FUTURES: ACCOUNTING

• Margin (“performance bond”)
  – Money deposit to ensure fulfillment of a futures contract at a future date

FUTURES: ACCOUNTING

• Margins
  – Initial margin
    • Deposit that must be made when opening a position
  – Maintenance margin
    • Minimum margin that must be maintained while holding an open position
  – Margin call
    • Call to deposit additional funds into margin account to bring it up to initial margin level

FUTURES: MARGINS

- Keep balance above "maintenance margin"
- Deposit "margin calls"
- Deposit "initial margin"
• Suppose corn futures contracts have:
  – Contract size = 5,000 bu/contract
  – Initial margin = $600/contract
  – Maintenance margin = $400/contract

• Suppose on May 10th bearish speculator opens “short” position by selling 3 corn futures contracts @ $2.10/bu

  – Initial margin deposit = $1800
    (= $600/contract × 3 contracts)
  – Maintenance margin = $1200
    (= $400/contract × 3 contracts)
MARGINS EXAMPLE

- Price falls and settlement price is $2.08/bu on May 10th:
  - Daily gain (loss) = $300
    
    \[\text{Daily gain (loss)} = (\text{\$2.10/bu} - \text{\$2.08/bu}) \times 5000 \text{ bu/contract} \times 3 \text{ contracts}\]

- Provisional margin account balance = 
  Previous balance + Daily gain (loss)

  \[
  \text{Provisional margin account balance} = \text{\$1800} + \text{\$300} \\
  = \text{\$2100}
  \]

MARGINS EXAMPLE

- Price falls and settlement price is $2.08/bu on May 10th:
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  - Provisional margin account balance = 
    Previous balance + Daily gain (loss)

  \[
  \text{Provisional margin account balance} = \text{\$1800} + \text{\$300} \\
  = \text{\$2100}
  \]

MARGINS EXAMPLE

- Price falls and settlement price is $2.08/bu on May 10th:
  - Provisional balance ($2100) exceeds maintenance margin ($1200)

  \[
  \text{Balance} = \text{\$2100} + \text{\$0} \\
  = \text{\$2100}
  \]
MARGINS EXAMPLE

• Settlement price rises to $2.12/bu on May 11th:
  – Daily gain (loss) = ($600)
    \[ = (\$2.08/bu - \$2.12/bu) \times 5000 \text{ bu/contract} \times 3 \text{ contracts} \]
  – Provisional margin account balance =
    Previous balance + Daily gain (loss)
    \[
    \text{Provisional margin account balance} = \$2100 + (\$600) = \$1500
    \]
MARGINS EXAMPLE

- Settlement price rises to $2.12/bu on May 11th:
  - Provisional balance ($1500) exceeds maintenance margin ($1200)
  - Balance = Provisional Balance + Margin Call

\[
\text{Balance} = \text{Provisional Balance} + \text{Margin Call}
\]

\[
\text{Balance} = 1500 + 0 = 1500
\]

MARGINS EXAMPLE

<table>
<thead>
<tr>
<th>Day</th>
<th>Transaction</th>
<th>Settlement</th>
<th>Daily Gain (loss)</th>
<th>Margin Call</th>
<th>Margin Account</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 May</td>
<td>2.10</td>
<td>2.08</td>
<td>0</td>
<td>0</td>
<td>1500</td>
<td>1500</td>
</tr>
<tr>
<td>10 May</td>
<td>2.05</td>
<td>2.10</td>
<td>0</td>
<td>0</td>
<td>1500</td>
<td>1500</td>
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</tbody>
</table>

MARGINS EXAMPLE

- Settlement price rises to $2.15/bu on May 12th:
  - Daily gain (loss) = ($450)
    \[= ($2.12/bu - 2.15/bu) \times 5000 \text{ bu/contract} \times 3 \text{ contracts}\]
MARGINS EXAMPLE

• Settlement price rises to $2.15/bu on May 12th:

  – Daily gain (loss) = $(450)
    
    \[= (\$2.12/bu - \$2.15/bu) \times 5000 \text{ bu/contract} \times 3 \text{ contracts} \]

  – Provisional margin account balance =
    
    \[
    \text{Previous balance} + \text{Daily gain (loss)}
    \]

    \[= \$1500 + \$(450) = \$1050 \]

