

COMMODITY PRODUCTS

# Random Length Lumber Futures and Options

An Introductory Guide

In a world of increasing volatility, CME Group is where the world comes to manage risk across all major asset classes – interest rates, equity indexes, foreign exchange, energy, agricultural commodities, metals, and alternative investments like weather and real estate. Built on the heritage of CME, CBOT and NYMEX, CME Group is the world's largest and most diverse derivatives exchange encompassing the widest range of benchmark products available. CME Group brings buyers and sellers together on the CME Globex electronic trading platform and on trading floors in Chicago and New York. We provide you with the tools you need to meet your business objectives and achieve your financial goals. And CME Clearing matches and settles all trades and guarantees the creditworthiness of every transaction that takes place in our markets.

## COMMODITY PRODUCTS

MORE COMMODITY FUTURES AND OPTIONS. GREATER OPPORTUNITY.

CME Group offers the widest range of commodity derivatives of any exchange, with trading available on a range of grains, oilseeds, livestock, dairy, lumber and other products. Representing the staples of everyday life, these products offer you liquidity, transparent pricing and extraordinary opportunities in a regulated centralized marketplace with equal access for all participants.

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# TRADING AVAILABLE VIRTUALLY 24 HOURS A DAY ON CME GLOBEX

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## CME Group and the Random Length Lumber Marketplace

Cash lumber prices are unpredictable and volatile. Supplies can be constrained due to mill closings, environmental policies and other factors. Demand also tends to shift rapidly based on interest rates and other economic conditions that affect housing starts. As a result, lumber prices react to supply and demand imbalances with frequent and often extreme changes.

Highly volatile prices can mean opportunity for large profits. But in an industry like lumber – valued at over \$30 billion for the North American market – where costs are high and margins are tight, volatile prices can also mean risk of loss, sometimes devastating loss.

In 1969, the Chicago Mercantile Exchange became the first exchange to offer price protection to the forest products industry with the listing of CME Random Length Lumber futures contracts. Firms engaged in producing, processing, marketing or using lumber and lumber products have been able to hedge their risk exposure – reduce the risk of holding or acquiring inventory through taking an equal and opposite position in Random Length Lumber futures. Usually, but not always, hedgers transfer unwanted price risk to speculators. Speculators are investors who hope to achieve profits by buying futures when they think prices will rise or by selling futures when they think prices will fall. Both hedgers and speculators are necessary for the efficient operation of a futures market.

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## THE FIRST EXCHANGE TO OFFER PRICE PROTECTION TO THE FOREST PRODUCTS INDUSTRY.

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## Unparalleled Electronic Trading Platform

In October 2008, electronic Random Length Lumber futures and options were launched on CME Globex giving traders access to the world's most dynamic trading environment for lumber virtually 24 hours a day, anywhere in the world. Trading hours were extended to Sunday 5:00 p.m. CT through Friday 4:00 p.m. CT with daily halts at 4:00 p.m. CT.

The world's leading platform for futures and options trading, CME Globex delivers:

- Speed of execution
- Transparency
- Anonymity
- Market integrity
- A level playing field for participants

Traders can view the top five prices and other data right on their screens and transactions are executed in milliseconds. The advanced capabilities allow traders to execute all of the traditional (outright) transactions in futures as well as a variety of spread trades, including highly complex options spreads. The platform's open architecture enables customers to use their own proprietary trading applications, systems provided by futures brokers and independent software vendors, or a CME Group-provided trading application, EOS Trader. The functionality and capacity of the platform continue to expand to accommodate ever-increasing demand.

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## Advantages of Random Length Lumber Markets

Random Length Lumber markets offer the following key benefits:

- **Risk management** – Random Length Lumber futures serve as hedging instruments and as a means of capitalizing on commodity price fluctuations.
- **Price discovery** – The futures markets assimilate current information about the underlying commodities, and in the process of trading, prices are negotiated that indicate levels above which buyers will not buy and below which sellers will not sell. Random Length Lumber futures do not create cash prices; they do, however, generate a current view of an equilibrium price or what the market will bear. If buyers are more eager than sellers, prices tend to go up. When the opposite is true, prices tend to go down.
- **Spreading opportunities** – Random Length Lumber futures can also be used with a number of spreading strategies to take advantage of the relative out-performance of one commodity sector versus another.
- **Market integrity** – By serving as the counterparty to every trade, CME Clearing virtually eliminates the risk of credit default (the risk that the other party to the contract will not perform) and protects the financial integrity of CME Group markets. Our centralized clearing function also enables any market participant to close or modify positions independent of the other party or parties in the original trade.
- **Regulatory assurance** – The quality and strength of our regulatory capabilities ensure the financial security of our markets. Our integrated compliance and market surveillance functions assure market participants of the highest trading standards and supervision. CME Group markets are monitored by the Commodity Futures Trading Commission (CFTC), an independent federal regulatory agency.

# CONTRACT SPECIFICATIONS

CONTRACT SPECIFICATIONS	FUTURES	OPTIONS
Trade Unit	110,000 bd. ft. of random lengths 2x4s (8' to 20')	Random Length Lumber futures contract
Settlement Method	Delivery	Delivery
Point Description	\$ per 1,000 bd. ft	\$ per 1,000 bd. ft
Point (Tick) Size	1 point = \$.10 per 1,000 bd. ft. = \$11 per contract	1 point = \$.10 per 1,000 bd. ft. = \$11 per contract
Contract Listing	Seven months of January, March, May, July, September, and November	Five months of Jan, Mar, May, Jul, Sep, Nov, serial months and Flex® options
Trading Venue	CME Globex Floor	CME Globex Floor
Product Code	Clearing = LB Ticker = LB Globex = LBS	Clearing Calls/Puts = LB Ticker Calls = KL Ticker Puts = JL Globex = LBS
Hours	CME Globex: Sunday 5:00 p.m. Central Time (CT) through Friday 4:00 p.m. CT with daily halts from 4:00 p.m. – 5:00 p.m. CT Trading Floor: 9:00 a.m. – 1:05 p.m.	CME Globex: Sunday 5:00 p.m. CT through Friday 4:00 p.m. CT with daily halts from 4:00 p.m. – 5:00 p.m. CT Trading Floor: 9:00 a.m. – 1:07 p.m.
Strike	N/A	\$5.00 per 1,000 bd. ft in a \$100.00 range
Limits	\$10.00 per thousand board feet above or below the previous day's settlement price with expanded limits to \$15.00. No price limits in the spot month. See CME Rule 20102.D. Daily Price Limits for more detail.	None
Minimum Fluctuation	Regular 0.1 = \$11.00	Regular 0.1 = \$11.00 Cab 0.05 = \$5.50

# PART I TRADING FUTURES ON RANDOM LENGTH LUMBER

A futures contract legally binds two parties – the seller (the short) and the buyer (the long) – to delivery of a standardized commodity in a set futures contract month. Quantity, quality and location of delivery point(s) are the same for each contract traded. Only the price is left unspecified until the moment the contract is executed between a buyer and a seller.

Standardization gives lumber futures contracts several advantages. First, a futures contract can be bought or sold at any time prior to its expiration (during regular trading hours on days when prices are not at the daily limit). Unlike a cash forward contract, a customer doesn't have to find an opposite party wanting a particular dimension, grade and species of lumber.

Second, standardization makes all futures contracts interchangeable. Every buyer could be matched with every seller. Therefore, a customer can sell a futures contract now and later buy back out of it; the selling (short) position could be taken over by another commercial interest or a speculator. Because of interchangeability, every buyer and every seller are anonymous to one another in the futures market.

Last, and most important, standardization makes price the only factor of negotiation. Therefore, the futures quotes available today become pure forecasts of where the lumber market will be two months, four months – up to 12 months or more in the future.

Today's futures price forecasts are likely to change, unless they are locked in with a futures position. If traders think a forecasted price is too low, they can lock it in by buying a futures contract. On the other hand, traders who think a forecasted price is too high can lock it in by selling a futures contract.

CME Group does not enter directly into pricing activity; rather it merely provides the location, staff and technology required to facilitate price discovery. It is these “discovered” futures prices, which change constantly with future expectations of supply and demand, that can be locked in by hedgers or speculators.

Trading Random Length Lumber futures is a true form of competitive buying and selling. Instant communication connects buyers and sellers worldwide. It is an open auction market where traders can express an opinion on prices months in advance.

## The Random Length Lumber Futures Contract

The Random Length Lumber futures contract calls for on-track mill delivery of 110,000 board feet (plus or minus 5,000 board feet) of random length 8-foot to 20-foot nominal 2-inch x 4-inch pieces. Primarily, the deliverable species is Western Spruce-Pine-Fir, although other Western species also may be delivered: Hem-Fir, Engelmann Spruce and Lodgepole Pine. Mills must be located in the states of Oregon, Washington, Idaho, Wyoming, Montana, Nevada or California, or the Canadian provinces of British Columbia or Alberta.

The acceptable grades are #1 and #2 of the structural light framing category. Wood must be kiln dried to a moisture level of 19 percent. The random length tally must conform to size percentage limits (see table below). Lumber of each length, for the most part, must be banded together, poly or paper wrapped and loaded on one 73-foot flatcar. Price terms are net, net. Consult your broker for current and more detailed contract specifications.

## Random Length Lumber Tally

8 feet	3-10%
10 feet	5-12%
12 feet	10-20%
14 feet	10-24%
16 feet	35-60%
18 feet	0-15%
20 feet	0-15%
16 feet + 18 feet + 20 feet	45-60%

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Every Random Length Lumber futures contract is a binding agreement for the short to make delivery to the long. In fact, delivery will take place unless the contract is offset prior to expiration. For Random Length Lumber the delivery contract months are as follows: January, March, May, July, September and November. The last day of trading is the business day prior to the 16th calendar day of the contract month. Customers who plan to make or take delivery of lumber need to consult CME Group rules for more detailed specifications and ask their brokers for any additional rules, regulations or procedures of the brokerage firm. To offset the delivery obligation, traders who have gone short (sold a futures contract) buy a futures contract for the same delivery month; traders who are long sell a futures contract for the same delivery month. By far the vast majority of Random Length Lumber contracts are offset rather than ending with delivery. If a firm should wish to take delivery, the freight charged to the buyer is generally the lowest published freight rate for 73-foot flatcars from Prince George, British Columbia, to the specified destination.

### The Price of Futures Trading

In trading, there is usually not one price, but two prices. One is the bid, or best price at which someone is willing to buy, and the other is the offer, or best price at which someone is willing to sell. A tick is the smallest interval between futures prices. In lumber, one tick is \$0.10 per MBF (one thousand board feet).

