



Tangible assets: The commodities asset class includes products such as gold, oil and wheat; supply and demand is usually the key factor affecting commodity prices. FILE PHOTO, REUTERS

Investing in commodities

There are various ways to go about it – through firms in the sector, ETFs or futures, reports LIM TERN POH

THE mere mention of commodities conjures up different images for different people. Some think of metals such as gold and copper. Others think of agricultural products such as sugar and corn. There is also energy like oil and natural gas and livestock such as cattle and hog.

Everyone is right. All these products belong to the commodities asset class.

Unlike financial assets, commodities are unique because they are tangible real assets. Companies could issue stocks and bonds to raise capital. Countries could print money to stimulate their economies. But commodities cannot be created out of thin air.

We are faced with a limited supply at any time and have to make do with whatever is available. Thus, supply and demand is usually the key factor affecting commodity prices.

Every commodity has its own unique set of factors that affect its supply and demand. This gives different commodities different characteristics and often results in low correlations to each other and to other asset classes.

For instance, copper is used in almost all categories of electrical wiring and thus has high correlation with economic growth, while gold is perceived as a safe haven during periods of high inflation. This makes commodities good diversifiers for a portfolio.

There are various ways to get started on commodities investing.

The simplest way is to invest in companies in the commodities sector. On the Singapore Exchange, you could invest in companies such as Golden Agri-Resources, Olam International and Wilmar International for exposure to agricultural commodities. There is KrisEnergy for exposure to oil and gas sector, or Noble Group for exposure to agricultural, energy, and metal products.

However, investing in stocks will only give you partial exposure to the commodities market as managerial actions such as merger and acquisition will affect stock prices.

Another straightforward way is to invest in a commodity exchange traded fund (ETF). Some ETFs, such as SPDR Gold Shares, focus on a single commodity and hold it in physical storage.

Others, such as iShares S&P GSCI Commodity-Indexed Trust, invest in various commodity futures to provide a diversified exposure.

The downside to ETFs is that there are fund management fees involved. In addition, as ETFs track commodity indices, there will be tracking error due to the index methodologies.

The direct way to invest in commodities is through futures. Futures are standardised contracts listed on an exchange to buy an asset at a price arranged today, for delivery arranged at a future date.

The underlying commodity, quantity and quality, minimum price movement, and the method of settlement are all standardised for each commodity futures contract. The only variable which is not standardised is the price of futures, which market forces act to determine.

Futures are a type of financial contract called derivatives, so called because they derive their value from an underlying asset.

Different futures have different contract specifications and they could be found on the website of the exchange they are listed on. However, despite the differences, they all have similar characteristics.

In this article, we use corn futures listed on Chicago Mercantile Exchange (CME) as an example.

Different futures have different product symbols and they are always shown with their expiry dates.

Corn futures are represented by the symbol ZC. The 12 months, in the order of January to December, are abbreviated with F, G, H, J, K, M, N, Q, U, V, X, Z respectively.

Therefore, corn futures expiring on December 2013 will be shown as ZCZ13.

Most commodities do not have contracts for every month; there are only H, K, N, U, and Z corn futures, for example, for March, May, July, September and December. An investor looking to invest in corn during October 2013 will usually buy ZCZ13 corn futures as the nearer contract usually has higher liquidity.

One corn futures contract gives you expo-

A working example

Mechanics of corn futures trading

| DAY | PRICE OF CORN FUTURES | END OF DAY POSITIONS (CONTRACTS) | COMMENT | ACCOUNT BALANCE | REALISED GAIN/LOSS |
|-----|-----------------------|----------------------------------|--|----------------------|------------------------|
| 1 | 455'0 (\$4.55) | 10 | Deposit initial margin of \$23,630 in broker account to buy 10 ZCZ13. Each futures contract requires \$2,363 initial margin. | \$23,630 | \$0 |
| 2 | 455'2 (\$4.5525) | 10 | Each contract gained \$12.50. Account is marked to market. Investor decides to withdraw gain for personal use. Withdrawal can be made only up to initial margin. | \$23,755 \$23,630 | \$125 \$125 |
| 3 | 454'6 (\$4.5475) | 10 | Each contract lost \$25. Account is marked to market. | \$23,380 | (\$125) |
| 4 | 440'6 (\$4.4075) | 10 | Each contract lost \$700. Account balance falls below maintenance margin of \$1,750 per contract. MARGIN CALL: Broker tells you to top up account with \$7,250 to bring it back to the initial margin requirement. | \$16,380 \$23,630 | (\$7,125) (\$7,125) |
| 5 | 460'6 (\$4.6075) | 10 | Each contract gained \$1,000. | \$33,630 | \$2,875 |
| 6 | 458'4 (\$4.5850) | 10 | Each contract lost \$112.50. | \$32,505 | \$1,750 |
| | | 0 | You close out your positions by selling 10 ZCZ13. | \$32,505 | \$1,750 |

