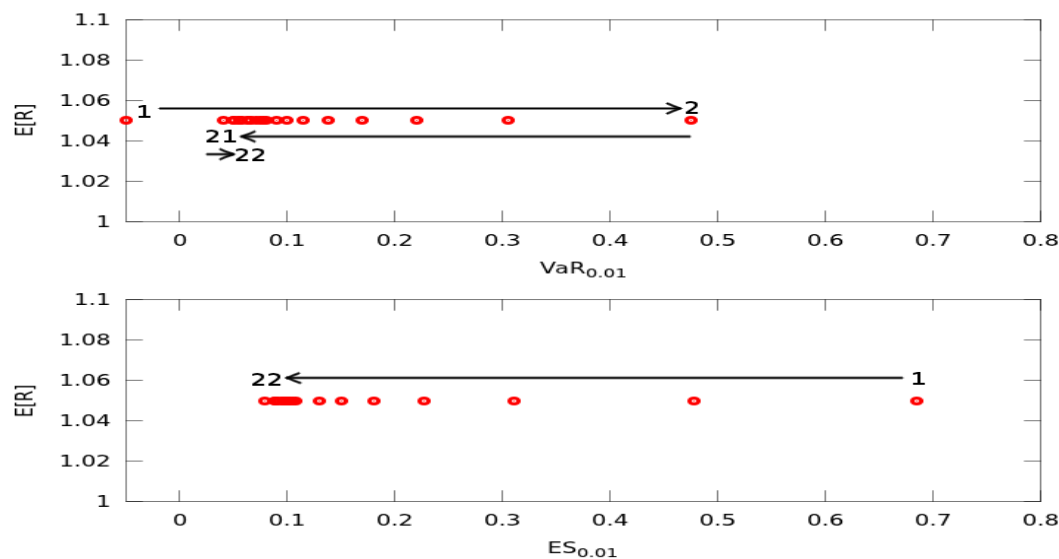


FIGURE: The result on the risk surface.



DEFINITION COHERENT RISK MEASURES

DEFINITION

- ① *monotonous*: $\forall X, Y \in \mathbb{V} : X \leq Y \Rightarrow \rho(X) \geq \rho(Y)$
If a portfolio X has always better results than portfolio Y, then its risk is less.
- ② *sub-additive*: $\forall X, Y, X + Y \in \mathbb{V} : \rho(X + Y) \leq \rho(X) + \rho(Y)$
Diversification reduces risk!
- ③ *positively homogeneous*:
 $\forall a > 0 \text{ and } \forall X, aX \in \mathbb{V} : \rho(aX) = a\rho(X)$
If you have a times more money invested, then the risk is a times higher.
- ④ *translation invariant*:
 $\forall a > 0 \text{ and } \forall X \in \mathbb{V} : \rho(X + a) = \rho(X) - a$
Adding an amount a in cash to the portfolio reduces the risk with a .



PROPERTIES AND EXAMPLES OF COHERENT RISK MEASURES

- **Coherent** risk measures have always a convex risk surface
- so there is always one or more global optimal portfolio(s)

EXAMPLE

Expected shortfall is a coherent risk measure

EXAMPLE

Semi-Standard Deviation, $\sigma_2^- := \sqrt{E[(\max\{0, X_\tau - X\})^2]}$, is also a coherent risk measure. With X_τ the target return.

Note that $\sqrt{E[(\max\{0, E[X] - X\})^2]}$ is *not* a coherent risk measure!



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A VAR BASED RISK LIMITS

Idea: limit the “exposure” of a UCITS to 100%”

DEFINITION (COMMITMENT APPROACH)

the underlying equivalent position

DEFINITION (RELATIVE VAR)

$$\frac{VaR_{UCITS} - VaR_{Reference\ Portfolio}}{VaR_{Reference\ Portfolio}} \times 100 \leq 10\%$$

DEFINITION (ABSOLUTE VAR)

$$VaR_{UCITS} \leq 20\%NAV$$



VAR BASED RISK LIMIT

AN EXAMPLE

EXAMPLE (ONE BET)

Consider a structured fund that will pay on one year time 105% of the initial investment, except if company X defaults, then it pays 0%. The probability that company X defaults is 0.7%.
 $\Rightarrow VaR_{UCITS} = -5\% \Rightarrow$ GREEN flag.

EXAMPLE (BETTER DIVERSIFIED)

Consider a structured fund that will pay on one year time 105% of the initial investment, if either company X or company Y defaults then it pays only 52.5%, if both companies default then it pays zero. The default probability of both companies equals 0.7%, and both companies are not related (independently distributed).
 $\Rightarrow VaR_{UCITS} = 47.5\% \Rightarrow$ RED flag.



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A VAR BASED RISK CLASSIFICATION

risk class	volatility equal or above	volatility less than
1	0%	0.5%
2	0.5%	2.0%
3	2.0%	5.0%
4	5.0%	10.0%
5	10.0%	15.0%
6	15.0%	25.0%
7	25.0%	$+\infty$

TABLE: The “risk classes” as defined by CESR in CESR/10-673, pg. 7, in the same document the risk classes are *also* referred to as “risk and reward indicator”.



VAR BASED RISK CLASSIFICATION: AN EXAMPLE

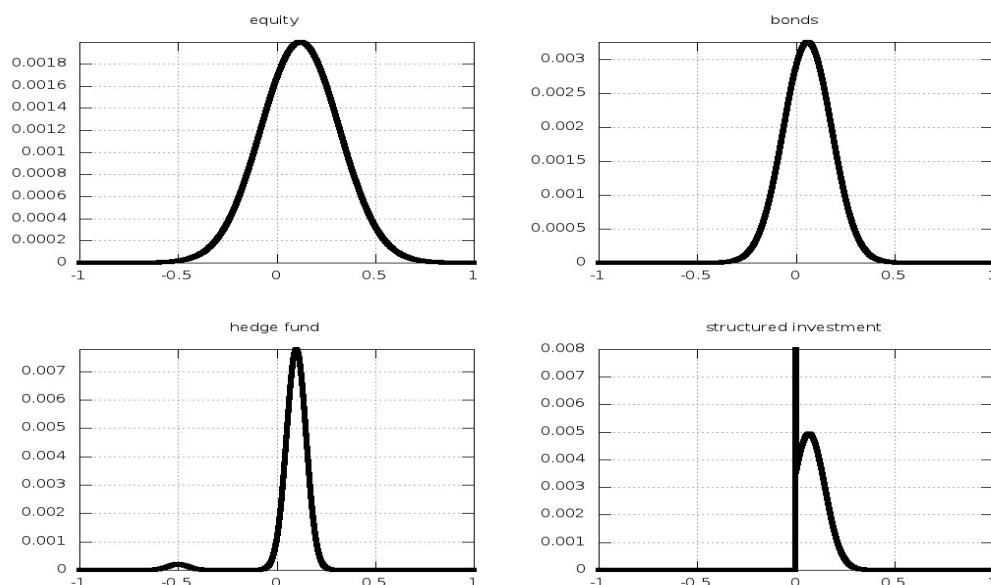


FIGURE: The probability density functions of the assets used in the examples.