The opening price range for a contract month contains the high and low prices during the first 30 seconds of trading. The closing or settlement price for a contract month is an average of the high and low prices during the last 30 seconds of trading. Between the opening and the settlement, lumber prices can vary from minute to minute within the allowable range. The daily price limit is

\$10 per MBF above or below the previous day's settlement price. If the contract closest to expiration subject to a limit settles limit bid or offered two days in a row, the limit expands to \$15 per MBF for all contracts subject to a daily limit. There is no limit in the spot month.

Each lumber contract executed during the trading day enters into the lumber volume total. Most contracts opened during the day are offset before the close because of scalping and short-term speculative activity.

Having large short-term activity makes the market more liquid. In a liquid market, commercial interests and position traders can enter and exit the market more easily in size. Each contract not closed out during the day enters the lumber open interest total. Open interest is a measure of how many long-term position contracts there are in the market. It is entirely possible for more old contracts to be closed out than new contracts opened in a trading day. In that case, the open interest total would decline.

The Exchange, through the CME Clearing operation, guarantees contract performance. CME Clearing is composed of large, nationally known, financially sound brokerage firms. All traders must be affiliated with one of these firms and all trades must arrive at the desk of one of these same firms. After each trade is verified, CME Clearing becomes the buyer to every seller and the seller to every buyer, so a trader need never worry about who was on the other side of a transaction. However, CME Clearing does not guarantee that a trade will lead to a profit; there is risk in any trade. Instead, CME Clearing guarantees that each side will fulfill its buy or sell obligation.



## Types of Orders

There are two main types of orders in futures trading. A market order tells the broker to immediately execute the trade at the best bid (for a sell) or the best offer (for a buy). An example might be:

*Sell three Nov R/L Lumber at the market*

With a market order, traders know they will be in the market right away, but they're not sure at exactly what price. If they are concerned about the price, then they might want to use a limit order. An example might be:

*Sell three Nov R/L Lumber at \$325, or better*

The limit order tells the floor broker to execute the order to sell if the market gets up to \$325 per MBF or higher. Of course, a limit order does not guarantee that the trader will ever get into the market. Limit orders may be marked GTC, or good till canceled, and will remain in the market as long as the contract trades or until the designated price is reached, whichever comes first

## Commissions and Performance Bonds in Futures Trading

Once a trade is executed, the trader is charged a commission. Commission rates are negotiable and can vary from firm to firm. Often, the size of the commission is directly related to the information and data services provided by the broker. It also may be related to the number of contracts the customer trades at a time. Commissions are generally charged round-turn. That is, there is only one commission to enter and exit the market.

An important component of futures trading is the performance bonds (formerly called margins). Performance bonds are small security deposits that both the buyer and the seller must put up to ensure the value of the agreement. CME Group minimum initial margins average roughly 3 percent to 5 percent of the value of the contract – the minimum amount that a broker will segregate in a customer's account per contract. Remember, CME Group margins are subject to change at any time.

As the market price moves from day to day, each customer's account is credited or debited with the change. For example, if a trader sells a Random Length Lumber contract at \$360 per MBF and the market drops to \$359 per MBF, then the trader's account will be credited \$1 per MBF multiplied by the size of the contract. The funds will be transferred over to the seller's account from the margin account of the buyer. If the market instead rises to \$361 per MBF, then the account will be debited \$1 per MBF multiplied by the size of the contract. The funds taken out of the seller's account will be transferred over to the account of the buyer.

The minimum balance per contract a customer can have in an account is called the maintenance margin. Once this account balance falls below the maintenance level, the customer will receive a margin call. This is a request from the customer's broker to bring the account balance back up to the initial margin level. The customer must comply with this request within a reasonable time period or the customer's market position will be offset and his or her account closed out. Hedgers may want to arrange to have a financial institution meet margin calls for them.

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## HEDGING AND RISK MANAGEMENT

All along the distribution chain, most firms speculate on the cash price of lumber. Between each stage – forest, mill, processor, wholesaler, retailer, builder or end-user – economic developments may cause unfavorable price changes because of the time lag between purchase and final sale. Even if the lag is only a few days or weeks, the risks are enormous. For example, statistics of the North American Wholesale Lumber Association show that its member firms carry about a half-billion dollars worth of distribution inventory. As little as a 2 percent drop in price could cost that segment of the industry more than \$10 million.

A prime advantage of using Random Length Lumber futures contracts is that customers have more control over their firms' destinies. It allows a firm to go out 10 days, 30 days, up to 12 months or more in the future and, when available, select a price that best fits a company's needs.

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## FITTING FUTURES INTO A WELL-ORGANIZED HEDGING PROGRAM HAS GIVEN MANY LUMBER FIRMS A SOLID COMPETITIVE EDGE.

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### The Role of Lumber Hedging

The basics of hedging with Random Length Lumber futures are simple. Futures act as a temporary substitute for a purchase or sale that will come later. Hedging is accomplished by taking an equal and opposite position in the futures market from that established in the cash market.

For example, a retailer holding inventory (long the cash) and expecting lower prices could sell a Random Length Lumber contract now (short the futures) to lock in a selling price. Later, when the cash market sale is made, the retailers would buy out of the futures obligation. If market prices have fallen, the gain on the futures position will normally make up for some or all of the loss from a lower cash market selling price.

The opposite case also holds true. A builder who needs to acquire inventory (short the cash) and is concerned about higher prices could buy a Random Length Lumber futures contract now (go long the futures) to lock in a purchase price. Later, when the builder purchases the lumber in the cash market, he would sell out of his futures obligation. If market prices have risen as the builder expected, the gain on the futures position can help make up for the loss from having to pay higher cash market prices.

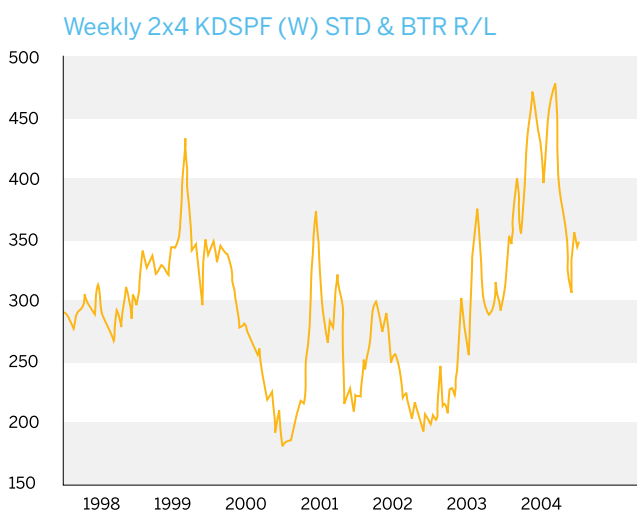
The main use for lumber futures in a hedging program, then, is to protect against adverse price changes. The unwanted risk of prices changing can be passed on through the market to someone who may want to take on that price risk, perhaps a speculator. Fitting futures into a well-organized hedging program has given many lumber firms a solid competitive edge. Of course, there is always the risk that loss could be incurred on the futures position.

## Establishing a Hedging Program

A firm in the lumber business already understands what price risk is. Unprocessed lumber is a commodity and, like most commodities, fluctuates greatly in value. The chart below shows the price movement in the cash market for Random Length Western Spruce-Pine-Fir 2x4s, a cash price series that closely matches that of the Random Length Lumber contract price series. The chart shows how prices ranged from under \$200 per MBF to just under \$500 per MBF.

One way to reduce the impact of price swings and lessen the uncertainties of marketing is to set up a hedging program and then keep a sharp watch on the Random Length Lumber market. Lumber futures help by extending a firm's pricing horizon. At any one time, there are six or more contracts trading for delivery over the next 12 to 14 months. These prices are reported widely in newspapers, on TV and radio and via quotation services on a regular basis. When these prices get to a firm's hedge objective level, the company can take action to lock them in.

What are some reasons for hedging? There are many, but the majority can be classified into four main hedge types, each with different risk characteristics: price protection, business expansion, market exploitation and anticipatory hedging.



## Price Protection

The most basic type of hedge and the only one with which most people are familiar is the price protection hedge. Encountered in the normal course of business, this type is often likened to price insurance. In all cases, the cash market position is established first and the futures position is established later to reduce the risk of an adverse price change.

When a long cash position is established first, the hedge is called an inventory hedge. When carrying inventory, the risk is that prices will fall before the lumber is sold. To place the inventory hedge, a firm would go short the Random Length Lumber futures in a board foot amount roughly equal to the firm's cash position.

Taking a simplified example, let's say that a company has about one contract's amount of board feet of random length 2x4s meeting contract specifications in inventory, costing \$330 per MBF. Let's say further that freight costs into the company's area normally are \$65 per MBF. The net inventory cost of the lumber would be \$395 per MBF.

If the nearby (next expiring) Random Length Lumber futures price were \$355, the company could sell (short) one futures contract to initiate the hedge and obtain price protection. With the futures price at \$355 plus \$65 for freight costs, the company would be locking in an expected local selling price of \$420 per MBF, for a \$25 profit per MBF.

Now, what if in three weeks, market price levels have fallen \$15 per MBF? If the company has found a customer, it would unwind the hedge by buying back the futures contract at \$340 per MBF, for a \$15 per MBF futures profit. Simultaneously, since market levels have fallen \$15, the company is able to sell the lumber to its local customer for \$405 per MBF. Adding back the \$15 futures profit to the \$405 cash price nets the company the \$420 per MBF selling price and the \$25 per MBF profit that the company expected when the hedge was placed.

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What if in three weeks, market price levels have risen \$5 per MBF? The company would unwind the hedge by buying back the futures contract at \$360 per MBF, for a \$5 per MBF futures loss. Simultaneously, because prices are higher, the company would sell the cash lumber to its local customer for \$425 per MBF. Subtracting the \$5 per MBF futures loss from the \$425 per MBF local cash price nets the company the \$420 per MBF selling price, and the same \$25 per MBF profit that the company expected when the hedge was placed.

When a short cash position is established first, and a long futures position is established later to protect it, then the hedge is termed a back-to-back hedge. A short cash position is established, for example, when a company promises a customer delivery of lumber at a fixed price, but it hasn't yet purchased the lumber and it is not carrying it in inventory. When short cash, the risk is that prices will rise before the company acquires the lumber from a supply source. The back-to-back hedge is placed by buying (going long) Random Length Lumber futures in a board feet amount equal to the company's cash position. Because the cash and futures positions are equal and opposite, a rise in price levels will provide a futures gain that will offset the loss from having to pay higher cash prices; a fall in price levels will provide a futures loss that will be offset by being able to pay lower cash prices. However, one should always be aware that the risk of loss accompanies any futures contract.

