



# The Treasury Futures Delivery Process

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**Introduction**

CBOT<sup>®</sup> Treasury futures are contractual obligations to either buy (take delivery of) or sell (make delivery of) the underlying US Treasury bonds or notes. As such, the delivery process exerts significant influence on the prices at which Treasury futures contracts trade, even though most contracts are offset prior to expiration.

This booklet describes the Treasury futures delivery process and explains the rules and procedures that govern delivery. It is intended as an introduction for those who wish to better understand the mechanics of delivery and how delivery can affect pricing of Treasury futures.

The CBOT offers a number of other publications on Treasury futures and options. For a complete description of contract specifications, as well as a list of publications available, please visit the Exchange's web site ([www.cbot.com](http://www.cbot.com)).

### **The Significance of Delivery**

Futures are legally binding contracts, and anyone with an outstanding position in an expiring Treasury futures contract at the end of the contract's expiration month must be prepared to fulfill the contractual obligation to buy or sell the underlying Treasury securities.

Hedgers – those who use Treasury futures chiefly to lay off interest rate risk exposure rather than to acquire it – are rarely interested in using futures as a means of transacting Treasury securities. For this reason, hedgers typically liquidate their outstanding futures positions before these contracts enter their delivery cycle.

The vast majority of such liquidations are rolled. That is, the offsetting trades in the expiring contract are combined with the establishment of corresponding new positions in the deferred contract month. For example, a market participant with an outstanding long position in an expiring futures contract would sell an equal number of contracts for the delivery month, thus netting his position to zero. Simultaneously, he would establish a new long position in the deferred contract, equivalent to the position in the expiring contract that he has just offset. The practice of rolling is so prevalent that less than one percent of all financial futures traded at the Chicago Board of Trade result in the actual delivery of financial instruments.

Still, while the CBOT's Treasury futures complex is not organized primarily as a marketplace for the transfer of Treasury securities, delivery does occur. The ever-present possibility of delivery is the fundamental link between futures contract prices and cash market prices. The delivery process itself determines the exact amount to be paid to the seller by the buyer for taking delivery.

### The Instruments Behind Treasury Futures Contracts

Each CBOT Treasury futures contract establishes exact specifications for the financial instruments a short can deliver. The deliverable securities – Treasury bonds, and 10-year, 5-year, and 2-year Treasury notes – are debt instruments backed by the full faith and credit of the US government. (Note, however, that despite this linkage, Treasury futures contracts are not obligations of the US Treasury and therefore do not share the full faith and credit guarantee that supports Treasury bills, notes, and bonds.)

#### Exhibit 1

#### Deliverable Grade for CBOT US Treasury Futures

Futures Contract	Contract Size (Face Value)	Deliverable Grade
Treasury Bonds	\$100,000	US Treasury bonds. Both maturity date and, if callable, the first call date must be no less than 15 years from the first day of the contract expiration month.
10-Year Treasury Notes	\$100,000	US Treasury notes. Remaining time to maturity must be no less than 6 years 6 months and no greater than 10 years from the first day of the contract expiration month.
5-Year Treasury Notes	\$100,000	US Treasury notes. Remaining time to maturity must be no less than 4 years 2 months and no greater than 5 years 3 months from the first day of the contract expiration month.
2-Year Treasury Notes	\$200,000	US Treasury notes. Original term to maturity must be no greater than 5 years 3 months from the first day of the contract expiration month. Remaining time to maturity must be no less than 1 year 9 months from the first day of the contract expiration month and no greater than 2 years from the last day of the contract expiration month.

Any Treasury security may be delivered to fulfill the contractual obligations of its corresponding CBOT Treasury futures contract as long as it meets the maturity requirements and other criteria for delivery suitability spelled out in the contract specifications. Typically, several Treasury securities are eligible for delivery into each contract. The precise number varies with the issuing needs of the US Treasury.

For a summary of delivery grade criteria, see Exhibit 1 and **Appendix – Contract Specifications**. For the authoritative regulations specifying delivery grade criteria, see the pertinent chapters in the CBOT Rulebook: Chapter 18 for Treasury Bond futures, Chapter 23 for 2-Year Treasury Note futures, Chapter 24 for 10-Year Treasury Note futures, and Chapter 25 for 5-Year Treasury Note futures. The CBOT Rulebook can be viewed at [www.cbot.com](http://www.cbot.com).

### **The Role of the Clearing Firm**

Procedures for making and taking delivery on Treasury futures are established by the Exchange. They follow predetermined steps that must be completed within a specific time frame to comply with the terms of the contractual obligation. As explained below, delivery on Treasury futures is a three-day process. (See **The Timetable for Delivery**.) The three days provide time for the parties to the trade -- the buyer, the seller, their respective clearing firms, and the Clearing Services Provider -- to make the necessary notifications and delivery arrangements. The process is completed when the title to an underlying Treasury issue is transferred from seller to buyer and the buyer pays the appropriate contract invoice price, in full, to the seller.

Adherence to this timetable is critical for all involved. Unlike settlement practices in the cash government securities market, the Treasury futures delivery process does not support a failure-to-deliver capability. Any failure to make or take delivery on CBOT Treasury futures, in complete accord with contract specifications, can result in significant economic and regulatory penalties, both to the failing party and to the failing party's clearing firm.

The clearing firms' role in the delivery process is pivotal because

*deliveries do not occur directly between customers. Rather, deliveries occur between clearing firms, acting as agents for their customers.*

The clearing firm is responsible to the Exchange and to the Exchange's Clearing Services Provider for guaranteeing the performance of its account holders in fulfilling the terms of the futures contract.

Among the practical implications is that a clearing firm taking delivery on a long position is responsible for (a) distributing the Treasury securities that it receives to its accounts who are the ultimate owners of the long contract position, and (b) collecting from those same accounts the monies required to meet the contract invoice price for the Treasury securities delivered. Conversely, a clearing firm making delivery on a short position is responsible for (a) ascertaining that its accounts who are the ultimate holders of the short position have furnished deliverable-grade Treasury securities in sufficient quantity to meet contract requirements and (b) distributing to those same customer accounts the monies it receives as payment for the Treasury securities it delivers.

## **The Clearing Services Provider's Guarantee**

If a clearing firm's account fails to fulfill the terms of a CBOT Treasury futures contract, the clearing firm itself is financially responsible to the CBOT's Clearing Services Provider. The current Clearing Services Provider for the CBOT is the Clearing House of Chicago Mercantile Exchange Inc.

Never in the modern history of the CBOT – and certainly not since the introduction in 1975 of financial futures at the CBOT – has a clearing firm failed to meet this responsibility. However, in the event that a clearing firm were to fail in guaranteeing the performance of a defaulting account, the CBOT's Clearing Services Provider would step in as the ultimate guarantor of the integrity of the delivery process. A clear understanding of the extent of this guarantee is useful.

