The relevance of MCDM for financial decisions and performance evaluation

Part 1. Why Multiple Goals in Finance

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0. Why multiple goals in finance

Contents Part 1

1. What is a goal?
2. What is finance?
3. Average versus Non-Average Decision Makers
4. Decision Making & Performance Evaluation
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6. Conclusions
1. What is a goal?
1. What is a goal?

1. What is a goal?

- Desired situation
- Described in terms of goal variables
- And in terms of desired goal values (max, min, target, target range, etc.)

What is a criterion?

What is an objective function?

Desirability of goal values
1. What is a goal?

- Desired situation
- Described in terms of goal variables
- And in terms of desired goal values (max, min, target, target range, etc.)
Sometimes, one knows an exact relation between goal variable(s) and instrumental variables such that an objective function can be defined.

In a lot of economics, management science and operational research we assume such relations exist!!

We’ll come back to this issue at the end of the presentation
In Finance, we usually assume a *single goal*, e.g. the maximization of the value of the shares of the current shareholders or the maximization of expected utility.

Sometimes, maximization is *subject to constraints* (which then have absolute priority over the ‘single’ goal).
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2. What is finance?

Bodie & Merton:

“Finance is valuation, risk management and optimization”
2. What is finance?

...optimization under uncertainty is not easy ... :
2. What is finance?  

**Domains and approaches**

**Academic approaches**

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<th>Practice</th>
<th>dm/pe</th>
<th>empirics</th>
<th>theory</th>
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<td>Financial Investment</td>
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2. What is finance? Integration needed!!!

**Academic approaches**

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2. What is finance?

Finance research focus over the decades

- **Seminal**: narrative descriptive finance
  restrictive focus on instruments / institutions
  institutional decision context
- **1950s**: finance as decision science
  Markowitz’ Portfolio Theory
- **1960-70s**: OR ramification of fin.economic decision problems
  OR techniques
- **1975 ff**: sophisticated econometric descriptive finance
  statistical behavior of financial market prices
  outcomes of aggregate decisions

To what extent can insights from descriptive finance
serve as guidelines for financial decisions in practice?
2. What is finance?

To what extent can insights from descriptive finance serve as guidelines for financial decisions in practice?

- Depends on validity of assumptions wrt ‘average’ actors and wrt functioning markets and wrt ‘context’ in general for the actual ‘non-average’ actors and their context.

- Sometimes the distance between average and non-average is not so big. Then theory may become very powerful: Look for instance at the success of Option Pricing Theory!
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3. Average Decision Makers (Descriptive modelling)

introducing….:

the representative decision maker!
3. Average Decision Makers
3. Average Decision Makers

- self-interested behavior, non-satiation
- efficient market hypothesis
- time preference
- risk aversion
- diversification
- risk-return trade-off

- no-arbitrage: exclude sure profits at no cost:
  normative portfolio revision
- equilibrium: market clearing:
  descriptive portfolio composition
3. Non-Average Decision Makers

- common denominators, but
- each decision situation requires a specific tailored solution:
3. Non-Average Decision Makers
3. Non-Average Decision Makers

Expected utility maximizing homo economicus?

• set of choice alternatives:
  not fixed / dynamic / constraints

• description of choice alternatives:
  multiple attributes / representation of uncertainty
  incomplete information / limited data processing
  may change by learning

• representation of preference structure:
  may change over time / by learning

• decision criterion:
  satisficing / attainable result
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6. Conclusions
In addition to the usual Theoretical Cycle (above) there is a Decision Making – Performance Evaluation Cycle (following slide)
Problem definition (awareness & identification)

(Problem description)
“Local Theory” on this problem

“Filling” of model with data/estimates

Use of box of decision tools

Resolution/Conclusion

INPUT FROM

- Financial Theory
- Other Theories
- Common Sense
- Intuition

Figure:
The Decision Making – Performance Evaluation Cycle
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5. Why multiple goals in finance

A. The Firm
B. The Investor
C. (Risk Management)
5. Why multiple goals in finance: The firm

**Neo-classical view**

- Shareholders (= owners)
  - Because of their property rights the shareholders are entitled to determine the firm’s objectives
  - The only goal of the shareholders is to maximize financial wealth
  - The firm’s only goal is to maximize its contribution to the wealth of the shareholders

- This view is embedded in large framework of stylized thinking in economics and law: (general equilibrium, property rights theory, limited liability shareholders, etc.).

- However, the societal impact of the firm and its governance structure is a growing topic of debate and discussion.
5. Why multiple goals in finance: The firm

- Assume only ONE party entitled to decide on the firm’s goals
  - Consent on goal(s)
    - Wealth maximization as single goal
      - So no multiple goals?? (see following slide)
  - Decision problems with multiple goals

- Assume multiple parties entitled to decide on the firm’s goals
  - Conflicting goals
    - Wealth maximization and other goals, possibly including policy constraints
    - Decision problems with multiple goals and multiple actors
5. Why multiple goals in finance: The firm

- Assume only ONE party entitled to decide on the firm’s goals
- Consent on goal: Wealth maximization as single goal
- So no multiple goals??

<table>
<thead>
<tr>
<th>Provided:</th>
<th>claims well defined</th>
<th>Provided: clear picture of cash flows</th>
<th>Provided: financial markets as benchmark</th>
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<tr>
<td>If not, possibility of games:</td>
<td>your results depends on decisions by others, internal &amp; external</td>
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<td>Provided:</td>
<td>If not, often multiple risk measures e.g. exposure estimates</td>
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<tr>
<td>Provided:</td>
<td>If not, individual decision context or market circumstances may bring more goals</td>
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Otherwise: Decision problems with multiple goals!
5. Why multiple goals in finance: The investor

The case for a single goal:

**Neo-classical finance:** Maximize expected utility with utility defined in terms of future wealth or holding period return and the utility function is confronted with the probability distribution of future investment returns.

**Markowitz** Equates risk with variability of portfolio returns, which is then measures by (co-) variance or standard deviation.

**Assuming** Quadratic utility and/or specific characteristics of the pdf’s.
5. Why multiple goals in finance: The investor

Reasons for multiple goals

• Distinguish between downside risk and upside potential
  (‘a matter of taste’, asymmetric return distributions)

• Returns may be viewed as being generated by several underlying state variables. One may then want to use multidimensional risk profiles composed of the sensitivities for unexpected changes in these state variables

• Personal decision context, e.g. tax or liquidity considerations

• ‘Stylish’ attributes, such as firm size. P/E, B/P, CF/P, etc.

• Asset allocation issues such as country or region, industry, etc.
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- Most problems in finance involve multiple goals
- Often there are no easy solutions: (in)(visible) (hand)(icap)
- Decision makers are confronted with dynamic goal complex
- Limitations of goals-instruments thinking
- Modern decision and performance evaluation technologies have a lot to offer – and so do many insights from financial theory and from empirical studies

- **However:**
  There is a lot to win by integrating these approaches!

- Decision makers do and have to take positions.
Call for integration
The Office of the future?
But there is hope!
ETHICS ARE HOT-BUY ETHICS!
I still say it was cruel and unusual punishment to force my accountant to calculate my sentence using the same formula he used to calculate our company's profits.