#### **Business Expansion**

Hedging sometimes can be used to expand business activity without increasing risk to the firm. For example, if a firm is a wholesaler, chances are it has talked to a builder who would like to lock in a supply of lumber at a fixed price for the next six months, so the builder can accurately figure margins on

his homes. Neither party has the storage facilities or capital to buy the lumber now. Further, when the wholesaler goes to its mill suppliers to get forward prices, it can't obtain reliable distant quotes. The way around this dilemma is to use business expansion hedges. Business expansion hedges look similar to price protection hedges, but they go out beyond 30- or 60-day limits when such business deals are normally transacted.

Going back to the builder example, the wholesaler could work off Random Length Lumber futures prices and quote the builder purchase prices all the way up to 12 months or more in the future. In a highly simplified example, the wholesaler could add a freight factor and a margin to cover its profit, interest and administrative expenses to the Random Length futures prices to arrive at its quotes. If freight were \$75 per MBF with a desirable profit of \$45 per MBF, and the next three expiring futures contract prices were \$330, \$340 and \$350 per MBF, the wholesaler's quotes to the builder would be \$450, \$460 and \$470 per MBF.

If the builder accepts those quotes, the wholesaler's risk would be of prices rising. Therefore, the wholesaler would hedge by buying as many of the next three expiring futures contracts that roughly equal the number of board feet to be delivered to the builder per contract period over the next six months. The wholesaler would offset its futures positions as it purchased the actual lumber in the cash market to deliver against its obligation to the builder. This type of hedge is most advantageous to all parties when distant futures are below current cash quotes.

The situation outlined here gives a wholesaler the opportunity to expand its business beyond the normal time frame, without the need for extra capital and without increasing risk to the firm, because it hedged the other side in the futures market. The only flaw in this hedge would be if prices moved dramatically lower.

If prices had fallen by a large amount, for example, the builder might be unhappy locked in at higher prices. Therefore, these agreements should be solidified with firm legal agreements between all parties involved.

Another kind of transaction that can accomplish the same goal, with less risk of customer dissatisfaction, is similar to a “priced at time of shipment (pts)” deal. The wholesaler could modify the examples used earlier and offer to sell the builder lumber shipped in installments over the next six months, priced at any time between now and shipment. The price the wholesaler would offer would be \$120 per MBF above the applicable Random Length Lumber price to cover freight, expenses and profit. No futures position need be taken until the builder decides to fix the price. Then the wholesaler would quote the builder \$120 per MBF over the futures and hedge by buying contracts to offset its risk of rising prices. This hedge, called selling against the board, gives the wholesaler the flexibility of lining up forward contracts without locking the other party into a fixed price.

#### Market Exploitation

Hedges in this category take advantage of unusual situations in either the cash or futures markets to make extra profit. In general, they require complete familiarity with basis, or the relationship between the price of a cash lumber item and the price of Random Length Lumber futures. They also may require access to storage facilities and extra capital. Unlike price protection and business expansion hedges, they are not risk free, but they often result in abnormally high profits.

One form of market exploitation hedge is known as basis trading. With basis trading, the customer takes advantage of unusual or seasonal plays in the cash market. For example, let’s say a wholesaler knows of random length 2x4 framing lumber, of a species not covered in the futures contract, that normally strengthens from \$20 per MBF over futures to \$70 per MBF over futures between November and April. When November arrives, the item, as expected, is \$20 per MBF over the futures. The wholesaler could buy it in the cash market, store it and hope it goes to \$70 per MBF over futures by April. The risk, however, is that overall price levels might drop by April and even though the item might indeed be \$70 per MBF over futures, the wholesaler would not receive the entire \$50 per MBF gain.

To hedge against this risk, the wholesaler would buy the lumber, store it and sell futures for May (the closest expiring contract) delivery against inventory. If the seasonal play works and the item moves to \$70 per MBF over futures by April, as expected, the wholesaler will receive the full \$50 per MBF gain, no matter what overall price levels have done in the meantime. The risk in the basis trade, of course, is that the seasonal play does not evolve and the item does not rise to \$70 per MBF above futures by April.

Let’s look at another basis trading example. Let’s say 2x8 Random Length Lumber, of a species not covered in the futures contract, normally trades at \$20 per MBF over the futures price, but lately has been trading at \$80 per MBF over the futures price. If a wholesaler doesn’t expect the situation to last long, they could take advantage of it by forward contracting the lumber at the current price to a customer, say at \$360 per MBF and simultaneously buying at \$280 per MBF.

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Suppose the difference narrows to \$30 per MBF, by the futures rising to \$310 per MBF and the cash price dropping to \$340 per MBF. The wholesaler could unwind the hedge by selling back the futures and taking a \$30 per MBF profit and acquiring the lumber for \$340 per MBF. The wholesaler's net cost is \$340 minus \$30, or \$310 per MBF, for the lumber that the wholesaler delivers on its forward contract for \$360 per MBF. The wholesaler's overall profit is \$50 per MBF, or the difference between the \$80 per MBF spread when the basis trade was placed and the \$30 per MBF spread when the basis trade was unwound. As long as the spread narrowed, the wholesaler would make a profit. The risk is that the spread, instead of narrowing, stays the same or widens further.

#### Anticipatory Hedging

Anticipatory hedging involves taking a calculated risk in the normal course of business. A company could employ anticipatory hedging to fix a price for lumber that it will acquire in the future or to fix a price for lumber that it will sell in the future. With anticipatory hedging, there is no offsetting cash market position to absorb the risk.

A company might do an anticipatory hedge when, through thorough analysis, it knows the futures market is overvalued or undervalued. For example, when one contract delivery month futures price drops, sometimes they all will. If the current market is unusually overburdened with excess supply, it could pull down all of the prices to unusually low levels.

If the company thinks the market will strengthen four months out, it could establish an anticipatory hedge by buying Random Length Lumber futures to lock in what it believes is a very low purchase price. If the market rallies four months from now, the company could offset its futures position and take a profit to reduce its cash market purchase costs, or it could take delivery of the lumber at the original purchase price.

The risk in an anticipatory hedge is that the analysis was wrong and the market dropped even further in four months. However, a company would not ordinarily employ this type of hedge unless prices were at the extremes of forecasted levels. Furthermore, no company should take an anticipatory market position equal to a large percentage of its normal cash position in any one month.

#### The Importance of Lumber Basis

Basis is defined as the difference between the cash price for a lumber item and a Random Length Lumber futures price. Basis is calculated as cash price minus futures price. So a +\$5 basis would mean the cash price was \$5 per MBF over futures and a -\$5 basis would mean the cash price was \$5 per MBF under futures.

At a long time from expiration, say eight months, the Random Length Lumber price is the market's best estimate of future price levels given distant supply and demand expectations, while the cash price is the current quote for lumber and reflects today's supply and demand conditions. Because eight months separates the cash and futures quotes, there need not be an exact relationship between them. Near the last day of trading, the cash and futures prices normally converge to a more predictable difference.

What if a company hedges lumber that does not meet contract specifications? The basis estimation procedure is the same.

The company looks for the overall average basis near contract expiration between the cash lumber item it wishes to hedge and the futures price. Expect to find vastly different numbers due to product and location factors. Product factors are differences due to species, grade and dimension. Location factors are differences mainly due to transportation costs.

## Forming a Marketing Plan: Seven Steps

Thus far we have discussed the four major categories of lumber hedges and their risk management characteristics, along with an outline of the importance of lumber basis. These topics provide the basic knowledge necessary to begin hedging. But, just like a builder needs a blueprint before starting work, any hedger needs a marketing plan before trading.

No plan is right for every firm or individual. Rather, one must be designed that fits within the risk attitude framework of each organization. Seven steps any potential hedger should consider when developing a marketing plan are:

1. **Define Objectives**
2. **Locate Risk**
3. **Examine the Market**
  - **Current cash price**
  - **Future prices**
  - **Basis**
  - **Price outlook**
4. **Plan the Hedge**
5. **Execute the Hedge**
6. **Terminate the Hedge**
7. **Evaluate Performance**

Each step is vital to a successful long-term hedging program.

Before moving on to specifics though, the following overall guidelines are critical to the establishment of a sound plan and should be discussed.

- Everyone involved, from the company president on down to the individual placing orders with the broker, should be informed of the major objectives of the marketing plan. Realizing its importance enhances the spirit of cooperation and helps keep the program on track.
- Controls and an independent review should be established so that futures market activities stay within the parameters of company policy. For example, confirmation of orders made by the company should be sent to the treasurer or accountant and a duplicate copy sent to the trader.

Many working hedging programs have been ruined by suddenly becoming speculative ventures.

- A marketing plan should be flexible. Although it need not cite exact prices and numbers, it should effectively state a course of action for each alternative marketing situation that may arise. As always, in some situations the best course of action may be to take no action in the futures market at all.
- Most important, the plan should be in writing. An unwritten plan is always in danger of becoming too flexible. Having your plan in black and white provides the discipline to follow your original intentions. An old marketing saw, with more than a grain of truth, says: Plan your trade and trade your plan.

Now let's go through the steps in developing a marketing plan for hedging Random Length Lumber futures.

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### Step 1: Define Objectives

Although there are many hedge objectives, probably the two most important are at opposite ends of the risk spectrum: loss avoidance and profit increase. The two are not necessarily mutually exclusive. There are many ways to use Lumber futures to increase profit without raising the risk of loss to the firm. However, because economic and time resources are usually limited, no one firm can fully attain both objectives. Therefore, each firm must first decide if its primary motivation is to avoid losses or to bring in extra profits.

When the main objective is to avoid losses, a company might want to limit its trading to price protection hedges. As described earlier, these include the inventory hedge and the back-to-back hedge.

Some considerations in hedging for price protection are the total board feet of the inventory to be hedged and the overall price risk level. If a firm has a lot of inventory to be hedged – for example, five contracts worth of lumber – the company may want to set increasingly higher target price objectives for each unit. That way some lumber will be hedged early, yet the company will still be able to take advantage of any price appreciation.

If price levels are historically very high, a company is more at risk of prices falling. Its target price objectives might then be closer to inventory costs. Similarly, on a back-to-back hedge, if price levels are low, the company is more at risk of prices rising and might seek closer target price objectives than if prices are higher.