Total cash used: \$23,630 + \$7,250 = \$30,880
 Account balance at end of trading: \$32,505
 Return: \$1,750 / \$30,880 = 5.7%

sure to 5,000 bushels (weighing 127 tonnes) and the minimum price movement is a quarter of one cent per bushel. This means per contract, the minimum price movement is \$12.50.

The price quote for corn futures is in cents and quarter cents, at a per-bushel level. The quarter cents are represented by '0, '2, '4 and '6. Each represents an increment of quarter of a cent (\$0.0025). So an ask quote at 455'0 means you can buy 5,000 bushels at \$4.55 per bushel.

If you bought corn futures at 455'0 (\$4.55 per bushel), you will gain \$12.50 per contract when the price reaches 455'2 (\$4.5525 per bushel), \$25 when the price reaches 455'4 (\$4.555), \$37.50 when the price reaches 455'6 (\$4.5575), and \$50 when the price reaches 456'0 (\$4.56).

Futures positions are marked-to-market daily. The daily gains or losses are credited to or debited from your account daily even if you have yet to close your positions. If you bought a corn futures at 455'0 and it goes up to 455'2, your account will be credited with \$12.50. You could withdraw the gains or use the gains to buy more futures without having to close your positions.

The use of leverage

Futures contracts are highly leveraged.

To invest, you do not have to pay the full notional value of the contract, which amounts to \$22,750 at 455'0 for corn futures.

Rather, you only need to place a deposit known as the initial margin to open a position. The initial margin in this case is \$2,363 per contract. There is also a minimal balance, or maintenance margin, of \$1,750 you need to have in your account to keep your position in the contract open.

The initial and maintenance margin are not fixed. During a period of high price volatility, the exchange will increase the margins requirement to ensure that all investors have sufficient deposit to pay for their losses.

Your broker might require you to place a margin higher than what is required by the exchange, but they will never set margins lower than what is required by the exchange.

If you suffer losses and your deposit falls below the maintenance margin, you will receive a margin call from your broker to demand you to top up your account back to the initial margin. Failing to do so will result in your broker liquidating your positions until margin requirement is met.

Futures have a maximum daily price movement known as the daily price limit. Once futures have moved by its daily limit from the previous day's closing price, there can be no trading at any price beyond the limit until the next trading day.

Price limits are set by the exchange to regulate volatile price swings. For corn futures, the daily price limit is \$0.40 per bushel. This means that if price per bushel for corn begins at 455'0 (\$4.55), it can go up to 495'0 or down to 415'0 and trading in prices beyond or below these levels is not permitted.

To better reflect market conditions in the event of massive price movements, the daily price limit will increase to \$0.60 per bushel when the market closes at the limit of the pre-

vious day. For example, if there is an unexpected drought and everybody rushes to buy corn futures, the price of corn might shoot up from \$4.55 per bushel to \$4.95.

In this event, the price limit will be increased to \$0.60 the next day. This means the exchange will permit trading within the \$4.35 to \$5.55 bands tomorrow, so speculators and companies can hedge or liquidate their positions.

Futures have an expiry date. The last trading date for corn futures is the business day prior to the 15th calendar day of the contract month. As corn futures require physical settlement, if you do not close your positions when nearing the expiry date, most brokers will force close them on your behalf to protect you from the liability of having to make or take physical delivery of the commodities.

Some commodities futures are cash settled. Instead of making or taking delivery, investors are only required to pay the difference between the spot price and futures price if the futures is held to maturity.

