What Are Futures?

In the United States, trading futures began in the mid-19th century with the establishment of central grain markets where farmers could sell their products either for immediate delivery, also called the spot or cash market, or for forward delivery. These forward contracts were private contracts between buyers and Sellers and became the forerunner of today's exchange-traded futures contracts. Both forward contracts and futures contracts are legal agreements to buy or sell an asset on a specific date or during a specific month. Where forward contracts are negotiated directly between a buyer and a seller and settlement terms may vary from contract to contract, a futures contract is facilitated through a futures exchange and is standardized according to quality, quantity, delivery time and place. The only remaining variable is price, which is discovered through an auction-like process that occurs on the Exchange trading floor.

"Although trading began with floor trading of traditional agricultural commodities such as grains and livestock, exchange-traded futures have expanded to include metals, energy, currencies, equity indexes and interest rate products, all of which are also traded electronically."

FUTURES

Standardized contracts for the purchase and sale of financial instruments or physical commodities for future delivery on a regulated commodity futures exchange.

FORWARD CONTRACT

A private, cash-market agreement between a buyer and seller for the future delivery of a commodity, at an agreed upon price. In contrast to futures contracts, forward contracts are not standardized and are non-transferable.

SPOT MARKET

A market where cash transactions for the physical or actual commodity occur.

Who trade futures?

Conventionally, traders are divided into two main categories, hedgers and speculators. Hedgers use the futures market to manage price risk. Speculators on the other hand accept that risk in an attempt to profit from favorable price movement. While futures help hedgers manage their exposure to price risk, the market would not be possible without the participation of speculators. They provide the bulk of market liquidity, which allows the hedger to enter and exit the market in an efficient manner. Speculators may be full-time professional traders or individuals who occasionally trade. Some hold positions for months, while others rarely hold onto a trade more than a few seconds. Regardless of their approach, each market participant plays an important role in making the futures market an efficient place to conduct business.

"When we started 21 years ago, the trading was self-contained. Over the last 15 years, it's broadened so much with electronic trading that people now have access to these markets from any place in the world. It's been interesting to see how the markets have grown and matured because of that."

— Jim Iuroio (Broker)

What Types of Traders are there?

Hedgers

Hedgers have a position in the underlying commodity. They use futures to reduce or limit the risk associated with an adverse price change. Producers, such as farmers, often sell futures on the crops they raise to hedge against a drop in commodity prices. This makes it easier for producers to do long-term planning. Similarly, consumers such as food processing plants often buy futures to secure their input costs. This allows them to base their business planning on a fixed cost for core ingredients, such as corn and wheat. other examples include: airlines hedging fuel costs or jewelry manufacturers hedging the cost of gold and silver. This makes it easier for these companies to manage price risk and stabilize the cost passed on to the end-user.

Individual Traders

Many speculators are individuals trading their own funds. Traditionally, individual traders have been characterized as individuals wishing to express their opinion about, or gain financial advantage from, the direction of a particular market. Electronic trading has helped to level the playing field for the individual trader by improving access to price and trade information. The speed and ease of trade execution, combined with the application of modern risk management, give the individual trader access to markets and strategies that were once reserved for institutions.

Portfolio Managers

A portfolio or investment manager is responsible for investing or hedging the assets of a mutual fund, exchange-traded fund or closed-end fund. The portfolio manager implements the fund's investment strategy and manages the day-to-day trading. Futures markets are often used to increase or decrease the overall market exposure of a portfolio without disrupting the delicate balance of investments that may have taken a significant effort to build.

Proprietary Trading Firms

Proprietary trading firms, also known as prop shops, profit as a direct result of their traders' activity in the marketplace. These firms supply their traders with the education and capital required to execute a large number of trades per day. By using the capital resources of the prop shop, traders gain access to more leverage than they would if they were trading on their own account. They also gain access to the type of research and strategies developed by larger institutions.