If a firm's main objective is to bring in extra profit, there are many alternatives. If a company has the personnel and the opportunities are there, then it may go after business expansion hedges, which are not significantly more risky than price protection hedges and bring in added volume.

If a company has a good perspective on the lumber market, then it might try basis trading. Basis trades, when available, offer the potential for large profits. Business expansion hedges and basis trades, such as price protection hedges, require setting profit objectives. If a hedge entails more risk, then a company might want to set larger profit goals before attempting it.

Depending on the type of firm, there are many other good reasons for hedging. Hedging can be used to assist in scheduling production or to stabilize cash flow. The main hedge objective should not always be to show profit on the futures side of a hedge balance sheet. Stabilizing cash flows and profits may be more important to the success of an enterprise in the long run than a short-term futures gain or loss.

### Step 2: Locate Risk

After a company has written out a clear set of hedge objectives, the next step is to isolate where the risks are located within the firm. The first determination is whether the firm is more at risk on the long side, the short side or both. Other factors include length of risk, size of risk in dollars or board feet, and cost levels. A company may want to work with your accountant so that the numbers needed for a hedge program can be generated as needed.

### Step 3: Examine the Market

In general, dollar profit goals (i.e., where futures prices are relative to the cash price) should be the primary hedge guide. However, to assist in hedge timing, a company may also want to prepare a fundamental market forecast. It should include a high price forecast, a low price forecast and the expected variability within that range. In the next section, we will briefly discuss technical analysis – the reading of price charts to determine seasonal price tendencies and long-term price trends. Watching charts can provide a confirmation of fundamental forecasts and help a company identify trends in basis patterns.



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#### Step 4: Plan the Hedge

Unless a hedging program is completely automatic, a company still has to make the final decision to hedge. First, it will want to look at target profit objectives. Given current market conditions and price levels, are they too high or too low? Second, how far out does a company want to place its hedges?

Each company will also want to plan whether all of its hedges should be placed at once or scaled in over time, using its forecast to sharpen judgments. For example, if a company is inventory hedging, and the market is at the top of its range, it may want to hedge all its hedgeable base rather than scaling in hedge positions. Also, if the market is variable within a company's range, it may want to lift its inventory hedges near its low price forecast level and replace them after the market bounces back toward the company's high price forecast level.

#### Step 5: Execute the Hedge

Once a go-ahead has been given for a hedge, then the company has to get it placed. Should it use a market order or a limit order? This is one issue to discuss with the company's broker. Once the order is executed, the company should check with its accountant to ensure that the futures position is booked alongside the cash position. Finally, a company may want to consider using stop orders, which stop the company out of a position that is moving against its expectations.

#### Step 6: Terminate the Hedge

One area where successful hedgers can do well is in lifting a hedged position. For example, if a firm has the flexibility of completing the hedge at any time and if the basis is much better than it estimated, the company will realize extra return by getting out of the hedge earlier than planned.

#### Step 7: Evaluate Performance

Having a written marketing plan enables a company to go back after six months or a year and see how it worked out. Were the main objectives met? If yes, the company may want to add new, more challenging objectives. If not, why not? Do target profit objectives need to be changed, and does the hedgeable base need to be adjusted and basis refigured? These are hard questions a company needs to ask in order to improve and fine-tune its hedging program. Remember – a loss or two on a futures position may be justified by having made a prudent business decision.

The preceding sections carefully laid out the foundation necessary for you to construct a workable hedge program. We now want to look at a topic with which many lumber firms may not be familiar – technical analysis. Price charts serve many hedging firms as a road map by which they fine-tune their profit objectives and improve their market timing.

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## Technical Analysis and Charting

### Price Charting

Every lumber company needs to have a fundamental forecast for lumber prices – even if it is just a feeling based on years of experience about which way the lumber market is headed. Many firms use technical analysis to confirm their fundamental outlook.

Trends are extremely important in forecasting prices. In examining fundamental economic data, a forecaster is concerned with extrapolating the trend. Many technical traders argue that, since the futures price contains all current information, they can look at Random Length Lumber price charts to let the market tell them what the trend is. Two types of charts for ascertaining trend are bar charts and seasonal charts.

### Bar Charts

Short term, a bar chart, such as a daily chart of May Random Length Lumber, consists of a line connecting the day's high to the day's low for May Lumber. A small dash to the side of the line indicates where May Lumber closed. Many traders continuously update daily bar charts for several contract delivery months at a time.

Primarily, bar chartists look for price trends. An uptrending market ratchets up to higher high levels and recedes back to higher low levels. An uptrend is monitored by connecting successive low points with a straight line, called a support line.

A downtrending market falls to new lower lows and resurges back up to lower highs. A downtrend is tracked by connecting successive high points with a straight line, called a resistance line.

Wise hedgers don't fight the trend, but alter their hedge plans accordingly. In other words, if the trend is up, a holder of inventory may scale in short hedges at higher and higher prices, as long as the trend continues. If the trend is down, however, a short hedger of inventory may place all hedges at once.

Advanced chartists also look for recurring patterns or formations. Some patterns indicate a trend continuation and may be useful for measuring how long and how far the trend will continue. Other patterns may give early warning of a trend reversal. Many publications and specialized companies can assist a firm with more complete information on charting than available within the scope of this brochure.

Interpreting bar charts is an art, not a science. The following chart depicts May Random Length Lumber in a prior year. Early on, it appears to have formed a pattern termed a double bottom. When a market is trending down (as this one was in August) and it tries to break new lows but fails, this is a double bottom. It can signal a trend reversal, which is what happened.

The May Lumber price trended higher until December, when it broke down below the support line and started downtrending. The downtrend continued until mid-February when it broke above the resistance line.

Note: Since the breakout the uptrend has been much steeper. Random Length Lumber is among the most trending of markets.

### Seasonal Charts

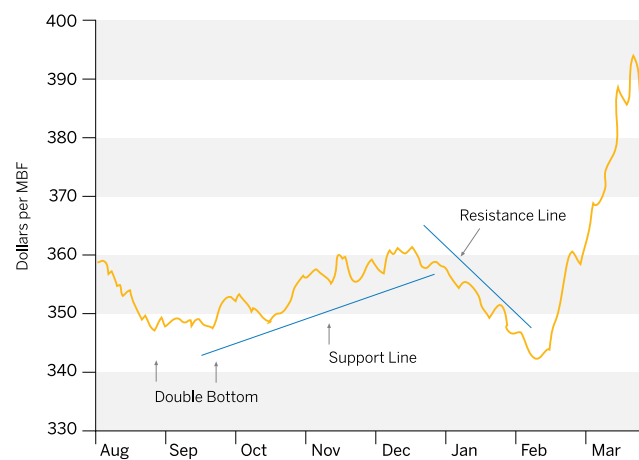
Seasonals are price patterns that recur year after year. They may be explainable by repeating annual market forces. However, a hedger does not have to know the reason for a seasonal pattern to be able to trade with it. As might be expected with lumber, the typical seasonal pattern appears to be tied into the residential housing construction cycle. Prices peak during the most active building months of summer and drop off sharply after demand dries up. In general, prices rise from fall to the following spring, compensating those who store lumber. In the early part of the year, there typically is a small price blip as some builders and yards order ahead of the construction boom months.

Futures prices follow the same seasonal pattern, but sometimes anticipate the cash pattern. All futures prices tend to move at the same time. That is, as cash prices rise in the spring, all futures contract prices tend to follow along. When cash prices drop off late in the summer, all trading futures prices tend to fall, too.

Thus, hedgers should be keenly aware of the seasonal pattern. For example, if the overall market is trendless, knowing the seasonal tendency can assist in making hedge decisions.

Technical analysis can make a company's hedge plans more flexible and may result in more profit per trade. Interested hedgers should consult more detailed sources on technical analysis.

R/L Lumber Futures Prices Daily  
High-Low Close Bar Chart



TECHNICAL ANALYSIS CAN MAKE  
A COMPANY'S HEDGE PLANS  
MORE FLEXIBLE AND MAY RESULT  
IN MORE PROFIT PER TRADE.

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## HEDGE EXAMPLES

Let's examine the cash flow profiles for three hedge strategies. Each strategy begins with an initial estimation procedure when the hedge is placed and ends with the evaluation process when the hedge is lifted. All are kept simple to clearly show the mathematics of a complete hedge trade. (These hedges are all "winning" hedges. Remember that it's just as possible to incur a loss as it is to experience a gain, but still meet overall hedge objectives.)

### Example 1: Inventory Hedge

Metrobuild Lumber is the second-largest industrial construction supplier in the Eastern Ohio region. The firm's success has been based on its reputation for carrying a full inventory line. Management has stocked up on 2x4 and 2x10 Random Length Western Spruce-Pine-Fir (SPF) before going into the spring building season, but is afraid of price declines due to mill stock expansion in the Northwest.

#### Hedge Objective: Protecting against price declines

For each lumber contract's board foot amount that Metrobuild has in inventory now, on March 3 it should sell one May CME Group R/L Lumber contract. Selling lumber futures "locks in" the value of cash inventory sales. The lowest published freight from the Northwest into Ohio is about \$75 per MBF, and 2x10 SPF normally sells at a \$40 per MBF premium to 2x4 SPF.

**Placing the Hedge:**

Cash Market		Futures Market		Freight/Basis
Estimated 2x4 sale	401	Sell contract	326	+75
Estimated 2x10 sale	441	Sell contract	326	+115

**Lifting the Hedge:**

May 4: Management turned out to be right in its forecast and prices did decline by May. Now, to unwind the hedged positions, Metrobuild should buy back May Random Length Lumber futures contracts as it sells cash lumber out of inventory.

Cash Market		Futures Market		Freight/Basis
Sell 2x4 inventory	335	Buy back contract	260	+75
Futures profit	+66			
Net 2x4 sale price	401			
Sell 2x10 inventory	385	Buy back contract	260	+125
Futures profit	+66			
Net 2x10 sale price	451			

**Hedge Evaluation:**

Although market price levels dropped, Metrobuild realized a net sale price on its 2x4 Western SPF inventory exactly equal to the price expected back in March. This occurred because the actual freight plus basis exactly equaled the estimated freight plus basis. If Metrobuild bought the inventory at the right price, it made a profit. Spring 2x10 Western SPF demand was a little higher than expected. Accordingly, the Eastern Ohio 2x10 cash price was stronger relative to the 2x4 price. Metrobuild netted \$451 per MBF, instead of \$441, on its 2x10 inventory sales. This is because freight plus basis was \$125, or \$10 more per MBF than expected. If Metrobuild bought the 2x10 lumber at the right price, it made a profit.

