Appendix: The Effect of Fast and Slow Decisions on Risk Taking *

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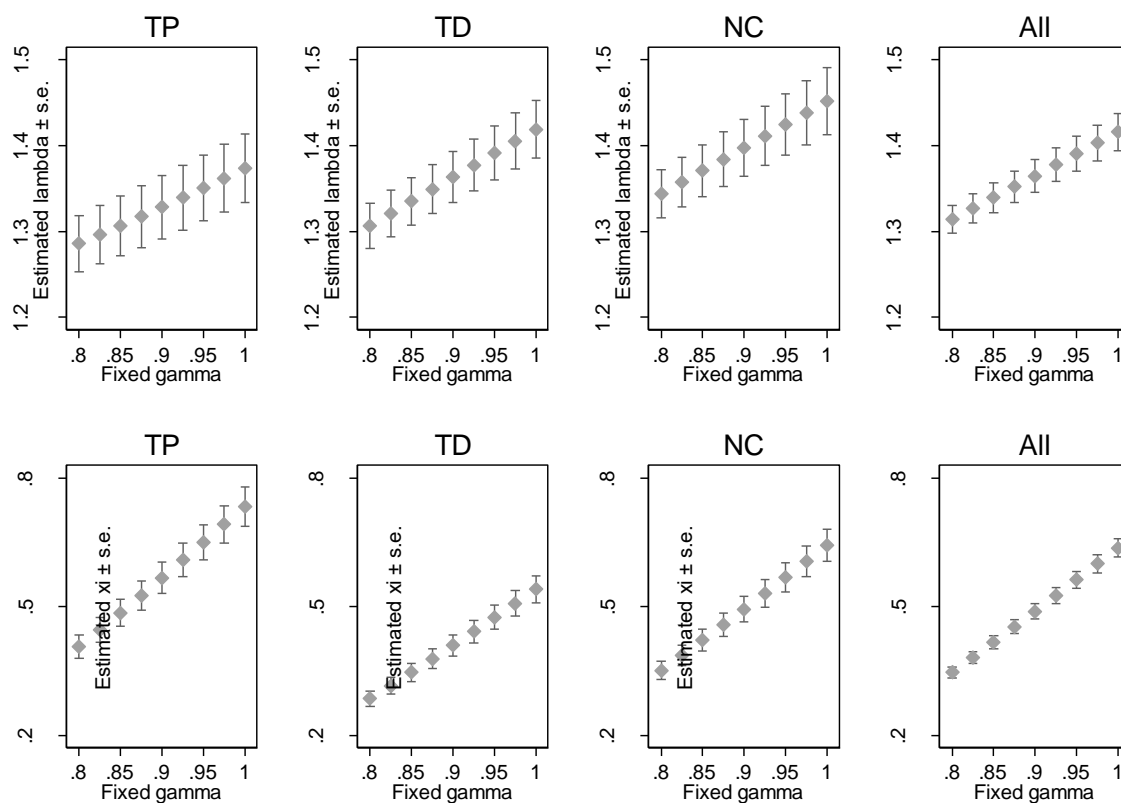## A1. Additional figures and estimations

Figure A1. Estimates of the loss aversion parameter (λ) and the noise parameter (ξ) given fixed levels of risk aversion in the AUT II experiment. The graph shows the estimate and standard error bars for λ (top panel) and ξ (lower panel) in the AUT II experiment holding γ constant at varying values on the interval [0.8,1.0].

Table A1: Different stochastic specifications (random preferences) for estimates of the utility function for the pooled data across the four experiments.[1]

Parameter	Gain domain			Loss domain		
	TP	TD	TP and TD	TP	TD	TP and TD
μ_γ	0.915	0.955	0.938	0.727	0.827	0.783
	(0.013)	(0.010)	(0.008)	(0.013)	(0.011)	(0.008)
σ_γ	0.471	0.352	0.407	0.533	0.440	0.483
	(0.024)	(0.014)	(0.013)	(0.030)	(0.020)	(0.017)

[1] This table corresponds to Table 3 in the main paper. All amounts are converted to US Dollars (using average exchange rates for 2013). We present estimates of "random preference" models in the sense of Loomes and Sugden (1995). In this model, the risk aversion coefficient γ is drawn from a normal distribution $N(\mu_\gamma, \sigma_\gamma^2)$ for each decision to be made. The choice is then made to maximize the resulting expected utility function $(E(u(z))$ with u defined in Equation 1). Estimation of $(\mu_\gamma, \sigma_\gamma^2)$ with maximum likelihood, standard errors are provided in parentheses.

