General Instructions (Double Auction)

This experiment will consist of *fifteen* trading periods in which you will have the opportunity to buy and sell in a market. The currency used in the market is francs. All trading and earnings will be in terms of francs.

$$_____ \text{ francs} = 1 \text{ NZ dollar}$$

Your francs will be converted to dollars at this rate, and you will be paid in dollars when you leave the lab today. The more francs you earn, the more dollars you earn.

In each period, you may buy and sell units of a good called X in a market. X can be considered an asset with a life of 15 periods, and your inventory of X carries over from one trading period to the next. Each unit of X in your inventory at the end of *each* trading period pays a dividend to you. The dividend paid on each unit is the same for every participant.

You will not know the exact value of the dividend per unit until the end of each trading period. The dividend is determined by chance at the end of each period by a random number generator. The dividend in each period has an equally likely chance of being 0, 8, 28, or 60. The information is provided in the table below.

Dividend	→	0	8	28	60
Likelihood	→	25%	25%	25%	25%

The average dividend per period for each unit of X is 24 francs.

The dividend draws in each period are independent. That means that the likelihood of a particular dividend in a period is not affected by the dividend in previous periods.

2. Your Earnings

At the beginning of the experiment, you will be given […] francs in your Cash inventory. Your earnings for the entire experiment are equal to your Cash inventory at the end of period 15.

All dividends you receive are added to your Cash inventory.

All money spent on purchases is subtracted from your Cash inventory.

All money received from sales is added to your Cash inventory.

Example of earnings from dividends: if you have 6 units of X at the end of period 3 and the dividend draw is 8 francs (which has a 25% chance of occurring), then your dividend earnings for period 3 are equal to 6 units x 8 francs = 48 francs.

3. Average Value Holding Table

You can use your **AVERAGE HOLDING VALUE TABLE** (attached at the end of this document) to help you make decisions. It calculates the average amount of dividends you will receive if you keep a unit of X until the end of the experiment. It also describes how to calculate how much in future dividends you give up on average when you sell a share at any time. The following describes each of the columns in the table.

1. *Ending Period*: period 15 is the last trading period within the experiment, and thus the last period for which to receive a dividend payment. After the final dividend payment in period 15, each unit of X is worthless.

2. *Current Period*: the period during which the average holding value is being calculated. For example, in period 1, the numbers in the row corresponding to "Current Period 1" are in effect.

3. *Number of Remaining Dividend Payments*: the number of times that a dividend can be received from the current period until the final period (period 15). That is, it indicates the number of random asset payment draws remaining in the lifetime of the asset. It is calculated by taking the total number of periods, 15, subtracting the current period number, and adding 1, because the dividend is also paid in the current period.

4. *Average Dividend Value per Period*: the average amount of each dividend. As we indicated earlier, the average dividend in each period is 24 francs per unit of X.

5. *Average Holding Value per Unit of Inventory*: the average value of holding a unit of X for the remainder of the experiment. That is, for each unit of X you hold in your inventory for the remainder of the experiment, you receive on average the amount listed in column 5. The number in Average Holding Value is calculated by multiplying the Number of Remaining Dividend Payments with the Average Dividend Payment per Period.

Please have a look at the table now and make sure you understand it. The following example may help in your understanding.

Suppose for example that there are 7 periods remaining. Since the dividend paid on a unit of X has a 25% chance of being 0, a 25% chance of being 8, a 25% chance of being 28, and a 25% chance of being 60 in any period, the dividend is on average 24 per period for each unit of X. If you hold a unit of X for 7 periods, the total dividend paid on the unit over the 7 periods is on average 7*24 = 168.

4. Market and Trading Rules

At the beginning of the experiment, you will have an initial inventory of […] units of X and […] francs. The experiment will consist of 15 periods. In each period, each participant will have an opportunity to buy and sell units of X. The following is an example of your bidding screen.

