

Appendix 1  
Software Interface

**McEEL Client: Participant 6 Period 1** Time: 5

**Buy Red \$** One Red \$ Buys 1.00 Blue \$ **Buy Blue \$**  
One Blue \$ Buys 1.00 Red \$

**Red Assets Held: 1**  
**Red Cash Held: 300**

**Red Market**  
Outstanding Ask: Ask  
Outstanding Bid: Bid  
Last Trade Price: -

**Blue Assets Held: 3**  
**Blue Cash Held: 600**

**Blue Market**  
Outstanding Ask: Ask  
Outstanding Bid: Bid  
Last Trade Price: -

**FeedBack**

Bid Ask  
Accept Ask Accept Bid

0

## Appendix 2 Double Auction Asset Market Instructions

You are about to participate in an experiment in economic decision making. There are no correct or incorrect responses. Your decisions and the decisions of others will determine how much you are paid at the end of this session. You may earn a substantial amount of money. Funding for this experiment has been provided by the Social Sciences and Humanities Research Council of Canada.

Each of you will be able to act as an asset trader in this experiment. You will be able to buy and sell two different assets, Red Assets and Blue Assets, as you see fit in separate double auction markets. You can think of an asset as being shares in a company which will pay you some dividend every year. An asset gives you some income every time period, in this case every period. In this session there are 2 different types of assets, Red Assets and Blue Assets. Red Assets may be different from Blue Assets.

There will be 20 trading periods in this session. Each trading period in this session will last for 3 minutes or 180 seconds. The time remaining in a trading period will be shown at the upper right hand corner of your computer screen. There will be 2 different kinds of money in this environment; Red Dollars and Blue Dollars. Red Dollars are required to buy Red Assets and Blue Dollars are required to buy Blue Assets. At the end of the session your holdings of Blue Dollars will be converted into Red Dollars at the exchange rate shown in the last period. Then your total of Red Dollars will be converted into Canadian Dollars at an exchange rate of 1 Canadian Dollar for every 77 Red Dollars.

At the beginning of the session you will receive an endowment. Your endowment will contain some combination of; Red Assets, Blue Assets, Red Dollars, and Blue Dollars. Not all individuals will receive the same endowment.

The return to holding a Red Asset at the end of a trading period will be a dividend of either R\$10 or R\$20, never any other value. The value of the dividend will be selected by the roll of a die at the end of each trading period. A roll of 1, 2, or 3 will mean a dividend of R\$10. A roll of 4, 5, or 6 will mean a dividend of R\$20. If you were to hold a Red Asset for a sufficiently long period of time the average return would be R\$15 per period. The asset has no value to anyone other than the dividend received at the end of each period. After the dividend has been paid in the 20<sup>th</sup> period, the asset will not create any more income. All Red Assets are identical. Does everyone understand how the return to the Red Asset is determined?

The return to holding a Blue Asset at the end of a trading period will be a dividend of either B\$15 or B\$25, never any other value. The value of the dividend will be selected by the roll of a die at the end of each trading period. A roll of 1, 2, or 3 will mean a dividend of B\$15. A roll of 4, 5, or 6 will mean a dividend of B\$25. If you were to hold a Blue Asset for a sufficiently long period of time the average return would be B\$20 per period. The asset has no value to anyone other than the dividend received at the end of each period. After the dividend has been paid in the

20<sup>th</sup> period, the asset will not create any more income. All Blue Assets are identical. Does everyone understand how the return to the Blue Asset is determined?

The dividend of the Red Asset and the dividend of the Blue Asset are independent of each other. The dividend on the Red Asset has no impact on what the dividend of the Blue Asset will be. These dividends will be determined by separate rolls of the die.

Please fill in the following chart as the die is rolled. Someone will check your work.

| Period | Roll | Red Dividend | Roll | Blue Dividend |
|--------|------|--------------|------|---------------|
| 1      |      |              |      |               |
| 2      |      |              |      |               |
| 3      |      |              |      |               |

The return to holding each type of asset will be revealed to each of you, along with your and only your total income of Red Dollars generated by holding Red Assets and your total income of Blue Dollars generated by holding Blue Assets on a separate screen between trading periods. The dividend to holding either type of asset is the same for all traders. For example, if you receive a dividend of R\$20 for each Red Asset you hold, everyone else who holds Red Assets will also receive a dividend of R\$20 on each asset.

All endowments will have the same expected value, but some will have different combinations of assets and currencies.

Once you have received your endowment of Red Dollars, Blue Dollars, Red Assets and Blue Assets, there are 10 different actions that you may take.

### **THE RED ASSET MARKET**

#### ***THE RED ASSET MARKET HAS A RED BACKGROUND***

#### **BIDDING IN THE RED ASSET MARKET (to buy a Red Asset)**

Entering a bid is making a request to buy a Red Asset from another trader at a specific price in Red Dollars. For example, entering a bid of R\$5 would be the same as asking all of the other traders in the session if one of them would like to give you a Red Asset in exchange for R\$5. If someone agrees, you will give them R\$5 and they will give you a Red Asset. Making a bid does

not guarantee that it will be accepted.