Table A2: Different stochastic specifications (random preferences) for estimates of the utility function in the four experiments.[1]

Parameter	Gain domain				Loss domain			
	TP	TD	NC	All	TP	TD	NC	All
SWE:								
μ_γ	0.943	0.977		0.963	0.872	0.928		0.902
	(0.026)	(0.022)		(0.017)	(0.018)	(0.020)		(0.013)
σ_γ	0.290	0.218		0.253	0.247	0.239		0.245
	(0.046)	(0.028)		(0.026)	(0.033)	(0.032)		(0.023)
US:								
μ_γ	1.028	1.114		1.082	0.413	0.611		0.518
	(0.046)	(0.042)		(0.032)	(0.049)	(0.029)		(0.026)
σ_γ	0.634	0.484		0.561	0.764	0.750		0.764
	(0.078)	(0.048)		(0.044)	(0.111)	(0.099)		(0.075)
AUT I:								
μ_γ	0.772	0.836		0.808	0.801	0.854		0.833
	(0.018)	(0.014)		(0.011)	(0.017)	(0.011)		(0.009)
σ_γ	0.322	0.260		0.288	0.320	0.192		0.244
	(0.045)	(0.028)		(0.025)	(0.043)	(0.017)		(0.018)
AUT II:								
μ_γ	0.916	0.870	0.942	0.907	0.853	0.914	0.849	0.874
	(0.027)	(0.016)	(0.022)	(0.012)	(0.020)	(0.018)	(0.017)	(0.011)
σ_γ	0.409	0.264	0.313	0.323	0.344	0.267	0.300	0.306
	(0.040)	(0.018)	(0.025)	(0.015)	(0.029)	(0.019)	(0.022)	(0.013)

[1] This table corresponds to Table 4 in the main paper. All amounts are converted to US Dollars (using average exchange rates for 2013). Estimates of random preference models with the same parametrization as in Table A1, $N(\mu_\gamma, \sigma_\gamma^2)$, with estimated specifications by experiment. Estimation of $(\mu_\gamma, \sigma_\gamma^2)$ with maximum likelihood, standard errors are provided in parentheses.

A2. Experimental Instructions (examples of screen shots in Figure A2 and A3)

A2.1: Experiment 1 and 2: Risk gain/loss experiment (Experiment SWE and Experiment USA)

Time-Pressure Treatment

It is important that you carefully read the following instructions. The experiment consists of six parts, each part containing four to seven questions. You will in total have to answer 27 questions.

The first four parts contain questions where you will have to make decisions regarding the allocation of money. At the end of the survey, one of your answers will be drawn at random for actual payment in addition to the $5 (100 SEK) you get for participating. The last two parts contain questions where you will be asked to consider described situations and assess what you believe is right and wrong.

Before each new part a new set of instructions will appear on the screen. It is important that you carefully read these and that you understand the instructions before you start answering the questions.

Try to answer the questions as quickly as possible. In the first 4 parts, you will have a maximum of 7 seconds for each question. A counter on the screen will indicate how much time you have left. If you do not respond within 7 seconds the next question will appear automatically.

NEW SCREEN (RISK GAIN)

In the first 4 questions, you will have to make choices between receiving a sum of money with certainty and participating in a gamble to win a larger amount. If you choose to gamble, we'll flip a coin and if the outcome is heads, you will receive an additional $5 (100 SEK) for your participation, while if the outcome is tails you will get $0 (0 SEK) additionally for your participation. This means that you have 50% chance of winning $5 (100 SEK) additionally if you choose the coin toss.

Remember that you have a maximum of 7 seconds to answer each question. When you press 'next' the following question will appear.

Press 'next' when you are ready to start.

NEW SCREEN

Do you choose $1 (35 SEK) with certainty or to flip a coin for $5 (100 SEK)?

Time Remaining: 7 seconds

- $1 (35 SEK) with certainty
- Flip a coin for $5 (100 SEK)

(Note: we used 35, 40, 45 and 50 SEK as certain gain as monetary variation Experiment 1 (SWE) and $1, $1.5, $2 and $2.5 as certain gain as variation in Experiment 2 (USA)).