1 out of 15

Remaining time [sec]: 92

Average Dividend for this period to be paid per unit of X held   24
Periods Remaining (including this period)   15
Minimum total dividend to be paid per unit of X held   0
Average total dividend to be paid per unit of X held   360
Maximum total dividend to be paid per unit of X held   900

Cash on hand

10620

Units of X on hand

8

Offers to sell	Purchase price	Offers To Buy
	300	
	320	

Enter offer to sell

320

Enter offer to buy

SUBMIT OFFER TO SELL   BUY   SELL   SUBMIT OFFER TO BUY

In the top right hand corner of the screen you see how much time is remaining in the current Period. In the top left hand corner of your screen you see the current Period and how many periods remaining. Your Cash on Hand and your inventory of X are in the left column.

If you would like to offer to sell a unit of X, use the text area entitled "Enter offer to sell" in the second column. In that text area you can enter the price at which you are offering to sell a unit of X, and then select "SUBMIT OFFER TO SELL".

As people submit offers to sell units of X, these offers will appear in the third column from the left, entitled "Offers To Sell". The lowest ask price will always be on the bottom of that list and will, by default, be selected. You can select a different offer by clicking on it. If you select the "BUY" button, you will buy one unit of X for the currently selected sell price.

When you buy a unit of X, your Cash on Hand decreases by the price of the purchase. When you sell a unit of X, your Cash on Hand increases by the price of the sale. You may make an offer to buy a unit by typing a price at which you are willing to purchase one unit of X in the text area "Enter offer to buy," and then pressing the red button labelled "SUBMIT OFFER TO BUY". You can sell to the person who submitted the highest offer to buy if you click on "SELL".

In the middle column, labelled "Transaction Prices", you can see the prices at which units of X have been bought and sold in this period.

5. Recording your earnings

At the end of each period, a summary screen will be provided to you (an example of the summary screen is illustrated below).

Period	
1 out of 15	Remaining time [sec]: 26

RESULTS FOR PERIOD:	1
Beginning Cash on Hand	10000
Beginning X on Hand	10
Money recieved from Sales - Money spent on Purchases	620
Closing X on hand	8
Dividend per unit of X held	28
Period Dividend Earnings	224
Period Earnings	844
End Cash	10844

OK

On your **PERIOD EARNINGS SHEET** please record the following information from the summary screen. At the beginning of period 1, record your cash on hand at the beginning of the period in column 2 in the row marked period 1. In column 3, record your earnings from sales minus expenditures on purchases for the period. Record your inventory of units at the end of the period in column 4 in the row marked period 1. Fill in the dividend of each unit in column 5. Record your dividend earnings for the period in column 6. In column 7, record your cash on hand at the end of the period. Record your cash on hand at the beginning of the period in column 8. Your earnings in each period equal the difference in your cash on hand at the end of the period minus the cash on hand at the beginning of the period. Record your period earnings in column 9. Repeat this procedure to obtain the period earnings of all periods.

END OF PERIOD CASH= BEGINNING OF PERIOD CASH + DIVIDEND PER UNIT * NUMBER OF UNITS IN INVENTORY AT THE END OF PERIOD+SALES -PURCHASES

PERIOD EARNINGS = END OF PERIOD CASH – BEGINNING OF PERIOD CASH

Subsequent periods should be recorded similarly. Your earnings for this experiment are given by the cash on hand at the end of period 15.

Example of period earnings. Suppose that in period 10 your BEGINNING OF PERIOD CASH is 3,000 francs and your INVENTORY at the beginning of period 10 is 7 units of X. If in period 10 you sell 2 units of X at a price of 200 francs and the dividend draw is 8 francs, then in period 10:

END OF PERIOD CASH = 3,000 + 2*200 = 3,400

INVENTORY (at the end of period 10) = 7 - 2 = 5

PERIOD DIVIDEND EARNINGS = DIVIDEND PER UNIT * NUMBER OF UNITS IN INVENTORY = 8 * 5 = 40.