MARGINS EXAMPLE

• Settlement price rises to $2.15/bu on May 12th:

  • Provisional Balance ($1050) below maintenance margin ($1200)

    \[\text{Margin call} = \text{Initial margin} - \text{Provisional balance} \]

    \[= \$1800 - \$1050 = \$750 \]
MARGINS EXAMPLE

• Settlement price rises to $2.15/bu on May 12th:
  – Balance = Provisional Balance + Margin Call

\[
\text{Balance} = \text{Provisional Balance} + \text{Margin Call}
\]

\[
\begin{array}{c}
\text{Balance} = \$1050 + \$750 \\
\text{Balance} = \$1800
\end{array}
\]
MARGINS EXAMPLE

Daily Gains for Long and Short Positions

Trading Day

-4000
-3000
-2000
-1000
0
1000
2000
3000

Short 3 contracts
Long 4 contracts

MARGINS EXAMPLE

Margin Account Balances for Long and Short Positions

Trading Days

0
1000
2000
3000
4000
5000
6000
7000
8000

Short 3 contracts
Long 4 contracts
FUTURES: MARGINS

• Margins
  – Settlement Price
  – “Marking-to-market”

FUTURES: MARGINS

• Except for initial margin deposit, money not paid/received when futures are initially bought/sold.

FUTURES: MARGINS

• Margins
  – Different across commodities
  – Different for speculators vs. hedgers
FUTURES: MARGINS

• Margins
  – Different across commodities
  – Different for speculators vs. hedgers
  – May change from time to time

CBOT Margin Changes
Effective Class of Business August 5, 2005
Changes to Margins on CBOT Futures

<table>
<thead>
<tr>
<th>Contract</th>
<th>Initial Margin</th>
<th>Initial Maintenance</th>
<th>Initial</th>
<th>Initial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$0.15/1000</td>
<td>$0.15/1000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td>$1.90/1000</td>
<td>$1.90/1000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soybeans</td>
<td>$2.99/1000</td>
<td>$2.99/1000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corn</td>
<td>$2.99/1000</td>
<td>$2.99/1000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow Rice</td>
<td>$2.99/1000</td>
<td>$2.99/1000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheat Foward</td>
<td>$3.50/1000</td>
<td>$3.50/1000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow Rice Foward</td>
<td>$4.50/1000</td>
<td>$4.50/1000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FUTURES: TRADING PROCEDURES

- Transactions executed by brokers
  - Brokerage fee

FUTURES: TRADING PROCEDURES

1. Opening the futures position
2. Maintaining the futures position
3. Closing the futures position

FUTURES: TRADING PROCEDURES

1. Opening the futures position
   - Step 1: You decide to open a futures position (e.g., short)
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   • Step 2: Call broker and place order to trade (e.g., sell Dec corn at the market)
   • Step 3: Broker forwards order to the Exchange, where broker's representative runs the order to the pit and tries to fill the order
   • Step 4: Order is filled (e.g., @ $2.34/bu)
FUTURES: TRADING PROCEDURES

1. Opening the futures position
   • Step 1: You decide to open a futures position (e.g., short)
   • Step 2: Call broker and place order to trade (e.g., sell Dec corn at the market)
   • Step 3: Broker forwards order to the Exchange, where broker’s representative runs the order to the pit and tries to fill the order
   • Step 4: Order is filled (e.g., @ $2.34/bu)
   • Step 5: Broker calls you back to confirm fill

2. Maintaining the futures position
   • Step 7: Until position is closed, margin account balance is calculated at the close of the market each day; deposit margin calls as required to maintain the position
FUTURES: TRADING PROCEDURES

3. Closing the futures position
   • Step 8: Decide to close the futures position
   • Step 9: Call broker and place order to close the position (e.g., buy Dec corn at the market)
   • Step 10: Broker forwards order to the Exchange, where broker’s representative runs the order to the pit and tries to fill the order
3. Closing the futures position
   • Step 8: Decide to close the futures position
   • Step 9: Call broker and place order to close the position (e.g., buy Dec corn at the market)
   • Step 10: Broker forwards order to the Exchange, where broker's representative runs the order to the pit and tries to fill the order
   • Step 11: Order is filled (e.g., @ $2.50/bu)
   • Step 12: Broker calculates the ending margin account balance, subtracts his commission (e.g., $40/contract), and returns the remainder to you