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### Example 2: Back-to-Back Forward Sale

Warner and Sons is a wholesale distributor of grade lumber across a multi-state area. Lately, they have been trying to improve overall sales totals by lining up forward contract commitments. A Texas builder plans to start development work in January and wants to ensure an adequate supply of 2x4 Random Length Western SPF now, on August 10, at a fixed price. Warner and Sons would like to close the deal, but does not want to tie up its limited inventory space, nor does it want to wait to buy the 2x4 Western SPF in January for fear of higher prices.

#### Hedge Objective:

Acquire forward sale while protecting against risk of rising prices. For each lumber contract's board foot amount that Warner and Sons needs to acquire in the January cash market, the company should buy one Jan CME Group R/L Lumber contract. It further estimates cash 2x4s to be \$10 per MBF less expensive than CME Group R/L Lumber futures in January. Warner's freight and sales add-on is \$80 per MBF.

**Placing the Hedge:**

Cash Market		Futures Market		Freight/Basis
Estimated purchase	271	Buy contract	281	-10
Estimated margin	+80			
Contract sale	351			

**Lifting the Hedge:**

January 5: Fortunately for Warner and Sons, they hedged their January purchases – prices were indeed higher. Now, to unwind the hedged positions, the company should sell back Jan CME Group R/L Lumber contracts as the 2x4 Western SPF is acquired in the cash market and delivered to the Texas builder.

Cash Market		Futures Market		Freight/Basis
Actual purchase	403	Sell back contract	407	-4
Futures profit	-126			
Net purchase price	277			
Actual margin	+74			

**Hedge Evaluation:**

Although market prices rose, Warner and Sons realized a freight and sales margin of \$74 per MBF on the 2x4 SPF deal. Had they not hedged, because of the higher acquisition costs, they would have realized a more than \$100 per MBF loss. The \$126 per MBF futures profit made up for the shortfall. Warner and Sons did not get the full \$80 per MBF freight and sales add-on they expected, because at -\$4 the basis was \$6 per MBF lower than estimated when they placed the hedge in August.

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### Example 3: Basis Hedge

Hitektron is an aggressive trading firm with a small lumber brokerage division. The firm is constantly on the lookout for abnormalities in prices. Recently, on November 8, Hitektron spotted an opportunity. Being aware of normal basis, the firm noted that 2x4 random length Southern Yellow Pine (SYP) was unusually weak relative to Mar Random Length Lumber futures. Hitektron would like to inventory 2x4 SYP now for cash sale in March when SYP prices should be at a large premium to SPF.

#### Hedge Objective:

Take advantage of abnormally weak cash price of SYP relative to futures, no matter where market price levels end up. For each lumber contract's board foot amount of 2x4 SYP that Hitektron wants to basis trade, it should sell one Mar Random Length Lumber contract. The cost-of-carry from November to March is \$15 per MBF. Selling futures against inventory allows Hitektron to profit from the expected strengthening of cash SYP cash prices relative to futures prices. Currently SYP prices are \$15 per MBF over March futures and by March, SYP prices are expected to rise to \$70 per MBF over March futures.



**Placing the Hedge:**

Cash Market		Futures Market		Freight/Basis
Estimated sale	280	Sell contract	210	+70
Purchase price	-225			
Carrying charge	-15			
Estimated margin	+40			

**Lifting the Hedge:**

March 10: By March, overall market levels had fallen, but 2x4 SYP prices had indeed strengthened relative to Random Length Lumber futures. To profit from the basis trade, Hitektron should buy back its futures positions and sell the cash lumber.

Cash Market		Futures Market		Freight/Basis
Estimated sale	260	Buy back contract	190	+70
Purchase price	-225			
Carrying charge	-15			
Futures profit	+20			
Actual margin	+40			

**Hedge Evaluation:**

Because the actual basis exactly equaled the estimated basis, Hitektron realized a profit of \$40 per MBF in March on the 2x4 SYP, the same profit it expected to realize back in November. Because Hitektron sold the lumber at \$260 per MBF and paid only \$225 for the lumber plus a \$15 cost of carry, it made a \$20 per MBF cash profit on the transaction. This is all the profit it would have made had they not hedged. Because Hitektron hedged, it picked up an additional futures profit of \$20 per MBF. The \$40 per MBF profit and the \$15 per MBF cost-of-carry both were covered in the deal because the 2x4 SYP basis strengthened to \$55 per MBF, from \$15 per MBF over futures in November to \$70 per MBF over futures in March.

Note: This example ignored freight considerations, which would have been covered at cash sale in March. One should also note that if the futures position went the other way, the result may have been different in the preceding examples, in some cases leading to loss.

## PART II TRADING OPTIONS ON RANDOM LENGTH LUMBER FUTURES

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Since 1969, CME Group has helped companies and individuals engaged in producing, processing and marketing lumber products reduce their price risk by hedging with Random Length Lumber futures. In May 1987, CME Group provided the lumber industry with a new tool for managing its inherent price risk – options on lumber futures.

**Options on Random Length Lumber futures offer many opportunities for both hedgers and speculators:**

- Limited risk
- Unlimited profit/price protection
- A variety of strategies to address all market conditions

Options on lumber futures are part of the successful family of options contracts currently trading at CME Group. CME Group also trades options on its foreign exchange, equity index, weather, livestock, dairy and interest rate futures contracts.

Both hedgers and speculators use options. This section of this brochure offers an introduction to the mechanics of options trading and basic lumber option hedging strategies. It explains what option contracts are and how they can become an effective part of traders' pricing plans.

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CME GROUP PROVIDED THE LUMBER INDUSTRY WITH A NEW TOOL FOR MANAGING ITS INHERENT PRICE RISK – OPTIONS ON LUMBER FUTURES.

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## BASIC OPTIONS CONCEPTS AND TERMS

### The Concept of Options

Choice is the main feature of an option. When traders buy an option they acquire the right, but not the obligation, to assume a long or short position in a specific futures contract at a fixed price on or before the expiration date. For the right granted by the option contract, traders pay a sum of money (premium) to the option writer or seller, who keeps the premium whether the option is used or not. The writer must fulfill the contract terms if it is exercised by the buyer. But when traders buy an option, they are “buying” a choice, and can choose to let the option expire without a commitment or delivery obligation.

### Calls and Puts

There are two types of options – calls and puts, which offer opposite pricing alternatives. A call option gives the buyer the right to buy a futures contract at a fixed price level on or before an expiration date. Conversely, a put option gives the buyer the right to sell a futures contract at a fixed price level on or before an expiration date.

An easy way to remember the difference between calls and puts is: with a call option one can “call in” or purchase a futures contract; with a put option, one can “put away” or sell a contract.

Generally, traders who buy a call option are bullish or optimistic about the underlying futures price. If they’re bearish about the underlying futures price, they will probably buy a put option. We’ll look at these positions a little later.

Calls and puts are separate option contracts. They are not the opposite sides of the same transaction. For every purchase of a call option, there is a corresponding sale of the same call option. This is also true for put options: one buyer/one seller for each put option transaction.

### Overview of Options Positions

Call Option – Buyer	Call Option – Seller
Bullish	Bearish/neutral
Right to buy futures	Obligation to sell futures
Pays premium	Receives premium

Put Option – Buyer	Put Option – Seller
Bearish	Bullish/neutral
Bullish	Bearish/neutral
Right to sell futures	Obligation to buy futures
Pays premium	Receives premium

A purchaser of an option has three alternatives: (1) let the option expire; (2) offset the option at the current premium value; or (3) exercise the option. Typically, an option buyer would offset the option prior to or at expiration and receive the current premium value. Prior to expiration, the premium value could be higher or lower than the original purchase price depending on how the underlying futures price had changed.

Alternative 3 – to exercise the option – would be used if the option buyer desired to have the underlying futures position or actually wanted to make or take delivery on the underlying futures contracts.

There are also three alternatives for options writers (sellers). The option may be: (1) offset at the current premium value; (2) exercised by the buyer, obligating the writer to accept a futures position at the price specified in the contract; or (3) allowed to expire. The writer can either choose to offset the option or wait for expiration of the option. Only the buyer can exercise the option.

## Options Specifications

Like futures contracts, options contracts on Random Length Lumber futures are standardized. The contracts specify the following:

**1. Type of Option:** Call option or put option. Again, a call option gives the buyer the right to buy a futures contract; a put option gives the buyer the right to sell a futures contract.

**2. Underlying Futures Contract:** One option contract gives the buyer the right to establish one futures contract position (long or short) at the selected price level.

**3. Strike Price and Expiration Dates:**

**Strike Price (Exercise Price) of the Option:** The strike price of the option is the price at which a futures position is taken if the option is exercised. Strike prices for lumber are listed both above and below the current futures price at intervals of \$5 per thousand board feet (MBF). If, for example, the March futures contract is trading at \$280, call and put options would be listed at \$260, \$265, \$270, \$275, \$280, \$285, \$290 and \$295 as designated in the option contract specifications.

**Expiration Dates:** The expiration date of lumber options is prior to the expiration date of the underlying futures. The lumber options expire the last business day in the month prior to the delivery month of the underlying futures contract. The early expiration date prevents possible market congestion during the spot month as the contract approaches expiration and the physical delivery of lumber.

## Options Premiums

Buyers and sellers in the marketplace ultimately determine option prices or premiums. Buyers pay premiums to acquire the rights associated with the particular option. Sellers receive those premiums as compensation for the risk associated with writing the option. An option transaction occurs when the buyer and seller agree on a premium price.

An option premium can be divided into two categories: intrinsic value and time value. A call has intrinsic value when the strike price is below the current futures price. A put option has intrinsic value when the strike price is above the current futures price. When an option has intrinsic value, it is referred to as “in-the-money.” Not all options have intrinsic value, but every option has time value.

### Call Option Example

- Assume:**
1. It is November
  2. Mar Lumber futures are trading @ \$260
  3. Mar 270 call is trading @ \$8/MBF

$$\text{Intrinsic value} + \text{Time value} = \text{Option premium}$$

$$0 \qquad \qquad 8 \qquad \qquad 8$$

In this example, the intrinsic value of the option is zero because the call strike price level is above the current futures price. The option, however, still has a time value of eight due to the possibility of price change between November and late February.