*The Clearing Services Provider's guarantee:* If a clearing member fails to fulfill its specific delivery obligations regarding a CBOT Treasury futures contract, the sole obligation of the Clearing Services Provider "is to pay reasonable damages proximately caused by the default..."

*Limits on the guarantee:* In no event is the Clearing Services Provider obligated to

pay any damages greater than the difference between the delivery price of the specific commodity and the reasonable market price of such commodity at the time delivery is contractually required; or

make or take delivery of the actual commodity; or

pay any damages relating to the accuracy, genuineness, completeness, or acceptableness of certificates, instruments, or other similar documents; or

pay any damages relating to the failure or insolvency of banks, depositories, warehouses, or similar organizations, or entities that may be involved with a delivery.

The Clearing Services Provider's guarantee also entails responsibilities on the part of clearing firms:

The Clearing Services Provider has no obligation or liability to any clearing member (or any other person) relating to a failure to fulfill a delivery obligation unless it is notified by the non-defaulting clearing member of such failure as soon as possible, but in no event later than sixty minutes after the time the delivery obligation was to have been fulfilled according to CBOT rules.

All contract delivery obligations of one clearing member to another which are not fulfilled by the clearing member shall be deemed an obligation of the defaulting clearing member to the Clearing Services Provider. These obligations must be fulfilled to the Clearing Services Provider within sixty minutes of the time the obligations were required to be fulfilled to the non-defaulting clearing member.

The authoritative sources for a description of the Clearing Services Provider's guarantee are contained in Rule 771 of Chapter 7 of Chicago Mercantile Exchange Inc.'s Rulebook, which can be viewed at [www.cme.com](http://www.cme.com), and in CBOT Regulation 1050.01, which is incorporated by reference in the contract specifications for each CBOT Treasury futures contract.



## The Timetable for Delivery

The timetable for delivery in an expiring futures contract is determined by two distinct but complementary functions: the long's declaration of positions, and the short's declaration and delivery on contract. Exhibit 2 summarizes how these two functions mesh. (Note that the details of this timetable, e.g., times of day, may be subject to change insofar as the Exchange and the Clearing Services Provider periodically review the delivery process and, when necessary, modify it to enhance its efficiency.)

### Exhibit 2

#### The Delivery Timetable for CBOT Treasury Futures

(All times refer to Chicago time.)

	<b>Short</b>	<b>Clearing Services Provider</b>	<b>Long</b>
<b>First Position Day</b>  (Two business days prior to the named delivery month.)			By 8:00 pm, two days prior to the first day allowed for deliveries in expiring futures, clearing firms report to the Clearing Services Provider all open long positions, by origin (i.e., house or customer) and trade date.
<b>Day 1: Intention Day</b>	By 8:00 pm, the short clearing firm notifies the Clearing Services Provider that it intends to make delivery on an expiring contract. Once the Clearing Services Provider has matched the short clearing firm with the long clearing firm(s), this declaration cannot be reversed.	By 10:00 pm, the Clearing Services Provider matches the delivering short's clearing firm to the clearing firm (or firms) with long positions having the oldest trade date(s). Each party – long and short – is informed of the opposite party's intention to make or take delivery.	By 8:00 pm all clearing firms report to the Clearing Services Provider all open long positions in expiring futures contracts, by origin (i.e., house or customer) and trade date.
<b>Day 2: Notice Day</b>	By 2:00 pm (3:00 pm on Last Notice Day), using calculations based on the expiring contract's Intention Day settlement price, the short clearing firm invoices the long clearing firm through the Clearing Services Provider.		By 4:00 pm, the long clearing firm provides the short clearing firm with the name and location of its bank.
<b>Day 3: Delivery Day</b>	Short and long clearing firms have until 9:30 am to resolve invoice differences. By 10:00 am, the short clearing firm deposits Treasury securities for delivery into its bank account, and it instructs its bank to transfer the securities, via Fed wire, to the long clearing firm's account versus payment no later than 1:00 pm.		By 7:30 am the long clearing firm makes funds available and notifies its bank to remit the funds and accept Treasury securities. By 1:00 pm, the long clearing firm's bank has accepted the Treasury securities and, at the same time, has remitted the invoice amount via Fed wire to the short clearing firm's account.

### Long's Declaration of Positions

Before the delivery process can begin, each clearing firm must declare the long positions held by its accounts. The clearing firm does so by notifying the Clearing Services Provider on **First Position Day** of all outstanding long positions, ordered by the dates on which they were established, and aggregated by the origin of their ultimate owners (i.e, either customer accounts or house accounts).

*Example:* A clearing firm has several accounts who have entered into long positions in Dec 05 Treasury Bond futures on various dates, as follows –

Monday, 17 October	15 customers	3 house accounts
Tuesday, 18 October	19 customers	2 house accounts

Accordingly, at the end of First Position Day for December 2005 delivery (Tuesday, 29 November), the clearing firm reports to the Clearing Services Provider two long position statistics for the 17 October vintage date: "Customer", the sum of contracts held in the 15 customer accounts; and "House", the sum of contracts held in the 3 house accounts. Similarly, for the 18 October vintage date the clearing firm reports two long position statistics: "Customer", the sum of contracts held in the 19 customer accounts; and "House", the sum of contracts held in the 2 house accounts.

First Position Day is two business days before the first business day of the contract expiration month. From First Position Day through the end of the expiration month, all clearing firms are required to continue reporting on a daily basis all open long positions in the expiring futures. As in the example above, each clearing firm's daily report to the Clearing Services Provider will reflect open long positions grouped by vintage and origin (customer or house).

### Short's Declaration and Delivery on Contract

Much of what makes the Treasury futures delivery process financially interesting, especially for cash-futures arbitrage, concerns when and how the owner of the short position opts to make delivery.

*Timing of Delivery:* The owner of a short position in an expiring futures contract holds the right to decide when to initiate the three-day delivery sequence. He can start the process essentially at any time during the contract's expiration month.

*Quality of Delivery:* More important, the seller of the futures contract holds the right to choose which Treasury issue he will deliver in fulfillment of contract. As long as the issue meets the Exchange's criteria for goodness of delivery, the buyer must accept the seller's choice. Logically, the seller will want to deliver the security that costs the least to buy and hold until delivery. At any given time some deliverable-grade issues will be more economical to acquire than others. Knowing this, market participants tend to track both the price movements and the availability of the issue that is the most economical to deliver – commonly referred to as the cheapest to deliver – as well as the price movements and availability of other eligible issues that are potential alternatives. The rankings of securities in terms of their attractiveness for delivery can change throughout the life of a futures contract. At any particular time, either at expiration or before, a Treasury futures contract's price reflects the prices of the deliverable-grade issues that market participants expect will play a role in the delivery process.

