Appendix B: Instructions for the Experiments (English Translation)

This Appendix contains an English translation of all instructions used in both experiments.

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I.   Instructions for the infinite horizon experiment

I.1   Instructions for part I

These are instructions for part I of the infinite horizon experiments. The instructions refer to the short horizon / full competition treatment. Differences in the long horizon treatments are displayed in blue. Differences in the no competition treatments are displayed in red.

I.1.1   Main instructions

General Instructions

Thank you for participating in this economic study.

If you read the following instructions carefully, depending on the decision of you and the other participants, you can earn more money in addition to your initial endowment of **10 Swiss Francs,** which you will receive from us for your participation in this experiment. It is very important that you carefully read the following instructions. If you have any questions, please do not hesitate to ask us.

During this study, you are not allowed to speak to other participants. Should you not comply with this rule, you will be excluded from the experiment and not receive any payments.

During the experiment, we do not speak of Swiss Francs, but of Taler. Your entire income will be measured in Taler. At the end of the experiment, the Taler you earned will be converted into Swiss Francs using the following ratio:

200 Taler = 1 Swiss Franc.

At the end of today's study, you will receive the amount of Taler you earned as well as 10 Swiss Francs in **cash.**

This study consists of two parts. Each part consists in turn of three cycles; each cycle consists of a randomly chosen number of rounds. For the duration of a cycle, you will be paired with another participant. At the beginning of each new cycle, you will be randomly assigned to a new, different participant, with whom you will remain paired during this cycle. After the second part, today's study will be finished. At the end, your income from all rounds in all cycles will be added and paid to you in cash. In addition to the income from the cycles, you will initially receive an endowment of 5000 Taler for both study parts.

On the following pages, we will explain the first part of the study. We will start with a detailed description of a cycle.

Description of a Cycle: Overview

In each round of a cycle, either you or the other participant can earn points. How much points you and the other participant scored at the end of each round determines the payoffs in this round.

1. Earning Points

You can influence how much points you earn by investing. In each round, you can earn up to one point by investing. Whether you or the other participant can invest in a particular round will be determined by the points score at the beginning of each round. There are three possible point scores: You lie one point behind the other participant; you both have the same number of points; or you lie one point ahead of the other participant.

1. If you lie one point *behind, only you* can invest.
2. If your scores are *tied*, who can invest will be *randomly* determined.
3. If you lie one point *ahead, only the other participant* can invest.

If the investment of a participant is successful, this participant earns one point, leading to a new point score at the end of the round.

2. Payoffs

The payoffs in each round depend on the new point score at the end of the round:

1. *If you lie one point ahead,* you will receive **200 Taler**, and the other participant will receive **0 Taler**.
2. *If your scores are tied,* both you and the other participant will receive **0 Taler** (**100 Taler**).
3. *If you lie one point behind,* you will receive **0 Taler**, and the other participant will receive **200 Taler**.

3. End of a Cycle

At the end of each round, it will be randomly decided whether the cycle stops or whether another round will take place. **The stopping probability is 80% (10%).** This means that a cycle will end after each round with a probability of 80% (10%), while a new round will start with a probability of 20% (90%).

Detailed Timetable of a Round

A. The Investment Decision

You can only invest if you lie one point behind or if you and the other participant have the same number of points and you have been randomly selected to invest in that round. By choosing your investment, you can determine the **success probability** with which you can earn a point. Please note the following relationship between investment and success probability:

a) Tied scores:

> **Success probability = Investment**

b) You lie one point behind:

> **Success probability = Investment + Catch-Up Bonus**

Thereby, your success probability corresponds to your investment, and if you lie one point behind, you receive a **catch-up bonus** in addition. A success probability of 0 means that you will never earn an additional point. A success probability of 20 means that you have a 20% chance to win an additional point. The maximum value is 80, which corresponds to a 80% success probability.