Hedge Funds

A hedge fund is a managed portfolio of investments that uses advanced investment strategies to maximize returns, either in an absolute sense or relative to a specified market benchmark. The name hedge fund is mostly historical, as the first hedge funds tried to hedge against the risk of a bear market by shorting the market. Today, hedge funds use hundreds of different strategies in an effort to maximize returns. The diverse and highly liquid futures marketplace offers hedge funds the ability to execute large transactions and either increase or decrease the market exposure of their portfolio.

Market Makers

Market makers are trading firms that have contractually agreed to provide liquidity to the markets, continually providing both bids (an expression to buy) and offers (an expression to sell), usually in exchange for a reduction in trading fees. Increasingly important are electronic market makers who as a group, provide much of the market liquidity that allows large transactions to take place without effecting a substantial change in price. Market makers often profit from capturing the spread, the small difference between the bid and offer prices over a large number of transactions, or by trading related futures markets that they view as being priced to provide opportunity.

Why Trade Futures?

Futures provide a fast and cost-effective way for you to access financial and commodity markets around the clock. Increased interest in global markets has accelerated media attention and attracted the interest of traders from around the world. From their study of the markets, traders develop a perspective on the direction of commodity prices, energy prices, metal prices, currencies, interest rates and stock indexes.

Leverage on futures contracts is created through the use of performance bonds, often referred to as margin. This is an amount of money deposited by both the buyer and seller of a futures contract and the seller of an option contract to ensure their performance of the contract terms. The performance bond may represent only a fraction of the total value of the contract, often 3 to 12%, making futures a highly leveraged trading vehicle. Therefore, futures contracts represent a large contract value that can be controlled with a relatively small amount of capital. This provides the trader with greater flexibility and capital efficiency.

What does "leveraged" mean?

The E-mini S&P 500 Stock Index futures contract could have a value of $67,500, but you would be able to buy or sell this contract by posting a performance bond of about $6,000, which is only 9% of the contract value.

The ability to leverage may remind you of buying stocks on margin. However, in equity markets, buying on margin means you borrow money to make the purchase. In the futures markets, your performance bond is not partial payment for the product. It is good-faith money you post to ensure you are able to meet the day-to-day obligations of holding that position. Both buyers and sellers in futures post performance bonds. Positions are then marked-to-market on a twice daily basis, where profits are credited and losses are debited from your account.

Maximizing Capital Efficiency

The leverage available in futures trading allows you to utilize your capital more efficiently. For example, if you have $200,000 and you want to speculate on the direction of the S&P 500, for the purposes of this illustration, you have three choices:

» Buy $200,000 of stock using all available capital. This can be done by purchasing an Exchange-Traded Fund (ETF), which for this example would be SPY. SPY seeks to replicate, net of expenses, the S&P 500 Index. It is regulated as, and trades in, equity (stock) like shares. Your exposure would be $200,000 worth of SPY shares.

» Buy the same stock (ETF-SPy) on margin, taking advantage of the 2:1 leverage in equities. This allows you to control the same portfolio of stocks (ETF-SPY) by utilizing $100,000 of available capital.

» Buy futures on margin, taking advantage of the approximately 10:1 leverage available with E-mini S&P 500 contracts. This allows you to control the same portfolio of stocks by leveraging $20,000 of available capital. The three E-mini S&P 500 contracts represent approximately the same $200,000 of exposure of the S&P 500 index stocks.

In each case, you have exposure to the same type of market risks and opportunities, but in the final example, you gain the same amount of market exposure while tying up significantly less of your available capital.

Regulation

Futures markets are regulated by the U.S. Commodity Futures Trading Commission (CFTC), an independent government agency formed in 1974 to foster open, competitive and financially sound futures and options markets, and to protect market users and the public from any fraud, manipulation or abusive practices.

How Does a Trade Work?

Contract Size

By definition, each futures contract has a standardized size that does not change. For example, one contract of corn represents 5,000 bushels of a very specific type and quality of corn. If you are trading British pound futures, the contract size is always 62,500 British pounds. The E-mini S&P 500 futures contract size is always $50 times the price of S&P 500 index.

