Mechanics of Futures Markets

期货市场的机制

Characteristics Specified in a Futures contract

- Futures contract characteristics specified by the exchange include the following:
  1. Quality of the underlying asset
  2. Contract size
  3. Delivery location
  4. Delivery time
  5. Price quotations and tick size (价格最小变动单位)
  6. Date price limits
     - ✓ Limit down (跌停板)
     - ✓ Limit up (涨停板)
  7. Position limits

早籼稻期货合约文本

标的工具

合约大小

报价单位

最小变动单位

每日价格波动限制

交割日期及时间

等级/质量

交割地点

结算机制

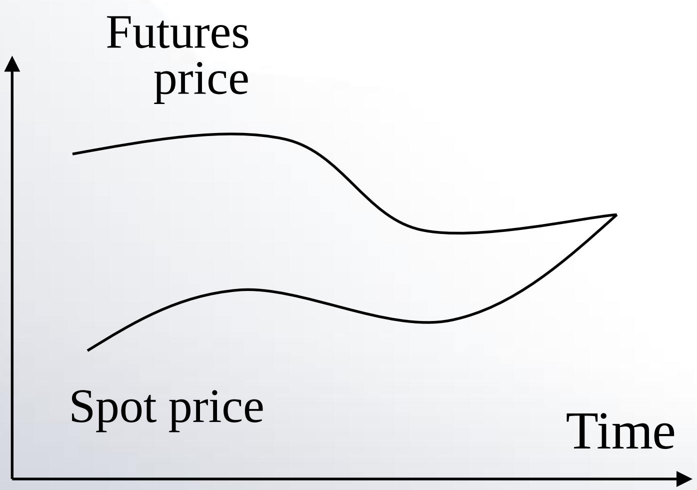
交易品种	早籼稻
交易单位	20吨/手
报价单位	元(人民币)/吨
最小变动价位	1元/吨
每日价格波动限制	上一交易日结算价±4%及《郑州商品交易所期货交易风险控制管理办法》相关规定
最低交易保证金	合约价值的5%
合约交割月份	1、3、5、7、9、11月
交易时间	每周一至周五（北京时间 法定节假日除外） 上午 9：00-11：30 下午 1：30-3：00
最后交易日	合约交割月份的第10个交易日
最后交割日	合约交割月份的第12个交易日
交割品级	基准交割品：符合《中华人民共和国国家标准 稻谷》（GB1350-2009）三等及以上等级质量指标及《郑州商品交易所期货交割细则》规定的早籼稻谷 替代品及升贴水见《郑州商品交易所期货交割细则》
交割地点	交易所指定交割仓库
交割方式	实物交割
交易代码	RI
上市交易所	郑州商品交易所

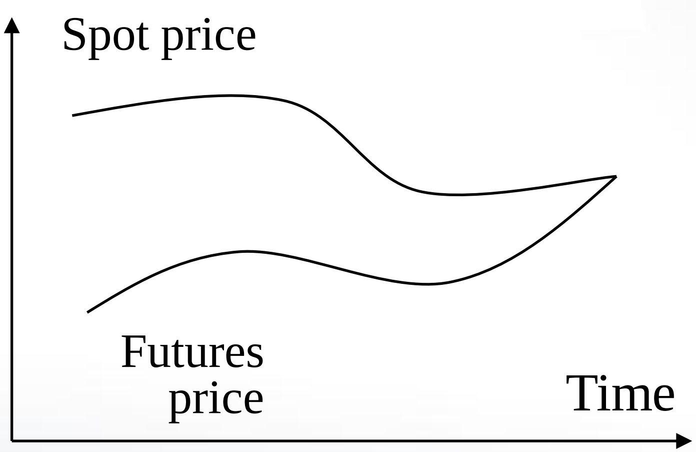
The Convergence of Futures and Spot Prices

- The **basis** is the difference between the spot price and the futures price.

$$\boxed{\text{basis} = \text{spot price} - \text{futures price}}$$

- As the maturity date nears, the basis converges toward zero. At expiration, the spot price must *equal* the futures price because the futures price has become the price today for delivery today, which is the same as the spot. Arbitrage will force the prices to be the same at contract expiration.





Operation of Margins

- **Margin** is cash or highly liquid collateral placed in an account to ensure that any trading losses will be met.
- **Marking to market** is the daily procedure of adjusting the margin account balance for daily movements in the futures price. The amount required to open a futures position is called the **initial margin**.
- The **maintenance margin** is the minimum margin account balance required to retain the futures position.
- When the margin account balance falls below the maintenance margin, the investor gets a **margin call**, and he must bring the margin account back to the initial margin amount. The amount necessary to do this is called the **variation margin**.

