On the provision of incentives in finance experiments.

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May 29, 2017

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1 Calculation of price efficiency measures

Table WA1: Price efficiency measures and formulae.

Measure	**Calculation**
Relative absolute deviation	$\text{RAD} = \frac{1}{N}\sum_{p=1}^{N} \lvert\overline{P_p} - \text{BBV}_p\rvert / \overline{\lvert\text{BBV}\rvert}$
Bid-ask spread	$\text{SPREAD} = \frac{1}{N}\sum_{p=1}^{N} \text{SPREAD}_p/\text{BBV}_p.$
Share turnover	$\text{ST} = \sum_{p=1}^{N} \text{VOL}_p/\text{TSO}$
Standard deviation of log returns	$\text{VOLA} = \frac{1}{N}\sum_{p=1}^{N} \sqrt{\frac{1}{T-1}\sum_{t=1}^{T}(\text{RET}_t - \overline{\text{RET}})^2}$

Notes: p indexes period; N = total number of periods; $\overline{P}$ = (volume-weighted) mean price; BBV = buy-back value; $\overline{\text{BBV}}$ = average buy-back value of the market; SPREAD = (volume-weighted) average bid-ask spread evaluated at each transaction; VOL = number of shared traded; TOS = total number of shares outstanding; $\text{RET}_t = ln(P_t/P_{t-1})$; $\overline{\text{RET}}$ = mean of log-returns in period p; T = number of transactions in period p; $\overline{\text{P}_\text{M}}$ = mean price in period p over all markets of a treatment.

2 Additional information for PRICE

In Figure WA1, we show the evolution of transaction prices for each of the six independent sessions (mean transaction prices by period in thin grey lines) and the buy-back value (black line) for the four incentive schemes. The thick black line with hollow circular markers is the average of six sessions in each panel.

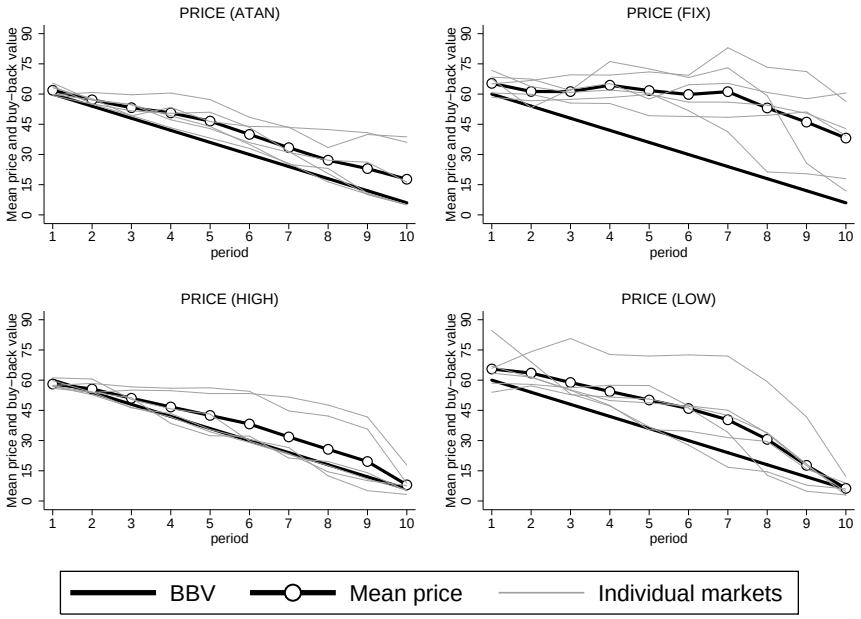


Figure WA1: Buy-back value (BBV, bold line), mean prices (bold line with circles) and volume-weighted mean prices for individual markets (grey lines) as a function of period of ATAN (top left), FIX (top right), HIGH (bottom left), and LOW (bottom right).

In Table WA2 we provide details on individual market results for each price performance measure in experiment PRICE.

Table WA2: Individual market results in experiment PRICE.

Treatment	Market	RAD	SPREAD	VOLA	ST
ATAN	1	4.7%	9.7%	7.1%	2.77
	2	17.8%	19.8%	17.1%	1.17
	3	22.4%	22.5%	13.6%	1.93
	4	42.2%	101.0%	27.0%	1.94
	5	54.4%	14.0%	2.9%	1.70
	6	11.7%	22.0%	16.7%	2.13
Mean		25.5%	31.5%	14.0%	1.94
FIX	1	56.9%	41.5%	5.7%	1.47
	2	42.9%	50.2%	21.9%	1.76
	3	77.1%	99.0%	36.4%	2.49
	4	110.6%	63.5%	11.3%	1.58
	5	67.7%	39.5%	3.7%	1.53
	6	86.8%	68.8%	12.8%	2.47
Mean		73.7%	60.4%	15.3%	1.88
HIGH	1	8.8%	134.0%	6.2%	1.48
	2	49.5%	77.9%	18.6%	2.24
	3	6.1%	27.2%	14.1%	3.34
	4	3.5%	20.9%	8.5%	1.30
	5	44.2%	50.2%	7.7%	2.92
	6	7.5%	16.1%	19.4%	2.13
Mean		19.9%	54.4%	12.4%	2.23
LOW	1	17.5%	37.1%	18.8%	0.82
	2	20.6%	30.2%	10.9%	1.05
	3	88.8%	80.1%	15.2%	2.04
	4	24.2%	20.1%	8.4%	1.20
	5	30.3%	33.8%	14.9%	2.21
	6	33.7%	47.3%	16.4%	2.80
Mean		35.9%	41.4%	14.1%	1.69

3 Additional information for INFO

In Figure WA2 we plot individual transaction prices for each market as well as information received by subjects (treatments ATAN (top panels) and FIX (bottom panels)). In Figure WA3 we plot individual transaction prices for each market as well as information received by subjects (treatments HIGH (top panels) and LOW (bottom panels)). In Table WA3 we show the realized BBV per market and individual market results for RAD, SPREAD, VOLA, and ST.

Looking at Table WA3, one recognizes that Asset #5 (#4) always yields the highest (lowest) RAD value in each cohort and each treatment with the exception of cohort 3 (1) in LOW (ATAN) where it has the second highest (lowest) value. This remarkable difference emerges although assets #4 and #5 are fairly similar (see Table 2 in the main text for parameters). The reason behind the observed tendency in RAD is that one of the three possible dividend payments was randomly selected for each asset. Remember that the other two dividends constituted the information set to the two trader groups. For asset #4 the middle dividend payment was randomly drawn which favors a low RAD as it is obviously easier for subjects to coordinate on the "inside" dividend. For asset #5, however, the lowest possible dividend was randomly drawn. This selection explains the high RAD for this asset because it is more difficult for subjects to coordinate on an "outside" dividend payment.

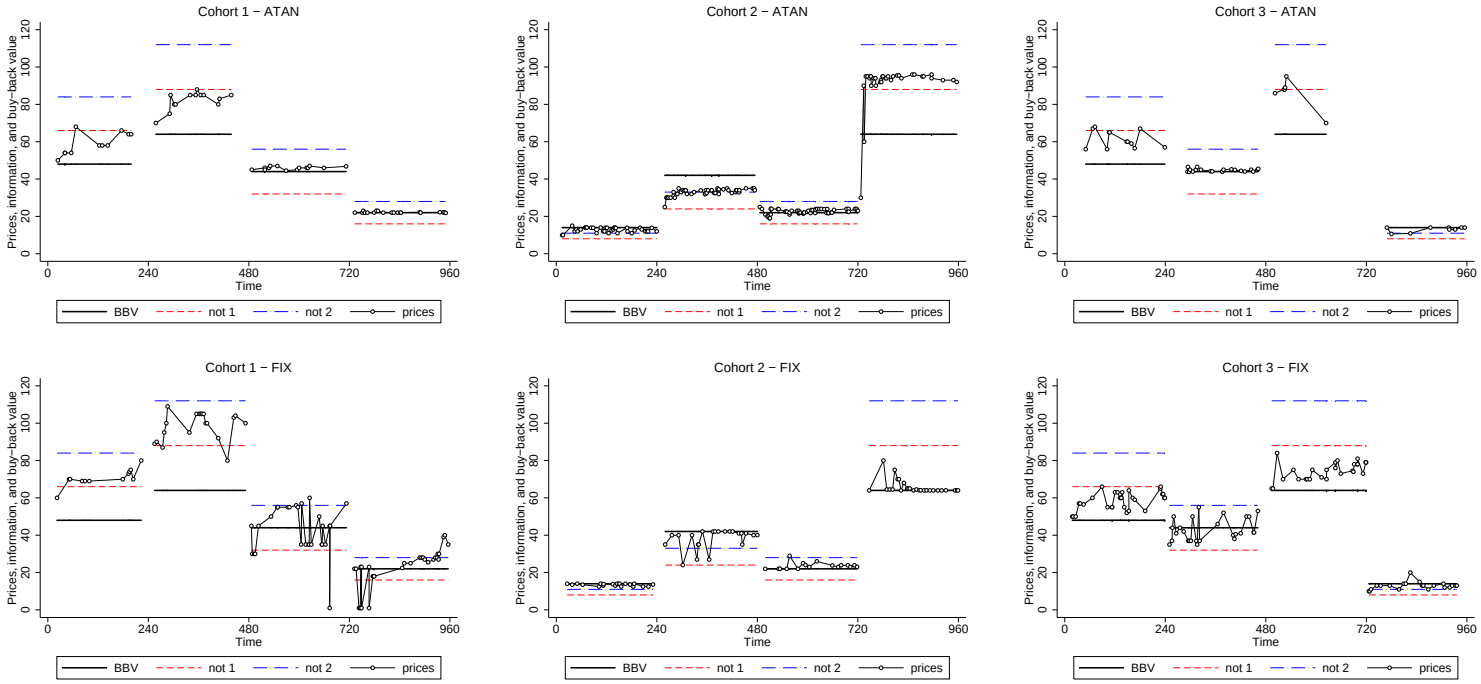


Figure WA2: Buy-back value (BBV, bold black line), individual transaction prices (hollow circles with black line), and information received by subjects (not 1, red short-dashed line, excluded dividend payment for first group; not 2 blue long-dashed line, excluded dividend payment for second group) conditional on time for each market in INFO and treatments HIGH (upper panels) and LOW (lower panels). One period in the experiment lasted for 240 seconds.

