



Mock Exams Behavioral Finance (MSc)

Winter Term 2010/11

(no answers will be provided)

For the following four questions you have 60 minutes. You may receive up to 60 points, i.e. on average you should spend about 1 minute per point. At first, you will have the opportunity to silently read the exam questions for five minutes before the exam begins. Do not start writing during this time.

Instructions:

- Please check first that you have received **4 numbered pages** including the cover page.
- Please write your name and student ID on this cover page and all answer sheets.
- You may only use a pocket calculator that has no option to put text in the memory.
- You may answer all questions either in German or in English. Within one of the four main questions, you should not switch languages.
- Calculate with four digits after the decimal point.
- Please write in a legible way!

Good luck!

Name:

Student ID:

Field of Study:



1. Bayesian Updating

15 points

- (a) What are informational cascades? You may use an example, too. (2 points)
- (b) Why can the observed error rates at position I (θ, ϵ) not explain the predictions at position II (A_1, b_w)? Why does the underlying assumption imply overconfidence? (5 points)
- (c) Sequential decision making – prediction of A or B:
- $p(A) = 1 - p(B) = 0.6$
 - $p(a|A) = 0.7 = 1 - p(b|A)$
 - $p(b|B) = 0.8 = 1 - p(a|B)$
 - position I: $p(A|a) = ? \wedge p(B|b) = ?$
 - position II: $p(A|A_1, b) = ? \wedge p(B|B_1, a) = ?$
⇒ Please provide the prediction in all four situations as well.

(8 points)

2. Judgement biases

15 points

- (a) Please define and explain anchoring and adjustment effects. 3 points
- (b) What is loss aversion? Please explain why loss aversion can explain behavior with respect to the Samuelson lottery. 2 points
- (c) Please define the disposition effect. Explain its relation to the prospect theory. 5 points
- (d) Please explain how Weber/Camerer (1998) try to control for the disposition effect. Explain also whether and why their approach is effective or ineffective. 5 points



3. Overreaction: DeBondt/Thaler JF 1985/87

15 points

Table I

Average Monthly Excess Returns of Long-term Winners and Losers for Varying Periods

A: Formation Period

Period	Winners				Losers			
	All Months	Jan.	Feb.–Sept.	Oct.–Dec.	All Months	Jan.	Feb.–Sept.	Oct.–Dec.
$t - 4, t$	2.7	4.5	2.6	2.3	-2.1	-.5	-2.1	-2.6
$t - 4, t - 2$	2.7	5.6	2.6	2.1	-2.0	-1.8	-2.0	-2.2
$t - 1, t$	2.6	3.0	2.6	2.7	-2.1	1.6	-2.1	-3.3

B: Test Period

Period	Winners				Losers			
	All Months	Jan.	Feb.–Sept.	Oct.–Dec.	All Months	Jan.	Feb.–Sept.	Oct.–Dec.
$t + 1, t + 5$	-.2	-.8	-.3	0.0	.6	5.0	.4	-.4
$t + 1, t + 3$	-.3	-1.3	-.3	.1	.7	6.1	.5	-.5
$t + 4, t + 5$	-.1	-.1	-.1	-.1	.3	3.3	.1	-.3

Note: All entries in the table are average market-adjusted excess returns (in percent) where the return on the market portfolio is measured by an equally-weighted index of all stocks listed on the NYSE, as provided by CRSP. They are based on 2400 observations. See Section I.A for details. Year t represents the last year of the formation period.

source: DeBondt & Thaler (1987), average monthly excess returns of winners & losers, table 1, p. 561

- (a) Describe the trading strategy and how the portfolios are constructed. 6 points
- (b) Describe the main results for winners and losers (*all months/January*) (see table). 5 points
- (c) Why are zero-cost portfolios not necessarily zero-beta portfolios? 4 points



4. Soft Paternalism: Benartzi/Thaler JPE 2004

15 points

TABLE 6
MEDIAN INCOME REPLACEMENT RATIOS (%)

Table with 5 columns: INCOME, AGE (25, 35, 45, 55). Rows are categorized into A. Pre-SMaRT and B. Post-SMaRT with income levels of \$25,000, \$50,000, and \$75,000.

NOTE.—The table displays the median income replacement ratios for different age and income profiles, using investment advice software by Financial Engines. The projections are based on the following assumptions: no defined-benefit pension, statutory social security benefits, employee saving rate of 4 percent before SMaRT and 14 percent thereafter, employer match of 50 cents on the dollar up to 6 percent, portfolio mix of 60 percent stocks and 40 percent bonds, and retirement age of 65.

Thaler/Benartzi (2004): Table 6, p. S182.

- (a) Please describe the main goal and the main features of the SMaRT program. 5 points
(b) Describe and explain the main result of the SMaRT program. 5 points
(c) Describe and explain the Median Income Replacement Ratios for different age and income groups. What are the main effects (see table)? 5 points



solution for question 1c

Sequential decision making – prediction of A or B:

- $p(A) = 1 - p(B) = 0.6$
- $p(a|A) = 0.7 = 1 - p(b|A)$
- $p(b|B) = 0.8 = 1 - p(a|B)$
- position I: $p(A|a) = ? \wedge p(B|b) = ?$
- position II: $p(A|A_1, b) = ? \wedge p(B|B_1, a) = ?$
⇒ Please provide the prediction in all four situations as well.

$$p(A|a) = \frac{0.6 \cdot 0.7}{0.6 \cdot 0.7 + 0.4 \cdot 0.2} = 0.84 = p(A|A_1) > 0.6 = p(A) \Rightarrow A$$

$$p(B|b) = \frac{0.4 \cdot 0.8}{0.4 \cdot 0.8 + 0.6 \cdot 0.3} = 0.64 = p(B|B_1) > 0.4 = p(B) \Rightarrow B$$

$$p(A|A_1, b) = \frac{0.6 \cdot 0.3 \cdot 0.84}{0.6 \cdot 0.3 \cdot 0.84 + 0.4 \cdot 0.8 \cdot 0.16} = 0.747 \Rightarrow A$$

$$p(B|B_1, a) = \frac{0.4 \cdot 0.2 \cdot 0.64}{0.4 \cdot 0.2 \cdot 0.64 + 0.6 \cdot 0.7 \cdot 0.36} = 0.253 = 1 - p(A|B_1, a) \Rightarrow A$$

(Note that $p(A|B_1, a) = 0.747 > 0.6$)

also useful:

$$p(A|b) = \frac{0.6 \cdot 0.3}{0.6 \cdot 0.3 + 0.4 \cdot 0.8} = 0.36 = p(A|B_1)$$

$$p(B|a) = \frac{0.4 \cdot 0.2}{0.4 \cdot 0.2 + 0.6 \cdot 0.7} = 0.16 = p(B|A_1)$$