NEW SCREEN (RISK LOSS)

In the next four questions, you will have to make choices between losing a sum of money with certainty and participating in a gamble to avoid losing a larger amount. If you choose to gamble, we'll flip a coin and if the outcome is heads, you will lose the $5 (100 SEK) you get in return for your participation, while if the outcome is tails you will lose $0 (0 SEK) of the money you receive for participating. This means that you have 50% chance of losing your $5 (100 SEK) if you choose coin toss.

Remember that you have a maximum of 7 seconds to answer each question. When you press 'next' the following question will appear.

Press 'next' when you are ready to start.

NEW SCREEN

Do you choose a loss of $1 (35 SEK) with certainty or to flip a coin to avoid a loss of $5 (100 SEK)?

Time Remaining: 7 seconds

- Lose $1 (35 SEK) with certainty
- Flip a coin to avoid losing $5 (100 SEK)

(Note: we used 35, 40, 45 and 50 SEK as certain loss as variation in Experiment 1 (SWE) and $1, $1.5, $2 and $2.5 as certain loss as variation in Experiment 2 (USA)).

Time-delay Treatment

It is important that you carefully read the following instructions. The experiment consists of six parts, each part containing four to seven questions. You will in total have to answer 27 questions.

The first four parts contain questions where you will have to make decisions regarding the allocation of money. At the end of the survey, one of your answers will be drawn at random for actual payment in addition to the $5 (100 SEK) you get for participating. The last two parts contain questions where you will be asked to consider described situations and assess what you believe is right and wrong.

Before each new part a new set of instructions will appear on the screen. It is important that you carefully read these and that you understand the instructions before you start answering the questions.

Think carefully through your response before proceeding. In the first 4 parts, it will take 7 seconds before you can answer each question.

NEW SCREEN

In the first 4 questions, you will have to make choices between receiving a sum of money with certainty and participating in a gamble to win a larger amount. If you choose to gamble, we'll flip a coin and if the outcome is heads, you will receive an additional $5 (100 SEK) for your participation, while if the outcome is tails you will get $0 (0 SEK) additionally for your participation. This means that you have 50% chance of winning $5 (100 SEK) additionally if you choose the coin toss.

Think carefully through your response before proceeding. In the first 4 parts, it will take 7 seconds before you can answer each question.

Press 'next' when you are ready to start.

NEW SCREEN (RISK GAIN)

Do you choose $1 (35 SEK) with certainty or to flip a coin for $5 (100 SEK)?

- $1 (35 SEK) with certainty
- Flip a coin for $5 (100 SEK)

In the next four questions, you will have to make choices between losing a sum of money with certainty and participating in a gamble to avoid losing a larger amount. If you choose to gamble, we'll flip a coin and if the outcome is heads, you will lose the $5 (100 SEK) you get in return for your participation, while if the outcome is tails you will lose $0 (0 SEK) of the money you receive for participating. This means that you have 50% chance of losing your $5 (100 SEK) if you choose coin toss.

Think carefully through your response. It will take 7 seconds before you are able to provide your answer to each question.

Press 'next' when you are ready to start.

NEW SCREEN

Do you choose a loss of $1 (35 SEK) with certainty or to flip a coin to avoid a loss of $5 (100 SEK)?

- Lose $1 (35 SEK) with certainty
- Flip a coin to avoid losing $5 (100 SEK)

A2.2: Experiment 3: Risk gain/loss experiment (Experiment AUT I)

Time-Pressure Treatment

It is important that you carefully read the following instructions. The experiment consists of six parts, each part containing four to seven questions. You will in total have to answer 27 questions.

The first four parts contain questions where you will have to make decisions regarding the allocation of money. At the end of the survey, one of your answers will be drawn at random for actual payment in addition to the €10 you get for participating. The last two parts contain questions where you will be asked to consider described situations and assess what you believe is right and wrong.

Before each new part a new set of instructions will appear on the screen. It is important that you carefully read these and that you understand the instructions before you start answering the questions.

Try to answer the questions as quickly as possible. In the first 4 parts, you will have a maximum of 7 seconds for each question. A counter on the screen will indicate how much time you have left. If you do not respond within 7 seconds the next question will appear automatically.

NEW SCREEN (RISK GAIN)

In the first 4 questions, you will have to make choices between receiving a sum of money with certainty and participating in a gamble to win a larger amount. If you choose to gamble, we'll flip a coin and if the outcome is heads, you will receive an additional €10 for your participation, while if the outcome is tails you will get €0 additionally for your participation. This means that you have 50% chance of winning €10 additionally if you choose the coin toss.