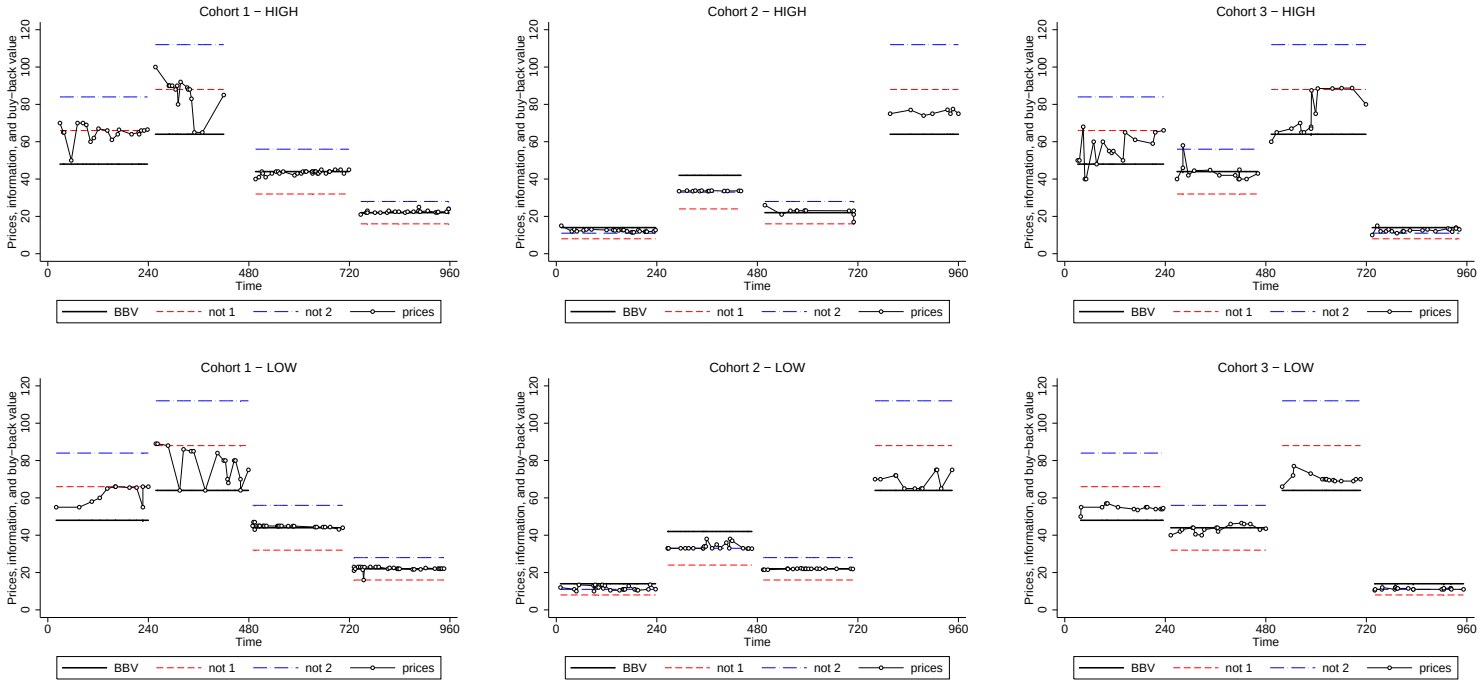


Figure WA3: Buy-back value (BBV, bold black line), individual transaction prices (hollow circles with black line), and information received by subjects (not 1, red short-dashed line, excluded dividend payment for first group; not 2 blue long-dashed line, excluded dividend payment for second group) conditional on time for each market in INFO and treatments HIGH (upper panels) and LOW (lower panels). One period in the experiment lasted for 240 seconds.

Table WA3: Individual market results per period in INFO.

Treatment	Cohort	Period	Asset #	BBV	RAD	SPREAD	VOLA	ST
ATAN	1	1	5	48 (L)	21.9%	29.2%	10.3%	0.47
	1	2	6	64 (L)	30.0%	19.6%	5.4%	0.50
	1	3	4	44 (M)	3.9%	4.1%	2.2%	0.54
	1	4	2	22 (M)	0.9%	5.5%	2.2%	0.51
	2	1	1	14 (H)	11.4%	18.2%	14.2%	0.48
	2	2	3	42 (H)	21.4%	3.7%	4.9%	0.62
	2	3	2	22 (M)	3.2%	11.1%	5.0%	0.78
	2	4	6	64 (L)	39.2%	16.5%	22.1%	0.53
	3	1	5	48 (L)	29.8%	33.5%	12.5%	0.18
	3	2	4	44 (M)	2.0%	5.5%	2.7%	0.33
	3	3	6	64 (L)	36.1%	31.2%	15.0%	0.14
	3	4	1	14 (H)	5.8%	27.1%	14.7%	0.13
Mean					17.2%	17.1%	9.3%	0.43
FIX	1	1	5	48 (L)	47.5%	22.9%	6.4%	0.32
	1	2	6	64 (L)	47.3%	44.2%	9.1%	0.36
	1	3	4	44 (M)	2.3%	6.7%	105.9%	0.75
	1	4	2	22 (M)	9.7%	17.4%	145.1%	0.75
	2	1	1	14 (H)	3.4%	20.7%	7.4%	0.39
	2	2	3	42 (H)	9.0%	19.5%	24.8%	0.33
	2	3	2	22 (M)	5.5%	32.5%	11.6%	0.38
	2	4	6	64 (L)	1.6%	10.1%	7.4%	0.36
	3	1	5	48 (L)	22.5%	23.7%	9.5%	0.66
	3	2	4	44 (M)	2.6%	25.2%	19.6%	0.67
	3	3	6	64 (L)	14.7%	20.4%	8.0%	0.60
	3	4	1	14 (H)	6.5%	80.3%	15.3%	0.40
					14.4%	27.0%	30.8%	0.50
HIGH	1	1	5	48 (L)	37.2%	26.5%	11.2%	0.39
	1	2	6	64 (L)	37.6%	26.1%	11.3%	0.36
	1	3	4	44 (M)	2.0%	6.5%	2.8%	0.71
	1	4	2	22 (M)	2.4%	9.2%	4.0%	0.49
	2	1	1	14 (H)	10.2%	10.0%	6.2%	0.50
	2	2	3	42 (H)	19.9%	1.4%	0.7%	0.42
	2	3	2	22 (M)	3.2%	28.3%	9.9%	0.41
	2	4	6	64 (L)	18.9%	17.0%	3.2%	0.28
	3	1	5	48 (L)	18.2%	44.9%	22.2%	0.37
	3	2	4	44 (M)	1.5%	13.7%	14.1%	0.56
	3	3	6	64 (L)	16.8%	32.5%	10.5%	0.34
	3	4	1	14 (H)	9.0%	16.3%	13.2%	0.32
Mean					14.7%	19.4%	9.1%	0.43
LOW	1	1	5	48 (L)	30.3%	22.3%	8.6%	0.18
	1	2	6	64 (L)	22.4%	30.7%	16.6%	0.29
	1	3	4	44 (M)	1.3%	4.4%	3.1%	0.50
	1	4	2	22 (M)	2.4%	15.5%	9.4%	0.64
	2	1	1	14 (H)	17.4%	21.1%	14.5%	0.48
	2	2	3	42 (H)	20.4%	20.7%	6.5%	0.38
	2	3	2	22 (M)	0.6%	4.0%	0.9%	0.48
	2	4	6	64 (L)	7.1%	25.5%	8.5%	0.28
	3	1	5	48 (L)	13.1%	7.3%	3.3%	0.54
	3	2	4	44 (M)	2.4%	13.3%	4.6%	0.53
	3	3	6	64 (L)	9.3%	7.2%	3.6%	0.51
	3	4	1	14 (H)	20.1%	5.5%	4.8%	0.72
Mean					12.2%	14.8%	7.0%	0.46

Notes: L, M, and H indicate that the low, middle, or high dividend was realized.

4 Additional information for INVEST

In Figure WA4 we plot mean investment rates per treatment (bold line with circles) and individual investment rates per session (grey lines) conditional on period for ATAN (top left), FIX (top right), HIGH (bottom left), and LOW (bottom right).

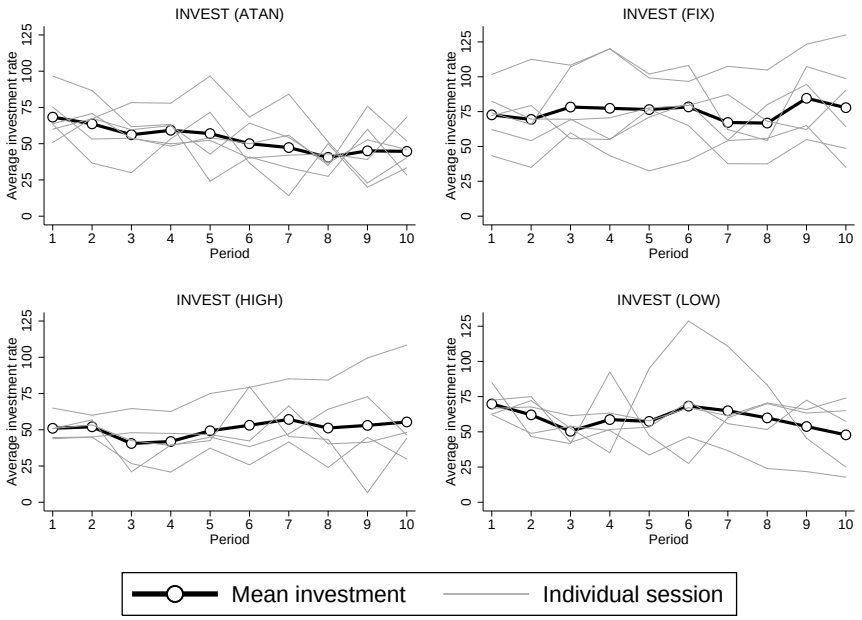


Figure WA4: Mean investment rate per treatment (bold line with circles) and individual investment rates per session (grey lines) conditional on period for ATAN (top left), FIX (top right), HIGH (bottom left), and LOW (bottom right).

