

Marketing Guide

By Dr. Kevin McNew

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I. UNDERSTANDING FUTURES MARKETS

In today's agricultural environment, there is considerable risk in farming. Probably the most significant risk to a farmer comes from large and rapid commodity price changes. It is not unusual to see grain prices fluctuate by as much as 10-20% within a year.

While this kind of price volatility can be a significant problem, it is possible to be a successful marketer and take advantage of these kinds of price moves. How can you successfully manage this risk? Probably the best way is through *forward pricing markets*, which allow you to establish a guaranteed forward price for your crops.

The purpose of this text is to provide you with the necessary information to use these markets in a successful and, hopefully, profitable manner. It is important to recognize that forward pricing does not guarantee the highest possible price for grain sold. At the same time, it

is not always imperative to forward price if market prices are not to your liking. Therefore, our goal in this text is not only to help you understand the mechanisms that you can use to establish forward prices, but also give you the tools necessary for understanding when to make a pricing decision.

This reference guide has five major chapters. This chapter presents some discussion of grain futures markets. It also discusses some of the issues related to trading in the futures market including working with a commodity futures broker. This chapter is intended for those who have a limited understanding of futures markets.

Chapter 2 and 3 discuss how to use commodity futures markets to establish forward prices for your commodities. Chapter 2 is devoted exclusively to using futures markets while section 3 discusses using commodity options. Throughout, a number of examples are used to illustrate how these methods work.

Chapter 4 and 5 present some of the basic tools of fundamental and technical analysis. Fundamental analysis is the use of commodity supply and demand data to make price projections. In chapter 4, we show some simple fundamental analysis can be used to predict commodity prices and help you know when to establish a price using a forward pricing contract. Chapter 5 discusses some simple technical analysis techniques which are based on commodity chart patterns.

I.A Futures Markets: What Are They?

Futures markets offer an opportunity to establish a forward price for your crop in advance of when it will be delivered to a local buyer. This can include pricing wheat (or other crop) well in advance of when you will actually produce it and sell it in your local market. While a common misperception is that futures markets are nothing more than gambling arenas, the truth is futures markets can be used to increase profitability and lower risk.

In a nutshell, futures markets are simply auction markets for forward contracts, except in futures markets they are called futures contracts. We are all familiar with forward contracts--a legal agreement between a buyer and a seller to exchange a product at a later date and at a predetermined price. In most cases, the "seller" of the forward contract is the farmer while the "buyer" is a local grain elevator or merchandiser.

A futures contract is similar except that the size and delivery date of a futures contract is standardized so that no one can change the contract specifications. In fact, the only thing that is negotiated is the price. The terms of the futures contract dictate what commodity will be exchanged (e.g., corn), the amount of the commodity that will be exchanged (e.g., 5,000 bushels) and the date when the exchange will occur, often called the contract month (e.g., May).

The Futures Exchange

Futures exchanges are government licensed markets for the trading of futures contracts. There are numerous futures exchanges not only in the U.S. but also around the world. For agriculture, the three primary futures exchanges are the:

- Chicago Board of Trade (CBT) where grain and oilseed futures contracts are traded;
- Chicago Mercantile Exchange (CME) which trades livestock and dairy products;
- Mid-American Exchange of Chicago trades smaller sized contracts of agricultural products.

The exchanges provide space (called pits) where traders meet during a specified time period to trade futures contracts. At the CBT, the grain and oilseed contracts trade from 9:30 a.m.

(Central Standard Time) to 1:20 p.m.. Individuals who trade contracts in the pits are exchange members and may trade their own accounts or take orders from brokers or businesses outside of the exchange.

Who Trades Futures Contracts?

People who trade futures contracts are either speculators or hedgers. Hedgers, who are also referred to as commercial users, protect their financial position in the cash market by using futures contracts to protect against adverse price moves. A grain elevator who signs a forward contract with a local farmer will utilize futures contracts to remove the risk of price changes. Farmers and other business that face a risk of loss from adverse price moves can also use futures.

The other group of traders is speculators who have no business interest in the agricultural commodity. Their sole interest is to try and predict price direction and profit from such forecasts. Some suspect that speculators control the futures market by either making prices too high or too low. However, because there are so many individuals—both hedgers and speculators—trading in futures markets, it is impossible for any one person or group of individuals to control the price. While we may not always like the prices offered on futures contracts, they are still the best indication of what is a fair-value for the commodity in the future. Granted, futures prices may and do often change dramatically, but this is a consequence of new supply or demand information, which changes the fundamental outlook. Being a good marketer will allow you to profit from such changes through a forward pricing arrangement.

I.B Trading Futures Contracts

Trading futures contracts is not a complex process and has many similarities to trading stocks. However, some important differences exist between trading stocks and trading futures contracts that are worth discussing.

Brokers

To trade in the futures market requires that you have an account with a futures broker. Like stock brokers, futures brokers may provide trading advice. Brokers will send you an account statement and will handle the funds that you use to trade. For their services, brokers charge a commission which varies, depending on the level of service, from \$25-\$75 per contract. We will discuss brokers in more detail in a later section. For the moment, just recognize that you will need to use a futures broker to trade in the futures market.

Futures Contracts

Futures contracts are agreements between two parties. Like a forward contract, there is a buyer of the commodity (sometimes called the ‘long’) and a seller of the commodity (a ‘short’). You can sell futures contracts without actually having pre-existing futures contracts. As a seller or the short, you are agreeing to deliver the commodity in the delivery month. The buyer or the long is agreeing to take delivery of your commodity in the delivery month.

Now, these obligations to make or accept delivery of a commodity sound quite demanding but the benefit of futures contracts is that they can be canceled or offset anytime prior to when the contract expires. To offset a futures contract, you simply do the opposite of what your existing position is. For example, if you have gone short (sold) a December corn futures contract today, then you can simply offset it anytime between now and December by buying December corn futures. This will offset your delivery obligation. However, over that time, the

December corn futures price has likely changed. If the price has fallen and you buy it back at a lower price, you will have a profit in your account. Conversely, if you have to buy back at a higher price, you will have to pay the difference.

Margins and Mark-to-Market

Anytime you take a position in the futures market (either long or short) you are required to post margin funds. Margin is a small sum of money, which serves as good faith indicating that you will adhere to the terms of the contract. Margins usually range from \$500 to \$1,500 per contract depending on the commodity and the market volatility at the time.

Another unique feature of futures contracts as compared to stocks is that profits and losses are settled on a daily basis. On any given day, there are winners and losers in the futures markets depending on their position and the change in price from the previous day. Margin funds are used to pay those who have profited from those who have lost. This adding and subtracting from your account on each day is known as *mark-to-market*.

For example, if prices increase, then those having a long futures position will win and those having short positions will lose. The losers will have money taken from their account to pay the winners. Therefore, one of the main purposes of margin funds is to provide enough funds to assure that you can meet these obligations if your account suffers a loss.

I.E Grain Futures Markets

The largest futures exchange in the world for trading grain and oilseed products is the Chicago Board of Trade (CBT). In fact, grain traders in Chicago who wanted a standardized way to trade cash forward contracts started the CBT in the mid-1800s.

The CBT trades futures contracts for corn, wheat and soybeans (including soymeal and soyoil). The contracts are for 5,000 bushels and have delivery or contract months which differ depending on the commodity.

While the CBT is the largest grain futures exchange, there are other grain exchanges which may be useful. The Mid-American (or Mid-Am) exchange trades grain contracts that are 1,000 bushels as opposed to the larger 5,000 bushels at the CBT. On any given day, there is little to know difference in price between the two exchanges. Therefore, if 5,000 bushel contracts are too large for your purposes, you may want to use the Mid-AM market for 1,000 bushel contracts. In addition to the Mid-Am, there is the Kansas City Board of Trade (KCBT) and the Minneapolis Grain Exchange (MGE). These exchanges specialize in trading different grades of wheat from the CBT's soft red winter wheat. At the KCBT, a hard red winter wheat is traded while the MGE trades a hard red spring contract. Both contracts are 5,000 bushels.

Corn, Soybean and Wheat Futures Markets

Exchange: Chicago Board of Trade (CBT);
Mid-American Exchange (MidAM)

Contract Size: 5,000 bushels (CBT)
1,000 bushels (Mid-AM)

Contract Months: Mar., May, Jul., Sep., & Dec. (Corn & Wheat)
Jan, Mar, May, Jul, Aug, Sep, Nov (Soybeans)

Trading Hours: 9:30 a.m.-1:20 p.m. (CST)

A common misperception is that once you take a position in the futures market you must accept delivery of the commodity (in the case of buyers) or make delivery of the commodity (in the case of sellers). While some individuals do exchange commodities when a contract expires, the vast majority of traders exit their futures contract by offsetting it prior to delivery.

For example, suppose today you sold December Corn futures for a price of \$2.75 a bushel. This is referred to as going "short" corn. Anytime between now and December, you can offset this contract by simply buying back the December futures. This will offset your commitment in the futures market. Of course, over that time period the price may have moved lower or higher from the price you went short at of \$2.75. If you buy it back at a lower price, then you will earn a profit whereas if you buy it back at a higher price, you will suffer a loss.

As an example, suppose in November you decide to buy back your December Corn futures contract and the price is \$2.87 then you would suffer a loss of \$0.12 per bushel or \$600 on one CBT corn contract. If instead the price falls to \$2.65 by November, the purchase of the December contract would result in a profit of \$0.10 per bushel or \$500 per contract.

The point in using futures contracts is to establish a price for your commodities. We shall see later that by using a futures contract, you will establish a forward price and regardless of whether prices increase or decrease, you will still receive the contracted price.

I.G Finding Futures Prices

In today's electronic age, it is rather simple to find futures price information for little or no cost. Most newspapers that maintain a business or financial section will provide futures price information and sometimes option price information for the larger futures markets like the grains and oilseeds. The most comprehensive national newspaper for this information is probably the Wall Street Journal, although other financial oriented papers carry similar information.

Probably the most effective source of information on futures and options prices is over the internet. The Chicago Board of Trade maintains an excellent website with 10-minute delayed futures and options quotes. In addition to the price information, there is a wide array of educational material and market information for the products traded.

To access the CBT website, go to <http://www.cbot.com> and you can access the market price information from the menu.

If you have a futures account with a broker, you can usually access futures price information from them via an automated telephone service or also possibly through an internet home page.

I.H Using a Futures Broker: Accounts and Margins

Because most individuals are not members of futures exchanges the vast majority of the public must trade through a futures broker. A futures broker is simply an individual that handles futures and options transactions for his clients.

There are basically two types of commodity futures brokers depending on the type of service offered. A *full-service* broker provides trading advice including market outlook information as well as guidance regarding futures or options positions to place. This advice may come through phone calls that will be made to you on a regular or semi-regular basis or via newsletters, faxes or

the internet. Sometimes, full-service brokers will call when the market you are interested in is moving quickly and they see a need to place an order. While the commission will vary, the usual range is about \$50-\$100 per round-turn trade (to buy and sell one futures contract).

The second type of futures broker is a *discount* broker. A discount broker simply provides trade execution without market advice. Unlike a full-service broker, a discount broker will not give you any personal opinions on market direction or strategies but will only take your trading order and handle your account. For this service, you usually pay around \$20-\$35 per round-turn trade.

Whether you should go with a full-service or discount broker depends on your comfort level with trading. If you have not traded futures or options contracts, a full-service broker may be worth the extra costs because they can provide more advice about strategies than a discount broker. However, this does not necessarily guarantee that the advice that you get from a full-service broker is the correct advice! An important aspect to remember about full-service brokers is that they earn their commission regardless of whether you make money on a trade or not. Therefore, they have a strong incentive to have you make trades. This is true even if the trades they suggest may not be the best for your needs.

If you prefer to make your own decisions and not feel pressured by the advice of your broker, a discount broker may be more appropriate. The disadvantage of using a discount broker is that you must monitor the markets on a regular basis and make your own trading decisions. However, even some discount brokers offer market newsletters or other forms of information which can help you make trading decisions.

Opening A Futures Account

Commodity brokerage firms generally require a client to deposit at least \$5,000 to open a commodity trading account. However, because of the intense competition among commodity brokers, this amount can be negotiated down and some brokers will not require any funds until you are ready to trade.

To open an account requires the prospective client to pass a “suitability” screening. This means that the prospective client be qualified for commodity trading in the sense that he or she has been appraised of the inherent risks, has sufficient financial resources to trade, and is not disqualified by reason of mental illness or legal constraint.

Usually, one finds that few mature persons who have financial resources beyond the immediate security need of themselves and their families are turned down as being unsuitable. Suitability does not mean that the prospective client has demonstrated any indications of market or trading knowledge likely to lead to profitable trading.

Most brokerage firms now offer money market funds. Therefore, you can open a commodity account and money market account at the same time. Funds are transferred to the commodity account as required. As long as the funds remain in the money market account they earn interest. Excess commodity account funds may be moved to the money market account. This arrangement has the advantage of allowing the trader to meet initial margin and margin calls by simply transferring funds from the money market account to the commodity account.