Example: Margin

1. An investor enters into a long position in a gold futures contract at USD 294.20. Each futures contract controls 100 troy ounces. The initial margin is USD 3,200, and the maintenance margin is USD 2,900. At the end of the first day, the futures price drops to USD 286.6. Which of the following is the amount of the variation margin at the end of the first day?

A. 0

B. USD 34

C. USD 334

D. USD 760

Clearinghouse in Futures Transactions.

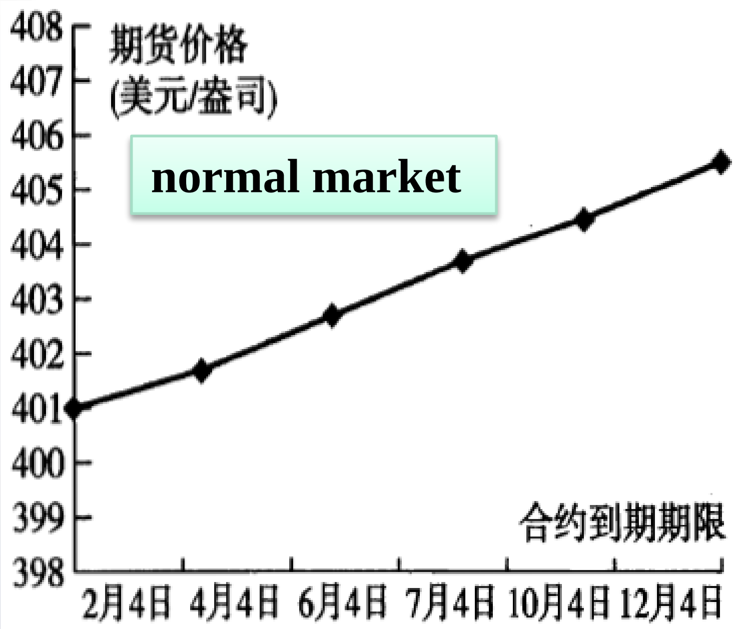
- Each exchange has a **clearinghouse**. The clearinghouse guarantees that traders in the futures market will honor their obligations. The clearinghouse does this by splitting each trade once it is made and acting as the opposite side of each position. *The clearinghouse acts as the buyer to every seller and the seller to every buyer*. By doing this, the clearinghouse allows either side of the trade to reverse positions at a future date without having to contact the other side of the initial trade. This allows traders to enter the market knowing that they will be able to reverse their position. Traders are also freed from having to worry about the counterparty defaulting since the counterparty is now the clearinghouse. In the history of U.S. futures trading, the clearinghouse has never defaulted on a trade.
- The clearinghouse has members that collateralize it, ensuring that no defaults take place. All trades eventually go through the clearinghouse members, who must have a **clearing margin** posted at the clearinghouse in the same way an investor has a margin account with a broker. This ensures that the clearinghouse is liquid enough at all times to honor all obligations under futures contracts.