5 Subject pool descriptives

Here, we provide information on subject demographics by experiment and incentive scheme (Table WA4 and on the level of experience by incentive scheme (Figure WA5, upper figure) and by experiment (Figure WA5, lower figure).

Table WA4: Subject demographics by experiment and incentive scheme. Standard deviations are in parentheses. P-values are from Kruskal-Wallis-tests of differences between treatments.

COMBINED (N=480)	ATAN	FIX	HIGH	LOW	p-value
Female (%)	49.7 (0.5)	37.5 (0.5)	48.3 (0.5)	54.2 (0.5)	0.1506
Age	23.5 (3.4)	23.9 (3.6)	24.3 (5.7)	24.0 (4.7)	0.7735
Years of Study	3.4 (2.1)	3.7 (2.2)	3.9 (2.6)	3.7 (2.2)	0.7328
Risk attitude general	2.8 (1.4)	2.5 (1.3)	2.6 (1.3)	2.9 (1.3)	0.2750
Risk attitude investments	2.2 (1.4)	2.1 (1.3)	2.2 (1.4)	2.3 (1.5)	0.9042
ECON students (%)	62.5 (0.5)	50.8 (0.5)	57.5 (0.5)	58.3 (0.5)	0.4729
PRICE (N=192)	ATAN	FIX	HIGH	LOW	p-value
Female (%)	56.5 (0.5)	39.6 (0.5)	62.5 (0.5)	56.5 (0.5)	0.2457
Age	24.0 (3.1)	24.2 (4.2)	24.1 (4.1)	24.4 (4.4)	0.9992
Years of study	3.8 (2.1)	3.9 (2.2)	4.1 (2.2)	3.4 (2.1)	0.4832
Risk attitude general	2.7 (1.3)	2.3 (1.4)	2.8 (1.3)	2.7 (1.4)	0.3043
Risk attitude investments	2.4 (1.3)	1.8 (1.3)	2.2 (1.2)	2.3 (1.6)	0.1814
ECON students (%)	66.7 (0.5)	41.7 (0.5)	56.5 (0.5)	54.2 (0.5)	0.2102
INFO (N=96)	ATAN	FIX	HIGH	LOW	p-value
Female (%)	58.3 (0.5)	41.7 (0.5)	50.0 (0.5)	70.1 (0.5)	0.3464
Age	23.9 (4.1)	23.2 (3.2)	26.2 (10.4)	23.7 (3.5)	0.5402
Years of study	3.3 (1.8)	3.1 (1.9)	2.8 (2.4)	4.1 (2.4)	0.1832
Risk attitude general	2.6 (1.4)	2.5 (1.2)	1.3 (1.8)	2.8 (1.3)	0.7986
Risk attitude investments	1.8 (1.6)	2.1 (1.4)	1.8 (1.4)	2.2 (1.3)	0.6426
ECON students (%)	41.6 (0.5)	54.7 (0.5)	62.5 (0.5)	58.3 (0.5)	0.6299
INVEST (N=192)	ATAN	FIX	HIGH	LOW	p-value
Female (%)	37.5 (0.5)	33.3 (0.5)	33.3 (0.5)	43.6 (0.5)	0.7912
Age	22.7 (3.3)	23.8 (3.0)	23.5 (3.1)	23.7 (5.4)	0.3961
Years of study	3.1 (2.3)	3.8 (2.4)	3.3 (2.7)	3.6 (2.4)	0.5115
Risk attitude general	2.9 (1.6)	2.8 (1.3)	2.5 (1.4)	3.1 (1.3)	0.2394
Risk attitude investments	2.2 (1.4)	2.4 (1.3)	2.2 (1.5)	2.3 (1.4)	0.7717
ECON students (%)	68.6 (0.5)	58.3 (0.5)	56.3 (0.5)	62.5 (0.5)	0.7278

Notes: *Female* represents the percentage share of participating female subjects; *Age* is subjects' age in years; *Years of study* is the average of subjects' study time in years; *Risk attitude general* is the average value to the question "In general, are you willing to take or do you avoid taking risky decisions?" [Likert-scale ranging from 0 (avoid taking risky decisions) to 6 (willing to take risky decisions)]; *Risk attitude investments* is the average value to the question "With respect to investments, are you willing to take or do you avoid taking risky decisions?" [Likert-scale ranging from 0 (avoid taking risky decisions) to 6 (willing to take risky decisions)]; *ECON students* stands for the percentage share of Business and Economics students.

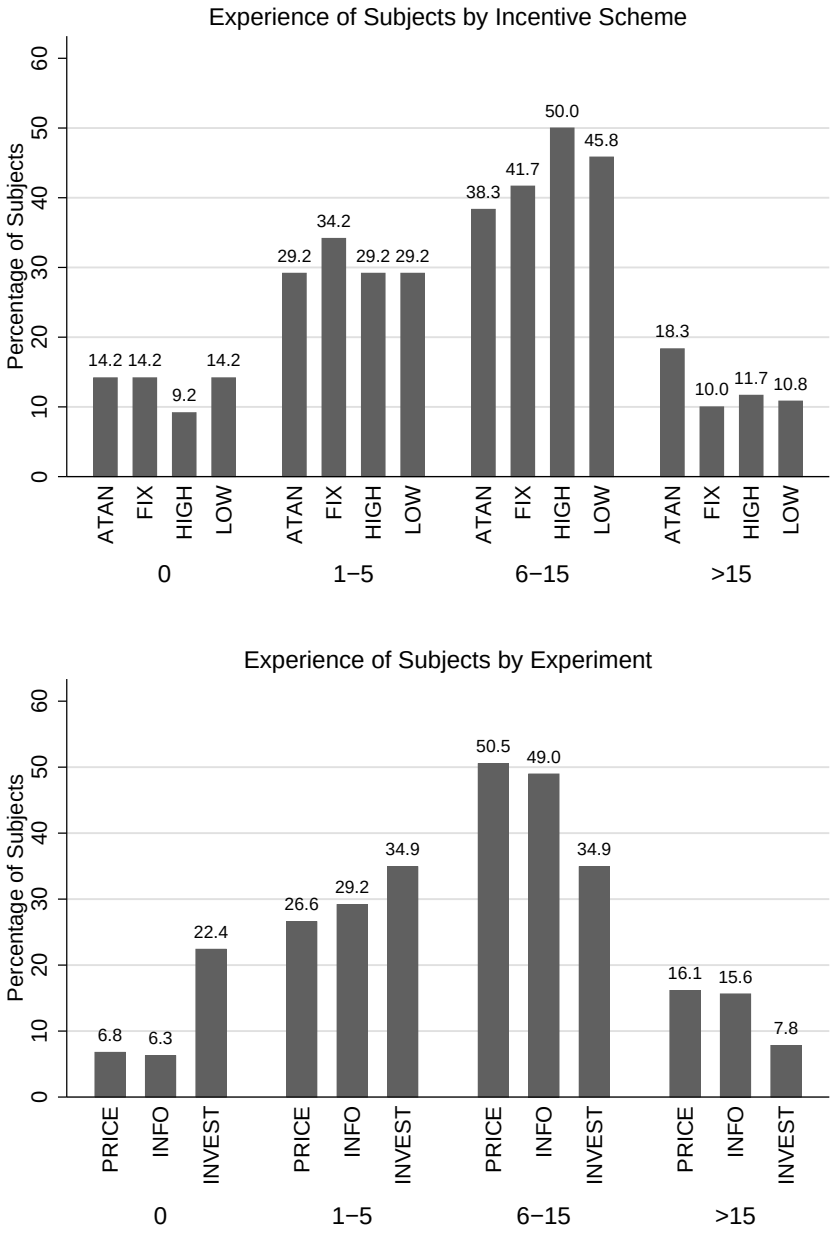


Figure WA5: Experience of subjects by incentive scheme (upper figure) and experience of subjects by experiment (lower figure). We have four categories: 0 indicating first participation, 1-5 participations, 6-15 participations and more than 15 participations.

6 Introduction to experimental sessions[1]

We welcome you to this experimental session and kindly ask you to refrain from talking to each other for the duration of the experiment. If you have any questions regarding the procedure or the instructions of the experiments, the experimenter will clear them up with you privately if you raise your hand. Please note the following right away:

- All information provided in these instructions is the truth.
- Every participant receives the same set of instructions and the same information about the experiment.
- The decisions you make cannot be linked to your person either by other participants or by the experimenters. In other words, your anonymity is fully guaranteed throughout the entire experiment.
- During the entire experiment you are not allowed to use mobile phones or pocket calculators and you may use only those functions of the computer which are required for the experiment. If you do not follow these conditions, you will NOT be paid.

Structure of the experimental session
This experimental session consists of two consecutive experiments in which you will earn money. Before the start of each experiment you receive a set of instructions detailing all relevant rules.

Experiment 1 – Decision game [BOX]

- Instructions and experiment

Experiment 2 – Market experiment [PRICE, INFO] or **Investment experiment** [INVEST]

- Instructions market [PRICE, INFO] or investment [INVEST] experiment
- Explanation trading mechanism, training periods (not payout-relevant) [PRICE, INFO] or explanation decision screen [INVEST]
- Experiment

Post-experiment questionnaire and payout

[1] Instructions in German language, z-tree files, and experimental data collected are available from the authors upon request.