Press 'next' when you are ready to start.

NEW SCREEN

Do you choose €3.5 with certainty or to flip a coin for €10?

Time Remaining: 7 seconds

- €3.5 with certainty
- Flip a coin for €10

(Note: we used €3.5, €4, €4.5 and €5 as certain gain as monetary variation in Experiment 3)

NEW SCREEN (RISK LOSS)

In the next four questions, you will have to make choices between losing a sum of money with certainty or to participate in a gamble to avoid losing a larger amount. If you choose to gamble, we'll flip a coin and if the outcome is heads, you will lose the €10 you get in return for your participation, while if the outcome is tails you will lose €0 of the money you receive for participating. This means that you have 50% chance of losing your €10 if you choose the coin toss.

Press 'next' when you are ready to start.

NEW SCREEN

Do you choose a loss of €3.5 with certainty or to flip a coin to avoid a loss of €10?

Time Remaining: 7 seconds

- Lose €3.5 with certainty
- Flip a coin to avoid losing €10

(Note: we used €3.5, €4, €4.5 and €5 as certain loss as monetary variation in Experiment 3)

Time-delay Treatment

It is important that you carefully read the following instructions. The experiment consists of six parts, each part containing four to seven questions. You will in total have to answer 27 questions.

The first four parts contain questions where you will have to make decisions regarding the allocation of money. At the end of the survey, one of your answers will be drawn at random for actual payment in addition to the €10 you get for participating. The last two parts contain questions where you will be asked to consider described situations and assess what you believe is right and wrong.

Before each new part a new set of instructions will appear on the screen. It is important that you carefully read these and that you understand the instructions before you start answering the questions.

Think carefully through your response before proceeding. In the first 4 parts, it will take 20 seconds before you can answer each question.

NEW SCREEN

In the first 4 questions, you will have to make choices between receiving a sum of money with certainty and participating in a gamble to win a larger amount. If you choose to gamble, we'll flip a coin and if the outcome is heads, you will receive an additional €10 for your participation, while if the outcome is tails you will get €0 additionally for your participation. This means that you have 50% chance of winning €10 additionally if you choose the coin toss.

Think carefully through your response before proceeding. In the first 4 parts, it will take 20 seconds before you can answer each question.

Press 'next' when you are ready to start.

NEW SCREEN (RISK GAIN)

Do you choose €3.5 with certainty or to flip a coin for €10?

- €3.5 with certainty
- Flip a coin for €10

NEW SCREEN (RISK LOSS)

In the next four questions, you will have to make choices between losing a sum of money with certainty and participating in a gamble to avoid losing a larger amount. If you choose to gamble, we'll flip a coin and if the outcome is heads, you will lose the €10 you get in return for your participation, while if the outcome is tails you will lose €0 of the money you receive for participating. This means that you have 50% chance of losing your €10 if you choose coin toss.

Think carefully through your response. It will take 20 seconds before you are able to provide your answer to each question.

Press 'next' when you are ready to start.

NEW SCREEN

Do you choose a loss of €3.5 with certainty or to flip a coin to avoid a loss of €10?

- Lose €3.5 with certainty
- Flip a coin to avoid losing €10

A2.3: Experiment 4: Risk gain/loss/loss aversion experiment (Experiment AUT II)

General Instructions

It is important that you carefully read the following instructions. The experiment consists of five parts, each part containing one to five questions. You will in total have to answer 19 questions.

The first three parts contain questions about the allocation of money. One of your answers will be drawn at random for actual payment in addition to the €10 you get for participating. The last two parts contain questions which are not relevant for your payout.

Before each new part a new set of instructions will appear on the screen. It is important that you carefully read the instructions and that you understand them before you start answering the questions. If you have any questions please raise your hand and ask the experimenter before starting a new part. The question will be answered privately.

[PART FOR TIME-PRESSURE]

Try to answer the questions as quickly as possible. In the first four parts, you will have a maximum of 7 seconds for each question. A counter on the screen will indicate how much time you have left (the counter is shown on the screen when there are 6 seconds left and counts down to zero). If you do not respond within 7 seconds the next question will appear automatically. If you fail to answer a question on time and this question is randomly drawn for actual payment, you will lose the €10 you get in return for your participation.

[PART FOR UNCONSTRAINED]

You have no time constraint in answering the questions. When you click 'OK' you will proceed to the next question.

