Αμοιβαία Κεφάλαια και Εναλλακτικές Επενδύσεις

Εμπορεύματα - Commodities

Commodities

- Commodities can be classified into the following sectors:
- **Energy**—crude oil, natural gas and refined petroleum products.
- **Industrial metals**—iron, copper, aluminum, nickel, zinc, lead and tin.
- **Grains**—wheat, corn, soybeans and rice.
- **Livestock**—hogs, sheep, cattle and poultry.
- **Precious metals**—gold, silver and platinum.
- **Softs** (cash crops)—coffee, sugar, cocoa and cotton.
- The factors that influence supply and demand and the nature of production differ for each sector.

Factors that influence the oil market

- The **energy sector** is the sector with the greatest market value and is a very important source of revenue to many countries.
- Crude oil can be stored indefinitely by keeping it in the ground. It can also be stored in tanks and tanker ships. Many countries store large amounts of crude oil as strategic reserves.
- Economic cycles greatly affect the demand for oil, which is higher during expansions and can decrease sharply during contractions.

Factors that influence the oil market

- Improvements in the efficiency of alternative sources of energy production has been a headwind for the demand for oil.
- Increasingly stringent restrictions on oil exploration and production in response to environmental concerns have tended to increase the cost of oil production and decrease supply.
- Political risk is another important factor in oil supply. A large share of crude oil supply comes from countries in the Middle East and conflict there can greatly reduce supply.

Factors that influence the oil market

- Refined products such as gasoline, heating oil and jet fuel, are only stored for short periods.
- The geographic concentration of refinery capacity means that extreme weather in some regions can significantly affect the supply of refined products.
- Seasonal factors affect the demand for refined products in the summer months (greater vacation travel) and colder weather (increased demand for heating oil).

Factors that influence the oil market

- Unlike crude oil, natural gas can be used just as it comes out of the ground with very little processing.
- Transportation costs play an important role. While crude oil can be transported at a relatively low cost on ships, natural gas must be cooled to its liquid state to be transported by ship, significantly increasing the cost of transport.
- Worldwide demand and supply for gas depends on many of the same factors as supply and demand for crude oil, but seasonality due to weather is more pronounced. Cold winters increase the demand for gas for heating fuel. Hot summers increase the demand for gas for cooling.

Factors that influence the market for industrial metals

- Demand for **industrial metals** is primarily tied to GDP growth and business cycles because these metals are used extensively in construction and manufacturing.
- Storage of metals is not costly.
- Union strikes and restrictive environmental regulations, can have a significant effect on the supply of industrial metals.
- Industrial metals must be smelted from mined ore. Both mines and smelters have high development costs and high fixed costs.

Factors that influence the market for grains

- **Grains** are grown over an annual cycle and stored.
- The risks to grain supply are the usual: droughts, hail, floods, pests, diseases, changes in climate, etc.
- Growing seasons are opposite in the northern and southern hemispheres.

Factors that influence the market for precious metals

- **Precious metals** are used in electronics and for jewelry and can be stored indefinitely.
- Gold has long been used as a store of value and has provided a hedge against the inflation risk of holding currency. It is also regarded as a safe-heaven asset, meaning that the demand for gold usually increases when the outlook for the economy deteriorates.
- Industrial demand for precious metals is sensitive to business cycles. Jewelry demand is high where wealth is being accumulated.

Factors that influence the market for livestock

- **Livestock** supply depends on the price of grain, which is the primary input in its production.
  - Grain prices increase -> the cost of feeding livestock increases -> rate of slaughter increases -> the price of livestock decreases. Such a drawdown in population can result in subsequent increases in price over time.
- Weather can affect the production of some animals.
- Disease is a source of significant risk to livestock producers.
- Income growth (mostly in developing economies) is an important factor for the demand for livestock.

Factors that influence the market for softs

- **Softs** refers to cotton, coffee, sugar, and cocoa, which are all grown in warmer climates.
- Weather is the primary factor in determining production and price, but disease is a significant risk as well.
- Demand increases with increases in incomes in developing economies.
- Consumer taste is another factor that affects the demand for softs.

Valuation

- Stocks and bonds (financial assets) can be valued by calculating the present value of their expected future cash flows (e.g., dividends, interest, etc.).
- Commodities produce no earnings or cash flows.
- The current (spot) price of a commodity can be viewed as the discounted value of the expected selling price at some future date.

Futures Contracts

- A futures contract is a legal agreement to buy or sell an asset at a predetermined price at a specified time in the future.
- The asset transacted is usually a commodity or financial instrument.
- The predetermined price the parties agree to buy and sell the asset for is known as the futures price.
- The specified time in the future when delivery or payment occurs, is the delivery date.