The Costs of Investment
The higher you choose your investment, the more likely it is that you win an additional point. However, the higher your investment, the higher your costs are. The relationship between investment and costs are the same for you and the other participant. In rounds in which you do not invest you also do not incur any costs. The following table shows the costs of each possible investment:

Investment	0	5	10	15	20	25	30	35	40	45	50
Costs in Taler	0	2	6	14	24	38	54	74	96	122	150

Investment	55	60	65	70	75	80
Costs in Taler	182	216	254	294	338	384

Please always refer to this table when making your investment. The relationship between investment and costs remains the same for you and other participant in all cycles.

Catch-up Bonus

If you have the possibility to invest in a round and you **lie one point behind, you will receive a catch-up bonus.** This bonus increases your success probability by 30. It comes at no cost to you.

The success probability cannot be higher than 80. Therefore, if you lie one point behind, you can invest up to 50 points (which would cost you 150 Taler). An investment of 50 points, in addition to the catch-up bonus of 30, yields a success probability of 80%, which is the highest possible success probability.

Determining the Success of Your Investment

After you have chosen the success probability, the computer will determine according to a random process and the success probability chosen by you whether your investment will be successful you thus earn a point.

B. Payoffs

After investments have been made, the payoffs for you and the other participant in this round will be determined according to the *new point score at the end of this round.* Please refer to the overview on page 2 as well as the extra sheet with additional information.

If you invested in a round, *the costs of your investment will be deducted from your income.* Thus, your income in a round in which you made an investment is calculated as follows:

Income = **payoff according to the point score at the end of the round – costs of investment**

If you did not invest in that round:

Income = payoff according to the point score at the end of the round

Please note again:
A higher investment increases your chances to win a point, but it also causes higher costs. If, e.g., you choose a small investment of 5, your chances to win a point are 5% (if there is not catch-up bonus). At the same time, only 2 Taler will be deducted from your income in that round. If you choose a high investment of 50, your chances to win a point increase to 50%. However, 150 Taler will be deducted from your income in that round, regardless of whether your investment was successful or not.

Examples

1. At the beginning of a round the scores of both participants are tied. You were randomly chosen to make an investment. You choose an investment of 50. This costs you 150 Taler. You do not receive a catch-up bonus, so the success probability is 50. Your investment is **successful.** At the end of the round, you lie one point ahead. Therefore, your income in this round thus is:

   200 Taler (as you lie ahead) – **150 Taler** (costs of your investment) = **50 Taler**.

2. At the beginning of a round the scores of both participants are tied, and you can invest. You choose an investment of 20. This costs you 24 Taler. You do not receive a catch-up bonus, so the success probability is 20. Your investment is **unsuccessful**. Therefore, the scores of both participants are still tied at the end of the round. Your income in this round is:

   0 Taler (100 Taler) (as scores are tied) – **24 Taler** (costs of investment) = **-24 Taler (76 Taler)**.

3. At the beginning of a round you lie one point behind, and you can invest. You chose an investment of 10. This costs you 6 Taler. You receive a catch-up bonus of 30, so the probability of success is 40. Your investment is **successful**. Therefore, the scores of both participants are tied at the end of this round. Your income in this round is:

   0 Taler (100 Taler) (as scores are tied) – **6 Taler** (costs of investment) = **-6 Taler (94 Taler)**.

4. At the beginning of a round you lie one point behind and thus can invest. You chose an investment of 30. This costs you 54 Taler. You receive a catch-up bonus of 30, so the success probability is 60. Your investment is **unsuccessful**. Therefore, you still lie one point behind at the end of this round. Your income in this round is:

   0 Taler (as you lie behind) – **54 Taler** (costs of investment) = **-54 Taler**.

C. End of a Cycle and Your Income

As mentioned in the beginning, after each round it is randomly determined whether a cycle stops or a new round begins. The stopping probability after each round is 80% (10%). In other words, the cycle continues in two (nine) out of ten cases after the end of a round, while it stops in eight (one) of ten cases.

If a cycle stops, the **Taler you earned in all rounds** are summed up. The resulting number of Taler determines your income in this cycle. Should you have made a loss in the preceding rounds, this will be deducted from your endowment of 5000 Taler.