VAR BASED RISK CLASSIFICATION: AN EXAMPLE

EXAMPLE

Assume the assets from Example 5 plus one “risky bond” (this could also be a structured fund based on a digital option) that has a probability of 1% to loose 15% and a probability of 99% to gain 5%. Then consider the risk class as defined by CESR/10-673.

portfolio	risk class	σ	$ES_{0.01}$
equity	6	0.2000	0.4123
bonds	5	0.1225	0.2660
hedge fund	5	0.1062	0.5482
structured investment	4	0.0671	0.0000
risky bond	2	0.0198	0.1500
mix 1/2 equity + 1/2 bonds	5	0.1173	0.2223

NORMATIVE PORTFOLIO
THEORIES

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MEAN-VARIANCE –(MARKOWITZ 1952)

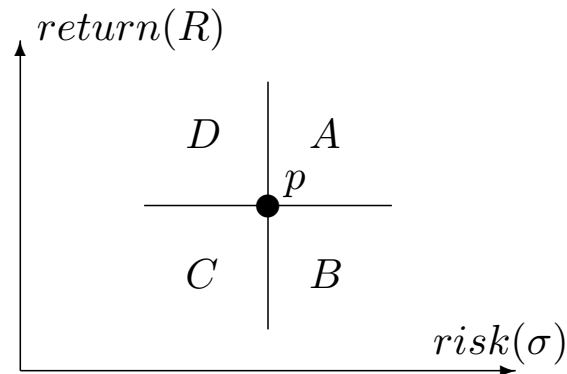


FIGURE: Two parameter criteria rank investments. Portfolios compared to portfolio p –marked by the big dot– are better in quadrant D because they have lower risk and higher return, worse in quadrant B (with lower return and higher risk), but those in A and C cannot be compared with p .



MEAN-VARIANCE OPTIMIZATION I

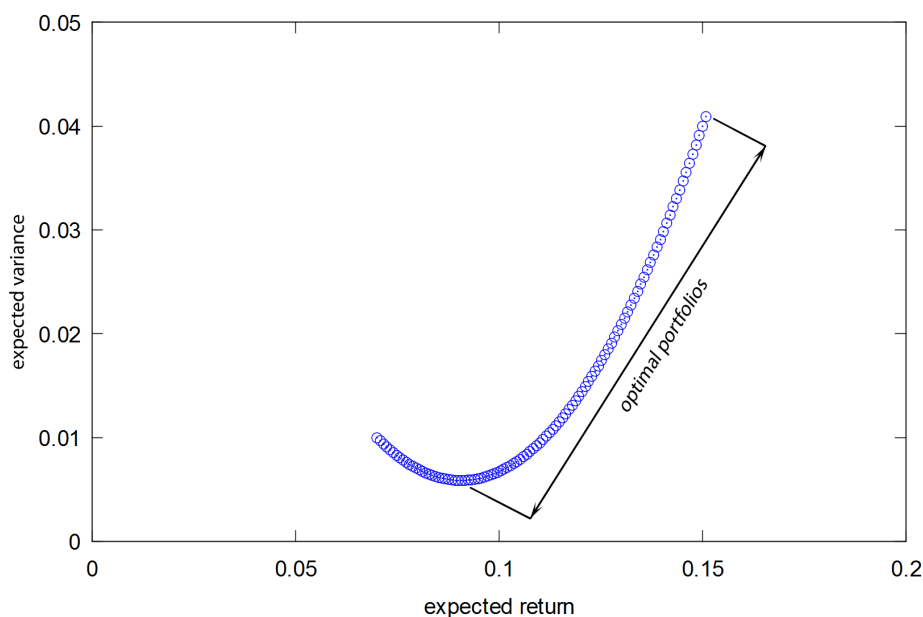
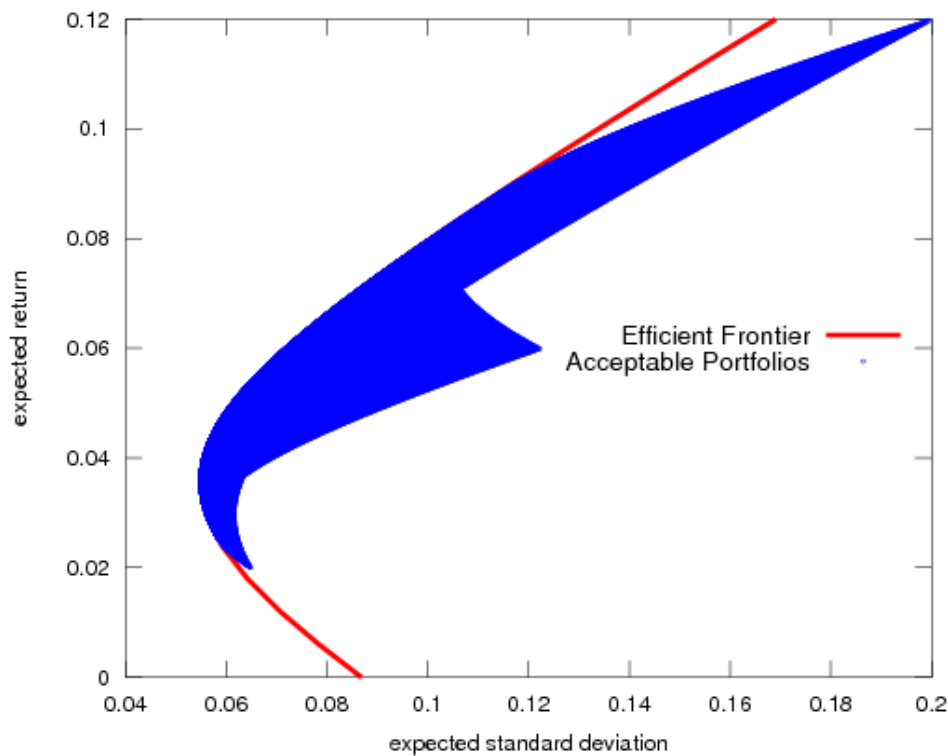


FIGURE: Mean Variance optimization.



