

MARKET
PROFILE®

A SIX-PART
STUDY GUIDE TO

MARKET PROFILE®

DAY

EVENING

NEXT DAY

Qa
QTa
QRTWXab
QRTUVWXab
QRSTUUVWXabc
PQRSTUUVWXbc
PQRSVWbc
OPSVWcd
OPYWcd
QVcd
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Qd
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FROM THE
TPO COUNT TO
DISTRIBUTION AND
LIQUIDITY DATA BANK®
VOLUME ANALYSIS

C B O T®
M A R K E T
P R O F I L E®

PART I

READING THE MARKET PROFILE® GRAPHIC



Chicago Board of Trade

Internet Address *<http://www.cbot.com>*

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**PART I:
READING THE
MARKET PROFILE® GRAPHIC**

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INTRODUCTION

The material in this six-part Study Guide evolved from a seminar program developed for Chicago Board of Trade members. The emphasis is on understanding the Market Profile® concept—and not on trading strategies—because we found that when the CBOT traders grasped the concept, they had no trouble developing strategies consistent with their own style of trading.

- Part I discusses how to read the daily Market Profile® graphic.
- Part II explains how longer-term trends can be monitored with daily data.
- Part III discusses why the fundamental perception of value is at the heart of every market decision.
- Part IV shows how daily *and* long-term market activity distributes over time.
- Part V tells you how to combine market activity and the perception of value in order to analyze a developing trading session.
- Part VI analyzes Liquidity Data Bank® volume in order to gauge strength or weakness in the market.

We have added a glossary of Market Profile terms and an index to the original text in order to make this updated version of the Home Study Guide more useful. At the same time, we are retaining the early steps in Peter Steidlmayer's breakthrough research discussed in Parts I and II so that you can see the logical progression in the development of Market Profile analysis—from its beginning in a single session to its use in global markets.

Although the terms “day time frame trader” and “other time frame trader” may be dated, the way the two groups interact isn't. Traders and investors are still basically either short- or long-term market participants. And their behavior is still determined by their view of value. And value is still at the heart of market activity. Therefore, knowing how each group impacts activity in a single session makes it much easier to understand how they distribute beans, bonds, or corn, for instance, over longer periods of time.

Why? Because it is the interaction between short- and long-term market participants that distributes trading volume in a bell-shaped curve. The back-and-forth movement reflects the continual tug-of-war between the “forward price influence” of long-term traders and the “backward price influence” of short-term market participants.

We are also keeping the original examples because the vertical and horizontal Market Profile organization is as relevant in 1995 as it was in 1984—even though global markets have outgrown the single session. The same organizing principles that made the Profile graphic a realistic market model of a single session in the 1980s provide a realistic model now of continuous, 24-hour activity. Since the organization of Market Profile data is based on a natural construct, the format simply expands to encompass global activity. We show you how to relate the format to the distribution process in global markets in Parts IV, V, and VI.

The Connection Between Distribution And Market Profile® Data

According to the dictionary, distribution is “the position, arrangement or frequency of occurrence over an area or throughout a space or unit of time.” The volume of everything distributes around a mean over time. Why should trading volume be different?

From the beginning, Peter Steidlmayer recognized that the basic pattern of market behavior is a continuing point, counterpoint: imbalance, balance, imbalance, balance, etc. Now, in his latest work, he relates this continuum to the process of distribution. His recent research shows that the market’s ultimate common denominator is a balanced distribution—in other words, the bell shaped curve.

When market activity forms a bell shaped profile, a segment of market action is complete. Stated another way, a balanced distribution is the long-term framework to which you relate short-term moves in individual sessions.

Market Profile® data captures and continuously updates this development.

	1/4/90 DAY	1/4/90 EVENING	1/5/90 NEXT DAY
98-16			P
98-15			P
98-14			P
98-13			P
98-12			P
98-11			P
98-10	Qa		P
98-09	QTa		PQ
98-08	QRTWXab		OPQ
98-07	QRTUVWXab		OPQ
98-06	QRSTUVWXabc	qr	OPQR
98-05	PQRSTUVWXbc	opqr	OPQRSUV
98-04	PQRSVWbc	nopq	OPQRSTUV
98-03	OPSVWcd	klmno	OQRSTUV
98-02	OPVWcd	klmn	ORSTUVW
98-01	OVcd	kn	RSTUVW
98	Od		STVW
97-31	Od		SW
97-30	O		W
97-29			W
97-28			WX
97-27			Xa
97-26			Xa
97-25			Xa
97-24			a
97-23			a
97-22			a
97-21			a

Trading 24-hour Markets With Market Profile® Data

Probably the most important change since Steidlmayer first introduced the Market Profile® concept is that the day, as a definitive market segment with a definite beginning and end, is outdated. In 24-hour markets, you're working with a timeless continuum. This means that a new beginning can occur at any time.

Despite this change, however, the market's basic imbalance-balance behavior pattern is still the same.

For this reason, our discussion of Market Profile® begins with development in a single session and in a simple trend—so that you can see how the pattern develops in relatively uncomplicated situations. We're using data from 1986 in Parts I and II because these sessions are especially illustrative of the market's point, counterpoint behavior.

We believe that once you've seen how the market shifts from imbalance to balance in simple situations, you'll be able to recognize the shift in more complex global markets. We also believe that market decisions are less difficult to make when they are based on a solid foundation. That's why we're starting at the beginning and giving you the entire knowledge base.

As you go through Parts I and II, however, keep in mind that you're going to expand what happens in a single session to 24-hour markets. This means that certain ideas—the initial balance and the time/price opportunity (TPO) count, for example—are going to become less important. These ideas will continue to contribute to your overall understanding, but they're going to become part of your background knowledge.

Steidlmayer's most recent work relating distribution to market activity is not a negation of his previous research. It simply explains the basic concept more fully. His insight into the distribution process pulls the various components together into a coherent whole.

A Valuable Skill

Perhaps the most important benefit of Market Profile® data is that it vastly simplifies the trading process.

Over the past six years, Steidlmayer has stripped market activity to its essential elements. His research shows that the market has only a finite number of behavior patterns and that the finite number is universal from market to market. This means that once you can recognize the patterns with Market Profile® data, the knowledge can be applied in all markets. Since the number of exchanges around the world where you can use these skills is continually growing, your potential rewards can be significant.

Because Market Profile® is a tool rather than a buy/sell system, reading Market Profile® data involves grasping principles—not just memorizing rules. Those who make the effort, however, will have a valuable skill. Buy/sell systems lose their effectiveness when markets change. Market Profile® data, on the other hand, captures and lets you see the change so that you can adjust accordingly.

If you take the time to master each step in this Study Guide, you'll have a solid knowledge base that can help you make futures trading more conservative, more manageable and more rewarding.

THE MARKET'S ORGANIZATIONAL STRUCTURE

The Conceptual Framework

As noted in the introduction, Market Profile® is a decision-support tool—not a trading system. In order to use the Market Profile® tools, you have to know what makes them work. That's why we're going to start with the conceptual framework.

Don't worry if you don't grasp the organizing principles immediately. We'll be using them over and over again, so they will be old friends by the time we're done. While you may not sense the importance of these principles initially, understanding how they relate to market activity is critical.

Why? Because these organizing principles explain why market activity is not arbitrary or random.

Peter Steidlmayer recognized this organizational structure and related it to an overall framework. The idea for the Market Profile® product was conceived by him and the CBOT product is based on his original research.

Steidlmayer identified recurring behavior patterns in the trading pit and then asked himself why they were occurring. Therefore, even though the Market Profile® vocabulary may seem unfamiliar at first, it simply describes and explains what is happening in the marketplace.

As we work with the data, keep in mind that each piece of information is not an indicator by itself. You'll see that we put several pieces of information together in order to come to a conclusion.

It's also important to recognize that your market decisions are always going to require judgment. Market Profile® can't change that. Unfortunately, it can't predict the future—but then nothing can. What Market Profile® *can* do is help you to understand the present. And if you understand what's happening now, in the present, you *can* make better decisions.

With that said, we can begin our discussion of the market's organizational structure as outlined by Steidlmayer. You'll see for yourself as we move forward that no matter how sophisticated your Market Profile® analysis becomes, it is always going to rest on these basic principles.

■ One: The Auction Framework

The purpose of the marketplace is to facilitate trade. What does that mean? In the broadest sense, it simply means that as the price moves up, it brings in more buying or, as the price moves down, it brings in more selling.

The marketplace facilitates trade with the **dual auction process**.

Basically, the market auctions up until there are no more buyers. Then it reverses and moves down until there are no more sellers. The end of an up auction is the beginning of a down auction, etc.

All market activity occurs within this broad framework—*with the market moving up to shut off buying and down to shut off selling.*

Getting a little more specific, we can say that the market begins, moves directionally and advertises for an opposite response to shut off the directional move.

That statement is at the heart of the market's organizational structure. What does it mean?

Say the market moves up directionally and the up move brings in selling. The selling is an opposite response which *one* stops the up move—in other words, shuts off the buying—and *two* causes the market to reverse and move down. The result: the up auction ends and a down auction begins.

Now let's say the market moves up and advertises for selling but doesn't get any. Instead, it brings in more buying. Therefore, the market has to move higher to bring in an opposite response. The result: the up auction continues.

At bottom, that's what you're always looking for: continuation or change.

■ Two: The Negotiating Process

Now if we get even more specific, we can say that a directional move establishes parameters that contain the auction's price range, **an unfair low** at the low end and **an unfair high** at the high end. The unfair low and the unfair high are **excesses**.

Once the market defines a range with excesses at each end, it negotiates within that range to establish value. The market trades between the established excesses until it either trades above the high excess or below the low one.

Stop the market at any point in time and you'll see these three reference points: unfair low, unfair high and value somewhere in between. These three price areas define **the negotiating process**—the method the marketplace uses to facilitate trade.

What does this mean in a real market situation?

To demonstrate, let's look at a bar chart of the Dow Jones from April 1987 to the end of October 1989...see page 14.

The unfair high on this chart (point A) was established in August 1987, the unfair low (point B) in October 1987. You can see that these parameters were containing the market's long-term range at that time. (A new unfair high at the 2900 level was established in June 1990.)

Once the parameters at A and B were established, the market negotiated between the two excesses to develop value.

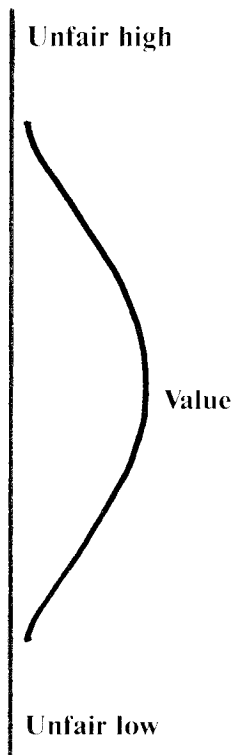
The negotiating process moved value up gradually from the unfair low to the unfair high. Value reached the unfair high (point C) on October 13, 1989.

Because of the perception of value at that time, the market couldn't trade above the high parameter and it reversed.

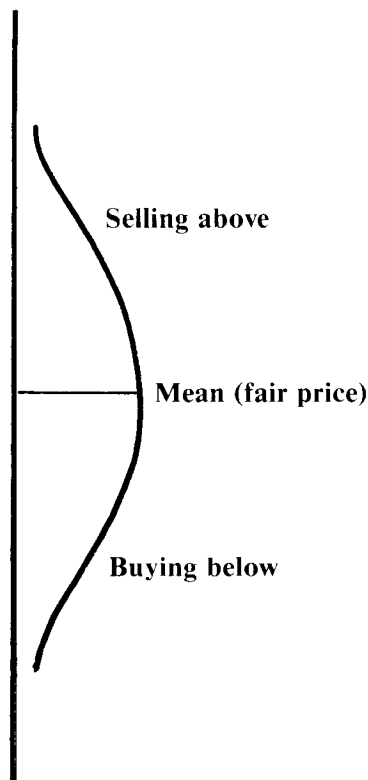
The result: the excess established in 1987 continued to contain the range on the upside until June 1990.

In other words, at the end of October 1989, the market attempted to take out the unfair high. However, when the United Airlines deal collapsed and seemed to indicate a possible end to leveraged buy-outs, market participants lost confidence and the market reversed.

THREE RELATED PRICES



DISTRIBUTING AROUND A MEAN



■ Three: Balance and Imbalance

To facilitate trade in order to distribute goods and services, the market moves from imbalance to balance to imbalance and back again. It uses this behavior pattern in a single session and in longer-term trends or auctions.

If the market is balanced, basically equal amounts of buying and selling are present. The market has brought in an opposite response. The market is rotating because it has found a fair price around which it can distribute.

If the market is imbalanced, either buying or selling is predominant. The market is moving higher or lower in order to find an opposite response. The market is moving directionally because it is seeking a fair price around which it can distribute.

In brief, a balanced market has found a fair price. An imbalanced market is seeking a fair price.

This is simply another way to state the familiar law of supply and demand. Buyers demand and sellers supply. The market is either in equilibrium between buyers and sellers or it is working toward that equilibrium.

■ Four: Steidlmayer's Tandem Time Frame Concept

First let's define Steidlmayer's use of the term "time frame:"

Time frames are forcing points—in other words, points in time that force a decision. These points can be imposed by the market (i.e., the close) or by something in your personal situation (i.e., you have the right to an option that expires in two months).

To explain, say the market has been trading for three hours and the close is coming up in 45 minutes. If you don't want to carry the position overnight, your time is running out. The close is forcing you to make a decision within a relatively short-term time frame. You're a short-term trader in this situation because the forcing point is only 45 minutes away.

You're a longer-term trader in the second situation because your option doesn't expire for two months. The forcing point is two months off. Consequently, you have a longer-term time frame in which you can operate without having to make a decision.

With this insight, Steidlmayer was able to divide all market activity into two categories: *short-term and longer-term*.

He calls short-term activity **day time frame activity**.

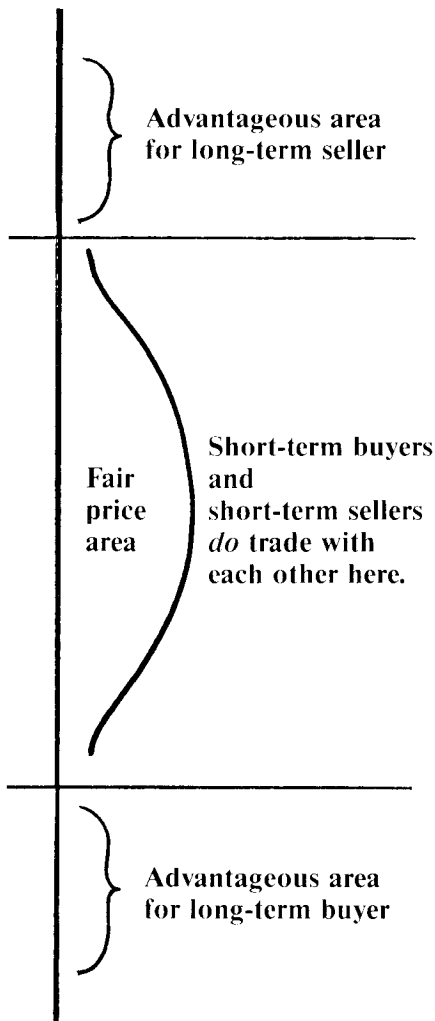
He calls longer-term activity **other time frame activity**.

His tandem time frame concept visualizes short-term or day time frame activity on one side of the tandem and all longer-term activity on the *other* side (hence the name "other time frame").

Since long- and short-term activity exist simultaneously in the marketplace, you have to be able to separate one kind of activity from the other.

We're going to separate one from the other with behavior.

LONG-TERM BUYERS AND LONG-TERM SELLERS *DO NOT* TRADE WITH EACH OTHER AT THE SAME PRICE AT THE SAME TIME.



■ Five: Short- and Long-term Activity Is Defined by Behavior

The short-term trader's behavior characteristic is his desire for a fair price. The best he can do is a fair price because he has to trade today. Since a fair price is acceptable to both buyers and sellers, short-term buyers and sellers *do* trade with each other at the same price at the same time.

The longer-term trader's behavior characteristic is his desire for an advantageous price. He can wait for an advantageous price because he doesn't have to trade today. Since longer-term buyers' and sellers' objectives are different, they *do not* trade with each other at the same price at the same time.

(In a strict technical sense, a longer-term buyer with a 10 to 15-day time frame may trade with a longer-term seller with a two- to three-day time frame. But these traders are a small part of the total longer-term group.

Steidlmayer treats longer-term traders as a single entity because he is concentrating on the *active* longer-term trader who drives the market and affects range development.)

Longer-term buyers want to buy low; longer-term sellers want to sell high. Therefore, the same price *can't* be advantageous for both at the same time. That's why you can know exactly who (buyer or seller) is doing what at any time in the day's range.

To apply this unfamiliar concept to single sessions or to longer-term trends, it's important to define what an advantageous price means in relation to value. We'll discuss what an advantageous price means in relation to *longer-term value* later on. Here, we're going to consider what an advantageous price means in relation to *today's value area*.

The market develops a fair price area in the session for short-term buyers and sellers—in other words, those who have to trade today. Most of the day's volume occurs in this fair price area. The high volume shows acceptance.

In contrast to the amount of time spent in the value area, the market spends very little time at the advantageous prices above and below value. These advantageous prices are low volume, rejected excess areas. Prices above the value area are advantageous for the longer-term seller; prices below it are advantageous for the longer-term buyer.

How do we know it's the longer-term trader who is active at advantageous prices?

Only traders with a longer-term time frame—in other words, *those who don't have to trade today*—can take a chance on making their trade in an area where the market doesn't spend much time. If you have to trade today, you can't count on being able to enter your trade in a low volume, basically unfair area. The high volume area where the market spends most of its time provides the liquidity you need.

■ Six: Both the Short-term Trader and the Longer-term Trader Have a Role to Play in Facilitating Trade

This role grows out of their behavior.

Since the short-term trader is seeking a fair price, his role is to find a price area where two-sided trade can occur. Steidlmayer calls this an **initial balance area**.

(Currently, it seems to take one hour in CBOT grain futures to find an area where two sided trade can occur. Before CBOT financial futures sessions were lengthened, it also seemed to take an hour in those contracts to find an initial balance area. Now that the sessions are longer, however, finding the initial balance in CBOT financials seems to take one hour and 40 minutes.)

As the financial contracts underscore, initial balance parameters can change.

Therefore, the important thing is to understand the initial balance concept—the amount of time it takes the shorter-term trader to find an area where two-sided trade can occur. Then you can determine these parameters in any market.

Earlier, we said the role of the short-term trader was to find an area that market participants would consider fair. We also said that the market opens and moves directionally in order to establish parameters to contain the range.

If the unfair high and the unfair low established in the initial balance period hold throughout the session, the shorter-term trader is in control.

If, on the other hand, the longer-term trader enters the market with enough volume, he can disturb the initial balance and extend the range—establishing a new high or low parameter.

This takes us to the longer-term trader's role in facilitating trade: his role is to move the market directionally—in other words, to extend the range up or down.

■ **Seven: Price Can Only Be Above, Below or Within Value**

We're going to monitor the activity level of the longer-term trader as he responds to prices above, below or within value in order to anticipate whether the market will move up, down or sideways.

Our focus is always on what the longer-term trader is doing because, in pursuing his interests, he is responsible for the way the day's range develops and for the length of time a longer-term trend lasts.

We'll discuss the longer-term trader's influence on trend development in Part II. In this section, we're going to consider his influence on the way a single session develops.

We're going to examine the principles we've just discussed in relatively uncomplicated sessions so that you can see how they work. We believe that once you understand how these concepts work in a single session, you'll be able to apply them to longer-term trends and then to 24-hour markets.

Keep in mind, though, that certain ideas such as the initial balance, the TPO count and the kinds of range development are going to become less important. These ideas will continue to contribute to your overall understanding, but they're going to become part of your background knowledge.

Stop And Test Yourself

Q. All activity occurs within what?

A. The auction framework.

Q. The market moves *up* to shut off what? It moves *down* to shut off what?

A. Up to shut off buying. Down to shut off selling. The market auctions up until the last buyer buys and then down until the last seller sells.

Q. The market establishes parameters and then trades between these parameters developing value until it takes out one side. What is this process called?

A. The negotiating process. It is defined by three related price areas—an unfair high, an unfair low and value somewhere in between.

Q. The market moves from what to what and back again in order to facilitate trade?

A. Imbalance to balance.

Q. There are two kinds of activity. What are they?

A. Day time frame and other time frame—in other words, short-term and longer-term.

Q. Short-term and longer-term activity is defined by what?

A. Behavior. The short-term trader is seeking a *fair price*; the longer-term trader is seeking an *advantageous price*.

Q. What determines a trader's role in the market?

A. Behavior. The short-term trader who is seeking a fair price finds an area where two-sided trade can occur. The longer-term trader who is seeking an advantageous price moves the market directionally.

The Market Profile® Graphic

Look at the example on page 15. (This material is published in a 3-ring binder so that you can take the examples out and hold them next to the relevant text.) This example shows the Market Profile® graphic for Dec bonds on 9/5/86. The Market Profile® format organizes price and time into a visual of what happens in a single session.

The price range for the session is on the left. The letters show the half-hour time period in which each price traded. At that time, A represented 8:00 to 8:30, B represented 8:30 to 9:00, etc.

Since then, the CBOT has changed the letters indicating time.

In January 1990—in order to accommodate 24-hour markets—the CBOT assigned a character to each half-hour trading period on a 24-hour basis. Half-hour periods from midnight to noon are represented by capital letters A through X. Half-hour periods from noon to midnight are represented by small letters a through x.

The day session for U.S. Treasury bond futures now resumes at 7:20 a.m. in “O” period and ends at 2 p.m. in “d” period. See page 46 for more information.

Although the graphic may look different, only the characters are different. The organizing principle is exactly the same. You’re still looking for price reoccurrence in order to see where the market is developing value.

In this Home Study Guide, we use examples with the old letters as well as the new ones so that you can see for yourself that the behavior patterns are exactly the same. If you understand the basic principles, you’ll recognize the patterns and you won’t be confused by a change in characters.

No matter what the character, each symbol in the profile graphic represents a **time/price opportunity—TPO** for short. A TPO is an opportunity created by the market at a certain time at a certain price.

These time/price opportunities are the basic unit for analysis of the day’s activity. They are either accepted or rejected.

On 9/5/86, the bond futures market offered participants a series of TPOs from 97-14 to 96-04.

TPOs from 97-14 to 97-05 on the top and from 96-04 to 96-06 on the bottom were rejected.

TPOs from 96-07 to 97-04 were accepted. The area in which the market spent the most time—from 96-11 to 96-29—shows the most acceptance.

The rejected areas established parameters—an unfair high and an unfair low—which contained the range. Then the market negotiated within this range to establish value.

The session on page 15 is the end result of the negotiating process for Dec bond futures on 9/5/86—an unfair high area at 97-14 to 97-05, an unfair low area at 96-04 to 96-06 and value roughly in the middle, a little closer to the unfair low.

We're going to look at this session time period by time period so that you can see how the negotiating process works in detail. But before we do that, let's discuss the different kinds of range development.

Kinds Of Range Development

As noted earlier, the longer-term trader affects the way the range develops. Now you'll see what that means.

If the longer-term trader is not very active, you have what Steidlmayer calls a "**normal**" day.

The session we've been examining on page 15 is a normal day. Look at the first column in the profile graphic. Steidlmayer calls this column the **pioneer range** because it shows you the first time a price is hit in a session.

Look at the graphic and you can see that the range for the day was established in the first half hour of trading. In 1986, the short-term trader found the initial balance in bond futures in the first hour of trading—in A and B periods. *On normal days, 85% or more of the range is formed in the initial balance period.* Any range extension is usually slight and occurs late in the day.

In other words, the short-term trader basically establishes parameters for the day's range. Then the market rotates between those parameters for the entire session.

What is the characteristic of a normal day?

The short-term trader sets the parameters that contain the range.

In other words, the short-term trader is in control. The market has found a fair price and is distributing around it.

If the longer-term trader is more active and extends the range past the initial balance area, you have what Steidlmayer calls a "**normal variation**" day.

Look at page 16. The market's initial balance is found in CBOT grain futures in the first hour of trading. (In D and E periods at that time; now in T and U periods.) Look at the pioneer range and you can see that the initial balance area covers 621½ to 628.

In G period, the longer-term trader came into the market with enough volume to tip the market's initial balance and extend the range. The range extension started at 628¼ and continued up to 633.

What is the characteristic of a normal variation day?

The longer-term trader extends the range past the initial balance area.

The short-term trader's initial parameters do not hold. There is some directional movement which extends the range and sets a new high or low parameter.

In this example, the range extension is approximately double the initial balance area. Therefore, control is roughly divided between the short- and the longer-term trader. If the range extension were wider than the initial balance, the longer-term trader would be in control. *That's why maximum range extension on a normal variation day is roughly double the initial balance area.*

It's important to keep in mind, however, that this is the maximum. The range extension on a normal variation day isn't always that wide. It can be anywhere from a few ticks to about double the initial balance. Naturally, the wider the range extension, the greater the influence of the longer-term trader.

When the range extension is considerably more than double the initial balance area, you have what Steidlmayer calls a "**trend**" day.

Look at the example on page 17. This is a grain future and the market's initial balance is found in the first hour of trade—in D and E periods here.

The initial balance area covers 502¼ to 505¼. It is roughly ⅓ of the day's range and the range extension—from 505½ to 511—is roughly ⅔ of the range. You can also see that the market moved in one direction all day. The longer-term trader kept extending the range up—first in G, then in I, J and K periods.

What is the characteristic of a trend day?

The market moves in one direction and closes on the directional extreme.

The longer-term trader is in control. The market is moving directionally in search of a fair price.

When there is range extension but no net influence from the longer-term trader, you have what Steidlmayer calls a "**neutral**" day.

Look at page 18. The longer-term trader first extended the range down in F period and then changed his mind and extended it up in L period. Neutral days indicate uncertainty. Often the market uses these days to change direction.

What is the characteristic of a neutral day?

There is range extension in both directions.

To Sum Up

It helps to think of control in terms of range extension.

When there is no range extension, the short-term trader is in control.

When the longer-term trader sets a new higher or lower parameter at one end of the range, he is exerting more influence. If the range extension is roughly double the initial balance area, control is roughly divided between the short- and longer-term trader.

If the range extension is considerably more than double the initial balance area, the longer-term trader is in control.

When the longer-term trader extends the range in both directions, one range extension generally cancels out the other. In that case, the longer-term trader has no net influence on the session. Therefore, the short-term trader is basically in control.

Dow Jones Industrial Average: Weekly Bar Chart



Normal Day: A Balanced Situation

MARKET PROFILE®
CBOT US BONDS

Market Profile® Graphic
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Trade Price

97 14/32
97 13/32
97 12/32
97 11/32
97 10/32
97 9/32
97 8/32
97 7/32
97 6/32
97 5/32
97 4/32
97 3/32
97 2/32
97 1/32
97
96 31/32
96 30/32
96 29/32
96 28/32
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**Pioneer
range**

Half Hour Bracket Times

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**Rejected TPOs
Unfair high area**

Accepted TPOs

Value area

**Rejected TPOs
Unfair low area**

Normal Variation Day: Combination Of Balance And Imbalance

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SOYBEANS

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Trade Price

633
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632 1/2
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630 3/4
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621 3/4
621 1/2

Half Hour Bracket Times

[illegible]

Range extension up

Initial balance

Trend Day: An Imbalanced Situation

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Trade Price

Half Hour Bracket Times

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Range extension

Initial balance

Neutral Day: A Balanced Situation

MARKET PROFILE®
CBOT US BONDS

Trade Price

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88 6/32
88 5/32
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87 31/32
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Half Hour Bracket Times

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F | extension down

Range Development And Balance And Imbalance

A strategy that works when the market is balanced and rotating (trading range market) is not going to be appropriate when the market is imbalanced and moving directionally (trending market). Thus an ability to recognize the difference can have a major impact on your bottom line.

When the longer-term trader has the least influence, the market is the most balanced.

What kind of range development is balanced?

- **Normal days:** the entire range or roughly 85% of the range is formed in the initial balance period. Therefore, there is either no range extension or very little range extension.

- **Neutral days:** one range extension generally cancels out the other so there is no net influence from the longer-term trader.

As the longer-term trader's influence increases, he creates an imbalance.

What kind of range development do you have when the longer-term trader introduces imbalance?

- **Normal variation days:** the longer-term trader extends the range past the initial balance area. Specifically, you have balance, imbalance and then adjusted balance. On the most imbalanced normal variation day, the range extension roughly doubles the initial balance area.

When the longer-term trader exerts maximum influence, the market is the most imbalanced.

What kind of range development do you have?

- **Trend days:** the market moves in one direction and closes on the directional extreme. The range extension is generally more than twice as long as the initial balance area.

Kinds Of Range Development

- **NORMAL**

- > Short-term in control.
- > Balanced situation.
- > 80% of the volume is short-term; 20% is longer-term.

- **NEUTRAL**

- > Short-term in control.
- > Balanced situation.
- > 70% of the volume is short-term; 30% is longer-term.

- **NORMAL VARIATION**

- > Control is divided.
- > Combination of balance and imbalance.
- > If a little range extension, 80% of the volume is short-term; 20% is longer-term. If a lot of range extension, 60% of the volume is short-term; 40% is longer-term.

- **TREND**

- > Longer-term in control.
- > Imbalanced situation.
- > 40% of the volume is short-term; 60% is longer-term.

Stop And Test Yourself

Q. There are two kinds of prices. What are they?

A. Accepted and rejected. An accepted price area is simply a price area where the market trades over time. Accepted prices show value.

A rejected price area is simply a price area where the market spends very little time. Rejected prices show excesses in the market – an unfair high and an unfair low.

Q. There are two kinds of activity. What are they?

A. Day time frame which is short-term activity and other time frame which is longer-term activity.

Q. Activity (short- or long-term) is defined by what?

A. Behavior. The short-term trader is seeking a *fair price*. The longer-term trader is seeking an *advantageous price*.

Q. What is the role of the short-term trader?

A. The short-term trader establishes an initial balance area so that two-sided trade can occur.

Q. What is the role of the longer-term trader?

A. The longer-term trader moves the market directionally.

Q. Which trader is responsible for the way the range (normal, normal variation, trend, neutral) develops?

A. The longer-term trader.

In other words, the amount of activity executed by the longer-term trader determines whether the market is balanced and rotating or imbalanced and moving directionally.

The more influence the longer-term trader exerts, the greater the range extension and the more imbalanced the market.

Q. The market moves from what to what and back again in order to facilitate trade?

A. Imbalance to balance.

Now, we're going to look at range development in greater detail. Basically, all activity in a session can be included in three categories:

...activity that produces single print extremes.

...activity that produces range extension.

...activity that produces a value area.

To get as much information on the longer-term trader as possible, Steidlmayer divides the range into these three areas—extremes, range extension and value area—and monitors the longer-term trader's behavior in each area. Even when the longer-term trader is least active (on normal days), he still can influence development on the extremes and in the value area.

So we'll start by looking at the extremes and the value area on a normal day.

Earlier, we said the market establishes parameters and then negotiates between them, developing value. This is the negotiating process. To help you see how the process establishes parameters (which are extremes) and develops value, we're going to examine the session on 9/5/86, time period by time period.

Before we begin, though, some background.

Extremes are formed when the longer-term trader competes with the short-term trader for opportunities at that price level. The more eager he is to compete, the longer the single print extreme.

To show that the longer-term trader was interested enough to compete, you need at least two single prints. One single print shows you that the market offered an opportunity and no one wanted it.

The more single prints there are, the stronger the competition.

With that said, let's look at the session on pages 22 to 33. Keep in mind that extremes are formed by competition; the value area is formed by rotations.

The Market Opens And Moves Directionally

MARKET PROFILE® CBOT US BONDS

Trade Price

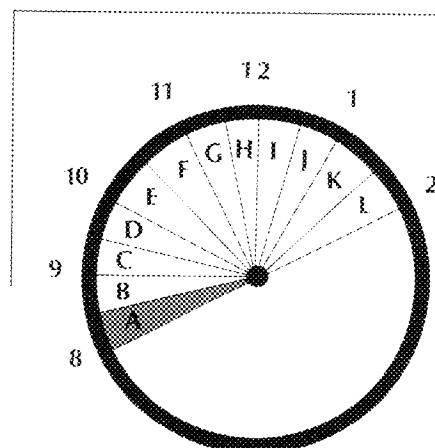
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Half Hour Bracket Times



- For the sake of simplicity, we're going to say the market opens at 97-14. In Part III, we'll discuss exactly where the market opens and the implications.
- Selling moves the market out of the area—down to 96-04. We know it was selling because the market moves down to shut off selling. As the market moves down, it is advertising for an opposite response.
- There is so much competition from the longer-term seller that the short-term trader has to move the market down more than a point.

Establishes Parameters

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CBOT US BONDS

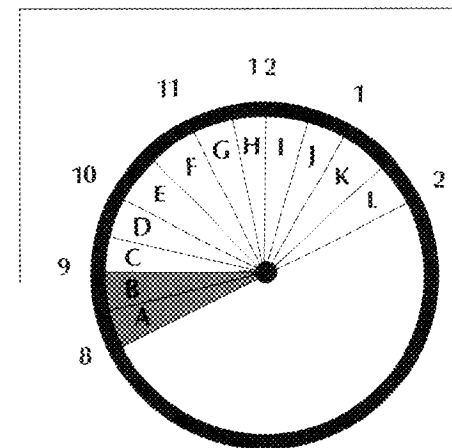
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Half Hour Bracket Times

[illegible]

- The market gets an opposite response at 96-04. The buyer comes in and the market trades up. We know it was the buyer because the market moves up to shut off buying.
- The market rotates up in B period to 96-23. We've established initial parameters. Will they hold?

Finds The Bottom Of Value

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CBOT US BONDS

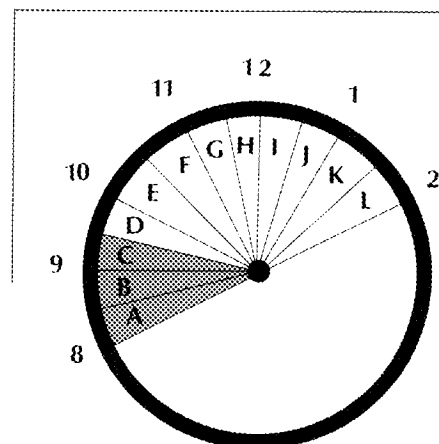
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Half Hour Bracket Times



- The market gets an opposite response at 96-23 and rotates down in C period to 96-07.
- The C period move is testing the low parameter. It takes out some of the initial extreme but buying comes in at 96-07 and the parameter holds.

Expands Value Again

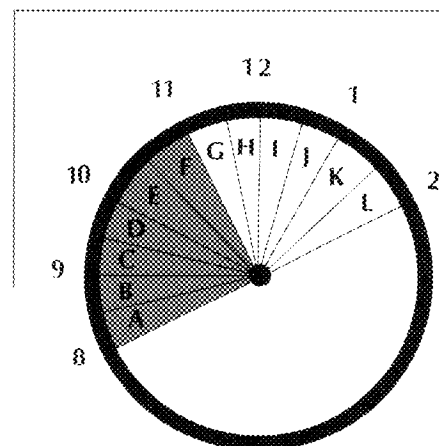
MARKET PROFILE[®]
CBOT US BONDS

Trade Price

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Half Hour Bracket Times

[illegible]

- The up move attracts more buying in F period. The market rotates up to 96-29.
- Note the higher lows and higher highs. Because the market continues to bring in a like response, the up auction is continuing. The market is continuing to expand the value area.

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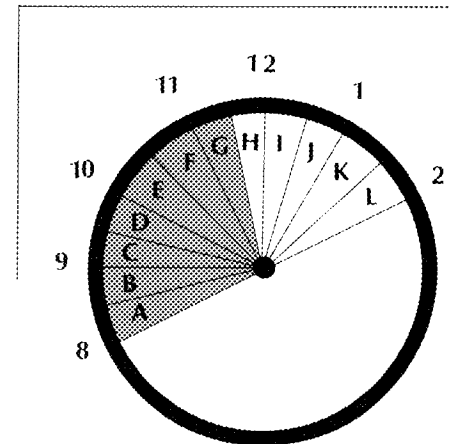
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-

Finds The Top Of Value

MARKET PROFILE®
CBOT US BONDS

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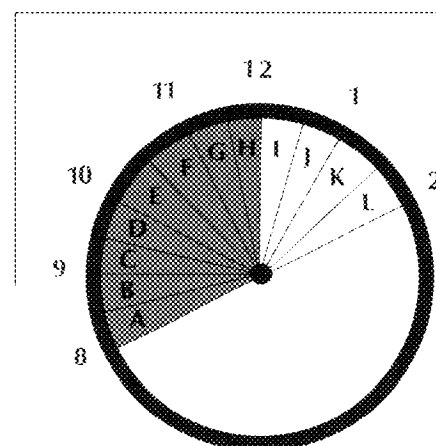
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Half Hour Bracket Times

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- At 97-04, the market has moved high enough to bring in an opposite response. The up auction ends and the market starts to rotate back down.
- Note that the end of the up auction is the beginning of the down auction. In other words, the end of the up rotation in G period is the beginning of the down rotation in H period.
- Also note how the up move overlapped time periods. If you bought at 96-11 in D period, you didn't have to offset until G period when the market brought in an opposite response strong enough to reverse the up move.

Continues To Develop Value With Rotations

MARKET PROFILE® CBOT US BONDS

Trade Price

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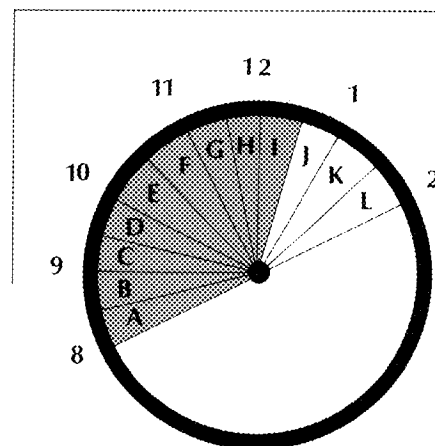
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Half Hour Bracket Times

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■ The down move brings in more selling. I period starts trading at 96-22 and rotates down to 96-09.

■ The down auction that began in G period is continuing.

Rotates Between Parameters

MARKET PROFILE[®]
CBOT US BONDS

Unit Price	Unit Price
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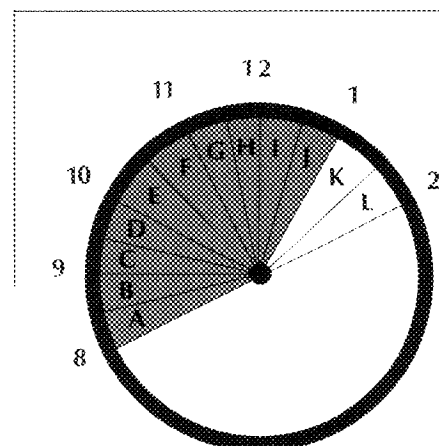
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Half Hour Bracket Times

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- At 96-09 in I period, the selling seems to dry up. In other words, it seems as though the last seller has sold and the down move stops.
- Buying comes in and the market rotates up to 96-21 in J period.

Defines Value More Precisely

MARKET PROFILE® CBOT US BONDS

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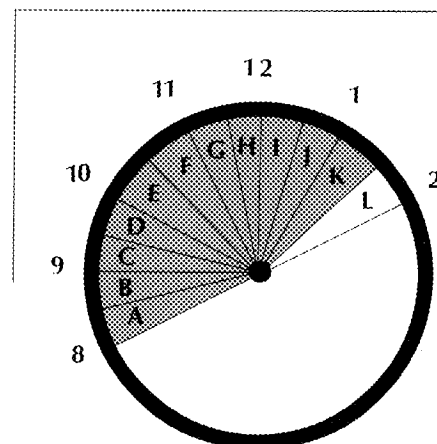
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Half Hour Bracket Times

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- The up move brings in more buying and K period continues the rotation up to 96-31.
- Note that the rotations are starting to define value more precisely. The market spent the most time between 96-29 on the upside and 96-11 on the downside.

TPO Value Area Complete

MARKET PROFILE® CBOT US BONDS

Trade Price

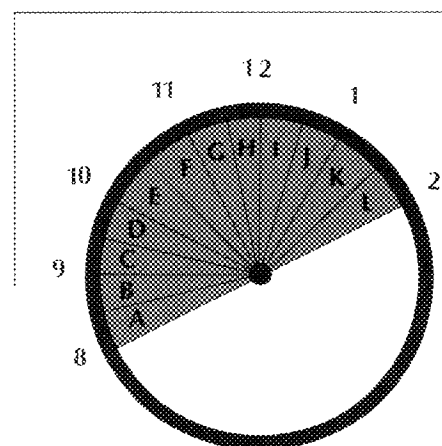
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Half Hour Bracket Times

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- The up move in K brings in selling; the market rotates down in L.
- At the end of the session, the negotiating process has defined an unfair high area from 97-14 to 97-05, and an unfair low area from 96-04 to 96-06 with value in between.
- The market negotiated along the entire range to find the price area that most precisely represented value. It tested the upside in G period and the downside in C period.
- In this session, the range that most precisely represented value was defined by 96-28 on the upside and 96-12 on the downside. This was the range in which 70% of the day's trade occurred – *the volume value area*.
- What Steidlmaier calls the "TPO value area" is defined by 97-04 on the upside and 96-07 on the downside. This is the area covered by the value area rotations. Rotations in C and G periods took out some of the initial A period extremes.

The longer-term trader was relatively active in the value area on 9/5/86 because the rotations are relatively wide.

When he is not very active, you have a session that looks like the example below.

This is a profile of bond futures on the day after the Thanksgiving holiday, 11/24/89—a traditionally inactive trading session.

Volume for the Dec contract on 11/24/89 was only 116,840. There are no extremes, a two-tick range extension (the entire range was only nine ticks) and extremely narrow value area rotations.

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CBOT US BONDS

Trade Price

99 29/32
99 28/32
99 27/32
99 26/32
99 25/32
99 24/32
99 23/32
99 22/32
99 21/32

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Half Hour Bracket Times

BCDEF
ABCDEF
ABCDEF
Z\$ACFG
Z\$ACFGH
Z\$ACFGHI
Z\$FGHIJKL
FGHIJKL
F

Relating To The Bigger Picture

All market activity is essentially a variation of the two types of behavior you've seen in this session:

- behavior that results in an imbalanced directional move.
- behavior that results in balanced rotations.

The imbalanced, directional A period move down occurred because market participants were seeking a fair price. The balanced rotations occurred because market participants found a fair price at 96-21 and were selling above and buying below.

Understanding these behavior patterns will make it easier for you to react quickly to opportunity as the day develops.

Each kind of day—normal, normal variation, trend, neutral—creates a different kind of opportunity: a balanced situation creates opportunity with rotations; an imbalanced situation creates opportunity with a directional move.

You'll be able to trade earlier *and* more effectively if you recognize which situation you're dealing with.

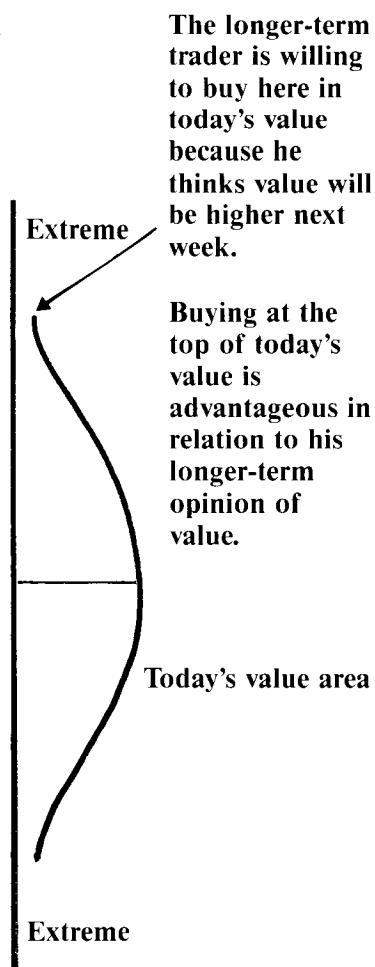
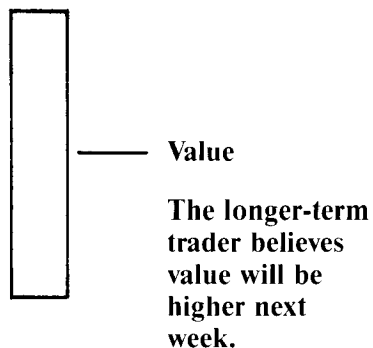
For example, if you recognize a normal day early, in other words *a balanced situation*, you won't waste time on strategies that capitalize on substantial range extension. Instead, you'll concentrate on buying the low and selling the high of the value area rotations.

Consider the session we've just examined. Look at page 33.

The early parameters established in the first half hour contained the day's range. You were dealing with a balanced situation so there was no opportunity *to sell* at the low end of the range after the buying came in at 96-04.

As value developed between the parameters, the longer-term trader tested the low parameter in C, I and J periods. But it held because the longer-term trader never came into the market with enough volume to tip the initial balance. The result: no range extension. Therefore, recognizing the down rotation in C period as an opportunity *to buy* would have given you an edge.

Who Is Most Active In The Value Area?



Now that you've seen how a value area develops, we're going to determine which longer-term trader—buyer or seller—is most active in the value area. Although they're both going to be active at various times in the session, we are looking for the net influence at the end of the day.

We are able to make this determination because the longer-term trader has a known behavior pattern when he trades in the value area.

The behavior pattern: the longer-term trader gives up an edge in order to make the trade. He's willing to do this because something that is fair in the day can be a bargain in a longer-term time frame.

In other words, when the longer-term trader makes a trade in the value area, he is buying low or selling high in relation to longer-term value—not in relation to today's value.

The behavior pattern's effect: an imbalance in the value area.

If the longer-term buyer is most active, the value area is slightly too high because he is willing to buy at a slightly higher price. If the longer-term seller is most active, the value area is slightly too low because he is willing to sell at a slightly lower price.

How do you find the imbalance? Look at page 38 on the left.

Use the fairest price in the value area—the price that trades in the most time brackets—as your reference point. If more than one price trades in the same number of time brackets, choose the one closest to the mid-point of the *entire* range.

We're taking the one closest to the mid-point of the entire range because, as you saw in the example we just went through, *the market uses the entire range to find value*. It establishes parameters and then negotiates along the entire range between them.

Draw a line through the TPOs opposite the fairest price.

Now count all the double prints above the fairest price and all the double prints below it. (Double prints refer to any row of TPOs opposite a price in the day's range with two or more TPOs in it.) We're counting TPOs because they represent market activity. In this example, there are 70 above and 89 below.

The imbalance we are looking for is on the side with the *least* amount of activity because the longer-term trader is only a small percentage of total trade in the value area.

To explain more fully, the value area is primarily for traders seeking a fair price.

Therefore, the side with the most activity *has* to be short-term activity. That's where the price in the value area will be fairest. In other words, no one is giving up an edge there.

Returning to this example, the side with the least amount of activity is *above* the fairest price. Since the market moves up to shut off buying, the longer-term buyer was most active in this value area.

There are more value area examples on the right and on page 39.

You don't know until the end of a session which longer-term trader was most active because the seller can be most active at one point and the buyer at another. Consequently, the value area can be slightly too low at one point and slightly too high at another. To demonstrate, see page 40.

It's not necessary to do a TPO count on trend days. It is obvious from the rotations which longer-term trader is most active in the value area because the market is moving in one direction. Look at the trend day example on page 17 again.

Range Extension

Now we're ready to examine the third form of activity: range extension.

So far, we've looked at extremes formed by competition and the value area formed by rotations. Range extension occurs when the longer-term trader enters with enough volume to tip the market's balance.

To examine range extension, look at the example on page 41.

Look at the pioneer range (first column in the profile graphic). You can see that the initial balance area covers 608 to 602 1/2. The long-term seller entered the market with enough volume in F period to tip the initial balance and extend the range down.

Range extension down continued in G and K periods until it about doubled the initial balance area. Who was responsible for tipping the market's balance? *We know it was the seller extending the range down because the market moves down to shut off selling.*

Also note that the single prints in K period do not form an extreme at the low. The K period range extension is an untested price probe.

The reason: K is the last trading period in the CBOT grain contracts. Therefore, we don't know for sure if the market traded low enough to find an opposite response. There may have been competition from the buyer but we can't be certain. In other words, competition couldn't be confirmed by subsequent activity because K was the last trading period.

Consider the D period extreme at the top of the range.

D was the market's first trading period. So you know that the seller was competing for opportunities at that level. His competition was confirmed by the trading that occurred later in the session.

In K period, on the other hand, because there was no subsequent trading, you don't know for sure that the market went low enough to bring in an opposite response. Confirmation will have to wait until the next trading session.

Look at the soybean example on page 42.

On 6/15/90, the market tested the downside with a price probe in K period. The next day's lower opening brought in buying. Competition from the buyer was confirmed by subsequent trading.

On 6/18/90, because of the single prints in D period *there is no question that the buyer was competing for opportunities at that level.*

Before we go on, there's one more thing to point out.

Look at the example on page 43.

This is a soybean report. Therefore, the initial balance area is 559 to 564 1/2 (D and E periods). The longer-term buyer came in with enough volume to tip the market's initial balance in F period.

He extended the range up in F period and the range extension continued in G period up to 571 1/2. At that point, the market moved high enough to interest the longer-term seller. His competition formed an extreme at the top.

Two things happened here—in the same price area but not at the same time.

■ *One*, the buyer extended the range up to 571 1/2.

■ *Two*, the seller was attracted by the opportunity at 571 1/2 and his competition formed an extreme at the top.

So in this example, you have range extension up—buying activity—and an extreme at the top—selling activity.

The market moved up first to shut off buying and then down to shut off selling. *The buyer and the seller were both active at the high end of the range but not at the same price, at the same time.* This is an example of their trading in the same price area at different times.

The long-term buyer and the long-term seller did not trade with *each other* at the same price because the same price cannot be advantageous for both at the same time. That's why we can identify two kinds of activity at the top of the range—first buying and then selling.

That's the first step in monitoring the longer-term trader's activity: knowing whether he is buying or selling in the three areas of the range. The second step is to determine if that buying or selling is expected or unexpected behavior. But before we go on, stop and test yourself on the material we've just covered. The test is on page 44.

Value Area Activity

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Trade Price	Half Hour Bracket Times	
97 14/32	A	
97 13/32	A	
97 12/32	A	
97 11/32	A	
97 10/32	A	
97 9/32	A	
97 8/32	A	
97 7/32	A	
97 6/32	A	
97 5/32	A	
97 4/32	AG	70 TPOs
97 3/32	AG	
97 2/32	AG	
97 1/32	AG	
97	AG	
96 31/32	AGHK	
96 30/32	AGHKL	
96 29/32	AFGHKL	89 TPOs
96 28/32	AFGHKL	
96 27/32	AFGHKL	
96 26/32	AEFHKL	
96 25/32	AEFHKL	
96 24/32	AEFHKL	
96 23/32	ABEFHKL	
96 22/32	ABEFHKL	
96 21/32	ABCDEFGHIJKL	
96 20/32	ABCDEHIJL	
96 19/32	ABCDEHIJL	89 TPOs
96 18/32	ABCDEIJJL	
96 17/32	ABCDEIJJL	
96 16/32	ABCDEIJJL	
96 15/32	ABCDEIJJL	
96 14/32	ABCDEIJJL	
96 13/32	ABCDIJJL	
96 12/32	ABCDIJJ	
96 11/32	ABCDIJJ	
96 10/32	ACIJJ	
96 9/32	ACIJJ	89 TPOs
96 8/32	AC	
96 7/32	AC	
96 6/32	A	
96 5/32	A	
96 4/32	A	

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Trade Price	Half Hour Bracket Times	
691 1/2	D	
691 1/4	D	
691	D	
690 1/2	D	
690 1/4	D	
690	D	
689 3/4	D	
689 1/2	DE	28 TPOs
689 1/4	DE	
689	DE	
688 3/4	DE	
688 1/2	DEFJ	
688 1/4	DEFJ	
688	DEFHJK	
687 3/4	DEFHJK	Fairest price
687 1/2	DEFHJK	
687 1/4	DEFHJK	48 TPOs
687	EFHGIJK	
686 3/4	EFHGIJK	
686 1/2	EFHGIJK	
686 1/4	FGHIJK	
686	GHIJK	
685 3/4	GHIJK	
685 1/2	GIJK	
685 1/4	GIK	
685	IK	
684 3/4	IK	48 TPOs
684 1/2	K	
684	K	

- The least amount of activity is above the fairest price. Since the market moves up to shut off buying, the buyer is most active in these value areas.