PERIOD EARNINGS = END OF PERIOD CASH – BEGINNING OF PERIOD CASH + DIVIDEND PER UNIT * NUMBER OF UNITS IN INVENTORY AT THE END OF PERIOD = 3,400 – 3,000 + 8 * 5 = 440.

6. Quiz[1]

Question 1: Suppose that you purchase a unit of X in period 5.

    a. What is the average dividend payment on the unit of X for period 5? _____

    b. If you hold that unit of X till the end of the experiment (11 periods including the current period), what is the average total dividend paid on the unit of X? _____

    c. What is the maximum possible dividend paid on the unit of X till the end of the experiment (11 periods including the current period)? _____

    d. What is the minimum possible dividend paid on the unit of X till the end of the experiment (11 periods including the current period)? _____

Question 2: Suppose that you purchase a unit of X in period 15.

    a. What is the average dividend payment on the unit of X for period 15? _____

    b. If you hold that unit of X till the end of the experiment (1 period including the current period), what is the average total dividend paid on the unit of X? _____

    c. What is the maximum possible dividend paid on the unit of X till the end of the experiment (1 period including the current period)? _____

    d. What is the minimum possible dividend paid on the unit of X till the end of the experiment (1 period including the current period)? _____

Question 3: What is the value of the asset after the final dividend payment in period 15? _____

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[1] This quiz was conducted in each session. In some sessions, the quiz was hand-run within the instruction packet and others the quiz was computerized via zTree.

PERIOD EARNINGS SHEET

(1) PERIOD	(2) BEGINNING CASH	(3) +SALES - PURCHAS ES	(4) INVENTORY AT THE END OF PERIOD	(5) DIVIDEND PER UNIT	(6) PERIOD DIVIDEND EARNINGS	(7) END CASH	(8) BEGINNING CASH	(9) PERIOD EARNINGS
1	[…]						[…]	
2								
3								
4								
5								
6								
7								
8								
10								
11								
12								
13								
14								
15								

AVERAGE HOLDING VALUE TABLE

Ending Period	Current Period (Before it Ends and a Dividend is Paid)	Number of Remaining Dividend Payments	*	Average Dividend Value Per Period	=	Average Holding Value Per Unit of Inventory
15	1	15	*	24	=	360
15	2	14	*	24	=	333
15	3	13	*	24	=	312
15	4	12	*	24	=	288
15	5	11	*	24	=	264
15	6	10	*	24	=	240
15	7	9	*	24	=	216
15	8	8	*	24	=	192
15	9	7	*	24	=	168
15	10	6	*	24	=	144
15	11	5	*	24	=	120
15	12	4	*	24	=	96
15	13	3	*	24	=	72
15	14	2	*	24	=	48
15	15	1	*	24	=	24

General Instructions (Double Dutch)

This experiment will consist of *fifteen* trading periods in which you will have the opportunity to buy and sell in a market. The currency used in the market is francs. All trading and earnings will be in terms of francs.

<div align="center">_____ francs = 1 NZ dollar</div>

Your francs will be converted to dollars at this rate, and you will be paid in dollars when you leave the lab today. The more francs you earn, the more dollars you earn.

In each period, you may buy and sell units of a good called X in a market. X can be considered an asset with a life of 15 periods, and your inventory of X carries over from one trading period to the next. Each unit of X in your inventory at the end of *each* trading period pays a dividend to you. The dividend paid on each unit is the same for every participant.

You will not know the exact value of the dividend per unit until the end of each trading period. The dividend is determined by chance at the end of each period by a random number generator. The dividend in each period has an equally likely chance of being 0, 8, 28, or 60. The information is provided in the table below.

Dividend	→	0	8	28	60
Likelihood	→	25%	25%	25%	25%

The average dividend per period for each unit of X is 24 francs.