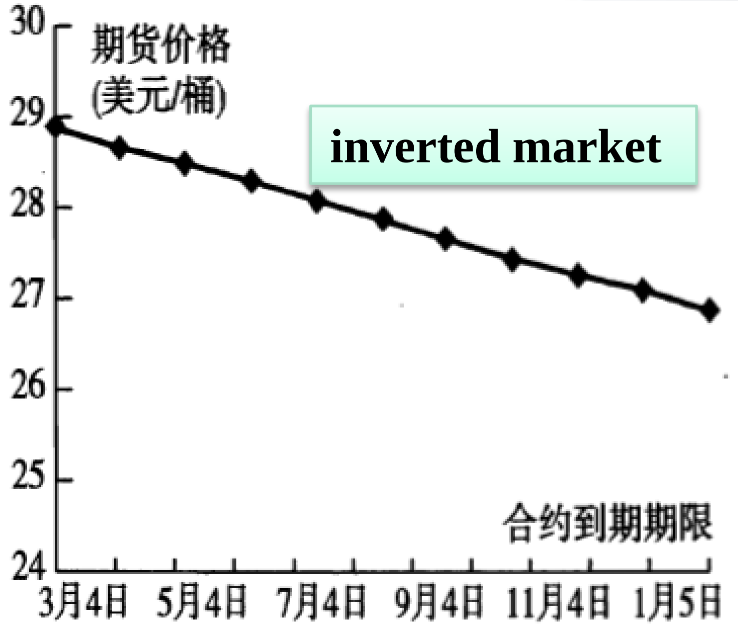
Over-The-Counter Market

- The *over-the-counter* (OTC) market includes the trading in all securities not listed on one of the registered exchanges. This market is subject to a good deal of **credit risk** since the party on the other side of an OTC contract could default on its payments.
- One way to reduce this credit risk is by means of **collateralization**. Collateralization is basically a *marked to market* feature for the OTC market where any loss is settled in cash at the end of the trading day. A cash payment is made to the party with a positive account balance. This is a similar system to trading on margin where the futures trader needs to restore funds if the value of the contract drops below the maintenance margin.
- Arguments for the use of clearinghouses in OTC markets include: (1) **automatic posting of collateral,** (2) **reduction of financial system credit risk**, and (3) **increased transparency of OTC trades**. *Governments have pushed for the use of clearinghouses in OTC markets in an attempt to reduce systemic risk*, which is the risk that a failure by a significant financial institution will impact other institutions and potentially lead to a collapse of the overall financial system. An example of systemic risk occurred during the 2007-2009 credit crisis.

Normal and Inverted Futures Market.

- The **settlement price** is analogous to the closing price for a stock but is not simply the price of the last trade. *It is an average of the price of the trades during the last period of trading, called the closing period*, which is set by the exchange. This feature of the settlement price *prevents manipulation* by traders.
- Depending on the direction of futures settlement prices, the market may be normal or inverted. Increasing settlement prices over time indicates a **normal market (正常市场)**. Conversely, decreasing settlement prices over time indicates an **inverted market (逆向市场).**





The Delivery Process

- There are *four* ways to terminate a futures contract:
  1. A short can terminate the contract by **delivering the goods**. When the long accepts this delivery, he pays the contract price to the short. This is called delivery.
  2. In a **cash-settlement** contract, delivery is not an option. The futures account is marked to market based on the settlement price on the last day of trading.
  3. You may make a **reverse**, or **offsetting**, trade in the futures market.
  4. A position may also be settled through an **exchange for physicals (期货转现货)**.

Types of Orders

- **Market orders (市价指令)** are orders to buy or sell at the best price available.
- A **discretionary order (授权指令)** is a market order where *the broker has the option to delay transaction* in search of a better price.
- **Limit orders (限价指令)** are orders to buy or sell away from the current market price.
  - A *limit buy order* is placed below the current price.
  - A *limit sell order* is placed above the current price.
- **Stop-loss orders (止损指令)** are used to prevent losses or to protect profits.
  - *stop loss sell* order (止损卖出指令)
  - *stop loss buy* order (止损买入指令)
- **Stop-limit orders (止损限价指令)** are a combination of a stop and limit order.
- **Market-if-touched orders** (触及市价指令), are orders that would become market orders once a specified price is reached in the marketplace.

Types of Orders

- 还有一些指令则附加有时间规定。除非特别说明，没有时间规定的普通指令是一个交易日的指令，该交易日结束之时指令也将失去效力。
  - **Time-of-day order (**当天特定时段指令)：指定在一天中某个特定时间段内可以执行交易指令。
  - **Good-till-canceled (GTC) orders (a.k.a. open orders)** (取消前有效指令)：are orders that remain open until they either transact or are canceled (指在证券交易成交或取消之前仍有效力的交易指令).
  - **Fill-or-kill orders** (成交或取消指令)：must be executed immediately or the trade will not take place (指定所下指令必须立即全部成交，否则立即全部取消指令).

Example

2. Which of the following are characteristics specified by a futures contract?

- Asset quality and asset quantity.
- Delivery arrangements and delivery time.

A. I only

B. II only

C. Both I and II

D. Neither I nor II

Example: Margin

3. An investor enters into a short position in a gold futures contract with the following characteristics:
   - The initial margin is $3,000
   - The maintenance margin is $2,250.
   - The contract price is $1,300.
   - Each contract controls 100 troy ounces.

   If the price drops to $1,295 at the end of the first day and $1,290 at the end of the second date, which of the following is closest to the *variation margin* required at the end of the second day?

   A. $0.
   B. $250.
   C. $500.
   D. $1,000.

A Note that the investor in this question has a short position that profits from price declines. The short position margin account has increased by $1,000 over the two days, so there is no variation margin required.

Example

4. It is possible that which of the following types of orders may never be executed?

   A. Limit orders.

   B. Market-if-touched (MT) orders.

   C. Stop-limit orders.

   D. All of the above.

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