Value Area Activity

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Trade Price	Half Hour Bracket Times	
622 1/2	E	
622	E	
621 3/4	E	
621 1/2	EIJ	} 57 TPOs
621 1/4	EIJ	
621	EIJ	
620 3/4	EIJ	
620 1/2	EIJ	
620 1/4	EIJ	
620	EGIJK	
619 3/4	EFGIJK	
619 1/2	EFGHIJK	
619 1/4	EFGHIJK	
619	EFGHIJK	
618 3/4	EFGHIJK	
618 1/2	EFGHIJK	} Fairest price
618 1/4	EFGHJK	
618	EFGHJK	} 37 TPOs
617 3/4	EFHK	
617 1/2	EFHK	
617 1/4	EFK	
617	EFK	
616 3/4	EK	
616 1/2	DEK	
616	DE	
615 3/4	DE	
615 1/2	DE	
615	D	
614 3/4	D	
614 1/2	D	
614 1/4	D	
614	D	
613 1/2	D	
613 1/4	D	
613	D	
612 1/2	D	
612	D	
611 1/2	D	
611	D	
610 1/2	D	

- The least amount of activity is below the fairest price. Since the market moves down to shut off selling, the seller is most active in the value area.

Activity Can Shift In The Value Area

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Trade Price	Half Hour Bracket Times	Trade Price	Half Hour Bracket Times
94 21/32	A	94 23/32	D
94 20/32	A	94 22/32	D
94 19/32	\$A	94 21/32	ADE
94 18/32	\$A	94 20/32	ADE
94 17/32	\$A	94 19/32	\$ACDE
94 16/32	Z\$AB	94 18/32	\$ACDE
94 15/32	Z\$AB	94 17/32	\$ACD
94 14/32	Z\$B	94 16/32	Z\$ABCD
94 13/32	Z\$B	94 15/32	Z\$ABC
94 12/32	Z\$B	94 14/32	Z\$BC
94 11/32	\$B	94 13/32	Z\$BC
94 10/32	\$	94 12/32	Z\$B
		94 11/32	\$B
		94 10/32	\$
TPO buying		TPO selling	

Trade Price	Half Hour Bracket Times	Trade Price	Half Hour Bracket Times
94 26/32	F	94 31/32	K
94 25/32	F	94 30/32	HIK
94 24/32	F	94 29/32	HIK
94 23/32	DF	94 28/32	GHIK
94 22/32	DF	94 27/32	GHIJK
94 21/32	ADEF	94 26/32	FGHIJK
94 20/32	ADEF	94 25/32	FGHIJKL
94 19/32	\$ACDEF	94 24/32	FGHIKL
94 18/32	\$ACDEF	94 23/32	DFGHKL
94 17/32	\$ACDF	94 22/32	DFGHL
94 16/32	Z\$ABCD	94 21/32	ADEFGHL
94 15/32	Z\$ABC	94 20/32	ADEFGHL
94 14/32	Z\$BC	94 19/32	\$ACDEFGL
94 13/32	Z\$BC	94 18/32	\$ACDEFL
94 12/32	Z\$B	94 17/32	\$ACDFL
94 11/32	\$B	94 16/32	Z\$ABCDL
94 10/32	\$	94 15/32	Z\$ABCL
		94 14/32	Z\$BCL
		94 13/32	Z\$BCL
		94 12/32	Z\$BL
		94 11/32	\$B
		94 10/32	\$
TPO buying		TPO selling	

- You don't know until the end of a session which longer-term trader was most active because the seller can be most active at one point and the buyer at another. Therefore, the value area can be slightly too low at one point and slightly too high at another.

Active Enough To Tip The Balance

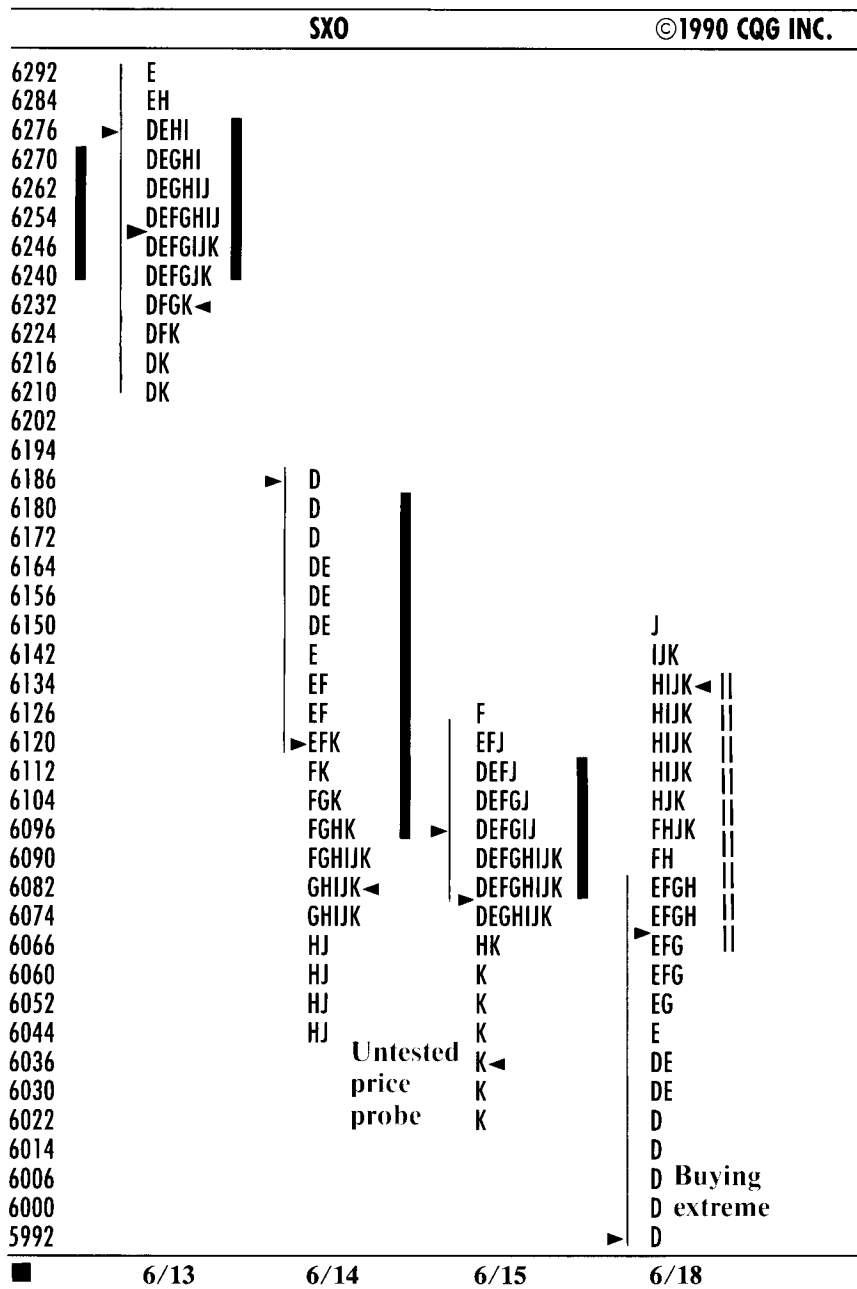
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SOYBEANS

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Trade Price		Half Hour Bracket Times	
Initial balance	608	D	Competition from the seller forms extreme
	607 3/4	D	
	607 1/2	D	
	607 1/4	D	
	607	D	
	606 3/4	D	
	606 1/2	D	
	606 1/4	D	
	606	D	
	605 3/4	D	
	605 1/2	D	
	605 1/4	D	
	605	DEJ	
	604 3/4	DEJ	Range extension
	604 1/2	EJ	
	604 1/4	EJ	
	604	EJK	
	603 3/4	EFGJK	
	603 1/2	EFGJK	
	603 1/4	EFGJK	
	603	EFGJK	
	602 3/4	EFGJK	
	602 1/2	EFGIJK	
	602 1/4	FGIJK	
	602	FGIJK	
	601 3/4	FGIJK	
	601 1/2	GHIJK	
	601 1/4	GHIJK	
	601	GHIJK	
	600 3/4	GHIJK	
	600 1/2	GHIJK	
	600 1/4	GHIK	
	600	GHIK	
	599 3/4	GHIK	
	599 1/2	GHIK	
	599 1/4	GHIK	
	599	GK	
	598 3/4	GK	
	598 1/2	GK	
	598 1/4	GK	
	598	GK	
	597 3/4	K	
	597 1/2	K	
	597 1/4	K	
	597	K	
	596 1/2	K	
	596 1/4	K	
	596	K	

Not an
extreme

Dec 90 Soybean Futures



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Two Kinds Of Activity At The Top Of The Range

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Trade Price

571 1/2

571 1/4

571

570 1/2

570 1/4

570

569 3/4

569 1/2

569 1/4

569

568 3/4

568 1/2

568 1/4

568

567 3/4

567 1/2

567 1/4

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566 3/4

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560 1/2

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560

559 3/4

559 1/2

559 1/4

559

Selling
extreme

Half Hour Bracket Times

G

G

G

G

G

GH

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GH

FGH

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Range
extension up

Initial
balance

Stop And Test Yourself

Q. What kind of activity forms extremes?

A. Competition.

Q. Why do you need at least two single ticks to indicate an extreme?

A. If the longer-term trader doesn't move the market at least two ticks, he's not interested enough to compete.

Q. The greater the number of single prints, the _____?

A. More eager the longer-term trader is to compete.

Q. What kind of activity forms a value area?

A. Rotations.

Q. What is the longer-term trader's known behavior pattern when he trades in the value area?

A. He gives up an edge in order to put the trade on. In other words, he buys at a slightly higher price and sells at a slightly lower price.

Q. What is the impact of this behavior pattern?

A. It creates a slight imbalance in the value area.

Q. What reference point do you use to find the imbalance?

A. The fairest price in the value area—the price that trades in the most time brackets or, if more than one price trades in the same number of time brackets, the one closest to the mid-point of the *entire* range.

Q. Is the imbalance we are looking for on the side with the most activity or with the least activity?

A. The side with the least activity.

Q. Why does the side with the least activity reflect the longer-term trader?

A. Because the value area is primarily for traders seeking a fair price. Therefore, the side with the most activity has to reflect the short-term trader who is seeking a fair price. No one is giving up an edge on the side with the most activity.

Q. If the imbalance is above the fairest price, who is most active, buyer or seller?

A. The buyer because the market moves up to shut off buying.

Q. If the imbalance is below the fairest price, who is most active, buyer or seller?

A. The seller because the market moves down to shut off selling.

Q. What kind of activity forms range extension?

A. When the longer-term trader enters the market with enough volume, he tips the existing balance and extends the range.

Q. Who is responsible for range extension up, buyer or seller?

A. The buyer because the market moves up to shut off buying.

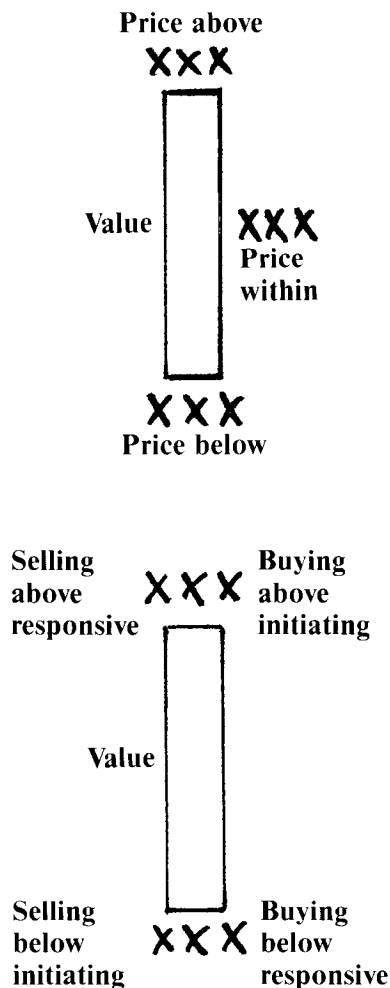
Q. Who is responsible for range extension down, buyer or seller?

A. The seller because the market moves down to shut off selling.

Q. If you have both range extension up *and* selling on the high extreme, which kind of activity occurred first?

A. Range extension up. Range extension up brought in selling. Then competition from the seller formed an extreme at the top.

Initiating And Responsive Activity



As noted earlier, price can only have three relationships to value: above it, below it or within it.

Therefore, if we relate price in today's session to the previous day's value area, we can classify the longer-term trader's buying or selling in today's session as expected or unexpected.

Steidlmayer calls expected behavior "**responsive**." He calls unexpected behavior "**initiating**."

- Buying below value is expected; it is responsive activity.
- Buying above value is unexpected; it is initiating activity.
- Selling above value is expected; it is responsive activity.
- Selling below value is unexpected; it is initiating activity.

Activity within value is a judgment call. You can call it either initiating or responsive depending on the context.

Generally, unexpected or initiating activity is stronger than expected or responsive activity. Nevertheless, these are general categories. There will be times when initiating activity above or below value is not facilitating trade and that, too, is a piece of information.

As you work with the data, you'll learn to make nuanced judgments.

Typically, the more confident the longer-term trader is that the market is under or overvalued, the more likely he is to initiate activity.

Also, keep in mind that the more active he is, the more imbalanced the market. That's why we're always focusing on what the longer-term trader is doing – *because he's responsible for any imbalance and imbalance creates opportunity*.

The more imbalanced the market, the further it has to go to reach equilibrium (or to find an opposite response). The further the market has to go to reach equilibrium, the better the opportunity.

In Part II of the Guide, you'll see how to use this information on activity in a single session to monitor longer-term trends.

Chicago Board of Trade Market Profile® Symbols

The following table shows the time bracket with the old and the new bracket codes.

	Old	New
12:00 MID - 12:30 AM		A
12:30 AM - 1:00 AM		B
1:00 AM - 1:30 AM		C
1:30 AM - 2:00 AM		D
2:00 AM - 2:30 AM		E
2:30 AM - 3:00 AM		F
3:00 AM - 3:30 AM		G
3:30 AM - 4:00 AM		H
4:00 AM - 4:30 AM		I
4:30 AM - 5:00 AM		J
5:00 AM - 5:30 AM		K
5:30 AM - 6:00 AM		L
6:00 AM - 6:30 AM		M
6:30 AM - 7:00 AM		N
7:00 AM - 7:30 AM	Z	O
7:30 AM - 8:00 AM	\$	P
8:00 AM - 8:30 AM	A	Q
8:30 AM - 9:00 AM	B	R
9:00 AM - 9:30 AM	C	S
9:30 AM - 10:00 AM	D	T
10:00 AM - 10:30 AM	E	U
10:30 AM - 11:00 AM	F	V
11:00 AM - 11:30 AM	G	W
11:30 AM - 12 NOON	H	X
12 NOON - 12:30 PM	I	a
12:30 PM - 1:00 PM	J	b
1:00 PM - 1:30 PM	K	c
1:30 PM - 2:00 PM	L	d
2:00 PM - 2:30 PM	M	e
2:30 PM - 3:00 PM	N	f
3:00 PM - 3:30 PM	O	g
3:30 PM - 4:00 PM		h
4:00 PM - 4:30 PM		i
4:30 PM - 5:00 PM		j
5:00 PM - 5:30 PM	P	k
5:30 PM - 6:00 PM	Q	l
6:00 PM - 6:30 PM	R	m
6:30 PM - 7:00 PM	S	n
7:00 PM - 7:30 PM	T	o
7:30 PM - 8:00 PM	U	p
8:00 PM - 8:30 PM	V	q
8:30 PM - 9:00 PM	W	r
9:00 PM - 9:30 PM	X	s
9:30 PM - 10:00 PM		t
10:00 PM - 10:30 PM		u
10:30 PM - 11:00 PM		v
11:00 PM - 11:30 PM		w
11:30 PM - 12:00 MID		x

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PART II

USING MARKET PROFILE® DATA TO MONITOR LONG-TERM TRENDS



Chicago Board of Trade

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**PART II:
USING MARKET PROFILE®
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LONG-TERM TRENDS**

CONTENTS

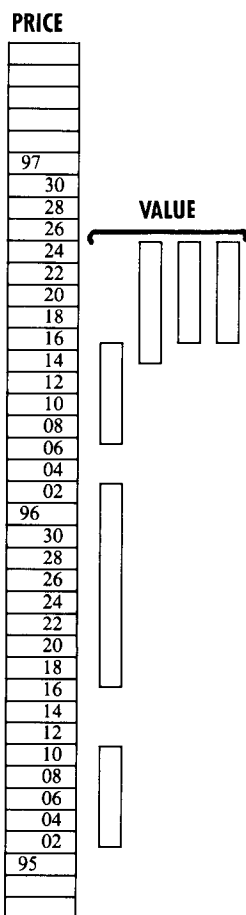
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THE LONG-TERM AUCTION CHART

Part I of this Home Study Guide discusses activity in a single session. In Part II, we're going to look at activity in longer-term trends. Once again, we're going to focus on the longer-term trader because, just as he determines how a single session develops, his willingness to buy or to sell determines how long a major trend lasts.

We're going to monitor his activity with the help of the long-term auction chart.

The Format



This longer-term graphic takes daily information on **price**, **value** and **market activity** (the activity of the longer-term trader in the three areas of the range—extremes, range extension, value area) and organizes it visually.

The *price* range of the auction is in the center of the chart.

To the right of the price range, opposite the appropriate prices, are rectangles representing the range of the daily *value* areas. This is the range in which 70% of the day's trade occurred—in other words, the first standard deviation. (Look at page 51 to see how the 70% range is calculated.)

The wider the 70% range, the better the market is facilitating trade. Why? When market participants feel confident about value, they are willing to trade in a larger area.

The rectangles representing value move up or down as the market trends up or down. As long as value is moving *vertically*, the auction or trend is continuing. In other words, the long-term range is expanding up or down.

Steidlmayer's long-term format is vertical because price moves vertically—up or down. The rectangles representing value move to the right *only* if the auction stalls and the market starts to trade sideways.

You can see at a glance whether value is moving up or down or if it is moving sideways.

That takes care of **price** and **value**. The other component of a long-term trend is **market activity**.

Why is market activity on the chart? It's not on other long-term graphics such as bar charts, for example.

This chart shows the activity of longer-term buyers and sellers because it is their activity that moves price up, down or sideways. In the broadest terms, if an up trend is going to continue, you need strong activity from the buyer. Conversely, if a down trend is going to continue, you need strong activity from the seller.

See page 52. Daily information on longer-term *buying* activity in the three areas of the range is on the right. Daily information on longer-term *selling* activity in the three areas of the range is on the left. (Since we're always discussing the *longer-term* buyer and seller's activity, we're just going to use the terms buyer and seller from this point on.)

70% Range Calculation

Contracts		Total volume	555
10 X		70% volume	388
50 XX			
70% range	80 XXX		
	90 XXXX		
	150 XXXXX ◀		
	70 XXX		
	60 XX		
20 X			
15 X			
10 X			

■ To calculate the 70% range, start with the high volume price. If that volume is 70% or more of the day's total, that's the range.

■ If it is not, check the volume for the two prices above the high volume price and the two prices below it. Take the larger of the two. Add it to the original volume and continue in this manner until you have 70% of the day's total volume.

■ In this example, start with 150 contracts. Then compare the two above with the two below. ($80 + 90 = 170$ vs. $70 + 60 = 130$.) Take 170 and add it to 150. Continue until you have approximately 388 which is 70% of the day's total volume of 555 contracts.

■ The 70% calculation generally is slightly greater than 70%. Why? We're working with *all* the volume at a given price. We would have to use fractions of the volume at each price to come out with exactly 70%.

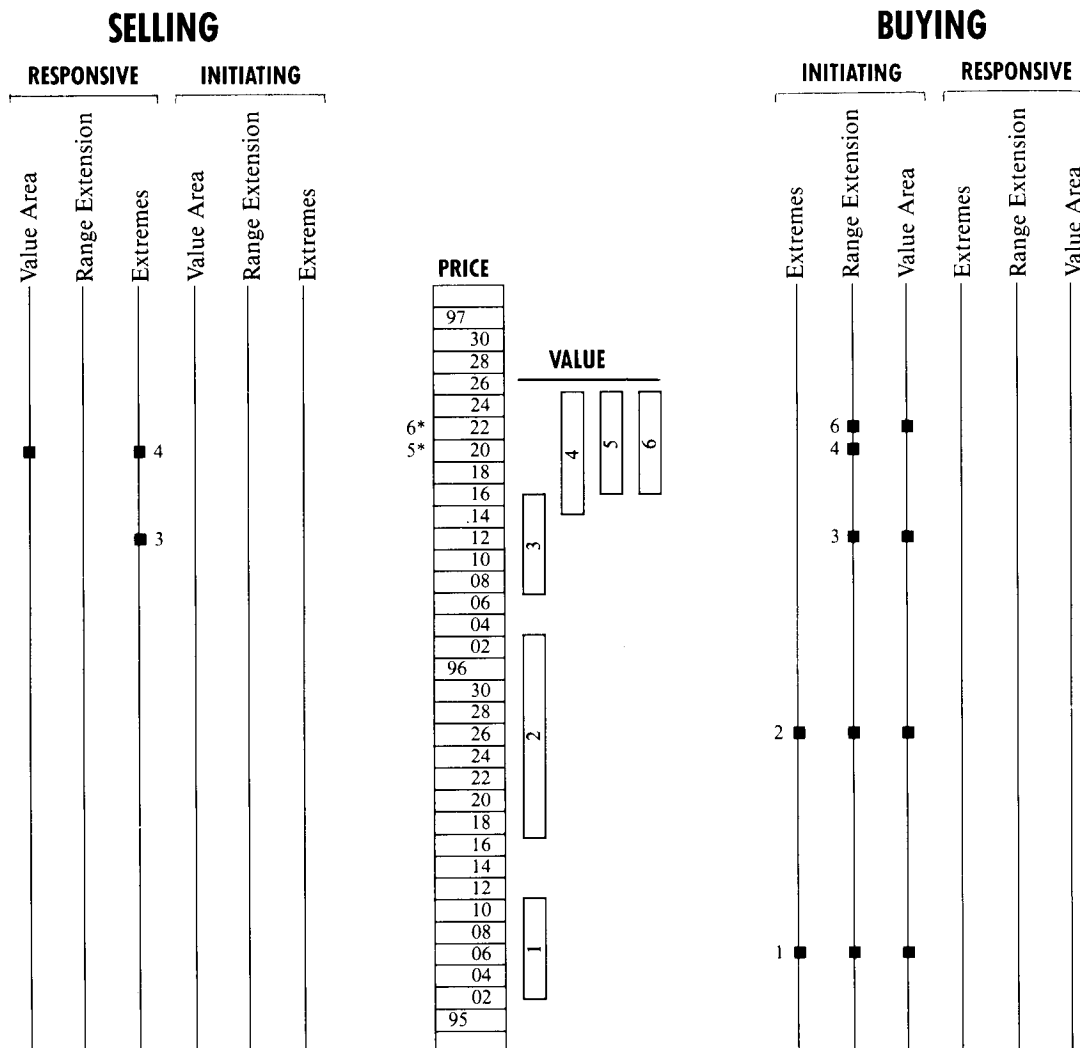
There are three columns for *initiating* activity (extremes, range extension and value area) and three columns for *responsive* activity (extremes, range extension and value area) – six columns for the buyer and six columns for the seller.

We're going to represent market activity with boxes on the appropriate column. (To review briefly, initiating activity is buying *above* value and selling *below* value; responsive activity is selling *above* and buying *below* value.)

On the chart below, you can see that on day 1 there is initiating buying in all three areas of the range. (The boxes are roughly opposite the center of the day's value area.) Again on day 2, there is initiating buying in all three areas of the range. Then on day 3, along with initiating buying in the range extension up and in the value area, there is responsive selling on the high extreme.

The chart is organized with price and value in the center because price and value form the auction core.

Extremes are closest to the core because, in general, extremes form first in a session, any range extension next and the value area last. Initiating activity is also closest to the auction core because it is generally stronger than responsive activity.



However, as you work with the data, you will see that initiating activity is not always stronger than responsive activity. For example, say you're at the top of a move and you have initiating buying that is *not* facilitating trade. Volume is low; the value area is narrow. This can be an indication that the move may be coming to an end. In other words, the market may continue to move up but at a decreasing rate.

Now say the market goes a little higher and brings in strong responsive selling. The solid responsive activity (a strong opposite response) could be an indication that the market may be getting ready to reverse.

Look at the format again and you can see that we have the three basic components of a trend—price, value and market activity—on the chart. Now, we're going to add **neutral days** and **failed range extensions** to the left of the price range with an asterisk.

First, let's define the terms.

Neutral days have range extension in both directions—range extension up *and* down—because market participants are uncertain.

A failed range extension shows that the market tried to extend the range past the initial balance—at either end—and failed. After the failure, the market generally retraces and extends the range on the opposite side because, again, market participants are uncertain.

You know what a neutral day looks like because we covered neutral days in Part I. (See page 18 in Part I.) What does a failed range extension look like in the data?

It can appear in several ways. Keep in mind, though, that these are just general guidelines. The issue here is to understand the concept—not to focus on the number of ticks.

- A failed range extension can be one single print (see page 55).
- A failed range extension can be two to four single prints—in other words, an extreme (see page 56).
- Or a failed range extension can be a double print at the top or bottom of the range (see page 57).

What happened in all three cases?

The seller fails to bring in more selling with the attempt at range extension. There is no follow-through. *This is the key—no follow-through activity after the initial attempt at range extension.*

Well, that's what neutral days and failed range extensions look like in the data. How do you indicate this kind of activity on the chart?

Since there is generally no net influence on *neutral days*, we're just going to put an asterisk to the left of the price range opposite the day's value area. We're not going to indicate activity in other parts of the range with boxes. See page 52. Day 5 is a neutral day.

We don't indicate activity with boxes because the market is generally balanced on neutral days. As you start to work with the data, however, you'll see that the market sometimes starts out balanced on neutral days and then begins something new in the same session.

Activity on page 66 is an example of the market coming into balance with range extension in both directions and then beginning something new in the same session. Or the market might test the upside with a range extension, then trade back and begin something new with a range extension to the downside.

As you move forward, you'll see that the critical issue is recognizing whether the market is still balanced and moving sideways on the neutral day...or if it has become imbalanced and is starting to trend.

As far as the chart is concerned, we're going to indicate all neutral days just with an asterisk to the left of the price range.

On the other hand, when we see a *failed range extension*, we're going to note the failure with an asterisk and we *are* going to indicate activity in other areas of the range with boxes. Why? Because a failed range extension on the upside is defined by longer-term range extension on the downside or vice versa. See page 55.

To understand this concept, think of the traders most in touch with the market: the short-term locals who provide liquidity by making a market. If they are going to stay in business, they have to anticipate market direction. Occasionally, this intuitive sense encourages them to do too much too soon. The result: an opportunity that no one wants—in other words, a failed range extension.

See page 52. Day 6 has a failed range extension down.

The asterisk indicates the failure; the boxes show range extension up and buying in the value area.

You know the asterisk reflects a failed range extension and not a neutral day because there are boxes reflecting activity for day 6. You also know the failure was to the downside because one of the boxes shows that the buyer successfully extended the range up.

Both kinds of activity—neutral days and failed range extensions—show a failure in the session by the longer-term trader. If this activity is a failure, why is it on the longer-term chart? *Because neutral days and failed range extensions often have longer-term implications.*

The market often uses neutral days to change direction. Failed range extensions often indicate that the market wants to go in that direction but is trying to do too much too soon.

Nevertheless, since both kinds of activity indicate uncertainty, it isn't always going to be clear if you have a neutral day or a failed range extension. So you'll have to use judgment. In order to understand what's happening, it helps if you ask yourself whether the market is trying to do too much too soon...or if it is testing one more time before changing direction.

It doesn't matter what you put on the chart. *The critical issue is to read what the market is telling you correctly.*

See the example on page 58.

Market Failure

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SOYBEANS

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Trade Price

616
615 3/4
615 1/2
615 1/4
615
614 3/4
614 1/2
614 1/4
614
613 3/4
613 1/2
613 1/4
613
612 3/4
612 1/2
612 1/4
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Initial
balance

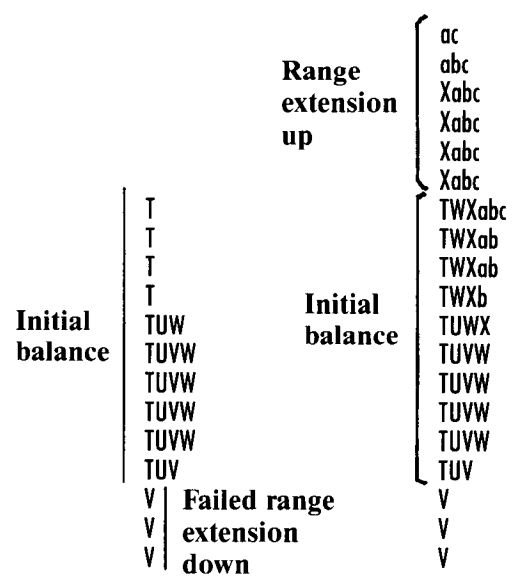
Half Hour Bracket Times

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DEHJ
DEHIJ
DEHIJ
DEFHIJ
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DEFGHIJ
DEFGHIJ
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DEFGI
DEFGI
DFG
DG
G

Failed range
extension

- The failure on the downside is defined by range extension on the upside.
- Generally, after a failed range extension, you'll have range extension in the opposite direction – but not always. Once again, the issue is whether the market is trying too much too soon – not whether this is technically a failed range extension.

Market Failure



- The soybean market is trading opposite the initial balance. Then in V period, the seller tries to extend the range down. He extends it three ticks but the range extension fails because the buyer comes in right away.
- Then the market trades all the way back and the buyer extends the range up in X period. The range extension continues in the a period.

Market Failure

MARKET PROFILE®
SOYBEANS

Trade Price

580
579 3/4
579 1/2
579 1/4
579
578 3/4
578 1/2
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Half Hour Bracket Times

Xc
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Xabc
Xc
TXc
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TUWX
TUWX
TUWX
TUV
TUV
TUV
TUV
TUV
TUVW
TUVW
TUVW
TUVW
TUVW
TVW
TVW
TVW
TVW
VW — Failed range extension

Failed range extension

Market Failure

MARKET PROFILE®
U.S. BONDS

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Trade Price

89
88 31/32
88 30/32
88 29/32
88 28/32
88 27/32
88 26/32
88 25/32
88 24/32
88 23/32
88 22/32
88 21/32
88 20/32
88 19/32
88 18/32
88 17/32
88 16/32
88 15/32
88 14/32
88 13/32
88 12/32
88 11/32
88 10/32
88 9/32
88 8/32
88 7/32
88 6/32
88 5/32

Initial
balance

Half Hour Bracket Times

S | Failed range
S | extension up
ST | or neutral day?
QRSTW
QRSTW
QRSTUWX
PQRSTUWX
OPQRSTUWXa
OPTUVWXa
OPTUVWXa
OPUVWXa
OUVWXa
UVa
Vab
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- Is the S period extension one last test of the upside or does the market want to go in that direction? In other words, is this a neutral day or a failed range extension on the upside? It's impossible to tell just by looking at the data.
- Ask yourself: Where are you in the move? What are the current conditions that affect value? Why is the longer-term trader uncertain? These questions will help you focus on the context in which the activity is occurring.

The Longer-term Behavior Pattern

Now that we have a format, what are we going to look for on the chart? We examined daily activity in terms of imbalance and balance and we are going to use the same behavior pattern to monitor long-term trends.

Specifically, the behavior pattern is *1) imbalance, 2) balance, 3) test and 4) imbalance in the same direction or imbalance in a new direction*. You'll see this pattern clearly as we construct a long-term auction chart.

Before we begin, though, let's look for this pattern on page 52.

Days 1 and 2 are *imbalanced*. Value is moving vertically. Buying is the dominant activity. Boxes representing activity are only on the buy side of the chart.

Then, on day 3 the market is high enough to bring in an opposite response. Responsive selling on the high extreme is an indication that the market may be starting to come into *balance*.

On day 4, the market is moving sideways. The market has moved from imbalance to balance—from a situation where boxes were on one side to one where they are on both sides.

Day 5 is a neutral day. The market is balanced. It seems to be *testing* the strength of the up move.

On day 6, value is still unchanged but there is a failed range extension to the downside. This could be an early indication that the market wants to go in that direction. The market seems to be *continuing to test*. If the seller gains confidence, however, this might be the end of the up move and the beginning of a down move. In other words, the market could become *imbalanced in a new direction*.

One more point before we start constructing the chart.

The behavior pattern discussed above is a constant. However, when the market comes into balance...how long it tests...and whether it becomes imbalanced again in the same direction or in a new direction depend on a variable—the perception of value.

Therefore, in real life we wouldn't be reading this chart in a vacuum. We would be constantly evaluating activity in relation to the conditions that affect value.

We're going to add the perception of value to our analysis in Part III. For now, we're just going to focus on learning to identify the market's imbalance-balance behavior pattern with the help of the long-term auction chart.

Before we start constructing the chart, however, stop and test yourself on the material we've covered so far. The test is on page 60.

Stop And Test Yourself

Q. What are the components of a long-term trend?

A. Price, value and market activity.

Q. Why is market activity on the long-term chart?

A. Because it is market activity (activity of the longer-term trader in the three areas of the range) that moves price up, down or sideways.

Q. Why is activity on the chart organized with extremes closest to value, range extension next and activity in the value area furthest?

A. In general, extremes form first in a session, range extension next and the value area last.

Q. Why are neutral days and failed range extensions on the long-term chart?

A. Even though this kind of activity is a failure in the session, it often has longer-term implications.

Q. What do neutral days and failed range extensions indicate?

A. Uncertainty.

Q. Is it always going to be easy to determine if you're dealing with a neutral day or with a failed range extension?

A. No, because both kinds of activity indicate some uncertainty about longer-term value.

Q. What can you ask yourself to make the decision less difficult?

A. Is this activity one last test of the upside or downside before reversing...or does the market want to go higher or lower but is trying to do too much too soon? It helps to relate these questions to the current perception of value.

Q. What behavior pattern are we looking for in the chart?

A. Imbalance, balance, test, imbalance in the same direction or imbalance in a new direction.

Q. Is this pattern a constant?

A. Yes, the behavior pattern is a constant but the length of time any part of the pattern lasts depends on a variable.

Q. What is the variable?

A. The perception of value.

Constructing The Chart

We're using data from the bond futures market from 8/29/86 to 9/12/86 to construct our chart. Use the blank form on page 62. There is a completed long-term chart on page 89 against which you can check your work.

As noted in the introduction, we're using data from 1986 because these sessions are especially illustrative of the market's imbalance-behavior pattern.

To set the scene: this is the end of August 1986. We're at the top of an up move. At the beginning of the month, the market was trading at 95-15. On 8/28/86, value was 101-05 to 100-16.

The long-term unfair high parameter was established in April 1986 at the 105-00 level and we're approaching it again. As noted earlier, these parameters are reference points because they can contain the range. The market either trades through the parameter or reverses.

With that in mind, let's look at activity on 8/29/86. The text is on page 64; the data is on page 65.

8/29/86

Where did the market open in relation to the previous day's value area and then what happened?

The market opens above value at 101-30 to 102 and moves down, creating a selling extreme at the top. The buyer comes in at 101-14 and the market trades up and tests the upside in C and D periods. It can't trade up and gradually rotates down in E, F and G periods.

Then what happens in H? In H period, the seller extends the range down.

Since there is no follow-through activity, would you say this is a failed range extension? Remember, we're at the top of the move. Does the market seem to want to reverse? In other words, is the market trying to do too much too soon?

There is no follow-through activity because the buyer enters the market and his competition forms an extreme at the low. Then the market rotates between the high A period extreme and the low H period extreme—developing value for the rest of the session.

First, put the price range on the chart. Start with 102-00 at the top and come down by two's (102, 101-30, 101-28, etc.).

Next, put the day's value area (70% range) on the chart opposite the appropriate prices, 101-22 to 102.

Note the volume in the column on the right.

You can use total volume for all contracts traded or volume for the specific contract you are trading. Just be consistent so that you can see whether the volume is increasing or decreasing. We're looking at volume because a move that brings in increasing volume generally has to go higher or lower to shut off the activity.

What is the net activity in the session—extremes, range extension, value area? Initiating or responsive?

Responsive selling above the previous day's value on the high extreme, initiating buying above the previous day's value on the low extreme, failed range extension down, initiating buying above the previous day's value in today's value area.

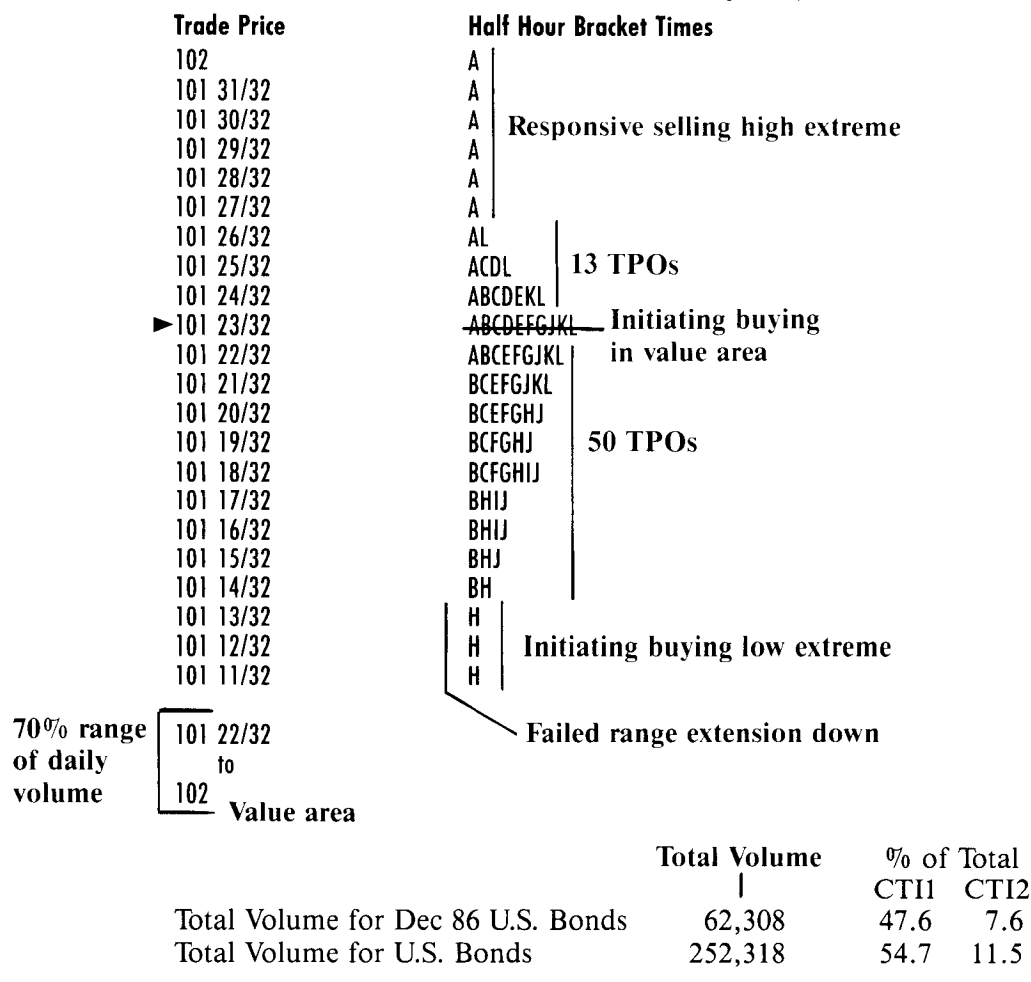
Let's put that activity on the chart.

What is your conclusion?

We're approaching a parameter. What kind of activity from the buyer do we need to trade above the high parameter? Are we getting it? Is the initiating buying facilitating trade? Simply put, facilitating trade means that as the price moves up, the move brings in more buying or as the price moves down, the move brings in more selling. Is the up move here bringing in substantial volume?

8/29/86

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 Volume Summary Report for 08/29/86
 U.S. Bonds
 Dec 86
 Note: Volume figures shown are actual numbers multiplied by 2.



Not only is the volume low but there is also a selling extreme at the top. If we're going to trade through the parameter, we need strong activity from the buyer and the buyer doesn't enter the market until late in the session – H period.

This is an example of initiating activity not facilitating trade.

Also, a failed range extension is often an early indication that the market wants to go in that direction.

Where do you think we are in the behavior pattern? It seems as though the market is coming into balance and testing the high of the move. The up auction may be coming to an end.

9/02/86

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 Volume Summary Report for 09/02/86
 U.S. Bonds
 Dec 86
 Note: Volume figures shown are actual numbers multiplied by 2.

Trade Price	Half Hour Bracket Times
101 20/32	E
101 19/32	E
101 18/32	EG
101 17/32	EFGH
101 16/32	EFGH
101 15/32	EFGH
101 14/32	AEFGH
101 13/32	AEFGHI
101 12/32	AEHI
101 11/32	ADEHI
101 10/32	ABCDHIJ
101 9/32	ABCDHIJ
101 8/32	ABCDHIJ
101 7/32	ABCDIJK
101 6/32	ABCIJK
101 5/32	ABCIJK
101 4/32	CIK
101 3/32	CK
101 2/32	CK
101 1/32	CK
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100 31/32	K
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100 7/32	L
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100 2/32	L
100 1/32	L
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99 29/32	L
99 28/32	L
99 27/32	L
99 26/32	L
99 25/32	L
99 24/32	L
99 23/32	L

Range extension up

Neutral day

Range extension down

70% range of daily volume
 100 28/32 to 101 20/32 Value area

	Total Volume	% of Total	
		CTI1	CTI2
Total Volume for Dec 86 U.S. Bonds	235,820	54.3	11.8
Total Volume for U.S. Bonds	284,028	52.5	11.4

9/02/86

Where did the market open in relation to the previous day's value and then what happened?

The market opens below value at 101-14 to 101-07 and trades down initially. The seller extends the range down in C period. There is no follow-through activity because the buyer enters and his competition forms an extreme at the low. The market then trades up and tests the upside.

The buyer extends the range up to 101-20 in E period. This is just below the bottom of the previous day's value area.

You've probably noticed how the market bounces off the tops and bottoms of value areas. The tops and bottoms are ending distributions that can contain the range (in other words, stop a move). The value area is the first standard deviation. In a larger sample size, the top or the bottom of the value area is the end of the first standard deviation and the beginning of the second.

Back to our example, the up move stops just below the parameter. What are the only two things that can happen here? The market can trade through or reverse. What happened in this session?

The market can't seem to facilitate trade at the top. The seller enters at 101-20 and his competition forms an extreme.

What's happening in the market now? It is gradually trading lower. The market rotates down in G, H and I periods. Value seems to be shifting from the middle of the range down to the unfair low. In other words, the market seems to be shifting from balance to imbalance.

The balanced distribution started to come to an end in H period and the market started to shift to imbalance in I.

Relating this activity to the longer-term move, the market tested the upside again and failed to trade through the parameter. The buyers don't seem to have gained confidence as far as the long-term move is concerned.

What do you think about putting on a short position here?

In K period, the market takes out the low parameter (the C period extreme) and trades down to 99-23 in L period.

Put value area on chart. Note the volume.

What is the net activity in the session?

Range extension in both directions. What kind of day do we have? Neutral day. Let's note the neutral day with an asterisk.

What is your conclusion?

The up auction seems to be ending and a down auction beginning. We are at a long-term unfair high (long-term parameter). The market tested at the top of the move and couldn't trade up.

Activity was relatively easy to read in this session because the market not only tested the upside but also began the new move down in K period. This session is a clear example of the market changing direction on a neutral day.

In this situation, the market had come into balance at the top of the move. *And it is always important to keep in mind that a balanced market is in position for a directional move.*

The market comes into balance because market participants are uncertain. They're taking stock before they move directionally again. That's why a balanced market gives you time to make a decision.

Of course, the balance period can be extremely brief. And the shift from balance to imbalance (or vice versa) is naturally going to occur more frequently in active markets than it will in slow ones. In this session, however, note the amount of time the market took to shift from balance to imbalance.

The market tested the upside in E period and then gradually shifted down in F, G, H, I, J. You had two and one-half hours while value moved down from the middle of the range to the unfair low. The market began to tip in K period and then became strongly imbalanced in L.

Also, when you're at a parameter, you want to be aware of potential liquidation.

Keep in mind that as soon as traders put on a position, they start looking for a place to offset. Broadly speaking, if the market moves against them, they are likely to offset and this activity can start a market reversal. In this situation, we were at the top of the move and market participants were long.

Finally, it is critical to recognize that the market is not always going to test exactly as it did in this session. Nevertheless, if you know the behavior pattern you're working with—imbalance, balance, test, imbalance in the same direction or imbalance in a new direction—you'll have a constant framework to anchor your judgments.

That's why it's so important to understand the basic principles and not just to memorize rules. When you grasp the concept, you can take it into any situation and recognize what is happening at that particular time.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

9/03/86

Where did the market open in relation to the previous day's value area and then what happened?

The market opened almost two points lower at 98-21 to 98-24. It initially tested the top and then moved down directionally. It found an opposite response at 98-08 in B period and then traded back up in C and D periods.

The market started to rotate down in E period. In F period, the seller tipped the initial balance and extended the range. He extended it again in H period down to 97-13.

What happened then?

The directional move took the market low enough to bring in stronger buying. The buyer's competition created a five tick single print extreme that stopped the move and the market traded back up.

Put value area on chart. Note the volume.

What was the net activity in the day—extremes, range extension value area? Initiating or responsive?

No extreme at the top (just one single tick), responsive buying below the previous day's value on the low extreme, initiating range extension down below the previous day's value, initiating selling below the previous day's value in today's value area.

Let's put that on the chart.

What is your conclusion? Do you think this is just a pause in the down move? Or do you think the market is going to reverse?

We've moved down far enough to bring in an opposite response. Buying and selling are both present. So it appears that we've moved from 1) imbalance to 2) balance.

There is substantial range extension down. The range extension is about double the initial balance. So even though it extended low enough to bring in strong buying, the seller still seems to be actively interested.

We're going to discuss Liquidity Data Bank volume in Part VI of this Home Study Guide. I want to point out here, however, that by looking at the percent of total column opposite the H period extreme, you can see how fast the market moved out of the area. (The percent of total column shows the percent of the day's total volume at each price. The lower the volume, the faster the market is moving.)

What do you want to do about your position?

We'll have to monitor activity, of course. But it wouldn't be unreasonable to anticipate that the market will probably test tomorrow—in other words, step three in the behavior pattern.

9/03/86

Chicago Board of Trade

Liquidity Data Bank® Report

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Volume Summary Report for 09/03/86

U.S. Bonds

Dec 86

Note: Volume figures shown are actual numbers multiplied by 2.

Trade Price	% of Total	Half Hour Bracket Times
98 30/32	2.3	A
98 29/32	1.8	AB
98 28/32	2.7	AB
98 27/32	3.2	AB
98 26/32	3.2	AB
98 25/32	2.2	AB
98 24/32	2.7	AB
98 23/32	3.6	ABD
98 22/32	2.7	ABDE
98 21/32	2.5	ABDE
98 20/32	4.9	ABCDE
98 19/32	2.9	ABCDE
98 18/32	1.7	ABCE
98 17/32	2.0	ABCE
98 16/32	1.4	BCEL
98 15/32	2.6	BCEL
98 14/32	3.3	BCEL
98 13/32	1.3	BEFL
98 12/32	0.4	BEFL
98 11/32	1.1	BFL
98 10/32	2.4	BFKL
98 9/32	2.1	BFKL
98 8/32	3.3	BFKL
98 7/32	2.7	FKL
98 6/32	2.1	FKL
98 5/32	1.3	FKL
98 4/32	1.1	FIKL
98 3/32	2.1	FIKL
98 2/32	1.8	FGIJK
98 1/32	1.6	FGIJK
98	3.8	FGIJK
97 31/32	3.6	FGHIJK
97 30/32	3.1	FGHIJK
97 29/32	2.7	FGHIJK
97 28/32	1.9	FGHIJ
97 27/32	2.7	FGHIJ
97 26/32	2.3	FGHIJ
97 25/32	2.3	FGHIJ
97 24/32	1.8	FGHIJ
97 23/32	1.1	FHI
97 22/32	0.4	FHI
97 21/32	0.5	HI
97 20/32	0.3	HI
97 19/32	0.6	HI
97 18/32	1.7	HI
97 17/32	0.9	H
97 16/32	0.4	H
97 15/32	0.6	H
97 14/32	0.5	H
97 13/32	0.0	H

93 TPOs

Range extension down
initiating selling

Initiating selling
in value area

67 TPOs

Responsive buying low extreme

70% range
of daily
volume

98
to
98 30/32
Value area

ABCDEFGHIJKL

	Total Volume I	% of Total CTI1 CTI2	
Total Volume for Dec 86 U.S. Bonds	457,474	55.0	12.5
Total Volume for U.S. Bonds	508,740	54.5	12.6

9/04/86

Where did the market open in relation to the previous day's value and then what happened?

The market opens at 98-14 to 98-17—in the previous day's value—and then trades up in B period. It can't trade above 98-26 and trades down in C period.

In D period, the seller tips the initial balance and extends the range down. The range extension stops in F period at 97-17 but there is no competition from the buyer to form an extreme.

The market rotates back up in G, H, I and J and then down in K and L periods.

Put value area on the chart. Note the volume.

What is the net activity in the session—extremes, range extension value area? Initiating or responsive?

No extreme at the top (no single prints), no extreme at the bottom (just one single print), initiating range extension down mostly below the previous day's value, initiating selling within the previous day's value in today's value area.

(Activity within value is a judgment call. You can classify it as either responsive or initiating. Calling it responsive because it is weak or calling it initiating and noting that the activity is not facilitating trade *gives you the same information on market activity.*

To simplify this exercise, we're going to call all activity within value initiating. In addition, if activity is below and within value or above and within value, we're going to call it initiating.)

Getting back to our example, let's put the activity on the chart.

What is your conclusion? Was the buyer strong enough to do anything to the market in the session?

There is no net buying. Selling activity and volume seem to indicate that the market is still imbalanced to downside. It appears that the market has to move lower to bring in the last seller (i.e., shut off selling activity) and to bring in buying strong enough to stop the down move.

Therefore, it appears that the down move is continuing — but perhaps at a decreasing rate.

9/04/86

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 Volume Summary Report for 09/04/86
 U.S. Bonds
 Dec 86
 Note: Volume figures shown are actual numbers multiplied by 2.

Trade Price	Half Hour Bracket Times	
98 26/32	BC ———	No indication on high extreme
98 25/32	BCK	
98 24/32	BCJK	
98 23/32	BCJK	
98 22/32	BCJK	
98 21/32	BCJK	
98 20/32	ABCDJK	
98 19/32	ABCDJK	
98 18/32	ABCDJK	
98 17/32	ABDJK	108 TPOs
98 16/32	ABDJK	
98 15/32	ABDJK	
98 14/32	ABDIJK	
98 13/32	ABDIJK	
98 12/32	ABDHIJK	
98 11/32	ADHIJK	
98 10/32	ADHIJKL	
98 9/32	ADHIJKL	
98 8/32	ADHIJKL	Initiating selling
98 7/32	ADEHIJKL	in value area
▶ 98 6/32	ADCHIJKL	
98 5/32	DEHIKL	Range extension down
98 4/32	DEFHIKL	initiating selling
98 3/32	DEFHIKL	
98 2/32	DEFHIKL	
98 1/32	EFHIKL	
98	EFHIKL	
97 31/32	EFHL	
97 30/32	EFHL	
97 29/32	EFGHL	
97 28/32	EFGHL	89 TPOs
97 27/32	FGHL	
97 26/32	FGHL	
97 25/32	FGHL	
97 24/32	FGH	
97 23/32	FGH	
97 22/32	FGH	
97 21/32	FGH	
97 20/32	FGH	
97 19/32	FGH	
97 18/32	FG	
97 17/32	F ———	No indication on low extreme

70% range
 of daily
 volume

98
 to
 98 20/32
 Value area

	Total Volume	% of Total	
	I	CTI1	CTI2
Total Volume for Dec 86 U.S. Bonds	430,646	56.1	13.4
Total Volume for U.S. Bonds	472,812	55.9	13.7

9/05/86

Where did the market open in relation to the previous day's value and then what happened?