Contract Value

Contract value, also known as a contract's notional value, is calculated by multiplying the size of the contract by the current price. For example, the E-mini S&P 500 contract is $50 times the price of the index. If the index is trading at $1,425, the value of one E-mini contract would be $71,250.

Tick Size

The minimum price change in a futures or options contract is measured in ticks. A tick is the smallest amount that the price of a particular contract can fluctuate. Tick size varies from contract to contract. A tick in the E-mini S&P 500 futures contract is equal to one-quarter of an index point. Since an index point is valued at $50 in the E-mini, one tick is equivalent to $12.50.

Price Limits

Some futures markets impose limits on daily price fluctuations. A price limit is the maximum amount the price of a contract can move in one day based on the previous day's settlement price. These limits are set by the Exchange and help to regulate dramatic price swings. When a futures contract settles at its limit bid or offer, the limit may be expanded to facilitate transactions on the next trading day. This may help futures prices return to a level reflective of the current market environment.

Mark-to-Market

Futures contracts follow a practice known as mark-to-market. At the end of each trading day, the Exchange sets a settlement price based on the day's closing price range for each contract. Each trading account is credited or debited based on that day's profits or losses and checked to ensure that the trading account maintains the appropriate margin for all open positions, your position in the market is secured by a performance bond.

A performance bond is an amount of money that must be deposited with your broker to open or maintain a position in a futures account. This good-faith money helps to ensure that all market participants are able to meet their obligations. It helps maintain confidence in the financial integrity of the Exchange as a whole. The practice of marking accounts to market helps ensure that your account maintains sufficient capital to meet margin requirements on a daily basis.

Margin Call

If you add to a position or sustain a loss and your account no longer meets the performance requirements, you will receive a margin or a performance bond call from your broker. The margin call will require that you either add money to the account or reduce your positions until the minimum performance bond requirements are satisfied. Brokerage firms may suspend trading privileges or close accounts that are unable to meet their minimum performance bond requirements.

Real-World Examples

The following are a few hypothetical scenarios of how institutional market participants use futures to hedge market risk.

Hedging Corn Prices

Corn farmers, like other producers, are at risk from changing prices. If a harvest is good and demand is low, corn will be abundant and prices may fall. If a harvest is poor and demand is high, prices may rise. To hedge against falling prices, corn producers may turn to the futures markets. In effect, they use futures contracts to hedge the sale price of their crops. Producers may hedge all or part of their crop depending on their market outlook. Producers are in effect long the actual, or cash commodity. So to hedge their risks, they attempt to take an equal but opposite short position in the futures market.

By selling futures, producers are able to transfer some of their risk to another market participant.

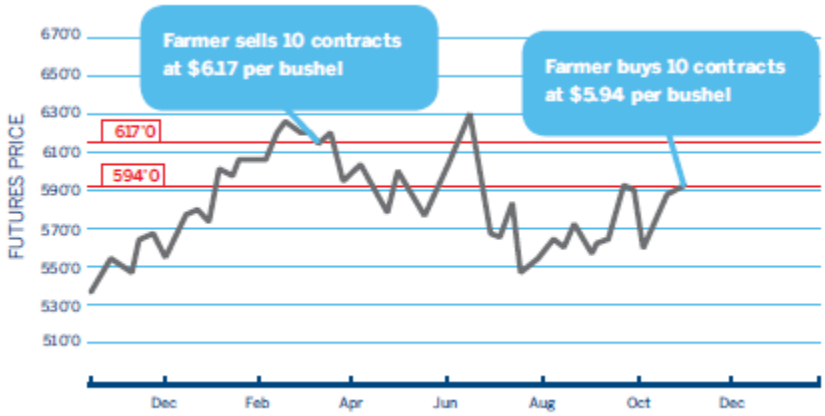
The price of the December corn futures contract reflects the expected price of corn at harvest, as well as the risk associated with the volatility of the underlying commodity. As harvest approaches, if the futures price of corn rises, one would expect corn prices to rise in value also. Similarly, if the price of corn futures falls, one would expect the cash prices to fall.

So how does this help the farmer?