Types of Orders

To make futures or options transactions requires that you give certain instructions to your broker. These instructions, also known as trading orders, dictate how many contracts you want to buy or sell, the price you are willing to accept on a trade, and the time period you wish the trade to be executed.

The most flexible order is a *Market* order. This transaction will be executed “at-the-market”, meaning you will either buy or sell at the prevailing price when the order gets to the

trading pit on the exchange floor. Using a market order is good when you want a trade to be executed immediately as it will usually only take 5 minutes or less to have the trade executed after you give your instructions to the broker. The downside of using a market order is the price may be substantially different from the price quoted when the order was placed. This is particularly true in a volatile market situation where prices are moving sharply higher or lower. Other market orders include *Market-On Open* and *Market-On-Close* which are to be executed only during the formal opening or closing periods for a trading day.

Of time orders, the shortest lived is the *Fill-Or-Kill* (FOK) order. If an FOK order cannot be filled when it arrives at the trading pit on the exchange floor, it is canceled. A *Day* order is the next longer lived order normally encountered. A day order expires at the end of the trading day if it is not filled before the end of the trading day. The longest lived order is the *Good-Till-Canceled* (GTC) order which remains in effect until it is either executed or canceled by the trader. While these orders can be good to keep your order active if the market moves to a desirable price level, it is important not to forget that the order is still in effect. Many brokers will send weekly reminders if you have standing open orders.

To ensure that no more than a certain price is paid to establish a long position, and no less for a short position, a *Limit* order is used. This is typically stated as "Buy 5,000 bushels of May Corn at \$2.45 or better." The "or better" phrase allows the order to be filled at the limit price of \$2.45 yet does not prevent filling the order at a price more favorable to the trader.

In order to protect a profit, or limit a loss in the event that a trade does not turn out as expected, a *Stop-order*, also referred to as a *Stop-Loss* order, is used. A stop order becomes a market order (or limit order) if the price falls to that level for a sale or rises to that level for a purchase. A similar order is a *Market-If-Touched* (MIT) order. An MIT order also is triggered if a certain price level is reached. However, an MIT order is used to sell at a higher price or buy at a lower price, whereas a stop order is just the reverse.

While these are some of the more important trading orders, it is possible to work out special orders with your broker. When opening an account, ask your broker for a list of acceptable orders so that you may become familiar with the terms and orders that they allow.

Margin Account

With every new futures trade, traders deposit money, called the *initial margin*, with their broker. This margin serves as a security deposit or performance bond guaranteeing that the trader will abide by the contract terms. Traders must make this deposit whether they enter the market from the long or short side. The initial margin is roughly 3 to 10 percent of the value of the contract although the amount can vary by commodity and depending on how volatile the market price has been of late.

It is important to recognize that the amount of margin money is not the most that can be lost from a futures trade. If you maintain a losing position, you will be responsible for all losses on the contract, even if these losses are more than the amount of initial margin. In fact, your broker will require that you send more money (known as a margin call) when your margin account falls below a pre-specified level, known as the *maintenance margin* or *variation margin*. Your margin call would have to be enough to get your account back to the initial margin level.

To illustrate how margin accounts work, let's assume you take a short position in the December corn futures contract at a price of \$2.85. After calling your broker to sell the December contract, you would deposit or have in your account enough funds to cover the initial margin (plus commission). Let's assume that the initial margin is \$500 for a corn contract and the maintenance margin is \$300. Therefore, you would be required to post \$500 to take the position

and if your margin account ever falls below \$300, you would be required to send money to get it back to \$500.

Example Margin Account from A Short December Corn Contract

Date	December Corn Price	Profit/Loss	Margin Account
3/5	\$2.85	.	\$500
3/6	\$2.83	+\$100	\$600
3/7	\$2.92	-\$450	\$500 (\$350 margin call)
3/8	\$2.91	+\$50	\$550

Because futures positions are marked-to-market, profits and losses are paid-up on a daily basis. Profits are added to the margin account while any losses are subtracted from the margin account. On 3/6, the price fell to \$2.83 so this resulted in a profit of \$100 on one corn contract. This \$100 was added to the margin account balance to bring the account up to \$600. The following day, the price rose sharply to \$2.92 resulting in a \$450 loss on the position. Notice that this is the loss in the position's value from 3/6 to 3/7. At this stage, the margin account would have only \$150, which is below the maintenance margin level of \$300. Therefore, the trader would get a margin call by phone after the close of trading to send \$350 to bring the margin balance back to \$500, the initial margin level. For the last date on the table, the price fell 1 cent and \$50 is added to the margin account to bring the total to \$550. Note that even though the margin balance is \$50 greater than the initial margin level of \$500, the trader has a loss of \$300 on this trade because of the \$350 margin call that had to be made.

As you might suspect, if the market is quite volatile and moving against your position, you may have several margin calls in a short time period. If you get a margin call, you will be required to have the money wired to your brokerage account and available before the opening of trading on the following day. Thus, it is important to closely monitor your positions on a daily basis so you can be prepared for such a circumstance. Another possibility is to maintain additional funds in your account beyond the initial margin, which your broker could use in the event of significant losses to meet the margin requirements.

While margin calls can create cash flow problems, as a hedger it is important to remember that when you are losing money in the futures market, you will eventually make it up on the cash market. For example, if you sell a corn futures contract and the price increases, you will need funds to cover the losses on the futures contract. However, when you go to sell corn in your local cash market, your local price will be higher and you will receive a higher price. The loss on the futures position and the increase in the cash corn price will usually balance out. To get around the cash flow problem, you should contact your creditor to see if they will provide funds for margined futures trading. Many bankers are happy to provide this because they realize that futures contracts can help assure financial stability and profits.

II. HEDGING USING FUTURES CONTRACTS

II.A Hedging with Grain Futures

By using grain futures contracts, you establish a forward price for your crop. This may be done anytime anytime prior to when you expect to sell grain in your local cash market. For example, at planting time for wheat, you may decide to use futures to establish a forward price for the wheat you will sell at harvest. Or, you could use futures to price grain in storage that you will sell at some later date.

To be concrete, let's assume that today is April and you are planting your corn crop which you will harvest and sell in November in your local market. You have decided to forward price some of fall production. In April, you observe that the December corn futures price is \$2.80 so you can lock-in that price by selling the December corn futures contract through a futures broker.

Once the contract is sold, you will be required to deposit *margin funds* with your futures broker to assure that you will adhere to the terms of the contract. If the price were to increase, your futures account would begin to lose money so you may need to send more money to cover the losses. Conversely, if the price falls, money will be added to your account.

The combination of your futures position and your sale of corn in the cash market will yield a *net-price*. This price takes into account any profits or losses on the futures position as well as the cash price received for corn. Let's now consider what happens in November to see what happens to your net-price for corn under different price scenarios.

Lower Prices in November

In November let's say the December corn futures price has fallen to \$2.35. At this point in time, you offset the futures contract by simply buying back the December futures contract for a price of \$2.35. Because you had originally sold the contract for \$2.80 and you bought it back for a lower price of \$2.35, you will earn a profit of \$0.45 (less broker commission).

This profit of \$0.45 can be applied to the price you sell corn for in your local market. Let's say that your local price for corn is \$2.45 so your net-price is \$2.90 (\$2.45+\$0.45).

Net-Price from Selling a December Corn Futures Contract at \$2.80.

	Lower Prices in November	Higher Prices in November
December Futures	\$2.35	\$3.10
Profit on Futures	+\$0.45	-\$0.30
Cash Corn Price	\$2.45	\$3.20
Net Corn Price (cash price+futures profit)	\$2.90	\$2.90

Higher Prices in November

What if instead of falling, the December corn futures price had been higher at harvest? Suppose that the December corn futures price is \$3.10. You buy back your December contract at that price and have a loss of \$0.30, which you would have already paid through any margin calls. At the same time, however, the price for corn in your local market will be higher because of the higher futures price. Let's say your local price for corn at harvest is \$3.20. Your net-price for

corn is \$2.90, which is simply your cash price of \$3.20 less the loss on the futures contract of \$0.30.

Net-Price is the Same

In either case, no matter whether the market moved higher or lower than what was contracted at \$2.80, your net-price is still the same: \$2.90. This occurs because the corn *basis* was always the same. The basis, which is the difference between the cash price and futures price, was \$0.10 no matter whether prices were higher or lower. In the real world, the basis may vary somewhat but it is usually easier to predict than price levels. Therefore, you can be reasonably confident of getting a specific price for your grain once you establish a price level using a futures contract.

II.E Grain Basis

Understanding your local basis can be useful for making wise marketing decisions. The basis measures the difference between your local cash price and the futures price:

$$\text{Basis} = \text{Local Cash Price} - \text{Futures Price.}$$

For example, if on a given day the cash price for corn in your market is \$2.40 and the December futures price is \$2.30, then your basis at that time is +10 cents. Some will refer to this basis as *10 cents over*, implying that the local cash price is 10 cents higher than the futures. Similarly, if the basis is -5 cents, it is referred to as *5 cents under* implying that your local cash price is 5 cents below the futures.

The cash price and the futures prices generally move together in the short run implying that the basis does not change significantly. However, over a longer period (say more than one month), the basis can change, usually reflecting local supply and demand conditions.

One of the most important aspects of grain basis is that it has a tendency to be lowest at harvest time in the fall and highest at some point in the spring or summer. An increasing basis over the season is a consequence of the market paying for the cost of storing the grain locally or the cost of bringing in supplies from outside markets.

Estimating Your Local Basis

If you do not already have historical basis information for your local market, you should attempt to get some. Two good sources are your local Cooperative Extension office or the feed/grain companies that your purchase from. Both should maintain this type of information.

Once you have information on historical basis for your market, you can begin to make pricing decisions. For example, suppose you have decided to store wheat after harvest and you anticipate selling it in October. To know what price you could establish using futures, you would need to know what your local basis tends to be in October. If normally your local basis is +15 cents and the December futures is trading for \$3.45, then your forecast for your local cash price for October is:

$$\begin{aligned} \text{October Cash Price} &= \text{October Basis} + \text{December Futures Price} \\ &= \$0.15 + \$3.45 = \$3.60. \end{aligned}$$

Now, this does not imply that the October cash price will be \$3.60 but if you decide to sell December wheat futures, you can guarantee this price subject to the basis being +15 cents.

Basis Example and Futures Hedging

Suppose you decide to establish a forward price for your stored wheat which you will sell in October. To do so, you sell December wheat futures at a price of \$3.45. As we stated above, your normal basis in October is +15 cents so you anticipate getting a price of \$3.60.

Let's jump forward now to October and suppose that the December wheat futures price has fallen to \$2.75. To offset your futures position, you buy the December contract and sell your wheat in your local market, let's say for \$2.90. What will be your net-price for wheat?

Because you bought December futures for \$2.75 and sold it for \$3.45, you will earn a profit of \$0.70. This \$0.70 profit gets added on to the price you get for wheat in your local market of \$2.90. Thus, your net-price is \$3.60. Notice that this is exactly what you had forecasted because the basis when you sold your wheat was \$0.15, just like you had expected.

If instead the basis had been higher or lower than \$0.15, then this would have increased or decreased your net-price for wheat. Fortunately, however, the basis tends to be fairly predictable (especially compared to the cash price) so that the basis usually doesn't differ significantly more than what you expect.

II.E Types of Cash Contracts

Aside from the standard cash forward contracts, there are numerous other contracts available to farmers from their local buyers. These contracts can usually give you flexibility in terms of delivery and pricing options. We explore a few of the more common ones here.

One of the more popular cash contracts is what is called the *Basis Contract* or *Fix Price Later Contract*. This contract allows the farmer to lock in the basis of his price, but keeps the futures component of his price open. Recall that your local cash price is equal to the basis plus the futures price so by locking in the basis, you are guaranteeing that part of the price which is related to basis. The futures price can usually be established anytime prior to delivery. The basis contract is popular because it allows you to take advantage of favorable basis in your local market, but allows you to wait and price the futures component when you want to. Some farmers will use a basis contract in conjunction with an option to establish a minimum price. However, it is important to recognize that if you only have the basis contract then you still face considerable risk from the futures price changing.

A *Deferred Price Contract* provides the farmer the opportunity to deliver and transfer ownership on the contract date, but without setting a sales price. The buyer generally charges an up front or monthly fee. The producer retains the basis and futures price risk and opportunity in this contract until the sales price is determined. You might decide to use this contract if you have a need to move grain off your farm but you believe the market will move higher.

A *Minimum Price Contract* gives the farmers protection against price declines but leaves open the possibility of getting a higher price if the market moves higher. This contract is basically a cash forward contract plus a call option. We will discuss this strategy in a later section.