MEAN-VARIANCE OPTIMIZATION II



PHILIPPE J.S. DE BROUWER

Figure: Optimal portfolios when unlimited short selling is allowed and when no short selling is allowed.

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CAPTIAL ASSET PRICING MODEL (CAPM)

(TREYNOR 1961), (TREYNOR 1962), (SHARPE 1964), AND (MOSSIN 1966)

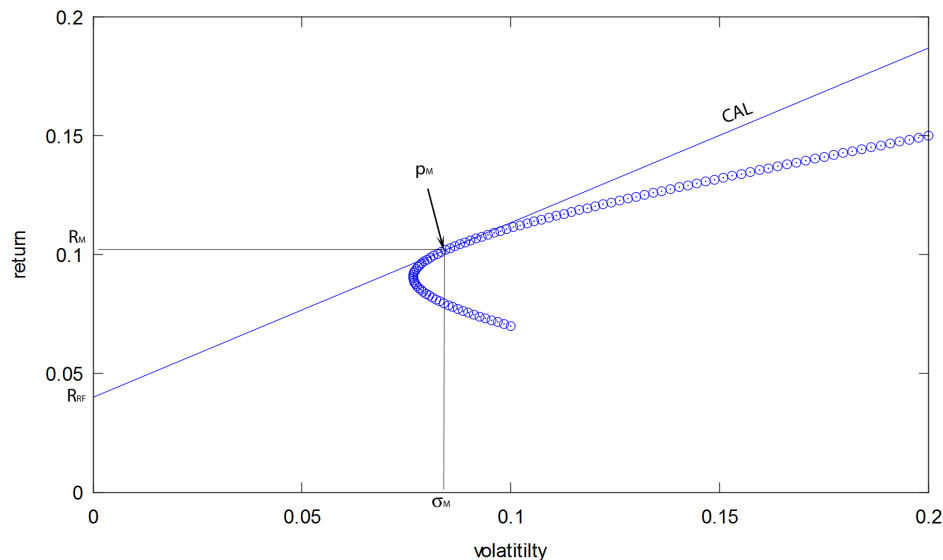


FIGURE: Optimal portfolios when unlimited short selling is allowed and when no short selling is allowed.



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SAFETY FIRST –(ROY 1952)

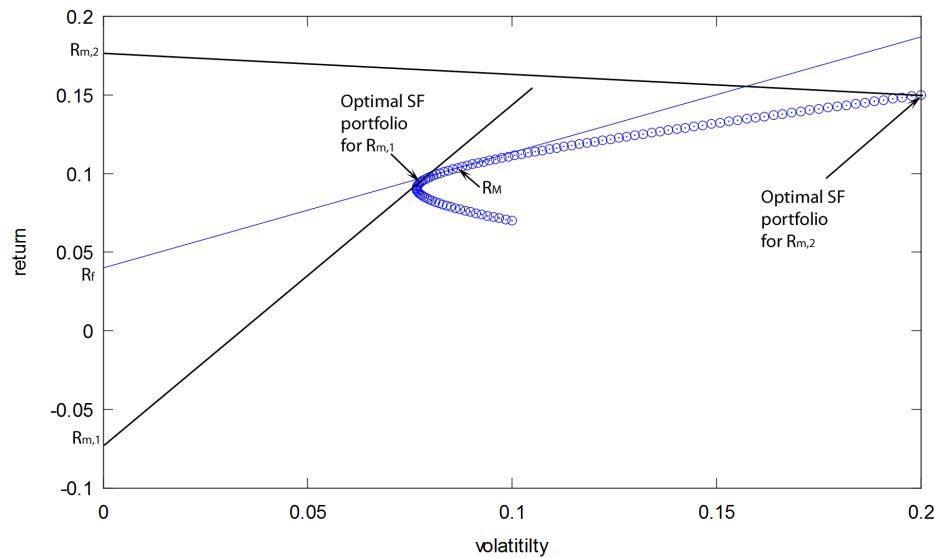


FIGURE: Safety First theory selects the portfolio with the lowest probability to end up below a certain minimal return R_m .



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MASLOWIAN PORTFOLIO THEORY – MAPT

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.

Human Needs

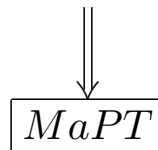


FIGURE: A comparison of the logic behind multiple mental account aspects of MaPT and BPT.



MASLOWIAN PORTFOLIO THEORY (MAPT)

THE INVESTMENT PORTFOLIO

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

TABLE: Maslowian Portfolio Theory.



TARGET ORIENTED INVESTMENT ADVICE (TOIA)

THE DEFINITION

DEFINITION (TOIA IS THE STANCE WHERE)

- ① we subscribe to MaPT (money is not a goal in itself, but serves other purposes) \Rightarrow mental accounting
- ② we use MaPT as a guide to identify the investor's goals
- ③ we optimize portfolios for each goal separately and with the investment goal in mind
- ④ we update financial plans regularly to keep it in line with life goals and resources.
- ⑤ we focus on the parsimonious parameters of each mental account \Rightarrow main result is strategic asset allocation



THE STEPS WITHIN TOIA (I)

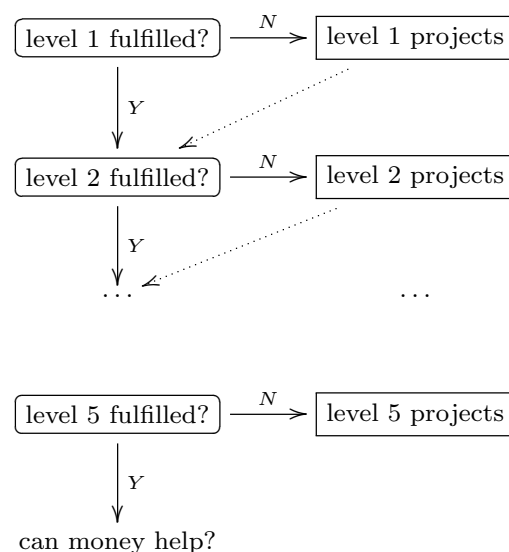


FIGURE: A scheme to fill in the need levels.