7 Experimental instructions for Experiment BOX

Experiment 1 – Decision game

Description of the game

In this experiment we study economic decision-making. On the decision screen (see next page) you see a total of 25 boxes (lined up in five rows and five columns). Your task is to select those boxes that you would like to open. Before the beginning of the experiment a random mechanism places a "bomb" inside one of the boxes. The box containing the bomb is selected separately for each participant in the session. All other boxes are empty. You do not receive any information about which box contains the bomb. You only know that each box has the same probability of containing the bomb. By clicking on a box it changes its color to white indicating that you selected this box to be opened later on. You may select any number of boxes. By simply clicking on a selected box you can deselect the box from opening. This procedure can be repeated without constraints. After selecting the boxes you would like to open, please confirm your selection by clicking the "Confirm"-button. You have 240 second to reach a decision.

Payment

Your payment depends on whether the bomb is inside one of your selected boxes. If the bomb is not inside one of the selected boxes, you earn a payment of 40 Eurocent for each selected box. If, however, the bomb is inside one of the selected boxes, you do not receive any payment from the decision game.

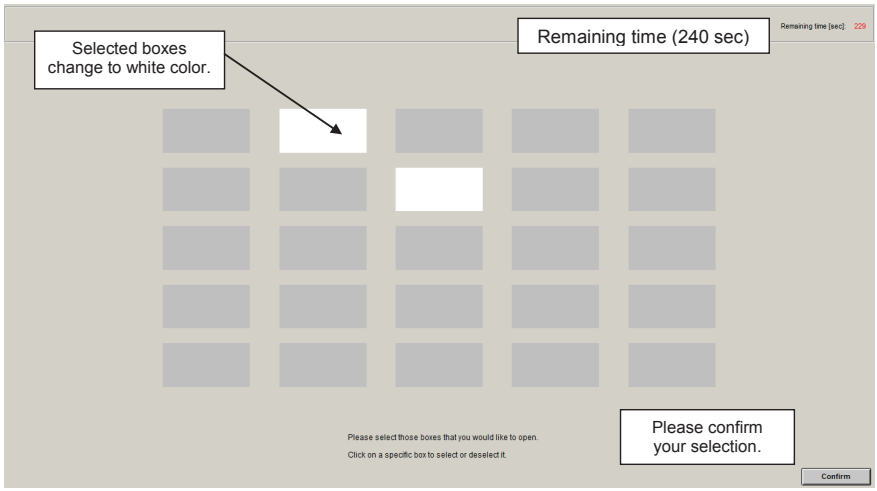
Information on your payment

Your selected boxes will be opened only after Experiment 2. At this stage, you will see your selected boxes on the decision screen again. By clicking on the button "Open selected boxes" the selected boxes will be opened and you will see whether one of the boxes contained the bomb (this box will be marked in red color). At the bottom of the screen your payment is displayed.

Important information

- You may select and deselect each box as often as you wish.
- You have 240 seconds to reach a decision.
- Your selected boxes will be opened at the end of Experiment 2.

Decision screen: The following figure shows the decision screen in Experiment 1.



8 Experimental instructions for Experiment PRICE[2]

Experiment 2 – Market experiment

General Information

This experiment is concerned with replicating an asset market where traders can trade the assets of a fictitious company for 10 consecutive periods.

Market Description

The market consists of eight subjects (traders). All eight traders get an initial endowment of 15 assets and a working capital of 1100 Taler. At the beginning of the experiment the asset has an average value of 60. Therefore, each subjects' initial wealth adds up to 2000 Taler. In every period you can sell and/or buy assets, and your asset and Taler inventories are transferred to the next trading period, respectively. Each trading period automatically terminates after 120 seconds.

Trade is accomplished in form of a double auction, i.e., each trader can be a buyer and seller at the same time. You can submit any order to buy/sell assets with prices ranging from 0 to a maximum of 999 Taler (with at most two decimal places). Additionally, for every order you submit, you have to enter the number of assets you intend to trade. If you *buy* assets, your Taler holdings decrease by the respective expenditures (price * volume). Inversely, if you *sell* assets, your Taler holdings increase by the respective revenues (price * volume). Note that your Taler and asset holdings cannot drop below zero.

At the end of each trading period, every asset pays a dividend (profit) which is added to your Taler holdings. The dividend realization (for one asset) is either 0, 6, or 12 Taler, given equal probability. Thus, an asset's average dividend equals 6 Taler in every period. Assets feature a life-span of 10 trading periods, i.e., after dividends are paid out at the end of period 10, assets are worthless.

You do not receive any information about the dividend realization of the current period, i.e., you do not know the dividend payment for the current or the coming periods. The only thing you know is that the dividend either takes the value of 0, 6 or 12 (per asset) in each period. At the end of a period you will be informed about the dividend realization of the expired period.

Average asset value

The subsequent table might help you to make your decisions. The first column, labeled "Ending Period", indicates the last trading period of the market. The second column, labeled "Current Period", indicates the period during which

[2] To mimic closely already existing markets of similar type, we use almost identical instructions as Dufwenberg et al. (2005) and Kirchler et al. (2012).

the asset's average value is being calculated (column five). The third column gives the number of remaining dividend payment (=periods) until the end of the market. The fourth column, labeled "Average Dividend Value Per Period", gives the average amount that the dividend will be in each period for each unit held in your inventory. The fifth column, labeled "Average Value Per Unit of Inventory", gives the expected total dividend earnings (per asset) for the remainder of the experiment. That is, for each asset you hold in your inventory for the remainder of the market, you receive in expectation the amount listed in column 5. The number in column 5 is calculated by multiplying the numbers in column 3 and 4.

Suppose for example that there are 4 periods remaining in a market. Since the dividend on a unit of asset has an equal probability of being 0, 6, or 12, the dividend is in expectation 6 Taler (per period for each asset). If you hold one asset for 4 periods, the total dividend paid on the unit over 4 periods is in expectation 4 * 6 = 24.

Ending period	Current period	Remaining dividend payments	x	Average Dividend Value per Period (0, 6, 12 with equal probability)	=	Average Value per Unit of Inventory
10	1	10		6		60
10	2	9		6		54
10	3	8		6		48
10	4	7		6		42
10	5	6		6		36
10	6	5		6		30
10	7	4		6		24
10	8	3		6		18
10	9	2		6		12
10	10	1		6		6

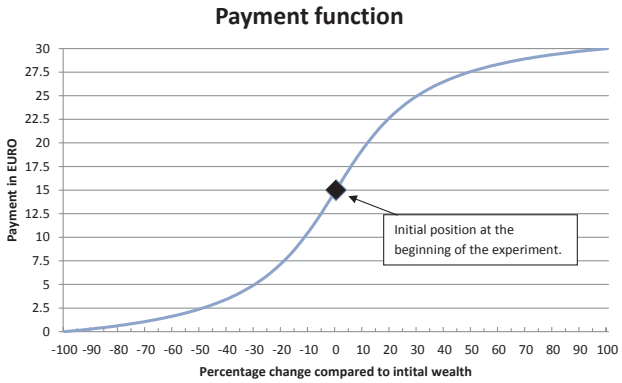
Calculate Your Earnings (ATAN)

To calculate your payment in EURO, your initial wealth (2000 Taler) is compared to your final wealth by computing the percentage difference based on the initial wealth. At the end of the experiment (after 10 periods) assets expire worthless. Thus, your final wealth equals your Taler holdings. Based on the percentage difference calculated based on the initial wealth your payment in EURO is calculated according to the following formula.

Your payment = 11.2649424∗ATAN(((Final wealth in Taler/Initial wealth in Taler)-1)∗4.1) + 15 EURO

The figure below illustrates, how your payment varies conditional on the percentage difference calculated based on your initial wealth. If your final wealth

is 20% (40%) ABOVE the reference value your payment will be 22.73 (26.52) EURO. If your final wealth is 20% (40%) BELOW the reference value your payment will be 7.26 (3.47) EURO.

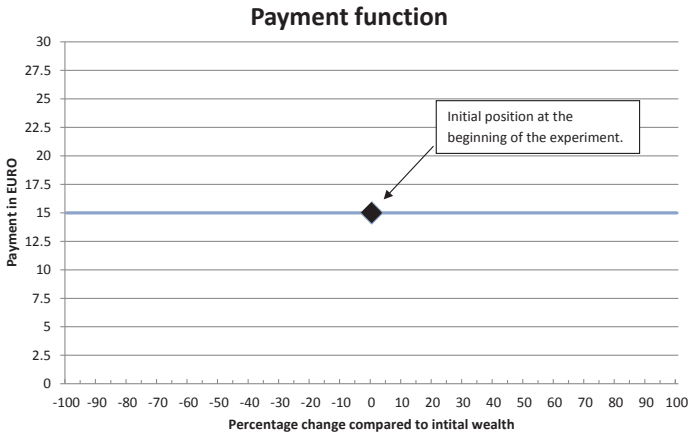


Calculate Your Earnings (FIX)

At the end of the experiment you receive a payment of 15 EURO. This payment is independent of your final Taler holdings.

Your payment = 15 EURO

The figure below illustrates, how your payment varies conditional on the percentage difference calculated based on your initial wealth. If your final wealth is 20% (40%) ABOVE the reference value your payment will be 15 (15) EURO. If your final wealth is 20% (40%) BELOW the reference value your payment will be 15 (15) EURO.