One of the more controversial contracts of recent years is the *Hedge-to-Arrive (HTA) Contract*. There are several variations of the HTA but probably the most typical is that when the contract is initiated, the farmer establishes a futures price but leaves the basis open for pricing. In fact, some HTA contracts do not require a specific delivery date as this can also be at the

discretion of the farmer. While the futures price is established when the contract is initiated, it is possible for the farmer to postpone delivery and have the futures price rolled forward to another delivery month. In fact, this is where the problems with HTA arose. It is useful to consider some examples of how HTA can work and how some of these problems occurred.

Let's suppose that in May you want to price your corn to be produced in the following fall. At the time, the December futures price is \$3.00 and you decide to enter a HTA contract with your local buyer. This contract establishes a \$3.00 futures price against the December contract but leaves open the basis.

Jumping forward to harvest time in November, you have the option to either deliver your corn and receive the \$3.00 futures price that you contracted plus the basis at harvest or you can defer delivery and roll your contract forward on the March contract. To be concrete, suppose your harvest time basis is +5 cents, the March futures is 10 cents above the December futures, and a basis contract for February delivery is +30 cents. Should you deliver today or defer delivery into February?

To answer this, you should compute what your price would be in each case. If you deliver at harvest, you will get:

$$\begin{aligned}\text{November Delivery Price} &= \text{Contracted December Futures Price} + \text{Harvest Basis} \\ &= \$3.00 + \$0.05 \\ &= \$3.05.\end{aligned}$$

Therefore, delivering at harvest will get you a net-price of \$3.05. If you decide to postpone delivery to February, your net-price is:

$$\begin{aligned}\text{February Delivery Price} &= \text{Contracted Dec. Futures} + (\text{Mar.} - \text{Dec. Spread}) + \text{Feb. Basis} \\ &= \$3.00 + \$0.10 + \$0.30 \\ &= \$3.40.\end{aligned}$$

Whether you should defer delivery to February depends on your cost of storage, but most farmers can store grain for less than 5 cents per bushel per month. If so, then it would be best to deliver in February.

The advantage of the HTA is it provides some flexibility in terms of timing your delivery. However, recognize that by deferring delivery, you are subject to the risk of futures price spreads changing. This can be particularly risky when rolling from old-crop into new-crop months as the following example illustrates.

Suppose that instead of using the December futures, the farmer had priced his corn against the July futures in May when he initiated the HTA contract. Let's say that the July futures price at the time was \$3.40 and the December futures was \$3.00. When the farmer gets to July, he will roll forward from the July to the December contract to establish his price. His price will be based on how the spread between the July and December futures has changed between when the HTA was initiated and when the contract was rolled forward in July. Specifically, his price would be:

$$\text{December HTA Price in July} = \text{Dec Futures in May} + (\text{July-Dec Spread in May} - \text{Jul-Dec Spread in July}).$$

The spread between July and December futures when the HTA is initiated is +\$0.40 so if the spread declines by July, this will increase the December futures price. Conversely, if the spread increases, this will reduce the December futures price.

The problem that occurred in 1996 was that the spread between old crop and new crop prices skyrocketed. The spread went from about +60 cents in May to +160 cents by July. Therefore, farmers who had entered HTA contracts lowered the price that they contracted for December by \$1.00 per bushel loss. Instead of getting \$3.00 or more for corn at the time, they were establishing a price close to or below \$2.00. While 1996 was an extreme year because of shortages in corn, it points out the risks involved in using HTA to roll across crop years. Within crop years, the risks are much less severe.

III. OPTION CONTRACTS FOR HEDGING

There are two important drawbacks to the use of futures contracts. First, futures contracts establish a forward price, but if prices later move to a more favorable level, you are stuck with the price you locked-in using a futures contract. Second, with futures contracts you must post margin funds and there is no limit to the amount that you can lose with a futures position.

Fortunately, options contracts provide away around both of these problems. Options contracts, which work like insurance that you would buy on your car or home, protect you against unfavorable price moves. For this insurance, you pay a premium to the option seller. The premium is the most that you can lose from the option position and does not require that you post margin funds to maintain the option position.

III.A Defining an Option Contract

An option contract is simply a privilege conveyed to its owner. The owner (or buyer) of an option has the right to either buy or sell in the futures market at a specific price. There are two types of options, depending on whether the option owner has the right to buy or sell in the futures markets. A *call* option gives the owner the right to buy in the futures market at a specific price while a put option gives the owner the right to sell in the futures market at a specific price. The specific price that the option owner has the right to either buy or sell at is called the *strike price* of the option.

Like futures contracts, there are specific contract months for options. For example, in corn there are option contracts for March, May, July, September, and December. If you were to purchase a \$2.50 March corn call option, then you would have the right (but not the obligation) to buy March corn futures for a price of \$2.50 anytime between when you originally purchased the call option up until the option expires just prior to March.

The cost of buying the option is called the *premium*. The premium is the amount of money that the option buyer must pay the seller to receive the option and the rights it conveys. Option premiums vary throughout a trading day as the futures price changes. For any given contract month (e.g., March corn) there are numerous calls and puts traded with different strike prices. The strike prices are in fixed increments of 10 cents for corn and wheat, and 25 cents for soybeans. An example of December corn options are given below for a specific trading day when the December futures price was \$2.52. The option premium, which is quoted in cents per bushel and does not include commission charges, differs depending on whether the option is a put or a call, as well as the strike price. As stated earlier, the premium of the option is what changes on a day-to-day and minute-to-minute basis.

December Corn Options when the December Futures Price is \$2.52.

Strike Price	Call Premium	Put Premium
	Cents per bushel	Cents per bushel
240	17.5	5.75
250	12.0	10.0
260	8.375	16.0
270	5.875	23.75
280	4.0	31.75
290	3.0	40.5

For example, a 240 December call option has a premium of 17.5 cents. Therefore, if you bought this option, you would have to deposit this amount of money in your futures account (plus commission) to cover the expense. On a 5,000 bushel contract for corn, this would amount to \$875. However, unlike with futures, when you purchase an option there is no margin requirement.

Notice from the table above that call option premiums increase as the strike price increases and, conversely, put option premiums decrease as the strike price increases. Call options give the buyer the right to buy in the futures market at the strike price of the option. Therefore, because it is worth more to be able to buy at a lower strike price, lower strike price call options have higher premiums. Similarly, because it is worth more to be able to sell at a higher price, put options with higher strike prices have higher premiums.

Exercising Options and Option Pricing

With an option, the buyer has the right to either buy or sell in the futures market. This right is in effect until the option expires (called the expiration date) which usually occurs about one month prior to the delivery month. Before the option expires, the option buyer has the right to *exercise* the option and take the position in the futures market. For example, the buyer of a July \$3.50 wheat put option could exercise the option (through his broker) anytime prior to June and would obtain a short July wheat futures position at a price of \$3.50. If the July futures price was \$3.10 at the time, then the futures position would have a \$0.40 profit.

Although exercising an option is a possibility for the buyer, it is not necessary to exercise an option. This is because the option premium will reflect the value of being able to exercise the option. Therefore, it is possible to sell the option (as opposed to exercising it) to obtain a profit.

To understand option pricing, it is useful to consider some important terms:

Intrinsic Value--The amount of money that could be currently realized by exercising an option with a given strike price. A call option has intrinsic value if the current futures price is above the option strike price. For example, if a September soybean call option has a strike price of \$7.25 and the September futures price is at \$7.47, then the call option will have 22 cents in intrinsic value. A put option has intrinsic value if its strike price is above the futures price. For example, if an March corn put option has a strike price of \$2.80 and the March corn futures price is at \$2.67, then the put option has \$0.13 in intrinsic value. When the option expires, the value of the option (whether a put or call), will be equal to the intrinsic value.

In-the-Money--A call or put option that has intrinsic value. For a call option, this is when the futures price is greater than the strike price. A put option is in-the-money when the futures price is less than the strike price.

Out-of-the-Money--A call or put option that has no intrinsic value. For a call option, this is when the futures price is less than the strike price while a put option is out-of-the-money when the strike price is less than the futures price.

Time Value--The time value of an option is the option premium less the intrinsic value. For example, in May let's assume that the December corn futures price is \$2.80 and a December \$2.70 call option is trading for \$0.22. The call option has \$0.10 in intrinsic value so the time value of the option is \$0.12. As the name implies, the time value reflects the amount of time remaining until expiration.

The table below gives an example of how to compute the intrinsic value and the time value for call options. These prices are for the May corn contract and were taken in January, about 4 months from expiration.

May Call Option Premiums, Intrinsic Value and Time Value when the May Futures Price is \$2.76.

Strike Price	Premium (cents/bu.)	Intrinsic Value (cents/bu.)	Time Value (cents/bu.)
\$2.60 Call	20	16	4
\$2.70 Call	14	6	8
\$2.80 Call	10	0	10
\$2.90 Call	7	0	7
\$3.00 Call	5	0	5

The intrinsic value column is the difference between the current futures price (\$2.76) and the option strike price. If this is negative, then the intrinsic value is zero. The time value is just the difference between the premium and the intrinsic value.

Notice that the time value is highest for the \$2.80 call option. This is because the \$2.80 option is closest to the current futures price. Options that are either significantly in-the-money or out-of-the-money have lower time value because they have a lesser chance of being worthwhile to exercise.

Another important aspect to remember is that the premium of the option at expiration will be only the intrinsic value. Thus, if the futures price at expiration were \$2.76 then the call option premiums would become the intrinsic value column and the time value column would be all zeros. Therefore, at expiration of the option, you will be able to sell the option for its intrinsic value.

Options and Insurance

Options contracts are very similar to insurance policies that you would buy on your home or car, for example. Like insurance, you buy option contracts to protect against an adverse price move. If you want to protect against declining grain prices, you could buy a put option which would provide insurance against lower prices.

Like buying an insurance policy, you must pay a premium to the seller. The seller is obligated to protect you in the event that you need price protection. If you own a put option to protect against falling grain prices and the futures price declines, then your put option will increase in value. This is like a payment from your insurance company to protect you from falling prices.

If instead the prices increase, then your option will expire worthless and you will only lose the premium. In fact, the advantage of buying an option over using futures is that the most you can lose is the premium.

III.B Using Put Options to Hedge Grain Sales

To protect against declining grain prices, you can use a put option as opposed to selling a futures contract. The put option gives you the right but not the obligation to sell futures anytime prior to expiration. For this right, you must pay a premium which varies according to the strike price of the option, the futures price and the time to expiration of the option.

The advantages of using a put option instead of a futures contract is that the put option will limit your loss from higher prices and will allow you to earn a higher net-price if prices do in fact increase. With a put option, you will be able to set a *price floor* or *minimum price* for your grain. There is the possibility of getting a higher price if the futures price increases.

The price floor that you establish using a put option can be calculated from the following formula:

$$\text{Price Floor} = \text{Strike Price of Put} + \text{Expected Basis} - \text{Put Premium.}$$

To figure out the price floor, you simply take the strike price of the option, add the expected basis (cash price minus futures price) for the time when you expect to sell your grain, and subtract off the premium of the option.

As an example, suppose you wanted to establish a price floor for corn that you will sell at harvest time in November. You decide to use a December \$2.70 put option. Currently, the December futures is trading at \$2.68 and the premium for the \$2.70 put option is \$0.18. You estimate the basis is +\$0.05 which is your best guess for the basis in November. Therefore, the price floor you establish by purchasing the \$2.70 put option is:

$$\text{Price Floor} = \$2.70 + \$0.05 - \$0.18 = \$2.57.$$

While \$2.57 is the minimum price, there is still the possibility of achieving a higher price if the market is higher than \$2.70 in November. To determine what your final net-price will be, you simply take the cash price in November and add any profit or subtract any loss from the options contract.

To illustrate, suppose November rolls around and the market has moved lower so that the December futures is at \$2.32 and the cash price in your local market is \$2.37 (giving the \$0.05 basis). To determine your net-price, you must calculate how much you could sell your option for in November when the December futures is at \$2.32. In November, the December option is going to expire so the option premium will consist only of intrinsic value. The intrinsic value for a \$2.70 put option when the futures price is at \$2.32 would be \$0.38. Therefore, you would be able to sell your put option for \$0.38 and you only paid \$0.18 for it. The profit on your option contract would be \$0.20. This \$0.20 profit gets added on to your cash price of \$2.37 to get a net-price of \$2.57. Notice that this is the price floor. In fact, no matter how low the price goes, you will always get \$2.57, as long as the basis is as expected. This is because as the market moves lower, the profits you make on the option contract will exactly offset the losses you suffer on the cash market.

What if instead of going lower, prices had gone higher? Let's suppose that in November the December futures is trading for \$3.25 and the cash price is \$3.30. Because the futures price is above the strike price of the put option, this option would expire worthless because there is no intrinsic value. Therefore, you would suffer a loss on the option of the \$0.18 premium that was paid. However, the cash price is higher at \$3.30 so your net-price is \$3.12. Notice that this is higher than the price floor of \$2.57 because the market was higher.