THE STEPS WITHIN TOIA (II)

“DEFINE PROJECTS” FRAMED

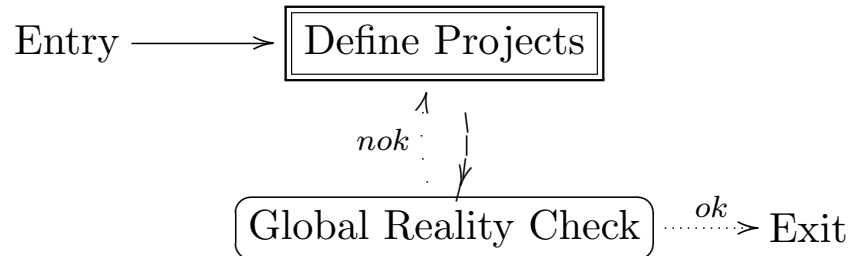


FIGURE: The basic scheme to get a set of realistic investment projects in appropriate proportions. The important “Define Projects” segment is Figure 12.



Part II

BEHAVIOURAL FINANCE



WHAT IS BEHAVIOURAL FINANCE?



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 - Market Efficiency and Limits to Arbitrage
 - Non Rational Choices
 - Beliefs
 - Heuristics
 - Preferences
 - What is Behavioural Finance NOT?
- 5 IMPROVING FINANCIAL ADVICE
 - How can BF Improve Financial Advice?
 - Don'ts
 - Do's
 - A Framework for Financial Advice
- 6 EXAMPLES FROM INVESTMENT PRACTICE
- 7 CONCLUSION



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EFFICIENT MARKETS

- Rational Approach: people make decisions
 - according to Expected Utility (EUT) or at least Subjective Expected Utility (Savage 1954)
 - and apply correctly Bayes Law
- Efficient Market Hypothesis (EMH)(Fama 1965) and (Fama 1970)
- Friedman (Friedman 1953): rational traders (arbitrageurs) will fast eliminate non-efficiencies created by irrational traders (noise traders)
- EMH together with EUT is an elegant, appealing and rational framework



ARE MARKETS EFFICIENT?

- However
 - prices are right \implies no free lunch
 - but ...
 - no free lunch \nRightarrow prices are right
- And ... exploiting inefficiencies can be both **risky** and **costly**



MARKET EFFICIENCY

- Behavioural Finance (BF), is the stance where some financial phenomena can be better understood, assuming that some agents are **not** (fully) rational
- Examples of behavioural models:
 - ① Adam Smith's Theory of Moral Sentiments (Smith 1759)
 - ② Keynes's beauty contest (Keynes 1936)
 - ③ Prospect Theory (Kahneman and Tversky 1979)
 - ④ Behavioural Portfolio Theory (Shefrin and Statman 2000)



LONG TERM CAPITAL MANAGEMENT (LTCM)

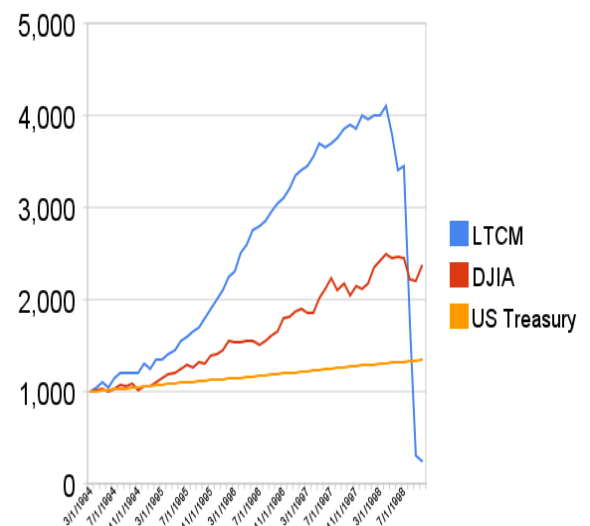
EXAMPLE 1: EXPLOITING INEFFICIENCIES CAN BE RISKY

- LTCM was a well known Hedge Fund with 3 well known partners with excellent reputation:
 - John Meriwether (Salomon Brothers)
 - Myron Scholes (Nobel Laureate)
 - Robert Merton (Nobel Laureate)
- consistent and very good performance between 1994 and 1997
- more than USD 7 Bln. assets by 12/97
- banks eager to lend to LTCM



LTCM IN 1998

- The assets decreased with 82%
- 9/98: the Federal Reserve Bank of NY organises privately funded rescue plan with 14 banks and brokers
- They raise \$3.6 bln. in exchange for 90% of LTCM's equity
- How was such a major disaster possible?



LTCM MADE RATIONAL BETS

THE PAIRS TRADES

- Royal Dutch Petroleum (RDP) and Shell Transport & Trading (STT) Both owned by Royal Dutch Shell
 - a DLC (Dual Listed Company)
 - 1998: a corporate charter linked the two companies by dividing the joint cash flows between them on a 60/40 basis
 - both shares quoted on the NYSE and the LSE
 - \Rightarrow Rational expectation: market cap of RDP = 1.5 market cap of STT
 - LTCM noticed that STT traded at a 8% discount
 - \Rightarrow pairs-trade: Long in STT and short in RDP
- but, the spread continued to widen ...
- and LTCM had to close its position at a spread of 22%
- of course there were also the swaps, equity volatility, emerging markets (Russia), etc. ...



OTHER RISKS RELATED TO EXPLOITING INEFFICIENCIES

- Systematic Risk
 - stock undervalued \Rightarrow buy it \Rightarrow you expose yourself to the risk of that stock and its industry
 - you could hedge your position by shorting a similar stock
 - but it will never be a perfect hedge, there is still the systematic risk
- Remaining Risks:
 - noise trader risk (De Long, Shleifer, Summers, and Waldmann 1990) and (Shleifer and Vishny 1997)
 - specific risk
 - systemic risk
 - Agent/Principal effect: the Principal will generally evaluate the Agent at short term returns (especially creditors)
 - forced liquidation of position increases the non-rational gap.