The dividend draws in each period are independent. That means that the likelihood of a particular dividend in a period is not affected by the dividend in previous periods.

2. Your Earnings

At the beginning of the experiment, you will be given […] francs in your Cash inventory. Your earnings for the entire experiment are equal to your Cash inventory at the end of period 15.

All dividends you receive are added to your Cash inventory.

All money spent on purchases is subtracted from your Cash inventory.

All money received from sales is added to your Cash inventory.

Example of earnings from dividends: if you have 6 units of X at the end of period 3 and the dividend draw is 8 francs (which has a 25% chance of occurring), then your dividend earnings for period 3 are equal to 6 units x 8 francs = 48 francs.

3. Average Value Holding Table

You can use your **AVERAGE HOLDING VALUE TABLE**[2] to help you make decisions. It calculates the average amount of dividends you will receive if you keep a unit of X until the end of the experiment. It also describes how to calculate how much in future dividends you give up on average when you sell a share at any time. The following describes each of the columns in the table.

1. *Ending Period*: period 15 is the last trading period within the experiment, and thus the last period for which to receive a dividend payment. After the final dividend payment in period 15, each unit of X is worthless.

2. *Current Period*: the period during which the average holding value is being calculated. For example, in period 1, the numbers in the row corresponding to "Current Period 1" are in effect.

3. *Number of Remaining Dividend Payments*: the number of times that a dividend can be received from the current period until the final period (period 15). That is, it indicates the number of random asset payment draws remaining in the lifetime of the asset. It is calculated by taking the total number of periods, 15, subtracting the current period number, and adding 1, because the dividend is also paid in the current period.

4. *Average Dividend Value per Period*: the average amount of each dividend. As we indicated earlier, the average dividend in each period is 24 francs per unit of X.

5. *Average Holding Value per Unit of Inventory*: the average value of holding a unit of X for the remainder of the experiment. That is, for each unit of X you hold in your inventory for the remainder of the experiment, you receive on average the amount listed in column 5. The number in Average Holding Value is calculated by multiplying the Number of Remaining Dividend Payments with the Average Dividend Payment per Period.

Please have a look at the table now and make sure you understand it. The following example may help in your understanding.

Suppose for example that there are 7 periods remaining. Since the dividend paid on a unit of X has a 25% chance of being 0, a 25% chance of being 8, a 25% chance of being 28, and a 25% chance of being 60 in any period, the dividend is on average 24 per period for each unit of X. If you hold a unit of X for 7 periods, the total dividend paid on the unit over the 7 periods is on average 7*24 = 168.

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[2] Average Holding Value Tables are identical across treatments and thus refer to Double Action instructions.

4. Market and Trading Rules

At the beginning of the experiment, you will have an initial inventory of […] units of X and […] francs. The experiment will consist of 15 periods. In each period, each participant will have an opportunity to buy and sell units of X. The following is an example of your bidding screen.

In the top left hand corner of your screen you see the current Period and how many periods remaining. Your Cash on Hand and your inventory of X are in the left column.

On the left hand side of the screen, there is a box labelled "Buy Price". The number in the box represents the price to buy one unit of X. Similarly on the right hand side of the screen, there is a box labelled "Sell Price". The number in the box represents the price to sell one unit of X. As you can see from the above example screen, the Buy Price is starts higher than the Sell Price. These price boxes will highlight alternately during the period. A highlighted box indicates the side of the market that is active. For example, you may only sell a unit of X when the Sell Price box is highlighted and vice versa for buying a unit of X.