### Put Option Example

- Assume:**
1. It is currently June
  2. Nov Lumber futures are trading @ \$298
  3. Nov 300 put is trading @ \$12/MBF

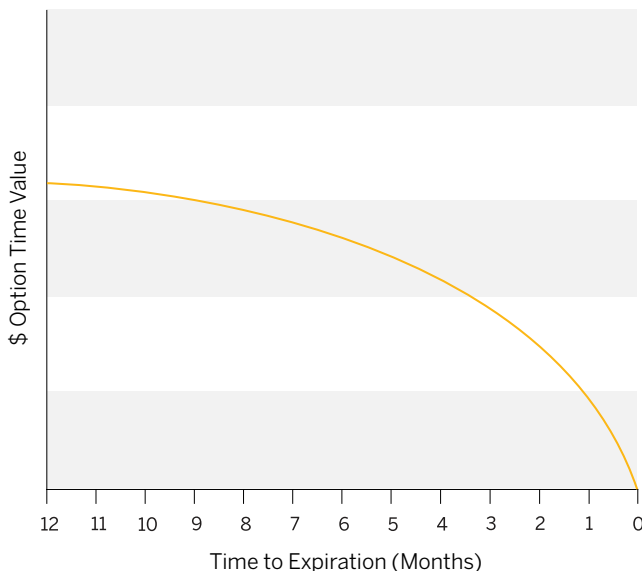
**Intrinsic value + Time value = Option premium**

**2                      10                      12**

In this example, the intrinsic value is two ( $300 - 298$ ), the option's value if it were exercised today. In addition to the intrinsic value, the option also has a time value of 10.

It is important to note that an option is an eroding asset; that is, its time value erodes as the option approaches expiration. This time decay normally accelerates the last 35 to 40 days from expiration, as shown in the graph below.

### Option Time Value Decay



Fundamentally, five factors affect the value of option premiums:

1. Time remaining until option expiration
2. Price volatility of the underlying futures contract
3. Current short-term interest rates
4. Relationship between the underlying futures price and the option exercise level
5. Market expectations

If the outlook for a particular market is uncertain, buyers are willing to pay higher premiums for protection; sellers require higher premiums to accept the risk associated with writing the option contract. Generally, the higher the market volatility and the longer the time until the option expires, the higher the option premium. Conversely, the lower the probability of price change and the fewer the days until the option's expiration, the lower the option's premium.

The current short-term interest rate has a minor effect on the option premium. The options market is in competition for investor capital. Therefore, high interest rates cause option premiums to be slightly lower to offset the attractive high interest-rate yields available elsewhere to investors. Lower interest rates slightly increase option premiums. The relationship between the option's strike price and the futures price can have three forms:

1. In-the-money
2. At-the-money
3. Out-of-the-money

A call option is in-the-money if the underlying futures price is above the strike price of the option; at-the-money if the underlying futures price is the same as the strike price of the option; and out-of-the-money if the futures price is below the option's strike price.

### Call Option Example

Futures Price	Call option with \$250 exercise price
\$260	In-the-money (+\$10)
\$250	At-the-money (0)
\$240	Out-of-the-money (-\$10)

Conversely, a put option is in-the-money if the underlying futures price is below the strike price of the option; at-the-money if the futures price is the same as the strike price of the option; and out-of-the-money if the futures price is above the option's strike price.

### Put Option Example

Futures Price	Put option with \$250 exercise price
\$260	Out-of-the-money (-\$10)
\$250	At-the-money (0)
\$240	In-the-money (+\$10)

As the futures price moves higher and lower, call and put options move in- or out-of-the-money. Assuming equal expiration dates, generally call and put options that are in-the-money have higher premium values than options at-the-money, and at-the-money options have higher premiums than those out-of-the-money.

### Option Price Reporting

Once an option trade occurs, the quote is quickly disseminated through the many news wire services. Up-to-the minute premium price levels also can be obtained by contacting your broker. The settlement prices for CME Group options are listed in many financial newspapers and online data sites.

For example, the premium on a Jul 270 call option closed at 6.60, more commonly referred to as 660 points. A Mar 260 put had a closing premium of 1.60. This quotation table reflects the closing Lumber option premium prices for one particular trading day. As the futures prices change, so would the call and put option premiums.

#### Sample Premium Quotes

##### Lumber (CME Group)

Strike Price	Mar Calls	May Calls	Jul Calls	Mar Puts	May Puts	Jul Puts
260	10.80	12.20	13.00	1.60	2.30	3.00
265	8.00	9.00	9.80	3.00	4.10	4.70
270	4.80	6.00	6.60	4.80	6.00	6.60
275	3.10	4.20	5.00	7.80	8.70	9.50
280	1.70	2.50	3.20	10.60	12.00	12.60

## The Delta Factor

Different strike price levels have different premium prices. Consequently, all options premiums do not move the same as the underlying futures price changes. The deeper a call or put option is in-the-money, the more it responds to futures price changes. The more an option is out-of-the-money, the less it responds to futures price changes. The relationship or ratio between the change in the option premium and the change in the underlying futures price is referred to as the delta factor. The delta is important because it tells an individual how much of an increase or decrease one can expect with a short-term change in the futures price.

### Example

**Assume:** Sep Lumber futures are trading @ \$260

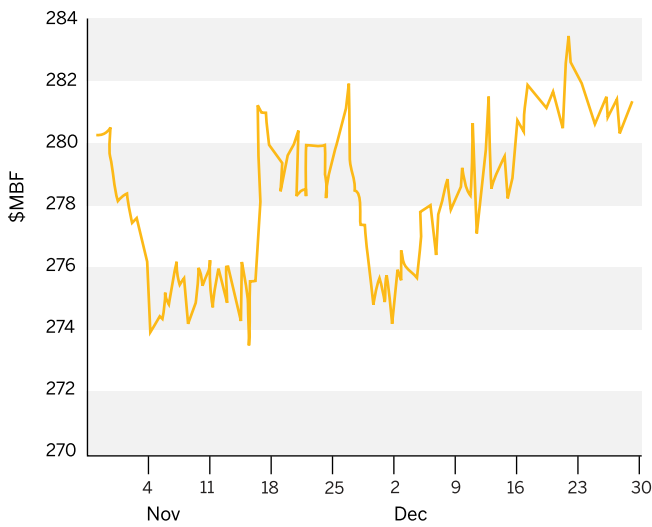
Sep Call Option Strike Prices	Premium Prices	Delta
\$240	20.50	.95
\$250	11.00	.75
\$260	5.00	.50
\$270	3.00	.30
\$280	1.50	.20
\$290	.75	.10

For example, if the futures were to increase by \$1, you would expect each call premium to increase by its delta factor, e.g., the 250 call premium would increase 75 points to a value of 11.75. If the futures were to decline by \$1, you would expect the call premiums to drop by their approximate delta factors.

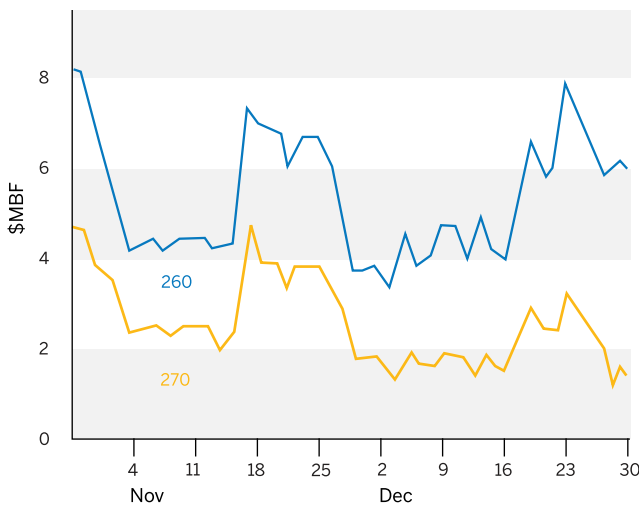
An option's delta is not fixed; it is constantly changing as the futures price rises or falls around the option strike price. Generally, only traders using sophisticated strategies keep track of an option's exact delta. However, most individuals develop a feel for an option delta based on how close the strike price is to the current futures price. For example, an at-the-money option will respond about half as much as the change in the underlying futures contract or is said to have .50 delta.

The following charts depict how the option premiums for both the puts and calls changed in relation to the underlying futures price. Note how the in-the-money options were more responsive to the underlying futures price changes, both up and down.

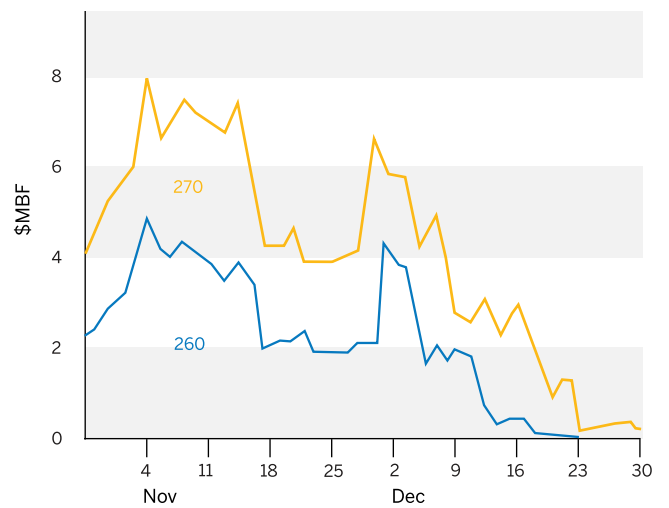
Random Length Lumber Futures



Historical Call Option Premiums



Historical Put Option Premiums





## OPTIONS STRATEGIES

### Short Hedging with Options

A short hedger owns the underlying futures commodity and seeks to forward price that product. The hedger can choose from three basic short hedging strategies:

1. Buying a Put Option
2. Writing a Call Option
3. Initiating a Short Fence (Buying a Put and Selling a Call)

These three strategies offer substantially different price protection and risk exposure.

#### 1. Buying a Put Option

A put option gives the buyer the right, not the obligation, to sell a futures contract at a selected price level. Consequently, a producer can establish a minimum selling price (floor price) for his lumber without substantially limiting the gain if the markets should rally.

#### Example

- Assume:**
1. Nov Lumber futures are trading @ \$260/MBF
  2. A producer buys one Nov 260 put option @ 4/MBF

#### At Option Expiration

Cash/Futures	Gain/Loss 260 Put	Realized Hedge* Sale Price
\$280	-4	\$276
\$270	-4	\$266
\$260	-4	\$256
\$250	+6	\$256
\$240	+16	\$256

\*Realized Hedge Sale Price represents the difference between the cash/futures prices and the option gain/loss. The Sale Price excludes basis and brokerage commissions.