As Exhibit 2 shows, the Treasury futures delivery process spans three business days. The first is **Intention Day**, when the short instructs his clearing firm to notify the Clearing Services Provider that he plans to make delivery.

With Treasury Bond futures, 10-Year Treasury Note futures, or 5-Year Treasury Note futures, a short position holder can declare intent to deliver at any time from the second business day prior to the contract expiration month (**First Intention Day**) through, and including, the third-to-last business day of the expiration month (**Last Intention Day**).

For 2-Year Note futures, First Intention Day is likewise the second business day prior to the contract expiration month. However, Last Intention Day is the first business day of the following month. (See Differences Among Bond and Note Futures below.)

*Note that for all Treasury futures First Intention Day for short position holders coincides with First Position Day for long position holders.*

The Clearing Services Provider then matches a clearing firm (or firms) representing long position holders with the clearing firm that has declared intent to deliver on short positions. (The next section, **Delivery Matching**, discusses how shorts and longs are matched.) By 10:00 pm Chicago time, both the clearing firm representing the short and the clearing firm (or firms) representing the longs are notified, by electronically delivered

assignment notice reports, of the opposite parties to which they have been matched for delivery. The same information is made available to clearing firms in the CBOT's Issues and Stops Report, published daily around 10:00 pm on [www.cbot.com](http://www.cbot.com).

On the second day in the three-day sequence -- **Notice of Intention Day**, or simply **Notice Day** -- the short's clearing firm prepares an invoice for the clearing firm(s) to which it has been matched to make delivery, detailing the Treasury security (or securities) that the short will deliver. Essential features of this invoice include the securities' CUSIP numbers, coupon rates, and maturity dates, and the amount of payment required for delivery, as determined by the futures contract price. (See **Invoicing for Treasury Futures Deliveries** below.) The invoice must be delivered to the long's clearing firm prior to 2:00 pm Chicago time on Notice Day (or 3:00 pm Chicago time on **Last Notice Day**, the business day following Last Intention Day). The long clearing firm must provide the short clearing firm with banking notification by 4:00 pm Chicago time.

In fulfilling any single Treasury futures contract, the short is required to declare and deliver \$100,000 face value of one and only one Treasury issue. The short is not permitted to fulfill an individual futures contract with fractional delivery, i.e., by delivering a mixed portfolio of Treasury securities (e.g., \$40,000 face value of one issue and \$60,000 face value of another). However, a short making delivery on several Treasury futures contracts is allowed to deliver different securities into different contracts, as long as these securities are all deliverable grade.

*Example:* A trader delivering on twenty 5-Year Treasury Note futures would be permitted to use \$1.8 million face value of one Treasury note to fulfill eighteen contracts and \$200,000 face value of another Treasury note to make delivery on the remaining two contracts, as long as both notes are eligible for delivery into the expiring contract.

On **Delivery Day** -- the third day and final day in the sequence -- the Treasury security is delivered to the long's clearing firm (acting as agent for the long) by the short's clearing firm (acting as agent for the short), in exchange for payment of the invoice amount. The short's clearing firm must have the invoiced Treasury security in its bank account by 10:00 am Chicago time, and must deliver by 1:00 pm Chicago time.

### Differences Among Bond and Note Futures

For all Treasury futures, First Intention/Position Day is two business days before the first business day of the contract expiration month, and First Delivery Day is the first business day of the expiration month.

As noted above, for Treasury Bond, 10-Year Treasury Note, and 5-Year Treasury Note futures, Last Intention Day is the third-to-last business day of the contract expiration month, Last Notice Day is the next-to-last business day, and Last Delivery Day is the last business day. Note that, although the delivery process continues until the expiration month's end, trading in the expiring contract stops at the end of the seventh business day before the last business day of the month.

For 2-Year Treasury Note futures, both the last trading day and the conclusion of the delivery cycle differ from what applies to other Treasury futures, owing to the peculiarities of the US Treasury's issuance calendar. The US Treasury customarily auctions and issues a new 2-year note each month, dated and for settlement on the last day of each month. If this is not a business day, the new note's issue date is typically the first business day of the following month. (Issue dates and dated dates are not always identical. Specifics are established each time the US Treasury announces that it will auction a new 2-year note.)

Contract specifications for 2-Year Treasury Note futures permit the 2-year note auctioned during the expiration month to be delivered into the expiring contract. For this reason, the last day of trading in a 2-Year Treasury Note futures contract is the last business day of the contract expiration month. Moreover, the delivery period for an expiring 2-Year Treasury Note contract is specially defined so as to include the three business days that follow the last trading day. Thus, Last Intention Day for an expiring 2-Year Treasury Note futures contract is one business day after the last day of trading, Last Notice Day is two business days after, and Last Delivery Day is three business days after.

*Example:* Consider December 2005. Its first business day is Thursday, 1 December. Its last business day is Friday, 30 December. The Exchange observes the Christmas holiday on Monday, 26 December, and the New Year's holiday on Monday, 2 January 2006. Given this, the critical dates in the delivery process for Dec 05 Treasury futures are as shown in Exhibit 3.

#### Exhibit 3

#### Critical Dates in the Delivery Process for Treasury Futures Expiring December 2005

	<b>Bond, 10-Year, and 5-Year</b>	<b>2-Year</b>
<b>First Intention/Position</b>	Tues, 29 Nov	Tues, 29 Nov
<b>First Notice</b>	Wed, 30 Nov	Wed, 30 Nov
<b>First Delivery</b>	Thurs, 1 Dec	Thurs, 1 Dec
<b>Last Trading</b>	Tues, 20 Dec	Fri, 30 Dec
<b>Last Intention</b>	Wed, 28 Dec	Tues, 3 Jan 2006
<b>Last Notice</b>	Thurs, 29 Dec	Wed, 4 Jan 2006
<b>Last Delivery</b>	Fri, 30 Dec	Thurs, 5 Jan 2006

To make the preceding example concrete, consider the following highly simplified illustration. (Precisely how the Clearing Services Provider matches longs with shorts is discussed in the next section, **Delivery Matching**.)