The market opened below value at 97-08 to 97-10. It moved up initially to 97-14 and then moved down directionally in A period.

How do we know? Competition from the seller at 97-14 formed a single print extreme at the top. The seller seems to have gained confidence again. He moved the market over one point in the first half hour.

Then what happened?

The directional move brought in an opposite response at 96-04. Competition from the buyer formed a single print extreme at the low. Then the market rotated between these two excesses, developing value for the rest of the session.

The buyer tested the upside in G period but couldn't take out the selling extreme.

Remember, once you put on a position, you're looking for a place to get out. *Did you offset in this session?*

Put value area on the chart. Note the volume.

What is the net activity in the session – extremes, range extension, value area? Initiating or responsive?

Initiating selling below the previous day's value on the high extreme, responsive buying below the previous day's value on the low extreme, no range extension (the entire range was established in the first half hour), responsive buying below the previous day's value in today's value area.

Let's put that on the chart.

What is your conclusion?

The market seems to have moved from imbalance to balance again. Do you think we've moved low enough this time to bring in an opposite response that is strong enough to stop the move and reverse market direction?

9/05/86

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 Volume Summary Report for 09/05/86
 U.S. Bonds
 Dec 86
 Note: Volume figures shown are actual numbers multiplied by 2.

Trade Price	Half Hour Bracket Times
97 14/32	A
97 13/32	A
97 12/32	A
97 11/32	A
97 10/32	A Initiating selling high extreme
97 9/32	A
97 8/32	A
97 7/32	A
97 6/32	A
97 5/32	A
97 4/32	AG
97 3/32	AG
97 2/32	AG
97 1/32	AG
97	AG
96 31/32	AGHK
96 30/32	AGHKL
96 29/32	AFGHKL
96 28/32	AFGHKL 70 TPOs
96 27/32	AFGHKL
96 26/32	AEFHKL
96 25/32	AEFHKL
96 24/32	AEFHKL
96 23/32	ABEFHKL
96 22/32	ABEFHKL
▶ 96 21/32	ABCEFHJKL Responsive buying in value area
96 20/32	ABCDEHIJL
96 19/32	ABCDEHIJL
96 18/32	ABCDEIJL
96 17/32	ABCDEIJL
96 16/32	ABCDEIJL
96 15/32	ABCDEIJL 89 TPOs
96 14/32	ABCDEIJL
96 13/32	ABCDIJL
96 12/32	ABCDIJ
96 11/32	ABCDIJ
96 10/32	ACIJ
96 9/32	ACIJ
96 8/32	AC
96 7/32	AC
96 6/32	A
96 5/32	A Responsive buying low extreme
96 4/32	A

70% range of daily volume
 96 12/32 to 96 28/32
 Value area

	Total Volume	% of Total	
		CT11	CT12
Total Volume for Dec 86 U.S. Bonds	340,784	52.0	15.4
Total Volume for U.S. Bonds	375,598	51.9	18.4

Where did the market open in relation to the previous day's value area and then what happened?

The market opens almost a point below value and the buyer enters right away in A period. The buyer's competition forms a single print extreme in A period and the market trades up into value in B period.

The buyer executes enough volume in E to tip the initial balance and extend the range up. But the range extension stops at 96-21 when the seller enters. His competition forms a single print extreme at the top.

Then the market rotates back and develops value in F, G, H and I periods. The buyer manages to extend the range up another tick in J and one more tick in K. But he can't seem to facilitate trade at the top.

In addition, he doesn't seem to be confident enough to hold because the market rotates down in L period and takes out part of the buying extreme.

Therefore, even though control seems to have shifted from seller to buyer in the near-term, do you think this is the end of the long-term down move? Did you offset in this session?

Put value area on the chart. Note the volume.

What is the net activity in the session—extremes, range extension, value area? Initiating or responsive?

(As noted earlier, we're going to call activity within value initiating. You can see, however, that the range extension here is not very strong—only eight ticks. Consequently, if you call the range extension initiating but note that it is not facilitating trade...or if you call it responsive because it's weak, you're getting the same information on market activity.)

Responsive buying below the previous day's value on the low extreme, initiating range extension up within the previous day's value, initiating buying in today's value area below and within the previous day's value area.

Because of our convention, we're calling the value area activity initiating. You might just as easily call it responsive, however.

Let's put that activity on the chart.

What is your conclusion?

In spite of buying in all three areas of the range, the buying doesn't seem very strong. The volume is lower than the day before and the range extension stopped at 96-23.

Relating this activity to the long-term move, this could be a near-term correction. We'll continue to monitor to see if the market confirms or rejects our bias.

9/08/86

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 Volume Summary Report for 09/08/86
 U.S. Bonds
 Dec 86
 Note: Volume figures shown are actual numbers multiplied by 2.

Trade Price		Half Hour Bracket Times	
Previous day's value area	96 23/32	K	
	96 22/32	JK	
	96 21/32	EJK	
	96 20/32	EJK	
	96 19/32	EJK	45 TPOs
	96 18/32	EFJK	
	96 17/32	EFJK	
	96 16/32	EFJK	Range extension up
	96 15/32	BEFIJK	initiating buying
	96 14/32	BEFHIJK	
	96 13/32	BDEFGHIJK	
	96 12/32	BCDEFGHIJKL	Initiating buying in value area
	96 11/32	BCDEFGHIKL	
	96 10/32	BCDEFGHIKL	
	96 9/32	ABCDFGHIKL	
	96 8/32	ABCDFGHIL	
	96 7/32	ABCDFGHIL	
	96 6/32	ABCDGHIL	
	96 5/32	ABCDGHIL	
	96 4/32	ABCDHIL	
	96 3/32	ABCDHL	
	96 2/32	ABCDL	
	96 1/32	ABCDL	114 TPOs
	96	ABCDL	
	95 31/32	ABCL	
	95 30/32	AL	
	95 29/32	AL	
	95 28/32	AL	
	95 27/32	AL	
	95 26/32	AL	
	95 25/32	AL	
	95 24/32	AL	
	95 23/32	AL	
	95 22/32	AL	
	95 21/32	A	
	95 20/32	A	
	95 19/32	A	
	95 18/32	A	Responsive buying low extreme
	95 17/32	A	
	95 16/32	A	
70% range of daily volume	96		
	to		
	96 17/32		
	Value area		

	Total Volume	% of Total	
		CTI1	CTI2
Total Volume for Dec 86 U.S. Bonds	326,264	56.3	11.3
Total Volume for U.S. Bonds	344,096	55.9	11.4

9/09/86

Where did the market open in relation to the previous day's value and then what happened?

The market opens above value at 96-19 to 96-22 and initially trades up. However, the seller enters right away in A period at 96-31. His competition forms a single print extreme at the top. Then the market trades down and starts developing value roughly between 96-22 to 96-13.

In D period, the seller executes enough volume to tip the initial balance and extend the range down. The down move stops at 96-08 in F period but there is no buying extreme (no single prints at the low).

The buyer tests the top of value in I, J, K and L periods but can't trade higher.

Put value area on the chart. Note the volume.

What is the net activity in the session—extremes, range extension, value area? Initiating or responsive?

Responsive selling on the high extreme above the previous day's value area, initiating range extension down within the previous day's value area, initiating buying in today's value area above and within the previous day's value area.

Let's put that on the chart.

What is your conclusion?

The market is continuing to develop value near the unfair low—opposite the range extension at the low end of the range. Furthermore, the buyer is only active in the value area which indicates waning interest on his part.

Nevertheless, the seller still seems uncertain as well. Even though there is range extension down, the volume is low and the value area is narrow. The market still seems to be testing.

9/09/86

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 Volume Summary Report for 09/09/86
 U.S. Bonds
 Dec 86
 Note: Volume figures shown are actual numbers multiplied by 2.

Trade Price	Half Hour Bracket Times
96 31/32	A
96 30/32	A
96 29/32	A
96 28/32	A
96 27/32	A
96 26/32	A
96 25/32	AC
96 24/32	AC
96 23/32	AC
96 22/32	ABCIL
96 21/32	ABCDIKL
96 20/32	ABCDFGHIJKL
▶ 96 19/32	ABCD FGHIJKL — Initiating buying in value area
96 18/32	ABCD FGHIJKL
96 17/32	BCDEFGHIJKL
96 16/32	BCDEFGHIJKL
96 15/32	BCDEFGHIJKL
96 14/32	BDEFGHIJKL
96 13/32	BDEFGHJKL
96 12/32	DEFGHJKL
96 11/32	DEFGHJKL
96 10/32	EFCJKL
96 9/32	EFKL
96 8/32	FL

Previous day's value area

70% range of daily volume

Value area

Responsive selling high extreme

29 TPOs

92 TPOs

Range extension down initiating selling

	Total Volume	% of Total	
		CTI1	CTI2
Total Volume for Dec 86 U.S. Bonds	272,560	57.8	11.6
Total Volume for U.S. Bonds	287,608	57.3	11.9

9/10/86

Where did the market open in relation to the previous day's value and then what happened?

The market opens at 96-23 to 96-26 above the previous day's value. It initially trades down and then up. But this time, the seller's eagerness to compete isn't strong enough to leave a single print extreme. Nevertheless, he does enter with enough volume to tip the initial balance in D period and extend the range down – but only by one tick.

The range extension continues in E and H – but very slowly. When the directional move reaches 96-09 in I period, the buyer finally enters the market. His competition forms an extreme at the low and the market trades up.

Value continues to develop basically in the middle of the range.

Put value area on the chart. Note the volume.

What is the net activity in the session – extremes, range extension, value area? Initiating or responsive?

Responsive buying on the low extreme below the previous day's value, initiating range extension down within and below the previous day's value, initiating selling in today's value area within and above the previous day's value area.

Let's put that on the chart.

What is your conclusion?

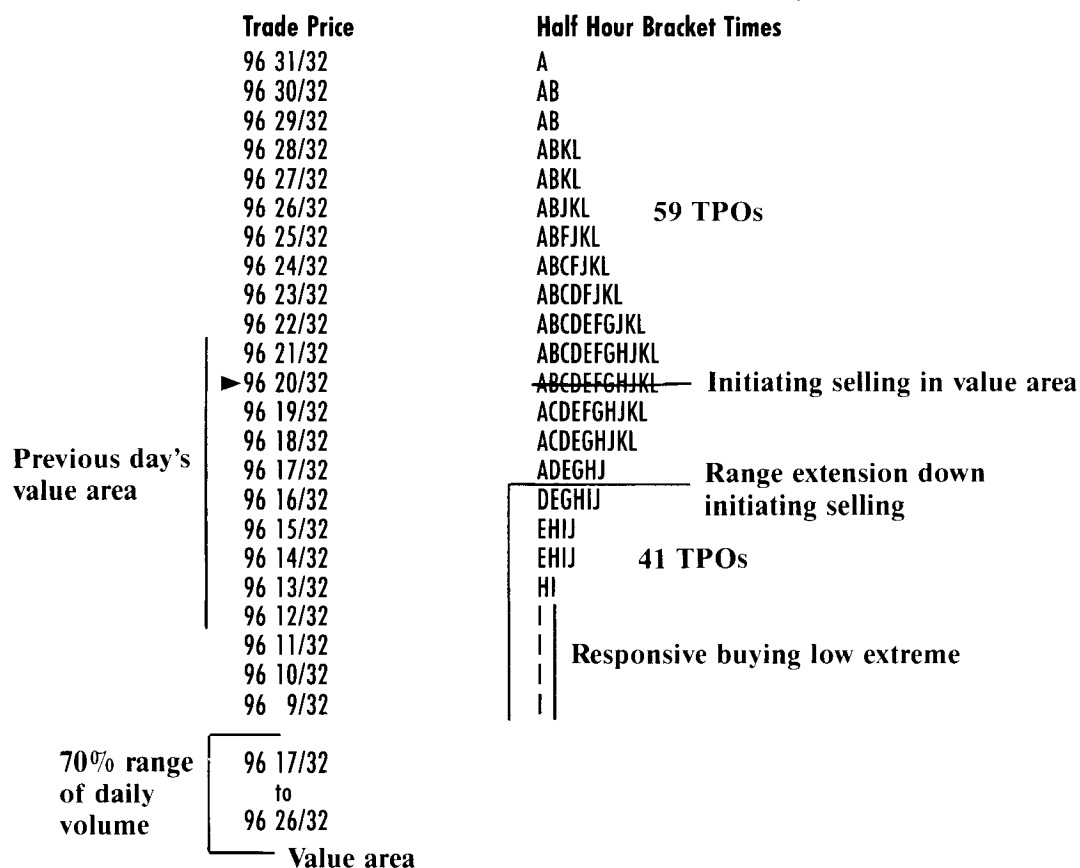
The market has been testing the strength of the down move. Buying activity was not very strong on any of the test days. Why? The buyer entered the sessions late, there was no range extension up and, in addition, volume decreased as the price moved higher.

Still, the seller doesn't seem all that strong either. No extreme at the top on 9/10 (just one single print), weak range extension down and a narrow value area range. If we knew what the conditions were that were affecting value at that time, we could be much more comfortable making a judgment here. We'll have to wait for the market to give us some information.

It doesn't seem as though the buyer can reverse market direction but we'll have to monitor activity to look for evidence that the down auction is resuming.

9/10/86

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 Volume Summary Report for 09/10/86
 U.S. Bonds
 Dec 86
 Note: Volume figures shown are actual numbers multiplied by 2.



	Total Volume	% of Total	
		CTI1	CTI2
Total Volume for Dec 86 U.S. Bonds	250,076	57.1	12.6
Total Volume for U.S. Bonds	261,870	56.8	12.6

9/11/86

Where did the market open in relation to the previous day's value and then what happened?

The market opens at 95-19 to 95-24—almost a point below value. The market moves up initially to test the upside. The seller enters the market at 95-28 in A period and competes strongly—indicating his confidence in the strength of the down move.

You can see how fast the market moved out of the area by observing the low volume opposite the A period extreme. (The lower the volume, the faster the market is moving and the stronger the competition.)

The seller's competition forms a 13 tick extreme at the top. In addition, his competition moved the market almost $\frac{3}{4}$ of a point in the first half hour. This seems to be the evidence we were waiting for.

The market trades opposite the low end of the range in B and C periods. The seller tips the initial balance in D period and extends the range down to the low limit. The market stays there for the rest of the session.

Put value area on the chart. Note the volume. It's high for a limit day.

What is the net activity in the session—extremes, range extension, value area? Initiating or responsive?

Initiating selling on the high extreme below the previous day's value, initiating range extension down below the previous day's value, initiating selling in today's value area (65 TPOs above the fairest price and none below it) below the previous day's value area.

Let's put that on the chart.

What is your conclusion?

The market seems to be imbalanced in the same direction again. The seller seems to have gained confidence on the test days. There is selling in all three areas of the range and the move seems to have been stopped artificially by the low limit.

9/11/86

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 Volume Summary Report for 09/11/86
 U.S. Bonds
 Dec 86
 Note: Volume figures shown are actual numbers multiplied by 2.

Trade Price		% of Total	Half Hour Bracket Times
95 28/32		0.4	A
95 27/32		1.7	A
95 26/32		1.2	A
95 25/32		1.7	A
95 24/32		0.6	A
95 23/32		0.4	A
95 22/32	Low volume	1.2	A
95 21/32		0.7	A
95 20/32		0.4	A
95 19/32		0.4	A
95 18/32		0.9	A
95 17/32		1.7	A
95 16/32		2.8	A
95 15/32		3.9	AB
95 14/32		4.7	ABCD
95 13/32		6.0	ABCD
95 12/32		7.1	ABCD
95 11/32		6.4	ABCD
95 10/32		5.5	ABCD
95 9/32		3.2	ABCD
95 8/32		3.2	ABCD
95 7/32		2.7	ABCD
95 6/32		1.6	ABD
95 5/32		1.1	AD
95 4/32		0.2	AD
95 3/32		0.3	D
95 2/32		0.8	D
95 1/32		1.0	D
95		3.2	D
94 31/32		2.7	DE
94 30/32		1.5	DE
94 29/32		2.4	DE
94 28/32		4.9	DE
94 27/32		4.2	DE
94 26/32		2.0	DE
94 25/32		1.7	DE
94 24/32		2.1	DEFGK
94 23/32		4.1	EFGKL
94 22/32		9.6	EFGHIJKL
Initiating selling high extreme			
65 TPOs			
Range extension down initiating selling			
65 TPOs			
Initiating selling in value area (65 TPOs above and 0 TPOs below)			
Value area			
70% range of daily volume			
94 22/32 to 95 12/32			
Total Volume			
Total Volume for Dec 86 U.S. Bonds			
Total Volume for U.S. Bonds			
		% of Total	
		CTI1	CTI2
		53.8	14.7
		53.4	15.5

9/12/86

Where did the market open in relation to the previous day's value area and then what happened?

The market opens above value at 95-18 to 95-20. It initially moves up but the seller is extremely eager to make a trade. His competition moves the market down to 94-20 in A period – more than a point. Note how low the volume is opposite the move.

Then the market continues the directional move down to 94-07 in B period.

In C period, the market trades near the low of the B period range. Then the seller tips the initial balance and extends the range all the way down to 93. The market certainly seems to be strongly imbalanced to the downside. At this point, however, what happened?

The market was low enough to attract strong buying. Competition from the buyer formed an extreme at the low which stopped the move. If you look at the percent of total column opposite the C extreme, you can see how fast the market moved out of the area. The low volume shows how strong the buying competition was.

Once the low extreme was established, the market seems to come into balance and basically trades between the two excesses – developing value for the rest of the session.

Do you think the buying is strong enough here to reverse market direction? What about your short position if you haven't already offset?

Put value area on the chart. Note the volume.

What is the net activity in the session – extremes, range extension, value area? Initiating or responsive?

Initiating selling on the high extreme above and within the previous day's value, responsive buying on the low extreme below the previous day's value, initiating range extension down below the previous day's value, responsive buying in today's value area below the previous day's value. Let's put that on the chart.

What is your conclusion?

We're at the low of the move. Less than two weeks ago, value was 102 to 101-22. Value in today's session is 94-18 to 93-00 – about nine points lower.

Steidlmayer says price far enough away from value changes the condition of the market. In other words, what was overvalued at 102 might be undervalued at 93. This might be the end of the down auction and the beginning of an up auction. It seems that the market not only went low enough in the session to bring in the last seller but also brought in buyers whose activity might be strong enough to reverse market direction.

The C period extreme was made by strong buying and the market seems to have moved from imbalance to balance in the session. Therefore, it appears that the market might now be in position (after coming into balance) to become imbalanced in a new direction. This could be an example of solid responsive activity reversing a move.

9/12/86

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 Volume Summary Report for 09/12/86
 U.S. Bonds
 Dec 86
 Note: Volume figures shown are actual numbers multiplied by 2.

Trade Price		% of Total	Half Hour Bracket Times
95 25/32		0.0	A
95 24/32		0.6	A
95 23/32		1.0	A
95 22/32		1.1	A
95 21/32		0.7	A
95 20/32		0.3	A
95 19/32		1.0	A
95 18/32		0.6	A
95 17/32		0.2	A
95 16/32		0.4	A
95 15/32		0.1	A
95 14/32		0.1	A
95 13/32		0.5	A
95 12/32		0.3	A
95 11/32		0.4	A
95 10/32		0.4	A
95 9/32		0.3	A
95 8/32		0.3	A
95 7/32		0.7	A
95 6/32		1.8	A
95 5/32		2.0	A
95 4/32		1.4	A
95 3/32		1.5	A
95 2/32		1.0	A
95 1/32		1.0	A
95		2.7	A
94 31/32		0.4	AB
94 30/32		0.9	AB
94 29/32		1.0	AB
94 28/32		1.6	AB
94 27/32		1.7	AB
94 26/32		1.5	AB
94 25/32		0.9	AB
94 24/32		0.6	AB
94 23/32		0.3	AB
94 22/32		0.3	AB
94 21/32		0.1	AB
94 20/32		0.0	AB
94 19/32		0.0	B
94 18/32		0.2	B
94 17/32		0.5	BC
94 16/32		0.5	BCF
94 15/32		1.3	BCF
94 14/32		2.1	BCF
94 13/32		2.4	BCFG
94 12/32		2.2	BCFG
94 11/32		1.3	BCFG
94 10/32		2.0	BCFG
94 9/32		0.9	BCFG
94 8/32		2.0	BCFGHK
94 7/32		1.3	BCFGHK
94 6/32		2.2	CEFGHIJK
94 5/32		2.4	CDEFGHIJK
94 4/32		3.2	CDEFGHIJK
94 3/32		3.6	CDEFGHIJK
94 2/32		1.9	CDEFGHIJKL
94 1/32		2.7	CDEFGHIJKL
94		4.3	CDEFGHIJKL
93 31/32		2.5	CDEFGHIJL
93 30/32		2.1	CDEFGHIJL
93 29/32		1.5	CDEFGHIJL
93 28/32		1.5	CDEFGHIJL
93 27/32		1.3	CDEFGIIL
93 26/32		0.9	CDEL
93 25/32		1.4	CDEL
93 24/32		1.3	CDEL
93 23/32		1.0	CDEL
93 22/32		2.0	CDL
93 21/32		2.5	CDL
93 20/32		2.5	CDL
93 19/32		1.5	CDL
93 18/32		1.1	CDL
93 17/32		0.6	CDL
93 16/32		0.8	CD
93 15/32		0.7	CD
93 14/32		1.1	CD
93 13/32		1.0	CD
93 12/32		0.8	CD
93 11/32		1.1	CD
93 10/32		1.0	CD
93 9/32		0.6	C
93 8/32		0.5	C
93 7/32		0.4	C
93 6/32		0.3	C
93 5/32		0.2	C
93 4/32		0.2	C
93 3/32		0.1	C
93 2/32		0.0	C
93 1/32		0.1	C
93		0.4	C
93			
93 to 94 18/32	Value area	70.1	
Total Volume			
I			
Total Volume for Dec 86 U.S. Bonds 380,864			
Total Volume for U.S. Bonds 423,100			
CT11 CT12			
53.6 13.0			
53.4 12.8			

Previous day's
value area

Low
volume

Initiating selling high extreme

102 TPOs

Responsive buying in value area

108 TPOs

Low
volume

Responsive buying low extreme

70% range
of daily
volume

Range extension down
initiating selling

In Summary

Now that we've gone through a complete down auction, look at the whole chart again from beginning to end. You can see that this chart—which probably seemed strange at first—is simply a visual representation of a long-term auction or trend.

In other words, this is what a trend looks like graphically.

If value is moving vertically, the market is imbalanced and the trend is continuing. If value is moving sideways, the market is balanced and the trend is stalled. The market is testing the strength of the move and the trend may be coming to an end.

On the chart, you can see that when value was moving down vertically, boxes indicating activity were, basically, on the sell side of the price range. The market was imbalanced.

When value moved sideways, boxes indicating activity appear on both sides of the price range because the buyer and the seller were uncertain and they were testing the strength of the move. The market was balanced.

By moving from imbalance to balance and back again, the market facilitates trade.

Whether a market is balanced—or whether it is imbalanced—depends on market participants' perception of value. Their perception is reflected in their activity which can be related to an overall behavior pattern: imbalance, balance, test, imbalance in the same direction or imbalance in a new direction.

In this example, the market was imbalanced from 9/2 to 9/3. The auction stalled briefly when it came into balance on 9/3 and traded sideways. It tested on 9/4, then became imbalanced again in the same direction on 9/5.

At the lower price level, the market traded in a balance area for the next three days.

The near-term up move (the test) ended on the 10th and the market became imbalanced to the downside again on 9/11. The imbalanced directional move continued on 9/12 until the market moved down to 93-00. That price level was low enough to attract strong buying and the market came into balance again.

The imbalance-balance behavior pattern is constant. The length of time any phase lasts however, can vary.

Look at the completed chart.

In this trend, the market tested for only one day at the 98-00 level on 9/4 before resuming on 9/5. But it tested for several days at the 97-00 level (on 9/8 to 9/10) before resuming on 9/11. By the same token, it could have taken several days or longer for this down trend to end and a new up trend to begin. On 9/12, however, the market seemed to reverse in a single session.

The way the pattern evolved in this trend was determined by the then current perception of value. Value is a variable. *So when you're trading it's important to keep in mind that this perception can change rapidly.*

The Iraqi invasion of Kuwait on August 2, 1990, is a case in point.

Before the invasion, we were starting to get reports that finally seemed to confirm a recession. Market participants were feeling increasingly bullish about bond value. Bond futures were at the 95-00 level and there was a good chance traders would have taken the market up when the bullish unemployment report was released on Friday, August 3.

Instead, the invasion caused a 180-degree shift in the perception of value. And by September 18, 1990, the market was down to 87-22. Granted, the invasion was a momentous development. Still, even in the absence of earth-shaking events, trends don't auction straight up or straight down.

There is bound to be sideways trading or even corrections to test the strength of a move. The more uncertain the market, the more often it tests and the longer these tests are going to last. Eventually, however, the buyer is going to become convinced that the market is undervalued or the seller that it is overvalued.

In other words, at some point the longer-term move is going to end in a single session. This is where an ability to relate what is happening in a near-term time frame to the bigger picture is critical.

The long-term auction chart can help you see that relationship. Simply put, these charts make it less difficult to recognize the end of one trend and the beginning of another.

Keeping long-term auction charts for the markets you trade can help you focus on the relevant facts that influence the relationship among price, value and market activity. Following a complete trend from beginning to end and seeing the market shift from imbalance to balance and back will help you to understand *one* that market activity is indeed a continuum that never stops and *two* that this continuum is comprised of short-, intermediate- and long-term time frames.

While the market's basic behavior patterns are not complex, market decisions are difficult because the market is using these patterns in all time frames simultaneously. With the help of the long-term auction chart, you'll be able to separate a near-term move from a longer-term move and to see how the two relate to each other.

Consider our example.

In the longest-term time frame—8/29 to 9/12—the market was in a major down trend. Therefore, despite sideways trading in the intermediate-term—9/5 to 9/10—the long-term opportunity wasn't over until the market traded down to 93 on 9/12.

Understanding the time frame relationship is key even if you are strictly a day trader. Why? *The more imbalanced the market is in a longer-term time frame, generally the greater the potential for range extension in the session.*

For example, compare the range extension down on 9/2 to the range extensions on 9/8, 9/9 and 9/10.

On 9/2, an up auction was ending and a new down auction was beginning. The market was strongly imbalanced to the downside in a longer-term time frame. In contrast, the sessions on 9/8, 9/9 and 9/10 occurred when the longer-term auction was stalled and the market was trading in a balance area.

You can see from the data that the more imbalanced the market, the better the opportunity.

Finally, after examining activity in a single session and in a longer-term trend, you can see that the market's operating procedures are basically simple:

- The market auctions up until the last buyer buys and then down until the last seller sells.
- Within the auction framework, the market moves directionally and advertises for an opposite response.
- In the process, it establishes an unfair high and an unfair low and then negotiates between the two until it takes out one side.

In Part IV of this Home Study Guide, we'll relate these operating procedures to the distribution process. Steidlmayer's latest research establishes a distribution as the market's ultimate framework. This framework is developed with auctions—or trends—like the one we monitored here.

We've covered a lot of material in this section. Don't be alarmed if you are feeling confused. Just take it step by step and it will all fall into place.

U.S. T-BONDS: Dec 86 8/29/86 to 9/12/86[illegible]

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PART III

THE PERCEPTION OF VALUE FUELS MARKET ACTIVITY



Chicago Board of Trade

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**PART III:
THE PERCEPTION OF VALUE
FUELS MARKET ACTIVITY**

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A REVOLUTIONARY APPROACH TO THE PRICE/VALUE RELATIONSHIP

Value: A Key Force In The Market

We've been discussing the market's organizational structure in Parts I and II of this Home Study Guide. Now we're going to discuss the other key factor in the market: *the perception of value*.

Value is so basic it is sometimes overlooked by today's sophisticated traders. Nevertheless, it is impossible to overemphasize the role that value plays in market activity. Value is the background against which all activity takes place. *In short, value is the motivating force behind all transactions.*

That's why it is absolutely crucial to be mindful of value all the time when you're trading. In fact, when you trade without an idea of value in your market, it is difficult to believe that market activity is *not* arbitrary or random.

In this section of the Study Guide, we're going to discuss Steidlmayer's approach to the perception of value.

What is his approach?

First, it involves market sentiment which he basically divides into two categories – *confident and uncertain*.

He says that when market participants are confident about value, they tend to overlook bad news. For this reason, a market will sometimes rally in the face of bearish developments.

On the other hand, he says that when traders are uncertain they tend to look for trouble where there may not be any. This explains why a market will sometimes fail to rally – or even break – in spite of good news.

Think of yourself.

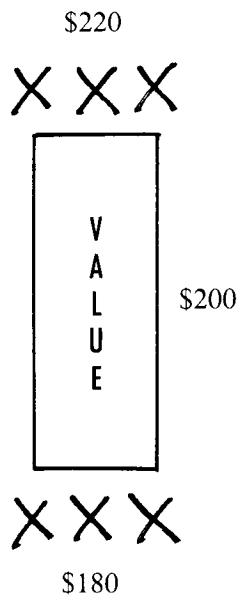
When you're feeling confident, don't you tend to overlook bad news? And when you're feeling uncertain, don't you tend to look for trouble? Since markets are comprised of people, it stands to reason that they reflect human behavior patterns.

Because confident markets overlook bad news and uncertain markets look for trouble, Steidlmayer goes on to say that confident activity tends to be stable and uncertain activity tends to be volatile. In other words, a trader who is confident that the market is under- or over-valued is more likely to put on a position and to hold it than a trader who is uncertain about value.

In addition, Steidlmyer's work shows that it is not an event or development per se that affects value; instead, it is market participants' *perception* of the event or development. And furthermore, their perception is influenced by their confidence or uncertainty. Let me repeat that statement because it is a key element of Steidlmyer's insight.

It is not an event or development per se that affects value but the *perception* of the event which is influenced by confidence or uncertainty.

The second part of Steidlmyer's approach involves his recognition that price moves away from value for three different reasons. But before we discuss these reasons, let's illustrate the basic concept with a simple example.



We're all familiar with the housing market. Let's say most of the houses in a neighborhood are selling for \$200,000. If a home there is listed for sale at \$180,000, what is the price/value relationship? Price is under value because price is only \$180,000 while value is \$200,000.

On the other hand, if value is \$200,000 and a home is listed for \$220,000, what is the price/value relationship? Price is above value because price is \$220,000 and value is \$200,000.

Sounds simple enough. What makes value judgments so difficult? The complicating element is the fact that value is a variable. *In other words, the relationship between price and value is not written in stone because the conditions that affect value are continually in flux.*

To explain, let's say an excellent school system is one of the reasons that homes in this example are worth \$200,000. Now let's say that the city fails to pass a bond issue that would increase teachers' salaries. The superintendent and many superior teachers leave.

What's happened here? There has been a change in one of the conditions that affects the long-term value of these homes.

The school system may no longer be excellent. This development changes the price/value relationship. The house listed for \$220,000 is now even more overvalued. The one listed for \$180,000 is no longer undervalued. In fact, it may be at value...or even above value now.

So far there's nothing revolutionary here. All traders will agree that price away from value (either under or over) offers opportunity to someone. Steidlmyer, however, goes one step further. *He says that price moves away from value for three different reasons and that the dynamics in each case are different.*

Three Different Reasons Why Price Moves Away From Value

He starts from the point that value is subject to conditions and conditions are influenced by events. For example, a fast-food franchise is generally perceived as being more valuable if it is located on a busy corner than if it is located on an island in the middle of a lake.

Then, Steidlmyer divides all events that affect value into three basic categories:

- surprise events.
- unlikely events.
- likely events.

And he says each one has a different effect on the price/value relationship.

Before we discuss that difference, it is important to emphasize that there are no hard and fast rules for classifying events.

These are simply guidelines we're discussing. Furthermore, their use is always going to require judgment. So keep in mind that it helps to define each category—surprise, unlikely and likely—by its impact on the price/value relationship.

Broadly speaking, surprise events have a short-term impact on value, unlikely events have an intermediate-term impact and likely events have a long-term impact.

What does that mean? To explain, let's look at the impact on value of each category.

What's the impact of a surprise event?

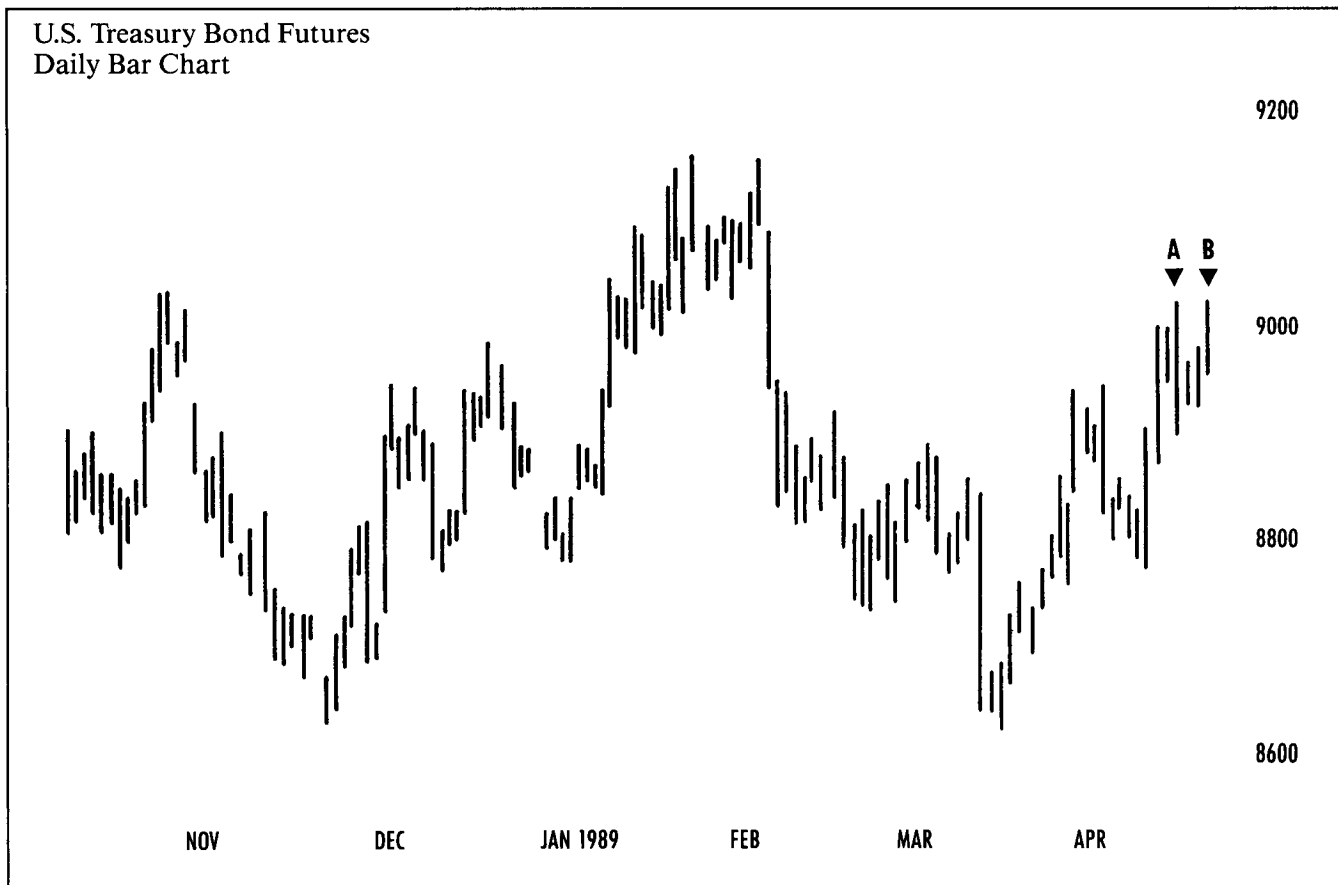
- **A market surprise generally causes current price to move sharply away from current value and then to move back to it.**

The reason: the event doesn't usually have a *fundamental* impact on value right away. The event is obvious. So market participants react immediately and then reassess as they consider the longer-term implications.

Here's where your understanding of the market's time frame organization comes into play.

Because price moves away from value and then back to value in a near-term time frame, *this is basically a short-term opportunity*. In other words, you don't have much time in which to capitalize on the situation.

Surprise Event



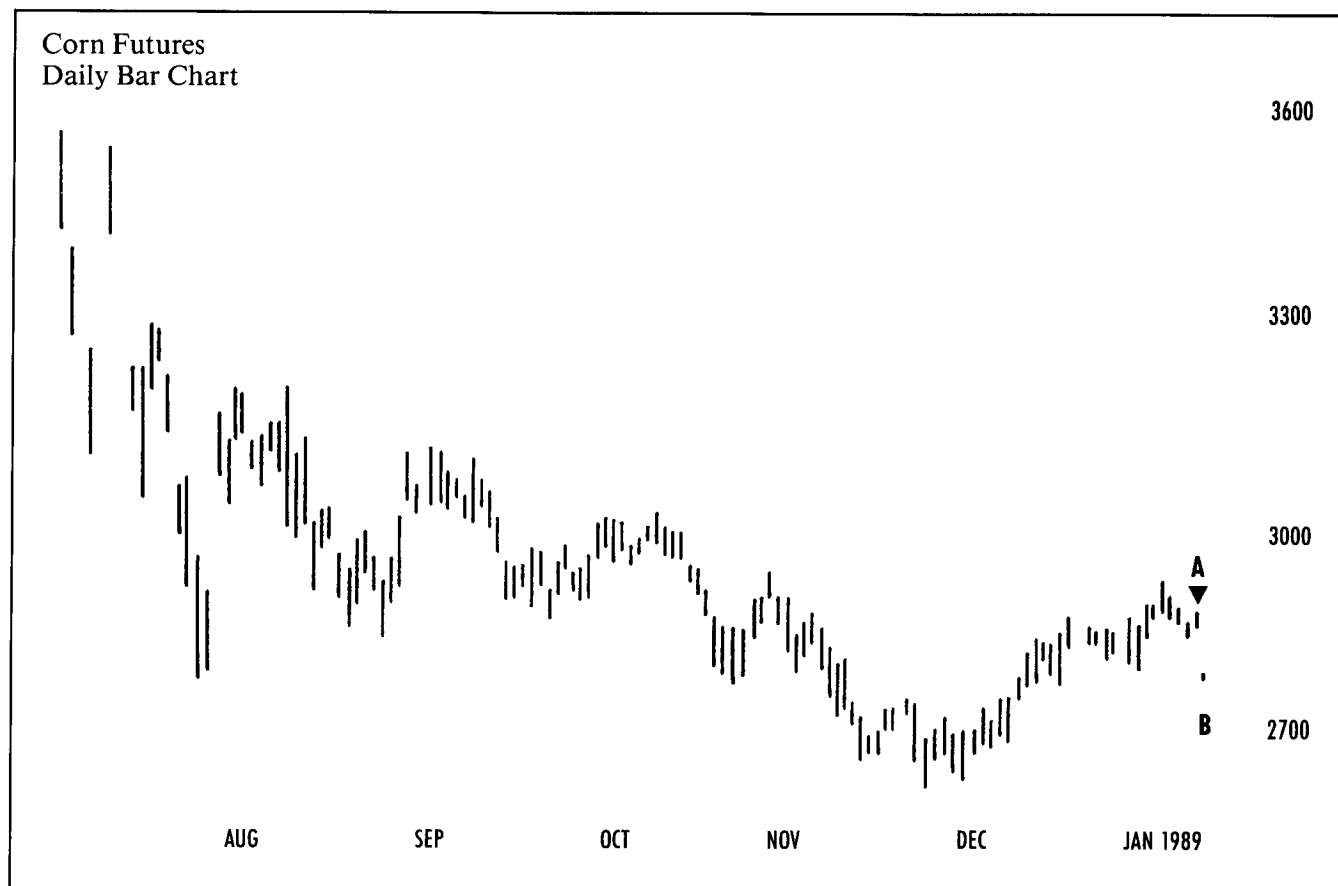
Above, you can see the effect of a surprise event on price behavior in the T-bond futures market. At point A, you can see the sharp drop after a surprise announcement by the German Bundesbank. Price was sharply down and then traded back up (point B).

To use this insight, it is critical to recognize that *there is nothing in the chart to classify it as a surprise*. You have to make that judgment. The chart just shows you price activity after an event occurred that the market regarded as a surprise.

In this case, you can see that the move away from value and back to value took four sessions. Keep in mind, however, that the reaction to a surprise event is not always going to take the same amount of time. The reaction to the Bundesbank announcement took four sessions but price can move away from value because of a surprise event and then snap back in one session.

As noted earlier, there are no hard and fast rules. The point is to understand the dynamics of what is happening so that you can respond appropriately.

Unlikely Event



Now let's consider what happens to the price/value relationship after an unlikely event.

■ **An unlikely event generally causes current price and current value to move together.**

The reason: unlikely events such as rain in the middle of a drought or a bullish instead of a bearish inflation report *can* have a fundamental impact on value. Whether they do or not depends on *whether the event is an isolated incident or the first in a series of moves.*

Consider the effect of rain in the middle of a drought.

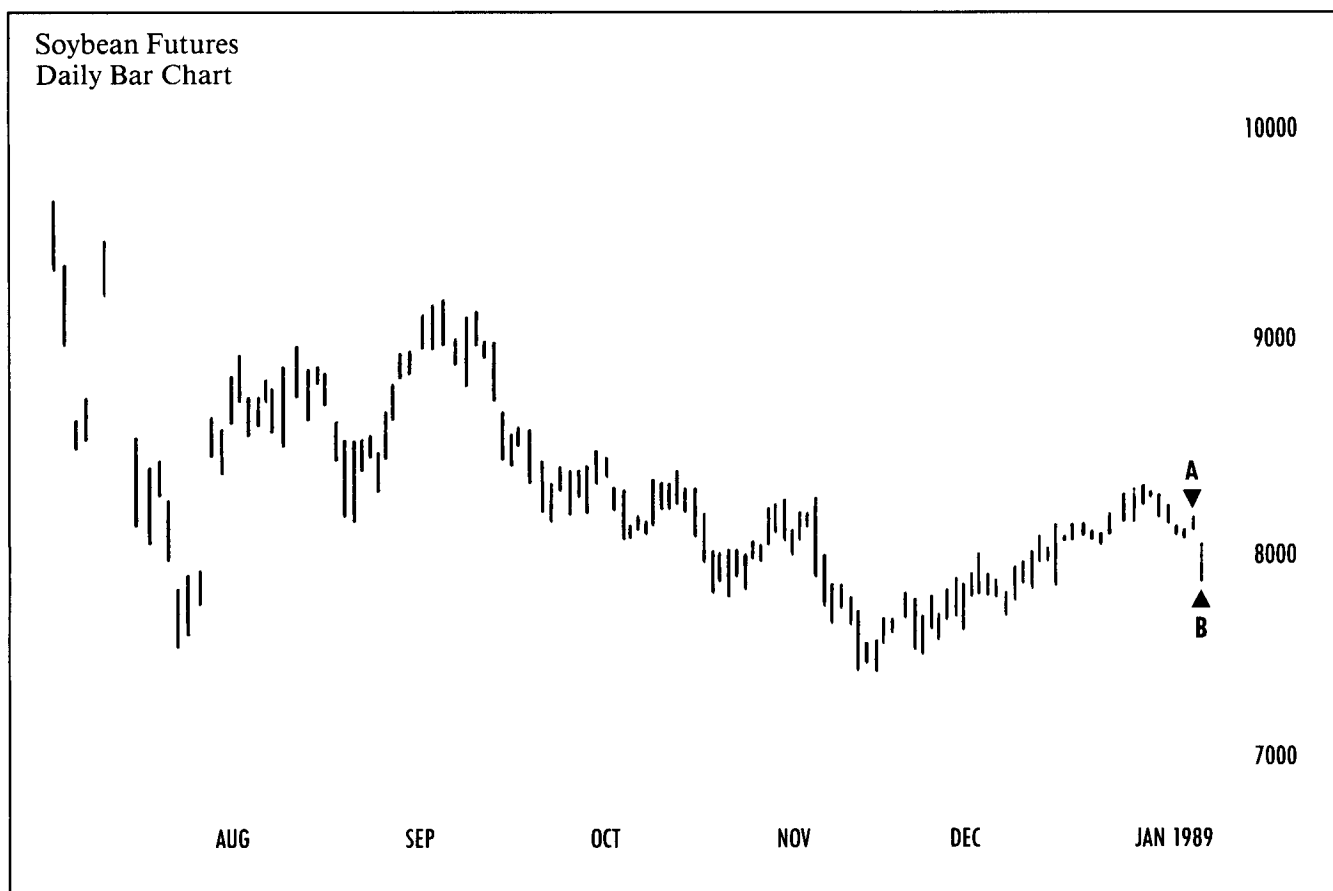
If this event is an isolated incident, it probably won't change the basic supply situation. On the other hand, if this event is the start of adequate rainfall, it could reverse the drought and end the grain shortage.

In any case, like market surprises, these events are also obvious and, again, market participants react immediately.

Consequently, the immediate effect is to cause price and value to move together in a short-term time frame. That's why the impact of an unlikely event can be devastating if you're on the wrong side of the move. *At worst, you have no time for damage control.* At best, there is very little time.

You can see the sharp, immediate reaction to an unexpectedly bearish crop report on pages 98 and 99. In corn futures, the market was trading at point A. After the unlikely event, the market opened at the low limit (point B) and stayed there all day.

Unlikely Event



In soybean futures, the market was at point A before the report. After the report was released, the market gapped down at the open. Then it traded down to the low limit (point B) and stayed there.

You can see from the examples that both surprise and unlikely events result in a sharp move. *I want to emphasize again, however, that the dynamics in each case are different.*

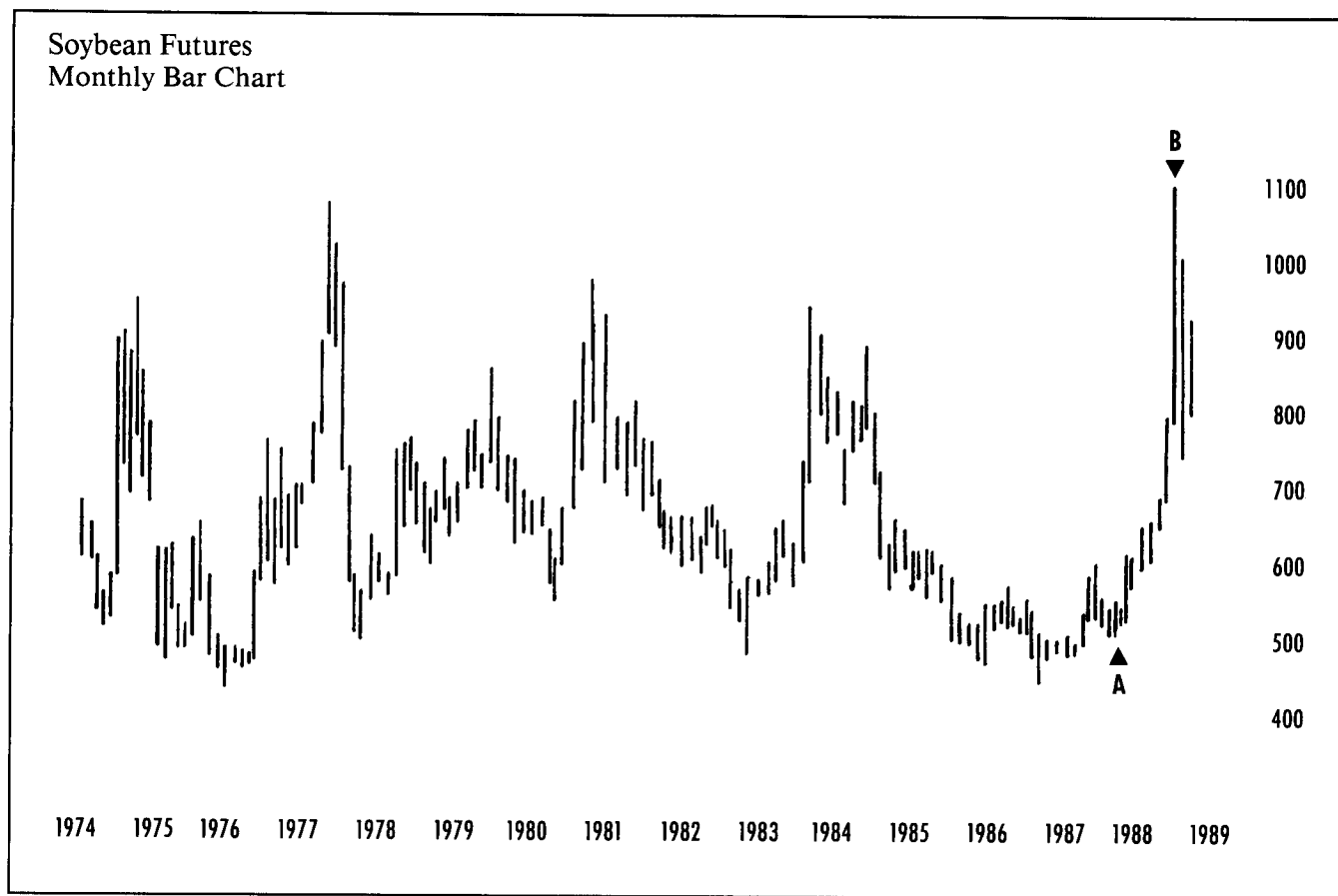
After a surprise, price generally moves back to value in the near-term because there hasn't yet been a fundamental impact on longer-term value. The price/value relationship might change in the future but it hasn't yet done so. Therefore, if you are on the wrong side of the market, you might not offset immediately because you believe price is going to return to value.

On the other hand, say you're long soybeans in a drought. It rains and the rain is the beginning of the end of the drought. There is going to be an adequate supply after all. *The rain here is the first in a series of moves.* There is a fundamental change in the price/value relationship. Beans are now overvalued instead of being undervalued.

Futhermore, because price and value have moved together, there is no cushion. Ideally, you would offset immediately because a delay will only make your position worse. In practice, of course, it is impossible to judge at the time whether the rain is an isolated incident or the harbinger of adequate moisture.

Classifying events as surprise or unlikely is always going to be difficult and it's always going to require judgment. Nevertheless, it sometimes helps to approach the problem by asking yourself if this is a one-time event...or the first in a series of moves.

Likely Event



The last category is a likely event. How does a likely event affect the price/value relationship?

■ **A likely event generally causes value to move ahead of price and then value pulls price up—or down—to a new level.**

The reason: these events are fully discounted by the market. For example, the location of a fast-food franchise on a busy corner is a likely event. Events like this are the motivating factors behind long-term trends. So even if you make mistakes, this is the kind of trading situation in which the market bails you out.

It sounds simple but there's a catch.

Likely events tend to develop over time and, consequently, are generally *not* immediately apparent. So the change in the price/value relationship is not easily perceived in the beginning.

For example, not many traders recognized the beginning of the bean futures rally in November 1987. The ones who did recognize it correctly identified a fundamental change in the price/value relationship. They put a weaker dollar, grain sales overseas and Reagan Administration farm policies together and came to the conclusion that these developments would reduce bean supply.

See above. Value had moved up while price was still at the low of the move (point A).

Furthermore, since this is *long-term* value, it is going to take price—which is in a near-term time frame—a while to reach value.

Consequently, even if you don't recognize the shift in the price/value relationship at the beginning of the move, you have time to capitalize on the opportunity. You can see how long it took the price of bean futures to trade up on page 100. The move began in 1987. The unfair high was established in the third quarter of 1988.

Let's relate this insight to our simple housing example.

How would you classify the city's failure to pass the bond issue—as a surprise, unlikely or likely event? We seem to be dealing with an event that could have a fundamental, long-term impact on value. Therefore, it seems to be a likely event with value moving ahead of price. If nothing is done to correct the situation, it seems logical that value will pull price down to a new lower level.

Why Make The Effort To Classify Events?

Not only can this insight help you to capitalize on opportunity more effectively, but it can also help you evaluate your risk more precisely.

To demonstrate a high-risk situation, say you are long bond futures and the government is going to release unemployment figures in the next session.

The market is expecting a bullish number. But the report can always be unexpectedly bearish—in other words, *an unlikely event*. Now let's say the report is indeed bearish. The result: price and value move together. How fast and how far, of course, depend on how bad the report is and how nervous market participants are. In any case, because price *and* value have moved together in a near-term time frame, there is no cushion.