If someone else has already entered a bid, this does not prevent you from entering another bid. The only restriction in this situation is that the bid you enter must be *higher* than the bid already entered by another trader. By the same token, having entered a bid yourself does not prevent you or another trader from entering a higher bid. Once again entering a bid does not guarantee that it will be accepted.

To enter a bid, simply use your computer mouse to press the button market **BID** on the bottom left hand side of the section of your screen with the Red background. Once you have pressed the Red **BID** button, a box will appear in which you can enter your bid using your computer keyboard. Once you are sure that you have entered your bid correctly, press the OK button. The computer will check to see if your bid is acceptable and if it is, it will be posted to the Red Asset market, and a label will appear beside your bid to remind you that you have the outstanding bid.

If your bid is not acceptable for some reason you will be informed of this and the reason why in the Red feedback area identified above the Red **BID** button.

Note that you may not enter a bid in the Red Asset market that is higher than the total Red Dollars you hold.

Whenever you enter a bid it is to buy *ONE* Red Asset.

### **ASKING IN THE RED ASSET MARKET (to sell a Red Asset)**

Entering an ask is offering to sell a Red Asset to any of the other traders in the market at a specific price. For example, entering an ask of R\$50 would be the same as asking all other traders in the session if they would like to give you R\$50 in exchange for a Red Asset. If someone agrees, you will give them a Red Asset and they will give you R\$50. Making an ask does not guarantee that it will be accepted.

If another trader has already entered an ask this does not prevent you from entering an ask of your own. The only restriction is that your ask must be *lower* than the one already entered by another trader. Equivalently, having entered an ask does not prevent you or another trader from entering a lower ask. Once again, entering an ask does not guarantee that it will be accepted.

To enter a ask, simply use your computer mouse to press the button marked **ASK** on the bottom right hand side of the section of your screen with the Red Background. Once you have pressed the Red **ASK** button a box will appear in which you can enter your ask using your keyboard. Once you are sure that you have entered your ask correctly, press the OK button. The computer will check to see if your ask is acceptable and if it is, it will be posted to the Red Asset market, and a label will appear beside the outstanding Red ask to remind you that you have the outstanding ask.

If your bid is not acceptable for some reason you will be informed of this and the reason why in

the Red feedback area identified above the Red **ASK** button.

Note that you cannot enter an Ask in the Red Asset market if you do not own any Red Assets.

Whenever you enter an ask it is to sell ONE Red Asset.

### **ACCEPTING AN ASK IN THE RED ASSET MARKET (Purchasing a Red Asset)**

Accepting an ask is agreeing to someone's offer to sell you a Red Asset for a specified price. The specified price is the outstanding Red ask shown in the Red section of your computer screen. Remember when you want to purchase a Red Asset from the trader with the outstanding ask, you want to accept the Red Ask.

To accept the outstanding Red ask simply use your computer mouse to press the button labelled **ACCEPT ASK** on the lower left of the section of your computer screen with the Red background. A box will appear asking you to confirm your purchase of a Red Asset at the price of the outstanding Red ask. If you press OK, you will give the trader with the outstanding ask the price they asked for and they will give you a Red Asset. You will not know with whom you are trading.

Note that you cannot accept an Red ask more for more Red Dollars than you have.

When a Red ask has been accepted, all traders will be informed that a Red transaction has taken place in the Red feedback area of their screens and the Red Last Trade Price will be updated with the price at which the transaction occurred.

### **ACCEPTING A BID IN THE RED ASSET MARKET (Selling a Red Asset)**

Accepting a bid is agreeing to another trader's request to buy a Red Asset for a specified price. The specified price is the outstanding Red bid shown in the Red section of your computer screen. When you want to sell a Red Asset to another trader you want to accept the outstanding Red bid.

To accept the outstanding Red bid simply use your computer mouse to press the button on the lower right hand side of the Red section of your computer screen labelled **ACCEPT BID**. A box will appear asking you to confirm your sale of a Red Asset at the price of the outstanding Red bid. If you press OK you will give the trader with the outstanding Red bid a Red Asset and they will give you an amount of Red Dollars equal to the outstanding Red bid. You will not know with whom you are trading.

Note that you cannot accept a Red bid if you do not own any Red assets.

When a Red bid has been accepted, all traders will be informed that a Red transaction has taken place in the Red feedback area of their screens and the Red Last Trade Price will be updated with the price at which the Red transaction occurred.

## **THE BLUE ASSET MARKET**

### ***THE BLUE ASSET MARKET HAS A BLUE BACKGROUND***

The Blue Asset market works in exactly the same way as the Red Asset market, except that you use Blue Dollars instead of Red Dollars.