***Day 1: Intention Day***

1. Mr Davis informs FCM D – the futures commission merchant that serves as his clearing firm and at which he maintains a customer account – that he intends to deliver on his short position of 100 10-Year Treasury Note (TY) futures. For simplicity, suppose that on this particular Intention Day Mr Davis is FCM D’s only account to declare intent to deliver, and that FCM D is the only clearing firm to declare intent to deliver to the Clearing Services Provider.
2. By 8:00 pm Chicago time, FCM D has notified the Clearing Services Provider of its intention to deliver on 100 TY futures for customer account. Note that FCM D does not identify Mr Davis, either to the Clearing Services Provider or to anyone else. It identifies only the category of origin of ownership (either “customer account” or “house account”).
3. Likewise, by 8:00 pm Chicago time, all clearing firms have reported their outstanding long positions, sorted by vintage and origin, to the Clearing Services Provider. Suppose, again for simplicity, that the oldest vintage positions are held at two other clearing firms: FCM P, with a long position of 40 contracts for customer account (all owned by Mr Parker); and FCM C, with a long position of 60 contracts for house accounts.
4. The Clearing Services Provider matches FCM D’s short position with the oldest dated outstanding long positions. That is, FCM D’s 100-contract short position is matched with the 60 contracts held in long house positions at FCM C and the 40 contracts held in long customer positions at FCM P.
5. By 10:00 pm Chicago time, the Clearing Services Provider has notified FCM P that FCM D will deliver into its oldest-vintage long position of 40 contracts for customer account. Likewise, the Clearing Services Provider has notified FCM C that FCM D will deliver into its oldest vintage long position of 60 contracts for house account.
6. Around 10:00 pm Chicago time, the CBOT publishes the daily Issues and Stops Report on [www.cbot.com](http://www.cbot.com). The Issues and Stops Report lists those clearing firms, and the aggregate number of contracts for each clearing firm, that have been matched that day for making or taking delivery. Note that the Issues and Stops Report does not disclose the identities of account holders, nor does it say anything about which specific Treasury issues will be tendered for delivery. The report displays only the information shown in Exhibit 4.

Exhibit 4  
Information in the CBOT Daily Issues and Stops Report

FCM...	...stops (takes delivery on) or issues (makes delivery on)...	...number of TY futures contracts...	...on behalf of customer account or house account.
C	stops on	60	for house
D	issues on	100	for customer
P	stops on	40	for customer

Note: Limits on the FCM's Role in Matching Short with Long

Nothing prevents a single clearing firm from representing both sides of a match. Suppose, for example, that instead of clearing through different firms, Mr Davis and Mr Parker both clear through FCM D. Then in Step 3 above FCM D would be matched with itself to make and take delivery on 40 contracts. However, for this to occur the short and long positions at FCM D would have to be matched by the Clearing Services Provider – like any other pair of short and long positions – according to the procedures described below. (See **Delivery Matching**.) FCM D cannot, on its own, match its accounts with short positions to its accounts with long positions. In this example, it cannot directly match Mr Davis for delivery to Mr Parker.

**Day 2: Notice Day**

1. Mr Davis informs FCM D which Treasury notes he will use to fulfill delivery on his 100 contracts. FCM D then prepares and delivers invoices to FCM C and FCM P informing them of the details of these securities (i.e., CUSIP numbers, coupon rates, maturity dates) and the dollar amounts it should receive as payment against delivery. These invoices are delivered to FCM C and FCM P by 2:00 pm Chicago time. (On Last Notice Day short position holders making delivery have until 3:00 pm Chicago time to deliver the invoices.)
2. By 4:00 pm Chicago time, FCM C and FCM P furnish FCM D with instructions for delivery – specifically, the details of their respective bank accounts, to which FCM D will deliver Davis's Treasury securities.

**Day 3: Delivery Day**

1. FCM C and FCM P must make funds available by 7:30 am Chicago time, and must then instruct their respective banks to remit payment to FCM D and to accept delivery of Treasury securities.
2. FCM D is responsible for ascertaining that Mr Davis's Treasury securities are in its bank account, in the correct amounts, no later than 10:00 am Chicago time.
3. By 1:00 pm Chicago time, FCM D instructs its bank to wire the correct securities, in the correct amounts, to FCM C and FCM P. Simultaneously, FCM C and FCM P accept the securities and remit the correct invoice amounts to FCM D's bank account.

## **Delivery Matching**

At the end of any Intention Day during the expiration month, the Clearing Services Provider matches long positions with short positions that have declared intent to deliver. At the outset, a clear definition of "position" is useful.

From the standpoint of the Clearing Services Provider, a short position is defined in terms of a unique combination of two identifiers: clearing firm and origin (either house or customer). A long position is defined in terms of a unique combination of three identifiers: clearing firm, origin, and position vintage (i.e., the date on which the position was established or, equivalently, the length of time the position has been held).

From the standpoint of the clearing firm, the short position on any given Intention Day is simply the sum of all positions of its accounts who are short the expiring futures and who, on that day, have declared intent to deliver. Long positions are the sum, for each vintage date and origin category, of all outstanding long positions in the expiring contract held by the clearing firm's accounts.

In what follows, an obvious but nonetheless important point to bear in mind is that *the Clearing Services Provider matches longs and shorts for delivery without regard to what specific Treasury issue or issues will be delivered*. The short position owners who have declared intent to deliver are not obliged to say which particular Treasury issue or issues they will tender for delivery until Notice Day – the day after shorts and longs have been matched with each other for delivery.

The matching process proceeds in two steps. The first is determination of the pool of long positions that are eligible to be matched against the short positions that have declared intention to deliver. The second is random matching of the eligible long positions against these short positions.

The following example illustrates.



### Step 1: Determination of the Eligible Long Position Pool

On a given Intention Day during a Treasury futures contract's expiration month, three clearing firms – F, G, and H – declare to the Clearing Services Provider that they intend to deliver on short positions totaling 2,000 contracts. All three make their declarations prior to the 8:00 pm Chicago time deadline – just under the wire, in FCM H's case. (Exhibit 5 illustrates.)

#### Exhibit 5

#### Clearing Firms Declaring Intention to Deliver on Short Positions

Clearing Firm and Account Origin	Number of Contracts Declared for Delivery	Time of Delivery Declaration to Clearing Services Provider (pm, Chicago time)
F - Customer	900	4:00
G - Customer	100	4:01
H - House	1,000	7:59
Total	2,000	

The Clearing Services Provider must assemble a pool of eligible long positions containing a total of 2,000 contracts to match for delivery from these short positions.

Recall that by 8:00 pm Chicago time all clearing firms have reported their outstanding long positions, classified by origin and vintage, to the Clearing Services Provider. Suppose that on this particular Intention Day the Clearing Services Provider's long position stack, sorted by vintage, is as shown in Exhibit 6 (with Date 1 representing the oldest vintage, Date 2 the second oldest vintage, and so on).

To build the eligible long position pool, the Clearing Services Provider begins with outstanding long positions established on the oldest vintage date, Date 1. There are three of these, totaling 290 contracts, not enough to cover the 2,000 short contracts declared for delivery.