The farmer sells corn futures to hedge the risk of owning or being long the cash commodity. If corn prices fall, the farmer will be able to buy back the futures at a lower price. This profit will make up for some of the losses the farmer will incur when he sells the corn at harvest. That risk is transferred to the person who buys the futures.

Let's imagine that it's March 1. A farmer, who is expecting a crop of 100,000 bushels in november, decides to hedge 50% of the crop, or 50,000 bushels. By hedging just 50% of his crop, the farmer is limiting, not eliminating, his exposure to price movement.

A single futures contract in corn represents 5,000 bushels (127 metric tons). So the farmer will have to sell 10 contracts to hedge 50,000 bushels. on March 1, corn futures traded at $6.17 per bushel. From March 1 until harvest on november 1, the price of corn fell by $0.23 per bushel. The farmer can now buy 10 contracts at $5.94 per bushel, offsetting the 10 contracts he sold at $6.17 per bushel. The 10 futures contracts generated $11,500 in addition to the $5.94 per bushel the farmer will receive in the cash market.



If the farmer had hedged 100% of the crop, he would have offset the price decline entirely. However, he also would have given up the opportunity to profit from a possible rise in corn prices.

Cash	Initial Value of Crop 03/01	Cash Received 11/01	Loss
100,000 Bushels	$617,000 at $6.17/Bushel	$594,000 at $5.94/Bushel	– $23,000

Futures Position	Initial Value of Futures	Current Price of Futures	Profit
50,000 Bushels	$308,500 at $6.17/Bushel	$297,000 at $5.94/Bushel	$11,500

Who would have wanted to buy these contracts?

This example began with the farmer selling 10 corn futures contracts in March, well before the harvest. Any number of market participants would have been willing to take the other side of this transaction. They include food processing companies attempting to hedge their input costs, commodity fund managers looking at the price relationship between various grain products, energy companies looking to secure an ample supply of corn for ethanol production and speculators who wish to express and profit from their opinion on the direction of the market. Each of these groups provides different insights into the industry and plays an integral role in discovering a fair price.

Hedging Currency Risk

Large commercial enterprises regularly use futures to manage risk, reduce costs and leverage working capital. Let's imagine that on September 1, a U.S. company agreed to buy heavy equipment from a German manufacturer. According to the terms of the agreement, payment of ¤1 million (euros) was due upon delivery, December 1. Between September 1 and December 1, the price of the euro in relation to the U.S. dollar will fluctuate. What if the value of the euro were to rise? How would this affect the cost of the machinery? More importantly, how would it affect the overall profitability of the deal? As you can see in the example below, the value of the euro did rise significantly from 1.3600 to 1.4610, which in turn would raise the cost to the U.S. company by more than $100,000.

To protect themselves from this risk, the company could have:

Bought the euros they needed for this purchase on September 1.

This would have eliminated any currency risk. However, it would have also tied up a large amount of the company's working capital, $1.36 million for three months assuming that the exchange rate at that date was $1.36 per euro.

Or, hedge their exposure to rising prices by purchasing futures contracts.

Buying futures contracts, known as going long, is a typical strategy used by companies that regularly buy foreign currency, financial assets, such as stocks and bonds, or physical commodities.

In this example, the U.S. company chose to protect itself in September by purchasing eight Euro FX futures contracts. Each contract represents an underlying (dollar) value of ¤125,000 (euros). So eight contracts would represent ¤1 million (euros). This amount would completely offset the currency risk associated with the increasing purchase price of the equipment if the value of the euro went up during this period.

A qualified hedger with a futures account is only required to put up a percentage of the full contract value (a performance bond) to buy or sell the futures contract.