When the period begins, one of the boxes will be highlighted indicating which side of the market is active and thus the type of transaction that is currently available and at what price. For example, suppose the Sell Price box is highlighted. If you are willing to sell a unit of X at the highlighted price, then click the SELL button. A three second countdown is given at the start of the period. The price will not change for these three seconds allowing you to easily click the SELL button if you want to sell at that price. After three seconds, the Sell Price will begin to rise rapidly. If the price reaches a point that you are willing to sell a unit of X, the click the

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SELL button. As soon as someone clicks their SELL button, then the sell side becomes inactive and the buy side becomes highlighted and active. The three second timer will begin. If no one clicks their BUY button during the first 3 seconds, then the price will begin to drop rapidly. If the price reaches a point that you are willing to buy a unit of X, then click the BUY button. This switching between sides of markets continues until the period ends.

The period will end when the Buy Price and the Sell Price are equal. If you had indicated that you are willing to buy or sell a unit of X by clicking the BUY or SELL button respectively during the period, then your transactions will be completed at the market ending price where the Buy Price equals the Sell Price.

⇨ Note, when you click on the BUY (SELL) button for a given price during the period, you are indicating that you are willing to buy (sell) a unit of X at a price that is at least this favourable for you. That is, the price that you eventually pay (receive) may be lower (higher) than when you clicked the BUY (sell) button.

In the middle column, labelled "Transactions", you can see the number of units of X that have been bought and sold in this period.

The switching between the BUY side and SELL sides of the market depends upon how many units have been bought and sold. If the number of units bought equals the number of units sold, then the same side of the market starts again. If there are more units bought than units sold, then the SELL side starts. If there are more units sold than bought, then the BUY side starts.

If the Buy Price and the Sell Price are equal (and thus the period ends) and the number of units bought does not equal the number of units sold, then the last unit offered to buy/sell is not transacted.

5. Recording your earnings

At the end of each period, a summary screen will be provided to you (an example of the summary screen is illustrated below).

Period	
1 out of 15	Remaining time [sec]: 26

RESULTS FOR PERIOD: 1

Beginning Cash on Hand	10000
Beginning X on Hand	10
Money recieved from Sales - Money spent on Purchases	620
Closing X on hand	8
Dividend per unit of X held	28
Period Dividend Earnings	224
Period Earnings	844
End Cash	10844

OK

On your **PERIOD EARNINGS SHEET**[3] please record the following information from the summary screen. At the beginning of period 1, record your cash on hand at the beginning of the period in column 2 in the row marked period 1. In column 3, record your earnings from sales minus expenditures on purchases for the period. Record your inventory of units at the end of the period in column 4 in the row marked period 1. Fill in the dividend of each unit in column 5. Record your dividend earnings for the period in column 6. In column 7, record your cash on hand at the end of the period. Record your cash on hand at the beginning of the period in column 8. Your earnings in each period equal the difference in your cash on hand at the end of the period minus the cash on hand at the beginning of the period. Record your period earnings in column 9. Repeat this procedure to obtain the period earnings of all periods.

END OF PERIOD CASH= BEGINNING OF PERIOD CASH + DIVIDEND PER UNIT * NUMBER OF UNITS IN INVENTORY AT THE END OF PERIOD+SALES -PURCHASES

PERIOD EARNINGS = END OF PERIOD CASH – BEGINNING OF PERIOD CASH

Subsequent periods should be recorded similarly. Your earnings for this experiment are given by the cash on hand at the end of period 15.

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[3] Period Earnings Sheets are identical across treatments and thus refer to Double Action instructions.

Example of period earnings. Suppose that in period 10 your BEGINNING OF PERIOD CASH is 3,000 francs and your INVENTORY at the beginning of period 10 is 7 units of X. If in period 10 you sell 2 units of X at a price of 200 francs and the dividend draw is 8 francs, then in period 10:

END OF PERIOD CASH = 3,000 + 2*200 = 3,400

INVENTORY (at the end of period 10) = 7 - 2 = 5

PERIOD DIVIDEND EARNINGS = DIVIDEND PER UNIT * NUMBER OF UNITS IN INVENTORY = 8 * 5 = 40.