Example of Using a \$2.70 December Corn Put Option for a \$0.18 Premium

	Lower Prices in November	Higher Prices in November
December Corn Futures	\$2.32	\$3.25
November Cash Price	\$2.37	\$3.30
Option Profit (Intrinsic Value-Premium)	+\$0.20	-\$0.18
Net-Price (Cash + Option Profit)	\$2.57	\$3.12

III.C Choosing a Strike Price for Put Options

In the previous example, the put option used had a strike price of \$2.70. However, there are usually a number of different options trading with different strike prices. How do you decide which strike price to use?

To answer that, we must first understand how choosing a different strike price will effect the price floor and the net price. Suppose instead of using the \$2.70 put option we use an \$2.80 put option for the December corn futures. Because the strike price is higher for the put option, this implies that the premium will be higher. Let's suppose the \$2.80 put option is trading for \$0.23. The price floor, which is the strike price plus basis minus premium, is:

$$\text{Price Floor} = \$2.80 + \$0.05 - \$0.23 = \$2.62.$$

Notice that this is higher than the price floor for the \$2.70 put option. In that case, the price floor was lower at \$2.57. *Thus, with a higher strike price, you are able to set a higher price floor.*

To see how the net price would be impacted by the choice of a higher strike price, we go through the same two price scenarios used earlier. In the first case, prices fall so that the December futures is \$2.32 and the cash price is \$2.37. The \$2.80 put option will have \$0.48 of intrinsic value so that is what you will be able to sell the option for at expiration. The cost of the option was \$0.23 so the profit is \$0.25 which brings the net-price up to \$2.62. This, of course, is the price floor.

Consider what happens if instead the December futures price is \$3.25 and the cash price is \$3.30. Under this scenario, the futures price is higher than the strike price so the option would have no intrinsic value and would expire worthless. The \$0.23 loss on the option would be deducted from the higher cash price to get a net-price of \$3.07.

Example of Using a \$2.80 December Corn Put Option for a \$0.23 Premium

	Lower Prices in November	Higher Prices in November
December Corn Futures	\$2.32	\$3.25
November Cash Price	\$2.37	\$3.30
Option Profit (Intrinsic Value-Premium)	+\$0.25	-\$0.23
Net-Price (Cash + Option Profit)	\$2.62	\$3.07

By using a higher strike price put option, you are able to set a higher price floor. However, there is a tradeoff because you do not benefit as much from higher prices. Notice that with the \$2.80 put option, the net-price was \$3.07 when prices were high but the \$2.70 put option had a net-price of \$3.12 under the same price scenario. The reason that a higher strike

price option gives you a lower net-price when prices are high is from paying a higher premium. When prices are high, your option will expire worthless (because you do not need price insurance) so when you pay more for a higher strike price option, this lowers your net price.

Is there a right strike price to use? Not really. The choice of which strike price to use depends on your personal and financial situation as well as your expectations about where the market may be when your option expires. From a financial standpoint, your main objective may be to set a price floor above your costs of production. To do so, you may choose a high strike price put option to guarantee that the price you get will not fall below your production costs. On the other hand, you may believe there is a good chance that prices will be higher when your option expires, although you cannot afford a large loss. In this case, you may choose a lower strike price put option which will give you a better net-price if you prices are higher while maintaining some downside price protection if prices do fall.

III.D Forward Contracting and Buying a Call

Another strategy which can be used to set a price floor while benefiting from any price increases, involves buying a call option and forward contracting. The forward contract will establish a base price for while the call option will increase in value if prices increase.

To illustrate how this strategy could work suppose you forward contracted 5,000 bushels of corn for February delivery at a price of \$3.15. Let's assume that the March futures price is \$2.95 when you make this commitment. At the same time that you sign the forward contract, you purchase a \$3.10 March call option which has a premium of \$0.11. The price floor for this strategy is:

$$\begin{aligned}\text{Price Floor} &= \text{Forward Contract Price} - \text{Premium} \\ &= \$3.15 - \$0.11 \\ &= \$3.04.\end{aligned}$$

The floor price of \$3.04 is the minimum price. If prices move higher by February, you could get a higher net-price. This occurs because the call option will increase in value as prices increase.

Suppose in February the March futures price is at \$3.35. Because the futures price is higher than the call strike price, the call option will have intrinsic value of \$0.25. The profit of \$0.14 on the option will be added to the forward contract price of \$3.15 to yield a net-price of \$3.29.

If instead prices decline, the call option will be worthless at expiration and the loss of \$0.11 would be deducted from the contract price to get a net-price of \$3.04 or the price floor.

While this example shows what would happen when you simultaneously forward contracted and bought the call option, in practice, you may want to separate the two. For example, you may think that grain prices have reached a peak and will fall lower. Therefore, you decide to forward contract to take advantage of the current price. If prices decline and you suspect prices may bottom and return higher, then you could establish the second part by purchasing the call option. The call option will increase in value if prices increase.

III.E Advanced Option Strategies

In some cases you will find that the time value of an option can be high making the price floor from using a put option very low. One way to get around this is to cheapen the put option by selling a call option that is out of the money.

For example, if you buy a \$2.70 December corn put option you would simultaneously sell a \$3.00 December corn call option. Suppose the \$2.70 put option has a premium of \$0.25 while the \$3.00 call option has a premium of \$0.10. When you purchase the put option, as usual, you set a price floor which would be \$0.25 under the strike price of \$2.70, or \$2.45. As the seller of a call option, you would receive the premium of \$0.10 and you would have to post margin funds to handle the short option position.

The combination of the long put option and short call option leads to a net-premium paid of \$0.15 (put premium bought - call premium sold). Because this is less than the \$0.25 premium for the put option, the price floor is higher at \$2.55. The downside of this strategy is that the short call option will limit your upside potential. This is because higher prices will cause the short call option to lose money. The call option buyer makes money on increasing prices while the call option seller loses money on increasing prices.

The short call option will set a *maximum price* or *price ceiling* for milk sold. This occurs when the price is higher than the strike price of the call. As the price increases, the gains on the cash price of milk will be offset by the losses on the short call option. To figure out the price floor and the price ceiling for this strategy, use the following formulas:

$$\begin{aligned} \text{Price Floor} &= \text{Put Strike} + \text{Expected Basis} - \text{Net Premium} \\ \text{Price Ceiling} &= \text{Call Strike} + \text{Expected Basis} - \text{Net Premium} \\ \text{Net Premium} &= \text{Put Premium} - \text{Call Premium.} \end{aligned}$$

To illustrate with the above numbers and assuming a \$0.05 basis at harvest in November, the price floor and price ceiling would be:

$$\begin{aligned} \text{Price Floor} &= \$2.70 + \$0.05 - \$0.15 = \$2.60 \\ \text{Price Ceiling} &= \$3.00 + \$0.05 - \$0.15 = \$2.90. \end{aligned}$$

The table below illustrates what would happen to the net-price if the futures price were above \$3.00 in November or below \$2.70 in November.

Buying a \$2.70 Put for \$0.25 and Selling a \$3.00 Call for \$0.10.

	Lower Prices in November	Higher Prices in November
December Futures	\$2.35	\$3.40
November Cash Price	\$2.40	\$3.45
Put Option Profit (Intrinsic Value - Premium)	+\$0.10	-\$0.25
Call Option Profit (Premium – Intrinsic Value)	+\$0.10	-\$0.30
Net-Price	\$2.60	\$2.90

When prices are below the put strike price, then the put option will be profitable and the call option will expire worthless. Because the call option was sold, the seller keeps the full premium of \$0.10. The full strategy yields a net-price of \$2.60, which is the price floor. Note also that this price floor is higher (by \$0.10) than the price floor from only buying the put option.

For the case when prices increase above the call strike price, the price ceiling is in effect. This is because the call option suffers a loss so that an increase in the cash price is offset by the loss on the option. No matter how high prices go, the highest price you can get with this strategy is the price ceiling of \$2.90. You can increase the price ceiling (which will decrease the price floor) by choosing a higher strike price call option.

While this strategy has the benefit of increasing the price floor, it does so by imposing a price ceiling and requiring margin funds. Therefore, before using this type of strategy, it is important to recognize its limitations and risks.

IV. FUNDAMENTAL ANALYSIS OF COMMODITY MARKETS

Once you've decided on using forward pricing mechanisms to price your commodities, it is important to understand what an appropriate price is to do so. Cost of production is an important piece of information in deciding whether a specific hedging strategy is suitable for your needs. If the market provides you a price that is well above your break-even price, then this should be a good indication that you should take advantage of the situation by hedging.

In addition to cost of production, using fundamental analysis can also help you decide whether futures prices are relatively favorable or not. Fundamental analysis relies on commodity supply and demand data to make price projections. These price projections can be compared to futures prices to see if the market may be relatively over- or under-priced. This chapter discusses some of the basic fundamental analysis techniques which can be utilized in forecasting grain prices.

IV.B Grain Supply and Demand Tables

One of the most valuable tools for fundamental analysis of grain markets is the supply and demand table. The supply and demand table for a commodity, like corn, indicates how much supply of the commodity there is for a marketing year and how much will be used for a marketing year. For corn and soybeans, the marketing year begins on September 1 and ends the following August 31. The marketing year for wheat is June 1 and ends May 31.

On the supply side, there are three components. The first is the level of beginning stocks. These stocks represent carryover supplies from the previous year and can be used in the current year. Beginning stocks vary significantly from year-to-year and play an important role on prices. The second and usually largest component of supply is production. This also varies depending on how much acreage is planted for the commodity and how high the yield is, depending mostly on weather conditions in the summer. The third and final component for supply is imports, although this component is very inconsequential for most of the U.S. grain crops.

For the demand side, the use of a commodity varies. For corn, the major demand components are domestic feed (60%), exports (20%) and industrial use (20%). Wheat and soybeans have similar use categories although the relative importance of each varies.

The residual between total supply and total use for a given marketing year is ending stocks. This number is often reported as a percent of total use to show how scarce or abundant stock levels are for a given year. Below is a table illustrating the supply and demand for corn in the last three marketing years. The first half of the table shows the supply side elements while the last half reports the demand. At the bottom are the ending stocks which are carried forward to the following marketing year.

U.S. Corn Supply and Demand.

	1995-96	1996-97	1997-98 ¹
Planted Acres (million)	71.2	79.5	80.2
Harvested Acres (million)	65.0	73.1	73.7
Yield (bu./acre)	113.5	127.1	127.0
Production (million bushels)	7,374	9,293	9,366
Beginning Stocks (million bushels)	1,558	426	884
Imports (million bushels)	16	13	10
Total Supply (million bushels)	8,948	9,732	10,259
Feed Use (million bushels)	4,711	5,368	5,700
Industrial Use (million bushels)	1,588	1,690	1,825
Exports (million bushels)	2,228	1,790	1,475
Total Use (million bushels)	8,522	8,848	9,000
Ending Stocks (million bushels)	426	884	1,259
Stocks-to-Use (%)	5.0%	10.0%	14.0%

1. Estimate by USDA on May 12, 1998

USDA provides estimates of the supply and demand table on a monthly basis in the *World Agricultural Supply and Demand (WASDE) Report*. This report, which is usually issued mid-month, gives supply and demand estimates for most major U.S. field crops as well conditions in foreign countries. It is probably the most widely anticipated report by grain traders and will play a large role in establishing futures prices for most crops.

For a given marketing year, the USDA will begin to release supply and demand estimates in May, prior to the start of the marketing year. For example, the first report for the 1998-99 marketing year, which begins September 1, 1998, will be released in the May 1998 WASDE report. It is important to recognize that these numbers are simply estimates and may change substantially throughout the year as new information becomes available. In fact, many private commodity analysts will issue their own reports which can differ from the USDA numbers.

In May when the first supply and demand estimates are released, the U.S. corn crop will be nearly planted but a great deal of uncertainty still exists about potential production because of summer weather. As weather conditions unfold through the summer, the USDA will revise their production estimates accordingly and usually by December or January will reach a final estimate for production, once the crop is completely harvested. For the remainder of the marketing year, the demand side numbers may change as export trade and livestock conditions change, which influence the level of ending stocks for the marketing year. The ending stocks for the marketing year is the most important statistic for establishing price in the futures market. If ending stocks are projected to be tight then prices will increase to ration demand for the rest of the year. Conversely, large ending stocks will lead to lower prices to encourage corn demand.

While the WASDE report is an important source of information on a monthly basis, there are other reports issued every week which are used to gauge supply and demand. For weekly production information, the USDA *Crop Progress Report* provides information on the planting progress, crop development, crop condition, and harvesting progress. This report, which is usually issued on a Monday during the crop growing season, can provide early warning signs regarding poor or good growing conditions which will impact U.S. production.

For demand, the only major category that is reported on a weekly basis is exports. On Monday, the USDA reports the *Export Inspections*, which signify the total amount of corn shipped from U.S. ports to foreign countries. This report can be useful to assess how strong or weak exports are in comparison to USDA export projections from the WASDE report. By taking

the total exports projected for the marketing year from the WASDE report, you can use the weekly export projections to see if actual exports are ahead of pace or behind pace in comparison to USDA's estimate.