Therefore, if you are trading a market before a potential unlikely event, your risk is extremely high. It's high because you have no time—or very little time—for damage control.

To demonstrate a lower-risk situation, say you're trading beans in November 1987. As noted earlier, that was a market influenced by *likely events*. Consequently, your risk is considerably lower for several reasons:

- value's move occurs in a longer-term time frame.
- the shift in value is not immediately obvious.
- these events are fully discounted by the market.

In short, your risk is lower because you have time to offset if you're on the wrong side of a move.

Market Sentiment Quantified

Gauging market sentiment is important, as noted earlier, because it influences market participants' perception of value. And it is this perception that influences their behavior. Since confidence and uncertainty are intangible qualities, how do you measure market sentiment with Market Profile® data?

Broadly speaking, a directional move shows confidence and rotations show uncertainty.

Think of a scale. At one end are market participants who are confident that the market is under- or overvalued. They are eager to trade and their activity moves the market directionally. The more decisively they act, the more confident they feel.

At the other end are market participants who are so uncertain about value that they hesitate to trade at all. Their activity produces extremely narrow rotations—sometimes only a few ticks in each direction.

In between, as you move from extreme imbalance at one end to extreme balance at the other, you have slower activity that is basically directional, then relatively wide rotations that gradually become narrower.

CONFIDENCE			UNCERTAINTY
Imbalance			Balance
Directional	Still Directional	Opposite Response	"No Activity"
■ Wide move	■ Slower	■ Starting to rotate	■ Extremely narrow rotations
■ Rapid	■ Not as wide	■ Relatively wide arcs	■ Most volatile situation
■ Most stable situation	■ Not as stable	■ Less stable	■ Activity balanced between buyer and seller
■ Buyer or seller dominant			

What does this look like with actual data? See page 103.

Reading The Data To Judge Confidence Or Uncertainty

MARKET PROFILE®
CBOT U.S. BONDS

Market Profile® Graphic
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	Trade Price	Half Hour Bracket Times	
	100 2/32	TUV	
	100 1/32	RSTUV	
	100	OPQRSTUV	
Narrow range	99 31/32	OPQRSV	
	99 30/32	OPQRV	
	99 29/32	OPQRVW	
	99 28/32	QVW	
	99 27/32	Wa	
Tips	99 26/32	WXab	
in W	99 25/32	WXab	Trading opposite
period	99 24/32	WXab	range extension
	99 23/32	Wab	
	99 22/32	b	
	99 21/32	b	
	99 20/32	bc	
	99 19/32	bc	
	99 18/32	bc	
	99 17/32	bc	
	99 16/32	bc	
	99 15/32	c	
	99 14/32	c	
	99 13/32	c	
	99 12/32	c	
	99 11/32	c	
	99 10/32	cd	Directional move
	99 9/32	cd	
	99 8/32	cd	
	99 7/32	cd	
	99 6/32	cd	
	99 5/32	d	
	99 4/32	d	
	99 3/32	d	
	99 2/32	d	
	99 1/32	d	
	99	d	
	98 31/32	d	
	98 30/32	d	
	98 29/32	d	
	98 28/32	d	
	98 27/32	d	
	98 26/32	d	

- The market resumes in O period and trades in a narrow range, 100-02 at the top to 99-28 at the bottom, showing extreme uncertainty.
- The market tips in W period and moves down directionally to 99-23. But the seller is still not confident enough to continue and the market trades back up.
- Still, the market could never trade all the way back. It starts trading opposite the range extension in X and a periods. This seems to suggest that market participants are becoming more confident that bonds are overvalued at this price level.
- Then in b period, the seller moves decisively. The result: a directional move down to 98-26—more than one point lower.

Confidence And Uncertainty At The Market's Natural Parameters

Parameters established by the market's natural organization are the most relevant reference points a trader can have. Only two things can happen when the market reaches these areas: it can trade through or reverse. Not all parameters, though, are equal. Some are stronger than others. The strongest are formed by confident activity and the weakest by uncertain activity.

A new beginning that creates a wide directional move is the most confident and thus the strongest kind of parameter.

Why? Since a directional move is usually confident activity, it tends to be stable. In other words, since market participants are confident about value, they are more likely to hold positions. The faster a new beginning moves the market out of an area, the stronger the competition for opportunities at that level and the lower the volume. For example, if an auctioneer opens the bidding for a painting at \$1,000 and the price moves up rapidly to \$2,500, it does so because there was strong competition for the \$1,000 price.

Be aware, though, that a new beginning can also result from liquidating activity.

For example, short-covering looks the same as new buying in the Market Profile® graphic. However, since this short-covering is an offset, there is no strong parameter left to act as support. Therefore, it is important to ask yourself why the longer-term trader is responding with a directional move.

In general, rotations create a much weaker parameter—one that can be violated more easily than a parameter formed by a directional move. As the rotations become narrower, it shows that the longer-term trader is more and more hesitant to act.

When market participants are the most hesitant, the situation is the most volatile and the parameter is the weakest.

Why? This behavior indicates that market participants are so uncertain about value that the market can force them to act. For example, a government report is released. It is unexpectedly bullish. If market participants are uncertain and they're not already in the market, they're afraid not to get in. In other words, the market has forced them to act.

Anticipating Market Development

After going through Parts I and II of this Home Study Guide, you can see for yourself that a feel for value is vital. At the same time, that feel isn't easy to acquire because value is an intangible commodity. The guidelines below—based on questions Steidlmayer asks himself—can help you evaluate value in your market.

- *Confident or uncertain behavior is a function of the current price/value relationship so an understanding of this relationship is critical.*

First, use your background information on the conditions that affect value to decide whether the market is trading over, under or at value. This preparation can help you decide whether to buy or sell.

Next, look for opportunity—in other words, price away from value.

Opportunity arises out of *change* in the current price/value relationship or *continuation* of the current relationship.

This relationship is affected by surprise events, likely events and unlikely events.

Briefly...

...Surprise events generally cause price to move before value. Price generally moves way above or below value and then snaps back.

...Likely events generally cause value to move before price. Then value generally pulls price up or down to the new equilibrium level.

...Unlikely events generally cause price and value to move together.

When you can distinguish which price/value situation you're working with, you know 1) how quickly you have to act in order to capitalize on the situation and 2) whether the opportunity lies in *change* or in *continuation*.

To demonstrate, say the bond futures market is trending up. You believe the uptrend results from a confluence of likely events—the economy is slowing down, inflation is decreasing, interest rates are falling. And these events have caused value to move ahead of price.

One, you feel that the opportunity will last for a while because value has moved ahead of price. *Two*, since likely events are fully discounted by the market, you feel that the up move will continue.

- *The current perception of the price/value relationship is reflected in the market's degree of balance or imbalance.*

Look at the activity level of long-term buyers and sellers on the long-term auction chart to determine whether the market is currently balanced or imbalanced.

The more confident the longer-term trader is that the market is over- or undervalued, the more active he is and the more imbalanced the market. The result: the market moves directionally, seeking a new mean around which it can rotate.

On the other hand, when the longer-term trader is uncertain, his activity is hesitant. The more uncertain he is, the lower his activity level and the more balanced the market. He enters and exits. The result: the market trades sideways, rotating up and down around a mean.

■ *Next ask yourself, “If I buy here, will someone be willing to buy at a higher price?” Or, conversely, “If I sell here, will someone be willing to sell at a lower price?”*

In other words, is the confidence level such that the current trend will continue? Or, are you buying at the top or selling at the bottom of a move?

■ *Then, to get good trade location, identify the support/resistance points for your idea.*

Support/resistance points are the low volume prices at the end of one distribution and at the beginning of another such as tops and bottoms of value areas, new beginnings within a session and unfair price areas in a longer-term time frame.

■ *Finally, based on your opinion of the confidence level of market participants, are you willing to buy above or sell below value? Or, do you want to sell above value and buy below it?*

In other words, do you anticipate a balanced or an imbalanced situation?

If you believe that the market is balanced, the appropriate response is to sell above value and to buy below it—in other words, to sell rallies and to buy breaks. On the other hand, if you believe that the market is imbalanced, the appropriate response is to buy above value and to sell below it—in other words, to go with the move.

To explain, say you believe that 1) the market is currently undervalued, 2) it is imbalanced to the buy side and 3) the current up trend will continue and bring in more buyers so there will be someone willing to buy at a higher price.

This scenario describes an imbalanced situation. So you might decide it would be worthwhile to buy above value if the market doesn't give you a chance to buy below. In other words, you are deciding if the situation merits giving up good trade location because you believe market activity is with you.

To help you master the material we've covered in Part III, there is a self-test on page 107.

Stop And Test Yourself

Q. Why is it important to determine whether market participants are confident or uncertain?

A. Because confidence and uncertainty influence their behavior—in other words, their reaction to news and market developments.

Q. Confident activity tends to be what?

A. Stable because confident traders tend to put on a position and to hold it. In addition, confident traders tend to overlook bad news.

Q. Uncertain activity tends to be what?

A. Volatile because uncertain traders tend to offset as soon as the market moves against them. In addition, uncertain traders tend to look for trouble.

Q. It is not an event itself that affects value but the current _____ of that event.

A. The current perception of that event.

Q. Value is subject to conditions. What are some common examples?

A. Economic developments like inflation or natural developments like a drought.

Specifically, a fast-food franchise is generally perceived as being more valuable if it is located on a busy corner than if it is located on an island in the middle of a lake.

Q. The events that affect value can be divided into three categories. What are they?

A. Surprise, unlikely and likely events.

Q. How does each one affect the price/value relationship?

A. After a surprise event, price generally moves sharply away from value and then returns to value.

After an unlikely event, price and value move together.

After a likely event, value moves ahead of price and then pulls price up or down to a new level.

Q. After which kind of event is your risk greatest?

A. After an unlikely event because price and value move together. Consequently, there is no time—or very little time—for damage control.

Q. Your risk is lowest after which kind of event?

A. After likely events because value has moved up or down in a long-term time frame, the shift in value is not immediately obvious and these events are fully discounted by the market. Consequently, you have time to offset if you are on the wrong side of a move.

In Conclusion

You may think all of this sounds too simple to be worthwhile. Exactly the reverse is true.

Traders today are inundated with information. Steidlmayer's insight can help you organize the flood of news in a meaningful way. Still, there is no denying that forming an opinion of market value is not easy. *One*, value is an intangible commodity. And *two*, it takes experience to evaluate the impact of events on the price/value relationship.

With so much economic uncertainty in the world today, it is often a daunting task to determine short-, intermediate- or long-term value. So don't be discouraged if you find this approach confusing at first. The principles become clearer with use. If you work with them, you'll see that Steidlmayer's insight is critical. Over time, the rewards from a better understanding of market activity will make the effort worthwhile.

As you work with the data, you'll find that Steidlmayer's insight on confidence or uncertainty is among your most useful analytical tools. We're going to relate market sentiment to the distribution process in Part IV.

Briefly...

Confidence = imbalance = a directional move = distribution.

Uncertainty = balance = rotations = distribution development.

C B O T®

M A R K E T

P R O F I L E®

PART IV

MARKET PROFILE DATA® AND THE DISTRIBUTION PROCESS



Chicago Board of Trade

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**PART IV:
MARKET PROFILE DATA® AND
THE DISTRIBUTION PROCESS**

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THE NECESSARY BACKGROUND

We're going to start our consideration of the distribution process with some background information. This information will give you a framework and make it easier for you to relate this process to market activity.

A Shift In The Capital Base

The most important change since Market Profile data were introduced is that the day—or any single session—is no longer viable as a constant measure of market activity. Starting roughly in the late 1980s, a new beginning didn't always coincide with the start of a session. Now it occurs at any time, in the middle of a session or even just before the close.

As you look at the examples, keep in mind that any character can be used to show price reoccurrence—Egyptian hieroglyphics if you like. The CBOT uses capital A through capital X to indicate midnight to noon and small a through small x to indicate noon to midnight.

For example, see opposite. The bond futures market resumes at 7:20 in O period. O period represents 7:00 a.m. to 7:30 a.m., P period represents 7:30 a.m. to 8:00 a.m., etc.

The graphic on page 114 uses small y to indicate 7:20 a.m. to 7:50 a.m., small z to indicate 7:50 a.m. to 8:20 a.m., capital A to indicate 8:20 a.m. to 8:50 a.m., etc. *Even though this graphic uses characters that are different from those used by the CBOT, the information that you get on market activity from both graphics is exactly the same.*

Chicago Board of Trade Characters

MARKET PROFILE® CBOT U.S. BONDS

Price

104 30/32
104 29/32
104 28/32
104 27/32
104 26/32
104 25/32
104 24/32
104 23/32
104 22/32
104 21/32
104 20/32
104 19/32
104 18/32
104 17/32
104 16/32
104 15/32
104 14/32
104 12/32
104 11/32
104 10/32
104 9/32
104 8/32
104 7/32
104 6/32
104 5/32
104 4/32
104 3/32
104 2/32
104 1/32
104
103 31/32
103 30/32
103 29/32
103 28/32
103 27/32
103 26/32
103 25/32
103 24/32
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103 22/32
103 21/32
103 20/32
103 19/32
103 18/32

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Half Hour Brackets

P
P
OP
OP
OP
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PR
PQRS
PQRS
PQRS
PQRS
QRS
QRS
QRS
QS
QS
QST
ST
ST
ST
ST
ST
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TU
TU
UWd
UVWd
UVWXad
UVWXacd
UVWXacd
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UVXacd
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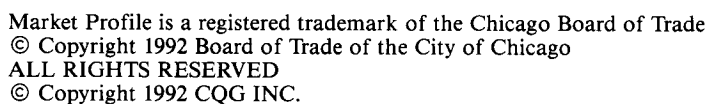
“P” period indicates
7:30 a.m. to 8:00 a.m.

Market resumes
in “O” period
at 7:20 a.m.

“R” period indicates
8:30 a.m. to 9:00 a.m.

“d” period indicates
1:30 p.m. to 2:00 p.m.

A New Beginning At Any Time



■ this worldwide capital flow can enter the market at any point in time.

The London exchange was open when Saddam Husssein made the announcement and that's where market participants reacted to the news. See the example below. This example shows bond futures activity moving from London to Chicago to London and back to Chicago. Anyone who waited until Chicago opened on 2/15 missed the high of the move.

Whether we like it or not, markets today are global and activity is non-stop – moving from one exchange to another in a timeless continuum. Peter Steidlmayer describes this continuum as a distribution of capital, i.e., a series of prices in one direction that corrects an economic imbalance.

This capital is part of a huge worldwide pool that trades in Tokyo, London, New York or Chicago. With today's technology, any exchange is just a phone call away. Essentially, this is a freeform environment in which activity disregards man-made parameters like the open and the close at a specific exchange. Therefore, to trade effectively today, you need a more flexible measure of activity – one that won't impose artificial restraints.

Steidlmayer replaces the session, an artificial man-made unit, with a distribution, a natural unit. Why? He says, "The repeated images of the bell curve reflect the purpose of the market." In other words, markets exist to distribute goods and services. It is simply a case of form following function.

Before we go any further, let's stop and define distribution.

According to the dictionary, distribution is "the position, arrangement or frequency of occurrence over an area or throughout a space or unit of time." Statistically, everything – trading data included – distributes around a mean. *The Market Profile format organizes trading data so that you can see how the market's distributions are developing over time.*

In this section of the Home Study Guide, you'll see how to use Market Profile data to identify opportunity. First, however, it is necessary to understand how the distribution process works. Fortunately, that is not as difficult as it might seem.

Steidlmayer's research shows that the market uses only a finite number of behavior patterns to distribute goods and services. In addition, that finite number is universal from market to market.

Furthermore, Steidlmayer's recent research linking market activity to the distribution process is not a negation of his previous work. If you're already using the Market Profile tools, you'll see for yourself that this breakthrough simply explains the basic concept more fully.

Nevertheless, the shift in the capital base has caused structural change and some parts of the knowledge base are no longer as important as they once were.

For example, concepts such as the initial balance, the different kinds of range development and the TPO (time/price opportunity) count will become part of your background knowledge. At the same time, if you grasp the way these concepts work in a single session, you can expand the ideas beyond the day parameters and relate them to the distribution process.

Let's take the concept behind the initial balance. The short-term trader is seeking a fair price area for two-sided trade. That idea is certainly still valid. Now, however, you want to relate it to longer-term distribution development. As we move forward, you'll see that several sessions can comprise a longer-term fair price area where balanced trade can occur.

In addition, it's still important to know if the longer-term trader is buying or selling in a single session. That information can help you to anticipate how the longer-term distribution is going to develop.

Keep this in mind as we move forward.

A General Review

In order to read data organized in the Market Profile format, it helps to understand the ideas upon which the format is based. In brief, they all relate to the notion of value. And with value as the backdrop, you can see why activity isn't arbitrary or random.

If activity were random, highly sophisticated market participants would be trading or investing millions of dollars in a vacuum. Take U.S. securities dealers, for example. They are part of a \$2.2 trillion market in which participants move approximately \$1 billion in securities every day. The idea that they would make these huge trades without considering value is just not credible.

As a trader himself, Steidlmayer rejected the idea that activity is random. He started from the premise that buyers want to buy low and sellers want to sell high. Nothing revolutionary so far but then he took the idea a step further.

He divided all market participants into two categories: short-term buyers and sellers and long-term buyers and sellers.

Whether activity is short- or long-term depends on the trader's behavior. This is a key statement. *Short- or long-term activity is defined by a trader's behavior in relation to price—not by classification as a local exchange member or as a commercial clearing firm like Goldman Sachs (trading for the house account).* Both categories of traders are active throughout the range.

What is the behavior?

The short-term trader wants a *fair price* because he has to trade soon. The longer-term trader, on the other hand, has more time so he can wait for an *unfair* or an *advantageous price*. For example, say you have to sell your home in the next two weeks. The best you can hope for is a fair price. If you have six months, however, you can afford to wait for an advantageous offer.

Naturally, both short- and longer-term traders want to buy low and sell high. *It's important to recognize, however, that value is not the same for both groups.* Broadly speaking, the short-term group is buying low or selling high in relation to value today, tomorrow or sometime this week. The long-term group is buying low or selling high in relation to value next week, next month or even next year.

Each kind of trader (short- and long-term) has a role to play in the market and that role is determined by the kind of price—fair or advantageous—that he or she is seeking. Short-term traders seek a fair price in the near-term. They find an area where two-sided trade can occur now. That is, they develop near-term value. Longer-term traders seek an advantageous price. They move the market directionally. That is, they extend the range.

How does the marketplace facilitate trade? By satisfying the needs of both kinds of participants. The market is always moving from an unfair price area to a fair price area, then to an unfair price area again. This is the market's overriding behavior pattern—imbalance for those who seek an advantageous price, balance for those who seek a fair price.

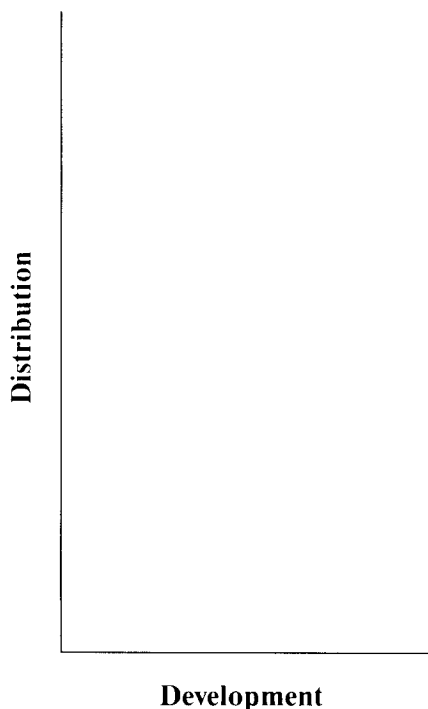
If price is moving up or down directionally, the market is distributing. If the market is moving sideways, it is developing. The market can only move up, down or sideways so, stripped to essentials, that's all there is.

Distribution occurs when market participants are seeking a fair price in a longer-term time frame. In other words, longer-term traders buy or sell because a price area is advantageous in relation to longer-term value. And now that most of the capital flow enters the market from outside the various exchanges, distribution continues until the capital flow stops. This is why activity can no longer be contained by artificial parameters preset by a specific exchange.

Naturally, this affects the role of the exchange. Instead of slowly absorbing change—its traditional role—the exchange is now forced to react rapidly. Why? As stated above, floor liquidity is no longer capable of containing the overwhelming distribution of capital that enters the market from outside.

Development occurs when the capital flow stops and market participants can find a fair price around which to trade.

THE MARKET PROFILE FORMAT



The Market Profile format organizes data so that you can see distribution and development graphically.

- Distribution or imbalance which extends the range is on the vertical axis.
- Development or balance which develops value is on the horizontal axis.

As noted above, this is basically all you have in the market. That's why this format provides a clean data base without any "noise." It only captures the market's essential elements. When we discuss Liquidity Data Bank® volume in Part VI of this Home Study Guide, you will see how volume data can reinforce and confirm what you see in the Market Profile graphic.

In addition, since the format separates action (distribution) from reaction (development), you can see the direction of the capital flow.

Money coming into the market is action or change. Development is reaction – the market's response to that change. Naturally, it is critical to monitor the capital flow because this is the liquidity that moves price up or down. If price moves far enough, it can change the market's balance and start something new.

Let me sum up what we have just covered.

- There are two kinds of prices: fair and advantageous.
- There are two kinds of traders: short-term and long-term.
- Short-term traders want a fair price; long-term traders want an advantageous price.
- In pursuing their interests, long-term traders move the market directionally. *This is distribution.* Short-term traders find an area where two-sided trade can occur. *This is development.*
- The market facilitates trade by moving from distribution to development and back again.

Now, let's relate distribution and development (or imbalance and balance) more specifically to activity.

Distribution, Development And Market Strategies

What kind of activity occurs when the short-term trader is in control?

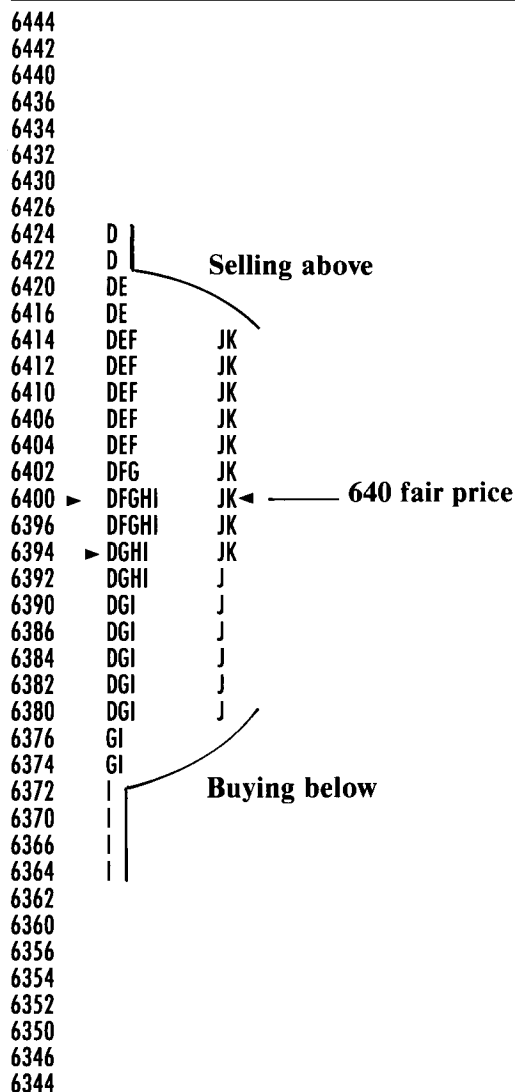
■ *Balanced rotations.* Why? The market has found a fair price and is rotating around it. Traders are buying below the mean price and selling above it because they recognize the mean as value. In other words, they have found an equilibrium area in which they are comfortable trading.

See the example below. This example shows balanced rotations in the soybean futures market. We've split the Market Profile format at J period so that you can see activity more clearly. The fair price in this session was roughly 640. When the market rotated above 640, you can see that sellers came in because the market traded back to 640. When the market rotated below 640, buyers came in and the market traded back up. These rotations created a bulge on the horizontal axis—in other words, a horizontal profile that was widest at the mean.

Balanced Rotations

SX2

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■ 6/10

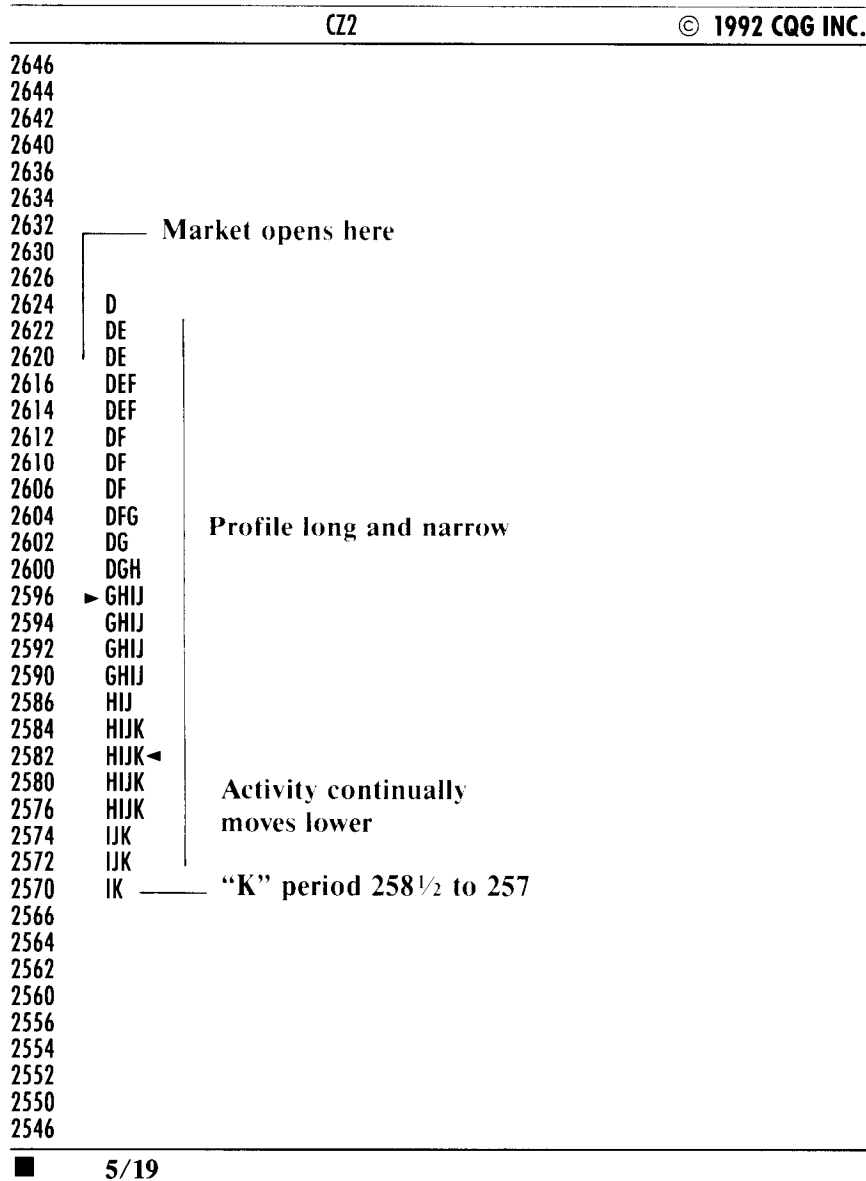
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What kind of activity occurs when the longer-term trader is in control?

■ *Imbalanced trends.* Why? The market is seeking a fair price around which it can rotate. In other words, traders are looking for a new equilibrium area.

See the example below. This example shows an imbalanced trend. Unlike the soybean example, activity here is on the vertical axis. The profile is vertical (long and narrow) because there was no generally accepted mean price. Selling pressure overwhelmed the buying and activity in the session continually moved lower. The market started trading at 262 in D period. In K period, the market was trading between 258½ and 257.

Imbalanced Trend



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Broadly speaking, all market activity can be classified as an imbalanced trend or a balanced rotation. In other words, the market is either distributing or developing. In Steidlmayer's new vocabulary, the market is "controlled by price" (balanced) or "controlled by market activity" or "non-price control" (imbalanced).

Since the only choice is between price control or market activity control, the critical issue is recognizing where you are in the imbalance-balance continuum so that you can choose the appropriate strategy.

If the market is controlled by price (balanced), buy breaks and sell rallies, i.e., fade the market. If the market is controlled by market activity (imbalanced), go with the move. That sounds simple enough. There is a catch, however. It is not always easy to decide whether the market is controlled by price or by market activity. Knowing that the market uses a four-step behavior pattern to distribute goods and services can help you make that decision.

The Four-Step Behavior Pattern

We first discussed this pattern in Part II of the Guide. Now, we're going to relate it to the distribution process.

■ *The first step, naturally, is a beginning.* Something happens that makes buyers believe that the market is undervalued – or sellers that it is overvalued – and the market moves up or down. In other words, the beginning is a directional move. Described more precisely, this move is a distribution of capital. If the capital flow is up, buyers are distributing because the market moves up to shut off buying. If the capital flow is down, sellers are distributing because the market moves down to shut off selling.

The market moves up until it brings in sellers or down until it brings in buyers. With both buyers and sellers present, the market comes into balance and starts rotating.

■ *This is the second step: balance.* It is the market's response to the initial up or down move. To demonstrate: say the market moves up, brings in selling and comes into balance at the top of the move. It comes into balance because market participants are too uncertain to continue the directional move immediately. They need to pause and take stock of the situation.

■ *Therefore, the third step – which occurs in the balance area as the market trades sideways – is a test.* How long a market tests, of course, depends on news and market developments: in other words, the conditions that affect value. At some point in the balance area, buyers become convinced that the market is undervalued or sellers that it is overvalued and the market moves directionally again.

■ *Therefore, the fourth step is another directional move.* In the example above, the market was moving up because buyers were predominant. Then, some selling came in and the market came into balance. If the buyers decide that the market is still undervalued, they will become predominant again. In that case, the fourth step is going to be more up distribution or, in other words, continuation. If, on the other hand, there is a shift and sellers decide instead that the market is overvalued at this level, the fourth step is going to be down distribution or, in other words, change.

Over time, this four-step behavior pattern forms a distribution. Consequently, each phase of the pattern is part of a larger whole. And this is the key to using Market Profile data effectively – being able to relate the parts to the whole. To do that, you have to see the distinction between the market and individual marketplaces.

The Parts And The Whole

The market is the whole; individual marketplaces are the parts.

The market distributes by facilitating trade in individual marketplaces. This is a key concept. Let me repeat it. The market distributes by facilitating trade in individual marketplaces. What does that mean? To explain, consider the market for U.S. Treasury securities.

These securities are distributed around the world via a network of individual marketplaces in Tokyo, London, Chicago and New York. Each marketplace is only one part of the larger whole. Therefore, in order to make a price move in New York and Chicago meaningful, you have to relate it to a larger framework – one that encompasses what happened in Tokyo and London.

This framework, as noted earlier, is a distribution.

To demonstrate how this understanding can help you make decisions, consider what happened in the U.S. Treasury bond futures market after Iraq invaded Kuwait in August 1990. Before we look at the example, however, let's stop and review briefly how the market works.

■ The market begins and moves directionally until it brings in an opposite response. The opposite response stops the directional move and defines the range.

■ Then the market trades within this range, developing value, until it trades above the high or below the low.

■ Stop the market at any point in time, and you'll see these three related price areas: high, low and value. These areas define the market's natural units – distributions – in each time frame.

■ When value is in the middle between the high and the low, the distribution is complete.

Now, we're ready for the example on the opposite page. The example shows U.S. Treasury bond futures activity in Chicago and London from 8/1 to 8/2. **We're going to relate activity in individual sessions in Chicago and London to the development of a completed distribution with value in the middle between an unfair high price area and an unfair low one.**

Market Profile data in the example on page 125 shows that the market had come into balance in the day session at the 95-00 level just before the invasion on 8/1. It continued to develop this value area in the night session. Then, news of the invasion hit the market. The action—the down distribution—started in Chicago in c period. This new beginning established the unfair high at 95-03.

As noted above, the market was rotating slowly in the value area before the news was announced. If you recognized the new beginning when activity picked up and the market started to trade down on heavy volume, that, of course, was the ideal place to go short. Say you go short. Now, how long do you hold?

The down move continued in London until it brought in buying (an opposite response) at 93-17. *Is the buying strong enough to stop the move? In other words, is this price area the unfair low?* If you decide the answer is yes, this is where you exit. Value starts developing in London and this sideways activity seems to confirm that the selling is stopped for now.

Let's relate this activity to our larger framework—the development of a complete distribution with value in the middle between an unfair high and an unfair low.

There is an unfair high price at 95-03 established in the Chicago night session and an unfair low price at 93-17 established in London. Value started to develop in London and continued in Chicago and New York. You can see that value is developing roughly in the middle between the high and the low.

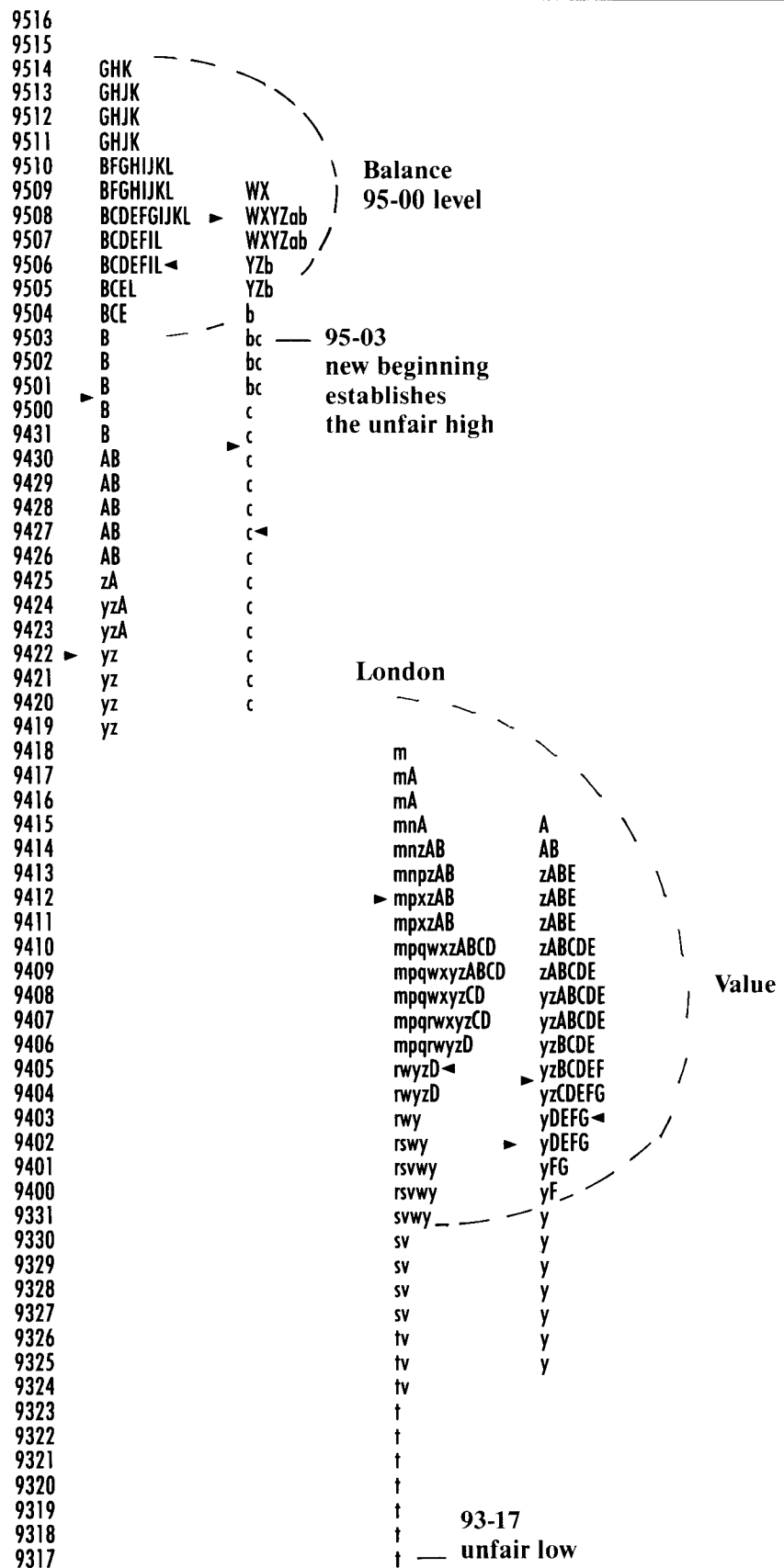
This graphic only shows activity through E period but the market continued to trade around the mean in narrowing rotations—94-10 to 94-03. The narrow rotations indicate that activity is slowing down and volume is getting lighter. This unit seems to be coming to an end. The market may still be imbalanced to the downside in a longer-term time frame, as indeed it was, but the *near-term* opportunity that was defined by the new beginning at the 95-00 level appears to be over.

To show you that a completed distribution is the whole in all markets, we're going to look at an example based on soybean futures data. Here, we're going to relate activity in successive sessions to the development of a complete unit—a distribution with value in the middle between an unfair high and an unfair low.

Iraq Invades Kuwait

BOUD

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The example opposite shows activity in the soybean market from 1/8/91 to 1/17/91. On 1/8, there is a new beginning at the 579 level.

The market distributed down from 579 to 563¼. This down move established an unfair high. In the next three sessions, the market came into balance opposite the low of the move. In other words, value is developing opposite what was previously the unfair low.

So far, activity has established an unfair high at the 579 level and value roughly from 570 to 559½. Now, if the whole is a balanced distribution with value in the middle between an unfair high and an unfair low, what's missing here? The unfair low.

On 1/14, the market opens lower, trades down to test the area below 550 and then reverses. This up move completes the distribution by establishing an unfair low.

The distribution continues to develop value on 1/15 and comes to an end on 1/16. In the chain of market activity, the down distribution (1/8, 1/9, 1/10, 1/11) and the up distribution (1/14, 1/15, 1/16) combine to form a longer-term whole—a complete market unit with value in the middle between an unfair high and an unfair low.

On 1/17, the market begins something new.

Generally, a new beginning starts at the mean because the market moves toward efficiency and then it's ready to move directionally again. You can see that the up move on 1/17 started at 564—roughly the mean for this entire unit.

How does this understanding help you make decisions?

If you recognize the new beginning on 1/8, this is the ideal spot to go short. But there are other opportunities to put on a short position. *How is the market trading in the balance area as it tests the upside?* Buyers can't take the market above 567¾ on 1/9 or above 570 on 1/10. On 1/11, selling comes in at the 570 level and defines the top of the developing value area.

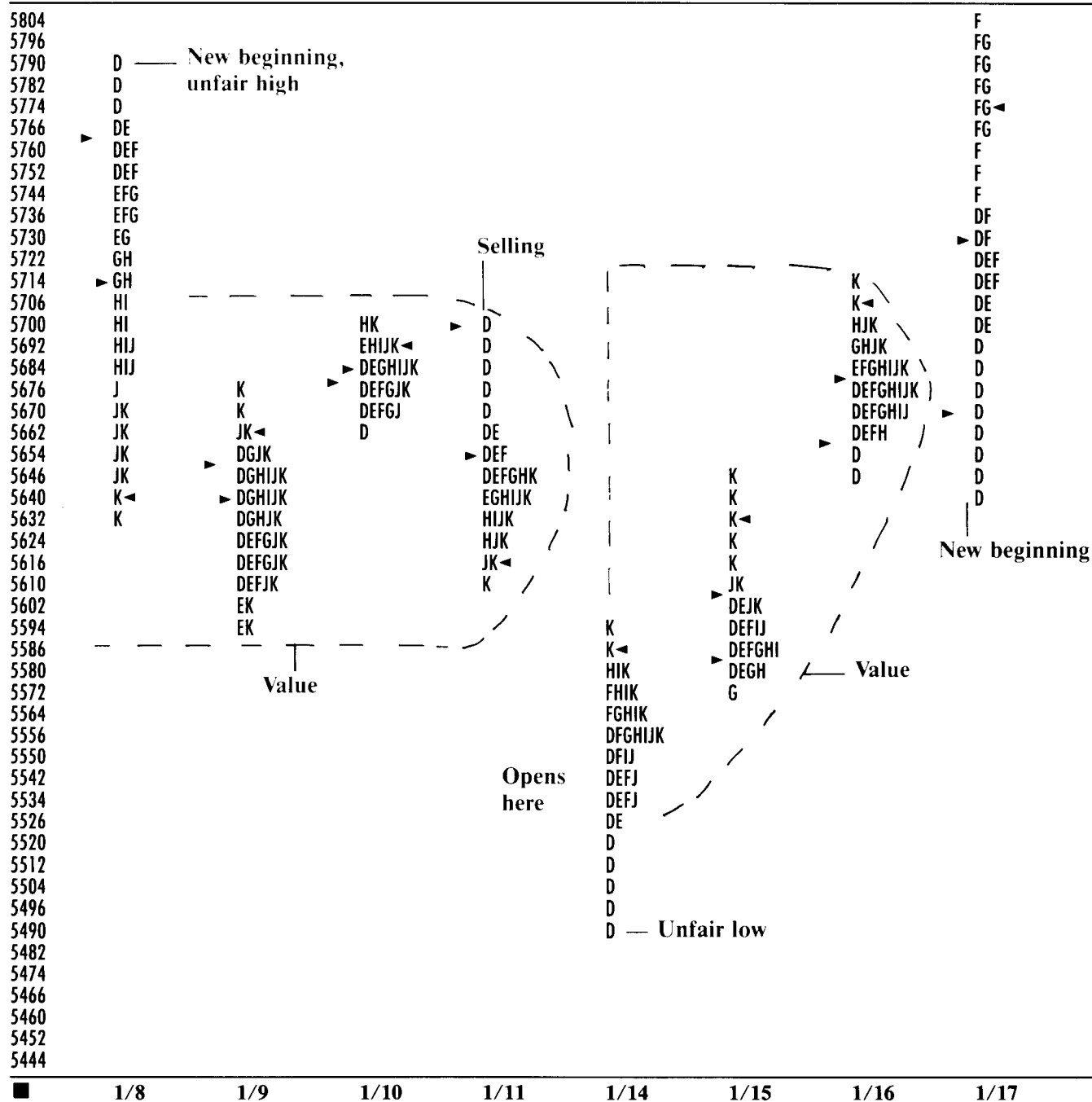
In brief, buyers aren't willing to trade up and sellers think the market is overvalued at this level. Let's say you go short on 1/11.

On 1/14, when the market tests the downside and can't break below 549, buying comes in and stops the down move. This activity establishes an unfair low and completes the unit. This is the end of the down move and the ideal place to offset your short position.

Understanding how the market works can not only help you trade a near-term unit, it can also help you to recognize the beginning of a longer-term trend.

To explain, let's relate the near-term activity on page 127 to longer-term soybean distribution. At that time, 550 was the long-term unfair low. No one had been willing to sell below this level since November 1987. In this example, near-term activity was occurring at the long-term unfair low. *Therefore, the near-term buying on 1/14 at the 550 level not only completed the near-term unit but it was also the beginning of a longer-term uptrend.*

Before we examine the distribution process in more detail, stop and test yourself on the material we've covered so far.



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Stop And Test Yourself

Q. What is the biggest change in the market since Market Profile data were introduced?

A. The day—or any single session—is no longer viable as a constant market measure.

Q. Why?

A. There has been a shift in the market's capital base. Most of the capital now comes from off the floor and can enter the market at any time. Therefore, a new beginning can occur at any time—in the middle of a session or even just before the close.

Q. What replaces the day as a constant unit?

A. A balanced distribution.

Q. Why is it important to recognize a new beginning?

A. Because this is where the market breaks naturally. It's the low of an up move or the high of a down move.

Q. Stripped to essentials, how can you describe all market activity?

A. The market is either distributing (imbalanced) or developing (balanced).

Q. If the market is balanced, is it controlled by price or by market activity?

A. Price.

Q. If the market is imbalanced, is it controlled by price or by market activity?

A. Market activity.

Q. What is the four-step behavior pattern the market uses to distribute goods and services?

A. Imbalance, balance, test, imbalance in the same direction or imbalance in a new direction.

Q. What is the relationship between the market and the marketplace?

A. The market is the whole; individual marketplaces are the parts.

Q. The _____ distributes by facilitating trade in _____.

A. Market, individual marketplaces.

Q. How are Market Profile data organized to show distribution and development?

A. Distribution (the range) is on the vertical axis; development (value) is on the horizontal axis.

Q. Which is action and which is reaction?

A. Distribution is action; development is reaction.

Q. An imbalanced market is _____.

A. Distributing

Q. A balanced market is _____.

A. Developing.

Q. A completed distribution has an _____, an _____ and _____ in the middle.

A. Unfair high, unfair low and value.

GETTING SPECIFIC

How Distribution Relates To Market Activity

In order to understand how the distribution process relates to market activity, it's important to see the connection between the Market Profile concept and volume. The volume of everything typically falls one, two or three standard deviations from the mean. We're going to relate trading data to this organization. For our purposes, however, we're just going to relate the high volume first standard deviation and the low volume third standard deviation to market activity.

The first standard deviation correlates to the value area. This is a high volume area. It shows price acceptance confirmed by use: a fair price area.

The third standard deviation correlates to a price excess. This is a low volume area. It shows price rejection: an unfair price area.

These low volume price areas are key reference points because they can contain the range. When the market reaches these potential parameters, it can only do one of two things: trade through or reverse direction.

The stronger the competition that creates the excess, the more likely it is that the parameter will hold. How do you know how strong the competition is? The faster the market moves out of an area, the stronger the competition for opportunities at that price level. And, of course, the faster the market moves out of an area, the lower the volume.

Strong competition propels the market forward. See the examples opposite.

These examples show excesses in U.S. Treasury bond and note futures after a government report on unemployment was released. In Treasury bond futures, the market resumed at 99-03 to 99-07 while waiting for the report. The report was released at 7:30 a.m. Strong buying competition propelled the market up to 99-26 in P period and then to 99-28 in T period.

In Treasury note futures, the market resumed at 102-22 to 102-18. Buying competition propelled this market up to 103-05 in P period and then to 103-06 in T period.

Third standard deviations—in a single session or in a longer-term time frame—are moving the market from one balanced equilibrium area to another. In other words, they are moving the market from an old fair price area to a new one. And this is where value comes in. The market moves because the perception of value has changed.

The directional move is the beginning of a distribution.

Distributions begin with an increase in activity. They develop with rotations and they end with a slowing of activity. The shift from activity at an increasing rate to activity at a decreasing rate gives you time to make a decision. Whenever the market comes into balance—no matter how brief the balance period—it is giving you time to take stock.

This sounds simple enough. Why are market decisions so difficult? In a nutshell: time frames. *The market is distributing in all time frames simultaneously.* That's why an understanding of the market's time frame organization is critical.

Competition Propels Bond Futures Up

MARKET PROFILE®
CBOT U.S. BONDS

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Price

99 28/32
99 27/32
99 26/32
99 25/32
99 24/32
99 23/32
99 22/32
99 21/32
99 20/32
99 19/32
99 18/32
99 17/32
99 16/32
99 15/32
99 14/32
99 13/32
99 12/32
99 11/32
99 10/32
99 9/32
99 8/32
99 7/32
99 6/32
99 5/32
99 4/32
99 3/32

Resumed

Half Hour Brackets

T — Trades up to 99-28
T in "T" period
PT
PST
PQRST
PQRST
PQRS
PQRS
PQR
PQR
PQ
P
P
P
P
P
P
P
P
OP
OP
O
O
O

Competition Propels Note Futures Up

MARKET PROFILE®
CBOT 10 YR T NOTES

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Price

103 6/32
103 5/32
103 4/32
103 3/32
103 2/32
103 1/32
103
102 31/32
102 30/32
102 29/32
102 28/32
102 27/32
102 26/32
102 25/32
102 24/32
102 23/32
102 22/32
102 21/32
102 20/32
102 19/32
102 18/32

Resumed

Half Hour Brackets

T — Trades up to 103-06
T in "T" period
PST
PST
PRS
PQRS
PQR
PQR
PQR
P
P
P
P
P
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P
P
OP
OP
OP
OP
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Time Frames

Briefly, time frames are forcing points—points in time that force traders to make a decision. For example, say you own an option that expires in two months. The expiration date is a point in time that is forcing you to make a decision. Steidlmayer's tandem time frame concept visualizes all short-term activity on one side of the tandem and all longer-term activity on the other. Both kinds of activity exist in the market simultaneously. *For this reason, being able to relate the short-term parts to the longer-term whole is essential for good trading results.*

As noted earlier, short-term and long-term traders have different ideas of value. Therefore, value is not necessarily the same in all time frames. That's why the market can be trending down in the long-term, trading sideways in the intermediate-term, and moving up in the near-term. Stated another way, value is moving down in a long-term time frame, sideways in an intermediate-term time frame, and up in a near-term time frame.

An ability to separate one time frame from the other can help you decide whether a reversal is merely a correction or the end of a longer-term trend. This insight can also help you to relate information on value to the relevant time frame.

For example, bond traders might be worried about an unusually large supply of Treasury bonds coming to market at the next government auction. The auction, however, isn't until next month. In the meantime, the government releases a positive report on inflation and the price of bonds goes up.

The first piece of information is going to affect value in a longer-term time frame. The second piece is affecting near-term value right now.

How Distributions Develop

To help you see the relationship of the parts to the whole, we're going to start with the market's ultimate common denominator—a completed, balanced distribution in the longest-term time frame.

The first standard deviation—a high volume area—is in the middle and third standard deviations—low volume areas—are at each end.

Value or the volume base (the bulge) is in the middle between the long-term unfair high and the long-term unfair low. Because the first standard deviation is between two third standard deviations, Steidlman calls a balanced distribution a 3-1-3 for short.

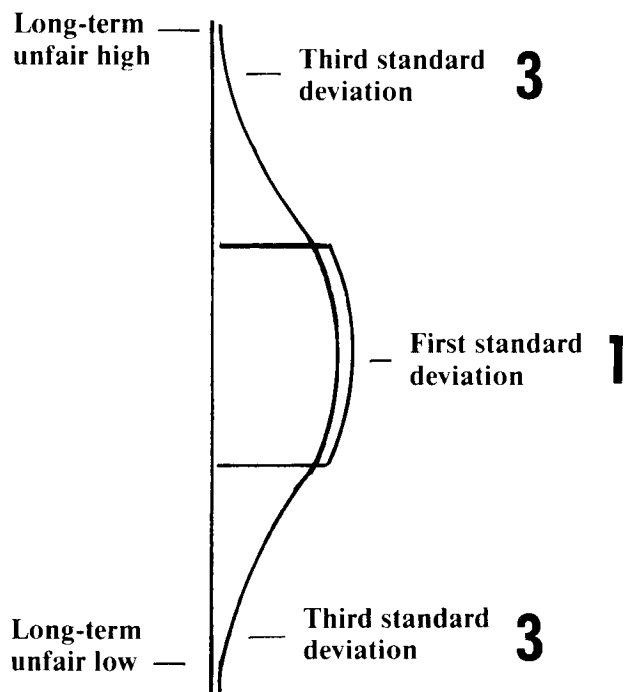
The market arrives at this balanced position in the longest-term time frame by moving from imbalance to balance in short- and intermediate-term time frames.

You can identify the imbalanced shorter-term distributions by their shape: a J or teardrop. The volume base, instead of being in the middle, is at one end or the other.

■ If the distribution is imbalanced to the upside, volume is at the top.

■ If the distribution is imbalanced to the downside, volume is at the bottom.

