

Instruksjoner eksperiment

ECON 2500 1. forelesning

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- **Market Setup:** There will be 2 participants in this market. Each person is endowed with **\$50.00** in cash and **6** shares of a stock that can be bought or sold.
- **Periods:** This part of the experiment consists of exactly **20 trading periods**, and all shares of the stock that you own at the end of the final trading period (from your endowment or obtained by purchase) will be redeemed for **\$7.00** each.
- **Dividends and Interest:** All shares of stock owned at the end of each period will pay a dividend (explained below). Each dollar in retained cash (from the endowment or obtained from stock sales) will earn a fixed interest rate. The dividends may not be known in advance, but the interest rate will be known.
- **Earnings:** In addition to earnings from interest and dividends, your cash balance will be altered as you buy and/or sell shares. Transactions will be executed for you based on "limit orders" to buy or sell that you may submit at the beginning of a trading period, as explained below.

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Random Determination of Dividends per Share

Random State:	1	2	3	4	5	6	7	8	9	10
Share Dividend:	\$0.40	\$0.40	\$0.40	\$0.40	\$0.40	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00

- **Earnings on Investments:** Dividends will be paid on all shares owned after trading in a round is complete. This includes shares previously owned and not sold, plus any shares purchased in the round. Interest is paid on cash balances after trading has taken place in a round (but before dividends are paid).
- **Dividends:** Each share held at the end of a trading period will pay a dividend that depends on the outcome of a random process. The computer will select a random number from 1 to 10, with each integer in this interval being equally likely. This random "state" determines which column of the Dividend Table shown above is relevant. Thus each of the dividend amounts listed in the bottom row of the table are equally likely to be earned on each share that you own.
- **Interest:** Each dollar of cash held after trading for the round is complete (but prior to the payment of dividends) will earn an amount of interest that is **\$0.10**.
- **Differences:** Note that dividends are random, whereas interest payments are known in advance. Another difference is that interest is paid on **each dollar** not used to purchase shares, whereas dividends are paid on **each share**, the price of which is determined in the trading process, as explained next.

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- **Limit Orders to Buy or Sell:** At the beginning of a trading period, those who wish to purchase shares will indicate the number of shares desired and the maximum or "limit" price that they are willing to pay. Similarly, those who wish to sell shares will indicate the number of shares offered and the minimum "limit" price that they are willing to accept.
- **Buy and Sell Orders:** The same person may offer to buy and sell shares, but the **buy price** or "bid" must be below the **sell price** or "ask," so you cannot sell to yourself.
- **Arranging Trades:** Trades are possible if some of the sell order prices (asks) are below some of the buy order prices (bids). The market maker is a computer program that will organize the buy and sell orders and use these to determine a market-clearing price. Ask prices that are above this level and bid prices that are below this level will be rejected.
- **Market Clearing:** All transactions will be at the **same** "market-clearing" price. This will be a price such that the number of shares that traders wish to buy is equal to the number of shares that traders wish to sell. In other words, the number of shares with limit sell prices (asks) at or below this clearing price is equal to the number of shares with limit buy prices (bids) at or above this clearing price. Thus, those who are willing to pay the most will buy from those who are willing to sell for the least, but all trades will be at the same price. The mechanics of determining the clearing price will be explained next.

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- **Example:** Suppose that the only bids submitted in a round are 60 cents for one share and 20 for another, and the only asks are 10 for one share and 40 for another. The clearing price cannot be above 40, since there would be 2 shares offered for sale, but only 1 share that buyers are willing to purchase. Conversely, at any price below 20, there are 2 shares demanded, but only 1 share is offered for sale. Notice that any price between 20 and 40 could be a market-clearing price, and when this happens the market maker will use the midpoint of the interval, which is 30 in this case. Thus the person who offered to pay 60 would only have to pay 30 cents, and the person who offered to take 10 would actually receive 30 cents for the share sold. The numbers used in the actual experiment to follow may be much larger than the penny amounts used here, which are for illustrative purposes only.

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- **Example 2:** Suppose that a person who begins a round with **\$20** in cash and **3 shares**. If this person makes no purchases or sales, then the interest earnings would be **\$0.10** on each dollar in cash, i.e. $\$20 \times 0.10 = \2.00 in interest. If the randomly determined dividend turned out to be **\$0.40**, then the total dividend income would be $3 \times \$0.40 = \1.20 . Similarly, if the randomly determined dividend turned out to be **\$1.00**, then the total dividend income would be $3 \times 1.00 = \$3.00$.
- **Example 2 (continued):** If the person who started with 3 shares and \$20 were to purchase a share for \$P in the trading period, then this person would earn interest on $\$20 - \P and would earn a dividend on 4 shares, and these 4 shares would make up the person's stock portfolio at the start of the next period. The amount of cash carried over to the next period would be the initial cash \$20, minus the cost of the purchase plus the interest in cash remaining, plus the dividends on the 4 shares. The numbers used in these examples were selected for illustrative purposes only. To find out more about the actual numbers to be used in the experiment, please press:

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Instructions Summary (ID = 2)

Random Determination of Dividends per Share										
Random State:	1	2	3	4	5	6	7	8	9	10
Share Dividend:	\$0.40	\$0.40	\$0.40	\$0.40	\$0.40	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00

- You will begin with an initial cash account of **\$50.00** and with **6** shares of a stock with dividends determined by a randomly generated number as shown above, with each of the ten columns in the dividend table being equally likely.
- Shares can be bought or sold by placing limit orders, which are executed at a single market-clearing price selected to equalize the number of shares demanded (with bids above the price) and the number of shares offered (with asks below the price).
- This part of the experiment consists of exactly **20 trading periods**, and all shares owned at the end of the final trading period (from your endowment or obtained by purchase) will be redeemed for **\$7.00** each.
- Each share owned at the end of a period (after trades have been executed) will pay a randomly determined dividend, and each dollar in retained cash (from the endowment or obtained from stock sales) will earn a fixed interest of **\$0.10**.
- Your cash balance will decrease if you purchase shares, and it will increase as you earn interest and dividends, and as you sell shares or redeem them in the final period. The computer will keep track of your cash and share accounts, and your final earnings will equal your cash balance in the final period after any shares you have are redeemed.

Finished with Instructions

Ready to Begin

Begin Round 1

Accepted Bids **Accepted Offers**
Bidder ID **Bid** **Offer** **Seller ID**

Random Determination of Dividends per Share

Random State: 1 2 3 4 5 6 7 8 9 10
 Share Dividend: \$0.40 \$0.40 \$0.40 \$0.40 \$0.40 \$1.00 \$1.00 \$1.00 \$1.00 \$1.00

Cash Balance: **\$50.00** Shares Owned: **6** shares

Note: Cash balances not used to purchase shares will earn interest of **\$0.10** per dollar. Shares owned or purchased will pay a randomly determined dividend. Shares owned at the end of **period 20** will be redeemed for **\$7.00** per share (after the dividend is paid).

If you desire to purchase shares, enter the number of shares desired and the maximum purchase price.

If you desire to sell shares, enter the number and the minimum sale price.

If you have the cash and shares, you may place both buy and sell orders, but your buy order price must be below your sell order price.

Buy Order**Sell Order**

number of shares:

number of shares:

for at most:
(bid price per share)

for at least:
(ask price per share)

- “Buy” kan ikke være høyere enn “Sell”