### **BIDDING IN THE BLUE ASSET MARKET (to buy a Blue Asset)**

To enter a bid in the Blue Asset market, simply use your computer mouse to press the button marked **BID** on the bottom left hand side of the section of your screen with the Blue background. Then a box will appear in which you can enter your bid using your computer keyboard. Once you are sure that you have entered your bid correctly, press the OK button. If your bid is posted to the market a label will appear beside your bid to remind you that you have the outstanding bid.

If your bid is not acceptable for some reason you will be informed of this and the reason why in the Blue feedback area identified above the Blue **BID** button.

Note that you may not enter a bid in the Blue Asset market that is higher than the total Blue Dollars you hold.

Whenever you enter a bid it is to buy ONE Blue Asset.

### **ASKING IN THE BLUE ASSET MARKET (to sell a Blue Asset)**

To enter an ask in the Blue Asset Market, simply use your computer mouse to press the button marked **ASK** on the bottom right hand side of the section of your screen with the Blue Background. Use your keyboard to enter your ask. Once you are sure that you have entered your ask correctly, press the OK button. If your ask is posted to the market a label will appear beside your ask to remind you that you have the outstanding ask.

If your ask is not acceptable for some reason you will be informed of this and the reason why in the Blue feedback area identified above the Blue **ASK** button.

Note that you cannot enter an Ask in the Blue Asset market if you do not own any Blue Assets.

Whenever you enter an ask it is to sell ONE Blue Asset.

### **ACCEPTING AN ASK IN THE BLUE ASSET MARKET (Purchasing a Blue Asset)**

To accept the outstanding Blue ask simply use your computer mouse to press the button labelled **ACCEPT ASK** on the lower left of the section of your computer screen with the Blue background. A box will appear asking you to confirm your purchase. If you press OK the transaction will take place.

Note that you cannot accept an Blue ask more for more Blue Dollars than you have.

When a Blue ask has been accepted, all traders will be informed that a Blue transaction has taken place in the Blue feedback area of their screens and the Blue Last Trade Price will be updated with the price at which the transaction occurred.

### **ACCEPTING A BID IN THE BLUE ASSET MARKET (Selling a Blue Asset)**

To accept the outstanding Blue bid simply use your computer mouse to press the button on the lower right hand side of the Blue section of your computer screen labelled **ACCEPT BID**. A box will appear asking you to confirm your sale. If you press OK the transaction will take place.

Note that you cannot accept a Blue bid if you do not own any Blue assets.

When a Blue bid has been accepted, all traders will be informed that a Blue transaction has taken place in the Blue feedback area of the their screens and the Blue Last Trade Price will be updated with the price at which the Blue transaction occurred.

### **EXCHANGING CURRENCY**

The remaining two actions that you may take are to buy Red Dollars or to buy Blue Dollars.

### **BUYING RED DOLLARS**

Buying Red Dollars is the same as trading in your Blue Dollars for Red Dollars. This is the only way you can purchase Red Assets if you have no Red Dollars.

In order to buy Red Dollars simply use your computer mouse to press the button at the top of your computer screen labelled **BUY RED DOLLARS**. This will activate the currency exchange window. Use your keyboard to enter the number of Blue Dollars you would like to trade in for Red Dollars. The exchange window calculates how many Red Dollars you can buy with the number of Blue Dollars you entered in the exchange window. Adjust the number of Blue Dollars you wish to trade in until the exchange window shows the number of Red Dollars you wish to buy. To complete the transaction press the button labelled OK. Your holdings of Blue Dollars will be reduced by the amount shown in the exchange window and your holdings of Red Dollars will be increased by the amount shown in the exchange window.

Note that your purchase of Red Dollars is limited by the number of Blue Dollars you have and the rate at which Blue Dollars trade for Red Dollars.

### **BUYING BLUE DOLLARS**

Buying Blue Dollars is the same as trading in your Red Dollars for Blue Dollars. This is the only way you can purchase Blue Assets if you have no Blue Dollars.

In order to buy Blue Dollars simply use your computer mouse to press the button at the top of your computer screen labelled **BUY BLUE DOLLARS**. This will activate the currency exchange window. Use your keyboard to enter the number of Red Dollars you would like to trade for Blue Dollars. The exchange window calculates how many Blue Dollars you can buy with the number of Red Dollars you entered. Change the number of Red Dollars you wish to trade until the exchange window shows the number of Blue Dollars you wish to buy. To complete the transaction press the button labelled OK. Your holdings of Red Dollars will be reduced by the amount shown in the exchange window and your holdings of Blue Dollars will be increased by the amount shown in the exchange window.

Note that your purchase of Blue Dollars is limited by the number of Red Dollars you have as well as the rate at which Red Dollars trade for Blue Dollars.

### **THE EXCHANGE RATE BETWEEN RED AND BLUE DOLLARS**

Throughout this session the exchange rate between Red Dollars and Blue Dollars will remain fixed at  $R\$1 = B\$1$ . That is to say you may buy 1 Red Dollar for 1 Blue Dollar or 1 Blue Dollar for 1 Red Dollar. This will be the exchange rate for the entire session.

Are there any questions?