THE ULTIMATE COMMON DENOMINATOR



IMBALANCED TO THE DOWNSIDE

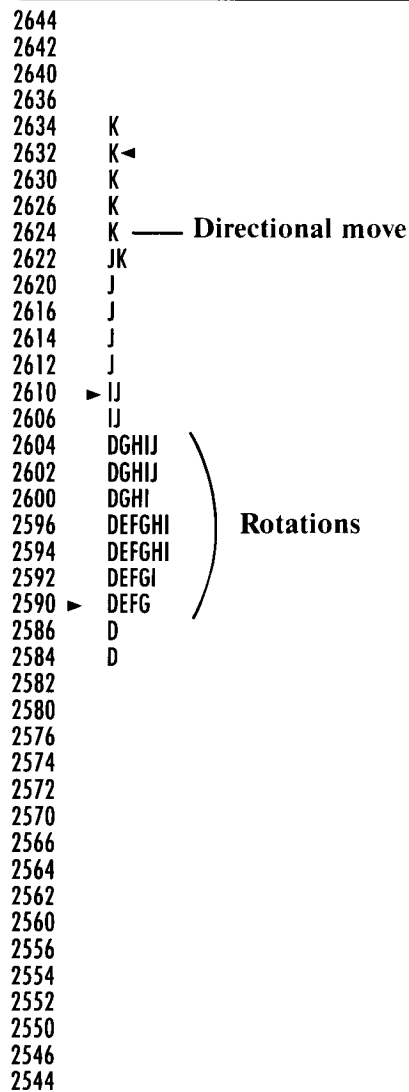


IMBALANCED TO THE UPSIDE



■ *The first way is from the first standard deviation to the second to the third or rotations and then a directional move. Steidlmayer calls this kind of distribution a 1-2-3 for short.*

1-2-3 Activity

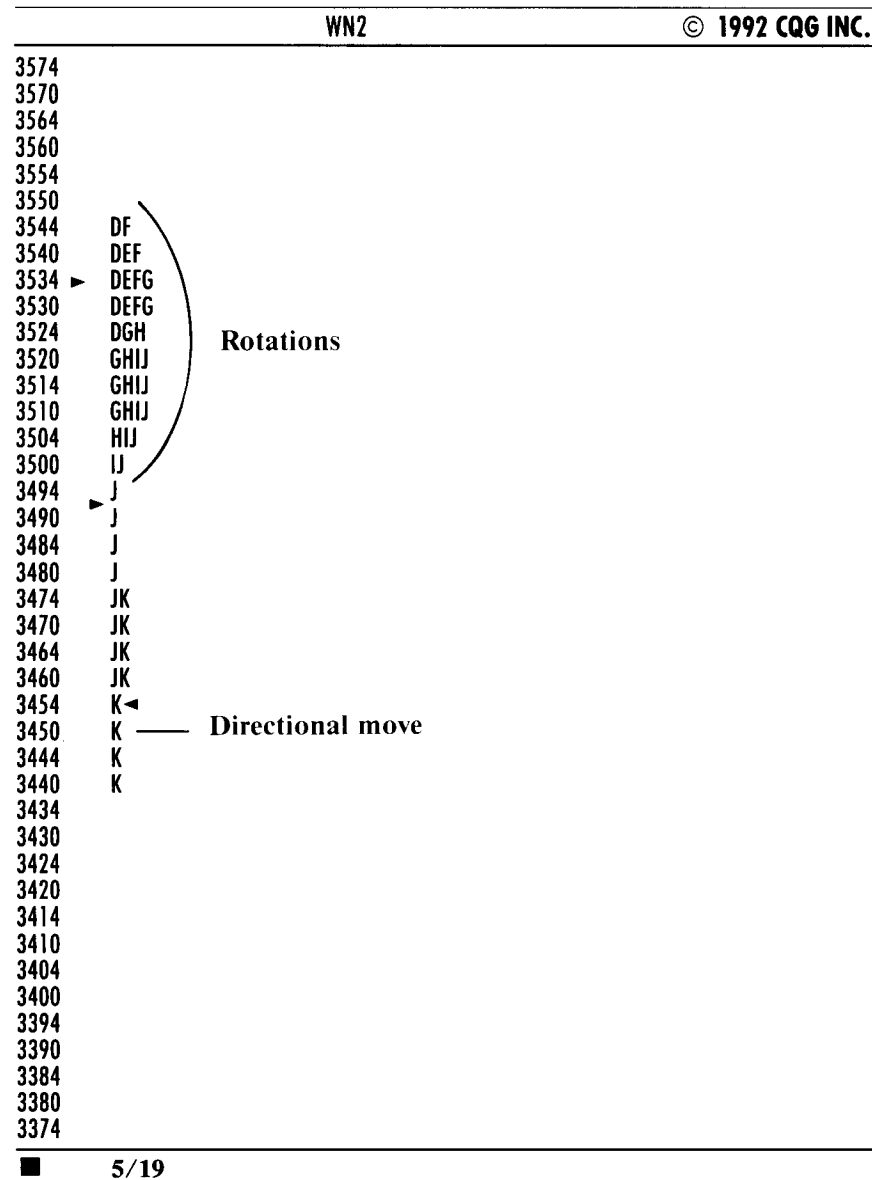


5/14

134

The session below is another example of a 1-2-3 distribution. Here too, the market starts with rotations in D through I periods. The directional move starts in J period and continues in K period.

1-2-3 Activity

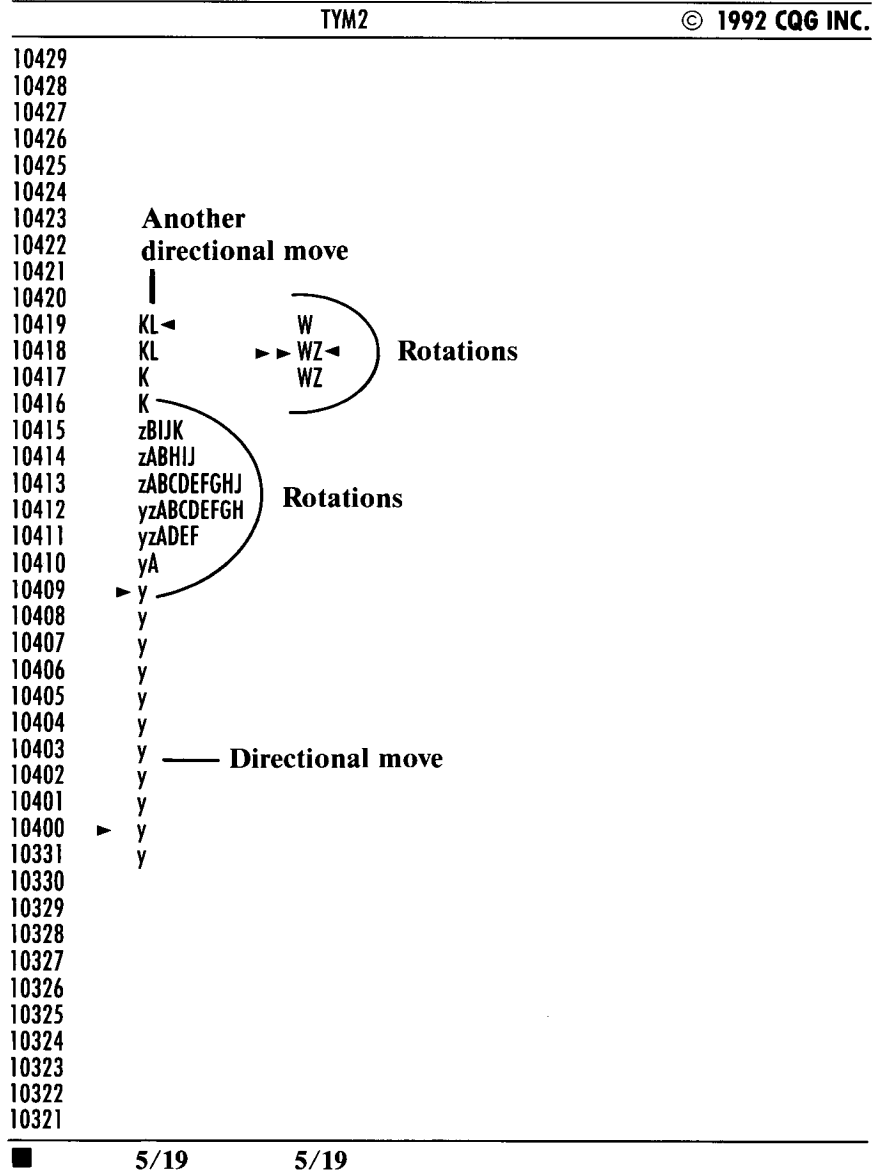


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■ The second way is from the third standard deviation to the second to the first or a directional move and then rotations. Steidlmayer calls this kind of distribution a 3-2-1 for short.

The session below is an example of a 3-2-1 distribution. The session began with a directional move in y and z periods and then developed value with rotations in A through J periods. There is another directional move in K and L periods and the market came into balance in the night session.

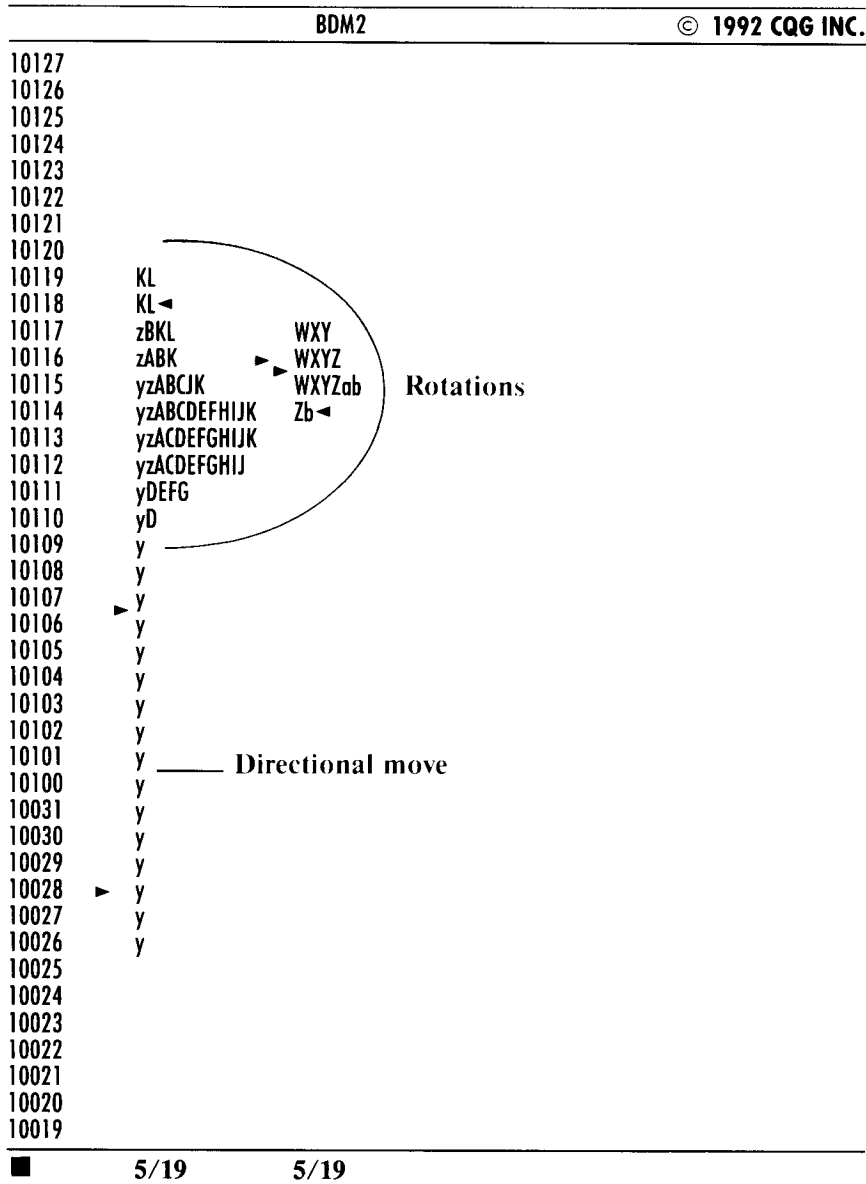
3-2-1 Activity



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The session below is another example of a 3-2-1 distribution. There was a directional move in y and z periods and rotations in A through L periods. The market traded back to the mean in the night session and basically continued the value area development.

3-2-1 Activity



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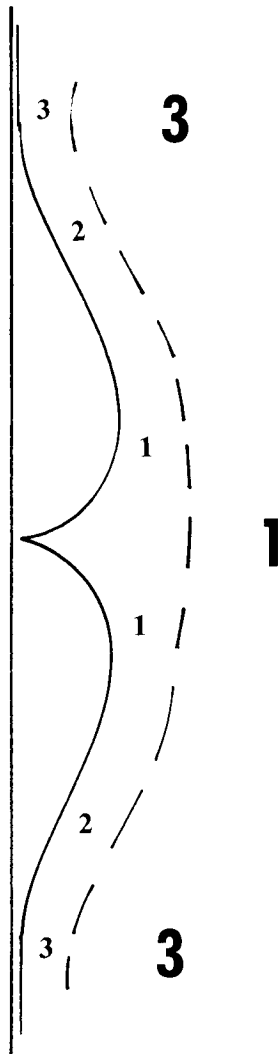
The J shaped distributions are imbalanced parts.

Eventually, in the chain of market activity, they will comprise a longer-term balanced whole. A 3-2-1 distribution and a 1-2-3 distribution form a composite. The composite has the first standard deviation in the middle and a third standard deviation at each end.

Remember the soybean futures example? You can see on the opposite page that the down distribution on 1/8, 1/9, 1/10 and 1/11 has its volume base at the bottom. The up distribution on 1/14, 1/15 and 1/16 has its volume base at the top. *Separately, each is an imbalanced distribution but together they form a composite with value in the middle.*

Whether a market moves directionally or rotates, of course, depends on market participants' perception of value—a perception that is influenced by their confidence or uncertainty.

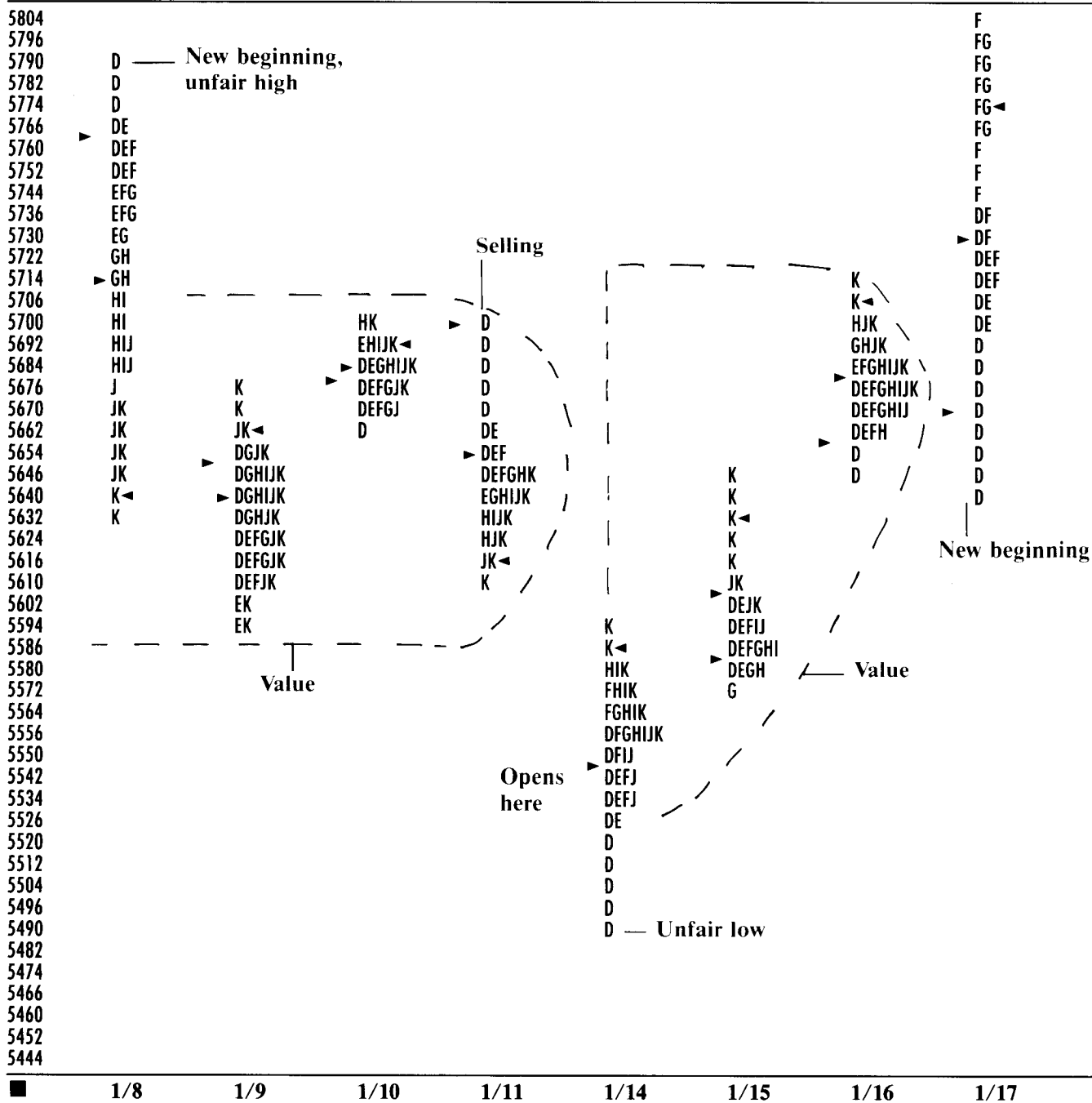
A COMPOSITE



Successive Sessions Form The Whole

SH1

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The Impact Of Confidence And Uncertainty

You've all seen markets rally after bad news and break after good news. This happens because confident markets tend to overlook adverse events and uncertain markets tend to look for trouble where there may not be any. For this reason, confident activity is generally stable and uncertain activity is generally volatile.

To relate this statement to activity, a directional move generally shows confidence and rotations generally show uncertainty—the narrower the rotations, the greater the uncertainty. Therefore, situations when the market is the most balanced are potentially the most volatile.

For example, say you're at the top of a move. Market participants are long. They are not trading confidently at this level, however, because ranges are narrow and volume is low. The government releases some unexpectedly bearish reports. Since traders are unsure about longer-term value, they are unlikely to hold in the face of bad news. If you can anticipate when market participants might offset, you're in a better position to protect yourself from sudden volatility or to capitalize on a move.

Of course, once you put on a position, the next issue is how long to hold it. The decision is less difficult if you understand how price relates to the distribution process.

The Role Of Price In Distribution Development

Steidlmayer says that price is the main component of a distribution. After a directional move, there is going to be 1) a price that stops the distributing activity (the directional move) and 2) a price around which the distribution develops as it moves toward efficiency.

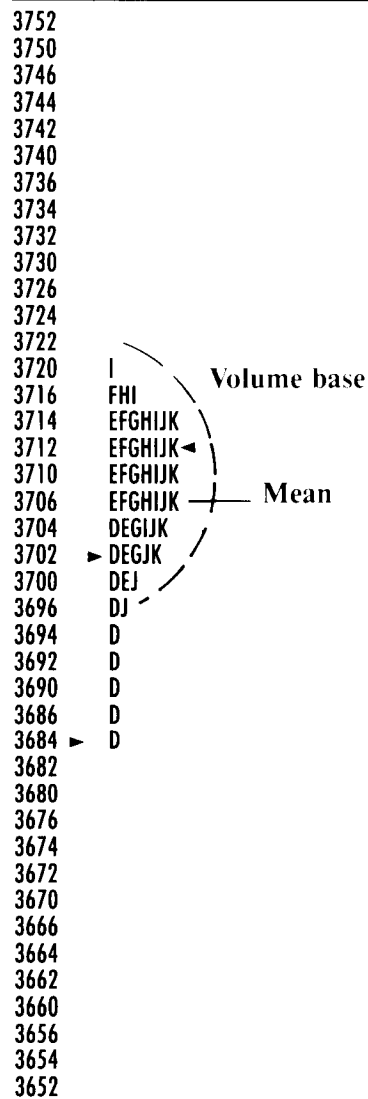
This mean price is going to be in the top third, the middle third or the bottom third of the range.

■ If the mean price is in the top third, the volume base is going to develop at the top of the range. See below. You can see that the volume base is opposite the top of the range. It seems as though activity developed around $370\frac{3}{4}$.

Volume Base Top Third

WZ2

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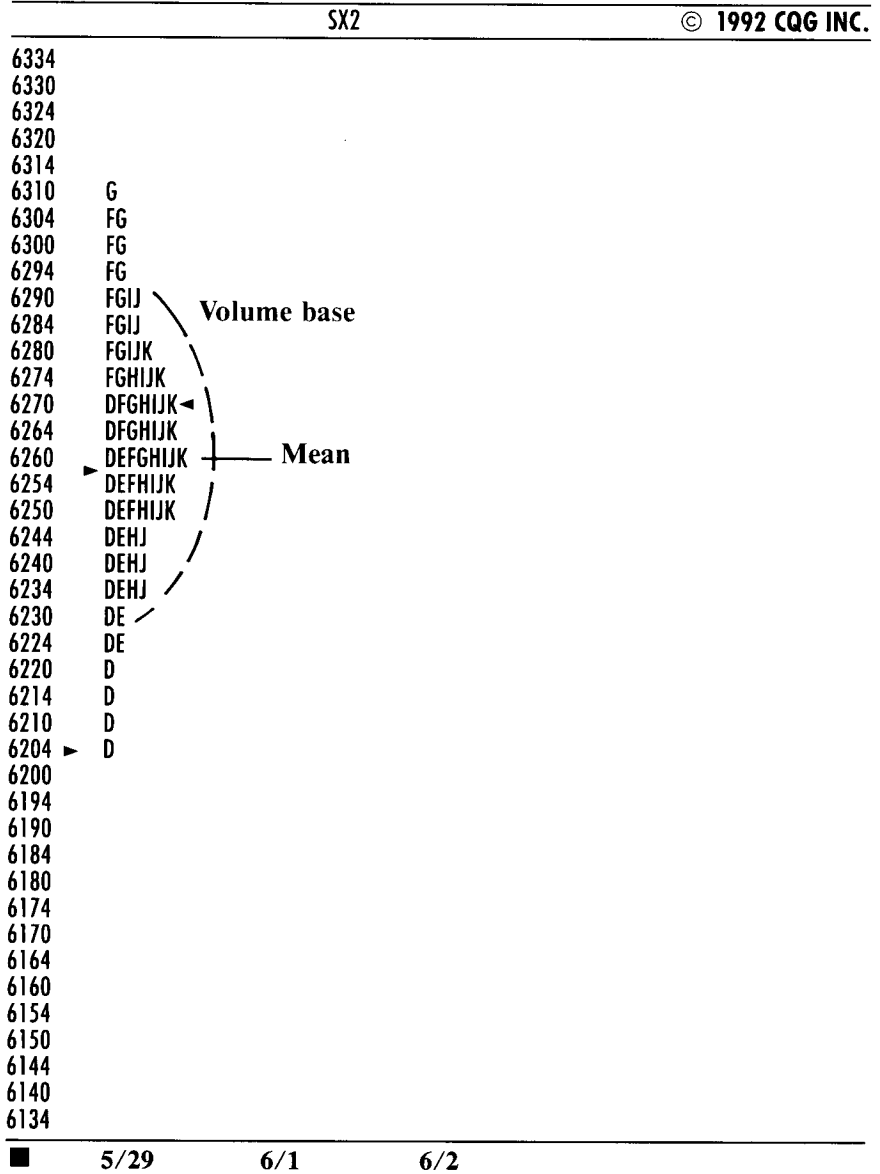


■ 6/2

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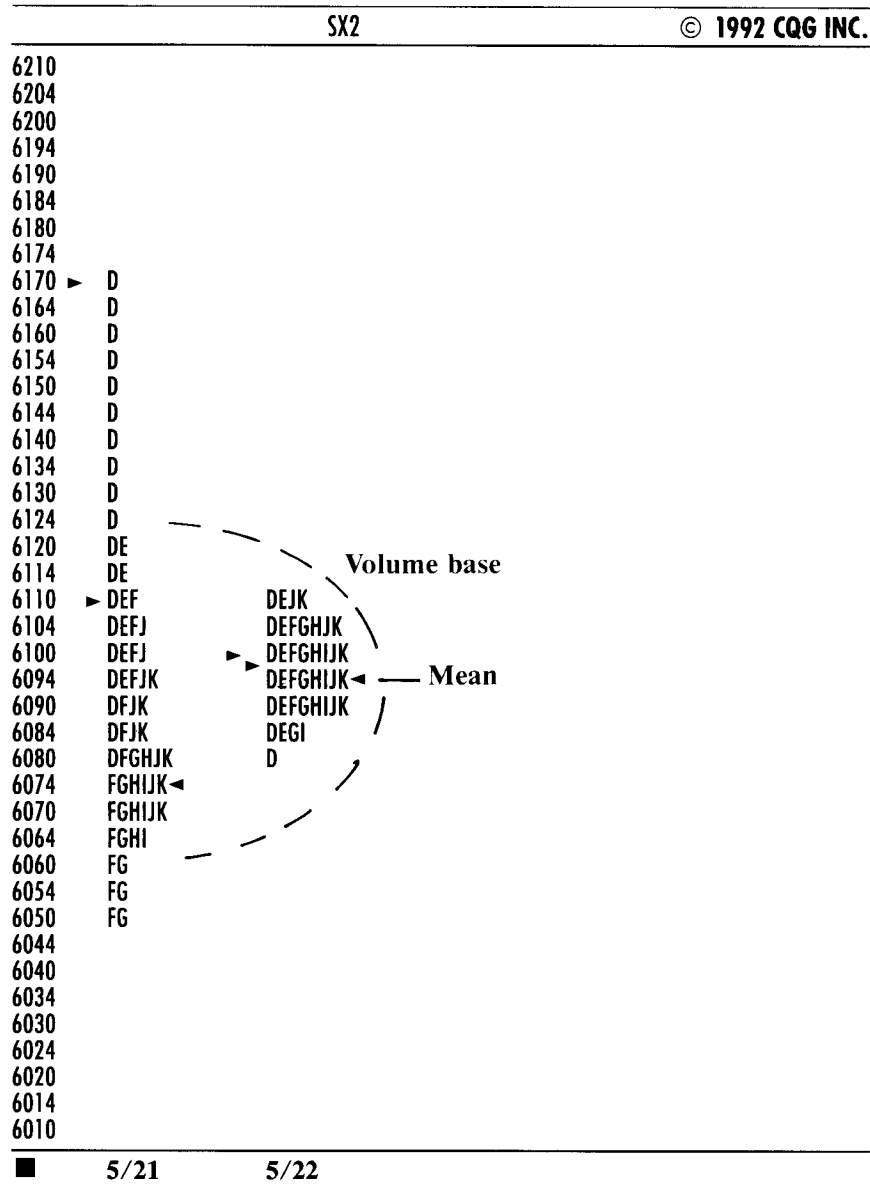
■ If the mean price is in the middle third, the volume base is going to develop in the middle of the range. See below. Here the volume base is opposite the middle of the range. A price of 626 appears to be the mean around which the market rotated.

Volume Base Middle Third



■ If the mean price is in the bottom third, the volume base is going to develop at the bottom of the range. See below. This example shows the volume base opposite the bottom third of the range. Put the two sessions together visually, and you can see that activity on 5/21/92 and 5/22/92 developed around 609½.

Volume Base Bottom Third



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As long as a particular mean price is in control, the market will probe a higher or lower level and then return to the controlling price. In other words, it's a trading range market. Of course, this mean price is not going to maintain control indefinitely because news events and market developments continually change traders' perception of value. If something occurs to change market sentiment, what kind of activity can suggest that the market may be getting ready to trend?

Basically there are two ways the market breaks the control of a particular mean: distance or time.

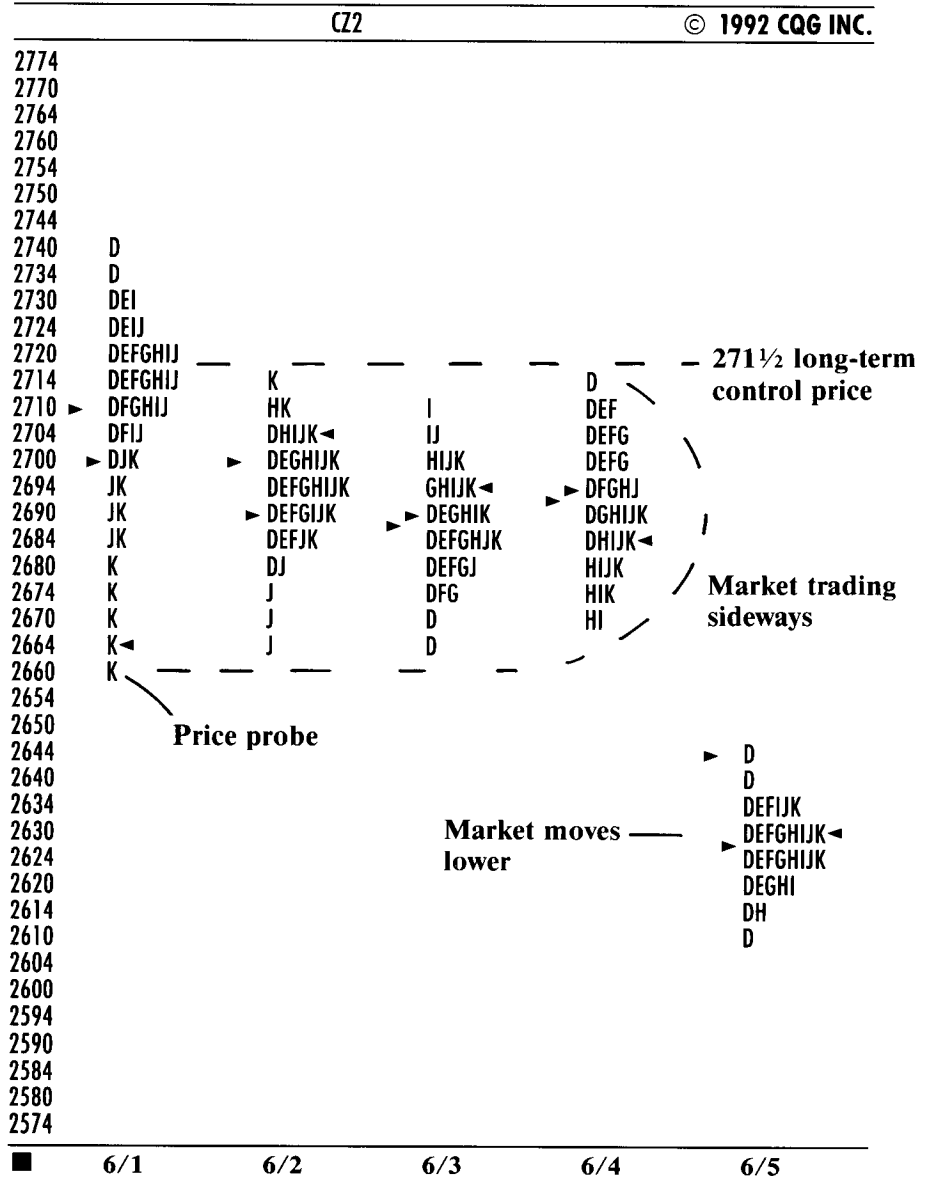
■ **This is distance.** A directional move propels the market far enough away from the controlling price to break its influence.

■ **This is time.** The market reaches a critical price area and then trades sideways at this level. Over time, the low volume, unfair price area becomes a fair price area and, generally, the market has to move higher or lower to shut off the activity.

In the example below, the longer-term control price was 271½. On 6/1 in J and K periods, the market broke down to 266. This new beginning was probing a lower level. From 6/2 to 6/4, the market traded opposite the price probe—changing the unfair price area from 269½ to 266 into a fair one. On 6/5, the market moved lower to shut off the activity.

Knowing what kind of activity breaks the control of a specific price can help you determine if the market will continue trading in an old trading range or if it will trend to a new higher or lower level. If the market begins to trend, it does so because of a “forward price influence.”

Time Breaks The Control



The Current Price Influence

We've been talking about the control price—in other words, the price around which the market develops. Another critical element in the market is what Steidlmayer calls “the current price influence.” *At bottom, this is just a more precise way of describing market sentiment.* This sentiment—which is based on a trader's interpretation of news events and market developments—fuels activity.

To explain, let's say the control price for bond futures is 98. The market trades down to 97 because of bearish developments. Which way will it go from here? The market can trade sideways and develop around 97; it can trade down and develop below 97 or it can trade back up and continue developing around 98. *Whether the market goes up, down or sideways depends on the price influence.*

Steidlmayer says that the influence is either “forward” or “backward.” A forward price influence takes the market away from the control price. A backward price influence returns the market to the control price.

Let's go back to the example above. The control price is 98 which roughly reflects a cash yield of 8%. Bearish developments fuel a move down to 97.

To decide if the price influence is forward or backward, it helps to ask yourself if fundamental conditions still support a yield of 8%. Or, has value moved down to a yield of $8\frac{1}{4}\%$ (roughly 96 in the futures market) because of the bearish developments? Or, is value between an 8% yield and an $8\frac{1}{4}\%$ yield (roughly a futures price of 97)?

■ *If you think an 8% yield (98) is still value, the price influence is backward and the market should reverse.*

■ *If you think value is now between 8% and $8\frac{1}{4}\%$ (97), the market should trade sideways.*

■ *If you think value is now $8\frac{1}{4}\%$ (96), the price influence is forward and the down move should continue.*

A Real Life Example

We're going to look at U.S. Treasury bond futures data from 12/19/91 to 1/29/92 to see how the current price influence affects the way a distribution develops.

The graphic on the opposite page shows distribution development in the Treasury bond futures market from 12/19/91 to the night session on 12/24/91. Value areas from the night and day sessions are organized in the Market Profile format.

Distribution is on the vertical axis. Development, when it occurs, will be shown on the horizontal axis. In other words, the distribution of capital is on the vertical axis. The market's reaction, when it occurs, will be on the horizontal axis.

Specifically, the directional move or the price range of the distribution is on the vertical axis. If value (the 70% range for that date) is higher or lower than the previous session, the rectangle belongs on the vertical axis.

Sideways rotation is on the horizontal axis. If value is unchanged or partially overlaps the previous session, the rectangle belongs on the horizontal axis.

You can see how the distribution develops over time by following the dates in the rectangles. "E" indicates the evening session and "D" indicates the day session. Since the evening session is by definition the start of a session, the time sequence goes E 12/19, D 12/19, E 12/20, D 12/20, E 12/23, D 12/23, etc.

On page 147, you can see at a glance that the market is distributing up—from 100-31 to 103-15. A *forward price influence* is pulling it up from a lower value area around a $7\frac{3}{4}\%$ yield. The Federal Reserve cut the discount rate and market participants are increasingly bullish.

**Bond Futures:
12/19/91 to 12/24/91
(Night Session)**

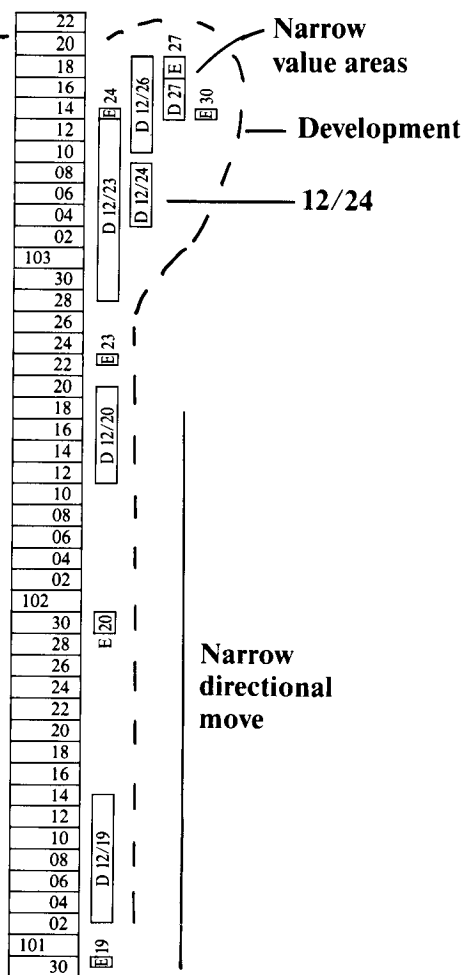
24	— Price range	E 24	103-15 12/24/91
22			
20			
18			
16			
14			
12			
10			
08			
06			
04	D 12/23	E 23	100-31 12/19/91
02			
103			
30			
28			
26			
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12			
10			
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04			
02			
102	D 12/19	E 19	100-31 12/19/91
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06			
04			
02			
101			
30			

Bond Futures:
12/19/91 to 12/30/91 7.5% yield -
(Night Session) (103-21)

Now, you can see development (the market's reaction to the distribution of capital) on the horizontal axis. The market starts to trade sideways on 12/24 and seems to be coming into balance just below a yield of 7.5%, roughly 103-21 at that time.

Is this price going to stop the up distribution?

It's hard to tell from the data. Value areas are narrow. Volume is low. The market is extremely balanced and seems uncertain. What we do know is that a balanced market is in position for a directional move and uncertain market participants can be forced to act by news events and market developments.



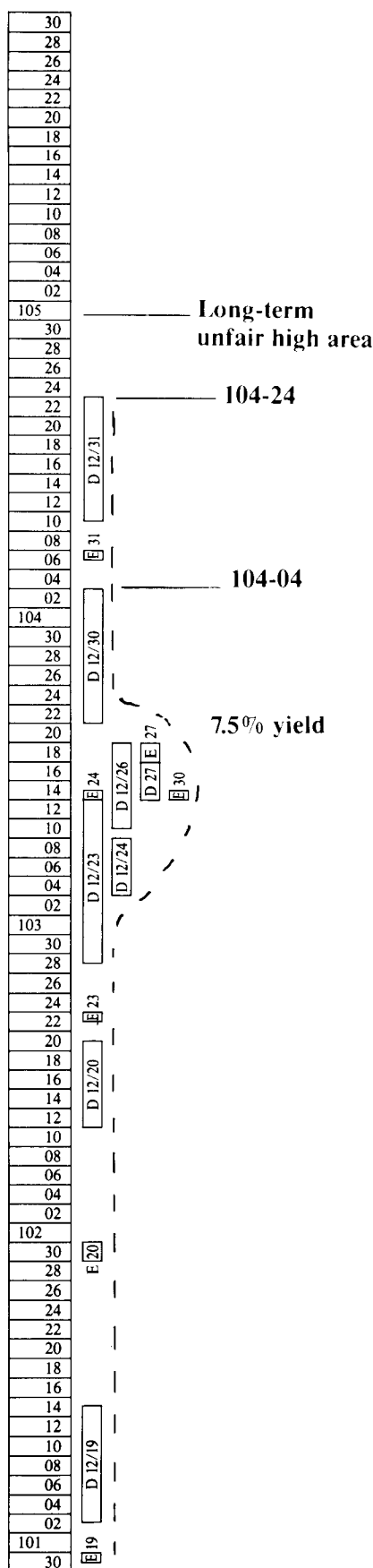
Bond Futures: 12/19/91 to 12/31/91

Government reports released on 12/30 confirm a weak economy. Market participants' perception of value becomes more bullish. A *forward price influence*, maybe $7\frac{1}{4}\%$, pulls the market up to 104-04 on 12/30 and to 104-24 on 12/31.

Is this price area going to stop the move?

We're approaching 105 – a long-term unfair high. This area could be a strong parameter and thus contain the range. Do fundamental conditions justify a $7\frac{1}{4}\%$ yield? This is a judgment call.

We're going to monitor near-term activity on 1/2/92 to see if the market confirms or rejects our bias.



Bond Futures: 1/2/92

On 1/2/92, the day session resumes at 104-23 to 104-28. The market moves up to 104-30 but can't trade higher. It tests the upside again in R and S periods and fails. This activity suggests that market participants do not believe current conditions warrant a lower yield. *Therefore, the price influence seems to be backward.* The market could be pulled back to the 7.5% yield.

This is indeed what happens.

The market trades down to 103-18 in a period, just below a 7.5% yield. Buying comes in and this price stops the move in the session.

MARKET PROFILE®
CBOT U.S. BONDS

Price

104 30/32
104 29/32
104 28/32
104 27/32
104 26/32
104 25/32
104 24/32
104 23/32
104 22/32
104 21/32
104 20/32
104 19/32
104 18/32
104 17/32
104 16/32
104 15/32
100 14/32
104 12/32
104 11/32
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103 18/32

Resumes

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Half Hour Brackets

P ——— Tests unfair high and can't trade up
P
OP
OP
OP
OP
OP
PR ——— Tests upside again and fails
PQRS
PQRS
PQRS
PQRS
QRS
QRS
QRS
QS
QS
QST
ST
ST
ST
ST
ST
T
T
TU
TU
UWd
UVWd
UVWXad
UVWXacd
UVWXacd
UVWXacd
UVXacd
UVXabc
Xabc
ab
ab
ab
ab
a
a ——— Buying comes in

Bond Futures: 12/19/91 to 1/2/92

Now, let's return to the longer-term graphic.

A 7.5% yield seems to be the control price in this distribution. Again, that's a judgment. It is based on the way the distribution is developing (price moved away from 7.5% and then traded back to it) and the fact that the profile is getting wider at the 103-21 area.

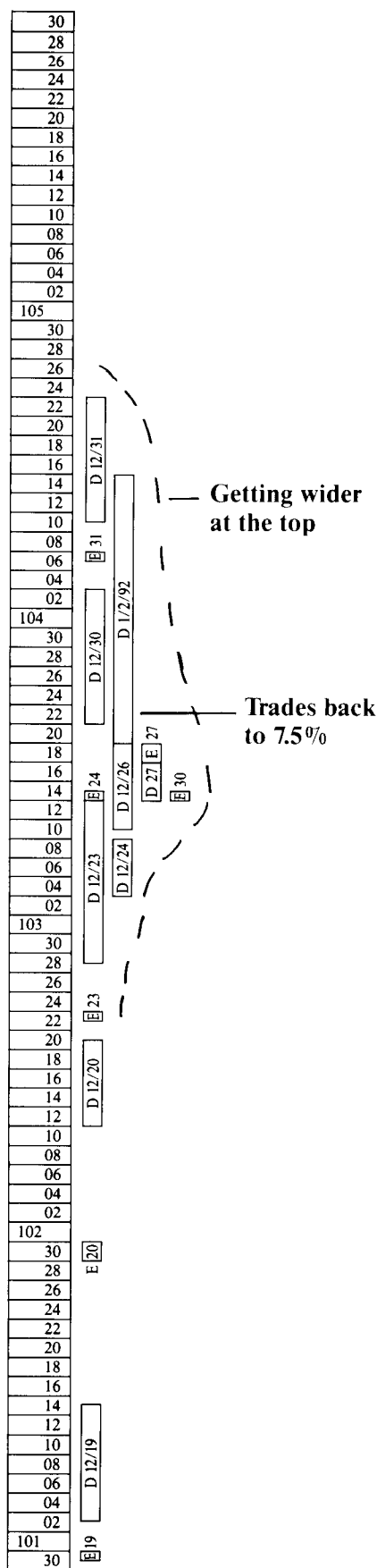
Identifying the control price is critical because it is your reference point for value in this time frame. Since opportunity occurs when price moves away from value, you'll be able to capitalize on opportunity earlier – and more often – if you know where value is. Over time, the back-and-forth movement, as price moves away from value and then back to value, develops the distribution.

Specifically, a distribution develops by shifting between a forward price influence and a backward price influence.

If a *forward price influence* is dominant, the market is going to distribute as it did on 12/19 to 12/31. See page 149. The narrow directional move shows that capital is entering the market.

If a *backward price influence* is dominant, the market is going to develop and move sideways as it did on 1/2.

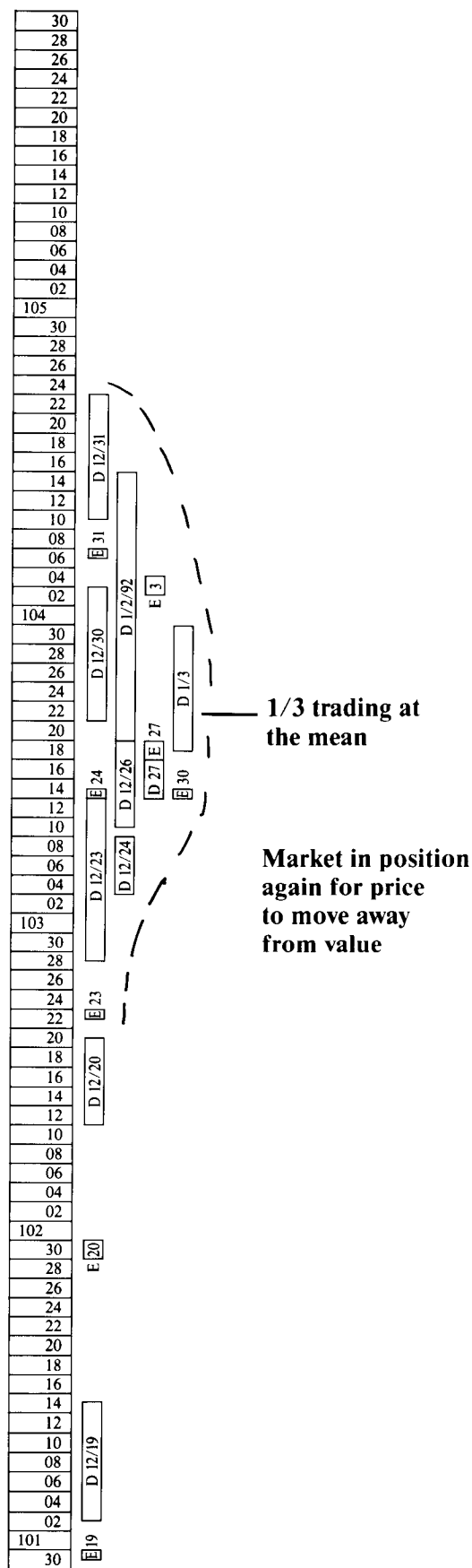
Even though the market is distributing in the session, it is developing in a larger time frame because price returns to the longer-term mean.



Bond Futures: 12/19/91 to 1/3/92

It is critical to recognize that the longer-term time frame controls activity in shorter-term time frames. That's why price returned to value on 1/2 – because the price influence in the longer-term time frame was backward. Judging the price influence is often difficult. It's worth the effort, though, because this analysis can help you decide whether a breakout will continue or fail.

On 1/3, the market is trading at the mean price (the widest part of the development area). It is balanced at the mean and in position to move directionally.

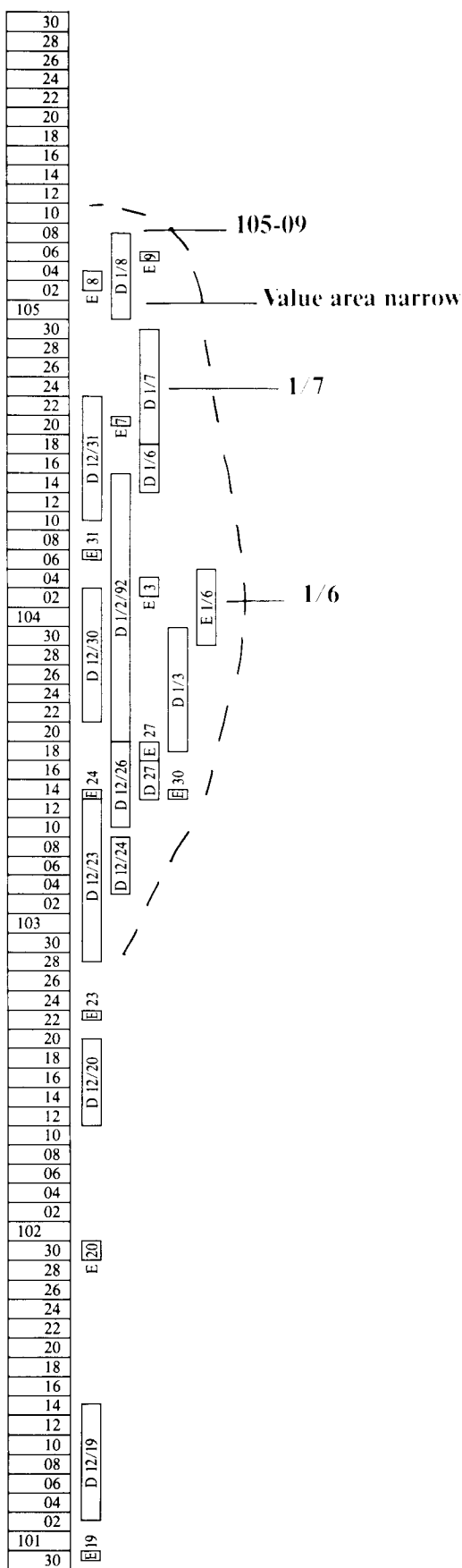


Bond Futures: 12/19/91 to 1/9/92 (Night Session)

The market is pulled up again by a *forward price influence* on 1/6, 1/7 and 1/8. This activity extended the range of the distribution to 105-09. We're at a long-term unfair high – the 105 level. The market tested the top on 1/8 and value couldn't extend above 105-09. Also, note how narrow the value area is on 1/8. It appears that the market can't facilitate trade at this level.

Since the market is trading at a long-term unfair high, the potential opportunity here is excellent. If the market trades through the parameter, it will be starting something new to the upside. If the parameter holds, the market will reverse and test the downside. In this case, the market doesn't seem to be facilitating trade at the top. It appears that price might return to value – in other words, the 7.5% yield.

Let's see what happens on 1/9.



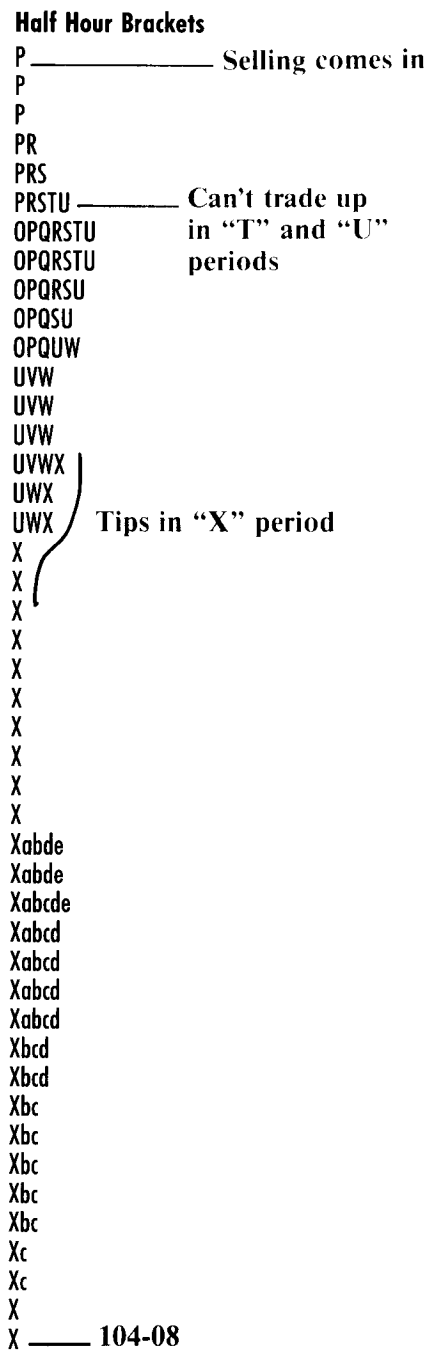
Bond Futures: 1/9/92

The market resumes at 105-10 to 105-14. It trades up to 105-20 and brings in selling. This selling suggests that the parameter at the top is going to hold and that the market will reverse. The market tips in X period and trades down to 104-08 in this session.