Cash	Cost of Currency, Sept 1	Cost of Currency, Dec 1	Profit/Loss
			– $101,000

Futures Position	Price of Futures, Sept 1	Price of Futures, Dec 1	Profit/Loss x 8 Contracts
Long 8	$1.3610	$1.4611	$101,000
		Net Profit/Loss	-0-

In this case on this date, the U.S. company would be required to deposit about $5,000 per contract, or $40,000 to hedge the currency risk associated with this deal. Keep in mind the amount of the required performance bond is subject to change based on market conditions. Because the price of the euro rose, the company had to pay more to purchase ¤1 million (euros) on December 1. However, this increase in cost was offset by the profits realized from being long the futures contracts. By hedging with futures, the U.S. company locked in the price it paid for euros and fixed the ultimate cost of the equipment. Keep in mind if during this period the dollar strengthened compared to the euro, the futures position would have sustained a loss, but the cost in dollars of the equipment would have declined as well.

If the U.S. company was buying euro currency futures, who was selling them?

Any number of market participants might have taken the other side of this trade: a company hedging against a possible decline in the value of the euro, a speculator looking to take advantage of an opportunity, or a European company buying products in the United States. Similar transactions happen hundreds of thousands of times every day.

Example 2: Individual Traders

For a more detailed look at how futures trading works, let's follow the experience of Jack, an individual who actively trades stocks and futures, in addition to managing longer-term investments. The example is fictitious, but true-to-life for many of today's active investors. It is important to first note that in futures trading, it is just as easy to initiate a trade from the short side by selling a contract as it is from the long side. Traders with a bullish opinion of the market start their trades by buying futures contracts, while bearish traders start by selling futures contracts.

Market Opinion

Jack has formulated an opinion on the short-term direction of the stock market. He feels that stocks are poised to rally and sees leadership coming out of the large cap stocks. The E-mini S&P 500 futures contract, gives individual traders like Jack a simple, highly liquid and relatively inexpensive way to place trades based on the direction of the overall index. Trading E-mini futures makes sense to Jack. Instead of having to research the relative value of a number of large cap stocks, he is able to trade a single contract that represents the value of the entire index. Jack can trade the E-mini S&P 500 contract electronically almost 24 hours a day during the business week. Jack anticipates a rally in the S&P 500 futures price, so he is looking to buy, or go long, the contract. once Jack is ready, he will place his trade using an online trading application (also called a front-end) supplied by his broker. This trading application connects directly to electronic trading platform, via his brokerage firm. In addition to providing Jack with order execution, the front-end application allows Jack to see the 10 bids and offers closest to the last trade price and other trade information in real time. These trades are electronically matched, cleared and reported to customers anywhere in the world. In an instant, Jack receives a trade confirmation and is able to begin monitoring his position.

Order Entry Screen

Let's take a closer look at the trade Jack placed. Pictured on the right is a generic order entry screen, similar to several popular applications. Actual order entry screens vary somewhat by front-end software vendor and broker.

A This field identifies the name of the futures contract you are viewing.

This will populate the order entry screen with the appropriate price information. Each futures contract has a unique symbol that differentiates it from all other products. The product code also identifies the expiration by month and year.

B Use this field to specify the number of contracts you want to buy or sell.

Specify the Type of Order

The simplest and most common type is the market order. When you place a market order, you agree to either buy or sell at the best available price. Your objective is to have the order executed as quickly as possible. In other words, with a market order you often do not specify a price. The only information you need to provide is ***1) the name of the contract you want to trade, 2) the number of contracts you want to trade and 3) whether you are buying or selling.*** Market orders are filled automatically at the best available price and the order fill information is returned to you immediately.