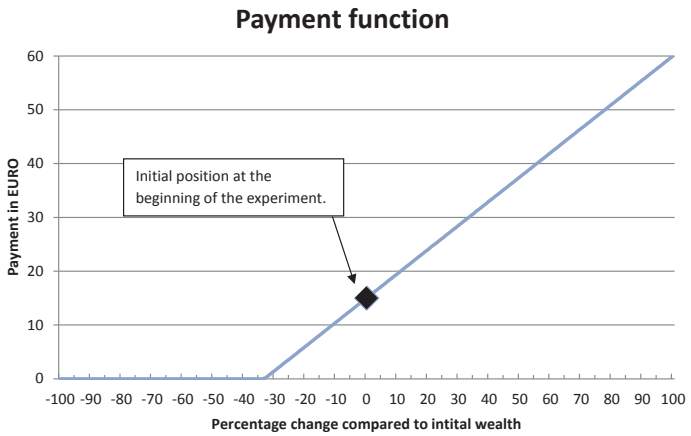
Calculate Your Earnings (HIGH)

To calculate your payment in EURO, your initial wealth (2000 Taler) is compared to your final wealth by computing the percentage difference based on the

initial wealth. At the end of the experiment (after 10 periods) assets expire worthless. Thus, your final wealth equals your Taler holdings. Based on the percentage difference calculated based on the initial wealth your payment in EURO is calculated according to the following formula.

Your payment = (((Final wealth in Taler/Initial wealth in Taler)-1)∗45) + 15 EURO

The figure below illustrates, how your payment varies conditional on the percentage difference calculated based on your initial wealth. If your final wealth is 20% (40%) ABOVE the reference value your payment will be 24 (33) EURO. If your final wealth is 20% (40%) BELOW the reference value your payment will be 6 (0) EURO.

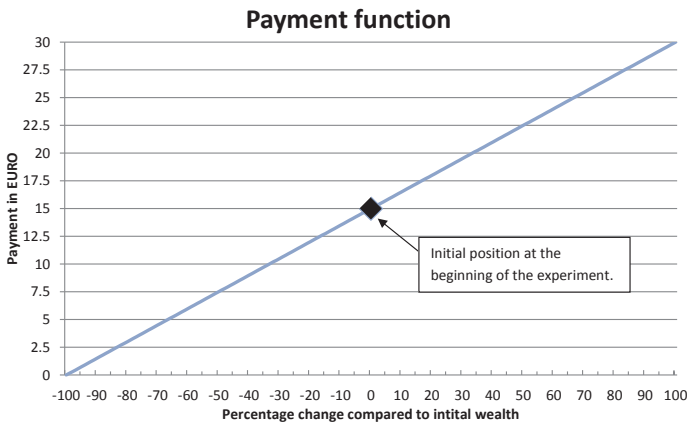


Calculate Your Earnings (LOW)

To calculate your payment in EURO, your initial wealth (2000 Taler) is compared to your final wealth by computing the percentage difference based on the initial wealth. At the end of the experiment (after 10 periods) assets expire worthless. Thus, your final wealth equals your Taler holdings. Based on the percentage difference calculated based on the initial wealth your payment in EURO is calculated according to the following formula.

Your payment = (((Final wealth in Taler/Initial wealth in Taler)-1)∗15) + 15 EURO

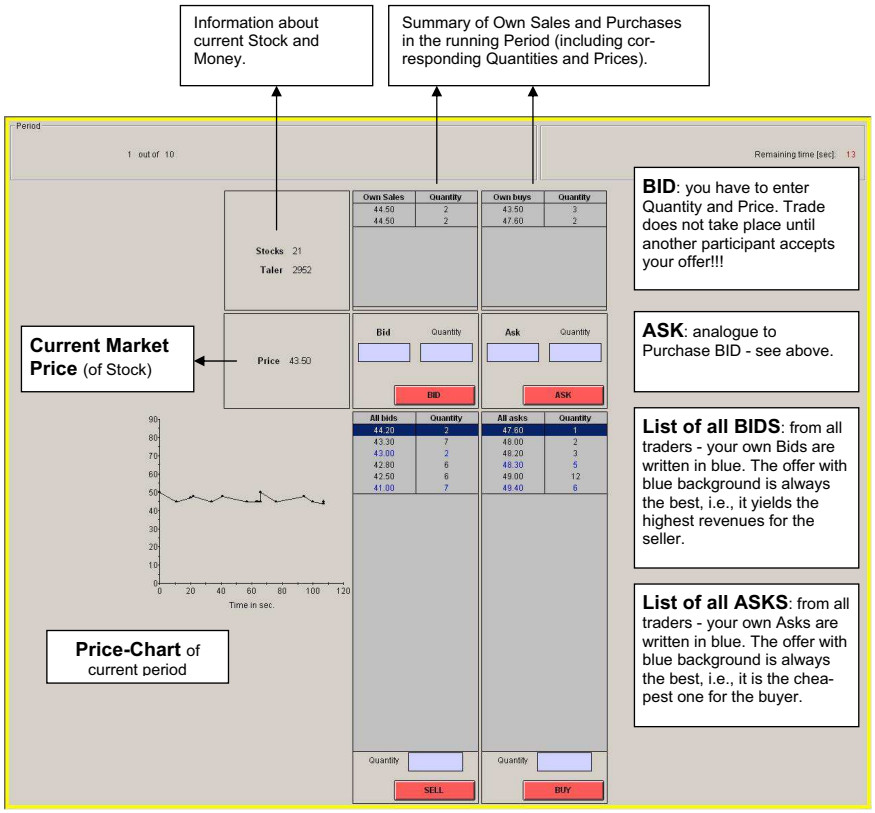
The figure below illustrates, how your payment varies conditional on the percentage difference calculated based on your initial wealth. If your final wealth is 20% (40%) ABOVE the reference value your payment will be 18 (21) EURO. If your final wealth is 20% (40%) BELOW the reference value your payment will be 12 (9) EURO.



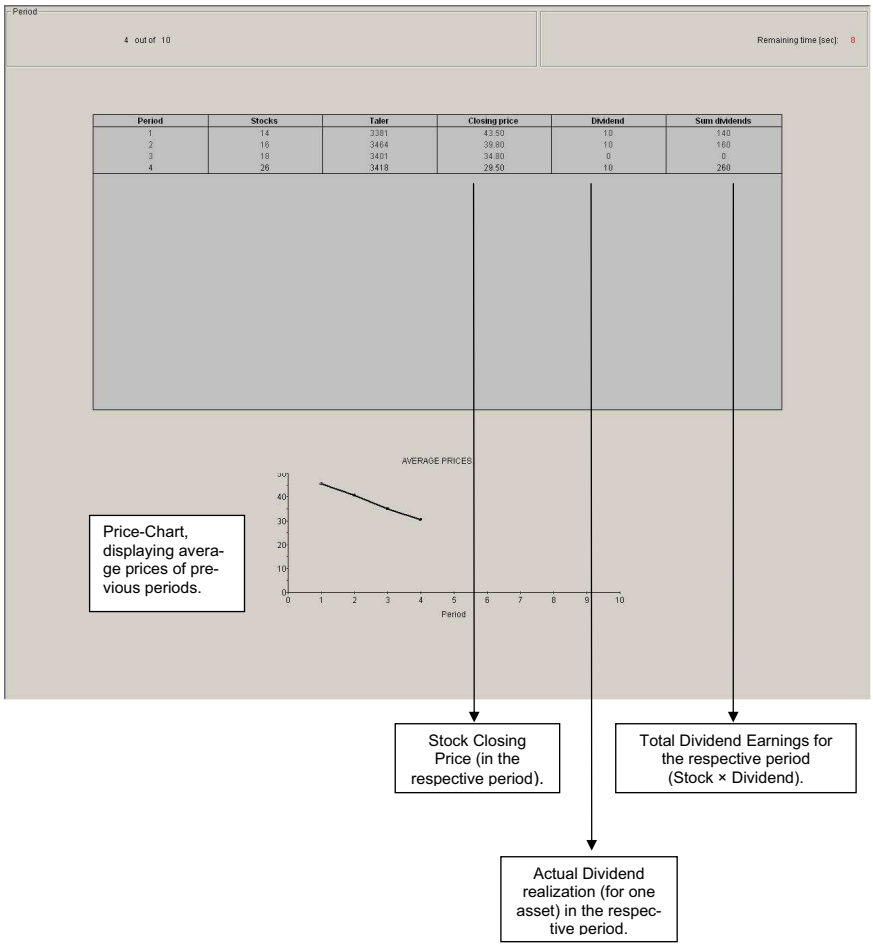
Important information

- No interest is paid for Taler holdings.
- Each trading period lasts for 120 seconds.
- The experiment ends after 10 periods.
- Use the full stop (.) as decimal place.

Trading screen: By means of the following figure, the procedure of trading (buying and selling) is illustrated.



History screen: Appears after each trading period for 16 seconds.



9 Experimental instructions for Experiment INFO

Experiment 2 – Market experiment

General Information

This experiment is concerned with replicating an asset market where traders can trade the assets of a fictitious company in four independent periods.

Market Description

The market consists of eight subjects (traders). Each trader receives an initial endowment consisting of assets and Taler at the beginning of a trading period. You can use your endowment to sell and/or buy assets. The amount of assets and Taler you receive, is announced at the beginning of a trading period. Each trading period automatically terminates after 240 seconds.

Trade is accomplished in form of a double auction, i.e., each trader can be a buyer and seller at the same time. You can submit any order to buy/sell assets with prices ranging from 0 to a maximum of 999 Taler (with at most two decimal places). For every order you submit, you have to enter the number of assets you intend to trade as well. If you *buy* assets, your Taler holdings decrease by the respective expenditures (price * volume). Inversely, if you *sell* assets, your Taler holdings increase by the respective revenues (price * volume). In the market only the actions of the traders determine the price of the asset. Note that your Taler and asset inventory cannot fall below zero. Furthermore, asset and Taler holdings are NOT transferred to the next trading period.