OTHER INHIBITORS

- bid-ask spread
- borrowing fee (for the short position)
- many important financial players are not allowed to take short positions (e.g. mutual funds, pension funds, ...)
- many investors or asset managers have simply other goals (index tracking, benchmark tilted, capital guaranteed, ...)



CONCLUSION FOR LIMITS TO ARBITRAGE

- Exploiting non-rational pricing can be
 - Risky
 - Costly
- \Rightarrow non rationalities **may** persist longer than the rational trader can stay liquid.
- \Rightarrow markets can during certain periods deviate from what we would expect via the EMH framework
- \Rightarrow riding the trend can be the rational thing to do ...
- and ... who knows the real price anyhow?



FURTHER EVIDENCE OF NON-RATIONALITIES IN FINANCIAL MARKETS

- The Tulipomania – Amsterdam, 1637 – (Mackay 1841)
- The South-Sea Bubble – LSE, 1720 – (Mackay 1841)
- Twin Shares – e.g. (Froot and Dabora 1999): STT and RDS
- Index Inclusions – e.g. (Harris and Gurel 1986) and (Shleifer 1986)
- Internet Carve-Outs – e.g. 3Com and Palm (March 2000) – (Lamont and Thaler 2003)



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ARE ONLY THE MARKETS INEFFICIENT?

- Markets can be at non-rational levels ...
- but can we at least hope that we, humans, see the world rational and make rational decisions based on our unbiased perception of the world?

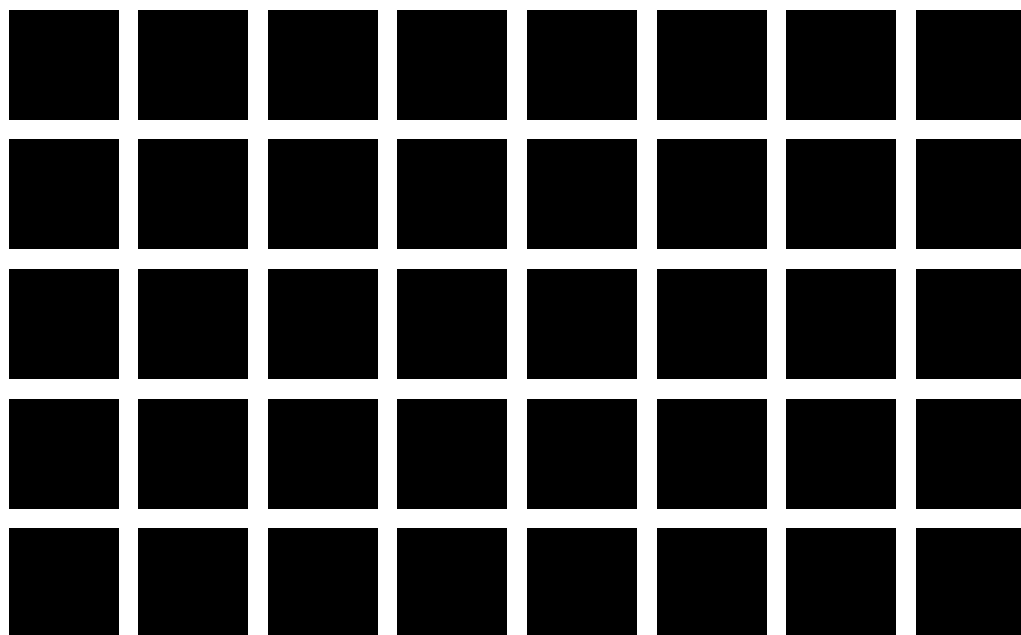
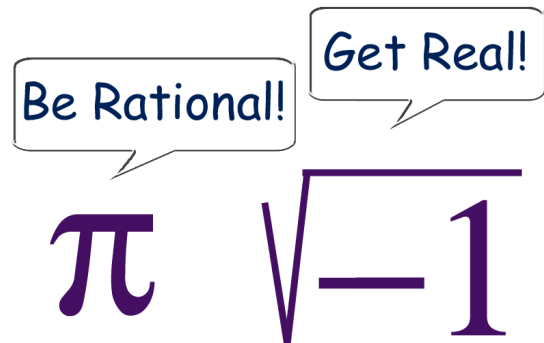


FIGURE: Gray dots appear at the intersection of the black squares (and if you focus on it, then it disappears, but others become visible).



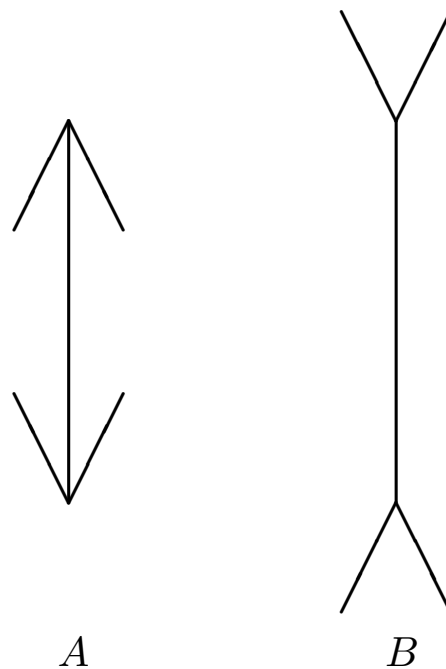


FIGURE: Which vertical line is longer? (only taking into account the vertical lines, not the arrows)



OVERCONFIDENCE

- When people give a 98% confidence interval, it contains only in 60% of the cases the true value – (Alpert and Raiffa 1982)
- When they say to be “certain”, then they are about 80% certain – (Fischhoff, Slovic, and Lichtenstein 1977)
- Related to:
 - hindsight bias
 - self attribution bias
 - optimism and wishful thinking: 90% of people believe to be over average in many common skills – (Weinstein 1980); and they generally are too optimistic in meeting deadlines – (Buehler, Griffin, and Moss 1994)



REPRESENTATIVENESS

- (Kahneman and Tversky 1974): “Linda is thirty-one years, single, outspoken and very bright. She majored in Philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in anti nuclear demonstrations.” – what is most probably:
 - ① Linda is a bank teller
 - ② Linda is a bank teller and is active in the feminist movement
- People tend to confuse “sounds like” with “is proof for”. Generally people act here in contradiction with Bayes’ law.
- Related to:
 - sample size neglect
 - hot-hand fallacy – (Gilovich, Vallone, and Tversky 1985)
 - the Law of Small Numbers – (Rabin 2002)
 - gamblers’ fallacy