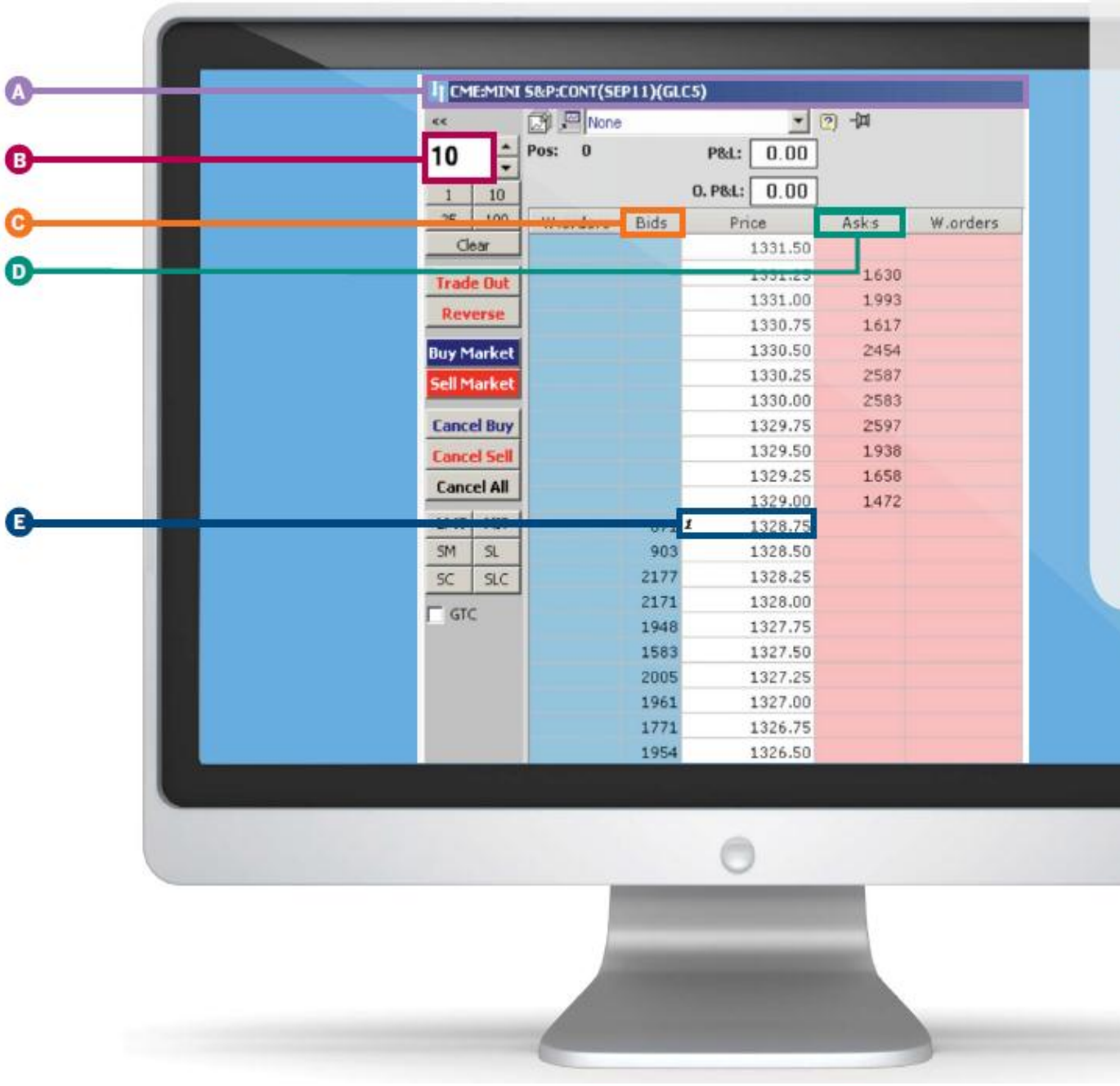
C This column shows the price and the number of contracts those potential buyers are actively bidding on. Notice that only the 10 best bid price levels are shown.

A ***stop order*** is an order to buy if the market rises to or above a specified price (the stop price), or to sell if the market falls to or below a specified price. When the market reaches the stop price, your order is executed as a market order, which means it will be filled immediately at the best available price. Stop orders are often used as part of a risk or money management strategy to protect gains or limit losses. For example, a trader who is long a particular market might place a sell stop below the current market level. Then, if the market moves lower and reaches the stop price, the trader's order will be triggered and the position will be offset, limiting further losses.