Thereafter, the second cycle starts, and you will be **paired with a new, different participant.** Please note that the three cycles of the first study part only differ in the participant with whom you will be paired.

After the third cycle, the first part of today's study is finished, and you will receive further information on the second part of the study.

D. The First Round of a Cycle

At the beginning of a cycle, the scores of you and the other participant are randomly determined. There are four possible starting situations:

- **Starting situation 1**: You lie one point behind.
- **Starting situation 2**: Your scores are tied, you were randomly selected and can invest.
- **Starting situation 3**: Your scores are tied, the other participant was randomly selected and can invest.
- **Starting situation 4**: You lie one point ahead.

If starting situations 1 or 2 are randomly chosen, you can invest in the first round. **Before you will be informed which starting situation was chosen, you will make your investment decisions for the starting situations in which you can invest** (1 and 2).
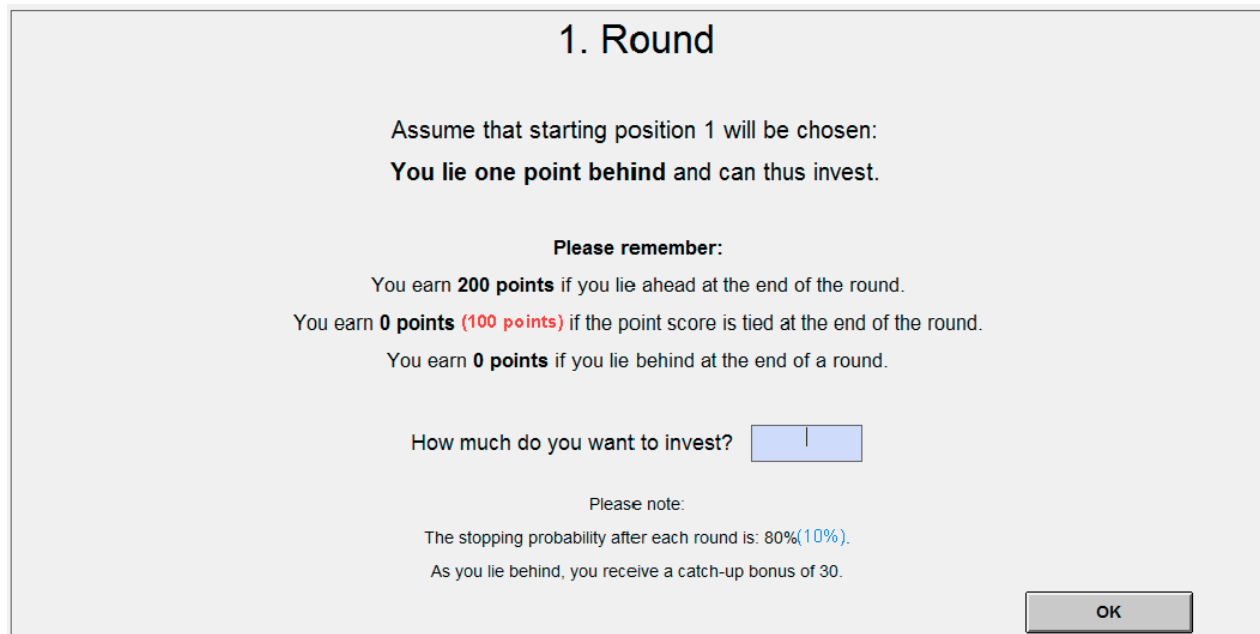
Thereafter, the computer will randomly choose a starting situation. Should the starting situations 1 or 2 get chosen, your decision for the first round will be implemented. Should the starting situations 3 or 4 get chosen, your decision for the first round is not relevant and will have no consequences. In this case, no investment costs will incur.

Detailed Process at the Computer

At the beginning of a cycle, you first make **two investment decisions as described above for the first round of a cycle**:

1. **Starting situation 1**: You lie one point behind.

2. **Starting situation 2**: Your scores are tied, you were randomly selected and can invest.

You enter these investment decisions on two screens that look like this:

1. Round

Assume that starting position 1 will be chosen:
You lie one point behind and can thus invest.