If the market rallies to the \$270-280/MBF level, the lumber can be sold in the cash market at the higher price. The protection provided by the put is not needed, with the loss on the put option limited to the premium paid plus commissions. Remember, there are no performance bond requirements or performance bond calls when buying options.

If the market declines below the 260 strike price level, the option will increase in value, somewhat compensating for the declining cash value of the lumber. Also notice that a floor price is established at the \$256 level – no matter how far the cash and futures prices decline (260 strike price – 4 premium = \$256).

If the futures price remains stable at the \$260 level, the put premium will erode in value as it approaches expiration. Under stable market conditions the put purchase may be viewed as an unnecessary cost. However, the real advantage of buying a put option is the peace of mind it can give a hedger – knowing that a minimum selling price is established while he or she waits or hopes for higher prices.

## 2. Writing a Call Option

The writer (seller) of a call option has the obligation to sell the underlying futures contract at the selected strike price level if the option is exercised by the call buyer. For granting the buyer this right and assuming this obligation, the call writer receives a payment, called the premium.

Selling calls against lumber being produced is typically presented as an income-producing strategy rather than a hedging strategy. Unlike a true hedge position, selling calls only gives the producer limited downside protection by the amount of the premium received and may obligate him or her to accept a short futures position if the market should move above the strike price level.

### Example

- Assume:**
1. Jul Lumber futures are trading @ \$275/MBF
  2. A producer sells one Jul 280 call @ 6/MBF

### At Option Expiration

Cash/Futures	Gain/Loss 280 Call	Realized Hedge Sale Price
\$290	-4	\$286
\$285	+1	\$266
\$280	+6	\$286
\$275	+6	\$281
\$270	+6	\$276
\$265	+6	\$271

If the market should rally sharply to the \$290 level, the writer has limited his or her upside potential by writing the call. The cash lumber will increase in value, but he or she will have to meet performance bond calls on the short call position, much like a futures hedge.

The maximum sale price is calculated by adding the premium received to the strike price level, which, in this example, equals \$286.

If the market drops to the \$265 level, the call expires worthless; the seller keeps the entire premium of six. However, the premium only offsets a portion of the cash market decline. If the market remains stable at the \$275 level, the option erodes in value to the benefit of the call seller, the lumber can be sold at the same \$275 price and the call premium income increases the overall returns.

Writing calls allows the producer to gain on the time decay effect of an option's premium. However, producers using this option strategy normally monitor their positions closely and are well-versed in the fine points of the option market such as volatility, delta and rolling of positions.

### 3. Initiating a Fence (Buying a Put and Selling a Call)

The fence strategy consists of both selling call and buying put options, using out-of-the-money strike price levels. Some hedgers may view the fence strategy as a way to combine the best aspects of strategies #1 and #2 – unlimited downside price protection and reduced premium expense with a limited amount of upside profit potential. The fence strategy establishes a range of possible hedge prices rather than one set price.

#### Example

- Assume:**
1. May Lumber futures are trading @ \$300/MBF
  2. XYZ Lumber Company sells one May 320 call @ 2/MB and buys one May 280 put @ 2/MBF = 0 debit

#### At Option Expiration

Cash/Futures	Gain/Loss 320 Call	Gain/Loss 280 Put	Realized Hedge Sale Price
\$340	-18	-2	\$320
\$320	+2	-2	\$320
\$300	+2	-2	\$300
\$280	+2	-2	\$280
\$260	+2	+18	\$280

If the market rallies sharply to the \$340 level, the upside sale price is limited to \$320. However, compared to the current price of \$300, there is \$20/MBF of upside potential (320 strike price – 300 futures = \$20 upside potential).

If the market drops to the \$280 level, the call premium erodes in value and the put premium increases in value, compensating for the declining cash value of the lumber. Notice that a floor price is established at the \$280 price level – the selected put strike price.

If the market remains stable and seesaws between the two strike price levels (280 to 320), the loss is just the brokerage commission plus or minus cash market changes.

The real advantage to the fence strategy is that the premium outlay is usually small – the hedger defines his or her own profit/loss levels instead of “the market” determining his or her risk exposure.

### Long Hedging with Options

A long hedger will need the underlying commodity – random length lumber – at a later date and seeks to forward price the anticipated purchase. There are three basic long hedging strategies:

1. Buying a Call Option
2. Selling a Put Option
3. Initiating a Long Fence (Buying a Call and Selling a Put)

Each strategy offers substantially different price protection and risk exposure.

#### 1. Buying a Call Option

A call option gives the buyer the right, not the obligation, to buy a futures contract at a selected price level. Consequently, wholesalers and retailers can establish a maximum purchase price for the needed lumber without substantially limiting the gain if the markets should decline.

#### Example

- Assume:**
1. Mar Lumber futures are trading @ \$240/MBF
  2. A producer buys one Mar 240 call option @ 5/MBF

#### At Option Expiration

Cash/Futures	Gain/Loss 240 Call	Realized Hedge Sale Price
\$260	+15	\$245
\$250	+5	\$245
\$240	-5	\$245
\$220	-5	\$225

If the market drops to the \$220 to \$230 level, the lumber can be bought in the cash market at the lower price. The protection provided by the call is not needed, with the loss on the call option limited to the premium paid plus commissions. Remember, there are no performance bond requirements or performance bond calls when buying options.

If the market rallies above the 240 strike price level, the option will increase in value, somewhat compensating for the rising cash cost of the lumber. Also notice that a ceiling price is established at the \$245 level no matter how far the cash and futures prices rise (240 strike price + 5 premium = \$245 futures ceiling price, excluding basis and commissions).

If the futures price remains stable at the \$240 level, the call premium will erode in value as it approaches expiration. Under stable market conditions, the call purchase may be viewed as an unnecessary cost. However, the real advantage of buying a call option is the peace of mind it can give a long hedger, who knows that a maximum purchase price is established while he or she waits or hopes for lower prices.

## 2. Writing a Put Option

The writer (seller) of a put option has the obligation to buy the underlying futures contract at the selected strike price level if the option is exercised by the put buyer. For granting this right and assuming this obligation, the put writer receives a premium payment.

Selling puts against lumber that is going to be purchased is typically presented as a cost-reducing strategy rather than a hedging strategy. Unlike a true long hedge position, selling puts only gives the producer limited upside protection by the amount of the premium received and may obligate him or her to accept a long futures position if the market should move below the strike price level.

### Example

**Assume:** 1. Jul Lumber futures are trading @ \$250/MBF  
2. A company sells one Jul 240 put @ 3/MBF

### At Option Expiration

Cash/Futures	Gain/Loss 240 Put	Realized Hedge Sale Price
\$265	+3	\$262
\$255	+3	\$252
\$245	+3	\$242
\$235	-2	\$237
\$225	-12	\$237

If the market should drop sharply to the \$225 level, the hedger has limited the downside potential (cost saving) by writing the put. The cash lumber can be purchased more cheaply, but he or she will have to meet performance bond calls on the short put position, much like a long futures hedge.

The minimum purchase price is calculated by subtracting the premium received from the strike price level, which, in this example, equals \$237.

If the market rises to the \$255 to \$265 level, the put expires worthless and the put seller keeps the entire premium of three. However, the premium only offsets a portion of the cash market increase. If the market remains stable at the \$250 level, the option erodes in value to the benefit of the put seller. The cash lumber can be bought at the same \$250 price and the put premium income decreases the overall costs.

Writing puts allows the firm to gain on the time decay effect of an option's premium. However, hedgers using this option strategy normally monitor their positions closely and are well-versed in the fine points of the option market such as volatility, delta and rolling of positions.

**3. Initiating a Long Fence (Buying a Call and Selling a Put)**

The long fence strategy consists of both selling put and buying call options using out-of-the-money strike price levels. Some long hedgers may view the fence strategy as a way to combine the best aspects of strategies #1 and #2 – unlimited upside price protection and reduced premium expense with a limited amount of downside profit potential. The fence strategy establishes a range of possible purchase prices rather than one set price.

**Example**

**Assume:** 1. Nov Lumber futures are trading @ \$290/MBF  
 2. A wholesaler sells one Nov 280 put @ \$2/MBF and buys one Nov 300 call @ 2/MBF = 0 debit

**At Option Expiration**

Cash/Futures	Gain/Loss 300 Put	Gain/Loss 280 Put	Realized Hedge Sale Price
\$310	+8	+2	\$300
\$300	-2	+2	\$300
\$390	-2	+2	\$290
\$280	-2	+2	\$280
\$270	-2	-8	\$280

If the market drops to the \$270 level, the downside purchase price is limited to the \$280. However, compared to the current price of \$290, there is \$10 of downside potential (280 strike price – 290 futures = \$10 potential).

If the market rallies to the \$310 level, the call premium increases in value and the put premium decreases in value, compensating for the rising cash cost of the lumber. Notice that a ceiling price is established at the \$300 price level, the selected call strike price.

If the market remains stable and seesaws between the two strike price levels (300 to 280), the loss is just the brokerage commission plus or minus cash market changes.

The real advantage to the fence strategy is that the premium outlay is usually small – the hedger defines his or her own purchase levels instead of the market determining the risk exposure.

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## Options Considerations

Options greatly expand the number of pricing strategies available in marketing lumber. But it is important to fully understand the mechanics and capabilities of options before using them as a pricing tool:

1. Options give hedgers a form of price insurance determined by the strike price of the option plus or minus the premium cost.
2. Buying an option establishes a predetermined financial risk level without limiting profit potential for hedgers and speculators. The amount of options risk is limited to the premium cost.
3. Once you pay for an option, you have no performance bond requirements and therefore NO PERFORMANCE BOND CALLS (the option seller has performance bond requirements). If you decide to exercise your option, you must meet futures contract performance bond requirements.
4. Options are an eroding asset. Assuming a constant futures price, the time value premium erodes as options move toward expiration. Time works against the option buyer and for the option seller.
5. Unlike most forward cash contracts, an option can be offset prior to expiration.

## The Decision to Use Options for Hedging

Many option strategies can be used in forward pricing lumber. Some are simple and involve limited risk.

Others are more complex and require a high degree of sophistication. Individuals using options for the first time may only want to hedge a portion of their inventory/production and then evaluate the results.

In addition to understanding the risks and rewards of a particular option strategy, a hedger still has to keep other factors in mind:

1. The cost of production or storage.
2. The futures and options contract specifications.
3. The local basis – the relationship of cash to futures prices. (Remember that the option contract expires prior to the underlying futures delivery month.)
4. Access to a knowledgeable broker and lender.
5. Written marketing plan and goals.