[PART FOR TIME-DELAY]

Think carefully through your response before proceeding. In the first four parts, it will take 20 seconds before you can answer each question.

NEW SCREEN

Instructions for Part 1 (risk gain frame)

In the first five questions, you will have to make choices between receiving a sum of money with certainty and participating in a lottery to win a larger amount. If you choose the lottery, we will flip a coin and if the outcome is heads, you will receive an additional €10 for your participation, while if the outcome is tails you will get €0 additionally for your participation. This means that you have 50% chance of winning €10 additionally to your participation fee if you choose the coin toss.

[PART FOR TIME-PRESSURE]

Remember that you have a maximum of 7 seconds to answer each question. When you press 'OK' the following question will appear.

[PART FOR UNCONSTRAINED]

[empty]

[PART FOR TIME-DELAY]

Think carefully through your response. It will take 20 seconds before you can answer each question. When you press 'OK' the following question will appear.

Press 'OK' when you are ready to start.

NEW SCREEN

Do you choose €2 with certainty or to flip a coin for €10?

     A: Receive €2 with certainty

     B: Flip a coin for €10

(Note: we used €2, €3, €4, €5 and €6 as certain gain as monetary variation in Experiment 4)

Instructions Part 2 (risk gain frame)

In the next five questions, you will have to make choices between losing a sum of money with certainty and participating in a lottery to avoid losing a larger amount. If you choose the lottery, we will flip a coin and if the outcome is heads, you will lose the €10 you get in return for your participation, while if the outcome is tails you will lose €0 of the money you receive for participating. This means that you have a 50% chance of losing your €10 participation fee if you choose the coin toss.

[PART FOR TIME-PRESSURE]

Remember that you have a maximum of 7 seconds to answer each question. When you press 'OK' the following question will appear.

[PART FOR UNCONSTRAINED]

[empty]

[PART FOR TIME-DELAY]

Think carefully through your response. It will take 20 seconds before you can answer each question. When you press 'OK' the following question will appear.

Press 'OK' when you are ready to start.

Do you choose a loss of €2 with certainty or to flip a coin to avoid a loss of €10?

       A: Lose €2 with certainty

       B: Flip a coin to avoid losing €10

(Note: we used €2, €3, €4, €5 and €6 as certain loss as monetary variation in Experiment 4)

Instructions Part 3 (loss aversion)

In the next five questions, you will have to decide if you want to participate in a lottery where you can win or lose money. If you choose the lottery, we'll flip a coin and if the outcome is heads, you will receive €8 in addition to your participation fee, while if the outcome is tails you will lose a certain amount of the money you receive for participating. This means that you have a 50% chance of winning additionally to your participation fee and a 50% chance of losing part of it. If you choose not to gamble you will receive €0 in addition to your participation fee.

[PART FOR TIME-PRESSURE]

Remember that you have a maximum of 7 seconds to answer each question. When you press 'OK' the following question will appear.

[PART FOR UNCONSTRAINED]

[empty]

[PART FOR TIME-DELAY]

Think carefully through your response. It will take 20 seconds before you can answer each question. When you press 'OK' the following question will appear.

Press 'OK' when you are ready to start.

Do you choose a payout of zero with certainty or to flip a coin to win €8 or lose €2?

       A: €0 with certainty in addition to your participation fee of €10.

       B: Flip a coin to win €8 or lose €2.

(Note: we used €2, €4, €6, €8 and €10 as loss as monetary variation in Option B in Experiment 4)

Instructions Part 4 (Jellybeans task)

On the next screen you will see two bowls. One bowl has 100 jellybeans, and the other has 10 jellybeans. You will be asked to choose one of the two bowls. Please imagine that once you have selected a bowl, it will be placed behind a screen, the experimenter will mix up the jellybeans randomly, and then you will reach around the screen (without looking at the bowl) and select a bean.

Imagine that if you selected a colored bean, you would win €5. Would you prefer to pick from bowl A or bowl B?

[PART FOR TIME-PRESSURE]

Remember that you have a maximum of 7 seconds to answer each question. When you press 'OK' the following question will appear.
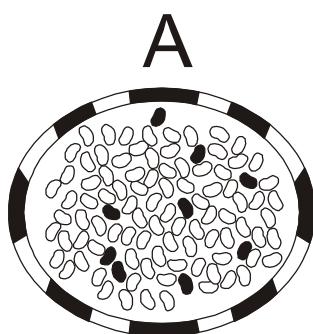
[PART FOR UNCONSTRAINED]
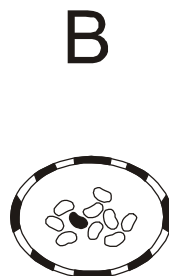
[empty]

[PART FOR TIME-DELAY]

Think carefully through your response. It will take 20 seconds before you can answer the question.