Please remember:
You earn **200 points** if you lie ahead at the end of the round.
You earn **0 points** (100 points) if the point score is tied at the end of the round.
You earn **0 points** if you lie behind at the end of a round.

How much do you want to invest? [   ]

Please note:
The stopping probability after each round is: 80%(10%).
As you lie behind, you receive a catch-up bonus of 30.

[OK]

In the example displayed, you see the input mask for starting situation 1. The screen for starting situation 2 looks similar and describes starting situation 2.

As soon as all participants have made their two decisions for the first round, the cycle will start. On the following screen, you will then be informed about the actually chosen starting situation, and the decisions will be implemented accordingly.

At the end of each round, you will receive feedback on a screen that looks like this:

You will be informed about the chosen **success probability**. The number displayed here consists of the investment chosen and, if applicable, the catch-up bonus. If a participant was unable to invest in a round, this will be shown. Furthermore, you will be informed whether the investment was successful. In the box in the middle of the screen, you can see the new point score at the end of the round. The two boxes closer to the bottom of the screen show the income of both participants in Taler, both for this round as well as for the entire cycle.

In the box at the bottom of the screen you can see the random decision of the computer whether another round will be performed. If the cycle ends, you will again be informed of your income in that cycle. As soon as all participants have concluded a cycle, you will be randomly paired with a different participant, and a new cycle begins. In total, three cycles will be performed. Thereafter, the second part of today's study begins.

If you have any questions regarding the procedures of the study, please contact the conductor of the study. If not, please solve the control questions on your computer. Once you have completed the control questions and before the actual experiment begins, there will be a test run on the computer. In this test run, the other participant with whom you will be paired is the computer who will randomly make its investment decisions. The test run will last for three minutes in total. Should the cycle be finished within the three minutes because of the stopping probability, a new cycle will be started until the three minutes have passed. You will receive further information on your screen as well. As soon as all participants have completed the control questions and the test run, today's study will start.

I.1.2 Control questions

Please answer the following control questions. *(These were answered by subjects on the computer)*

1. You lie behind at the beginning of a round. You choose an investment of 25. Your investment is successful.
   What is your success probability?
   What are our costs?
   What is the new point score?
   What is your income in this round?
   What is the other participant's income in this round?

2. You lie ahead at the beginning of a round. The other participant chooses and investment of 45. His/her investment is successful.
   What is the other participant's success probability?
   What are his costs?
   What is the new point score?
   What is your income in this round?
   What is the other participant's income in this round?

3. At the beginning of a round, scores are tied. You were randomly chosen and choose an investment of 50. Your investment is successful.
   What is the new point score?
   What is your income in this round?
   What is the other participant's income in this round?

4. At the beginning of a round, scores are tied. You were randomly chosen and choose an investment of 5. Your investment is unsuccessful.
   What is your success probability?
   What are your costs?
   What is the new point score?
   What is your income in this round?
   What is the other participant's income in this round?

I.1.3 Extra sheet

Subjects received an extra sheet summarizing costs and payoffs for reference purposes during the experiment.

<u>**Study Part 1**</u>

<u>Overview of Costs</u>

Costs of Investment

Investment	0	5	10	15	20	25	30	35	40	45	50
Costs in Points	0	2	6	14	24	38	54	74	96	122	150

Investment	55	60	65	70	75	80
Costs in Points	182	216	254	294	338	384

Payouts after each round

1. **You lie ahead:**

   You will receive a payout of **200 Taler**, and the other participant will receive **0 Taler** in this round.

4. 2.   **The scores of you and the other participant are tied:**

   Both you and the other participant will receive **0 Taler** **(100 Taler)** in this round.

5. 3.   **You lie behind:**

   You will receive **0 Taler**, and the other participant will receive **200 Taler** in this round.

I.2 Instructions for part II

Subjects within a session participated in both the full and the no competition treatments. Once part I was finished, subjects were handed the respective other extra sheet, which highlighted the changes in the payoff structure when subjects were tied. In addition, a summary was read out aloud highlighting these changes. Finally, subject answered the following questions prior to the start of part II to ensure understanding of the changed payoff structure.