BELIEF PERSEVERANCE

- Once people have formed their opinion, they stick to it too tightly and too long – (Lord, Ross, and Lepper 1979)
- Two effects:
 - ① people do not search for disconfirming evidence
 - ② if they find it anyhow, they treat it with excessive scepticism (i.e. they underreact to it)
- Related to:
 - Confirmation bias: people misinterpret disconfirming evidence as if it would support their beliefs
 - overconfidence
 - self-serving bias



ANCHORING

- When forming an estimate, people start from an initial (possibly) arbitrary value and then adjust ... but not enough – (Kahneman and Tversky 1974)
- Related to:
 - Availability Bias: people overestimate the value of the available information – (Kahneman and Tversky 1974)



FRAMING

Consider that you are participating in a game that consists out to two gambles: A and B, so choose an option in question A and B

A Choose an option.

- I a sure gain of € 2'400 [84%]
- II 25% chance to win € 10'000 and 75% chance to win nothing [16%]

B Choose an option.

- I a sure loss of € 7'500 [13%]
- II 75% chance to loose € 10'000 and 25% chance to loose nothing [87%]



FRAMING II

the results:

- ① $(A_i + B_i) = 100\%$ sure € 5'100 loss
- ② $(A_i + B_{ii}) = 75\%$ chance to loose € 7'600 and 25% to win € 2'400
- ③ $(A_{ii} + B_i) = 25\%$ chance to win € 2'500 and 75% chance to loose € 7'500
- ④ $(A_{ii} + B_{ii}) = 37.50\%$ chance on zero, 6.25% chance to win € 10'000, 56.25% chance to loose 10'000

→ In order to solve a problem, people break it down to small units and solve each of them overlooking correlations and interconnections – (Tversky and Kahneman 1981)



FRAMING III

Framing is a strong heuristic and leads to different other biases

- mental accounting
- consider gains and losses in stead of total wealth (consider each gamble separate)
- (and as a consequence) **loss aversion** (in stead of volatility aversion)
- labelling
- sunk cost fallacy
- loss aversion
- anchoring



HERDING BEHAVIOUR

- Assume that you're hungry and find two restaurants that only differ in name and in the number of guests: one is empty and the other is half full. Which restaurant would you choose?
- How hard is it to be the first to stand up and applaud after an opera that you particularly liked, or to remain seated when all are standing?
 - labelling



PREFERENCES – LABELLING

Which do you prefer?

A a junk bond

B a high-yield bond

Other Biasses:

- hyperbolic discounting
- money illusion



PREFERENCES – PROSPECT THEORY

see (Kahneman and Tversky 1979) and for “cumulative prospect theory”: (Tversky and Kahneman 1992)

- *Descriptive* theory to explain choices under uncertainty
- that allows for:
 - mental accounting – (Thaler 2000)
 - loss aversion
 - non linear probability transformation
 - acts per gamble



OUTLINE

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- 5 IMPROVING FINANCIAL ADVICE
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 - Don'ts
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- 7 CONCLUSION



WHAT IS BEHAVIOURAL FINANCE NOT?

- a normative theory(!)
- a portfolio selection method: so it is no replacement for Mean Variance (MV), CAPM and Safety First (SF)
- a sure way to beat markets (despite BAPT)
- (necessarily) in contradiction with EMH ...
- ... however a more complex model might be needed, for example the Adaptive Market Hypothesis (AMH) (Lo 2004)



IMPROVING FINANCIAL ADVICE



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HOW CAN BF HELP TO IMPROVE FINANCIAL ADVICE? I

- Realize that the investor is human ...and You too
- Look actively for the weak points of the plan before presenting it to the client (overconfidence)
- Does this particular solution fit in a bigger plan? (framing)
- Don't jump to conclusions, first listen
- So expect
 - to be judged in short term
 - to be judged post factum and with hindsight
 - to be judged by "hot hand fallacy" (so avoid advice that has to be repeated has a reasonable probability to be wrong)
- In communication
 - convince with "others do ..." (herd behavior)



HOW CAN BF HELP TO IMPROVE FINANCIAL ADVICE? II

- use the right label ("options on shares" are no good, "capital protection" is)
- use "sample size neglect" wisely (use it in communication, avoid it in reasoning)
- Realize that observations, reasoning and decision making are flawed by emotions, so have a process



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THE SEVEN DEADLY SINS OF THE INVESTOR

- 1 Inspired by:
 - Pope Gregory (590) and
 - Dante Alighieri (between 1308 and 1321)
- 2 The Seven Sins:
 - luxuria (extravagance)
 - gula (gluttony)
 - avaritia (avarice/greed)
 - acedia (acedia/discouragement)
 - ira (wrath)
 - invidia (envy)
 - superbia (pride)



7 SINS: LUXURIA (EXTRAVAGANCE)

INVESTING VIA A BROKER ACCOUNT AND TRADING TOO MUCH (ODEAN 1998)