IV.C Fundamental Analysis of Grain Prices

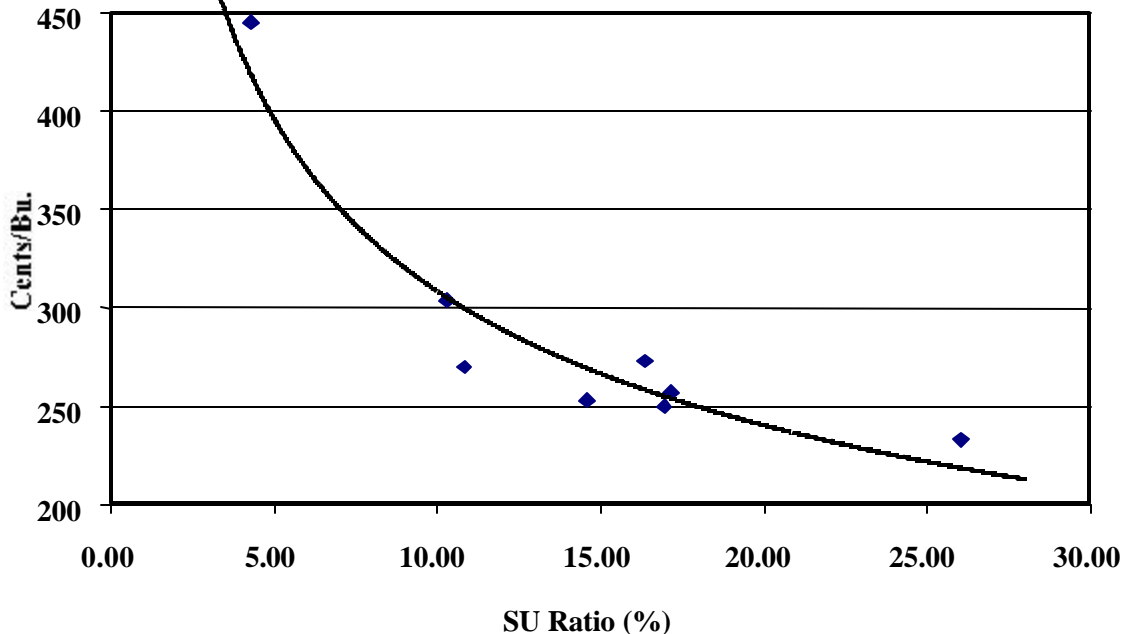
The goal of fundamental analysis is to turn basic supply and demand data, like that discussed above, into accurate price projections. In this section, we show how to use USDA supply and demand data to develop simple but reliable forecasts for corn prices.

As discussed above, probably the most crucial statistic for corn supply and demand is the level of ending stocks. This number, when expressed as a percent of total use (the stocks-to-use ratio), signifies how scarce or abundant stocks are and signals the market to either raise prices to ration demand or lower prices to stimulate demand. For grain products, there tends to be a strong relationship between the SU ratio and the futures price of the commodity.

For example, suppose you wanted to predict the May 1998 futures price for corn. This contract is for corn in the 1997-98 marketing year. If USDA is projecting ending stocks to be relatively low for that marketing year than the May futures price should be relatively high and vice versa. Using historical data, you can determine the relationship between the May futures price and USDA's estimate of the SU ratio in May. For the years 1990 through 1997, the ♦'s signify what the SU ratio has been in May (the x-axis) and what the corresponding May futures price has been (the y-axis).

Fitting a trend line through the original data provides a best guess of what the futures price would be based on the SU ratio. For example, if the USDA estimated in January that the SU ratio was 10% for the 1998-99 marketing year, then we would expect the May futures prices to be around 300 if the SU ratio did not change between January and May. If the May futures price is significantly below the fundamental level, this may be a good indication to buy and if it is significantly above the fundamental price level, this may be a good indication to sell.

May Corn Futures Price and SU Ratio in May



V. BASIC TECHNICAL ANALYSIS

Fundamental analysis relies on basic supply and demand data to project commodity prices. In contrast, technical analysis makes little to no use of fundamental commodity data, but instead relies on technical indicators about the price action in the market to project prices.

This chapter discusses some of the basic elements of technical analysis which can help make hedging and forward pricing decisions.

V.A Constructing Bar Charts

Bar charts give you a seismograph to measure the hidden forces going on in a market. Since price resolves all market pressures, no market moving information can go unhidden in a price chart.

Many traders buy and sell based totally on charts. By examining bar charts, traders hope to pick-out significant market trends, look for market turning points, and develop price forecasts.

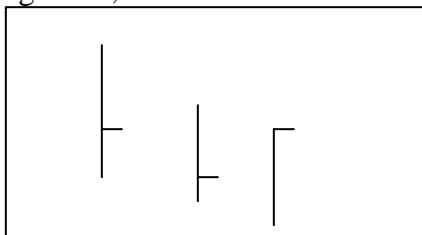
This type of analysis is referred to as technical analysis. This is in contrast to fundamental analysis which utilizes supply and demand information to forecast price direction. Just as a good carpenter utilizes a wide variety of tools to master his craft, we too rely on a wide array of both technical and fundamental methods to develop our price projections and make marketing decisions.

For technical analysts, the bar chart is probably the most valued tool for commodity futures trading. The bar chart is both a time and price chart. The vertical axis or y-axis, shows the price scale and the horizontal or x-axis shows the time scale. Bar charts can run from as short a time period as 5-minute bars to as long as a monthly graph of prices. The choice of a time period for a bar chart depends on the length of time that a trend is trying to be identified. The most commonly used bar charts are daily and weekly where weekly bar charts are used to identify longer term trends than a daily bar chart.

For a daily bar chart, each bar represents the three most important prices for any given trading day:

1. The highest point on the bar chart shows the highest price traded on a given day.
2. The lowest point on the bar chart shows the lowest price traded on a given day.
3. The closing price (also called the settlement price) is represented by a horizontal dash on the high-low bar.

The example below illustrates three trading days. In day 2, the market closed lower than on day 1 but the day 3 close was higher than day 2. By examining the high-low lines, we see a somewhat different story about the trading activity on each day. Both day 2 and day 3 had consecutively lower highs and lower lows. This formation is part of a downward trend and even though the price on day 3 closed higher than on day 2, a chart analyst would conclude that because the bars were trending lower, the market must be on a downward trend.



Weekends are not shown on a bar chart and on weekdays when the exchange is closed, the day's space is left blank.

Technical analysis interprets the predictive meaning of zigs and zags on charts. Technical analysis does not worry about the fundamental reason that could cause a zig to become a zag. The technical analyst accepts that the market itself will be the first news of some major weather scare or new buying pressure.

Do charts and technical analysis really work? The common explanation is that charts work because traders make them work. If an uptrend breaks, chartists rush to sell. The resulting downtrend confirms the old rule to sell when an uptrend breaks.

If you had a choice of trading only on fundamentals or on charts, your trading would be more disciplined based on charts. Our philosophy, like the carpenter, is to use any and every tool that will help us get a better price.

V.B Trend Lines

While charts make nice pictures, the real issue is whether they can be used to make profitable trading decisions. The most basic charting method is the *trendline*. In this section, we show how to use trendlines to spot markets that are trending higher and show how to identify markets that may be changing from upward to downward trending.

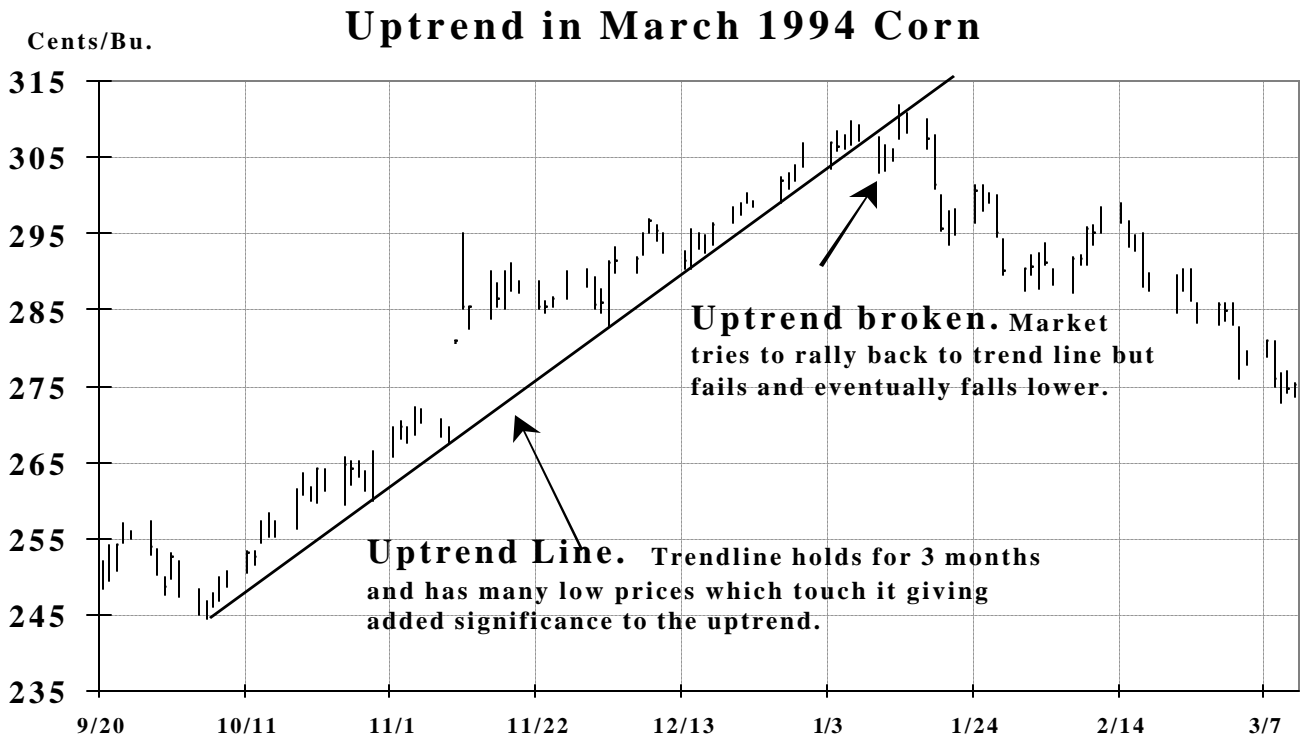
Identifying Markets Trending Higher

Most traders plot uptrends on daily charts by drawing an *uptrend line* beneath the range of daily trading. Your line touches significant lows, and projects a constantly rising *floor* under trading.

If you are a beginner, your first question will be "*How do I decide where to draw the line? Which daily lows set the boundaries of the uptrend?*"

You draw an uptrend line using the most significant daily lows. *Most significant* means the lows that poke below the routine trading range. These lows represent the markets' attempts to go lower. When buying strength jerks prices back up into the uptrend that's your sign there's still enough strength to maintain the uptrend.

The longer an uptrend line can be maintained without being broken, the more confident we are that the market will continue higher. Furthermore, the more times an uptrend line is tested and bounces higher from the line, the more significant is the uptrend.



Breaking an Uptrend

When an *uptrend is broken*, this is a good signal to *sell* because the market has lost its momentum to move higher. A broken uptrend line occurs when the market moves below the uptrend line. While this can occur by the low price penetrating the uptrend line, it is considered to be more significant when the closing price is below the trendline. After breaking an uptrend, a market may continue to move lower and eventually form a downtrend line. In many cases, however, the market simply stalls after penetrating the uptrend and may just move sideways for some time.

Identifying Markets Trending Lower

A down-trending market is signified by prices setting new lows with the daily high prices trending down. The downtrend line is drawn across the top of the most significant highs during the trend stage. As with the uptrend, the more times a market reaches the downtrend line, the more significant the trend.

The chart below shows an example of a downtrend in the July 1998 wheat futures price that started in October. Notice that we have illustrated a long-term downtrend and a short-term downtrend.

Downtrend in July 1998 Wheat Futures



When a downtrend line is penetrated to the upside, this signals a change in trend. Usually, the market will remain in a sideways trend for sometime before either moving higher on an uptrend or resuming a downtrend. When the downtrend line is penetrated, this is usually a good time to buy since the market has lost its momentum to move lower.

Trendlines can be useful ways of identifying the market trend and possibly signaling a change in market trend. However, it is important to recognize that trendline analysis, as with any technical analysis, is not 100% guaranteed. Therefore, if you see a situation where a market trend is changing based on trend line analysis, it is important to support this conclusion with other indicators, whether fundamental or technical.