PERIOD EARNINGS = END OF PERIOD CASH – BEGINNING OF PERIOD CASH + DIVIDEND PER UNIT * NUMBER OF UNITS IN INVENTORY AT THE END OF PERIOD = 3,400 – 3,000 + 8 * 5 = 440.

General Instructions (English Dutch)

This experiment will consist of *fifteen* trading periods in which you will have the opportunity to buy and sell in a market. The currency used in the market is francs. All trading and earnings will be in terms of francs.

_____ francs = 1 NZ dollar

Your francs will be converted to dollars at this rate, and you will be paid in dollars when you leave the lab today. The more francs you earn, the more dollars you earn.

In each period, you may buy or sell units of X in a market. X can be considered an asset with a life of 15 periods, and your inventory of X carries over from one trading period to the next. Each unit of X in your inventory at the end of *any* trading period pays a dividend to you. The dividend paid on each asset is the same for every participant that period.

No one will know the exact value of the dividend per unit until the end of each trading period. The dividend is determined by chance at the end of each period by a random number generator. The dividend in each period has an equally likely chance of being 0, 8, 28, or 60. The information is provided in the table below.

Dividend	→	0	8	28	60
Likelihood	→	25%	25%	25%	25%

The average dividend per period for each unit of X is 24 francs.

The likelihood of a particular dividend in a period is not affected by the dividend in previous periods.

2. Your Earnings

At the beginning of the experiment, you will be given 10,000 francs in your Cash inventory. Your earnings for the entire experiment are equal to your Cash inventory at the end of period 15.

All dividends you receive at the end of each period are added to your Cash inventory.

All money spent on purchases is subtracted from your Cash inventory.

All money received from sales is added to your Cash inventory.

Example of earnings from dividends: if you have 6 units of X at the end of period 3 and the dividend draw is 8 francs (which has a 25% chance of occurring), then your dividend earnings for period 3 are equal to 6 units x 8 francs = 48 francs.

3. Average Value Holding Table

You can use your **AVERAGE HOLDING VALUE TABLE**[4] to help you make decisions. It calculates the average amount of dividends you will receive if you keep a unit of X until the end of the experiment. It also describes how to calculate how much in future dividends you give up on average when you sell a unit of X at any time. The following describes each of the columns in the table.

1. *Ending Period*: period 15 is the last trading period within the experiment, and thus the last period for which to receive a dividend payment. After the final dividend payment in period 15, each unit of X is worthless.

2. *Current Period*: the period during which the average holding value is being calculated. For example, in period 1, the numbers in the row corresponding to "Current Period 1" are in effect.

3. *Number of Remaining Dividend Payments*: the number of times that a dividend can be received from the current period until the final period (period 15). That is, it indicates the number of random dividend payment draws outstanding in the remaining lifetime of the asset. It is calculated by taking the total number of periods, 15, subtracting the current period number, and adding 1, because a dividend is paid at the end of the current period.

4. *Average Dividend Value per Period*: the average amount of each dividend. As we indicated earlier, the average dividend in each period is 24 francs.

5. *Average Holding Value per Unit of Inventory*: the average value of holding a unit of X for the remainder of the experiment. That is, for each unit of X you hold in your inventory for the remainder of the experiment, you receive on average the amount listed in column 5. The number in Average Holding Value is calculated by multiplying the Number of Remaining Dividend Payments with the Average Dividend Payment per Period.

Please have a look at the table now and make sure you understand it. The following example may help in your understanding.

Suppose for example that there are 7 periods remaining including the current period. Since the dividend paid on a unit of X has a 25% chance of being 0, a 25% chance of being 8, a 25% chance of being 28, and a 25% chance of being 60 in any period, the dividend is on average 24 per period for each unit of X. If you hold a unit of X for 7 periods, the total dividend paid on the unit over the 7 periods is on average $7*24 = 168$.

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[4] Average Holding Value Tables are identical across treatments and thus refer to Double Action instructions.