Futures Contracts

- Contracts are negotiated at futures exchanges, which act as a marketplace between buyers and sellers. The buyer of a contract is said to be long position holder and the selling party is said to be short position holder.
- The original use of futures contracts was to mitigate the risk of price movements by allowing parties to fix prices in advance for future transactions to guard against an unfavorable movement of the asset in the interval before payment is received.
- However, futures contracts also offer opportunities for speculation: a trader who predicts that the price of an asset will move in a particular direction can contract to buy or sell it in the future at a price which will yield a profit.

Hedgers and Speculators

- Traders and investors in the commodities market can be classified as **hedgers** and **speculators**.
- **Speculators** take on commodity risk in futures markets, seeking to exploit an information advantage to profit from trading with hedgers.
- **Hedgers** either produce or use the commodity. They reduce their risk by buying (going long) or selling (going short) futures contracts.

Hedgers and Speculators

- Hedgers are said to "do in the futures market what they must do in the future."
- **Example**: A corn farmer can reduce the uncertainty about the price she will receive for her corn by selling corn futures. A cattle producer, however, would hedge his price risk by buying corn futures to reduce his uncertainty about the cost of feed for the cattle.
- **Example**: A wheat farmer will need to sell wheat in the future and can hedge price risk by selling futures contracts. A grain miller will need to buy wheat in the future and can hedge price risk by buying futures contracts.

Backwardation vs Contango

- The difference between the spot market price and the futures price for a date in the future is referred to as the **basis** of that particular contract. The basis can be positive or negative.

Basis spread = spot price – futures price

Backwardation vs Contango

- When futures prices are higher at dates further in the future, the futures market (or futures curve) is said to be in **contango.** When a futures market is in contango, futures prices are greater than spot prices, i.e. basis is negative.
- Conversely, if futures prices are lower at dates further in the future, the market is said to be in **backwardation** and the basis is positive, i.e. futures prices are lower than spot prices for the commodity.

Total return for futures contracts

- An investor who desires long exposure to a commodity price will typically achieve this exposure through a derivative investment in futures (or forwards). Some physical commodities cannot be effectively purchased and stored long term, and for others, such as precious metals, derivative positions may be a more efficient means of gaining long exposure than purchasing the commodities outright and storing them long term.
- The return on a derivatives position is not the same as the return on a commodity itself. The total return on a fully collateralized long futures position has three components: collateral return, price return and roll return.

Collateral Return

- To take a position in futures, an investor must post collateral. When a futures portfolio is fully collateralized, the investor has posted cash or acceptable securities with a value equal to the notional value (= price × contract size) of the futures contracts in the portfolio.
- If U.S. Treasury bills are deposited as collateral, the collateral return or collateral yield is simply the holding period yield on the T-bills.

Price Return

- The price return or spot yield on an investment in commodity futures is the change in spot prices.

price return = (current price – previous price) / previous price

Roll Return

- Since commodity derivative contracts expire, an investor who wants to maintain a position over time must close out the expiring futures position and reestablish a new position with a settlement date further in the future.
- This process is referred to as rolling over the position and leads to gains or losses which are termed the roll return.
- The roll return can be positive if the futures price curve is in backwardation or negative if the futures price curve is in contango.

Roll Return

- The roll return on the contracts traded can be calculated as:

$$\text{Roll Return} = \frac{Price\ of\ expiring\ contract - Price\ of\ new\ contract}{Price\ of\ expiring\ contract}$$

- Roll return has a relatively small impact on overall returns on commodity futures over the short term but can have a meaningful impact over longer periods.

Backwardation vs Contango

- Consider a situation where the manager of a portfolio of commodity futures contracts is rolling over July corn futures trading at 397 (cents per bushel) into November corn futures trading at 406.
- The roll return is: $\frac{397-406}{397} = -2.27\%$.
- With the corn futures market in contango, the roll return is negative.
- Now consider a situation where the manager is rolling over July natural gas futures trading at 2.35 (dollars per million cubic feet) into August futures trading at 2.22.
- In this case the roll return is: $\frac{2.35-2.22}{2.35} = 5.53\%$.

Examples

- 1. The commodity sector that is least affected by weather risk is:
  - A. grains.
  - B. precious metals.
  - C. refined energy products.
- 2. A futures market in backwardation will exhibit:
  - A. positive basis
  - B. negative basis
  - C. zero basis

Examples

- **1. Answer B:** Precious metals mining and smelting are less susceptible to changing weather. Weather is an important factor in grain production with both droughts and flooding affecting crop yields. Oil refineries are concentrated in coastal areas where hurricanes and other extreme weather cause periodic refinery shutdowns.
- **2. Answer A:** In backwardation, longer-dated futures contracts are priced lower than shorter-dated contracts or spot prices, resulting in positive basis spread.