V.C Head and Shoulders

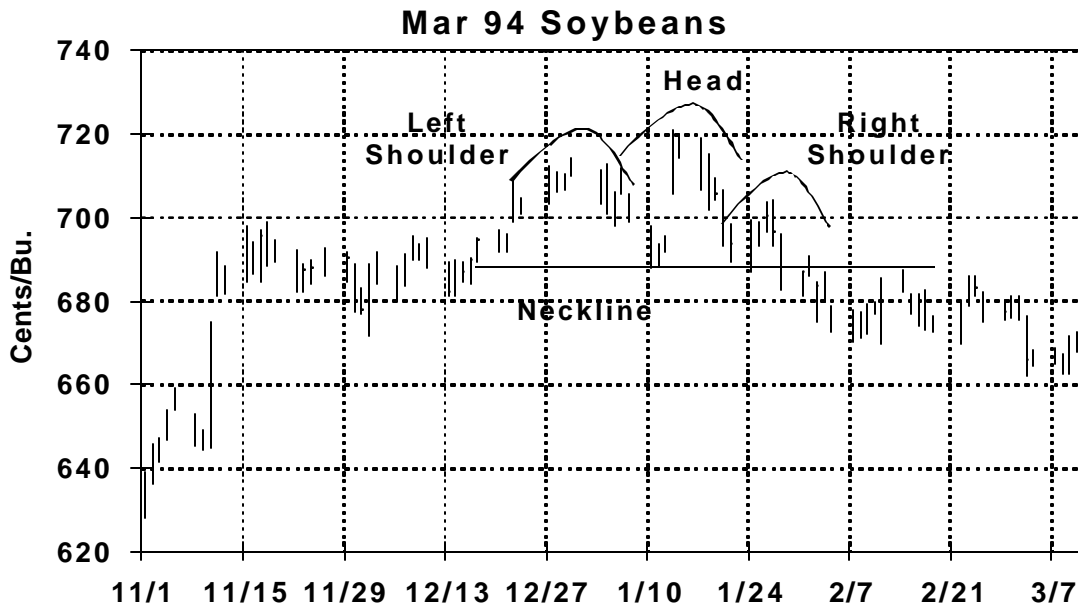
Using bar charts to successfully pick market tops and market bottoms is more art than science. The key to successful technical analysis is spotting market *reversals*. A reversal is simply a change in trend from downtrend to uptrend or vice versa. Using trend lines is one way to look for reversals, but other chart patterns can also signal a market reversal.

Probably one of the most reliable chart patterns for signaling a change in trend is the head and shoulders reversal. Before we look at this pattern specifically, there are a few common points about market reversals that we should be familiar with:

1. A prerequisite for any reversal pattern is the existence of a prior trend. A market must have something to reverse.
2. Breaking an important trendline signals the *possibility* of a trend reversal but does not guarantee it.
3. The longer the current trend, the greater the potential for a market reversal.
4. Reaching a market top usually occurs much quicker and with more volatility than reaching a market bottom.

- Trading volume is usually more important on the upside reversal. Once a bear market gets under way, prices have a tendency to drop but for a bull market to begin, it usually requires significant buying activity to start a bull trend.

The head and shoulders formation is based on a reversal sequence where a market makes a chart pattern outlining a left shoulder, a head and a right shoulder. Below you will find an example of a head and shoulders top pattern. Be prepared to use a little imagination when trying to pick out the shoulders and the head. Shoulders may be sloped in different directions and the neckline, tracing out the bottom of the head and shoulders, may be upward sloping or downward sloping. The head and shoulders pattern can also occur at a market bottom, with the head and shoulders pointing down.



As a market is making a head and shoulders top or bottom there are very few clues that such a pattern is developing until the right shoulder is formed and the neckline can be established. The price objective of the head and shoulders pattern is calculated by taking the distance between the top of the head and the neckline. In the example below, that difference is 30 cents (720-690). This difference is then subtracted from the neckline to get a downside objective of 660.

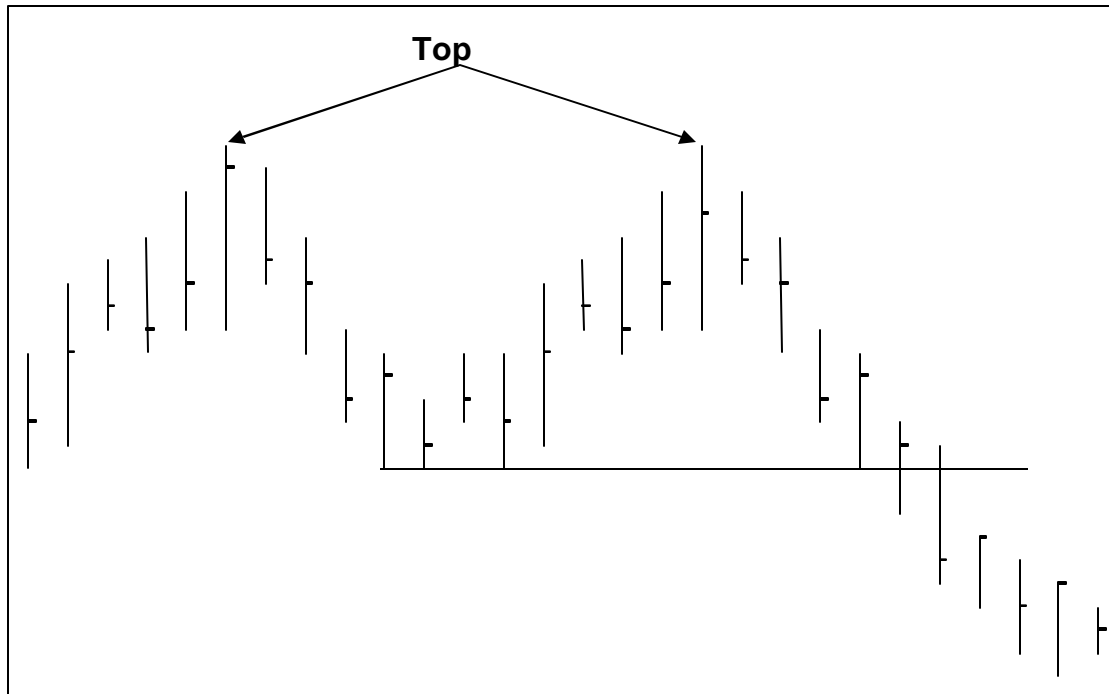
It is not unusual for prices to break the neckline after completing the right shoulder and then make an attempt to move above the neckline. You can see that this occurred on several occasions in the Mar soybean example, but prices eventually approached the 660 level.

V.D Double Tops and Bottoms

When futures prices are in an uptrend, there is likely to be an upper price limit where all buying interest is met and begins to dry up. At the same time, sellers may begin to actively enter the market either from the short side or as buyers begin to take profits. That price level will become a major resistance point and will establish where supply is significantly greater than the demand.

After reaching this market top (labeled as the left hand market top), a corrective phase will usually push the market lower even though fundamental news may still remain bullish. A temporary bottom is reached and the market returns to its long-term trend of higher prices. As the market rallies back to major resistance, it will take new fundamental news to push it above the previous high. If this doesn't occur, the second top may continue to hold resistance and push the market lower. If the market eventually breaks below the lows established between the two peaks, this signals a change from an uptrend to a downtrend.

An Example of a Double Top



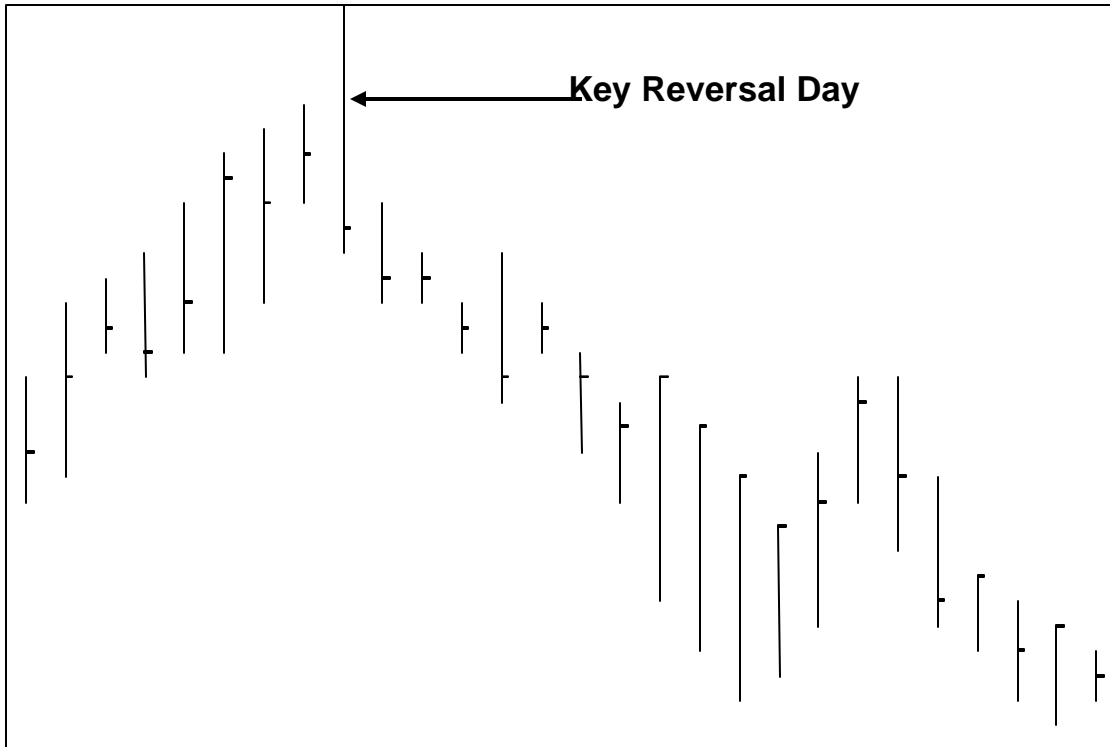
For double bottoms, the same principles apply. A market in a downtrend may be reversed by breaking out from a double bottom.

V.E Reversal Formations

Trend reversals can be signaled by only one trading day. The three most common forms of one-day reversals are the *key reversal*, *hook reversal*, and *island reversal*.

A *key reversal* top has two stipulations. First, the high price for the trading day must be higher than the previous day's high price and the low price must be lower than the previous day's low. This is known as the outside-day because the trading range for the day was wider than the previous day's range. The second condition is that the close for the day be lower than the previous day's close.

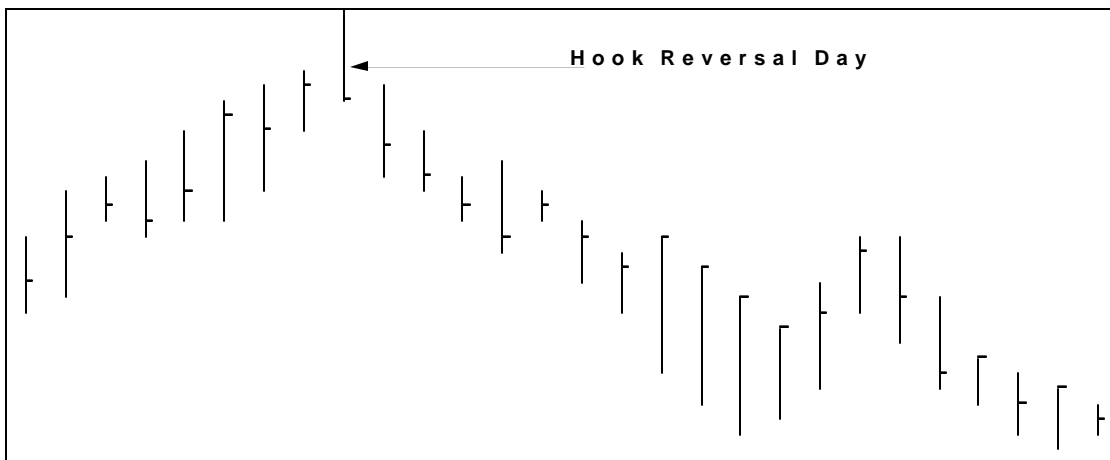
Example of a Key Reversal Day Signifying the End of an Uptrend



The logic behind the key reversal is a new high signifies bullish enthusiasm but when the market falls below the previous day's low and closes lower, this indicates a change in market sentiment. Buying power usually dries up at this stage and the market will likely move lower.