4. Market and Trading Rules

At the beginning of the experiment, you will have an initial inventory of 10 units of X and 10,000 francs. The experiment will consist of 15 periods. In each period, each participant will have an opportunity to buy or sell units of X. The following is an example of your Initial Purchase Offer screen.

In the top left hand corner of your screen you see the current Period and how many periods are remaining. Your Cash on Hand and your inventory of X are in the left column. A summary of the information presented on your Average Holding Value Table is presented at the top center. In the middle of the screen, the "Market Price" is listed, which represents the price to buy/sell a single unit. At the beginning of each period, the initially listed price is zero. On this Initial Purchase Offer screen, you must enter the amount of X you want to purchase at a zero price by entering a number between 0 and 90 in the box labeled "Buy Amount" and click the "To Buy" button. Once everyone has submitted their initial purchase quantity, the program will continue to your Bidding Screen. An example of this screen is listed below.

Current Period	1
Average Dividend for this period to be paid per unit of X held	24
Periods Remaining (including this period):	15
Minimum total dividend to be paid per unit of X held	0
Average total dividend to be paid per unit of X held	360
Maximum total dividend to be paid per unit of X held	900

STARTING INVENTORY

Cash on hand

Units of X on hand

Market Price

CURRENT INVENTORY

Cash on hand

Units of X on hand

Buy Amount

Sell Amount

TRANSACTIONS

Current Market Price

Total to buy

Total to sell

Decrease Buy Amount by 1	Decrease Buy Amount by 5	Decrease Buy Amount by max

Once again, the period and Average Value Holding Table summary information are presented for you at the top of the screen and your Cash on Hand and inventory of X are in the left column. In the middle of the screen is the "Market Price" which once again is initially listed as zero, the "Buy Amount" which is the number of units you stated you want to purchase at a zero Price, and the "Sell Amount" which is the number of units you want to sell at the listed Price (this is always zero at the beginning of a period). The right column presents the "Total to Buy" which is the sum of all traders offers to buy at the listed Price and the "Total to Sell" which is the sum of all traders offers to sell at the listed Price (because everyone starts with 0 units of X as their Sell Amount, this total is also always zero at the beginning of a period).

The program will have a 3 second countdown prior to the start of the period. Once the countdown is completed, the price will begin to increase. As the price increases, you will have the option to decrease the number of units you want to purchase by clicking one of the buttons on the bottom of the screen. Each time you click one of the buttons, the number of units you want to buy decreases by the amount listed on that button. If your Buy Amount reaches zero, a new set of buttons appear allowing you to increase the amount you want to sell.

The period ends when the sum of all traders' Buy Amount (presented on your screen as the Total to Buy) equals the sum of all traders' Sell Amount (similarly presented as the Total to Sell). The price listed when Total to Buy equals Total to Sell is the price for all units of X bought and sold in the period. That is, if you have any units of X listed in your Buy Amount, this is the price you must pay for each unit. Conversely, this is the price you will receive for each unit of X you have listed in your Sell Amount.

Note, the quantities of X listed in your Buy Amount or Sell Amount are commitments to buy or sell respectively. Because all units of X trade at the same price and the fact that the price continually increases throughout the period, the quantity you were willing to buy at a zero price listed in your Initial

Purchase Offer becomes more expensive as the period progresses. You will be committed to purchasing these units unless you reduce the amount you want to buy by clicking one of the buttons at the bottom of the page. Conversely, if you click the buttons sufficiently to induce a positive amount to sell, i.e. your Sell Amount is greater than zero, then each unit to sell is a commitment and cannot be reduced.