MARKET PROFILE®
CBOT U.S. BONDS

Price	
105 20/32	
105 19/32	
105 18/32	
105 17/32	
105 16/32	
105 15/32	
105 14/32	
105 13/32	
105 12/32	Resumes
105 11/32	
105 10/32	
105 9/32	
105 8/32	
105 7/32	
105 6/32	
105 5/32	
105 4/32	
105 3/32	
105 2/32	
105 1/32	
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104 31/32	
104 30/32	
104 29/32	
104 28/32	
104 27/32	
104 26/32	
104 25/32	Xabde
104 24/32	Xabde
104 23/32	Xabcde
104 22/32	Xabcd
104 21/32	Xabcd
104 20/32	Xabcd
104 19/32	Xabcd
104 18/32	Xbcd
104 17/32	Xbcd
104 16/32	Xbc
104 15/32	Xbc
104 14/32	Xbc
104 13/32	Xbc
104 12/32	Xbc
104 11/32	Xc
104 10/32	Xc
104 9/32	X
104 8/32	X _____ 104-08

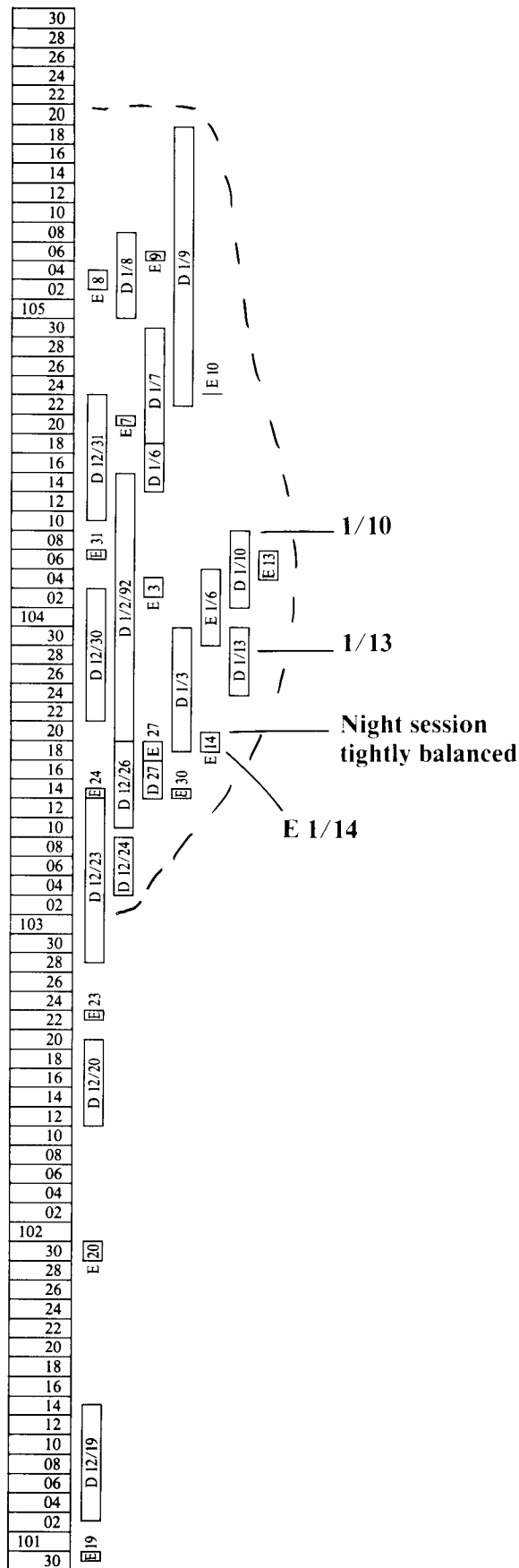
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Bond Futures: 12/19/91 to 1/14/92 (Night Session)

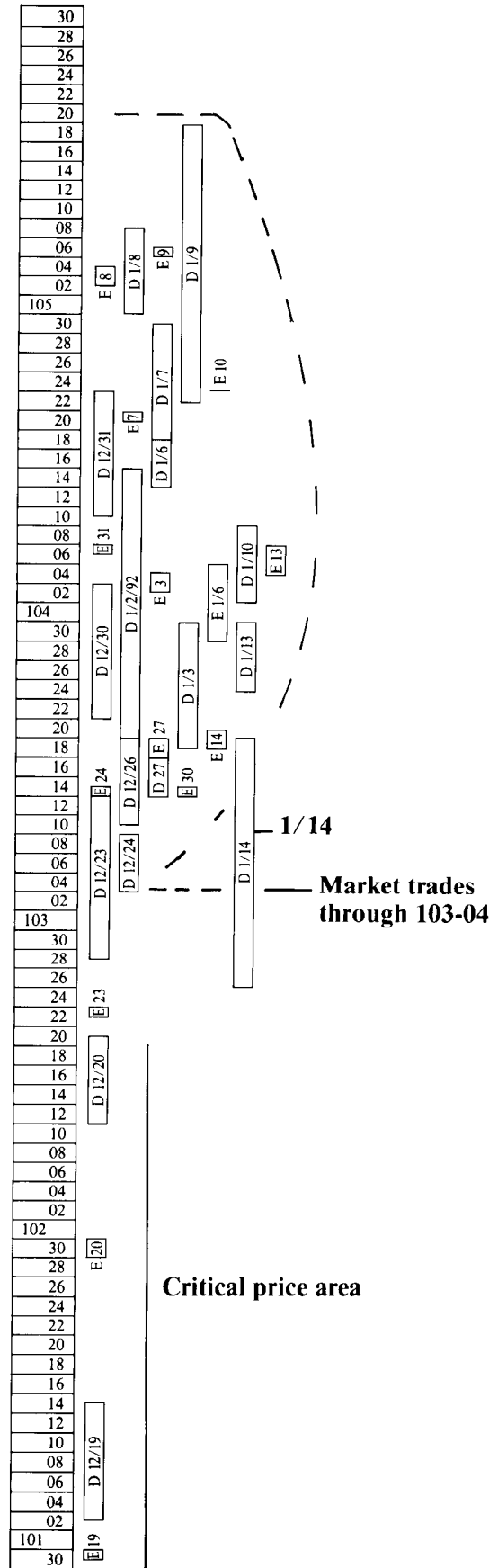
Now, let's go back to the longer-term graphic.

By 1/13, a *backward price influence* has pulled the market back to 7.5%. Note how narrow the value areas are on 1/10 and 1/13. The market is coming into balance. In the night session on 1/14, the market is tightly balanced and in position to move directionally.



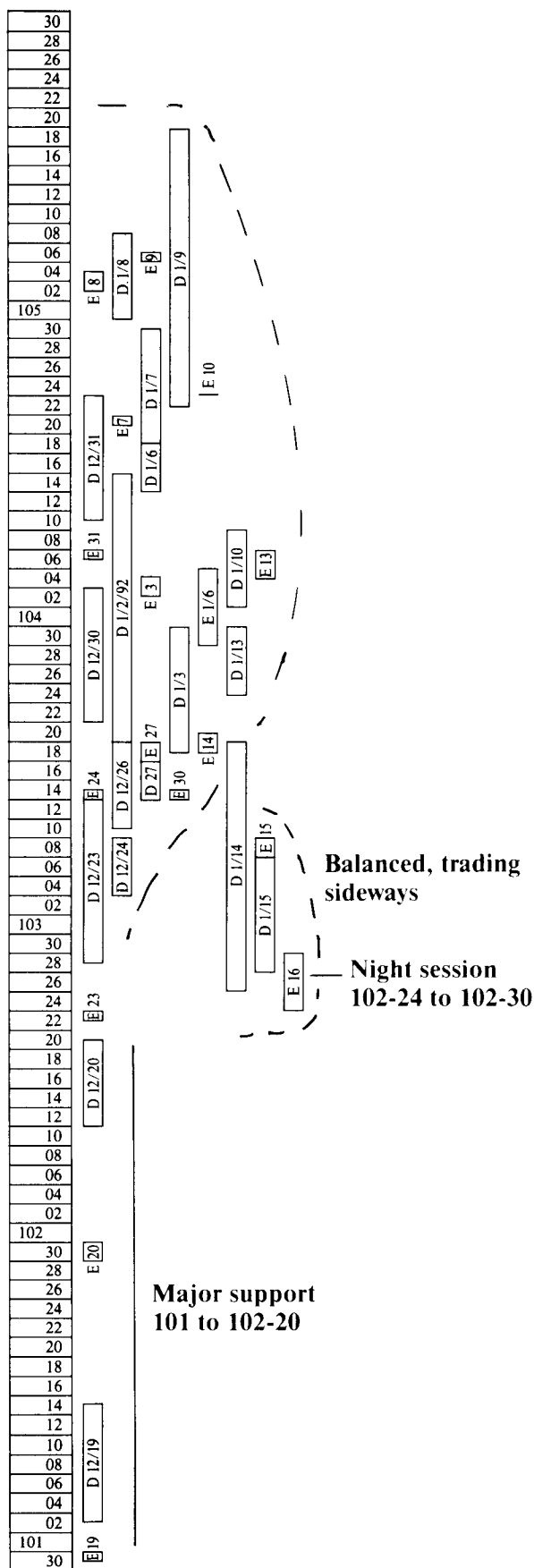
Bond Futures: 12/19/91 to 1/14/92 (Day Session)

There is bearish news on 1/14 and a *forward price influence* pulls the market down. It trades through the bottom of the longer-term value area at 103-04 and approaches a critical price area from 101 to 102-20. This area is the beginning of the distribution on 12/19 and 12/20 and, therefore, a strong parameter.



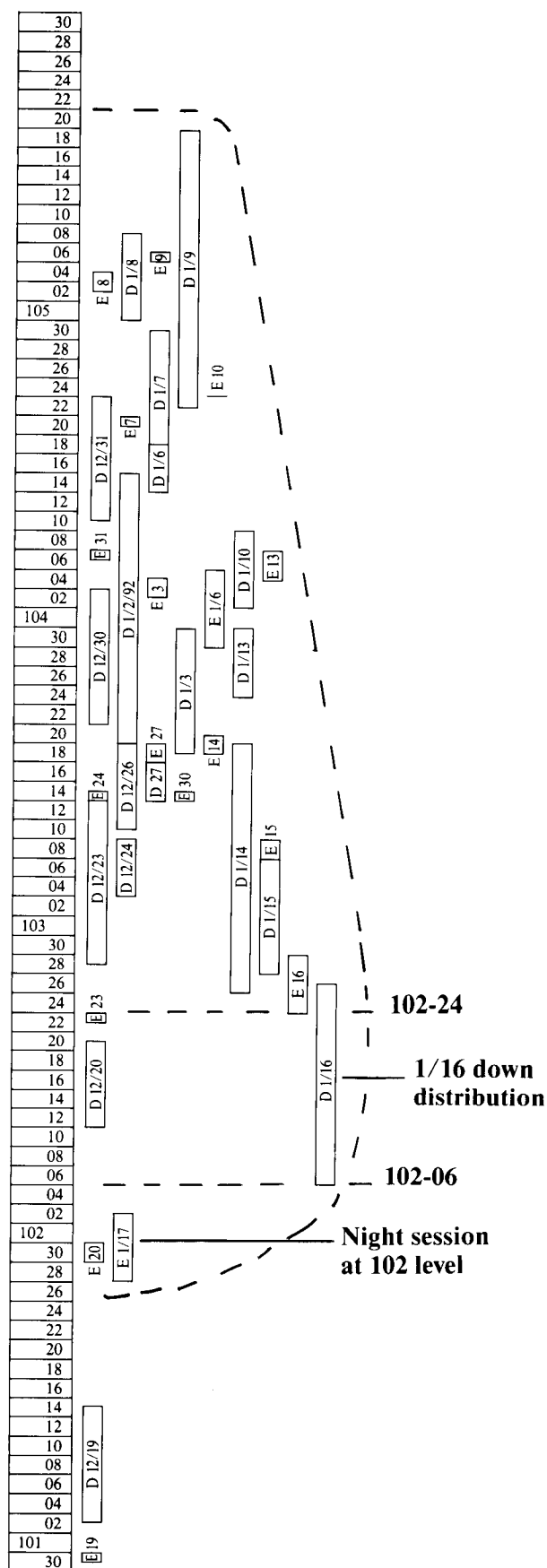
Bond Futures: 12/19/91 to 1/16/92 (Night Session)

It is not surprising that the market comes into balance on 1/15. As noted above, 101 to 102-20 is major support. The night session (102-24 to 102-30) is trading opposite the low of the down move on 1/14. *The price influence still seems to be forward.*



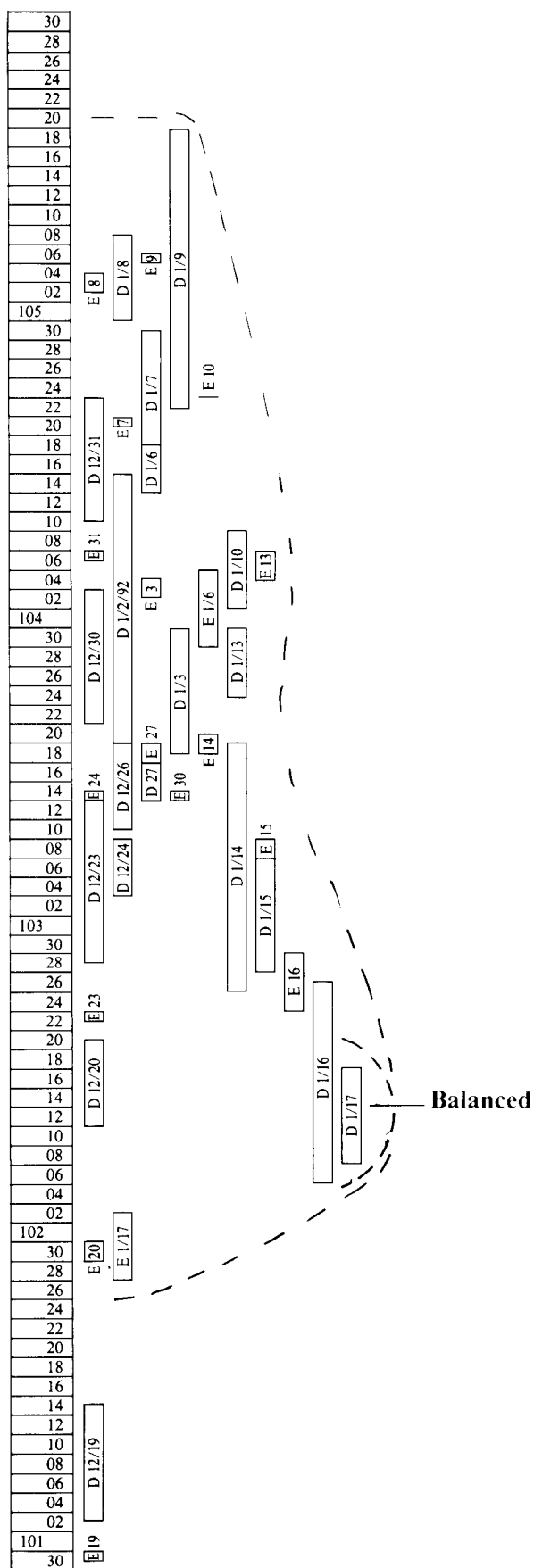
Bond Futures: 12/19/91 to 1/17/92 (Night Session)

The market distributes down again on 1/16. It trades through 102-24 and stops at 102-06. The evening session trades down through the 102 level. Now the market is just above the beginning of the distribution.



Bond Futures: 12/19/91 to 1/17/92 (Day Session)

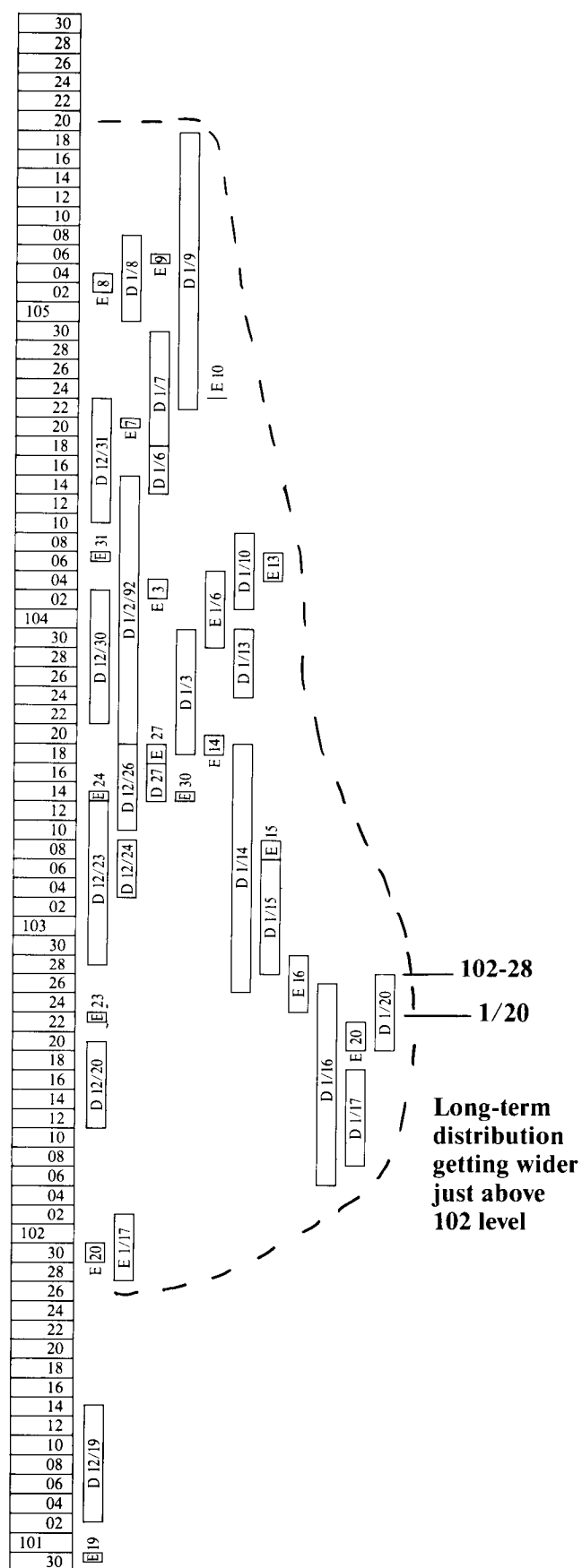
This price level brings in buying and the market comes into balance on 1/17 in the day session.



Bond Futures: 12/19/91 to 1/20/92

Now, a *backward price influence* starts to pull the market back up to 7.5% on 1/20. The top of value reaches 102-28. We traded down and now we have started to retrace. Is this just a correction? Or, is the market going to trade back to the 7.5% yield level?

To help you make that determination, note how narrow the value area is on 1/20. Also, note how wide the distribution is getting just above the 102 level. The market may not have broken the control of the 7.5% yield yet in a longer-term time frame but near-term value is moving down. *The price influence in the near-term seems to be forward.*



Bond Futures: 12/19/91 to 1/22/92

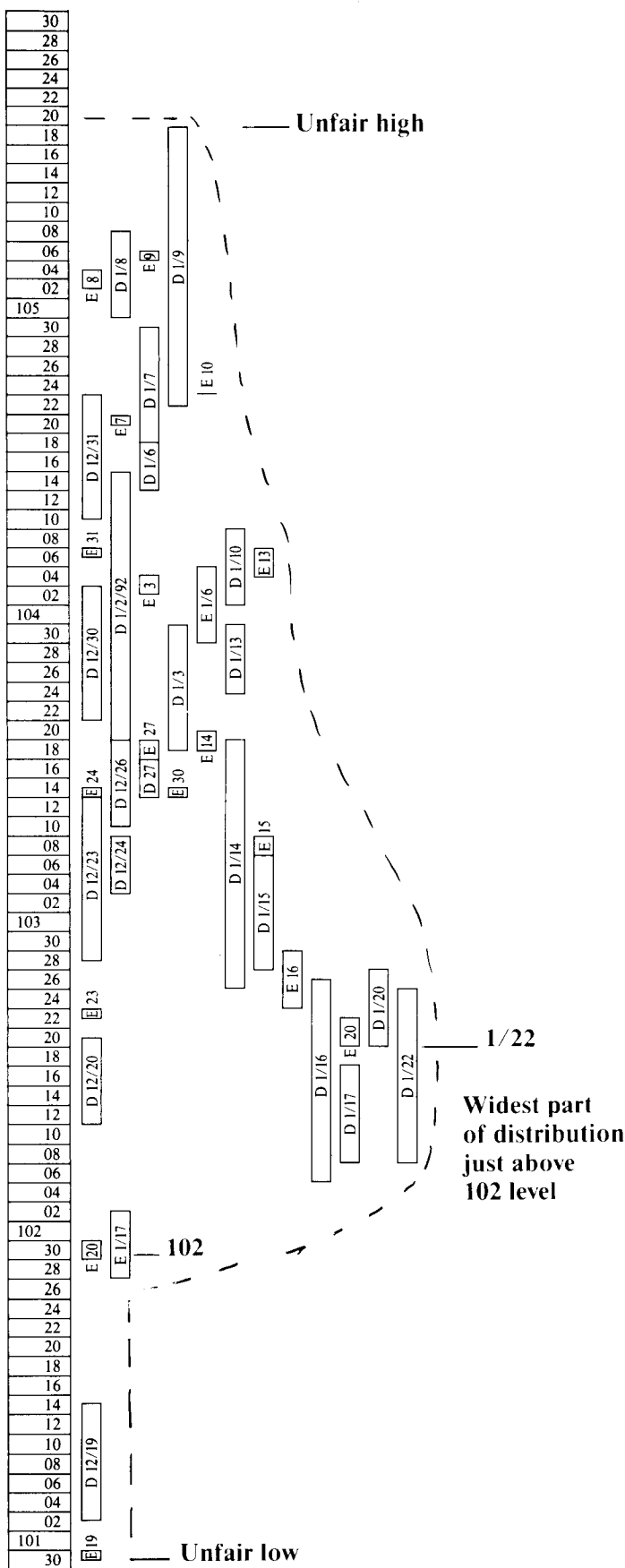
What happens on 1/22?

Earlier, we said that the market establishes an unfair high and an unfair low and then negotiates between these two parameters, developing value, until it takes out one side. In this example, the market established an unfair low at the 101 level on 12/19 and an unfair high at 105-20 on 1/9. Since 1/9, value—the widest part of the distribution—has been shifting down. Now, the widest part is just above the 102 level.

When the distribution began on 12/19 and 12/20 this was an unfair price area. (Refer back to page 148.) Now, over time, 102-06 to 102-26 is becoming a fair price area.

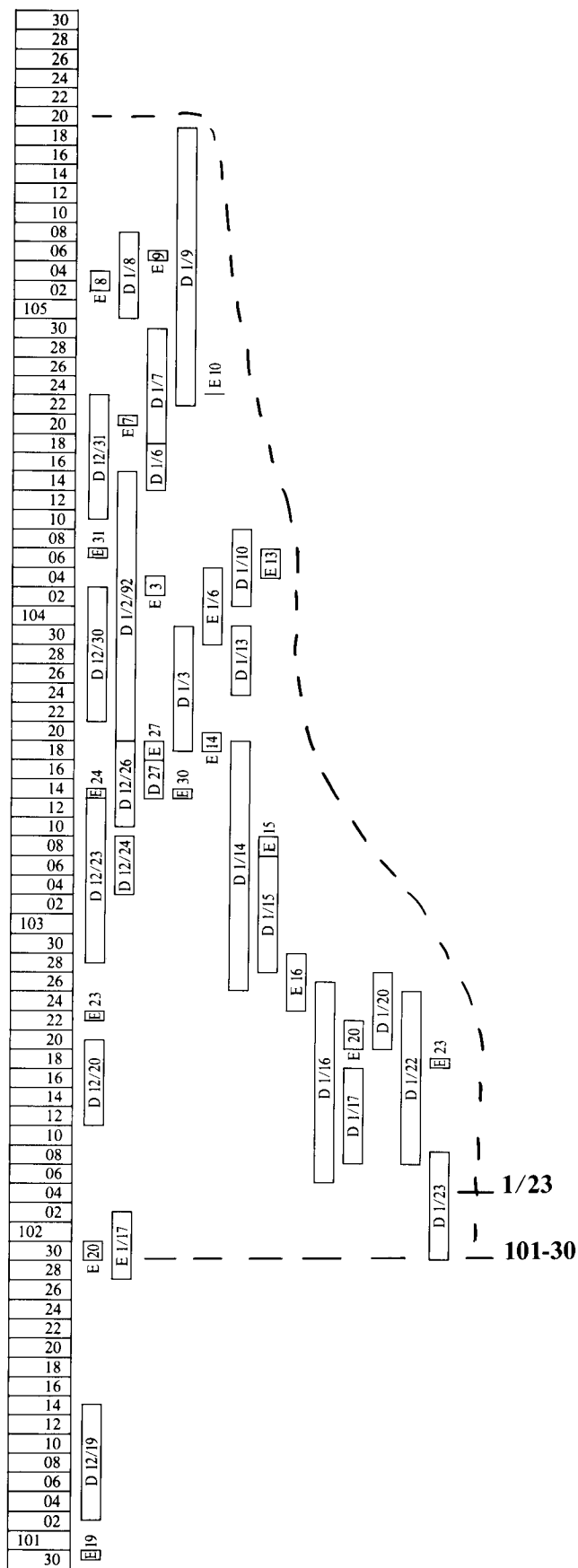
You can see this in the graphic on this page. The distribution—instead of being vertical and narrow opposite 102-06 to 102-26—is now horizontal and wide.

If the market continues to trade at this price level, it should have to go lower at some point to shut off the activity. A down move at this price level could break the longer-term control of a 7.5% yield. The market could be pulled down by a forward price influence to a 7¾% yield.



Bond Futures: 12/19/91 to 1/23/92

On 1/23, the market tests the area below 102. We're at 101-30 – just above the bottom of the evening session on 1/17.

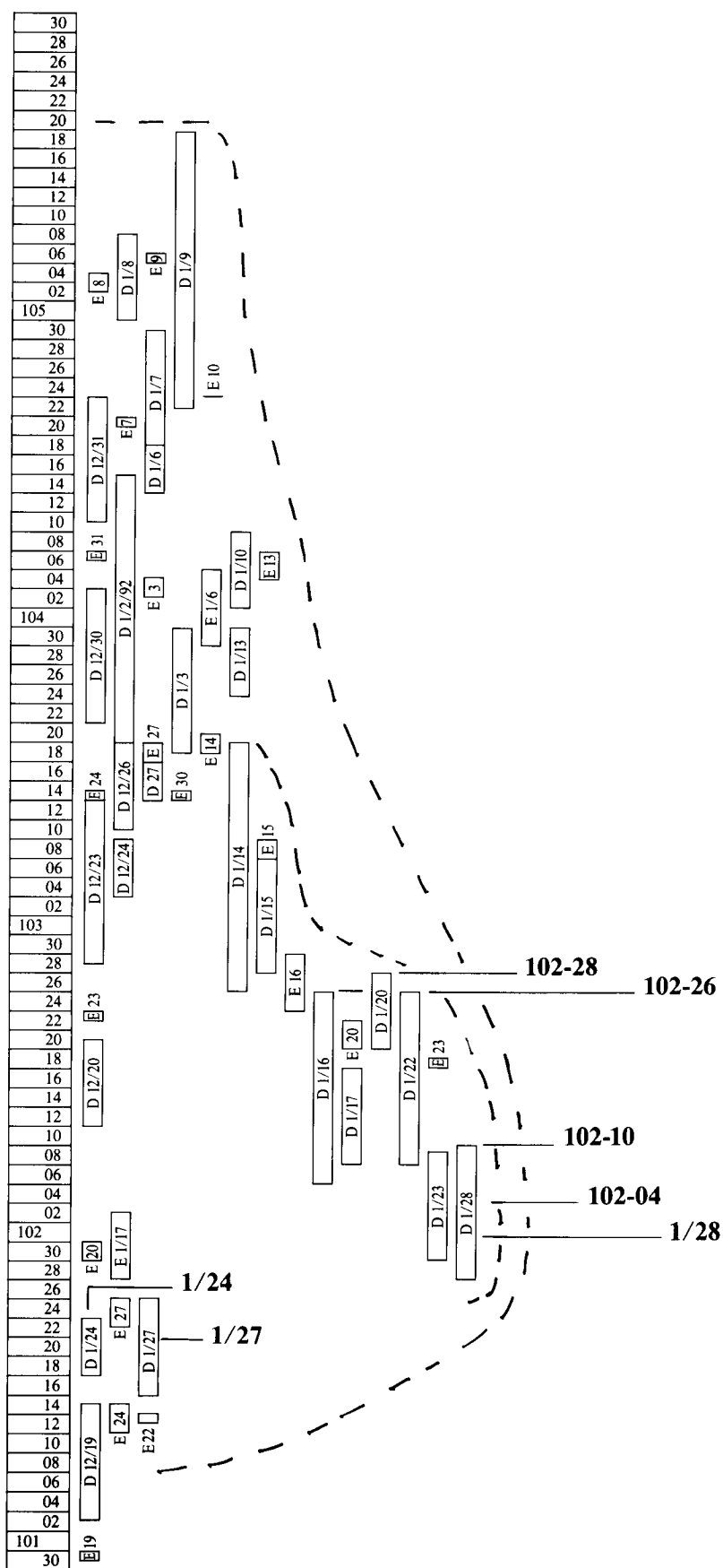


NOTES

Bond Futures: 12/19/91 to 1/28/92

On 1/24, value is 101-18 to 101-24. On 1/27, value is 101-16 to 101-26. Now, we're just above the beginning of the distribution again (101 to 101-15). Market participants seem to be getting increasingly bearish as they wait for the President's State of the Union speech.

The speech is well received and the market trades up on 1/28 – but only to 102-10. Also, the value area is relatively narrow.



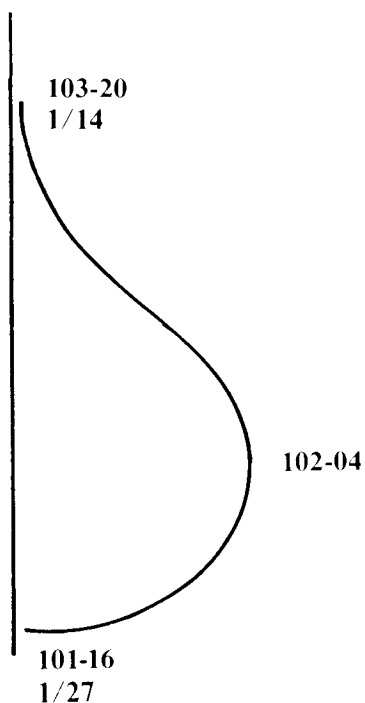
To determine whether the down move will continue or if the market will reverse from this point, let's break the market into its parts and consider what is happening to value in each time frame.

In the near-term unit from 1/14 to 1/28, value is moving down. This unit is getting wider near the unfair low at 101-16. The widest part of the distribution seems to be roughly 102-04.

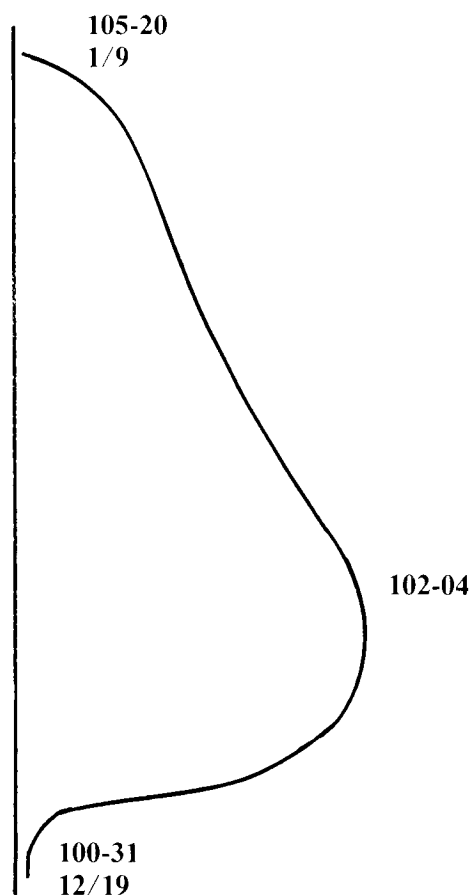
In the longer-term unit from 12/19 to 1/28, value is also moving down. In addition, value is not only moving down in the longer-term time frame but it is also the same as near-term value – roughly 102-04. This suggests that the down move will continue.

On 1/29, the federal budget for 1993 is released. The deficit could increase to \$400 billion. Also, Federal Reserve chairman Alan Greenspan forecasts a recovery for spring in his confirmation testimony. His testimony implies no further Fed easing of interest rates.

NEAR-TERM UNIT



LONGER-TERM UNIT



Bond Futures: 1/29/92

What happens in the market?

The market resumes at 102-18 to 102-23. In P period, it trades up to 102-26. This is the top of the value areas on 1/16 and on 1/22. (Refer back to page 164.) The tops of these value areas defined the upside of the value area of the 1/14 to 1/28 unit.

Now, return to this page. The longer-term parameter at 102-26 holds. The market can't trade above 102-25 in T and U periods and it comes into balance. (The range is narrow. The profile is getting wide at 102-21 and 102-22.) The market starts to trade down in V and W periods. The market is shifting from balance to imbalance. Then in W period, the market tips.

The result: a selloff that takes the market back down to the beginning of the move on 12/19 – 101-01.

What happened after this? By 3/13/92, the range of the longer-term unit had extended down to 97-03 from the high of 105-20.

MARKET PROFILE®
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Price

102 26/32
102 25/32
102 24/32
102 23/32
102 22/32
102 21/32
102 20/32
102 19/32
102 18/32
102 17/32
102 16/32
102 15/32
102 14/32
102 13/32
102 12/32
102 11/32
102 10/32
102 9/32
102 8/32
102 7/32
102 6/32
102 5/32
102 4/32
102 3/32
102 2/32
102 1/32
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101 31/32
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101 14/32
101 13/32
101 12/32
101 11/32
101 10/32
101 9/32
101 8/32
101 7/32
101 6/32
101 5/32
101 4/32
101 3/32
101 2/32
101 1/32

Resumes

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Half Hour Brackets

P — Testing top
PTU —
PSTU —
OPSTU —
OPQRSTU —
OPQRSTU —
OPQRSU —
OPQRSUV —
OPQRSVW —
PQVW —
PQVW —
QVW —
VW — Trading down
VW —
VW —
W — Market tips
WX —
WX —
WX —
WX —
WX —
WXa —
WXa —
Wa —
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To sum up: we've been looking at the way a longer-term distribution develops. It moves from imbalance to balance to imbalance in shorter-term parts to build the longer-term whole.

You can trade the shorter-term moves or put several parts together and trade a longer-term trend.

Each one of these moves, of course, short- or long-term, begins in a specific session. If you're aware of the imbalance-balance behavior pattern, you can look for signs in near-term activity—as we did on 1/2, 1/9 and 1/29—that the market is going to shift from balance to imbalance.

Whenever the market comes into balance, it's in position for a directional move. The key here is change—whether you're trading a single session or a longer-term position.

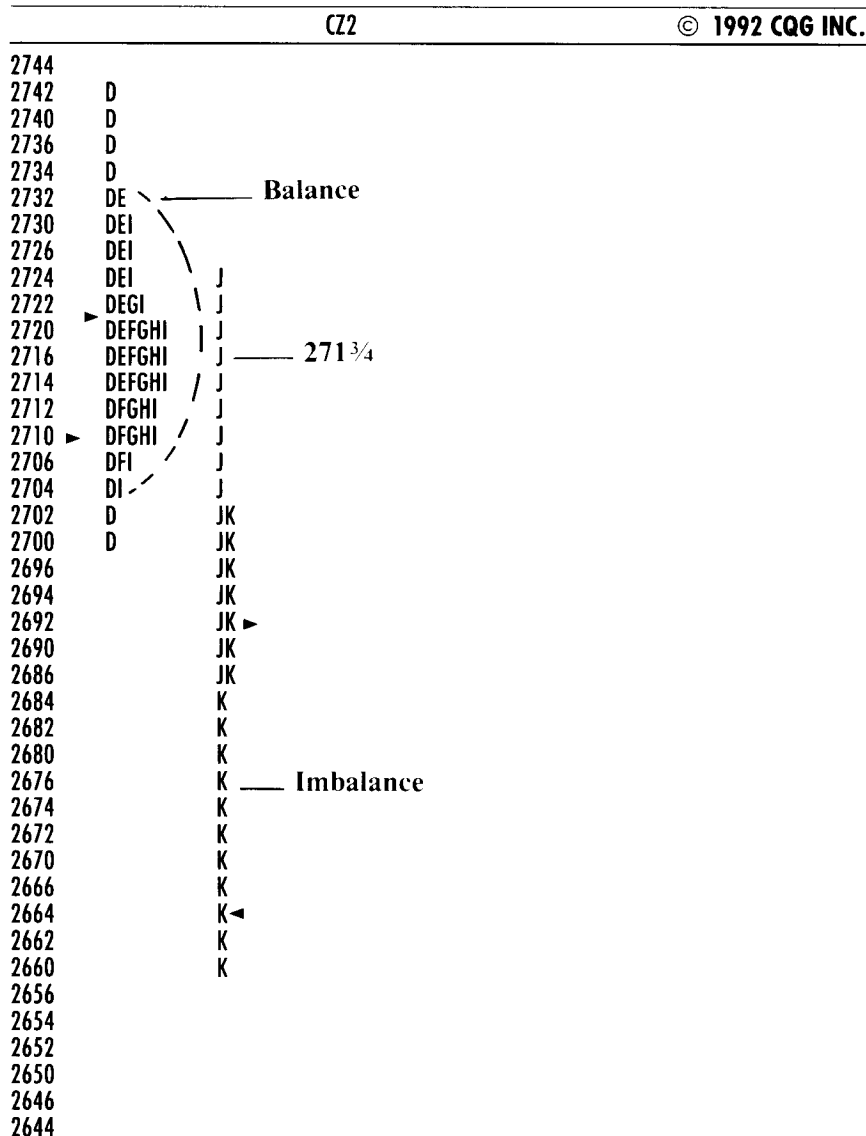
[illegible]

Shifting From Balance To Imbalance

As noted earlier, a new beginning generally starts at the widest part of a completed distribution. The market moves toward efficiency and when it is balanced, it is ready to begin something new.

The example below shows a single session in which the market shifted from balance in E, F, G, H and I periods to imbalance in J and K periods. We split the Market Profile format so that you could see the move clearly. We couldn't split this session to show precisely where the J move began but it started roughly at 271¾.

Balance To Imbalance In A Single Session



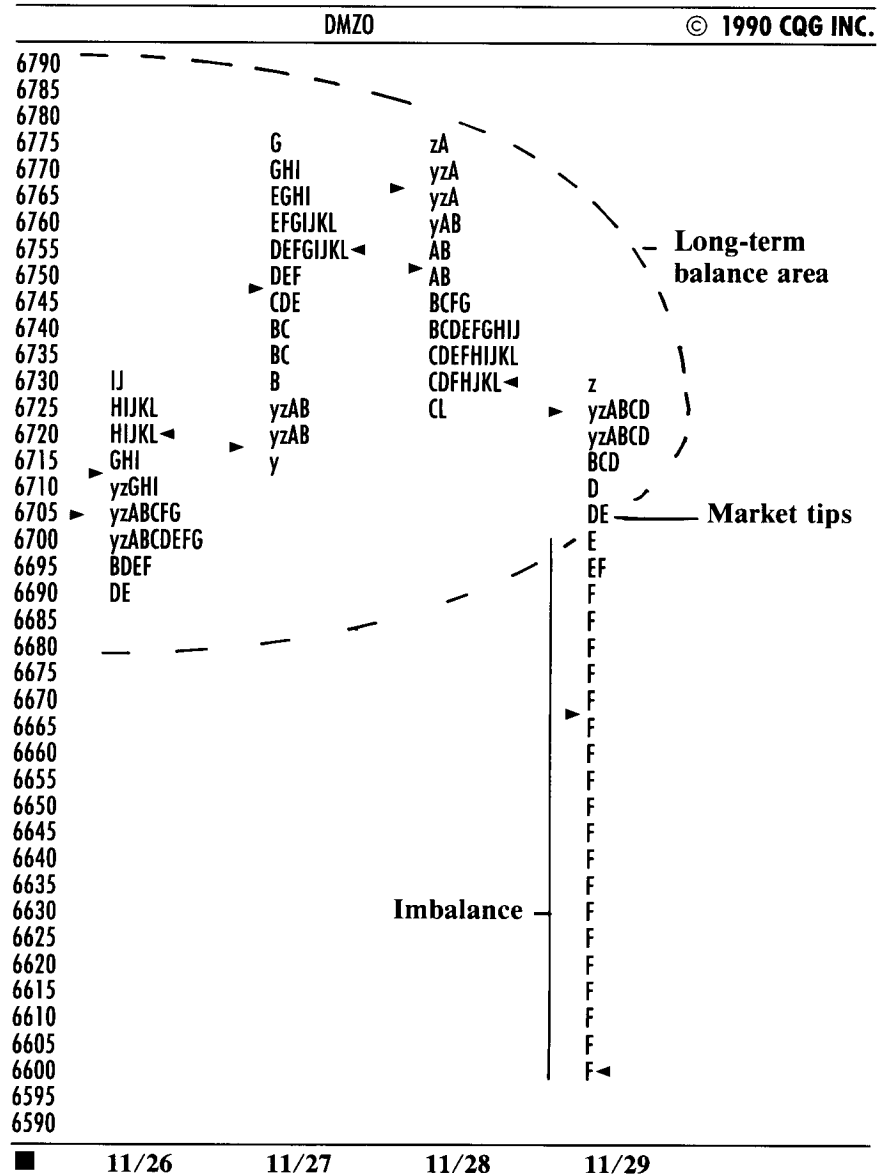
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In the example below, you can see the same shift from balance to imbalance occurring over a longer period of time. The longer-term balance area in this example encompasses activity from 11/26 to 11/28. On 11/29 the market shifts from balance to imbalance. Activity in y, z, A, B, C and D periods on 11/29 is the end of the longer-term whole. Note how tightly balanced it is. The market shifts to imbalance in E period and begins something new.

If you can recognize when the market is shifting from balance to imbalance (and vice versa), you'll make better trading decisions. This understanding can help you to enter early and to exit before an opportunity is over. We'll discuss this shift in greater detail in Part V of the Guide.

Balance To Imbalance Over Time



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The next chapter discusses the start of a trend. Before moving forward, however, stop and test yourself. As you answer the questions, keep these points in mind:

- In the longest-term time frame, the market's ultimate common denominator is a balanced distribution (3-1-3).
- The market achieves ultimate balance with shorter-term balanced *and* imbalanced distributions.
- The imbalanced distributions have their volume base at one end – not in the middle.
- Distributions can only develop in two ways: from balance to imbalance (1-2-3) or from imbalance to balance (3-2-1).
- The Market Profile format shows you whether the market is *imbalanced* and *distributing* or *balanced* and *developing*. Therefore, this tool can help you to determine the current price influence.
- If the market is distributing, *a forward price influence* is dominant.
- If the market is developing, *a backward price influence* is dominant.
- *Finally, it is critical to remember that the market is operating in all time frames simultaneously and that the price influence in the longest-term time frame ultimately dominates.*

Stop And Test Yourself

Q. How do you relate the distribution process to market activity?

A. With volume.

Q. The first standard deviation correlates with what?

A. The value area – a high volume, fair price area.

Q. The third standard deviation correlates with what?

A. A price excess – a low volume, unfair price area.

Q. Why are low volume areas important?

A. They can contain the range – in other words, stop a move.

Q. How does a distribution begin?

A. With an imbalanced directional move.

Q. How does a distribution develop?

A. With balanced rotations.

Q. How does a distribution end?

A. With a slowing of activity.

Q. Distributions develop in only two ways: from _____ to _____ or from _____ to _____.

A. From balance to imbalance or from imbalance to balance.

Q. What is the short-hand for a distribution that starts with rotations and then moves directionally?

A. 1-2-3.

Q. What is the short-hand for a distribution that starts with a directional move and then develops rotations?

A. 3-2-1.

Q. What is the short-hand for a completed, balanced distribution?

A. 3-1-3.

Q. What is the main component of a distribution?

A. Price.

Q. The current price influence can be _____ or _____.

A. Forward or backward.

Q. What is the difference?

A. A forward price influence takes the market away from the control price. A backward price influence takes the market back to the control price.

Q. Confident activity tends to be _____.

A. Stable.

Q. Uncertain activity tends to be _____.

A. Volatile.

Q. What is your reference point as the market shifts from balance to imbalance or vice versa?

A. Change.

[illegible]

RECOGNIZING THE START OF A TREND

Relevant Reference Points

In order to recognize the start of a trend, we're going to use the distribution process to identify relevant reference points and then we'll monitor how the market is trading in relation to these price areas. For example, can the market trade to the reference point? If the market does reach a critical price area, is it facilitating trade there? Will the market have to move higher or lower to shut off the activity?

In addition, it is important to realize that the market needs time for a trend situation to develop. One kind of activity has to stop—buying, say—and another kind of activity—in this case, selling—has to take over. In other words, the market has to first come into balance and then shift from balance to imbalance. How long that process takes, of course, depends on news events and market developments at the time.

We're going to look at soybean futures data from 10/18/90 to 10/26/90. We'll monitor activity in the balance area in order to detect signs that the market is shifting from balance to imbalance. Let's start by seeing where we are in relation to the bigger picture. See the bar chart on the opposite page.

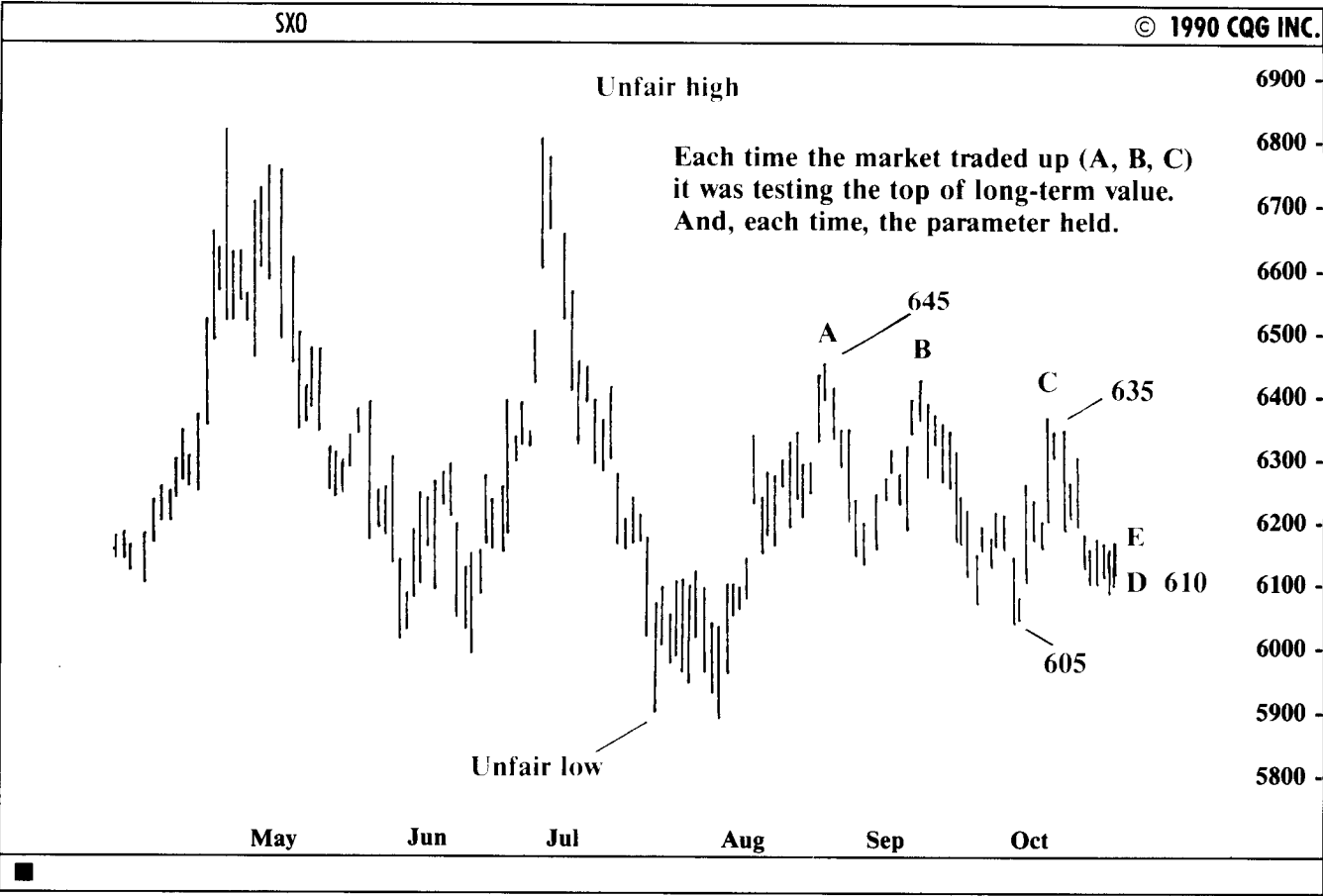
On this bar chart, the long-term unit has an unfair high roughly at 680. The unfair low is about 590. Since the unfair low was established, the market has been rotating, developing value opposite the bottom half of the long-term range.

The market has been trading sideways roughly between 645 and 605. Each time the market rotated up (A, B, C), it was testing the top of the longer-term developing value area. That's the longer-term unit: unfair high 680, unfair low 590 and value roughly 645 to 605. See the diagram at the bottom left.

Now, let's consider the near-term unit. The unfair high at point C is about 635. The unfair low at point D is about 610. Currently, the market is trading sideways, developing value roughly between 610 and 617. See the diagram at the bottom right.

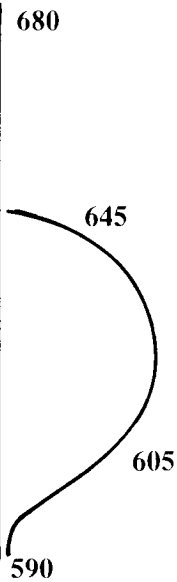
That gives us a framework. We've identified critical price areas and now we're going to monitor how the market trades at these price levels.

The Long-Term Framework

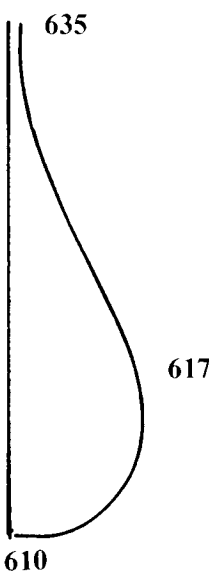


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LONGER-TERM UNIT



NEAR-TERM UNIT

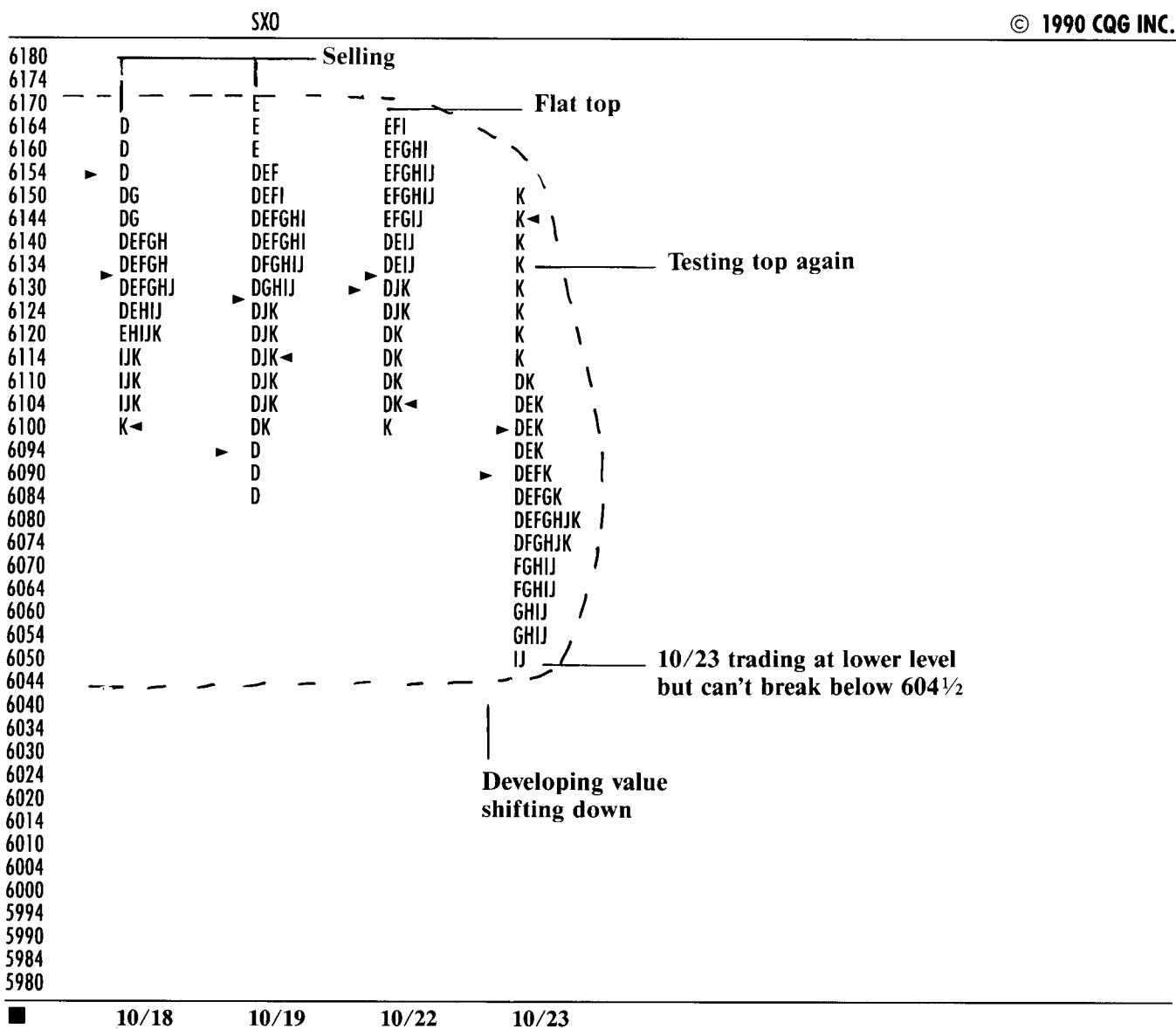


Monitoring Activity

See below. On 10/18, 10/19 and 10/22, we are testing the top of the near-term value area at 617. You can see that this parameter is defined with selling extremes on 10/18 and 10/19 and a flat top on 10/22.