Limit orders are conditional upon the price you specify in advance. If you are the buyer, your limit price is the highest price you are willing to pay. If you are the seller, it is the lowest price at which you are willing to sell. The advantage of a limit order is that you are able to dictate the price you will get if the order is executed. However, unlike a market order, placing a limit order does not guarantee that you will receive a fill. If the market does not reach your limit price, or if trading volume is low at your price level, your order may remain unfilled. only the 10 best offer or ask price levels are shown. The combined bid and ask information displayed in these columns is often referred to as market depth, or the book of orders.

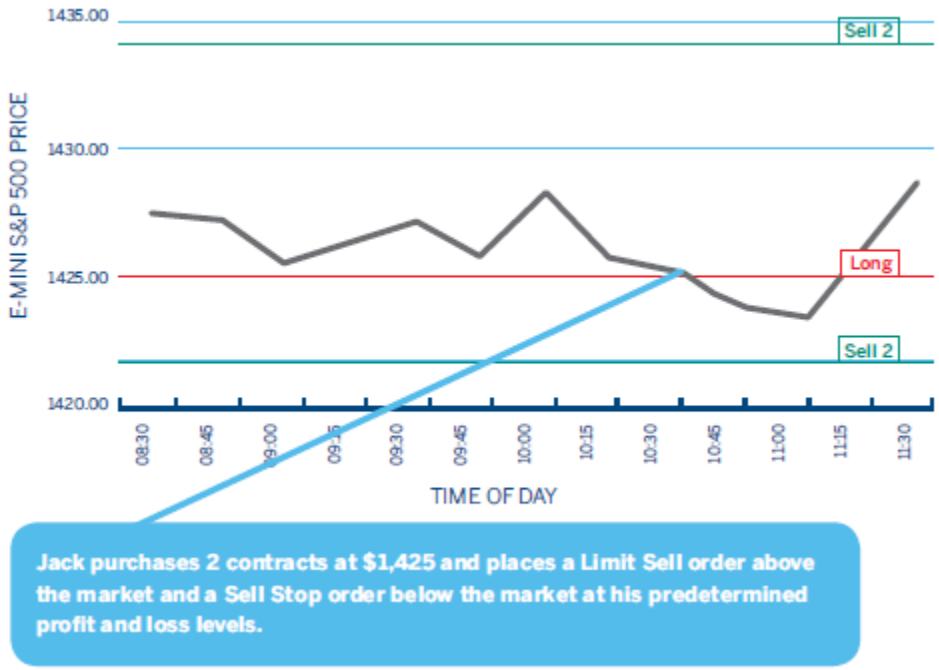
This column shows the number of contracts traders are actively offering to sell at the given price listed to the left.

This field shows the price of the last completed trade.


A
B
C
D
E
CME:MINI S&P:CONT(SEP11)(GLC5)
None
10
Pos: 0
P&L: 0.00
O. P&L: 0.00
1
10
Clear
Trade Out
Reverse
Buy Market
Sell Market
Cancel Buy
Cancel Sell
Cancel All
SM
SL
SC
SLC
GTC
Bids
Price
Asks
W.orders
1331.50
1331.00 1993
1330.75 1617
1330.50 2454
1330.25 2587
1330.00 2583
1329.75 2597
1329.50 1938
1329.25 1658
1329.00 1472
1328.75
903 1328.50
2177 1328.25
2171 1328.00
1948 1327.75
1583 1327.50
2005 1327.25
1961 1327.00
1771 1326.75
1954 1326.50

Price Movement

Jack has purchased two E-mini S&P 500 contracts. He will now monitor his position as well as the fluctuations of the market. In addition to this, Jack will place a limit order above the market to take profits if the market moves higher and a stop loss below should it move against him.



Jack is now monitoring his position and observing the fluctuations of the market. Prices change constantly in response to factors ranging from the weather to social and political change. Economic reports and monetary policy decisions can also have a dramatic effect on price. Futures markets are continually attempting to determine price through a process similar to that of an auction house, except the process is a two-way live auction. This is referred to as price discovery. Prices that are too low may stimulate buying, which raises the price. Prices that are too high may stimulate selling, which drives the price lower.