Please answer the following control questions. *(These were answered by subjects on the computer)*

1. You lie behind at the beginning of a round. You choose an investment of 25. Your investment is successful.
   What is your success probability?
   What are your costs?
   What is your income in this round?
   What is the other participant's income in this round?

2. At the beginning of a round, scores are tied. You were randomly chosen and choose an investment of 5. Your investment is unsuccessful.
   What is the success probability?
   What are the costs?
   What is the new point score?
   What is your income in this round?
   What is the other participant's income in this round?

II.   Instructions for the finite horizon experiment

These are instructions for part I of the finite horizon experiments. The instructions refer to the no competition treatment. Differences in the intermediate competition treatment are displayed in red, differences in the full competition treatment are displayed in blue.

II.1.   Instructions for part II

II.1.1.   Main instructions

General Instructions

Thank you for participating in this economic study.

If you read the following instructions carefully, depending on the decision of you and the other participants, you can earn more money in addition to your initial endowment of **10 Swiss Francs,** which you will receive from us for your participation in this experiment. It is very important that you carefully read the following instructions. If you have any questions, please do not hesitate to ask us.

During this study, you are not allowed to speak to other participants. Should you not comply with this rule, you will be excluded from the experiment and not receive any payments.

During the experiment, we do not speak of Swiss Francs, but of Taler. Your entire income will be measured in Taler. At the end of the experiment, the Taler you earned will be converted into Swiss Francs using the following ratio:

300 Taler = 1 Swiss Franc.

At the end of today's study, you will receive the amount of Taler you earned as well as 10 Swiss Francs in **cash.**

This study consists of three parts, and each part consists of 50 rounds. In each part, you will be paired with a different participant and form a group with this other participant for all 50 rounds. We make sure that you will not be paired with another participant in a new study part with whom you already formed a group in a preceding study part. After the 3 study parts, today's study will be finished. At the end, your income in all parts will be added up and paid out to you in cash.

On the following pages, we will explain a study part in more detail.

General Guidelines for the Course of a Study Part

At the beginning of the first round, both you and the other participant have 0 points. The point score between you and the other participant after each round determines how many Taler you and the other participant earn in this round. In each round, either you or the other participant can pay and make an investment in order to win a point. If a participant wins a point in a round, he/she can keep this point for the remainder of that study part. It will be randomly determined whether you or the other participant can make such investment in the first round. Thereafter, the possibility to make an investment will alternate between you and the other participant. Furthermore, both of you will receive an endowment of 3000 Taler at the beginning of the first round.

Timetable of a Round

1. **A participant can earn a point by investing.**

If you have the possibility to invest in a round, you can pay and try to add a point to your point score. If your investment is successful, your score increases by one point. If your investment is unsuccessful, your score will remain unchanged. The point score of the other participant will remain unaffected in both cases.

If the other participant has the possibility to invest, his/her point score will increase by one point if successful. Your point score in this round will remain unaffected in this case.

2. **The payoffs for your and the other participant are determined.**

After either you or the other participant has made the investment in a round, the payoffs for this round for you and other participant (in Taler) will be determined according to the new point score. The payoffs will depend on whether, at the end of a round, you have more points than the other participants, whether your scores are tied, or whether the other participant has more points. This happens after each of the 50 rounds, always according to the then current point score.

3. **A new round begins.**

After payoffs have been determined, a new round begins. If you had the possibility to invest in the last round, the other participant has the possibility to invest in the next round. If the other participant invested in the last round, you can invest in the next round.

End of a Study Part and Payoffs

At the end of the 50, the **Taler you earned in all 50 rounds** will be summed up and added to your initial endowment of 3000 Taler. Should you have made a loss in the 50 rounds, this will be deducted from your initial endowment. The resulting number of Taler determines your income in this study part. Should your losses exceed the initial endowment, your loss will be set off against your income in the other study parts, respectively the 10 Swiss Francs which you received for participating in this experiment.