The Clearing Services Provider admits the three Date 1 vintage long positions to the eligible long position pool, then proceeds to the long positions established on the second oldest vintage date, Date 2. There are two of these, totaling 60 contracts. Adding these to the Date 1 vintage positions brings the eligible long position pool to five pieces, totaling 350 contracts, still not enough to cover the 2,000 short contracts declared for delivery.

The Clearing Services Provider must find long positions containing at least 1,650 more contracts, so it proceeds to the long positions established on Vintage Date 3. There are three of these, totaling 9,000 contracts: 1,000 in house accounts at FCM G; 5,000 in customer accounts at FCM M; and 3,000 in house accounts also at FCM M.

Exhibit 6  
Long Positions Reported by Clearing Firms, Sorted by Vintage Date

Clearing Firm and Account Origin	Position Size (Contracts)	Vintage Date and Total Positions (Contracts)	
H – Customer	150	Date 1	290
J – Customer	50		
J – House	90		
H – Customer	10	Date 2	60
L – Customer	50		
G – House	1,000	Date 3	9,000
M – Customer	5,000		
M – House	3,000		

The Clearing Services Provider now has far more contracts than it needs to cover the 1,650 that it seeks. To resolve this difference, it extracts a prorated number of contracts from each of the Date 3 Vintage positions, sufficient to total 1,650 contracts. Exhibit 7 illustrates how this is done.

Exhibit 7  
Prorating the Date 3 Vintage Long Positions to Complete the Eligible Long Position Pool

Date 3 Vintage Positions	Position Size (Contracts)	Share of Date 3 Vintage Total (Percent)	Prorated Share of 1,650 Contracts Required to Complete the Eligible Long Position Pool
G - House	1,000	11.11	183
M - Customer	5,000	55.55	917
M - House	3,000	33.33	550
Total	9,000	100	1,650

The Clearing Services Provider admits to the eligible long position pool the three prorated pieces extracted from the Date 3 vintage positions, shown in the right hand column of Exhibit 7.

The eligible long position pool, now complete, is shown in Exhibit 8. As the right hand column indicates, it contains eight pieces, totaling 2,000 contracts – exactly enough to match the 2,000 contracts that intentioners have declared for delivery.

Exhibit 8  
The Eligible Long Position Pool

Clearing Firm, Account Origin, and Vintage	Size Pool Piece (Contracts)
G - House (Date 3)	183
H - Customer (Date 1)	150
H - Customer (Date 2)	10
J - Customer (Date 1)	50
J - House (Date 1)	90
L - Customer (Date 2)	50
M - Customer (Date 3)	917
M - House (Date 3)	550
Total	2,000

### Step 2: Random Matching of Longs with Shorts

The Clearing Services Provider is now prepared to match the three short intentioners (Exhibit 5) with the eight pieces in the eligible long position pool (Exhibit 8). It begins by randomly selecting one of the short intentioners. Suppose this is FCM G, which intends to deliver on 100 contracts for customer accounts.

The Clearing Services Provider then randomly draws a piece from the eligible long position pool. Suppose this is the 90-contract house position at FCM J. This is matched with FCM G's short position, leaving FCM G with 10 unmatched short contracts.

The Clearing Services Provider makes another random draw from the eligible long position pool. Suppose this is the 183-contract house position at FCM G itself. Ten of the contracts in this piece will be matched with FCM G's short position.

FCM G's 100-contract short position is now completely matched for delivery on 10 contracts to FCM G itself and on 90 contracts to FCM J, in both cases for house accounts.

The long position piece that was broken up to complete the match is reduced from 183 contracts to 173 and then returned to the eligible long position pool for the next round of matching. Exhibit 9 summarizes the contents of the eligible pool at this stage in the process.

#### Exhibit 9

##### The Eligible Long Position Pool at the End of the First Round of Matching

Clearing Firm And Account Origin	Size Pool Piece (Contracts)
G – House	173
H – Customer	150
H – Customer	10
J – Customer	50
L – Customer	50
M – Customer	917
M – House	550
Total	1,900

The Clearing Services Provider randomly selects another short intentioner. Suppose this is FCM F, which intends to deliver on 900 contracts for customer accounts.

The Clearing Services Provider then randomly draws a piece from the eligible long position pool. Suppose this is the 917-contract customer position at FCM M. This is more than enough to cover FCM F's short position, so FCM F becomes fully matched for delivery on 900 contracts to FCM M customer accounts.

As before, the long position piece that was fragmented to complete the match is reduced from 917 contracts to 17 and thrown back into the eligible long position pool for the next round of matching. Exhibit 10 summarizes the pool's status.

Exhibit 10

The Eligible Long Position Pool after the Second Round of Random Drawings

Clearing Firm And Account Origin	Size Pool Piece (Contracts)
G – House	173
H – Customer	150
H – Customer	10
J – Customer	50
L – Customer	50
M – Customer	17
M – House	550
Total	1,000

The only remaining intentioner is FCM H, which has announced that it intends to deliver on 1,000 contracts for house accounts. By design, the seven pieces remaining in the eligible long position pool total exactly 1,000 contracts. These are automatically matched for delivery from FCM H.

The process is now complete. Exhibit 11 below summarizes the results from the vantage of the short intentioners, and Exhibit 12 summarizes from the vantage of the long position holders who have been assigned to take delivery.

Exhibit 11

Results of the Matching Process: To Which Longs Will Each Short Deliver?

<b>Short</b>	<b>Position</b>	<b>Delivers to...</b>
F - Customer	-900	M – Customer (900)
G – Customer	-100	G – House (10) and J – House (90)
H – House	-1,000	G – House (173) H - Customer (150) , H - Customer (10) J - Customer (50) , L – Customer (50) M - Customer (17) , M – House (550)

Exhibit 12

Results of the Matching Process: From Which Shorts Will Each Long Take Delivery?

<b>Long</b>	<b>Position</b>	<b>Takes Delivery from...</b>
G - House (Date 3)	183	G – Customer (10) and H – House (173)
H - Customer (Date 1)	150	H – House (150)
H - Customer (Date 2)	10	H – House (10)
J - Customer (Date 1)	50	H – House (50)
J – House (Date 1)	90	G – Customer (90)
L - Customer (Date 2)	50	H – House (50)
M - Customer (Date 3)	917	F – Customer (900) and H – House (17)
M - House (Date 3)	550	H – House (550)

When and How Position Vintage Dates Matter

*Vintage dates matter for determining the eligible pool:* The vintage dates of long positions are critical in determining what long position pieces are admitted to the eligible long position pool and how those pieces are defined. For example, the eligible pool shown in Exhibit 8 contains not one but two distinct pieces representing customer accounts at FCM H -- distinct only because they have different vintage dates. An important implication is that, because at least two different random draws from the eligible pool will be required to match these two pieces with short positions, there is no guarantee that they will be matched to the same short intentioner.