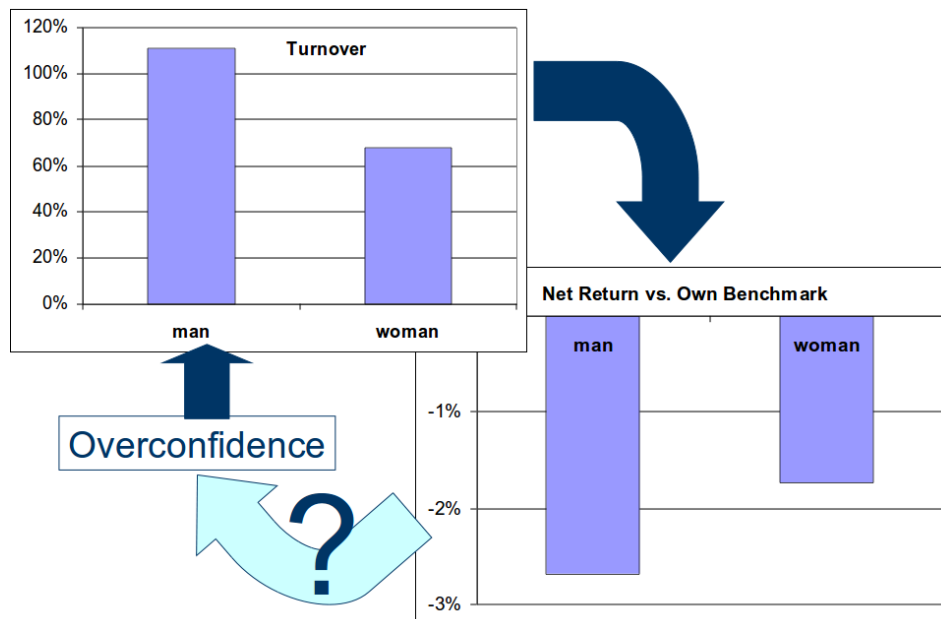


FIGURE: The effect of overconfidence



7 SINS: GULA (GLUTTONY)

CHASE BUBBLES

- Tulips, Internet, Emerging Markets, Real estate, ... bubbles happen
- gluttony is not the right motivation: the investment goal is
- “The characteristics of bubbles, manias and panics are well known, and should be fresh in the memory of anybody that has invested in the last decade. Bubbles are like teenagers , characterised by overconfidence, wild mood swings, irrational arguments that have the eerie ring of veracity, a predisposition to far too much information flow with little of real substance, and of course periodic outbreaks of irrational behaviour. Recognise these and you will recognise a bubble.” (Dowling and Lucey 2006)



7 SINS: AVARITIA (AVARICE/GREED)

FAIL TO DIVERSIFY BECAUSE OF GREED

- Technical analyses (e.g. follow trends) do not pay off ... although, motivated by greed we will continue to see those “occasions”
- Blinded by greed we cannot see the evidence, and remain convinced that the holy grail is there to be pickt up.
- Remember the joke with the \$100 note on the ground.
- Greed as motivator for investments (in stead of the investment goal) leads to narrow framing an narrow selection of holdings.
- (for the advisor) Inspiring investment advice on financial benefits (fees) ... is a short term solution.



7 SINS: ACEDIA (ACEDIA/DISCOURAGEMENT/SLOTH)

SELLING AT THE BOTTOM

- Mood swings and swings in risk aversion (enhanced by the lack of framework) lead to selling after a crash



FIGURE: Imagine the emotions in this ride.



7 SINS: IRA (WRATH)

JUDGE ON SHORT TERM

Wrath leads to

- selling at the bottom of the crisis.
- judging advisor, fund manager or fund on short term after an unlucky start
- If defined as by Thomas Aquinas: the putting aside of reason in pursuit of a chimerical passion, it leads also to insufficient diversification



7 SINS: INVIDIA (ENVY)

AND THEREFORE FOLLOW THE HERD

- When a bubble forms, more and more people invest, and the neighbor's stories incite envy
- “greater fool” investment strategy ...but be very careful (this has close resemblance with Ponzi schemes)



7 SINS: SUPERBIA (PRIDE)

LABELING / HOLDING ON TO LOSERS

- Holding on to losers too long (Shefrin and Statman 1985):
loss aversion and the inability to admit mistakes
- Choosing stock because of pride for a company (labelling)
- Self attribution bias
- Overconfidence



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Do's I

- Don't Sin
- ...and ...
- Dollar Cost Averaging (even if mathematically it has no sense) it avoids future regret and can avoid myopic judgement of the advice.
- Look for dis-confirming evidence
- Avoid myopic choices (match goals and investments, avoid monitoring at a too high pace and without the goal in mind)
- Avoid myopic extrapolation (trends, etc.), know that you're overconfident



Do's II

- Approach the investment problem via different angles (your's, the client's, his family, the investment goals, ... try to see the big picture) (avoid framing at analysis phase)
- Fall back to Mental Accounting to make sure that the problem becomes understandable for everyone involved. (use framing wise at the implementation phase)
- Taking all this into account is no hard science and errors will always be made: make a checklist from this presentation and use it from time when preparing the meeting and after the meeting evaluate.
- Read a good book on statistics and calculate yourself how many years of return would be sufficient to judge a fund manager.



Do's III

- Don't fool yourself in believing that you can calibrate yourself so that you would be free of behavioural biases
- Try to exclude emotions in financial decisions (of course emotions can be part of the goal setting!) by following a certain framework



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A FRAMEWORK FOR FINANCIAL ADVICE

TARGET ORIENTED INVESTMENT ADVICE (TOIA)

- Overall well being is the ultimate goal, financial investments only support this goal (they are not a goal in itself)
- One has multiple needs (that fit in the general framework of A.H. Maslow), each need deserves its own portfolio with its own risks parameters
- risk is relative to the investment target
- Needs change, so does utility and financial plans need to be revised regularly



EXAMPLES FROM INVESTMENT PRACTICE



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SOME EXAMPLES I

- buy more after market decline (“to reduce average purchase price”) ← loss aversion, overconfidence
- a portfolio of loser stocks ← loss aversion, overconfidence, affect heuristic
- home bias ← label effect, prefer the known ⇒ suboptimal diversification
- ...or home bias for the location of the private banker
- exclusive products for exclusive clients ← labelling ⇒ products that are generally less diversified with higher (fixed) costs and the same MtM
- bespoke products ← labelling, overconfidence ⇒ products that are less diversified with higher (fixed) costs and the same MtM



SOME EXAMPLES II

- complicated products ← labelling, overconfidence, (sometimes) loss aversion ⇒ investments with high costs, and proven mathematical inefficiency (e.g. (Bernard, Maj, and Vanduffel 2010) show that path dependency is not efficient)
- arguments such as “most people choose option A” ← works because of herding effect
- bubbles ← herd behaviour, greed, overconfidence, etc.
- crashes ← herd behaviour, fear, etc.



THE EMOTIONAL INVESTMENT LIFE CYCLE



FIGURE: The effect of all those biases from rational behaviour on our investment life cycle.