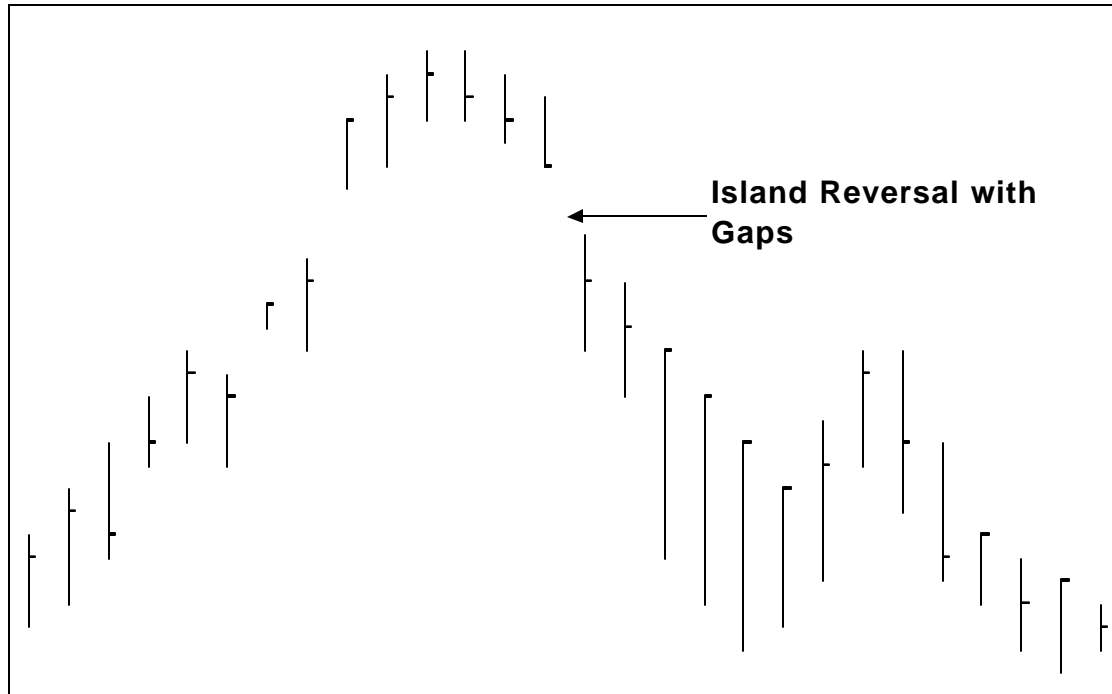
A *hook reversal* is similar to a key reversal but the new high or new low prices do not occur on an outside day. Usually, the day's high price will be above the previous day's high but the daily low price may not be below the previous day's low. A close below the previous day's low is required, however. The hook reversal is considered to be less reliable because it does not have the outside day condition. However, they occur more frequently than key reversals so if the fundamentals match the technicals, this may be a good indication of a change in trend.

Example of a Hook Reversal Day Signifying the End of an Uptrend



An *island reversal* is distinguished from the other reversals by gaps appearing on the chart. A gap occurs when there are no trades over previous trading ranges. With the island reversal, you have trading gaps on both the upside and the downside.

Example of an Island Reversal Ending an Uptrend

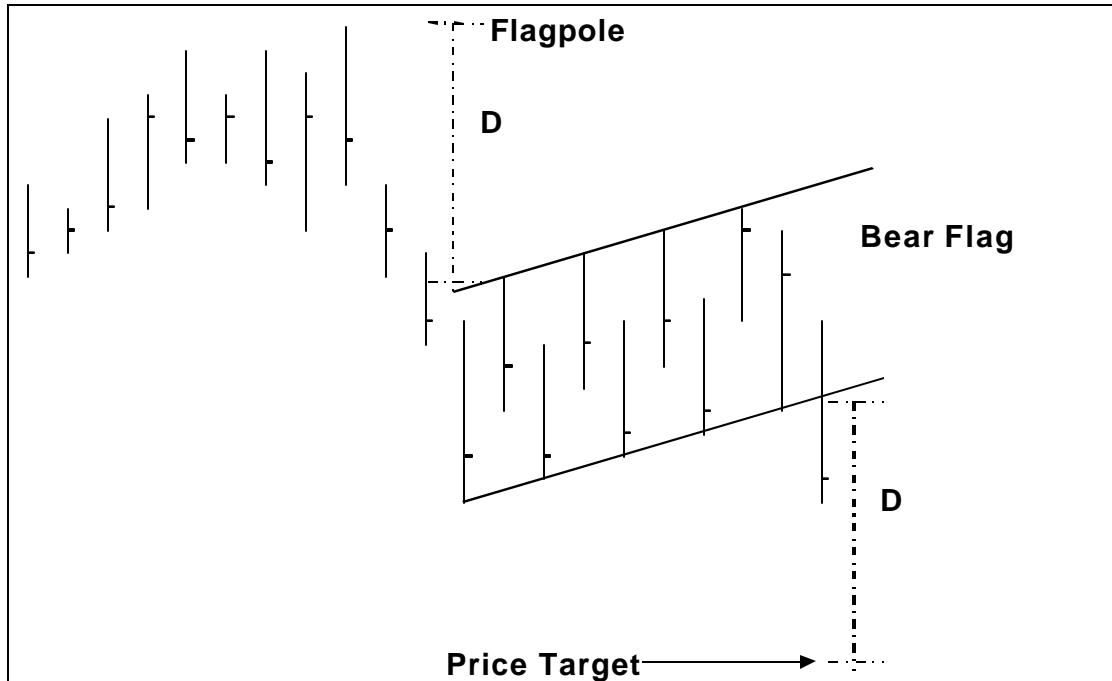


V.F Consolidation Patterns

Many times a trending market will pause from its major trend to form a consolidation pattern. Probably the most easily recognizable consolidation patterns are the *bull flag* and the *bear flag*. A bull flag is a consolidation period during an uptrend while a bear flag is a consolidation pattern during a downtrend. You can also think of flags as short-term market corrections.

In a downtrending market, a bear flag is recognized by a sharp period of selling (known as the flagpole) which can be one day or a series of consecutive days. The flagpole is immediately followed by a flag consolidation pattern, which has an ascending shape. The flag is formed from parallel lines across the daily highs and lows of the flag formation. This channel acts as market support and resistance. A close below the lower parallel line points to a continuation of the downtrend. The length of the flagpole is used as a price projection for the downtrending market. For example, the chart below shows the formation of a bear flag. The sell-off labeled as 'D' is the flagpole. This distance forms the basis for the price target once the bear flag is broken.

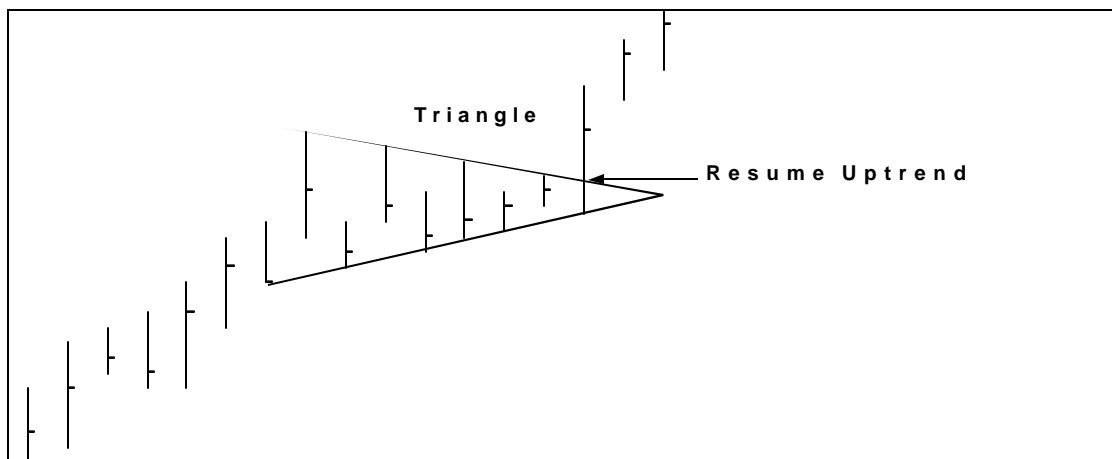
Example of a Bear Flag Pattern



A bull flag is similar in that it occurs during an uptrend and has a corrective downward pointing flag. Once the flag is broken to the upside, the bull trend will continue.

A second major consolidation pattern is a *triangle* or *pennant* which is formed by a period of lower high prices and higher low prices. The consolidation can occur during either a market uptrend or downtrend. Usually, after the triangle is formed, the market is expected to move out of a triangle formation in the same direction of the trend.

Triangle Consolidation in Uptrend Market.



Major price moves often evolve after price breaks out of a congestion pattern. In general, the longer the time period of the congestion pattern, the greater the price move is expected to be.

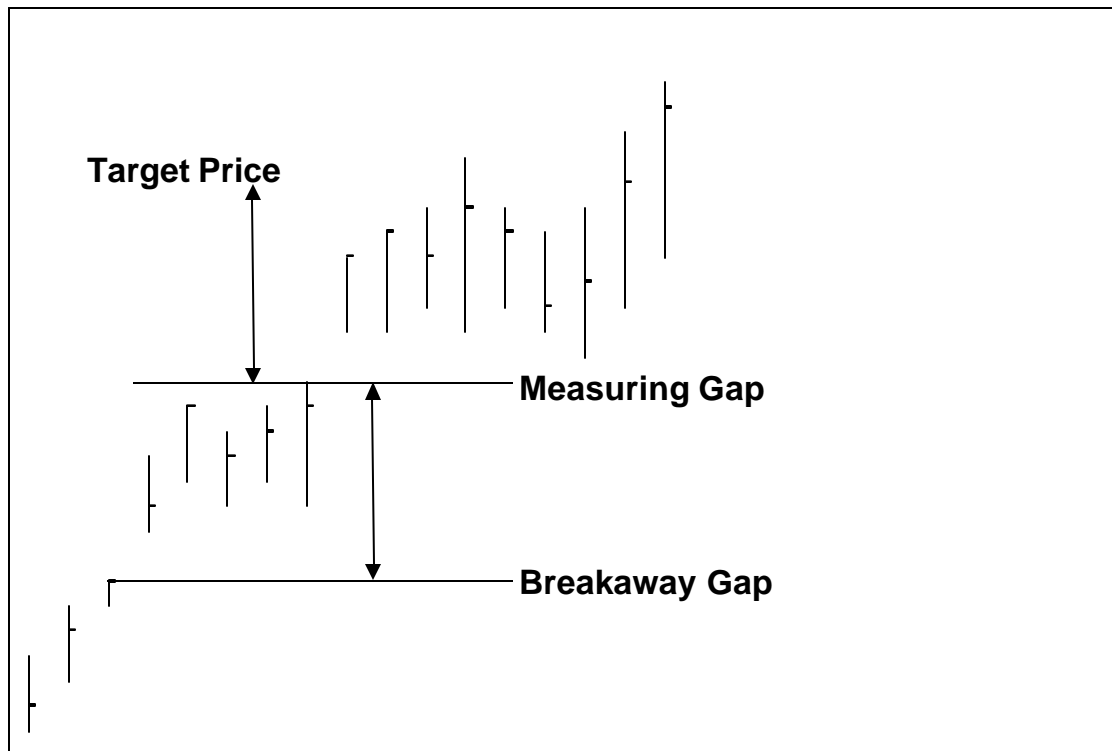
V.G Chart Gaps

A gap appears when the market moves suddenly higher or lower and trades outside of previous trading ranges. The result is a gap in the price trading range. This usually occurs when the market is surprised by new information which leads the price to a higher or lower level in a short time. A key feature of chart gaps is that the market usually moves to fill the gap that was made. However, this could take anywhere from one day to several months to occur. There are several different types of gaps that can exist which have different levels of significance.

The *breakaway gap* usually begins as a trend is changing or as the market is gaining significant momentum in its current direction. This gap is usually not filled within a few days (5-10) after it is created and may set the stage for a further gap to appear. This second gap is known as a *measuring gap*. The distance between the breakaway gap and the measuring gap provides a price target for the continued trend.

Often, after the projected price is achieved and the market begins to show signs of topping or bottoming, it is possible to see an *exhaustion gap*. The *exhaustion gap* signals the end of the prevailing trend.

Example of Breakaway and Measuring Gaps



V.H Concluding Thoughts on Technical Analysis

As was mentioned earlier, technical analysis can be more art than science. It is not unusual to find a particular chart pattern but that moves opposite in direction than what the pattern would predict. For this reason, people often become frustrated with technical analysis.

However, like any method that is less than 100% reliable, it is useful to support your price projections based on a number of sources including technical and fundamental analysis. If a chart pattern signals that the market should go higher but fundamental analysis suggests the market should move lower, it is probably not a good idea to make a trading decision at this stage. However, when several technical and fundamental indicators corroborate the same market direction, this is likely to be a more reliable indication of market direction. Therefore, to be a successful hedger, it is important to utilize both technical and fundamental analysis.

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Maryland Grain Marketing Notebook, Cooperative Extension Service, University of Maryland, College Park, MD, 1994.

Purcell, Wayne D. *Agricultural Futures and Options: Principles and Strategies*, Macmillan Publishing, New York, NY, 1991.

Glossary of Terms

A

Abandon. The act of an option holder in electing not to exercise or offset an option.

At-the-market. An order to buy or sell a futures contract at whatever price is obtainable when the order reaches the trading floor. Also called a *market order*.

At-the-money. An option whose strike price is either equal to or approximately equal to the current price of the underlying futures contract.

B

Back Months. Those futures delivery months with expiration or delivery dates furthest into the future; futures delivery months other than the nearby delivery month.