There is no restriction in short-selling of futures. Short selling refers to selling futures that you do not own and subsequently repurchase the same number of futures. The intention is to sell the futures at a higher price and repurchase them at a lower price. Therefore, short selling is done when investors expect corn price to fall. Investors will lose money if price increases instead as he would have sold at a lower price before trying to buy them back at a higher price.

To begin investing in futures, you need to set up an account either with full-brokerages or discount brokerages. Full-brokerages, such as OCBC Securities, DBS Vickers, and Phillip Futures, provide a suite of services for their clients. They typically provide research reports and broker-assisted trading.

Online discount brokers, such as thinkorswim Singapore, provide comparatively fewer services than full-brokerages but charge significantly lower fees. For instance, per contract of corn futures, thinkorswim Singapore charges US\$2.25 while OCBC Securities charges US\$12.

After understanding the various unique characteristics of futures, look at the table on this page for an illustration of how daily gains and losses are marked to market. In order to illustrate the various possible scenarios, fictitious prices are used.

As you can see from the table, the futures trader experienced a scare when prices plunged, resulting in a margin call by the broker. This meant he had to top up his account by \$7,250. Luckily, prices recovered the next day and he got out of his position with a slight overall gain of \$1,750. When trading, one needs enough working capital to hold on to your position in the event of margin calls.

Different groups of commodities tend to exhibit different correlations to different asset classes. For example, corn prices will spike when there is a drought. The price spike will eventually affect the profit margin of companies, such as ethanol producers, which require corn as raw material for their businesses. Depending on your investment objectives and current portfolio allocation, you might look into different commodities or strategies

to add diversification. Instead of simply buying or selling futures, investors could do a calendar spread. This means simultaneously buying near-month futures and selling later-dated futures or vice versa. In this strategy, the investor is betting not on the directional movement of the price, but difference in the price movement between two different contract months with the same underlying commodity.

For example, if you bought a ZCH14 (March 2014) and simultaneously sold a ZCK14 (May 2014) and both contracts increase by '2, you incur no loss as the gain from ZCH14 offset the loss from ZCK14 and vice versa when both contracts decrease by '2.

You only profit if ZCH14 increases faster than ZCK14, or ZCK14 decreases faster than ZCH14. If the opposite happens, you will incur loss. This strategy is often less risky and therefore require less margin requirements.

For a ZCH14-ZCN14 calendar spread, the exchange requires an initial margin of \$540 and has a maintenance margin of \$400. Again, the margin requirement might change when price volatility changes. The margin requirements for calendar spreads for different months might differ.

For retail investors, margin requirements are an important consideration as they will determine the amount of capital needed to start investing and stay invested in futures. During a volatile market, investors will be forced to liquidate their positions if they lack the capital to meet their margin calls. This might affect their investment strategies or portfolio diversification.

Futures returns

The return on futures is dependent on two factors: the capital gain and the roll yield.

Similar to other investments, the capital gain for a long position is the difference between the selling price and purchase price of the futures.

Roll yield is unique to futures. As futures have an expiry date, to stay invested in the commodities, it is necessary to roll the positions by closing the expiring positions and opening a position in a later-dated contract.

When rolling over to a new contract, two different kinds of futures market structure, namely backwardation and contango, will affect your roll yield.

Backwardated markets mean that higher prices are quoted for earlier delivery, and lower prices for more distant delivery dates. Thus the near-month futures are trading at a higher price than further month futures. In a contangoed market, higher prices are quoted for later deliveries.

Therefore, when you roll your positions in a backwardated market, you are technically selling high and buying low, resulting in positive roll yield. The opposite is true for a contangoed market.

When looking to invest in commodity ETFs, investors need to be wary of ETFs that invest in commodities that undergo a prolonged period of contangoed markets. This is because negative roll yield would have eaten into returns even if spot prices rose over time.

A classic example was the United States



Natural Gas Fund (UNG), which invested in near-month futures contracts. The fund returns differed greatly from the hypothetical returns on spot natural gas due to negative roll yields, which affected the overall return.

Supply and demand will determine the market structure of the commodities. When current demand is greater than current supply, the commodity will tend to exhibit backwardation; when current supply is greater than current demand, commodities will tend to exhibit contango.

Therefore, when investing in futures, you should look at the prices of futures with different expiry dates. They will give insight into the current supply and demand situation.

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