THE LIFE CYCLE OF A BUBBLE

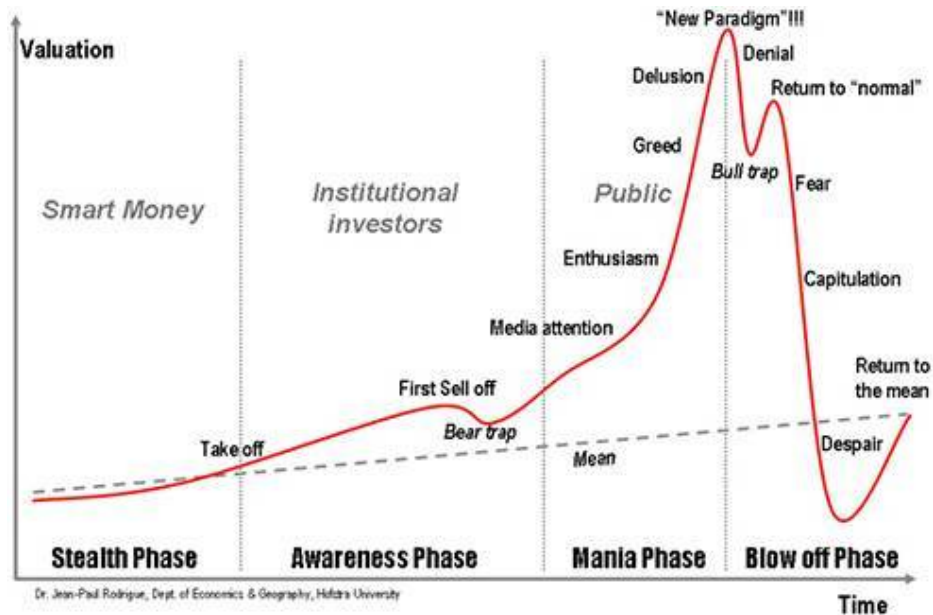


FIGURE: The life cycle of a bubble in financial markets.



THE TRUTH

Exhibit 1: The Skill-Luck Continuum

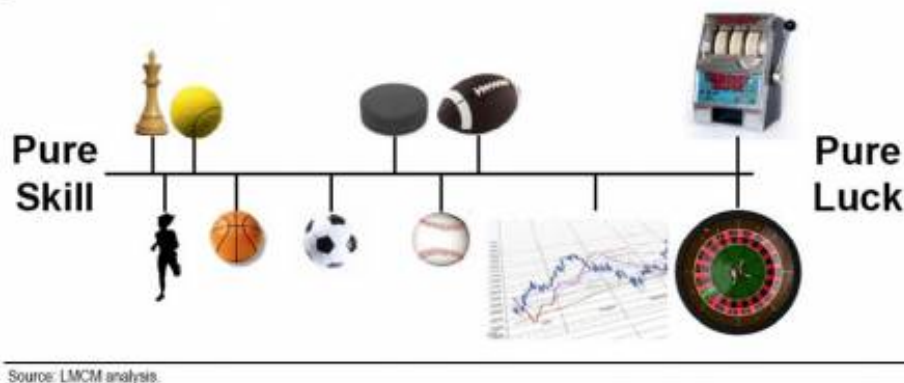


FIGURE: The truth about forecasting power in financial markets.



CONCLUSION



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CONCLUSIONS

- the Efficient Market Hypothesis is not dead
- but Behavioural Finance is real
- Understanding Behavioural Finance is understanding yourself and others ...
- ...and therefore helps in various ways
 - composing a portfolio
 - selecting a fund manager
 - understanding the fund manager
 - understanding the investor
- But Behavioural Finance is not a new normative framework ... Target Oriented Investment Advice is.
- Remember the seven deadly sins ... and avoid to sin.



THANKS

Thank you for your attention!

I happily take questions now or by email philippe@de-brouwer.com

Philippe De Brouwer



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ABOUT THE AUTHOR

Philippe De Brouwer

(42 y.o.), holds Master degrees in **Theoretical Physics** and **Applied Economics** (Commercial Engineering), and **prepares his PhD** in the domain of Behavioural Finance and portfolio theory.

He has a professional experience of 20 years and is active in asset management since 1996 (15 years). He joined Fortis Asset Management N.V. (Belgium) in 1996 and played a key role in the development of that company. Philippe *stood at the cradle of the capital guaranteed funds, then helped to structure the company and organized product development, facilitated international coordination, managed many cross business-line and cross country projects and finally managed hedge funds of funds, and became a specialist in behavioural finance, communication about risk and financial planning.*

In 2002 he joined KBC Asset Management N.V. and for that company he merged 4 daughter companies into one in Poland, and was many years *Chief Executive Officer* at KBC Towarzystwo Funduszy Inwestycyjnych S.A. (Poland). During that period (2005–2009) he drove his team to grow market share by 35%, while reducing the costs relative to the assets under management. Then (still in the same group) he became *Executive Director and Member of the Board* of Eperon Asset Management Ltd (Ireland) that manages over 30 Bln.€, where he is CFO, COO and supervises 17 Bln.€ in structured funds. Philippe holds simultaneously a board mandate in Archipel Fund Plc and KBC Live Fund Management Ltd.

Philippe welcomes communication at philippe@de-brouwer.com



NOMENCLATURE I

R	the stochastic vector of returns, page 29
\mathbb{V}	the set of all stochastic variables –that describe a portfolio's return or value, page 23
μ	the average or expected value of a stochastic variable X , page 11
$\rho(X)$	the risk measure applied on the variable X , page 23
$f_X(t)$	the probability density function of a continuous distribution of a stochastic variable X , page 11
i	counter, page 11
X_τ	Target Return, page 23
AMH	Adaptive Market Hypothesis – (Lo 2004), page 77
BAPT	Behavioural Asset Pricing Theory, page 77
BF	Behavioural Finance, page 53
CAPM	Capital Asset Pricing Method, page 39
DLC	Dual Listed Company, page 57



NOMENCLATURE II

EMH	Efficient Market Hypothesis, page 51
ES	Expected Shortfall, page 15
EUT	Expected Utility Theory, page 51
LSE	London Stock Exchange, page 57
LTCM	Long Term Capital Management (hedge fund), page 55
MtM	Marked to Market, page 101
MV	Mean Variance – (Markowitz 1952), page 35
NYSE	New York Stock Exchange, page 57
RDP	Royal Dutch Petroleum, page 57
SEUT	Subjective Expected Utility Theory, page 51
SF	Safety First – (Roy 1952), page 41
STT	Shell Transport and Trading, page 57
TOIA	Target Oriented Investment Advice, page 97
VAR	variance, page 11
VaR	Value at Risk, page 13