Thereafter, a new study part begins, and you will be paired with another new participant. The point score will be reset to 0 for both participants, and you receive again an endowment of 3000 Taler. The study parts differ only with regard to the payoffs which you receive depending on the point score. You will be informed about the applicable payoffs before each study part.

Detailed Information about the Process

The Investment

If you have the possibility to invest in a round, you can determine the success probability with which a point will be added to your point score. The success probability lies between 0 and 80. A success probability of 0 means that you will never win an additional point. For all values larger than 0 you may or may not win a point. A value of 20, e.g., means that you will earn an additional point with a probability of 20%. The maximum value is 80, which corresponds to an 80% success probability.

How is the success probability determined?

The success probability consists of 2 components: the investment and the catch-up bonus. The sum of investment and catch-up bonus yield the success probability.

The Choice of Investment

The investment is a number between 0 and 80, which can be chosen at intervals of 5. The chosen number equals precisely the percentage points which the investment adds to the success probability.

0 ≤ Investment ≤ 80

The Costs of Investment

The higher the investment, the higher your costs are. The relationship between investment and costs are the same for you and the other participant. In rounds in which you do not invest you also do not incur any costs. The following table shows the costs of each possible investment. Only investments at intervals of 5 can be chosen:

Investment	0	5	10	15	20	25	30	35	40	45	50
Cost in Taler	0	2	6	14	24	38	54	74	96	122	150

Investment	55	60	65	70	75	80
Cost in Taler	182	216	254	294	338	384

Please always refer to this table when making your investment. The relationship between investment and costs remains the same for you and other participant in all cycles.

In this context, the following is always applicable:

The higher you choose the investment, the more likely it is that you will win an additional point. However, the higher you choose the investment, the higher you costs will also be.

The Catch-up Bonus

If you have the possibility to invest in a round and **your point score is smaller than the point score of the other participant, you receive a catch-up bonus**. The catch-up bonus automatically increases your success probability by 30. This catch-up bonus comes at no cost to you. If your total point score is larger or equals the total points of the other participant, you will not receive a catch-up bonus.

Thereby, the success probability calculates as follows:

1. Your point score **is equal or larger** than the other participants' point score:

Success probability = investment

2. Your point score is smaller than the other participant's point score:

Success probability = investment + catch-up bonus

The success probability cannot exceed 80. Therefore, you can invest up to 50 in the second case. An investment of 50 points, together with the catch-up bonus, results in the maximum success probability of 80%.

Example:

1. At the beginning of a round, the other participant has a higher total point score than you. You choose an investment of 30. This costs you 54 Taler. In addition, you receive a catch-up bonus of 30 percentage points. Your success probability is therefore 60%, and you have a 60% chance to win an additional point.
2. At the beginning of a round, the other participant has the same total point score than you. You choose an investment of 65. This costs you 254 Taler. In this case, you do not receive a catch-up bonus. Your success probability is therefore 65%, and you have a 65% chance to win an additional point.

Determining the Success Probability

After you have chosen the success probability, the computer determines according to a random process and the success probability chosen by you whether your investment will be successful. This mechanism guarantees that your investment will be successful exactly with the probability chosen by you.

Payoffs after Each Round

The payoffs are determined after each of the 50 rounds based on the current point score between you and the other participant. The payoffs vary between the study parts. Please always notice at the beginning of a new study part which payments are in force for this study part.

In the first study part, payoffs are as follows:

1. **You have more points than the other participant:**

   You receive a payoff of **200 Taler**, and the other participant receives **0 Taler** in this round.

2. **You and the other participant have an equal number of points:**

   You receive a payoff of **0 Taler** **(50 Taler, 100 Taler)**, and the other participant receives **0 Taler** **(50 Taler, 100 Taler)** in this round.

3. **The other participant has more points than you:**

   You receive a payoff of **0 Taler**, and the other participant receives **200 Taler** in this round.