On 10/23, we're basically continuing the value area development. Even though value seems to be moving down, the market doesn't break below 604½. The shorts offset and start a move to the upside in K period. We're testing the top again.

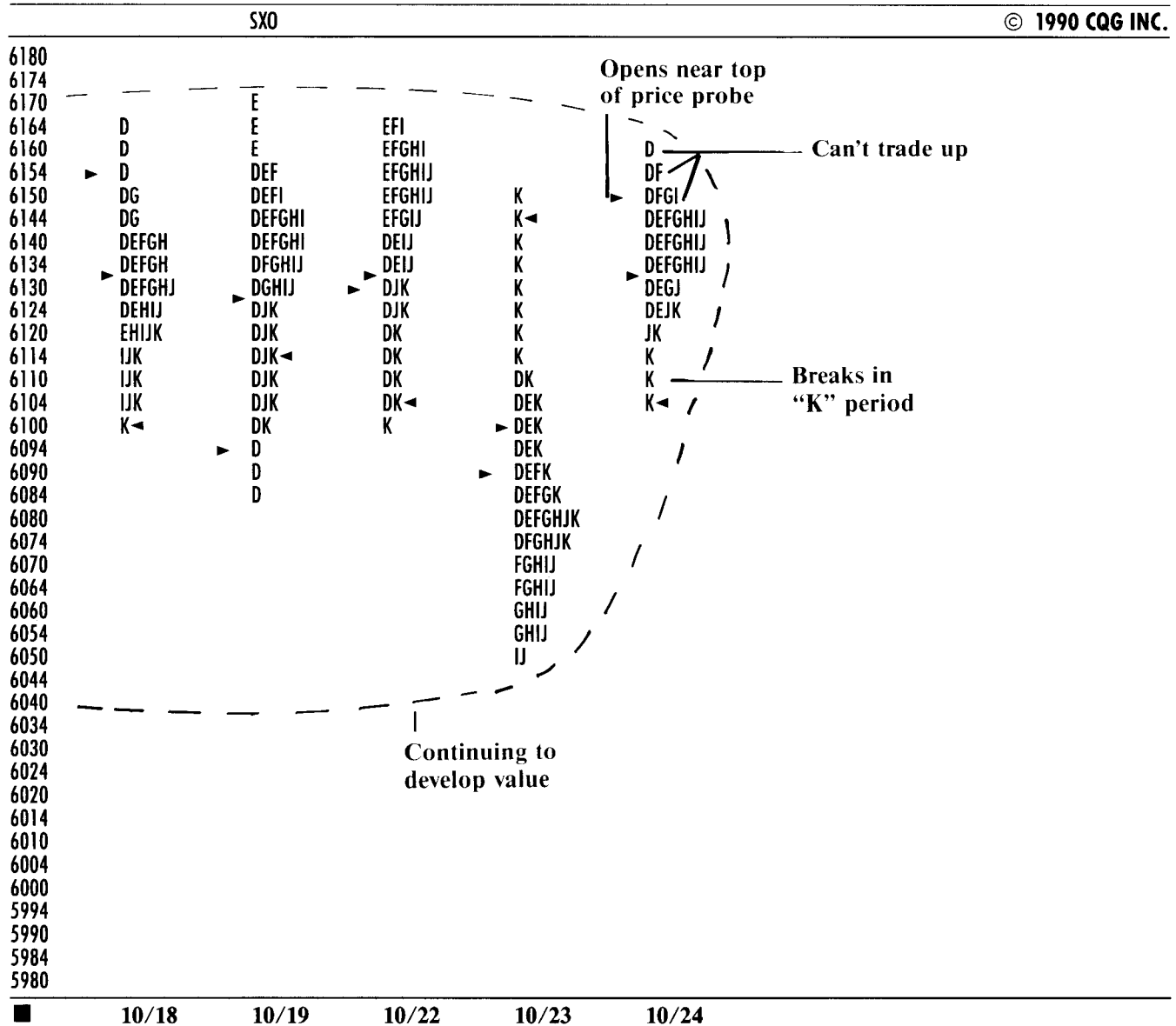
Testing Top Of Near-Term Value Area



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See below. On 10/24, the market opens near the top of the price probe. Then, it rotates opposite the D period range. The rotation shows uncertainty. When the market can't trade up in F, G, I and J periods, it breaks in K period.

Tests Top Again



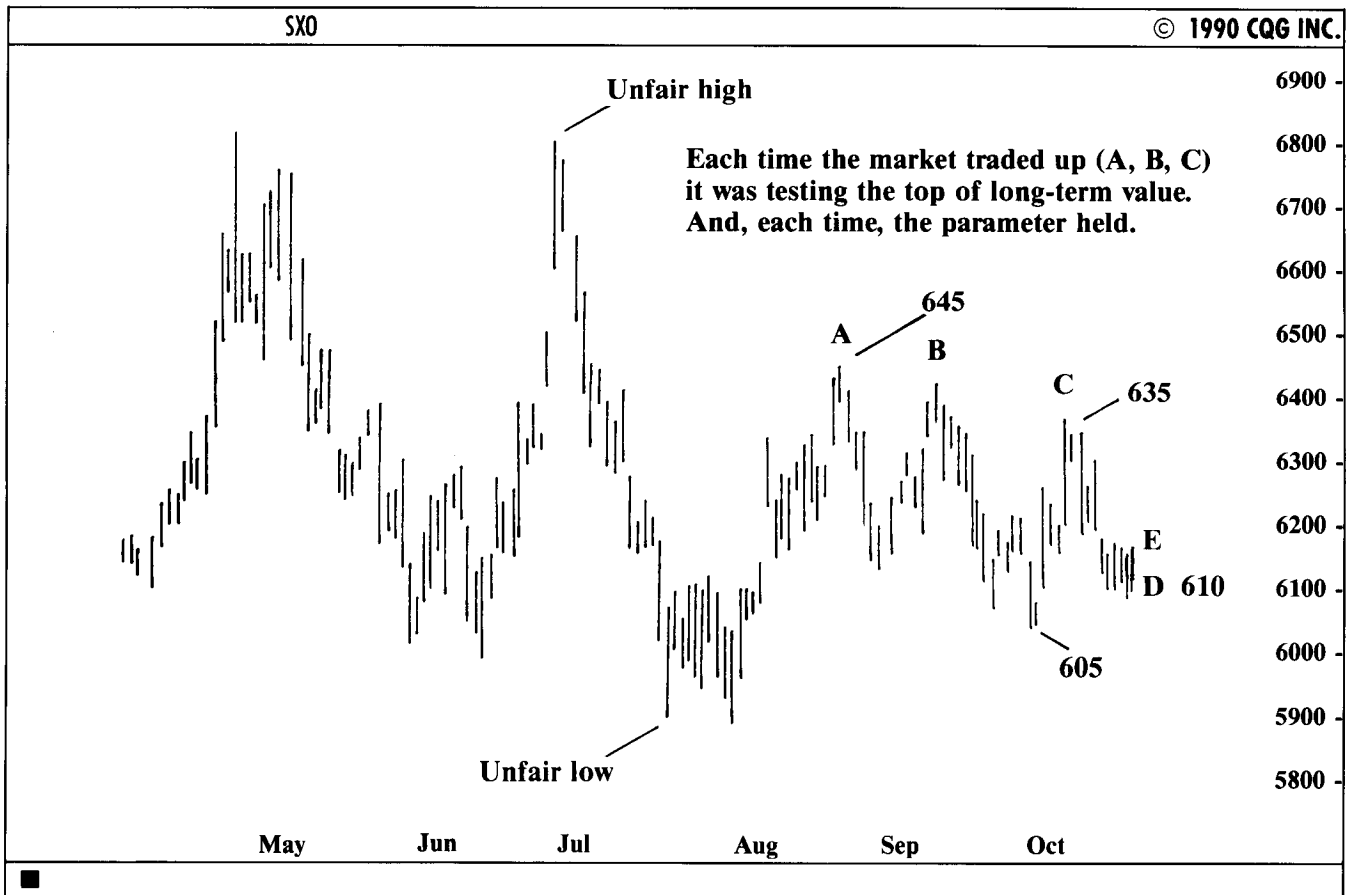
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Let's relate this activity to the larger framework. See below.

We tested the top of the long-term value area at points A, B, and C and failed. In other words, the parameter held. Now, we're testing the 617 level—the top of the near-term unit's value area at point E. This parameter is holding.

If the market can't trade up, what do you anticipate? A test of the downside.

The Long-Term Framework



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What's happening here? Do you see signs of change? Do you think the market is shifting from balance to imbalance?

SX0

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6010
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6000
5994
5990
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10/18 10/19 10/22 10/23 10/24 10/25

Tests upside again
and can't trade up

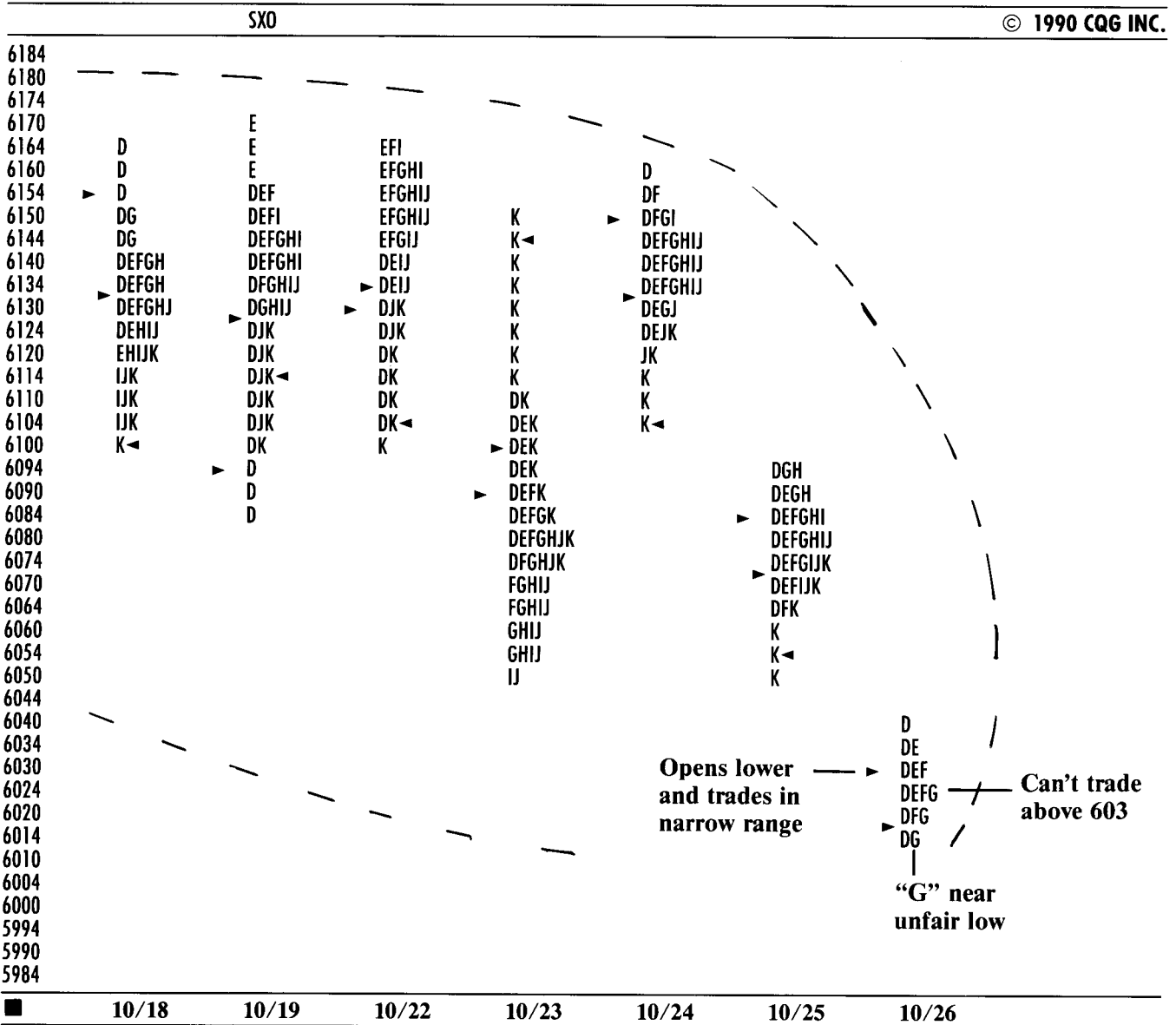
Shifts down
"I" and "J"

Tips in "K"

179

See below. On 10/26, the market opens lower and rotates in a narrow range in D, E and F periods. It can't trade above 603 in G period. What is your opinion now? Is a new forward price influence pulling the market down to a lower value area?

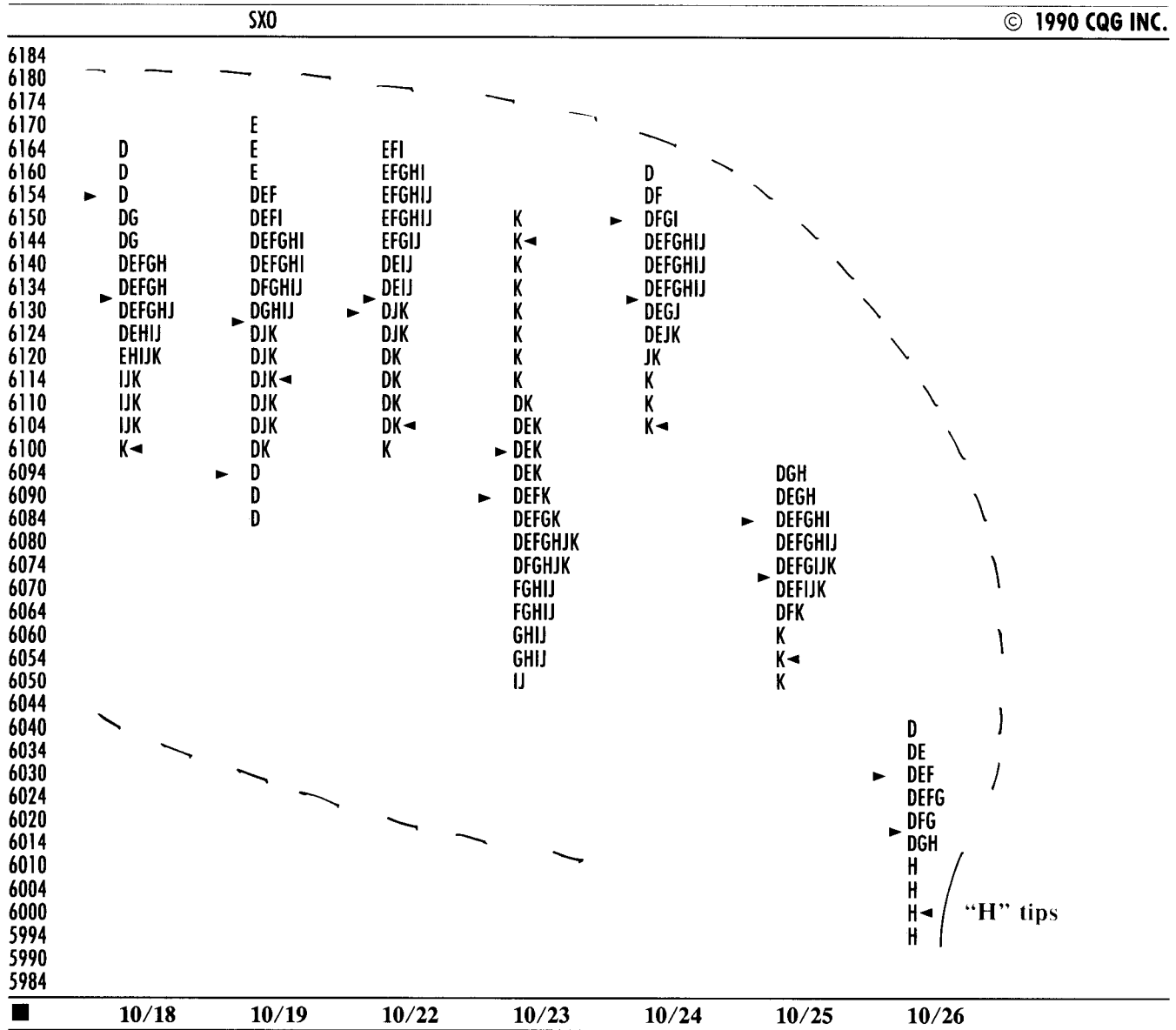
Still Balanced



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See below. The market tips in H period. Is this a new beginning?

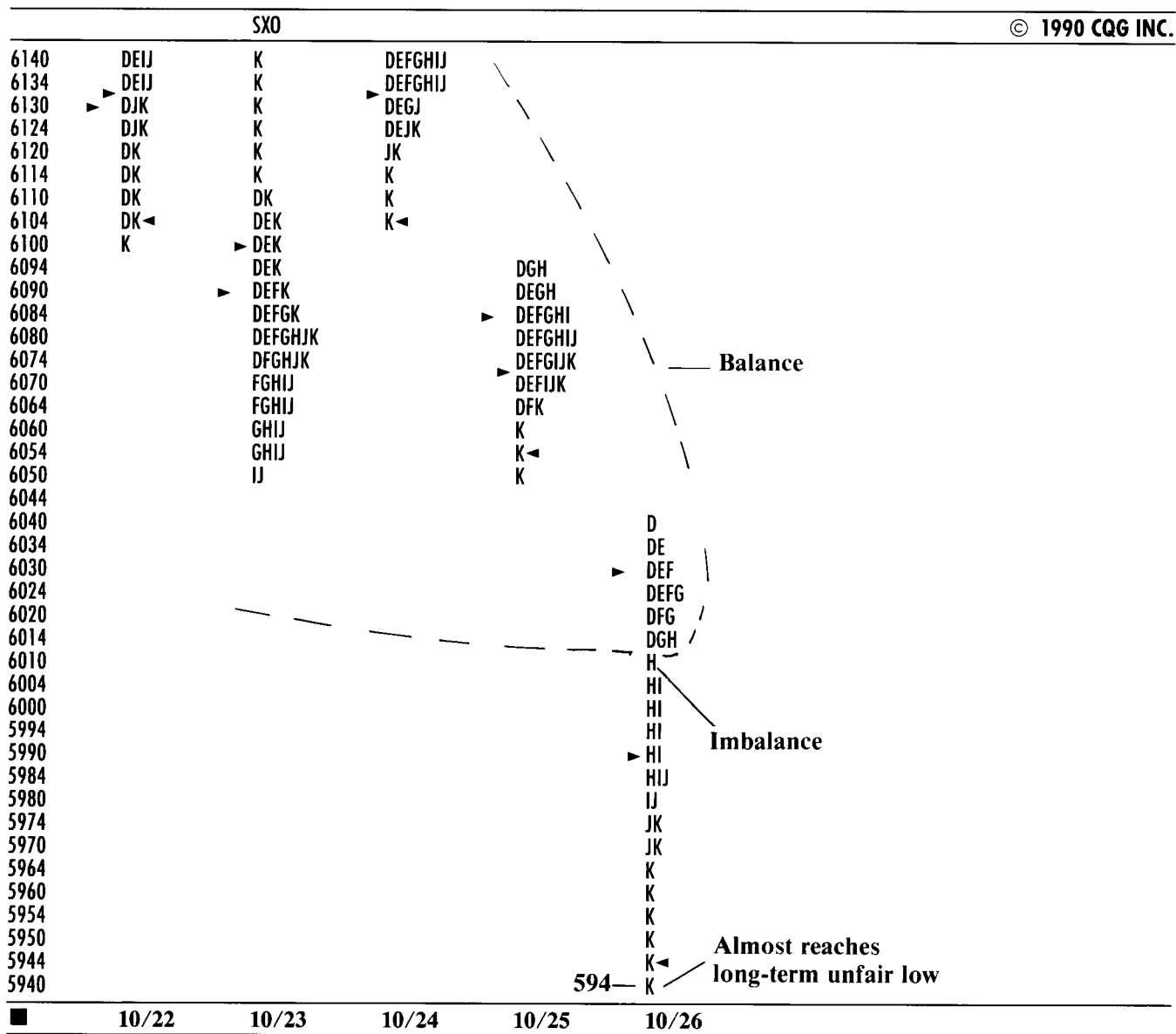
Value Shifting Down Over Time



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See below. The market has indeed shifted from balance to imbalance. The H period move is a new beginning that takes the market down to 594 in the session – almost to the long-term unfair low at 590. We've been watching this opportunity develop over several days. The tip in H period was the beginning of a major down move. By the middle of November, the market was just above 560.

Market Moves From 617 Level To 594



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To Sum Up

We used our knowledge of how the market works to recognize the start of a longer-term trend. This example illustrates a key Market Profile principle: when the market can't facilitate trade on the upside, it will generally test the downside.

In this example, the market tested the top of the longer-term value area at the 645 level and couldn't trade above it. Then the market tested the top of the near-term value area and couldn't trade above it.

The market traded sideways, testing the 617 level from 10/18 to 10/25. When activity in the balance area seemed to reject the upside, we looked for signs that a new move was beginning to the downside. Finally, in H period on 10/26, the market was ready to shift from balance to imbalance.

The shift from balance (price control) to imbalance (market activity control) took six and one-half sessions which gave you time to enter the market at an advantageous price. There were many opportunities to capitalize on the move.

Each time the market came into balance on the way down to 560, of course, you would have had to monitor activity in order to decide if the trend was going to continue. Still, if you entered above 600, you had good trade location and you could evaluate activity as it developed.

One more point. In real life, we would be evaluating activity in relation to the conditions that affect value. Here, for the sake of simplicity, we just monitored the distribution process.

CONCLUSION

The biggest benefit of understanding how the market distributes goods and services is a simpler decision-making process.

In Steidlmayer's recent book, *New Market Discoveries*, he says that after the market completes a distribution, only four things can happen. He classifies the development by color.

■ "Green development" occurs above or below the completed distribution. *This is an imbalanced, directional move which is a new beginning in the same direction.* It is a continuation of current market direction.

■ "Red development" occurs above or below the completed distribution. *This is balanced rotation which can stop a directional move. The market comes into balance and tests the trend.*

■ "Yellow development" occurs above or below the completed distribution. *This is an imbalanced directional move which is a new beginning in the opposite direction.* It is a change in market direction.

■ "White development" is basically a continuation of the completed distribution. *In other words, the market continues to rotate in the same balance area.*

Remember the four-step behavior pattern—imbalance, balance, test, imbalance in the same direction or imbalance in a new direction—discussed on page 122? Green and yellow development are imbalance; red and white development are balance.

The issue is still imbalance or balance. The market is either distributing or developing. At bottom, that's your only choice. If it's distributing, go with the move. If it's developing, buy breaks and sell rallies.

This section of the Home Study Guide provides an overview of the way the distribution process works in the marketplace. In Part V, we'll discuss how to relate this process more specifically to market decisions. Understanding how the market distributes bonds, beans or whatever you are trading does take time and effort. Once you grasp the principles, however, you can trade any financial instrument— from anywhere in the world.

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PART V

USING MARKET PROFILE® TOOLS TO SUPPORT TRADING DECISIONS



Chicago Board of Trade

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**PART V:
USING MARKET PROFILE®
TOOLS TO SUPPORT
TRADING DECISIONS**

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THE BACKGROUND

A General Overview

Part IV of this Home Study Guide discusses how the distribution process relates to market activity. In Part V, we're going to get more specific. We'll discuss how the behavior patterns the market uses to distribute relate to entry and exit decisions. Our data is from bond, note, soybean and grain futures markets. However, as noted in Part IV of the Guide, these patterns are universal from market to market. Therefore, you can apply the principles outlined here to whatever instrument you wish to trade. As we move forward, you'll see how understanding the distribution process can simplify your decisions and increase your comfort level.

In brief, we're going to use the distribution process to identify critical reference points. Then we're going to use Market Profile data to monitor how the market trades at these critical price areas.

Let's start with a general overview.

As discussed in Parts I through IV of this Guide, market activity is not arbitrary or random. Instead, activity is a logical process. The purpose of this process is to distribute a product—securities, equities, currencies, grains, etc. Market activity, therefore, falls naturally into distributions. In other words, distributions are the market's organic units and in the 1990's, a distribution replaces the session as your trading unit.

Why is it necessary to move from a session-oriented approach to something more flexible?

The shift from local capital to a worldwide capital base, discussed in Part IV, means that there is no open and no close in the familiar sense. A move continues—from time zone to time zone—until the cash flow stops. Global traders and investors can mobilize vast resources. They can send billions or even trillions of dollars flowing around the world almost instantaneously, creating a huge flow to fight against.

The European currency crisis in September 1992 shows that even governments can't hold back the tide. Italy and England simply didn't have the resources to fight the speculative cash flow. In the end, they were forced to devalue their currencies.

What is the impact on the market of this huge cash flow? The open and the close at a specific exchange are no longer viable measures for analytical purposes. Why? Trading units based on the session impose artificial barriers on market activity.

The Market Profile format, on the other hand, captures and continuously updates the market's natural units—units that begin with a flow of money into or out of the market.

The first phase of a distribution or trading unit is a directional move. The Market Profile format shows the directional move—the range—on the vertical axis. So the vertical axis reflects the cash flow.

- If the market is moving up directionally, news events or market developments are causing market participants to buy. The direction of the cash flow is up.
- If the market is moving down directionally, news or developments are causing market participants to sell. The direction of the cash flow is down.
- If the market is moving up and bringing in more buying as it does so, it generally has to go higher to shut off the activity. Why? According to Steidlmayer, as long as cash is flowing into the market, the market has to expand the range. In other words, the cash flow prevents the market from becoming efficient because the pressure forces the market to find a new higher or lower mean price.
- If the market is moving down and bringing in more selling as it does so, it generally has to go lower to shut off the activity.

The range keeps expanding vertically until the market moves far enough in either direction to attract an opposite response. In other words, the market moves up until it brings in selling or down until it brings in buying. Once the range is established, the market comes into balance and develops the unit with rotations.

These rotations are the second phase in the trading unit's evolution; they form the bulge. The Market Profile format shows the bulge (the balance area, the volume base or value) on the horizontal axis.

The market trades in the balance area—testing the upside and then the downside—until the rotations around the mean become narrow and slow. Narrow rotations indicate that the distribution is coming to an end because the market is becoming efficient. While there is no formal open or close, each distribution or unit begins, develops and ends—just as the session used to. Once you understand how the distribution process works, you'll be able to recognize these natural phases even though they occur at any time.

As noted above, the first phase is an imbalanced directional move. The second phase is balanced rotation around a mean price level.

(Let's stop here to clarify our terms. Steidlmayer defines the directional move as the "distribution" of capital. This may be confusing at first because the trading unit is also a "distribution." As you work with the data, the terms will become meaningful. You'll see that each trading unit or "distribution" has a distribution phase which is a directional move and a development phase which is balanced rotation. Keep this in mind as we move forward.)

The directional move establishes the unit's range. After the range is established, the market comes into balance and rotates around a price in the top third, the middle third or the bottom third of this range. How far the market moves directionally...where it comes into balance...and how long it stays balanced, of course, depend on the current perception of value. The distributions—or trading units—in each time frame show you how market participants are reacting to news events and market developments that affect value.

The market develops by moving from imbalance to balance to imbalance, etc. in an unbroken chain of activity.

This chain comprises short-term and long-term distributions. For example, one session can be broken up into several short-term units. Or, several sessions can be combined to form a longer-term unit. The short-term units are short-term moves. The longer-term units are longer-term moves. At some point, each unit (short- or long-term) becomes efficient and then the market begins something new.

You'll see how several short-term units become efficient on page 203. Each short-term unit comes into balance and then tips because money enters or exits. The same process occurs over a longer period of time in a long-term move. *No matter what time frame you are trading, keep in mind that the more balanced the market, the more unstable the situation. Why? Because the market has become efficient and at some point, it is going to move.*

That's how the market works.

Knowing how a distribution develops gives you a framework to which you can relate current activity. As distributions (or trading units) develop, they create key reference points or potential parameters. These parameters are support/resistance areas that can stop a move.

Key Reference Points

What are these critical price areas? See the opposite page.

- 1. *The price area at the top and the bottom of the unit's range.* (Keep in mind that a new beginning generally starts at the mean of the previous unit.)
- 2. *The mean or the control price around which the unit is developing.* This area is the widest part of the trading unit's developing value area.
- 3. *The price areas at the top and the bottom of the developing value area—in other words, the top and the bottom of the sideways bulge.*

Since the market can only trade through or reverse at these reference points, there are only two questions to ask yourself:

- Will the parameter hold?
- Or, will the market violate it?

While the questions are simple enough, they are not always easy to answer because it can be difficult to tell if a parameter is going to hold. Today's markets exist in an uncertain economic climate and activity may not generate clear, easy-to-read information. As you work with the data, though, you'll learn to judge how strong activity is and whether or not it is likely to violate the support/resistance areas.

Whenever the market reaches a parameter and can't violate it, this is a form of something that Steidlmayer calls "minus development."

What Is Minus Development?

Steidlmayer says, "Minus development is the common denominator of all the indicators I have ever used. It is what I am always looking for." Why? Because minus development indicates the direction of the capital flow. And, if you're in step with the capital flow, you're more likely to be long when the market is moving up and short when it is moving down.

To explain minus development, let's backtrack.

Market activity has only two phases: the directional move and the balanced rotations. The directional move that reflects the cash flow into the market is distribution. The rotations that reflect market participants' reaction to the distribution of capital are development. *If there is a lack of development, you're left with distribution—in other words, the cash flow.*

So, in a nutshell, minus development indicates the direction of the cash flow.

Critical Price Areas

SX2

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6234		
6230		
6224		
6220	D	1 Top of unit's range
6214	D	
6210	D	
6204	D	
6200	D	
6194	D	
6190	D	
6184	D	
6180	D	
6174	D	
6170	▶ D	
6164	D	
6160	D	
6154	D	
6150	D	
6144	D	
6140	D	
6134	▶ D	
6130	D	
6124	D	
6120	DEF	3 Top of developing value area
6114	DEFGH	
6110	DEFGHK	
6104	DEFGHK	
6100	DEGHIK	2 Control price
6094	DEGHIK	
6090	DGHIJK	
6084	DGHIJK	
6080	DIJK	
6074	DJK	
6070	DJK	3 Bottom of developing value area
6064	JK	
6060	JK	
6054	JK	
6050	JK	1 Bottom of unit's range
6044		
6044		
6034		

■ 6/15

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Consider soybean futures on 9/16/91. See the opposite page.

The most obvious form of minus development is a directional move. The single prints in D period from 599½ to 601 and the single prints in E period from 603½ to 605 reflect the direct cash flow into the market.

The cash flow is up because the market developed value (the bulge) above the directional move. (We're looking at a single session here. But keep in mind that a directional move is not just reflected by single prints. For example, a trend day is a directional move in a longer-term time frame.)

A directional move is obvious but there are more subtle ways to monitor the cash flow. Minus development between your trade location and "emerging market activity" (or development) is one way.

Steidlmayer says that you can use any constant measure to indicate development. *In this example, we're going to use four TPOs across to define emerging market activity.* In other words, we're going to call four TPOs across the first sign of development. (Each letter in the graphic indicates a time/price opportunity – TPO for short.) You can see that we have four TPOs across at a price of 609 in J period.

Now let's say you put on a long position at 600 in D period. This means that there is a nine cent area of minus development between your trade location at 600 and emerging market activity at 609. As long as this area lacks development, the cash flow is up. In other words, the buyers are continuing to hold.

The larger the area of minus development between your trade location and emerging market activity or development, of course, the better your position. If the area of minus development narrows, your position is eroding.

In J period, the market has come off its highs. But there is still a nine cent area of minus development between your position and emerging market activity. You have to decide whether this is enough of a cushion to continue to hold. Minus development doesn't tell you when to exit but it does give you an objective measure on which to base that decision.

If the area of minus development is growing, the cash flow is with you. If the money flow is on your side, you're in a good position. In other words, if there is some form of minus development between your trade location and emerging market activity, you have an edge. Why? "As long as money is flowing into the market," Steidlmayer says, "the market is directionally sound."

Minus Development Vs. Emerging Market Activity

SX1

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6184	
6180	
6174	
6170	
6164	
6160	
6154	
6150	
6144	HI
6140	HI
6134	HI
6130	HI
6124	HI
6120	HI
6114	HIJ
6110	HIJ
6104	GHJJ
6100	GHJ
6094	GHJ
6090	EGHJ — Four TPOs across
6084	EGJ
6080	EFG /
6074	EFG /
6070	▶ EF /
6064	EF /
6060	EF /
6054	EF /
6050	E /
6044	E /
6040	E / — Minus development
6034	E /
6030	DE /
6024	DE /
6020	DE /
6014	DE /
6010	D /
6004	▶ D /
6000	D / — 600 your trade location
5994	D
5990	
5984	



9/16

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How else can you monitor minus development?

See the opposite page. Whenever the market reaches a potential parameter and can't violate it, that's a form of minus development. In this example, $271\frac{1}{2}$ is the control price and the control price is a potential parameter.

You can see that the market traded up to this level on 6/2, 6/3 and 6/4 and $271\frac{1}{2}$ stopped the move. In other words, the control price contained activity and prevented the market from developing at a higher level.

The activity in this trading unit (6/1/92 to 6/4/92) is testing the top of an up trend. The market is at a long-term, unfair high— $274\frac{1}{2}$. This price level has contained activity on the upside since October 1988.

The fact that there is minus development above the control price suggests that the market isn't going to be able to trade through the long-term unfair high at $274\frac{1}{2}$. Why? The market's inability to develop above $271\frac{1}{2}$ suggests that the cash flow is down.

As it turned out, this test was the beginning of a major down trend that took the market to $212\frac{3}{4}$ by 9/23/92.

These examples illustrate two forms of minus development. There are many others. A price gap is one. An unexpected reaction to news events or market developments is another. (The market gets good news and doesn't rally or bad news and doesn't break.)

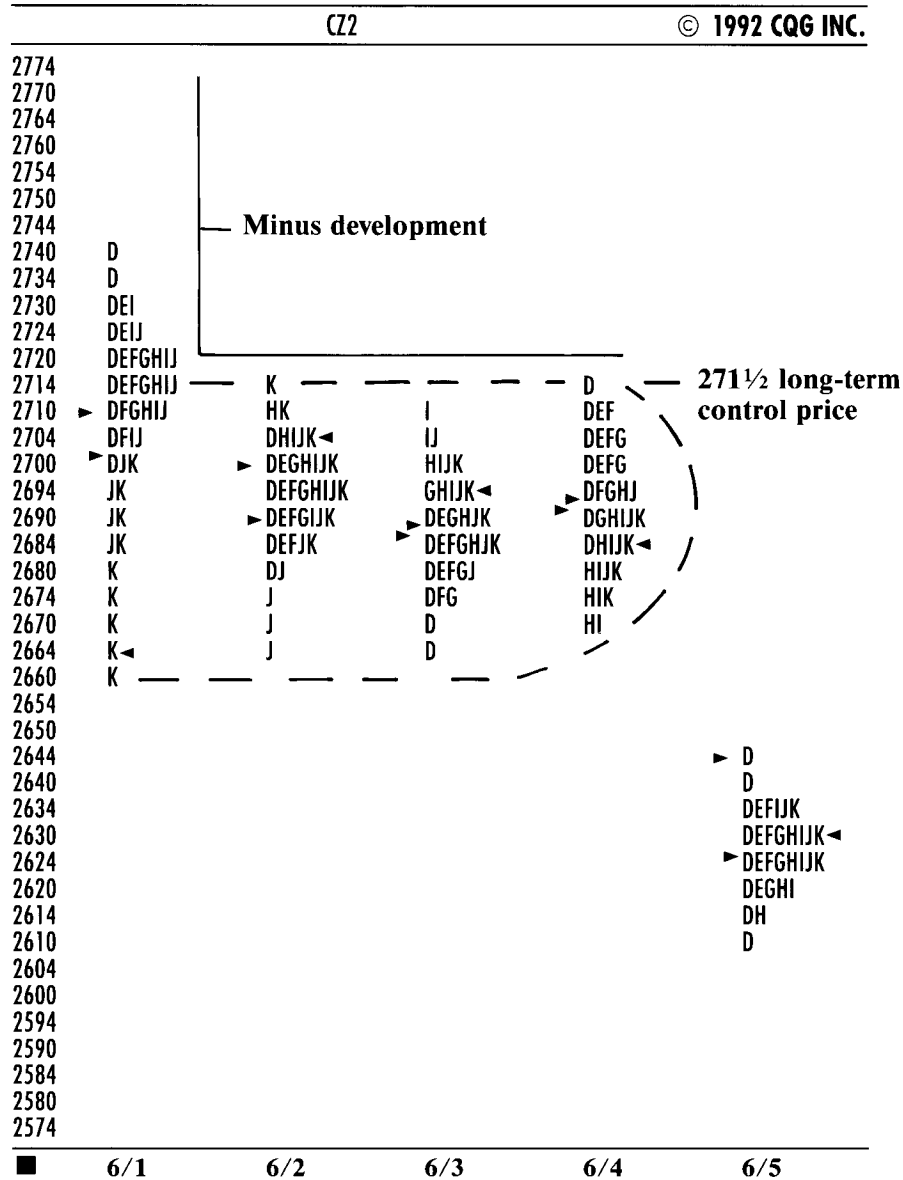
Steidlmayer says, "Little things can be significant because they can indicate the absence of buying or selling. Look for minus development versus any objective standard: expectations, the control price, emerging market activity, a moving average, etc."

He goes on to say that minus development—a simple concept that is fundamentally sound—offers an objective way to monitor the cash flow in all time frames. If the cash flow is down in the near-term, in the intermediate-term and in the long-term, the time frames are pulling together. On the other hand, if the cash flow is up in the near-term but down in intermediate- and long-term time frames, there is a conflict in the market.

In the corn example on the opposite page, the near-term cash flow was up because we were at the top of the move. The cash flow was down, however, in a longer-term time frame because the control price was containing activity on the upside.

Minus development doesn't tell you when to enter or when to exit a position, as noted earlier. It does, however, give you an objective way to measure market sentiment. Minus development indicates the direction of the capital flow, and what could be more indicative of market sentiment than the direction of the capital flow?

Minus Development Vs. The Control Price



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Breaking A Session Into Its Parts

Before going any further, let's see how the reference points discussed above work in a real situation. We're going to break a single session into its short-term parts. That way, you can see the top and the bottom of each distribution and the top and bottom of each developing value area clearly. This session was chosen because it is especially illustrative of the following concepts...

- Each distribution is defined by an unfair high, an unfair low and value somewhere in between.
- The market ends and begins in the same price area.
- When value develops near an unfair low—or an unfair high—this activity can tip the market's balance and expand the range.

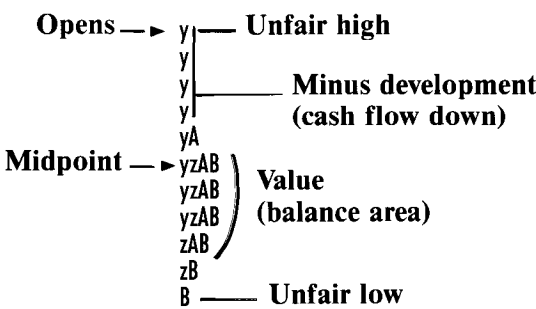
As we go through the example, you'll see how this knowledge can help you decide when to enter the market and, equally important, how long to stay.

See the opposite page. The market opens at the top in y period and moves straight down. Let's say you put on a short position. The range extends two more ticks in z period. But then z period starts to retrace. *What about your position?*

The market is trading sideways in A period. We've come into balance. Value, however, is developing opposite the bottom half of the range. In addition, A and B periods only retrace to the middle of the range—leaving an area of minus development. Because value developed below the single prints in y period, you know that the cash flow is down.

The market can't trade above the top of the developing value area. This suggests that the down move is not yet over. The cash flow is with you. *You decide to hold the short position.*

Breaking A Session Into Parts: Part One



See the opposite page. The market does indeed tip in C period and trades through the bottom of the first distribution – expanding the range and thus establishing a new unfair low. (Note that the first distribution ended and the second began in the same price area.)

We've come into balance in D period but the top of the value area doesn't even reach the mid point of the range. Again, value is developing near the unfair low – leaving a wide area of minus development (single prints in C period) above. The cash flow is still down. Also, the range of the second distribution is wider than the range of the first.

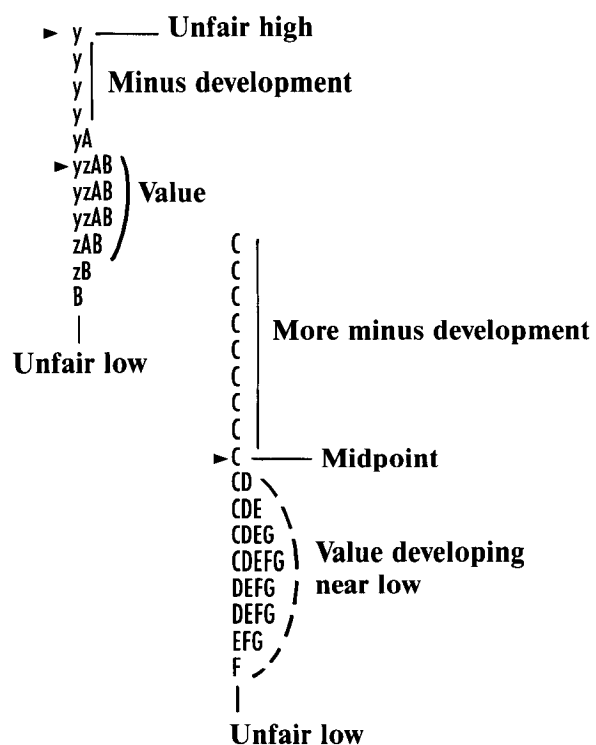
Do you continue to hold the short position or do you take your profits?

Cash flow to the downside, value near the unfair low and the wider range suggest that the overall market is still imbalanced to the downside. It's only G period. There is still time in this session for a move. In other words, it seems that the down move is not yet over in the session. You continue to hold.

Breaking A Session Into Parts: Parts One And Two

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See the opposite page. H period can't trade above the top of the value area and the range expands again to the downside. The move down in H period trades through the bottom of the second distribution and establishes a new unfair low in J period.

The cash flow is still down (single ticks in H) and the range of the third distribution is about as wide as the range of the second. The single ticks at the bottom in J period, however, show buying. *What do you do about your position now?*

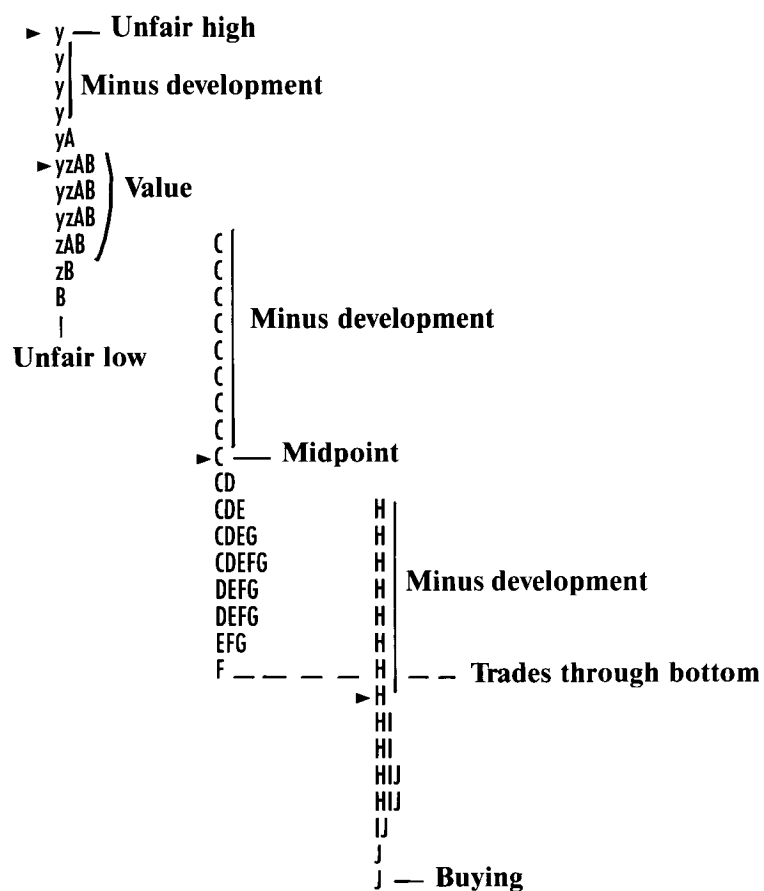
All three distributions are down moves with down development. (Down development means that the market has come into balance opposite the bottom third of the range.) In other words, after the directional move to the downside, each distribution comes into balance near the unfair low. The directional move is minus development. Development below the directional move shows that the cash flow is down.

Still, the single ticks in J period show that buyers are becoming interested. This is a subtle sign that the range expansion in this session may be starting to come to an end. You might start to think about offsetting.

Breaking A Session Into Parts: Parts One, Two And Three

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See the opposite page. K period tests the downside and can't break below the bottom of the third distribution. The market starts to reverse. It looks as though the parameter (the bottom of the third distribution) is going to hold. *What about your short position now?*

The down move brings in more buying in K period. The parameter is holding. (It is not possible to separate the selling from the buying in K period because we can't split the profile precisely where one distribution ends and another begins. We can only split the session on the half-hour. We know that buying came in because L period developed above the single prints in K period.)

Even though the cash flow is down through H period, it seems that the market has moved far enough to find an opposite response (the buying in J period) to stop the move in this session.

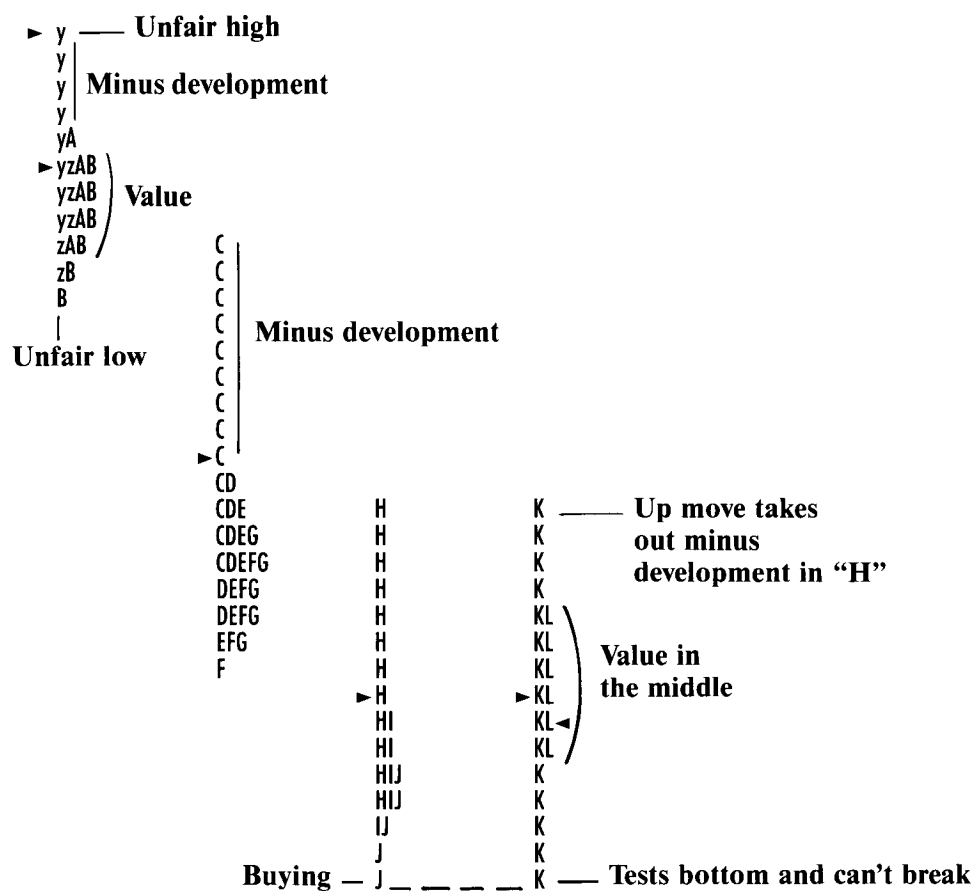
Why?

After three down moves (in y, C and H periods), the fourth distribution in K period is an up move. This up move takes out the minus development in H period. In addition, value is developing in the middle of the range in the fourth distribution—an indication that the overall market has shifted from imbalance to balance in the near-term. It appears that market participants want to pause and evaluate developments before either continuing or reversing direction. *You offset.*

Breaking A Session Into Parts: Parts One, Two, Three And Four

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To Sum Up: We broke the down move into its shorter-term parts. Then we observed what was happening at the unfair high, the unfair low and the top and bottom of the developing value area of each part. The way the market was trading at these critical price areas helped us decide how long to hold the position.

On the opposite page, the parts are on the left and the whole session is on the right.

Breaking the session into its parts let us see the direction of the cash flow—down through J period and then up in K period.

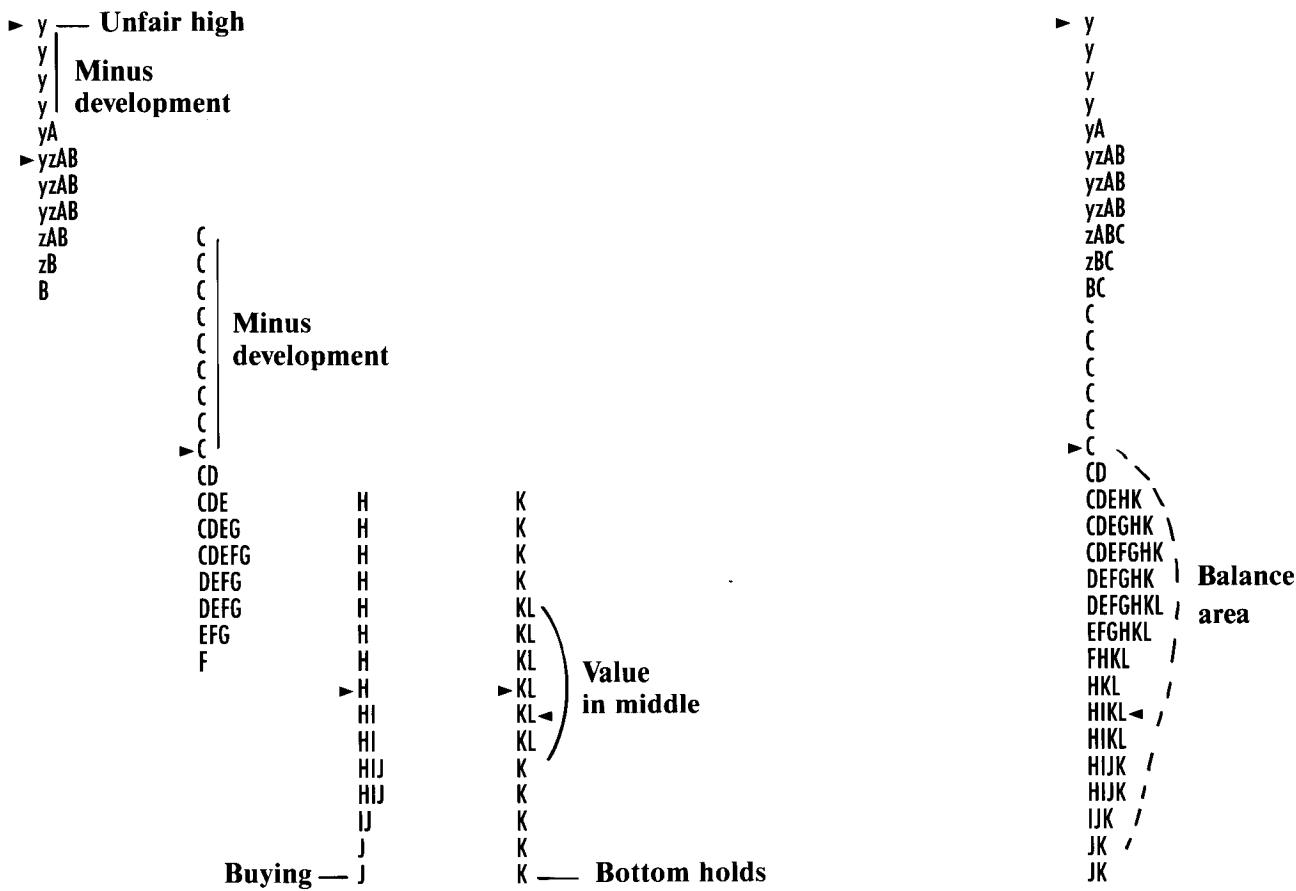
This objective information encouraged us to hold the position until J period. Then the buying at the unfair low of the third distribution suggested that the range expansion might be over in this session. The shift in the cash flow in K period seemed to confirm this analysis.