*Vintage dates do not matter for making random draws from the eligible pool:* It is equally important to observe that once the elements of the eligible long position pool have been determined, vintage dates cease to matter, in the sense that a piece's vintage date has no bearing on the order in which the piece is randomly drawn from the pool for matching with short intentioners. In the example above, the three pieces that the Clearing Services Provider draws from the eligible pool happen to have vintage dates, in the order in which they are drawn, of Date 1, Date 3, and Date 3.

*What happens on Last Intention Day?* The Clearing Services Provider adheres to the general procedure illustrated in the example above in all instances, including Last Intention Day. The only difference is that, because all short contracts outstanding at close of business on Last Intention Day are required to declare for delivery, all remaining short position holders become intentioners. Moreover, since short open interest always equals long open interest, the entire remaining long position stack is admitted to the eligible long position pool. As above, the pieces drawn from the long position pool are still defined in terms of discrete combinations of clearing firm, origin, and vintage date.

*What happens to the long position stack?* Recall that, to complete the eligible long position pool in Step 1, the Clearing Services Provider had to extract prorated portions (totaling 1,650 contracts) from the long positions with Date 3 vintage (totaling 9,000 contracts). Once the matching process for this particular Intention Day is complete, the remainders of each of those long positions (totaling 7,350 contracts) automatically rise to the top of the long position stack, as shown in Exhibit 13.

Exhibit 13  
The Long Position Stack after the Matching Process is Completed

Clearing Firm and Account Origin	Position Size (Contracts)	Vintage Date and Total Positions (Contracts)
G - House	817	Date 3 7,350
M - Customer	4,083	
M - House	2,450	
.....	.....	Date 4
.....	.....	Date 5
.....	.....	Etc

If the owners of these positions – the house accounts at FCM G and FCM M, and the customer accounts at FCM M – make no net changes to their contract exposure over the coming day, then the positions shown in Exhibit 13 will be what FCM G and FCM M report to the Clearing Services Provider at the end of the following business day as their long positions for Vintage Date 3.

Of course, there are several ways in which these positions might decrease over the course of the following business day:

If it is on or before the expiring contract's last trading day, then the account owners might reduce their positions by selling.

If it is on or before the second business day following the last day of trading (or, in the case of 2-Year Treasury Note futures, on or before noon on the business day following the last day of trading), then the account owners might reduce their positions by entering into either exchange-for-physical or exchange-for-swap transactions in which they tender futures in exchange for physical securities or over-the-counter swap contracts.

By definition, however, these positions cannot increase. Any newly added increments would have a different vintage date, namely the following business day.



### How the Clearing Firm Finishes the Job

As noted above, deliveries on Treasury futures take place between clearing firms, not between the ultimate owners of futures positions.

*As a general principle, the Exchange requires that a clearing firm's allocation of Treasury securities among delivery takers and delivery makers – either among its own accounts or to other clearing firms – must be fair and equitable.*

Considerations of fairness and equitability of allocation arise clearly whenever one clearing firm is matched to make delivery to many others.

*Example:* In Exhibit 11, the short house position at FCM H is matched for delivery to diverse long positions at four other FCMs (G, J, L, and M) as well as to long customer accounts of its own.

If all of the delivering firm's short accounts have tendered the same Treasury issue for delivery, then it doesn't matter for practical purposes how the firm allocates these securities for delivery to the firms to which it has been matched. However, if the delivering firm's short accounts have tendered different Treasury issues for delivery, then the firm's allocation of them makes a potentially significant difference for the receiving firms.

Considerations of fairness and equitability arise not just between clearing firms, but within the individual clearing firm as well. Once delivery from one clearing firm to another is fulfilled, the clearing firms are then responsible for allocating to their individual account holders both the Treasury securities taken in delivery and the monetary proceeds made on delivery. This manifests, for example, whenever short and long accounts at a single clearing firm are matched for delivery.

*Example:* In Exhibit 11, FCM G is matched to deliver on ten contracts for short customer accounts to its own long house accounts. Likewise, FCM H is matched to deliver on 160 contracts for short house accounts to various of its own long customer accounts.

## **Invoicing for Treasury Futures Deliveries**

Recall that on Notice Day the short clearing firm informs the long clearing firm assigned to it for delivery of the details of the Treasury issues (CUSIP numbers, coupon rates, maturity dates) that it will deliver. Once this has been established, both clearing firms can compute the invoice amount that the short must receive in payment for the delivered Treasury securities. The invoice amount is the sum of two components: the principal amount and accrued interest.

### Principal Amount

The principal amount is critical, if only because this is the point at which the futures contract price formally enters into the delivery process. Before going further, it is useful to have a clear understanding of which futures price comes into play.

If the owner of a short position in an expiring Treasury futures contract declares intent to deliver on any trading day up to and including the contract's last trading day, then the contract price that determines his invoice amount is the daily settlement price for the Intention Day on which the short declares. If instead the short position holder declares intent to deliver at any time after the contract's last trading day, the contract price that determines his invoice amount is the contract's final settlement price. (In this context, it is useful to recall that the last day of trading for 2-Year Treasury Note futures differs from the last day of trading for other Treasury futures. See **The Timetable for Delivery.**)

Regardless of when the short chooses to effect delivery during the expiration month, a variety of coupons and maturities are available to him to fulfill contract. For this reason, before the invoice amount can be calculated, the contract price to be used for invoicing must be adjusted to the characteristics of the specific Treasury issue being delivered. This is done with a conversion factor: the price (as a percent of par, expressed in decimal terms) at which the delivered issue would yield 6% at its current time to maturity (or, if callable, at its current time to first call).

To identify the correct conversion factor, first determine the time to maturity (or first call) for the Treasury issue being delivered. For invoicing Treasury Bonds, 10-Year Treasury Notes, and 5-Year Treasury Notes, the remaining time to maturity (or first call) is calculated in complete three-month quarters, always rounded down to the nearest quarter. The first day – calendar day, not business day – of the expiration month is the date used to establish remaining time to maturity.

*Example:* A bond with 21 years, 4 months, and 17 days to maturity as of the first day of the expiration month would have remaining time to maturity of 21 years and 3 months for purposes of invoice calculation in Treasury Bond futures.

For invoicing 2-Year Treasury Notes, the time to maturity is calculated in complete one-month increments, rounded down to the nearest month. As before, the first day of the expiration month is used to establish time to maturity.

*Example:* A note with 1 year, 10 months, and 17 days to maturity as of the first day of the expiration month would have a time to maturity of 1 year and 10 months for purposes of invoice calculation in 2-Year Treasury Note futures.