Exiting the Market

Jack entered the market on the buy side, speculating that the S&P 500 futures price would move higher. He has three choices for exiting the market:

1. Offset Position

offsetting his position is the simplest and most common option for Jack. He entered the market by buying two E-mini S&P 500 futures contracts, so he can offset his position by selling two contracts. If he had entered the market by selling two contracts, he would offset the sale by purchasing two. To limit the risk of holding a position overnight, many individual traders exit all positions and go home flat (no position) at the end of every trading day.

2. Roll Position

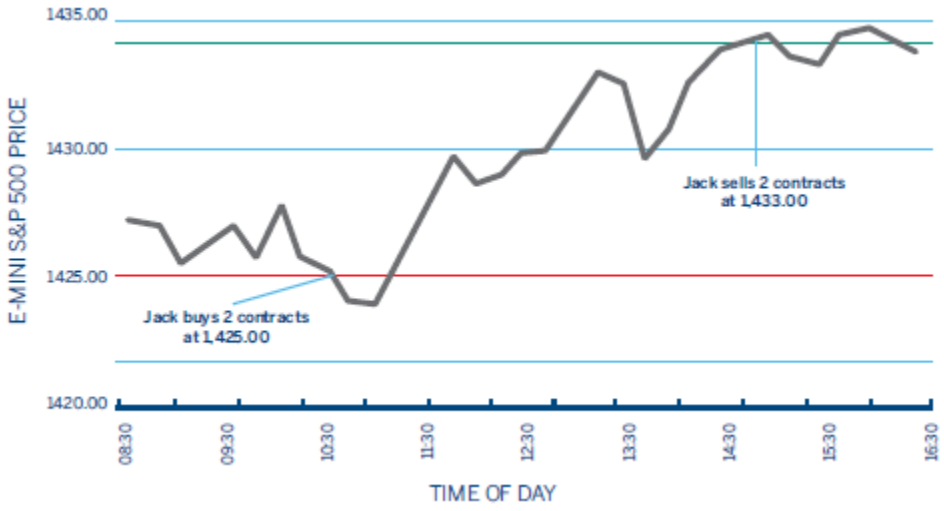
All futures contracts have a specified date on which they expire. Longer-term traders who do not want to give up their market exposure when the current contract expires can transfer or roll the position to the new contract month. In our case study, if Jack wanted to stay long in the E-mini S&P 500 contract as the December expiration approached, he could simultaneously sell the December contract and buy the following March contract. In this way, Jack would offset his position in the December contract at the instant that he takes an equivalent long position in the March contract. To put it another way, he would effectively roll his long position from the December contract to the March contract.

3. Hold Contract to Expiry

All futures contracts have an expiration date. one of Jack's options is to hold his contracts until they expire. However, doing so would have certain implications. Some contracts call for the physical delivery to an approved warehouse of the underlying commodity or financial instrument. others, like the E-mini S&P 500, simply call for cash settlement. Every futures contract specifies the last day of trading before the expiry date. Investors need to pay attention to this date because as the date approaches, liquidity will slowly decrease as traders begin to roll their positions to the next available contract month.

Calculating Profit and Loss

As a day trader, Jack's goal is to finish the day with a positive profit and loss, or P&L statement. Consequently, he decides to offset his position by selling two contracts. If the E-mini S&P 500 contract has risen 8 points since the time of his purchase, how will this affect his account balance? The E-mini S&P 500 contract has risen 8 points, or 32 ticks. Since one tick is equivalent to $12.50, each contract Jack holds has increased in value by $400. Jack holds two contracts, so the total effect on his daily P&L will Be +$800. Until Jack exits the position, every tick up or down represents a change of $12.50 in the value of one contract. Since Jack was long two contracts, his trade was twice as profitable, but if he had been short those two contracts, he would have lost $800.



E-mini S&P 500 Contract

- **Change in price = 8 points or 32 ticks (1 point = 4 ticks)**
- **Value of 1 tick: $12.50**
- **Change in P&L: 32 x $12.50 = $400 per contract**
- **Jack's initial position: 2 contracts**
- **Total change: $400 x 2 = $800**