At the end of a trading period, your asset holdings will be taken over by the experimenter in return for a buyback value. This buyback value will be randomly drawn by the computer at the beginning of the period and it will take one of three values with equal probability. Assets feature a life-span of one trading period, i.e., at the end of each period assets are evaluated at their buyback value. Your wealth at the end of each trading period is the sum of Taler received from your assets plus your Taler holdings.

At the beginning of each trading period, you and three other traders learn which buyback value the asset will NOT take at the end of the period. The other four traders receive information about which of the remaining buyback values will NOT be taken at the end of the period.

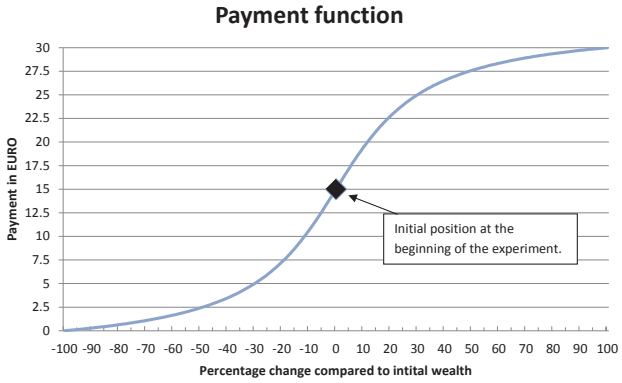
Calculate Your Earnings (ATAN)

At the end of the experiment a random draw by the computer determines one trading period to be relevant for the calculation of your payment. To calculate your payment in EURO, your initial wealth in that period is compared to your final wealth by computing the percentage difference based on the initial wealth.

Asset holdings at the beginning as well as at the end of the period are evaluated with the actual buyback value. Based on the percentage difference calculated based on the initial wealth your payment in EURO is calculated according to the following formula.

Your payment = 11.2649424∗ATAN(((Final wealth in Taler/Initial wealth in Taler)-1)∗4.1) + 15 EURO

The figure below illustrates, how your payment varies conditional on the percentage difference calculated based on your initial wealth. If your final wealth is 20% (40%) ABOVE the reference value your payment will be 22.73 (26.52) EURO. If your final wealth is 20% (40%) BELOW the reference value your payment will be 7.26 (3.47) EURO.

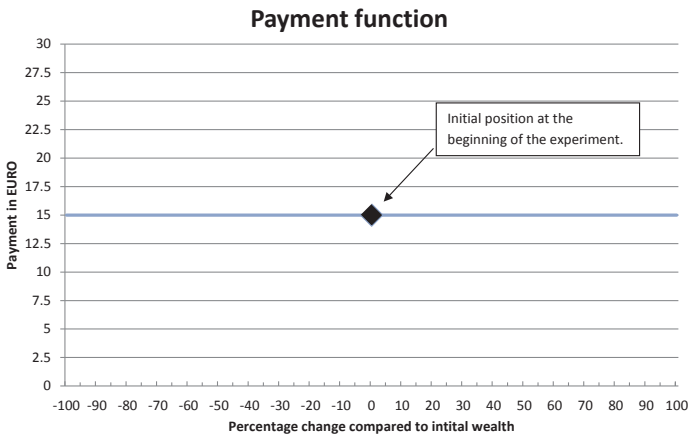


Calculate Your Earnings (FIX)

At the end of the experiment a random draw by the computer determines one trading period to be relevant for the calculation of your payment. For this trading period you receive a payment of 15 EURO. This payment is independent of your final Taler wealth at the end of that period.

Your payment = 15 EURO

The figure below illustrates, how your payment varies conditional on the percentage difference calculated based on your initial wealth. Asset holdings at the beginning as well as at the end of the period are evaluated with the actual buyback value. If your final wealth is 20% (40%) ABOVE the reference value your payment will be 15 (15) EURO. If your final wealth is 20% (40%) BELOW the reference value your payment will be 15 (15) EURO.

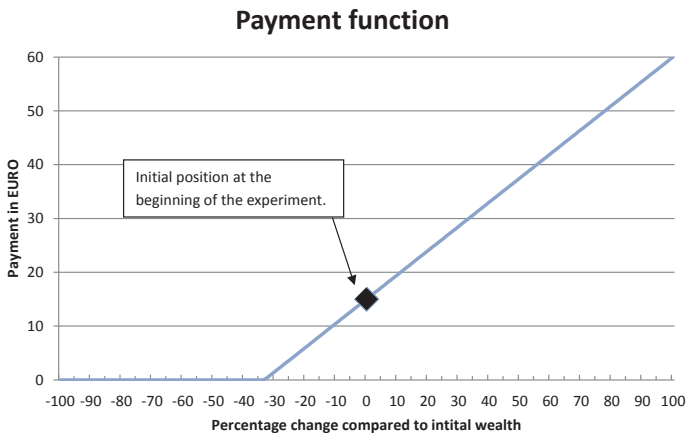


Calculate Your Earnings (HIGH)

At the end of the experiment a random draw by the computer determines one trading period to be relevant for the calculation of your payment. To calculate your payment in EURO, your initial wealth in that period is compared to your final wealth by computing the percentage difference based on the initial wealth. Asset holdings at the beginning as well as at the end of the period are evaluated with the actual buyback value. Based on the percentage difference calculated based on the initial wealth your payment in EURO is calculated according to the following formula.

Your payment = (((Final wealth in Taler/Initial wealth in Taler)-1)∗45) + 15 EURO

The figure below illustrates, how your payment varies conditional on the percentage difference calculated based on your initial wealth. If your final wealth is 20% (40%) ABOVE the reference value your payment will be 24 (33) EURO. If your final wealth is 20% (40%) BELOW the reference value your payment will be 6 (0) EURO.

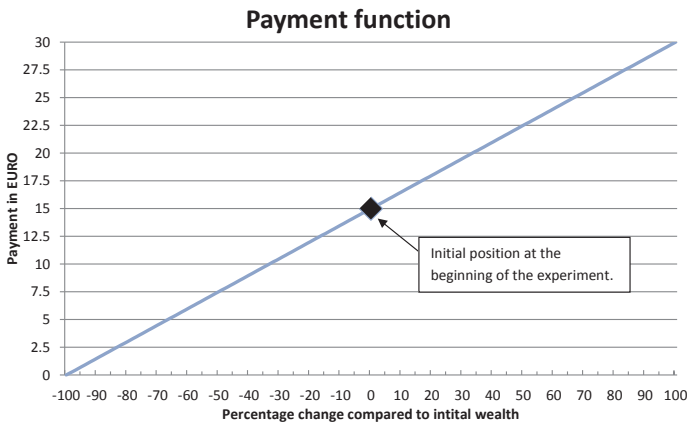


Calculate Your Earnings (LOW)

At the end of the experiment a random draw by the computer determines one trading period to be relevant for the calculation of your payment. To calculate your payment in EURO, your initial wealth in that period is compared to your final wealth by computing the percentage difference based on the initial wealth. Asset holdings at the beginning as well as at the end of the period are evaluated with the actual buyback value. Based on the percentage difference calculated based on the initial wealth your payment in EURO is calculated according to the following formula.

Your payment = (((Final wealth in Taler/Initial wealth in Taler)-1)∗15) + 15 EURO

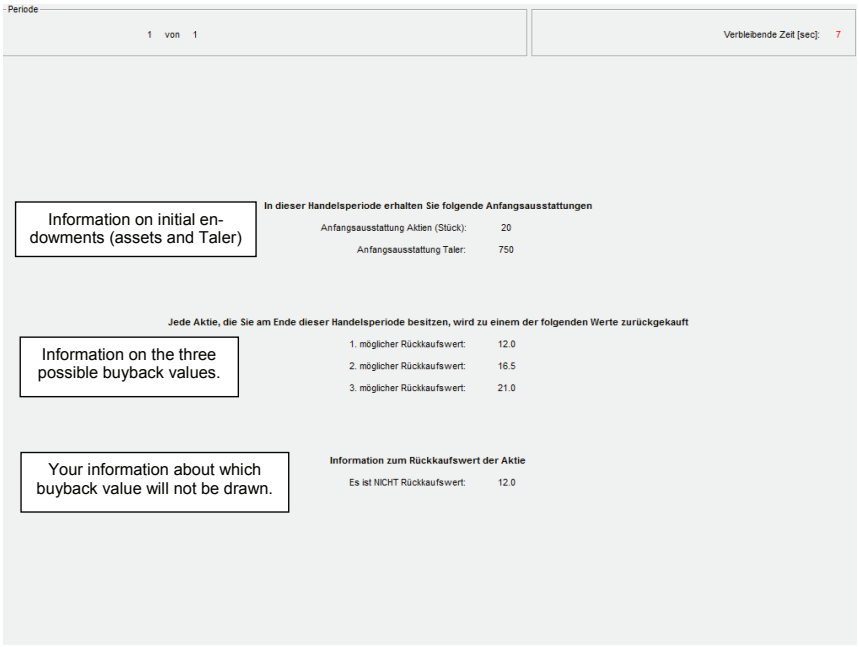
The figure below illustrates, how your payment varies conditional on the percentage difference calculated based on your initial wealth. If your final wealth is 20% (40%) ABOVE the reference value your payment will be 18 (21) EURO. If your final wealth is 20% (40%) BELOW the reference value your payment will be 12 (9) EURO.