If you invested in a round, the costs of investment will also be deducted from you income. Your income thus is determined by the following formula:

If you invested in a round:

Income = payoff according to the point score – costs of investment

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If the other participant invested in a round:

Income = payoff according to the point score

Please note again:

If you invest in a round, you may increase your probability to win an additional point by choosing a higher investment. Please notice, however, that this also leads to higher costs which will be deducted from your payoff at the end of the round. If, e.g., you choose a low investment such as 5, the probability to win an additional point is 5% (if there is no catch-up bonus). And only 2 Taler will be deducted from your income. If you choose a high investment of 80, your chance to win an additional point increases to 80%. However, 384 Taler will be deducted from your income in any event.

Examples:

1. You have the possibility to invest. At the beginning of the round, you and the other participant each have 2 points. You choose an investment of 70. This costs you 294 Taler. You do not receive a catch-up bonus, therefore the success probability is 70. Your investment is **successful**. Thereby you have 3 points at the end of the round. Your income in this round is:

   200 Taler (as you have more points than the other participant) – **294 Taler** (costs of the investment you chose) = **-94 Taler**.

2. You have the possibility to invest. At the beginning of the round, you and the other participant each have 2 points. You choose an investment of 20. This costs you 24 Taler. You do not receive a catch-up bonus, therefore your success probability is 20. Your investment is **not successful**. Thereby you still have 2 points at the end of the round. Your income in this round is:

   0 Taler (50 Taler, 100 Taler) (as scores are tied) – **24 Taler** (costs of the investment you chose) = **-24 Taler (26 Taler, 76 Taler)**.

3. You have the possibility to invest. At the beginning of the round, you have one point and the other participant 2 points. You choose an investment of 10. This costs you 6 Taler.

You receive a catch-up bonus, therefore your success probability is 40. Your investment is **successful**. Thereby you have 2 points at the end of the round. Your income in this round is:

0 Taler (**50 Taler, 100 Taler**) (as scored are tied) – **6 Taler** (costs of the investment you chose) = **-6 Taler** (**44 Taler, 94 Taler**).

4. You have the possibility to invest. At the beginning of the round, you have one point and the other participant 2 points. You choose an investment of 30. This costs you 54 Taler. You receive a catch-up bonus, therefore your success probability is 60. Your investment is **not successful**. Thereby you still have one point at the end of the round. Your income in this round is:

0 Taler (as you have less points than the other participant) – **54 Taler** (costs of the investment you chose) = **-54 Taler**.

At the end of the study part, your income in Taler from all 50 rounds will be summed up and added to your initial endowment. If you have made a loss in the 50 rounds, this will be deducted from the 3000 Taler. The resulting number of Taler then determines how many Swiss Francs you have earned in this study part. The points only influence your income in Taler in each round according to the formula provided above. After the 50th round, all points expire and do not have further consequences for the payoffs.

Examples:

1. Assume that you have earned a total of 1500 Taler in the 50 rounds. This sum will then be added to your initial endowment, and your total income in this study part is 3000+1500=4500 Taler.

2. Assume that you have made a loss of 1500 Taler in the 50 rounds. This sum will then be deducted from your initial endowment, and your total income in this study part is 3000–1500=1500 Taler.

Detailed Process on the Computer

In each round, you make all decisions and receive all information on the same computer screen:

In the upper part of the screen, starting with the second round, you will see information on the previous round. In the example shown above, the other participant had the possibility to invest in the previous round. In the left box, you see his/her investment, the corresponding costs and whether the participant received a catch-up bonus. In the right box, you see whether the investment was successful as well as the corresponding payoffs to you and the other participant in the previous round. If you invested in the previous round, you see in the left box the respective information on you instead of on the other participant.

In the middle part of the screen, you see the current point score as well as the Taler earned up to now by you and the other participant, which is the sum of the Taler earned in all rounds in this study part up to now, without the initial endowment.

In the lower part of the screen, you can make your investment decision, if you have the possibility in the respective round. You will also see whether you receive a catch-up bonus. You can invest up to 80 points, which corresponds to a success probability of 80%. If you receive a catch-up bonus, you can invest up to 50 (as this already corresponds to the maximum success probability of 80%). In the investment box, you will automatically see the last investment you chose (before your first investment, the box will display 0). You can, of course, change this investment. Once you have made your investment decision, please click on OK.