Press 'OK' when you are ready to start.

Which bowl would you prefer if a colored bean wins €5?

A

9% colored jellybeans

B

10% colored jellybeans

Instructions Part 5 (CRT)

Below are three questions that vary in difficulty. Answer as many as you can.

Note that you have no time constraint for answering these questions.

A bat and a ball cost €1.10 in total. The bat costs €1.00 more than the ball.

How much does the ball cost?

_____ cents

If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?

_____ minutes

In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake?

_____ days

A2.4: Screenshots

Figure A2. Example screenshot from the decision screen in the time pressure treatment for risk-gains (Experiment USA).

Do you choose $1 with certainty or to flip a coin for $5?

Do you choose $1 with certainty or to flip a coin for $5?

○ $1 with certainty

○ Flip a coin for $5

Next

Figure A3. Example screenshots from the decision screen in the time delay treatment for risk-gains (Experiment USA). The top screen shows the time screen during the 7 second time delay and the bottom screen shows the screen after the 7 second time delay (when subjects can enter their answers).
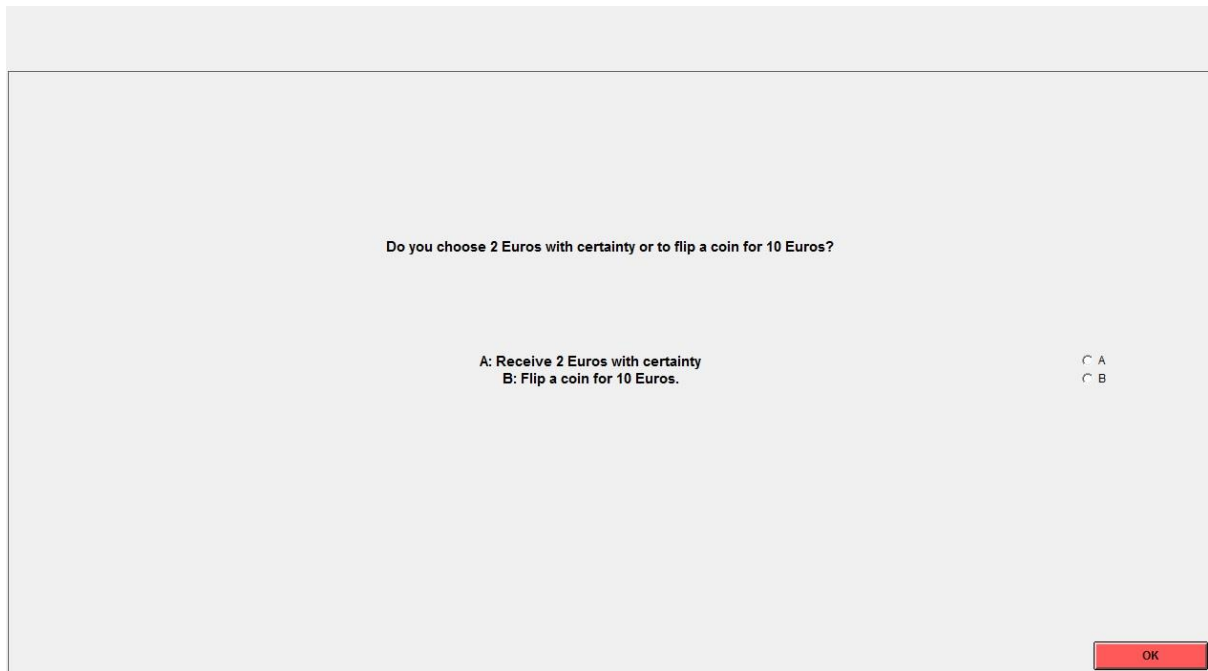
Figure A4. Example screenshot from the decision screen in the treatments for risk-gains in Experiment AUT II. In the time-pressure treatment the remaining decision time is shown on the top right corner of the screen. In the time-delay treatment the OK button and the radio buttons for selecting options A or B appear after 20 seconds.