Bar Chart. The most popular technical tool whereby each day (week, month or year) is represented by a single vertical bar on a chart. The bottom of the bar represents the low price, whereas the top of the bar represents the high price for the time period. A tick mark on the left side of the bar represents the opening price, while a mark on the right indicates the closing or settlement price. Trader examine the bar chart on a regular basis to identify particular patterns, which may help predict future price direction.

Basic Formula Price (BFP). A monthly milk price for manufactured grade milk reported by the USDA. The current month's BFP is equal to last month's MW price plus the change in cheese-butter-prices between last month and this month. USDA announces the BFP on or before the 5th in the following month (e.g., the March BFP is announced on April 5th).

Basis. The difference between the current cash price and a futures price. Basis is normally computed as the cash price minus the futures price. If basis is quoted as over or under, it refers to the cash price being over or under the futures price, respectively.

Basis Contract. A cash marketing alternative whereby the buyer and seller agree upon the basis of the contract. Price is tied to a predetermined basis and the remaining component of the price (as tied to the futures market) can be priced anytime prior to when the contract is satisfied by delivery. This type of cash contract eliminates basis risk but still has price risk.

Basis Risk. The risk associated with not being able to predict the basis accurately. Because futures and cash prices tend to move together over time, basis risk is usually less than price risk.

Bear Market. A market in which prices are declining.

Broker. Someone who executes transactions on an agency basis for a commission or fee.

Buffer Stocks. Grain stocks available for use to reduce grain price fluctuations.

Bull Market. A market in which prices are rising.

Buy (or Sell) on Close Order. An order which a trader gives a broker to buy (or sell) within the closing price range for the day.

Buy (or Sell) on Opening Order. An order which a trader gives a broker to buy (or sell) within the opening price range for the day.

C

Call Option. An option which gives the option buyer the right, but not the obligation, to purchase the underlying futures contract at the strike price on or before the expiration date.

Carrying Charges. The expense involved in storing commodities over time. Major components include physical storage costs and interest costs, which represent the opportunity cost of having cash tied up in inventories. For grains, price differences for futures contract months will reflect these charges.

Cash Forward Contract. A legal agreement to deliver a fixed quantity and quality of a commodity, at a specified price to a designated location. This removes all price risk.

Cash Settlement. A method of settling certain futures or option contracts whereby the seller (or short) pays the buyer (or long) the cash value of the commodity traded according to a procedure specified in the contract.

Chicago Board of Trade (CBT). A government licensed futures exchange that provides grain and oilseed futures contracts (as well as financial futures) for its members to trade. The CBT is the oldest futures exchange in the world, being active since the 1850s.

Chicago Mercantile Exchange (CME). A government licensed futures exchange that provides livestock, financial and dairy futures contracts for its members to trade. The CME has been around since the late 1900s when it was known as the Chicago Butter and Egg Exchange.

Clearing House. An adjunct to, or division of, a commodity exchange through which transactions executed on the floor of the exchange are settled. Also charged with assuring the proper conduct of the exchange's delivery procedures and the adequate financing of the trading.

Coffee, Sugar and Cocoa Exchange (CSCE). A government licensed futures exchange located in New York, NY, that provides coffee, sugar, cocoa, and dairy futures contracts for its members to trade.

Commercial. An entity involved in the production, processing, or merchandising of a commodity.

Commission. Fees paid to a broker for executing an order to buy or sell a futures or options contracts. Fees are usually based on a round-turn trade and can range from \$20 per contract to \$100 per contract, depending on the broker.

Commodity Futures Trading Commission (CFTC). The US government agency in charge of regulating the futures industry.

Contract Grades. Grades and standards specified in the rules of an exchange, which must be met to deliver against the futures contract. These apply to grain futures and in many instances grain meeting different grades and/or quality standards can be delivered at a premium or a discount.

Contrary Opinion. A technical strategy which trades against prevailing market opinion. It assumes that the psychology of traders often exaggerates the incorporation of market news into the market.

Crop Year. See *Marketing Year*.

Crush Spread. In the soybean futures market, the simultaneous purchase of soybean futures and the sale of soybean meal and soybean oil futures to establish a processing margin.

D

Day Order. Instructions which a trader gives a broker that will expire at the end of the day if they are not executed.

Day Trader. A futures trader who initiates and closes his/her position on the same day.

Deferred Futures Contract. A futures contract with delivery month that is beyond the nearby futures contract. Also called *Back Months*.

Deferred Pricing Contract. A cash market contract whereby the buyer and seller agree to exchange a commodity at a specific date in the future and a price will be established at some point prior to delivery.

E

Elliott Wave Theory. A technical trading technique which assumes that prices move in a five-wave sequence with the direction of the main trend, and in a three-wave sequence during the corrective movements against the main trend.

Exercise. The action taken by the buyer of a put if he wishes to sell the underlying futures contract, or by the buyer of a call if he wishes to buy the underlying contract.

Expiration Date. The last date on which the buyer of an option may exercise the option. Options expire on a specified date in the month previous to the delivery month for the underlying futures contract.

Export Inspections. A weekly report issued by USDA stating the amount of grain and oilseed products that have been inspected for exports from US ports to foreign destinations.

F

Feed Ratio. The relationship of the cost of feed, expressed as a ratio to the sale price of animals, such as the corn-milk ratio. These serve as indicators of the profit margin or lack of profit in feeding animals to market weight.

Fill or Kill Order. A trading order which demands immediate execution otherwise it is automatically cancelled.

Floor Broker. A trader on the commodity exchange floor who executes trades for another person.

Floor Trader. An exchange member who executes his own trades by being personally present in the pit for futures trading.

Forward Contract. **A cash market contract which sets the terms and conditions of exchanging a commodity, whereby the buyer and seller agree upon the price when the contract is initiated. The contract is settled by delivery.**

Fundamentals. A term which refers to basic economic (actual or anticipated supply and demand) factors determining the price of a futures contract.

Fundamental Analysis. Analysis which utilizes supply and demand variables to predict a market price.

Futures Contract. A contract, traded on a futures exchange, for the delivery of a specified commodity. The contract specifies the terms and conditions of delivery, but can be offset prior to delivery by taking an opposition position.

G

Good Till Cancelled Order. Instructions which a trader gives a broker, that remain in effect until the order is either executed or cancelled.

H

Hedge. A position in the futures or options market which is taken to provide protection against an adverse change in price.

I

In-The-Money. An option that has intrinsic value.

Intrinsic Value. For a put option, the strike price minus the price of the underlying futures contract, if positive; otherwise, the intrinsic value is zero. For a call option, the price of the underlying futures contract minus the strike price, if positive; otherwise, the intrinsic value is zero.

Inverted Market. A situation where nearby futures contract are selling at a premium to deferred futures contracts. Hence, the carrying costs are not reflected in prices.

L

Life of Contract. The period of time from the first to the last trading day for a particular futures contract.

Limit. The maximum price advance or decline allowed from the previous day's settlement price for a specific futures contract under exchange rules.

Limit Order. Instructions which a trader gives a broker to buy or sell a specific futures or options contract at a specific price or better.

Liquidity. A market in which selling and buying can be accomplished with minimal price change.

Long. A position established by the purchase of a futures or options contract.

Long Hedge. A hedge position taken for protection against rising prices.

M

Marketing Year. The marketing and production year for individual commodities designated by the USDA. For corn and soybeans, the marketing year begins September 1 and ends August 31 of the following year. For wheat, it begins June 1 and end on May 31 of the following year. The milk marketing year coincides with the calendar year from January 1 to December 31.

Margin. The amount of money which must be deposited with a broker to insure performance on a futures or options contract. No margin money is required from buyers of options contracts. The commodity exchanges establish minimum margin requirements but brokerage houses may charge more margin than the minimums established by the exchanges.

Margin Calls. Additional funds which a trader with a futures position or the seller of an options contract must deposit if there is an adverse price change or if margin requirements are increased. Margin calls must be satisfied with wire funds by the start of the following business day to maintain the futures or options position.

Margin, Initial. The amount of money required by a brokerage house to establish a futures position or the sale of an options contract.

Margin, Maintenance. The amount of money or equity that must be on deposit at all times to maintain a futures position or a short option position. If the amount of equity in an account drops below the maintenance margin from adverse price changes, the trader will receive a margin call equal to the difference between the initial margin requirement and the trader's equity. If the

trader is unable to obtain sufficient funds to meet the margin call in a timely manner, then the futures (or short option) position will be closed.

Mark-to-Market. Daily cash flow system used by U.S. futures exchanges to maintain a minimum level of margin equity for a given futures or option contract position by calculating the gain or loss in each contract position resulting from changes in the price of the futures or option contracts at the end of each trading day.

Market-if-Touched Order. Instructions which a trader gives a broker to buy or sell a futures or options contract when price reaches a specified or better price. If the market price reaches the specified price, the order automatically becomes a market order.

Market Order. Instructions which a trader gives a broker to buy or sell a futures or options contract at the best price available and as soon as possible, after the order reaches the trading floor.

Maturity. The period of time in a futures contract's life in which the seller can make physical delivery, and the buyer can take physical delivery of the cash grain.

Mid-America Commodity Exchange (Mid-AM). A government licensed futures exchange in Chicago which trades futures contracts on agricultural and financial products which have smaller quantity requirements than the CME and CBT. The Mid-AM is owned by the CBT.

Momentum. In technical analysis, the relative change in price over a specific time interval. Often equated with speed or velocity and considered in terms of relative strength.

Moving Averages. A trend-following technical tool which uses moving averages to detect significant changes in the trend of the market.

N

Naked Writing. Selling (writing) an options contract with no opposite cash or futures market position. Also called uncovered writing.

Nearby Futures Contract. The futures contract with maturity closest to the current date.

Notice Day. The day on which a "notice of intention of delivery" can be issued for a specific futures contract.

O

Offset. Liquidating a purchase of futures contracts through the sale of an equal number of contracts of the same delivery month, or liquidating a short sale of futures through the purchase of an equal number of contracts of the same delivery month.

Open Order. See *Good Till Cancelled Order*.

Open Interest. The total number of futures or options contract outstanding on a given commodity or contract at a specific point in time.

Option Contract. A contract giving the buyer the right to a position in the futures market at a predetermined price. Also see *Put Option* and *Call Option*.

Out-of-the-Money. A call option whose strike price is above the current futures price, or a put option whose strike price is below the current futures price. Out-of-the-money options have no intrinsic value.

Overbought. A market condition in which prices have risen too fast or too far, relative to the underlying economic fundamental factors. Traders would expect prices to fall in this type of market, at least in the near term.

Oversold. A market condition in which prices have fallen too fast and too far, relative to the underlying fundamental factors. Traders would expect prices to increase in this type of market, at least in the near term.

P

Pit. An area on the trading floor of a futures exchange where trading is conducted. Each commodity has its own pit.

Point. The minimum price fluctuation allowed for a particular type of futures contract.

Point and Figure Chart. A charting technique which assumes that the only important thing is the direction of price change—volume and time are unimportant. Chart patterns are then observed to determine a trading strategy.

Position Trader. A futures trader who has his futures position for an extended period of time.

Premium. The price of an option, not including related brokerage commission fees. The buyer of an option pays the premium, whereas the seller of an option receives the premium.

Price Risk. The risk associated with not being able to predict price accurately. Price risk is greater than basis risk.

Put Option. An option which gives the buyer the right, but not the obligation, to sell the underlying futures contract at the strike price on or before the expiration date.

R

Range. The difference between the highest and lowest price recorded during some time period. The time period may be a day, week, month, life of contract, or any given period.

Relative Strength Index. A technical tool which uses price changes, rather than price levels, to indicate overbought or oversold market conditions.

Roundturn. A completed futures transaction initially begun by buying or selling a futures or options contract, which was later offset by an equal but opposite transaction. Brokerage commissions and fees for futures market transactions are usually based on a roundturn.

S

Settlement Price. The price at which the clearing house of the futures exchange clears all the day's trades.

Short. The position created by the sale of a futures or options contract which does not offset another position.

Short Hedge. A hedge taken for protection against falling prices.

Speculator. A trader using the futures market for reasons other than hedging. Speculators are necessary to provide liquidity for hedgers to execute trades at low costs.

Strike Price. The price at which the buyer of an option contract may choose to exercise the option.

T

Technicals. A term which refers to a variety of chart following techniques and chart patterns related to market prices.

Technical Analysis. Analysis of the markets based on past price data, rather than fundamental supply and demand information. It is based on a wide array of tools to give buy and sell signals or to predict market direction. Common technical tools include bar charts, contrary opinions, Elliott Wave theory, moving averages, trend analysis, price strength indexes.

Time Value. The amount by which an option premium exceeds the option's intrinsic value. If an option has no intrinsic value, its premium is entirely time value.

U

Underlying Futures Contract. The specific futures contract that may be bought or sold by the exercise of an option.

V

Volume. The total number of contracts traded in a given period of time. Usually reported for each trading day.

W

Writer. The seller of an option contract.