There are two restrictions in the market.
1. You cannot buy more units of X than you can afford. That is, the listed Price multiplied by your Buy Amount cannot be more than the cash you have available. Because every unit of X trades at the same price, as the listed Price increases throughout the period, the amount of cash you need to be able to complete the purchase(s) you agreed to (as listed by your Buy Amount) also increases. This means that as the period progresses and the price continues to increase, you may not have enough money to purchase all the units listed in your Buy Amount. If this occurs, the computer will automatically reduce the units of X in your Buy Amount to ensure you can afford all listed purchases. To assist you in making your purchase/sell decisions, the computer will adjust your Cash on Hand based upon the number of units you have committed to purchase or sell and the listed Price.
2. You cannot sell more units of X than you have in your inventory. Therefore, if you commit to sell every unit of X you have, the sell buttons will become disabled.

Because of the way this market works, you cannot buy and sell units of X in a single period. Instead you will either be a net buyer of X, a net seller of X, or you will not trade any units of X. You could buy shares of X in one period and sell them in a different period or vice versa.

5. Recording your earnings

At the end of each period, a summary screen will be provided to you. Below is an example of how your earnings are calculated each period.

RESULTS AFTER PERIOD 5 (10 Periods Remain)

Beginning X on Hand	4	
Units of X Purchased	+1	
Units of X Sold	-0	
Closing X on Hand…………………………………..5 ☐	5	
Dividend per unit of X Held	x8	
Received Dividend Earnings………………………… 40 ☐	**40**	
Beginning Cash on Hand	+1450	
Cash Received from Sales	+0	
Cash Spent on Purchases	-350	
Change in Cash from Sales and Purchases………..-350 ☐ __ **-350**		
Closing Cash on Hand……………………………………………………….1140 ☐		

1140

Average Dividend Payment per Period	24	
Number of Periods Remaining	x10	
Average Holding Value per Unit………………………… 240 ☐	**240**	
Closing X on Hand (from line 4 above)	**x5**	
Average Holding Value of X on Hand……………………………..1200 ☐		

+1200

Average Profit with No Further Trading

2340

In this example, period 5 has just been completed. This person had a Beginning X on Hand of 4 units, purchased 1 unit by spending 350 to having a Closing X on Hand of 5 units of X. The randomly selected dividend was 8 resulting in 5x8=40 in Received Dividend Earnings. Since the person started with 1450 Beginning Cash on Hand, had a Change in Cash from Sales and Purchase of -350 (=0 Cash Received from Sales – 350 Cash Spent on Purchases) and had 40 Received Dividend Earnings, this person has a Closing Cash on Hand of 1140. Since the Number of Remaining Periods in which dividends will be paid is 10, the Average Holding Value per Unit is 240. As this person has a Closing X on Hand of 5, the

Average Holding Value of X on Hand is 5x240=1200. Therefore, if this person made no further trades, on average she would earn 1140 + 1200=2340 in the experiment.

On your **PERIOD EARNINGS SHEET**[5] please record the following information from the summary screen after each period. For the completed period, record your Beginning Cash on Hand in column 2. In column 3, record your Change in Cash from Sales and Purchases (this is your earnings from sales minus expenditures on purchases for the period). Record your inventory of units at the end of the period in column 4 labeled Closing X on Hand. Fill in the Dividend per Unit of X Held in column 5. Record your Received Dividend Earnings for the period in column 6. In column 7, record your Closing Cash on Hand (this is your Beginning Cash on Hand + Change in Cash from Sales and Purchases + Received Dividend Earnings). In column 8, record your Average Holding Value of X on Hand. Since all units of X have already paid the dividend for the period that was just completed, the Average Holding Value of X on Hand is the average dividend payment of 24 francs per period times the number of dividend payments remaining, so it is one less than the number shown on the Average Holding Value Table because that table assumes the dividend for the period has not yet been paid. In column 9, record your Average Profit with No Further Trading (which is your Closing Cash on Hand plus the Average Holding Value of X on Hand).   Your earnings for this experiment are given by the Closing Cash on Hand at the end of period 15 because the Average Holding Value of X on Hand is 0 after the last dividend payment has been made.

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[5] Period Earnings Sheets are identical across treatments and thus refer to Double Action instructions.