Conversion factors are published in the CBOT brochure ***CBOT Conversion Factors***. They are available from most quote vendors and are published on the CBOT website.

Combining these elements, the principal amount for any single Treasury futures contract is the appropriate futures settlement price (measured in points and fractions of points), times the contract size (measured as US dollars per price point), times the conversion factor:

**Principal amount =  
futures settlement price x contract size x conversion factor**

*Example:* Assume it is late September 2006. A short position holder declares on 27 September (Last Intention Day) that he will make delivery on 29 September (Last Delivery Day) on one expiring Sep 06 10-Year Treasury Note futures contract (TYU6). Since the last day of trading in TYU6 futures was Wednesday, 20 September, the pertinent futures price for invoicing is the contract's final settlement price. Assume hypothetically that this is 115-17.5/32nds.

The short plans to make delivery using the 4-1/4% of 15 August 2013. The CBOT Treasury futures conversion factor tables indicate that the appropriate factor for delivering this note into Sep 06 futures is 0.9040.

For 10-Year Note futures (or Bond or 5-Year Note futures) the settlement price is multiplied by the contract size of \$1,000 per contract price point. (For 2-Year Note futures, the settlement price is multiplied by the contract size of \$2,000 per contract price point.)

Then the principal amount of the futures invoice price is calculated as follows:

115-17.5/32nds = 115.546875 decimal-equivalent futures settlement price

(115.546875 x \$1,000 contract size) x 0.9040 conversion factor

= \$104,454.375

Apply normal rounding conventions (i.e., round to the nearest penny, and round up each half-penny) to obtain

**\$104,454.38 principal amount**

### Accrued Interest

The delivering short also invoices the long for coupon interest that has accrued but has not been paid as of the delivery date. Accruals are computed in the standard fashion for Treasury securities. That is, coupon accrual is based on the actual number of days in the semi-annual interval between the last coupon payment before delivery and the next coupon payment, as given in Exhibit 14. (The details of coupon accrual for Treasury bonds and notes are defined in Appendix B of 31 CFR Part 356, available as Department of the Treasury Circular, Public Debt Series No 1-93.)

Exhibit 14  
Day Counts for Treasury Notes and Bonds

Interest Period	Beginning and ending days are the 1st or the 15th of months listed under interest period (number of days).		Beginning and ending days are the last days of months listed under interest period (number of days).	
	Regular Year	Leap Year	Regular Year	Leap Year
January to July	181	182	181	182
February to August	181	182	184	184
March to September	184	184	183	183
April to October	183	183	184	184
May to November	184	184	183	183
June to December	183	183	184	184
July to January	184	184	184	184
August to February	184	184	181	182
September to March	181	182	182	183
October to April	182	183	181	182
November to May	181	182	182	183
December to June	182	183	181	182
One year (any two consecutive half years)	365	366	365	366

Source: 31 CFR Part 356, Department of the Treasury Circular, Public Debt Series No 1-93

Accrued interest per futures contract is computed in four steps. First, determine the semiannual coupon amount per \$1,000 face value:

$$\text{Semiannual Coupon Amount} = (\text{Coupon Rate} \times \$1,000) / 2$$

Next, using this result, determine the daily rate of interest accrual:

$$\text{Daily Interest per } \$1,000 \text{ Face Value} = \frac{\text{Semiannual Coupon Amount}}{\text{Days in Half-Year Between Last Coupon Payment and Next}}$$

Next, determine the amount of accrued interest per \$1,000 face value. This result should be rounded to five decimal places, using standard rounding procedures:

$$\text{Accrued Interest per \$1,000 Face Value} = \frac{\text{Daily Interest per \$1,000 Face Value} \times \text{Days Between Last Coupon Payment and Delivery Day}}{100}$$

Finally, multiply by 100 to scale up the result to the \$100,000 face value required for contract delivery. (Recall that this applies only to Bond and 10-Year and 5-Year Note futures. For 2-Year Note futures, multiply by 200.)

*Example, Continued:* To find accrued interest for the 4-1/4% of August 2013 for trade settlement on 29 September 2006, first determine the note's semiannual coupon payment. For every \$1,000 face value of the note, this will be

$$\$21.25 = (0.0425 \times \$1,000) / 2$$

Next, observe that this security pays coupon interest every six months, on 15 February and 15 August. In the half-year from the coupon payment preceding delivery (15 August 2006) to the next coupon payment thereafter (15 February 2007) there are 184 days. Thus, coupon interest will accrue over this 184-day interval at the following daily rate per \$1,000 face value:

$$\$21.25 / 184 \text{ days} = \$0.115489130$$

Next, determine the number of days over which coupon interest will accrue until the delivery date. This interval spans 45 days from (and including) 15 August 2006 to (but not including) 29 September 2006.

Next, determine accrued interest per \$1,000 face value:

$$\$0.115489130 \text{ (daily interest for 184 days at 4-1/4\% per annum on \$1,000)}$$

$$\times 45 \text{ days (interval from last coupon payment to delivery day)}$$

$$= \$5.19705 \text{ (rounded to five decimal places)}$$

Multiply this by the futures contract scale of 100 to get \$519.705. Applying normal rounding procedures, this becomes

**\$519.71 accrued interest**

#### Invoice Amount

The invoice amount is the sum of the principal amount and accrued interest.

$$\text{Example, concluded: } \$104,454.38 \text{ principal} + \$519.71 \text{ accrued interest}$$

$$= \text{\$104,974.09 total invoice amount}$$

**Acquiring Treasury Securities for Futures Delivery**

To conform to cash market practices, delivery on CBOT Treasury futures contracts is made by book entry. The procedure is handled through an agent. Any commercial bank that is a member of the Federal Reserve System and that has capital (including surplus and undivided earnings) in excess of \$100 million may act as an agent.

## **Appendix -- Contract Specifications**

### **US Treasury Bond Futures**

#### ***Contract Size***

One U.S. Treasury bond having face value at maturity of \$100,000 (or multiples thereof).

#### ***Deliverable Grades***

U.S. Treasury bonds that, if callable, are not callable for at least 15 years from the first day of the delivery month or, if not callable, have a maturity of at least 15 years from the first day of the delivery month. The invoice price equals the futures settlement price times a conversion factor plus accrued interest. The conversion factor is the price of the delivered bond (\$1 par value) to yield 6 percent.

#### ***Tick Size***

Minimum price fluctuations shall be in multiples of one thirty-second (1/32) of one point per 100 points (\$31.25 per contract) except for intermonth spreads, where minimum price fluctuations shall be in multiples of one-fourth of one-thirty-second of one point per 100 points (\$7.8125 per contract, rounded up to the nearest cent per contract). Par shall be on the basis of 100 points.