Important information

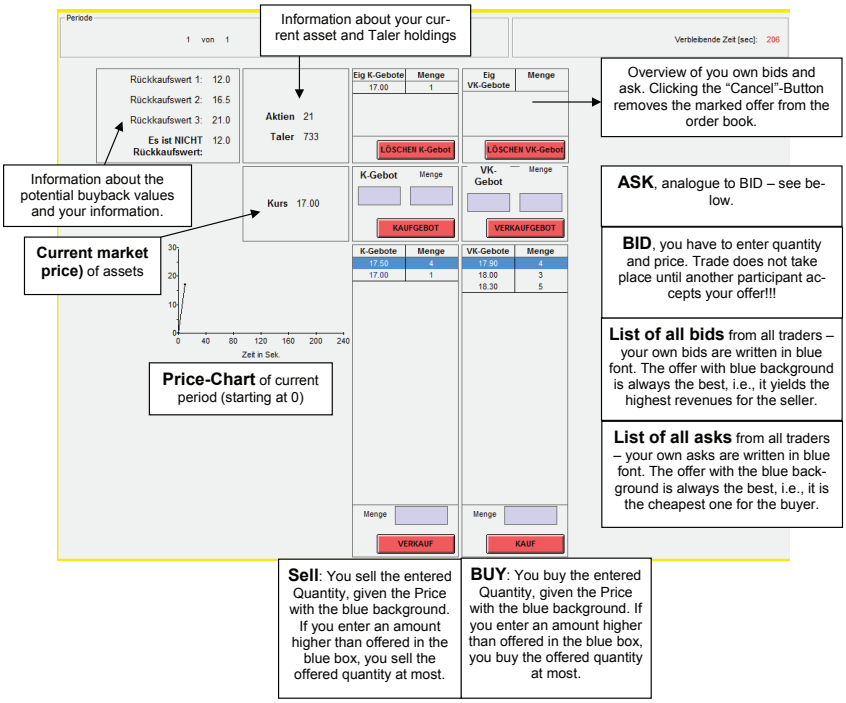
- No interest is paid for Taler holdings.
- Each trading period lasts for 240 seconds.
- The experiment consists of four independent trading periods.
- Use the full stop (.) as decimal place.

Information screen: provides information about your initial endowments, the three possible buyback value, and your information about which buyback value will not be drawn.[3]



[3]Screens are only available in German language.

Trading screen: By means of the following figure, the procedure of trading (buying and selling) will be illustrated.



10 Experimental instructions for Experiment INVEST

Experiment 2 – Investment experiment

General Information

In this experiment we study economic decision-making. In particular, you are asked to make investment decisions in a simulated financial market. For your investments you receive an initial wealth of 2000 Taler at the beginning of the experiment.

Your task in each of ten periods is to decide what fraction of your wealth you want to invest at a risk-free rate of 1.5% and what fraction you want to invest in a stock index. The development of the stock index is based on actual historical data from the last 20 years and is characterized by fluctuations. In the historical period, the index earned an average return of 3.6% and had a standard deviation of the semi-annual return volatility of 15.9%. The following examples provide information on the magnitude and on the likelihood of various return fluctuations:

In 50 out of 100 cases, the semi-annual return lies between -7.1% and 14.3%.
In 90 out of 100 cases, the semi-annual return lies between -22.6% and 29.8%.
In 95 out of 100 cases, the semi-annual return lies between -27.6% and 34.7%.

To increase your understanding of this process you draw 30 realizations from a distribution with a mean of 3.6% and a standard deviation of 15.9% before the beginning of the first period (before you make your first investment decision). The return realizations are independently drawn for each participant. After each draw the most recent return realization is indicated on the screen by a yellow box together with the display of return. Previous return draws are indicated by red boxes. Every time you click on the "Draw return"-button, a new return realization is drawn from the distribution and displayed on the screen. Together, the draws give you a feeling for the index changes from period to period. The draws are independent of the random draws during the experiment, but the distribution is identical. Below you see an example of the screen (see Figure 1):

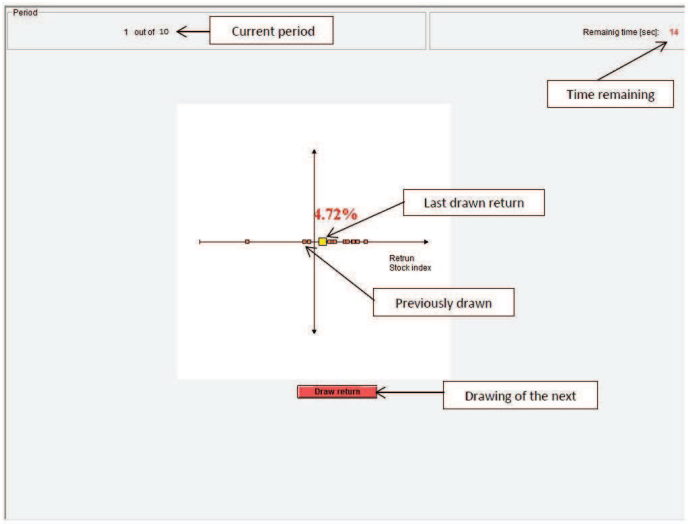


Figure 1: Return screen in Period 1.

In each period you can invest between 0 and 200% of your current wealth in the stock index (only integers allowed). If you invest more than 100% of your wealth, then the fraction which exceeds 100% is borrowed at the risk-free rate of 1.5%. If you invest less than 100% of your wealth in the stock index, the fraction not invested in the stock index is invested at the risk-free rate of 1.5%.

At the end of each period the realized return of the stock index is randomly determined from the distribution described above and your wealth will be calculated according to your investment in the stock index and in the risk-free rate.

Example 1:
Let's assume your wealth is 2000 Taler and you decide to invest 50% of it in the stock index. Thus, the remaining 50% will be invested at the risk-free rate. If the index in this period yields a return of +10.0%, then your wealth in the next period will be as follows:
Profit/loss from the stock index: (50% Investment * 2000 Taler) * 10% Return = 100 Taler
Profit from investing in the risk-free interest rate: (50% Investment * 2000 Taler) * 1.5% Interest = 15 Taler
Wealth in the subsequent period: 2000 (=previous period wealth) + 100 + 15 = 2115 Taler

Example 2:
Let's assume your wealth is 2000 Taler and you decide to invest 50% of it in the

stock index. Thus, the remaining 50% will be invested at the risk-free rate. If the index in this period yields a return of −10.0%, then your wealth in the next period will be as follows:
Profit/loss from the stock index: (50% Investment * 2000 Taler) * −10% Return = −100 Taler
Profit from investing in the risk-free interest rate: (50% Investment * 2000 Taler) * 1.5% Interest = 15 Taler
Wealth in the subsequent period: 2000 (=previous period wealth) − 100 + 15 = 1915 Taler

Example 3:
Let's assume your wealth is 2000 Taler and you decide to invest 150% of it in the stock index. Thus, in addition to your wealth, you borrow 50% at the risk-free interest rate. If the index in this period yields a return of +10.0%, then your wealth in the next period will be as follows:
Profit/loss from the stock index: (150% Investment * 2000 Taler) * 10% Return = 300 Taler
Loss from investing in the risk-free interest rate: (−50% Investment * 2000 Taler) * 1.5% Interest = −15 Taler
Wealth in the subsequent period: 2000 (=previous period wealth) + 300 − 15 = 2275 Taler

Example 4:
Let's assume your wealth is 2000 Taler and you decide to invest 150% of it in the stock index. Thus, in addition to your wealth, you borrow 50% at the risk-free interest rate. If the index in this period yields a return of −10.0%, then your wealth in the next period will be as follows:
Profit/loss from the stock index: (150% Investment * 2000 Taler) * −10% Return = −300 Taler
Loss from investing in the risk-free interest rate: (−50% Investment * 2000 Taler) * 1.5% Interest = −15 Taler
Wealth in the subsequent period: 2000 (=previous period wealth) − 300 − 15 = 1685 Taler

The decision screen in each period will show your current wealth, the change in wealth compared to the previous period, the return of the stock index in the previous period, your invested fraction into the stock index in the previous period, the risk-free interest rate and your invested fraction in the risk-free asset in the previous period (see Figure 2). The decision screen in all 10 periods looks as follows:

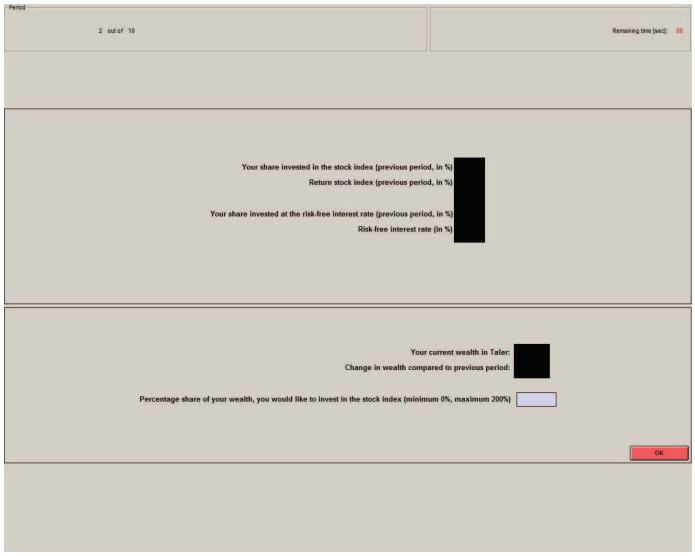


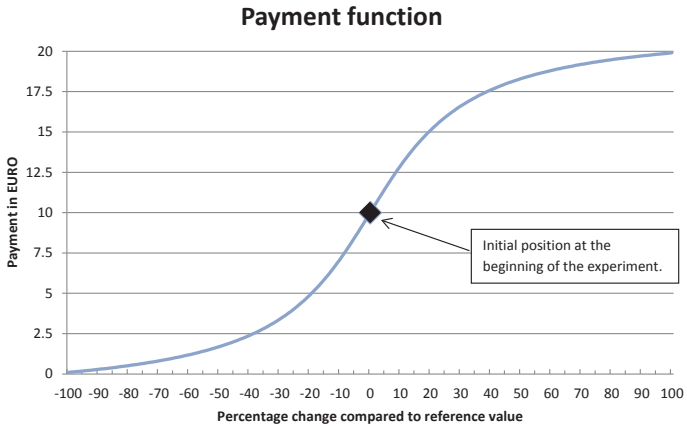
Figure 2: Decision screen in each period.