If the other participant has the possibility to invest in a round, you see all information in the upper and middle part of the screen. But you cannot make an own investment decision in the lower part

of the screen.

After finishing the 50 rounds, you will be informed about your total income:

You see your initial endowment of 3000 Taler as well as the income which you earned in the 50 rounds. The sum of the initial endowment and the income in the 50 rounds yields your income in thie study part. Should you have made a loss in the 50 rounds, this will be deducted from your initial endowment. Should your losses exceed 3000 Taler, it will be set off against your income in the other study parts as well as the 10 Swiss Francs which you received for participating in this experiment.

If you have any questions regarding the procedures of the study, please contact one of the conductors of the study. If not, please solve the control questions on the following pages.

II.1.2. Control questions

Please answer the following control questions. Please write down your complete calculations. If you have any questions, please contact one of the conductors of the study.
(These were answered by subjects with pencil & paper)

1. At the beginning of a round, you have 1 point and the other participant has 2 points. You have the possibility to invest and choose an investment of 25. Your investment is successful and you win an additional point.
   What is your success probability?
   What are your costs?
   What is the new point score?
   What is your income in this round?
   What is the other participant's income in this round?

2. At the beginning of a round, you have 3 points and the other participant has 2 points. You have the possibility to invest and choose an investment of 75. Your investment is not successful, and you do not win a point.
   What is your success probability?
   What are your costs?
   What is the new point score?
   What is your income in this round?
   What is the other participant's income in this round?

3. At the beginning of a round, you have 3 points and the other participant has 2 points. The other participant has the possibility to invest and chooses an investment of 35. His/her investment is successful, and (s)he wins an additional point.
   What is the new point score?
   What is your income in this round?
   What is the other participant's income in this round?

4. At the beginning of a round, you have 2 points and the other participant has 2 points. The other participant has the possibility to invest and chooses an investment of 25. His/her investment is successful, and (s)he wins an additional point.
   What is the new point score?
   What is your income in this round?
   What is the other participant's income in this round?

5. At the beginning of a round, you have 0 points and the other participant has 2 points. You have the possibility to invest and choose an investment of 50. Your investment is

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successful, and you win an additional point.

 What is your success probability?
 What are your costs?
 What is the new point score?
 What is your income in this round?
 What is the other participant's income in this round?

6. At the beginning of a round, you have 1 point and the other participant has 2. You have the possibility to invest and choose an investment of 40. Your investment is not successful, and you do not win a point.
 What is your success probability?
 What are your costs?
 What is the new point score?
 What is your income in this round?
 What is the other participant's income in this round?

7. Assuming you have earned 2000 Taler in 50 rounds, what is your overall income from this study part?

8. Assuming you have incurred a loss of 2000 Taler in 50 rounds, what is your overall income from this study part?

II.1.3. Extra sheet

Subjects received an extra sheet summarizing endowment, costs and payoffs for reference purposes during the experiment.

Additional Information for the First Part

Initial endowment for this study part: 3000 points

Costs of Investment

Investment	0	5	10	15	20	25	30	35	40	45	50
Costs in Points	0	2	6	14	24	38	54	74	96	122	150

Investment	55	60	65	70	75	80
Costs in Points	182	216	254	294	338	384

Payoffs after each round

1. **You have more points than the other participant:**

   You will receive a payout of **200 points**, and the other participant will receive **0 points** in this round.

2. **You and the other participant have an equal number of points:**

   You receive a payoff of **0 Taler (50 Taler, 100 Taler)**, and the other participant receives **0 Taler (50 Taler, 100 Taler)** in this round.

3. **The other participant has more points than you:**

   You will receive **0 points**, and the other participant will receive **200 points** in this round.

II.2.   Instructions for parts II and III

Subjects within a session participated in the no, intermediate and full competition treatments. Once part I was finished, subjects were handed the respective extra sheet in part II, which highlighted the changes in the payoff structure when subjects were tied. In addition, a summary was read out aloud highlighting these changes. The same procedure was applied for part III.