#### ***Price Quote***

Points (\$1,000) and thirty-seconds of a point. For example, 80-16 represents 80 16/32

#### ***Contract Months***

Mar, Jun, Sep, Dec

#### ***Last Trading Day***

Seventh business day preceding the last business day of the delivery month.

#### ***Last Delivery Day***

Last business day of the delivery month.

#### ***Delivery Method***

Federal Reserve book-entry wire-transfer system

#### ***Trading Hours***

Open Auction: 7:20 am - 2:00 pm, Chicago time, Monday – Friday

Electronic: 7:00 pm - 4:00 pm, Chicago time, Sunday - Friday

Trading in expiring contracts closes at 12:01 pm, Chicago time, on the last trading day

#### ***Ticker Symbols***

Open Auction Outright: US

Electronic Outright: ZB

Electronic Reduced-Tick Spread: ZB3

#### ***Daily Price Limit***

None

## **Long Term (6-1/2 to 10-Year) US Treasury Note Futures**

### ***Contract Size***

One U.S. Treasury note having a face value at maturity of \$100,000 (or multiples thereof).

### ***Deliverable Grades***

U.S. Treasury notes maturing at least 6 1/2 years, but not more than 10 years, from the first day of the delivery month. The invoice price equals the futures settlement price times a conversion factor plus accrued interest. The conversion factor is the price of the delivered note (\$1 par value) to yield 6 percent.

### ***Tick Size***

Minimum price fluctuations shall be in multiples of one-half of one thirty-second (1/32) of one point per 100 points (\$15.625 rounded up to the nearest cent per contract) except for intermonth spreads, where minimum price fluctuations shall be in multiples of one-fourth of one thirty-second point per 100 points (\$7.8125 per contract, rounded up to the nearest cent per contract). Par shall be on the basis of 100 points.

### ***Price Quote***

Points (\$1,000) and one half of 1/32 of a point. For example, 84-16 represents 84 16/32, and 84-165 represents 84 16.5/32

### ***Contract Months***

Mar, Jun, Sep, Dec

### ***Last Trading Day***

Seventh business day preceding the last business day of the delivery month.

### ***Last Delivery Day***

Last business day of the delivery month.

### ***Delivery Method***

Federal Reserve book-entry wire-transfer system

### ***Trading Hours***

Open Auction: 7:20 am - 2:00 pm, Chicago time, Monday - Friday

Electronic: 7:00 pm - 4:00 pm, Chicago time, Sunday - Friday

Trading in expiring contracts closes at 12:01 pm, Chicago time, on the last trading day.

### ***Ticker Symbols***

Open Auction Outright: TY

Electronic Outright: ZN

Electronic Reduced-Tick Spread: ZN3

### ***Daily Price Limit***

None



## Medium Term (5-Year) US Treasury Note Futures

### ***Contract Size***

One U.S. Treasury note having a face value at maturity of \$100,000 (or multiples thereof).

### ***Deliverable Grades***

U.S. Treasury notes that have an original maturity of not more than 5 years and 3 months and a remaining maturity of not less than 4 years and 2 months as of the first day of the delivery month. The 5-year Treasury note issued after the last trading day of the contract month will not be eligible for delivery into that month's contract. The invoice price equals the futures settlement price times a conversion factor plus accrued interest. The conversion factor is the price of the delivered note (\$1 par value) to yield 6 percent.

### ***Tick Size***

Minimum price fluctuations shall be in multiples of one-half of one thirty-second ( $1/32$ ) of one point per 100 points (\$15.625 rounded up to the nearest cent per contract) except for intermonth spreads, where minimum price fluctuations shall be in multiples of one-fourth of one thirty-second point per 100 points (\$7.8125 per contract, rounded up to the nearest cent per contract). Par shall be on the basis of 100 points.

### ***Price Quote***

Points (\$1,000) and one half of  $1/32$  of a point. For example, 84-16 represents  $84 \frac{16}{32}$ , and 84-165 represents  $84 \frac{16.5}{32}$

### ***Contract Months***

Mar, Jun, Sep, Dec

### ***Last Trading Day***

Seventh business day preceding the last business day of the delivery month

### ***Last Delivery Day***

Last business day of the delivery month

### ***Delivery Method***

Federal Reserve book-entry wire-transfer system

### ***Trading Hours***

Open Auction: 7:20 am - 2:00 pm, Chicago time, Monday - Friday

Electronic: 7:00 pm - 4:00 pm, Chicago time, Sunday - Friday

Trading in expiring contracts closes at 12:01 pm, Chicago time, on the last trading day

### ***Ticker Symbols***

Open Auction Outright: FV

Electronic Outright: ZF

Electronic Reduced-Tick Spread: ZF3

### ***Daily Price Limit***

None

## Short Term (2-Year) US Treasury Note Futures

### ***Contract Size***

U.S. Treasury notes having a face value at maturity of \$200,000 or multiple thereof.

### ***Deliverable Grades***

U.S. Treasury notes that have an original maturity of not more than 5 years and 3 months, and a remaining maturity of not less than 1 year and 9 months from the first day of the delivery month, and a remaining maturity of not more than 2 years from the last day of the delivery month. The invoice price equals the futures settlement price times a conversion factor plus accrued interest. The conversion factor is the price of the delivered note (\$1 par value) to yield 6 percent.

### ***Tick Size***

Minimum price fluctuations shall be in multiples of one-quarter of one thirty-second ( $1/32$ ) of one point per 100 points (\$15.625 rounded up to the nearest cent per contract). Par shall be on the basis of 100 points.

### ***Price Quote***

Points (\$2,000) and one quarter of  $1/32$  of a point. For example, 91-16 represents  $91 \frac{16}{32}$ , 91-162 represents  $91 \frac{16.25}{32}$ , 91-165 represents  $91 \frac{16.5}{32}$ , and 91-167 represents  $91 \frac{16.75}{32}$

### ***Contract Months***

Mar, Jun, Sep, Dec

### ***Last Trading Day***

The last business day of the calendar month.

### ***Last Delivery Day***

Third business day following the last trading day

### ***Delivery Method***

Federal Reserve book-entry wire-transfer system

### ***Trading Hours***

Open Auction: 7:20 am - 2:00 pm, Chicago time, Monday - Friday

Electronic: 7:01 pm - 4:00 pm, Chicago time, Sunday - Friday

Trading in expiring contracts closes at 12:01 pm, Chicago time, on the last trading day

### ***Ticker Symbols***

Open Auction Outright: TU

Electronic Outright: ZT

Electronic Reduced-Tick Spread: ZT3

### ***Daily Price Limit***

None

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