Calculate Your Earnings (ATAN)

To calculate your payment in EURO, your final wealth is compared to a reference value of 2321 Taler and evaluated according to the following formula.

Your payment = 7.43486198∗ATAN(((Final wealth in Taler/2321 Taler)-1)∗4.1) + 10 EURO

The figure below illustrates, how your payment varies conditional on the percentage difference compared to a reference value that equals 2321 Taler. If your final wealth is 20% (40%) ABOVE the reference value your payment will be 15.11 (17.62) EURO. If your final wealth is 20% (40%) BELOW the reference value your payment will be 4.89 (2.39) EURO.

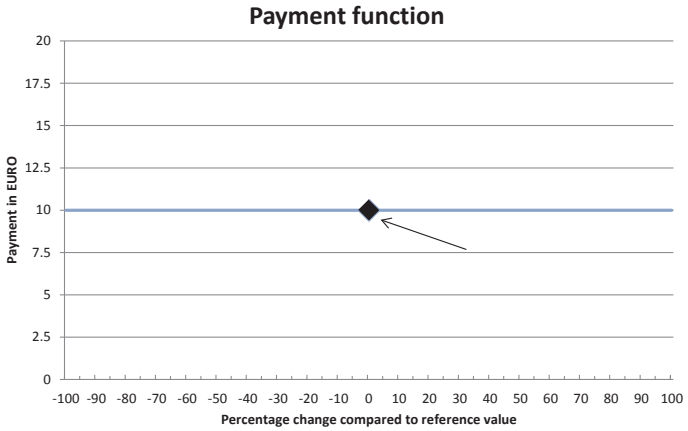


Calculate Your Earnings (FIX)

At the end of the experiment you receive a payment of 10 EURO. This payment is independent of your final Taler wealth.

Your payment = 10 EURO

The figure below illustrates, how your payment varies conditional on the percentage difference compared to a reference value that equals 2321 Taler. If your final wealth is 20% (40%) ABOVE the reference value your payment will be 10 (10) EURO. If your final wealth is 20% (40%) BELOW the reference value your payment will be 10 (10) EURO.

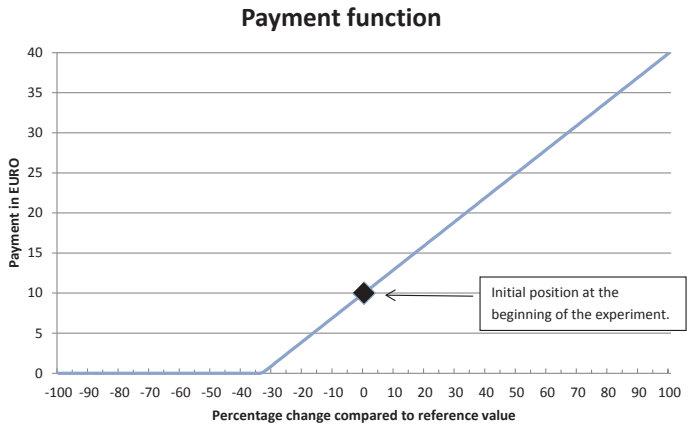


Calculate Your Earnings (HIGH)

To calculate your payment in EURO, your final wealth is compared to a reference value of 2321 Taler and evaluated according to the following formula.

Your payment = ((Final wealth in Taler/2321 Taler)-1)∗30 + 10 EURO

The figure below illustrates, how your payment varies conditional on the percentage difference compared to a reference value that equals 2321 Taler. If your final wealth is 20% (40%) ABOVE the reference value your payment will be 16 (22) EURO. If your final wealth is 20% (40%) BELOW the reference value your payment will be 4 (0) EURO.

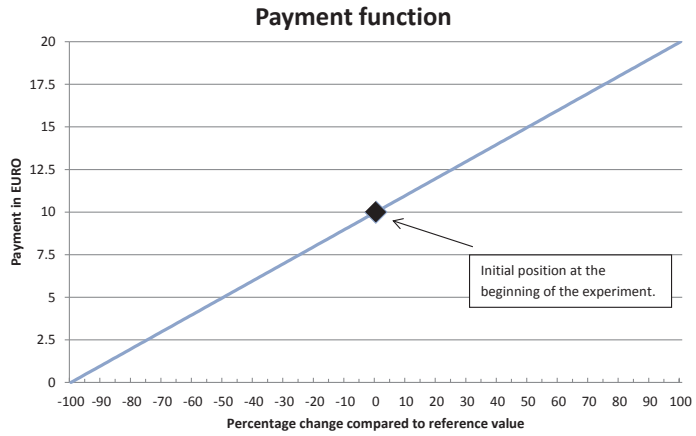


Calculate Your Earnings (LOW)

To calculate your payment in EURO, your final wealth is compared to a reference value of 2321 Taler and evaluated according to the following formula.

Your payment = ((Final wealth in Taler/2321 Taler)-1)∗10 + 10 EURO

The figure below illustrates, how your payment varies conditional on the percentage difference compared to a reference value that equals 2321 Taler. If your final wealth is 20% (40%) ABOVE the reference value your payment will be 12 (14) EURO. If your final wealth is 20% (40%) BELOW the reference value your payment will be 8 (6) EURO.



Important information

- The historical stock index yielded an average return of 3.6% and had a standard deviation of the semi-annual return volatility of 15.9%. The risk-free interest rate equals 1.5%.
- You can invest between 0 and 200% of your current wealth in the stock index (only integers allowed).

- In each period you have 60 seconds to make your investment decision.
- The experiment ends after 10 periods.

11 Post-experiment questionnaire

Screen 1 - Introduction questionnaire
We thank your for your participation in this experimental session. The following questionnaire is important for the analysis of the data gained in the experiment. Please answer the questionnaire conscientiously and completely, it will take approximately five minutes. Note that you can access each page of the questionnaire only once implying that you cannot return to previous pages.

Screen 2 - Elicitation of risk attitude.
Q1 (RISK ATTITUDE GENERAL): Please evaluate yourself: In general, are you willing to take or do you avoid taking risky decisions?
[Likert-scale ranging from 0 (avoid taking risky decisions) to 6 (willing to take risky decisions).]

Q2 (RISK ATTITUDE INVESTMENTS): Please evaluate yourself: With respect to investment decisions, are you prepared to take risky investments or do you avoid taking risky investments?
[Likert-scale ranging from 0 (avoid taking risky investments) to 6 (willing to take risky investments).]

Screen 3 - Motivation and comprehension of payment functions
Q3 (MOTIVATION PARTICIPATION): Please indicate your main motive to participate in economics experiments.
[A: I participate to increase my understanding of economic relationships.]; [B: I participate because it is fun.]; [C: I participate to contribute to the development of science.]; [D: I participate to earn money.]; [E: I participate for other reasons.].

Q4 (MOTIVATION PAYMENT): Does the promised payment increase your motivation in the experiment?
[Likert-scale ranging from 0 (no increase) to 6 (strong increase).]

Q5 (COMPREHENSION): Please evaluate your understanding of the payment function in the market experiment.
[Likert-scale ranging from 0 (difficult to understand) to 6 (very easy to understand).]

Q6 (ACTION ASSESSMENT): Were you able to assess how your actions in the market experiment will affect your payment?
[Likert-scale ranging from 0 (not assessable) to 6 (easily assessable).]

Q7 (ASSESSMENT PAYMENT): Please indicate for the following statements whether you (i) agree with them, you (ii) are neutral, or you (iii) decline them.
[A. A good performance in the market experiment (Experiment 2) should have resulted in a substantially higher payout.]
[B. A bad performance in the market experiment (Experiment 2) should have resulted in a substantially lower payout.]
[C. I consider the payout function in the market experiment (Experiment 2) as fair and well-balanced.]
[D. A good performance in the market experiment (Experiment 2) should have resulted in a substantially lower payout.]
[E. A bad performance in the market experiment (Experiment 2) should have resulted in a substantially higher payout.]

Screen 4 - Education and participation in economic experiments
Q8 (LEVEL OF STUDIES): Please indicate your level of studies.
[A. no studies]; [B. Bachelor studies]; [C. Master or diploma studies]; [D. PhD. studies].

Q9 (YEARS OF STUDIES): Please indicate your years of studies.
[Integer value between 0 and 99.]

Q10: (FACULTY): Please indicate at which faculty you pursue your studies.
[A. Medicine]; [B. Law school]; [C. Business and Economics]; [D. Humanities]; [E. Natural sciences]; [F. Theology]; [G. Construction faculty]; [H. other – please indicate].

Q11: (PARTICIPATION EXPERIMENTS): Please indicate the number of economic experiments you participated in.
[A. This is my first experiment.]; [B. Between 1 and 5 experiments.]; [C. Between 6 and 15 experiments.]; [D. more than 16 experiments.].

Screen 5 - Demographics
Q12: (AGE): How old are you?
[Integer value between 17 and 99.]

Q13: (FEMALE): Please indicate your gender.
[A. male]; [B. female].

Q14: (NATIONALITY): What is your nationality?

[A. Austrian]; [B. Non-Austrian].

Q15: (FIRST LANGUAGE): What is your first language?
[A. German]; [B. other – please indicate].

Screen 6 - Experimenter and comments
Q16 (INSTRUCTIONS EXPERIMENTER): How easy was it for you to understanding the instructions and the briefing by the experimenter?
[Likert-scale ranging from 0 (difficult to understand) to 6 (easy to understand).]

Q17 (COMMENTS): Please write down any comments you have with respect to the experiment (optional).
[open text.]

References

Dufwenberg, Martin, Tobias Lindqvist, Evan Moore. 2005. Bubbles and experience: An experiment. *The American Economic Review* **95**(5) 1731–1737.

Kirchler, Michael, Jürgen Huber, Thomas Stöckl. 2012. Thar she bursts - reducing confusion reduces bubbles. *The American Economic Review* **102**(2) 865–883.