Companies and individuals who understand all the marketing and pricing tools available have a better chance of having a profitable lumber operation.

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**OPTIONS GREATLY EXPAND  
THE NUMBER OF PRICING  
STRATEGIES AVAILABLE IN  
MARKETING LUMBER.**

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# EXCHANGE FOR PHYSICALS AND THE RANDOM LENGTH LUMBER CONTRACT

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The Random Length Lumber futures contract is narrowly defined so that any person or company knows exactly what is being traded. At the same time, the contract is representative enough so that futures prices and industry prices move in concert. Overall, Random Length Lumber futures with delivery of Western SPF 2x4s do a good job of protecting hedgers from major up or down movements in price.

However, cash lumber products are traded in a wide variety of species, grades, sizes and tallies. Exchange for Physicals (EFP) transactions help lumber companies make or take delivery of specific items and can help accommodate different modes of transportation. Mills and wholesalers can deliver specific inventory items. Lumber retailers, wholesalers, home builders and other lumber users can receive delivery of products that more precisely meet their needs.

## EFP Restrictions

The clarification of transfer of cash merchandise for Random Length Lumber futures before and after termination of trading is carefully regulated. It may only be deliverable species dimension lumber with variances for grade/size and tally; provided however, that the quantities transferred both before and after termination of trading are comparable to the quantities specified in the futures contract. Further, there must be an unconditional transfer of title to the buyer of the cash and the seller of the futures contract evidenced by, at a minimum, payment for the cash merchandise.

The shipment or transfer of the cash merchandise should be delivered to a destination normally used by the buyer or one that is common to the cash market. The buyer must retain ownership of the transferred product for personal use or resale to customers and may not resell the product either directly or indirectly to the original seller.

EFPs prior to termination of trading may involve non-deliverable species with variances for grade/size and tally, as long as the trading unit equals from 105,000 to 115,000 board feet. After termination of trading, variances for grade/size and tally are allowed; however, the species of lumber delivered must meet contract specifications.



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Examples of items that can be bought or sold include the following:

**Before termination of trading:**

110 MBF of Eastern Spruce 2x4s trucked to destination from a Quebec mill

115 MBF of SYP 2x4s, 2x8s and 2x10s picked up at mill site by a home builder

**After termination of trading:**

110 MBF of higher grade random length SPF 2x4s delivered from a BC mill

110 MBF of Inland Hem-Fir 2x4s bought at a premium of \$50 per MBF from an Idaho mill

105 MBF of Western SPF 2x6s stored by a wholesaler in a Minneapolis reload center

### How the EFP Process Works

First, either the buyer or the seller can initiate the process by having their brokers locate another broker whose client is willing to take the opposite position. Then, the buyer must be willing to transfer payment (an amount that is agreed upon by both parties) for the kind of lumber the seller agrees to deliver.

Caution: Prior to termination of trading, once the two parties agree to an EFP transaction, CME Group does not ensure compliance in regard to species of lumber. CME Clearing will require proof of payment and may monitor whether ownership is retained for personal use or to resell to customers.

# GLOSSARY OF OPTIONS TERMS

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**At-the-money option** – Call and put options are at-the-money when the price of the underlying futures is the same as or near the strike price.

**Call option** – An exchange-traded contract that gives the purchaser the right, but not the obligation, to buy the futures contract underlying the option at the stated strike price prior to the expiration date of the option.

**Delta** – The ratio between the change in an option's premium and the change in the underlying futures price.

**Exercise or strike price** – The price at which one may purchase or sell the underlying futures contract upon the exercise of an option.

**Expiration date** – The last day that an option may be exercised or offset into the underlying futures contract.

**Fence** – A term used to describe an option hedging strategy that uses a combination of out-of-the-money call and put positions.

**In-the-money option** – A call option is in-the-money when the price of the underlying futures contract is above the strike price. A put option is in-the-money when the price of the underlying futures contract is below the strike price. An option that is in-the-money has intrinsic value.

**MBF** – A unit of lumber measure that represents one thousand board feet.

**Out-of-the-money option** – A call option is out-of-the money when the strike price is significantly above the current price of the underlying futures contract. A put option is out-of-the-money when the strike price is significantly below the current price of the underlying futures contract. The premium value of an out-of-the-money option represents all time value.

**Premium** – The amount agreed upon between the purchaser and seller for the purchase or sale of a commodity option. Purchasers pay the premium; writers receive the premium.

**Purchaser/buyer** – An individual who buys an option.

**Put option** – An exchange-traded contract that gives the purchaser the right, but not the obligation, to sell the futures contract underlying the option at the stated strike price prior to the expiration date of the option.

**Seller/writer** – An individual who sells an option. In exchange for the premium, the option seller accepts the obligation to assume a position, either long or short, in the futures market if the buyer chooses to exercise the option.

**Underlying futures contract** – The futures contract that may be purchased or sold upon the exercise of the option.

# GETTING STARTED

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Before trading futures or options on Random Length Lumber, a company or individual must have a commodity broker.

Commodity brokers can be located in branch offices of one of CME Clearing firms or in independent brokerage houses (IBs) associated with a CME Clearing firm. It is important to shop around to find a broker that is the right fit for the company or individual.

Once the company or individual has found a broker with whom they feel comfortable and who understands the company's or individual's trading plan, the company or individual will need to open an account. This requires signing a customer security deposit statement, which binds an individual customer or an organization to make good on any losses incurred in the course of trading. In addition, a risk disclosure document needs to be signed that indicates that the customer understands the risks of futures and options trading. Then, once the customers have deposited the required amount of performance bond, they may begin trading — either through traditional open outcry trading or electronically through any number of front end systems accessing the CME Globex trading platform.

Today's greater need for risk management and hedging tools has required investors to become increasingly sophisticated about futures and options on futures products. In light of growing global demand and expanding electronic accessibility, CME Group Agricultural Commodities are generating increased opportunities for hedgers and speculators in these markets. With customers around the world, a diverse product line, deep, liquid markets, and strategic alliances with other exchanges, CME Group is truly a global marketplace. Why not make it yours?

For additional information about CME Group Commodity products, please visit our Web site at [www.cmegroup.com](http://www.cmegroup.com). You will be able to access a number of other brochures and marketing and education materials that can answer your questions or help you to begin trading these products. Additionally, if you would like to talk to a CME Group representative, please call our Customer Service Line, 800 331 3332. Outside the United States, please call 1 312 930 2316.

# GETTING STARTED ON CME GLOBEX

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Trading random length Lumber on CME Globex is efficient and easily accessible. Orders are placed through a connected front-end application and are immediately received and acknowledged. The orders are then matched at the CME Globex trading engine with match/fill information immediately disseminated to the trading parties, CME Clearing and the market at large. There are a variety of ways to trade electronically on the CME Globex platform. Execute orders electronically via a broker, who will place the CME Globex orders on your behalf. Or, place orders and receive market data directly through a proprietary trading system or a variety of third-party software applications available from participating Futures Commission Merchants (FCMs), Introducing Brokers (IBs) and Independent Software Vendors (ISVs).

## Connectivity methods

Connectivity is available direct to CME Group or indirect via an FCM, IB or third-party data center. For more information on indirect connectivity, contact your FCM, IB or third-party data center. Direct connectivity to CME Group is initiated through the following steps:

1. Contact CME Globex Account Management (GAM) to be assigned a personal GAM account manager and begin the connectivity process:
  - U.S.: 312 634 8700
  - Europe: 44 20 7796 7100
  - E-mail: [globexaccountmanagement@cmegroup.com](mailto:globexaccountmanagement@cmegroup.com)
2. Review and complete the CME Globex Connection Agreement
3. Select a network connectivity option:
  - Client DIRECTLink – Connect via respective wide-area networks
  - Client INTERNETLink – Connect via the Internet using a secure VPN tunnel
  - CME Globex Hubs – Connect via physical circuits installed at CME Group Hub facilities located in Europe and Singapore
4. Schedule production (connectivity) date
5. Complete preproduction testing

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For additional information regarding CME Globex, please visit [www.cmegroup.com/globex](http://www.cmegroup.com/globex).

### To access CME Globex, you must:

- Identify a CME Group Class A clearing firm that will be guaranteeing your orders
- Have your clearing firm approve your trading application
- Choose to connect directly to CME Globex or indirectly via an FCM, IB or data center

# CME GROUP COMMODITY PRODUCTS

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Prices of these primary products are subject to factors that are difficult or impossible to control, such as weather, disease and political decisions. In addition, they are also short-term fixed-supply products offered in a context of growing worldwide demand and global economic expansion. As such, CME Group Commodity products serve commodity producers and users seeking risk management and hedging tools, alongside funds and other traders to capitalize on the extraordinary opportunities these markets offer.

CME Group offers the widest range of commodity futures and options of any U.S. exchange, with trading available on the following products:

## Livestock

- Feeder Cattle futures and options
- Live Cattle futures and options
- Lean Hogs futures and options
- Frozen Pork Belly futures and options

## Lumber and Wood Pulp

- Random Length Lumber futures and options
- Hardwood Pulp futures and options
- Softwood Pulp futures and options

## Grains and Oilseeds

- Corn futures and options
- Mini-sized Corn futures
- Mini-sized Soybean futures
- Mini-sized Wheat futures
- Oat futures and options
- Rough Rice futures and options
- South American Soybean futures
- Soybean futures and options
- Soybean Crush futures and options
- Soybean Meal futures and options
- Soybean Oil futures and options
- Wheat futures and options

## Dairy

- Butter futures and options
- Cash-settled Butter futures
- Class III Milk futures and options
- Class IV Milk futures and options
- Dry Whey futures
- Nonfat Dry Milk futures and options

## Commodity Indexes

- Dow Jones-AIG Commodity Index Excess Return futures
- S&P Goldman Sachs Commodity Index (GSCI) futures and options
- S&P GSCI Excess Return futures

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For more information on  
CME Group Commodity products,  
visit [www.cmegroup.com/commodities](http://www.cmegroup.com/commodities).

Futures trading is not suitable for all investors, and involves the risk of loss. Futures are a leveraged investment, and because only a percentage of a contract's value is required to trade, it is possible to lose more than the amount of money deposited for a futures position. Therefore, traders should only use funds that they can afford to lose without affecting their lifestyles. And only a portion of those funds should be devoted to any one trade because they cannot expect to profit on every trade.

All references to options refer to options on futures.

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