It would have been much harder to judge this shift simply by looking at the whole session. You can see the cash flow easily enough in y and C periods. But the indirect cash flow is lost in the total balance area at the bottom of the range.

This kind of insight is especially important when you're dealing with nervous, global markets because good trades can rapidly turn into losers if you overstay. We're going to look at some critical questions in the next chapter that can help you enter and exit on a timely basis. First, however, stop and test yourself on the material we've covered so far.

THE PARTS

THE WHOLE SESSION



Stop And Test Yourself

Q. What is the biggest change in the market over the past decade?

A. The growth of a huge worldwide pool of investment capital that enters the market instantaneously whenever news is released.

Q. What is the impact of this development on tools for market analysis?

A. A session-based trading unit is not flexible enough to capture price moves that travel from time zone to time zone.

Q. What is the money-flow based unit that begins when cash enters or exits from the market?

A. A distribution.

Q. What makes the Market Profile format such a valuable analytical tool?

A. It organizes data so that you can see how distributions – short- and long-term – are developing. Specifically, it lets you monitor the cash flow.

Q. If the market is moving up directionally, what is the direction of the cash flow?

A. Up.

Q. If the market is moving down directionally, what is the direction of the cash flow?

A. Down.

Q. What key reference points form as a unit develops?

A. The top and bottom of a unit's range, the mean or control price around which the unit develops, the top and the bottom of the developing value area.

Q. What is the most obvious form of minus development?

A. A directional move.

Q. What are some more subtle forms of minus development?

A. The space between your trade location and emerging market activity (four TPOs across), an unexpected reaction to news (a bullish report and the market doesn't rally, a bearish report and the market doesn't break), a parameter that holds (the market trades up to the control price but can't trade above it).

Q. Why is minus development such an important indicator?

A. It provides an objective way to monitor the cash flow in all time frames.

NOTES

SOME CRITICAL QUESTIONS

To help you make better decisions in an uncertain economic environment, Steidlmayer has identified key components of market activity: price control or non-price control, capital flow, control prices, near-term activity and the market's current condition. Initially, you may feel that all this sounds rather academic. Exactly the opposite is true. These components are at the heart of all buy/sell decisions. As we move forward, you'll see for yourself that focusing on the following questions can help you to choose the appropriate strategy.

Is The Market Controlled By Price Or Is It Controlled By Market Activity (Non-Price Control)?

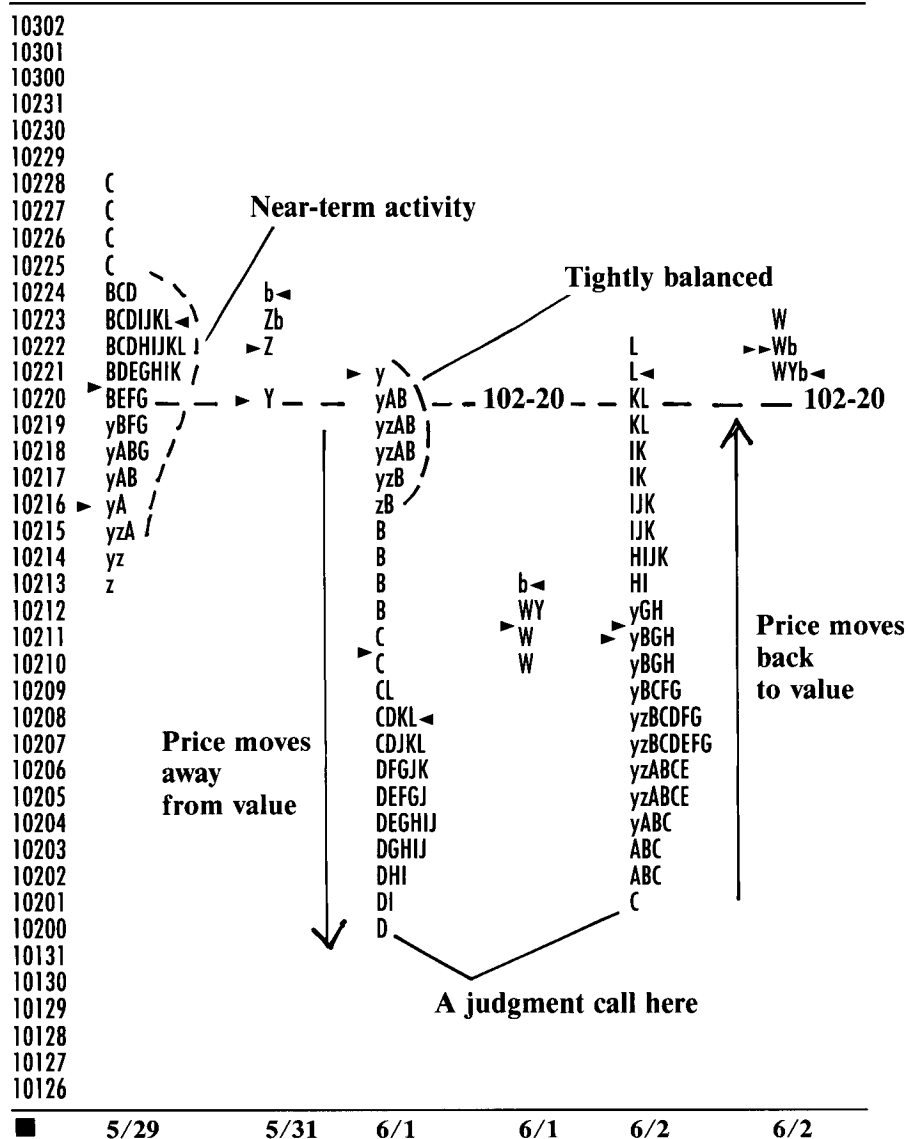
Why is this distinction important? It can help you decide whether a breakout is going to continue or whether it will fail. To explain, consider note futures from 5/29/92 to 6/2/92.

At that time, the longer-term market was balanced and developing around 102-20. In other words, 102-20 was the control price or mean. On the opposite page, you can see that near-term activity on 5/29 was occurring roughly at this longer-term mean. On 6/1, in y through A periods, the market is tightly balanced right at 102-20. B period is the start of a break.

The move continues in C and D periods. The down move stops at 102 in D period. Then the market reverses. Is the pullback an opportunity to go short? Or is the down move over? If the market is still controlled by 102-20, market participants will trade back to this level. If the price control has been broken, the move will continue down. *So no matter how many variables are involved, price control is the basic issue.*

With the benefit of hindsight, you can see that the market was controlled by price. How do we know? Price moved away from value (the control price, 102-20) on 6/1 and was pulled back to value on 6/2. That's how a market behaves when price is in control.

As noted above, the correct choice is clear now but on 6/1 in D period and again on 6/2 in A, B, and C periods it was a judgment call. Any trader knows how difficult it can be to tell when a breakout is going to be the beginning of a trend. Asking yourself if the market is controlled by price or by market activity can help you make that judgment. In this case, it could have stopped you from selling at the bottom of the move.



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The market is either balanced or imbalanced.

- Buy breaks and sell rallies when the market is balanced.
- Go with the trend when the market is imbalanced.

Price control = a backward price influence = balance and rotations = a trading range market.

Market activity control = a forward price influence = imbalance and a directional move = a trending market.

What Is The General Direction Of The Capital Flow?

Why is monitoring the capital flow important? Steidlmayer says that money in or out disturbs the balance of the current distribution and thus can shift price control in the market.

The Market Profile format arranges market data so that you can see the direction of the capital flow and relate it to larger time frames. To demonstrate, let's look at a real-life situation.

See the opposite page. This graphic shows a trading unit which started on 4/28. In other words, it shows distribution development in the bond futures market from 4/28/92 to the evening session on 5/8/92.

Value areas (the 70% range) from the night and day sessions are organized in the Market Profile format. The cash flow is on the vertical axis. The market's reaction is on the horizontal axis.

If value (the 70% range for that date) is higher or lower than the previous session, the rectangle goes on the vertical axis. If value is unchanged or partially overlaps the previous session, the rectangle goes on the horizontal axis.

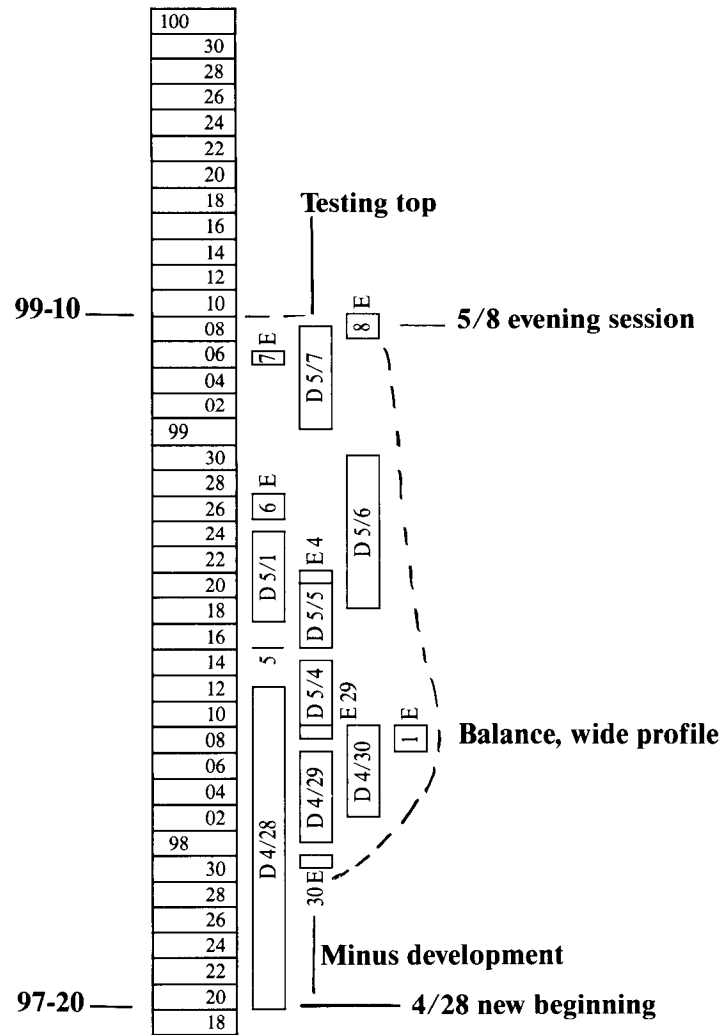
You can see how the trading unit or distribution develops over time by following the dates in the rectangles. "E" indicates the evening session and "D" indicates the day session. Since the evening session is by definition the start of a session, the time sequence goes D 4/28, E 4/29, D 4/29, E 4/30, D 4/30, etc.

On the opposite page, you can see that there is minus development from 97-20 to 97-30.

The cash flow is up (the market developed above the directional move). From 4/29 to 5/5, the market seems to be developing around 98-12 (just above the widest part of the bulge). On 5/6, the market moves up. On 5/7, we expand the range. In the evening session on 5/8, we're testing the top of this expanded balance area.

What happens on 5/8?

**Bond Futures:
4/28/92 to 5/8/92
(Evening Session)**

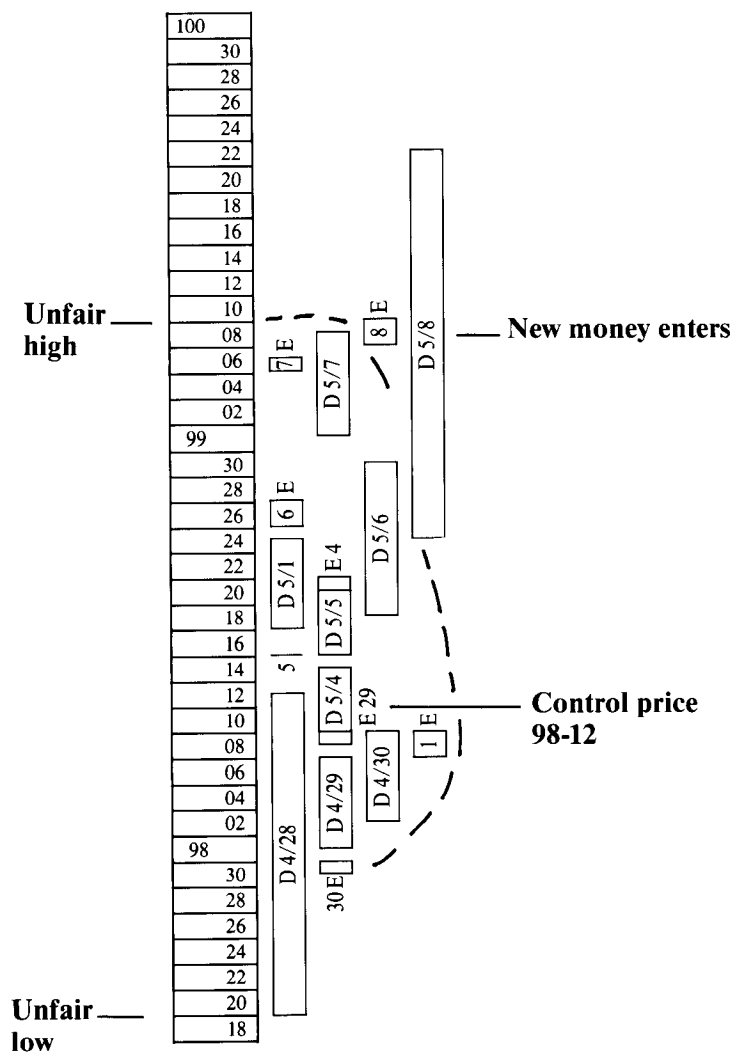


In the example on the opposite page, you can see the wide directional move on 5/8 (98-25 to 99-23). This is new money entering the market. This cash flow propels the market past the unfair high. Now let's relate this cash flow to a longer-term time frame.

NOTES

[illegible]

**Bond Futures:
4/28/92 to 5/8/92
(Day Session)**



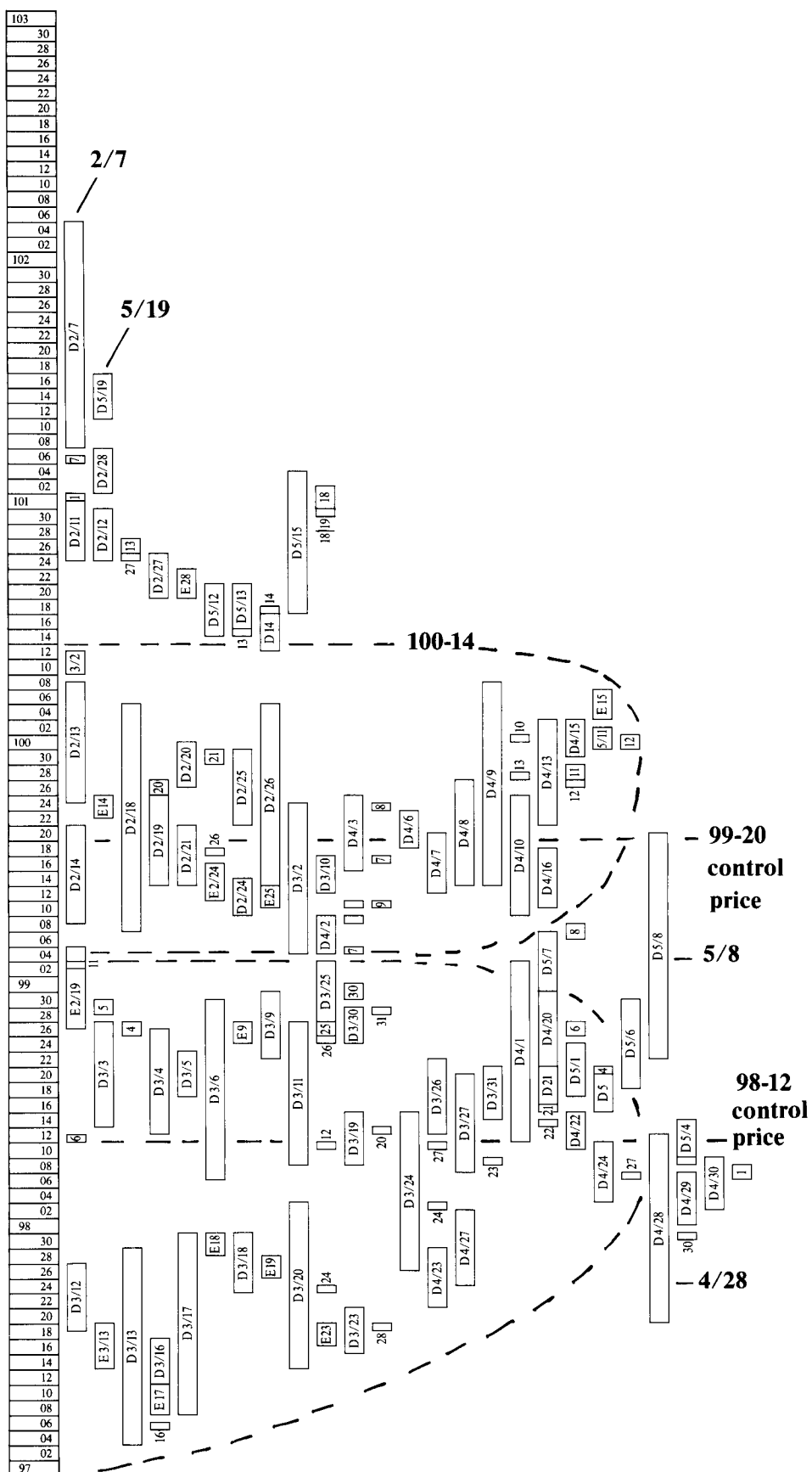
Look at the example on the opposite page. You can see that the longer-term value area comprises two equilibrium areas – one developing around 98-12 and one around 99-20.

The cash flow (up distribution) on 5/8 occurred between these two equilibrium areas.

This cash flow moves the market out of the orbit of the 98-12 mean and into the orbit of the 99-20 mean. In other words, money entering the market on 5/8 disturbs the market's balance.

Control shifts from a price of 98-12 up to a price of 99-20. This shift paved the way for a move up to 101-18 on 5/19.

**Bond Futures:
2/7/92 to 5/19/92**



What Is The Control Price (Mean) In The Longest-Term Time Frame?

Why is this price area important? It controls activity until the market either trades above the long-term unfair high or below the long-term unfair low—in other words, until money coming into or exiting from the market disturbs the long-term balance and enables the market to start something new.

It is the price area at the widest part of the longest-term distribution. And as long as this price area controls activity, it is your reference point for long-term value. You can see a long-term control price clearly on the opposite page.

This graphic shows a longer-term distribution in the bond futures market from 11/19/90 to 4/23/91. The range is 93-09 to 98-26. The widest part of the distribution is roughly opposite the 95-12 area—approximately a yield of $8\frac{1}{4}$.

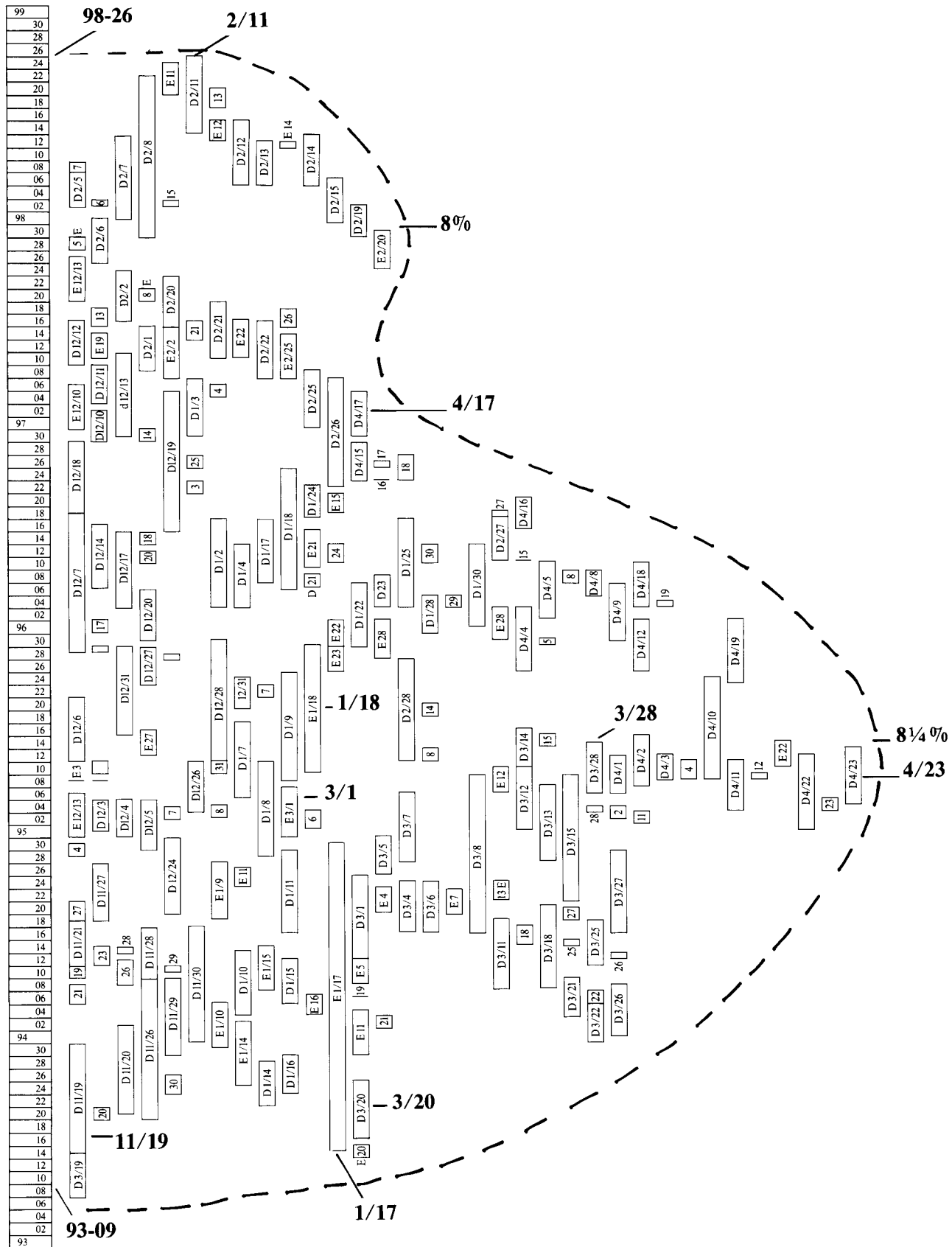
This price controlled activity from 11/19/90 to 4/23/91. *In other words, each time price moved away from value, it was pulled back.*

For example, the market rotated down to 93-15 in the evening session on 1/17/91. (This was the night the allies launched the ground war against Iraq.) The market was pulled back up to the 95-00 level in the evening session on 1/18 because $8\frac{1}{4}$ % was controlling activity.

The market continued up to 98-26 on 2/11. Then, again because $8\frac{1}{4}$ % was controlling activity, the market traded back to the 95-00 level in the evening session on 3/1.

By 3/20, the market had rotated down and was testing the bottom again. It was pulled back to the 95-00 level on 3/28. The market continued up, tested the 97-00 level on 4/17 and was back at the 95-00 level on 4/23.

Long-Term Control Price T-Bond Futures: 11/19/90 to 4/23/91



What Is The Average Of Control Prices For The Intermediate-Term Time Frame?

Why is this average price important? It controls activity in the intermediate-term so this price is your reference point for value in the intermediate-term time frame. In other words, this is the price around which the market is developing in the intermediate-term time frame.

How can you calculate it precisely? Steidlmayer says to assign a control price to each shorter term unit in the intermediate-term whole. Then add these control prices together and divide by the number. For example, consider wheat futures from 6/12/92 to 6/19/92 on the opposite page.

(For the sake of simplicity, we're going to call each session one unit. To be really precise, you would break each session up into its shorter-term parts and assign a control price to each part.

Also to keep things simple, we're going to say these six sessions comprise the intermediate-term time frame. In practice, determining what constitutes an intermediate-term time frame is a personal judgment. For some traders, a six-session unit might be long-term. For others, it might be short-term. These principles, of course, can be applied to any unit in any time frame.)

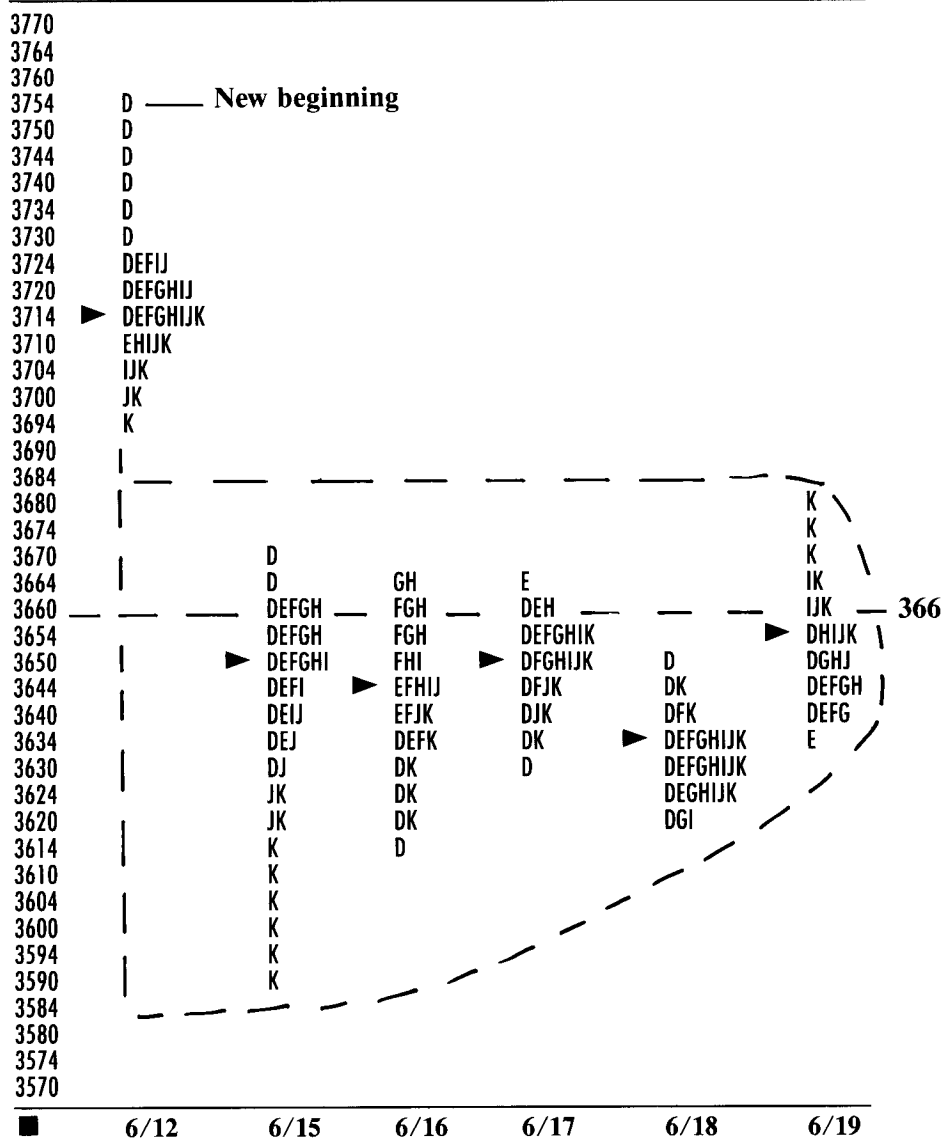
This unit started with the down move on 6/12. The down move continued on 6/15. Then the market came into balance and traded sideways on 6/16 to 6/19. We're going to calculate the average of the control prices in this trading unit.

We're going to call the price that traded in the most time brackets the control price: $371\frac{1}{2}$ on 6/12, 365 on 6/15, $364\frac{1}{2}$ on 6/16, 365 (the price that traded in the most time brackets closest to the midpoint of the entire range) on 6/17, $363\frac{1}{2}$ on 6/18 and $365\frac{1}{2}$ on 6/19. Add these prices together and divide by six. The control price for this unit is about 366. In other words, this unit developed around 366.

Intermediate-Term Control Price

WZ2

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What Is The Near-Term Activity?

Why is near-term activity important? It can help you to judge whether or not a parameter is going to hold. In other words, it can help you anticipate if the market is going to trade up, down or sideways.

For example, consider corn futures from 6/8/92 to 6/15/92 on the opposite page.

On 6/8, the market trades up to 270. At this time, the area from $269\frac{1}{2}$ to $274\frac{1}{2}$ was a longer-term unfair high—the beginning of a down move that began in March 1992. The near-term activity from 6/8 to 6/12 is testing this parameter.

You need strong buying to trade through $274\frac{1}{2}$ and you aren't getting it. In fact, not only is there a lack of buying to propel the market up through the 274 level, there is selling at the top on 6/11. The 274 parameter seems to be holding. Whenever the market reaches a parameter and can't violate it, that's a form of minus development. In this case, it suggests that the cash flow is down and that the market won't be able to violate the long-term unfair high. On 6/12, the market is just above the beginning of the up move on 6/8.

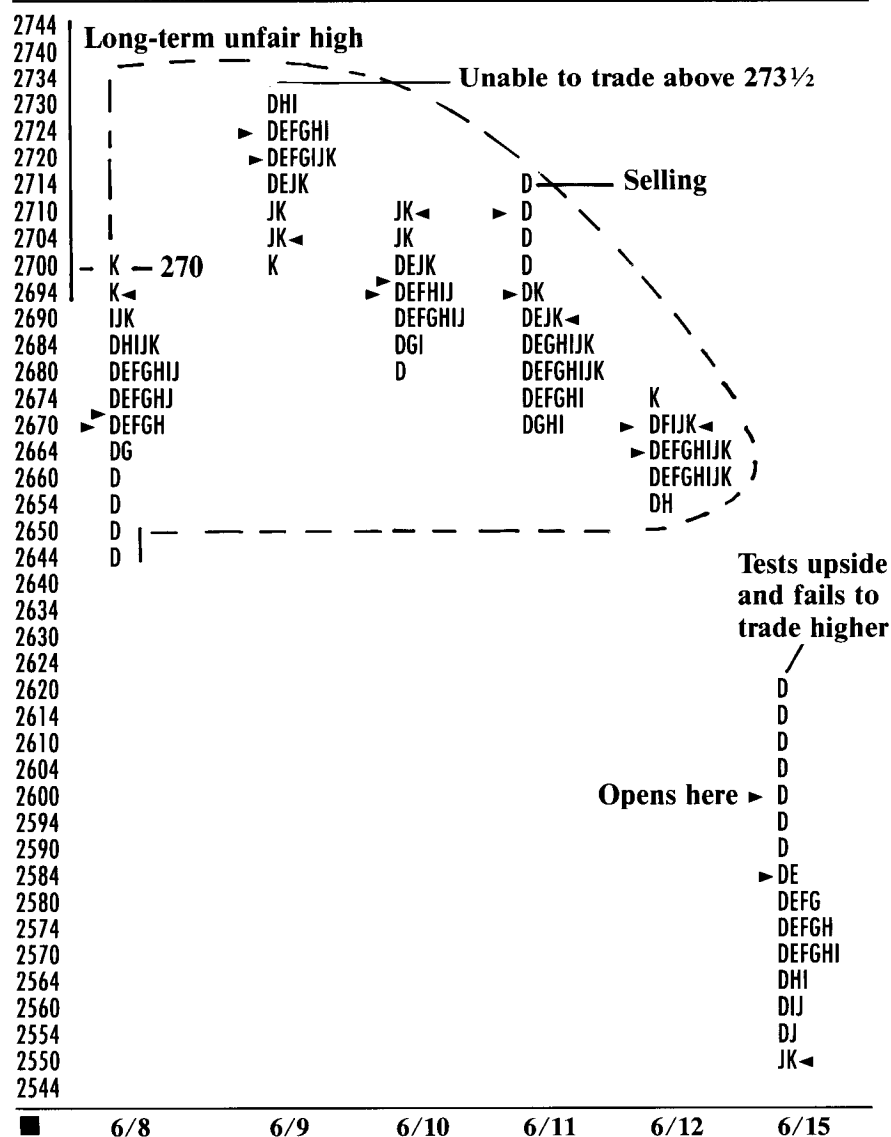
There is heavy rain over the weekend and on 6/15, the market gaps lower and opens at 260. The market tests the upside, fails to trade above 262 and reverses. The price gap between Friday's activity and today's is a form of minus development. This activity seems to confirm the market's rejection of the upside.

These five sessions were the end of the test that began on 6/1/92 (see page 197). With the help of Market Profile data, you can react rapidly when the market finally breaks. As noted earlier, this test was the beginning of a down move that reached $212\frac{3}{4}$ by September 23, 1992.

Near-Term Activity

CZ2

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What Is The Present Location Or Condition Of The Market?

Why is the market's condition important? Knowing whether the market is imbalanced or balanced can help you choose the appropriate strategy. According to Steidlmayer, the market is in the first, second or third standard deviation of some trading unit in some time frame.

If the market is in the third standard deviation, it is imbalanced. If the market is in the first standard deviation, it is balanced. When the market is balanced, buy breaks and sell rallies. When the market is imbalanced, go with the move. Basically, that's it. The complicating factor is that the market can be imbalanced in the near-term and balanced in a longer-term time frame.

To make better exit decisions, it helps to relate a near-term imbalanced move to a larger unit in a longer-term time frame.

Remember the example in Part IV showing how a longer-term unit develops? The market moved up directionally on 12/30 and 12/31, almost to a $7\frac{1}{4}\%$ yield. It was imbalanced to the upside in the near-term. See the opposite page.

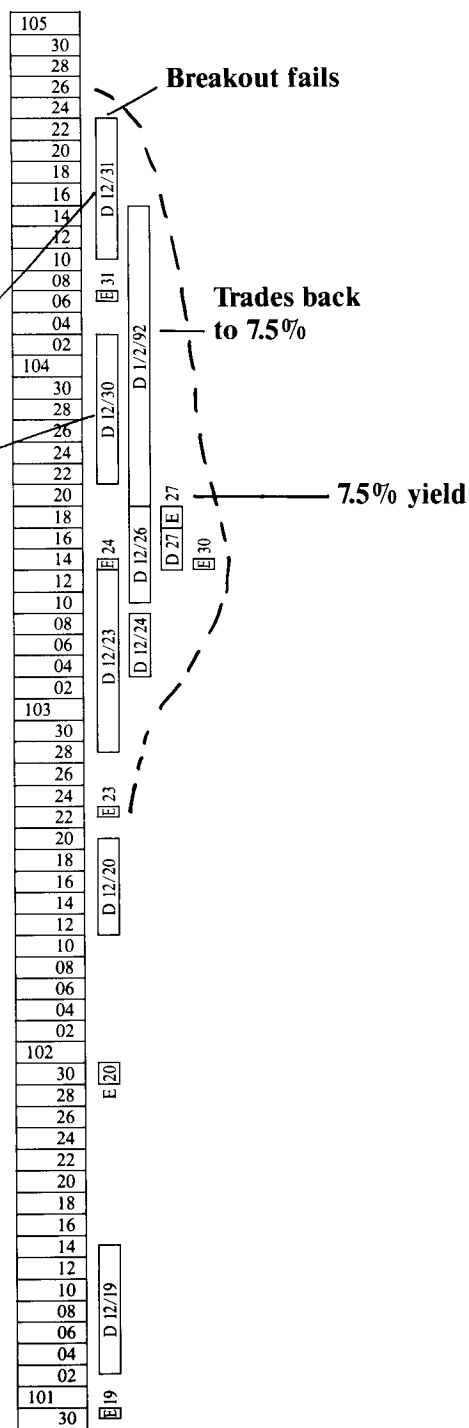
In a longer-term time frame, however, it was balanced around a 7.5% yield. Therefore, the breakout failed to continue. The market retraced and price returned to value on 1/2/92. In other words, the breakout to the upside failed because the old mean in a longer-term time frame—7.5%—was still in control. Since longer-term time frames control activity in shorter-term time frames, the price probe returned to value.

Being able to relate activity to the right time frame can help you decide which positions are short-term and which ones should be held longer—a critical decision in today's nervous markets.

In the next chapter, you will see how the principles discussed here can simplify your decision-making process. But first stop and test yourself on the material we've covered so far.

Market Balanced Longer-Term

Market
imbalanced
12/30 and 12/31



Stop And Test Yourself

Q. Why is it important to know if the market is controlled by price or by market activity?

A. This insight determines whether you buy breaks and sell rallies or if you go with the move.

Q. What is the appropriate choice if the market is controlled by price?

A. Buy breaks and sell rallies.

Q. What is the appropriate choice if the market is controlled by market activity?

A. Go with the move.

Q. Why is monitoring the cash flow critical?

A. Money entering or exiting the market disturbs the current balance. This can be the beginning of a move to a higher or lower value (equilibrium) area.

Q. Why is the control price in the longest-term time frame important?

A. This is the price that ultimately controls activity until the market trades above the long-term unfair high or below the long-term unfair low.

Q. How do you calculate the average control price for the intermediate-term time frame?

A. Add the control prices for each unit in whatever you decide is the intermediate-term time frame and divide by the number to get the average.

Q. What does near-term activity help you to judge?

A. Whether or not a parameter is going to hold.

Q. Why is knowing if the market is balanced or imbalanced important?

A. It can help you choose the appropriate strategy.

[illegible]

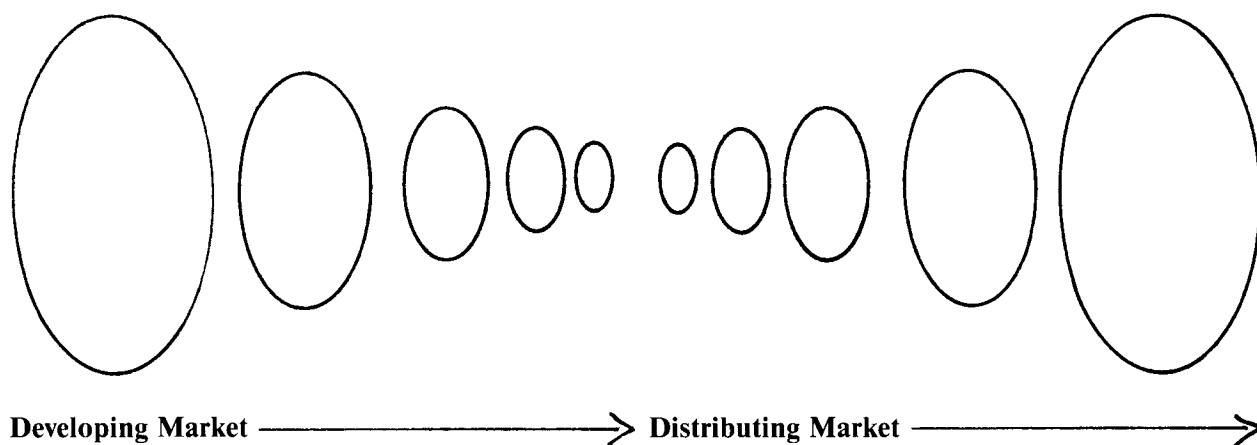
THE PRINCIPLES AT WORK

The Conceptual Foundation

One of the most desirable talents a trader can have is an ability to see near-term activity in a longer-term context. Exceptional traders know intuitively when to enter the market and how long to hold positions. Steidlmayer's insight into the market's time frame organization and the distribution process can help the rest of us make those decisions.

Before we see how this works in practice, let's review briefly.

- The market is distributing in all time frames simultaneously and each distribution (or trading unit) is defined by three related price areas: a high, a low and value somewhere in between.
- The mean of the value area controls activity in the distribution until the market either trades above the high or below the low.
- The mean in the longest-term time frame controls activity in all shorter-term time frames.
- Finally, the market has only two modes—distribution and development.



This is how Steidlmayer expresses these concepts graphically. The circles on the left represent the market's development phase; those on the right represent the market's distributing phase. (Of course, each shorter-term part is also a complete unit with a distributing phase and a development phase.)

The largest circle on both sides represents the range in the longest-term time frame. Let's compare the market's two modes.

Development Phase

- The range is already established. You're trading sideways development. In other words, value area rotations.
- The smallest circle represents the end of a long-term move in a near-term time frame.
- The ever smaller circles represent a market that is moving toward efficiency. Each smaller circle reflects a narrower value area rotation. Therefore, you're using old reference points from larger circles to trade smaller circles.
- The old reference points (support/resistance areas) contain activity. These parameters hold because a backward price influence is dominant.

Distributing Phase

- The long-term range is not yet established. You're trading range expansion.
- The smallest circle represents the beginning of a long-term move in a near-term time frame.
- The ever larger circles represent a market that is expanding directionally. Each larger circle extends the range and establishes new higher or lower reference points.
- The market trades through the old support/resistance areas and continues to move higher or lower. The market is able to violate these parameters because a forward price influence is dominant.

When you know how the market works and you have a big picture which identifies critical price levels, you can react quickly to capitalize on current activity. You'll see how these concepts relate to buy/sell decisions in the following example. But first, stop and test yourself.

Stop And Test Yourself

Q. What three related price areas define a distribution?

A. Unfair high, unfair low, value somewhere in between.

Q. The control price in what time frame ultimately controls activity?

A. The longest-term time frame.

Q. In the development phase of a market, is the range already established?

A. Yes.

Q. Is the market controlled by price or by market activity?

A. By price.

Q. Therefore, is a breakout going to fail or is it going to continue?

A. It is going to fail because price is going to be pulled back to value.

Q. What is the price influence – backward or forward?

A. Backward.

Q. In the market's distributing phase, is the range already established?

A. No.

Q. Is the market controlled by price or by market activity?

A. By market activity.

Q. Therefore, is a breakout going to fail or is it going to continue?

A. It is going to continue because price is being pulled forward to a new higher or lower value area.

Q. What is the price influence – forward or backward?

A. Forward.

A Practical Application

Wherever possible, examples and explanations are next to each other. This material is published in a three-ring binder so that when you refer back to a previous example, you can remove the example and hold it next to the relevant text.

We're using data from the soybean futures market because it is an extremely clear example of how the Market Profile principles work. Even though you may not be a bean trader, I've found through experience that looking at an unfamiliar market helps traders grasp the underlying concept faster. Also, as noted earlier, the principles illustrated here are the same for all markets. Once you understand how these principles work, you can apply them to any cash, futures, or options instrument.

If your decisions develop from a better understanding of the market, they are more likely to be profitable. So a solid grasp of the basic concepts is surely the key to making good buy/sell decisions with Market Profile data.

In this example we're going to base decisions on the direction of the money flow, whether the market is balanced or imbalanced, whether market participants are accepting or rejecting a specific control price (idea of value) and near-term activity—the ideas discussed on pages 210 to 229.

Specifically, we're going to identify reference points (relevant price areas) in long- and intermediate-term time frames. Then we're going to monitor near-term activity to see how market participants behave as the market trades in these price areas.

First, let's consider the long-term time frame.

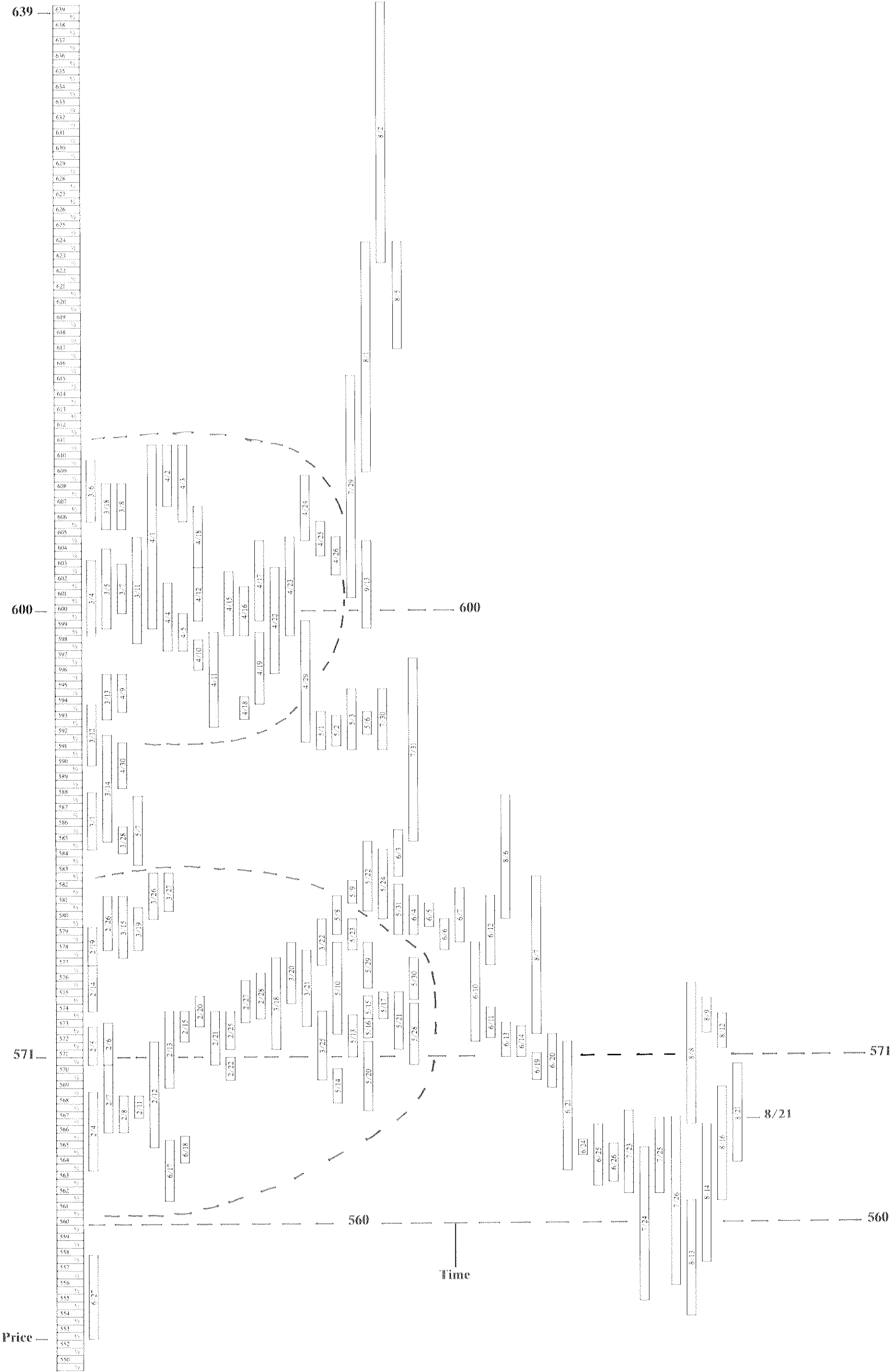
From February to July 1991, the long-term soybean futures market was basically balanced, i.e., value was in the middle. The widest part of the distribution seemed to be roughly opposite a price of 560. In other words, the long-term control price (or long-term mean) was about 560.

The chart on page 233 shows part of that long-term distribution from 2/4/91 to 8/21/91. What you see here are value areas (the 70% range for each session) organized on a vertical and a horizontal axis. Cash flow or price is on the vertical axis; development or time is on the horizontal axis.

As noted earlier, if value is higher or lower than in the previous session, the rectangle goes on the vertical axis. If value is unchanged or overlaps the previous session at the top or the bottom, the rectangle goes on the horizontal axis.

You can see that, basically, we've been developing the top half of the bell curve with two equilibrium (or value) areas—one roughly around 600 and one roughly around 571.

Soybean Futures: 2/4/91 to 8/21/91 Long-Term Activity



Now, let's consider the intermediate-term time frame.

See the opposite page. This graphic shows activity from 8/22/91 to 9/11/91.

Before we go any further, I want to stop and underscore an important point. As noted earlier, deciding what comprises long- or intermediate- or near-term time frames is a personal decision. For some traders, a unit that consists of five sessions is long-term. For others, a unit that consists of five sessions is near term. The only rule is to break the market into its natural parts.

In order to be in step with the market, start your trading unit with a new beginning—instead of using an arbitrary time interval like the session. How do you identify a new beginning? It's a directional move. Cash entering or exiting the market causes the natural break.

The trading unit on the opposite page started on 8/22 when money entered the market. The market came into balance briefly and then continued the directional move on 8/26. The market came into balance on 8/27 and has been balanced since then—even though activity established a new high on 8/28. In other words, even though activity on 8/28 extended the range, it was part of the sideways value area development.

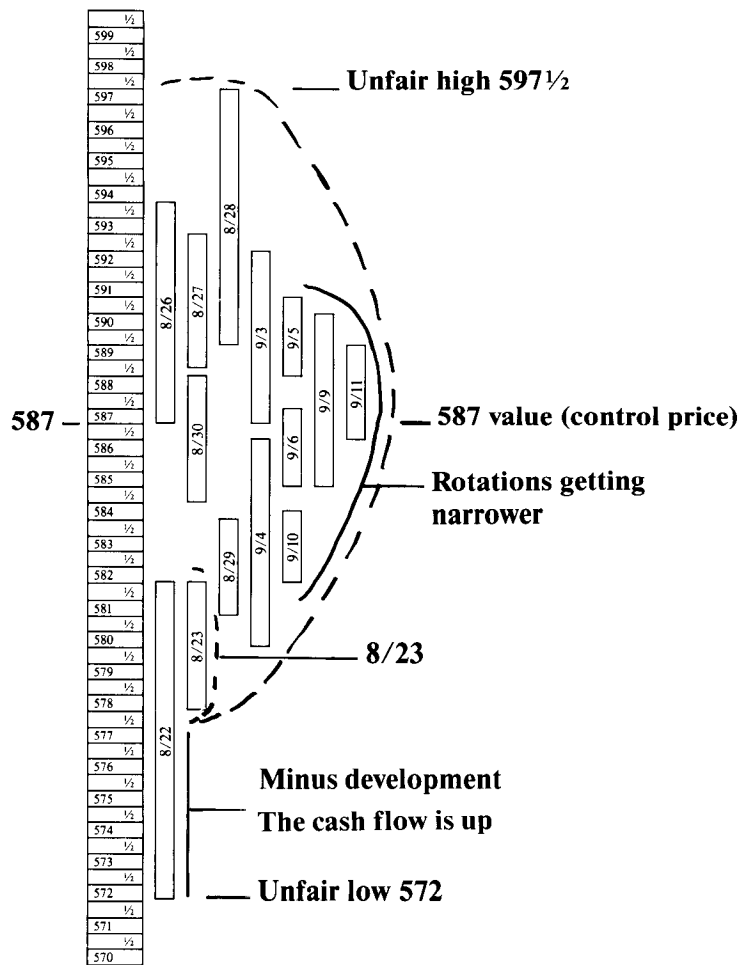
There is minus development from 572 to 578. Since development occurred above the directional move, the cash flow is up.

This unit—which we are going to call intermediate-term activity—seems to be developing around 587. This is the widest part of the distribution. So the control price—or value—in this time frame seems to be about 587. The three related price areas that define this trading unit are 572 at the unfair low, 597½ at the unfair high, and value roughly in the middle at 587.

On 9/11 we're trading at the intermediate-term mean (about 587). The rotations have been getting narrower. The market is becoming efficient. It appears that this unit may be coming to an end.

Whenever the market becomes efficient, it is in position to trend. *Will the move be up or down? The direction, of course, depends on news events and market developments.* We're going to consider the big picture so that we can react rapidly—no matter what happens.

**Intermediate-Term
Time Frame:
8/22/91 to 9/11/91**



First, let's relate this intermediate-term unit back in time to a larger unit.

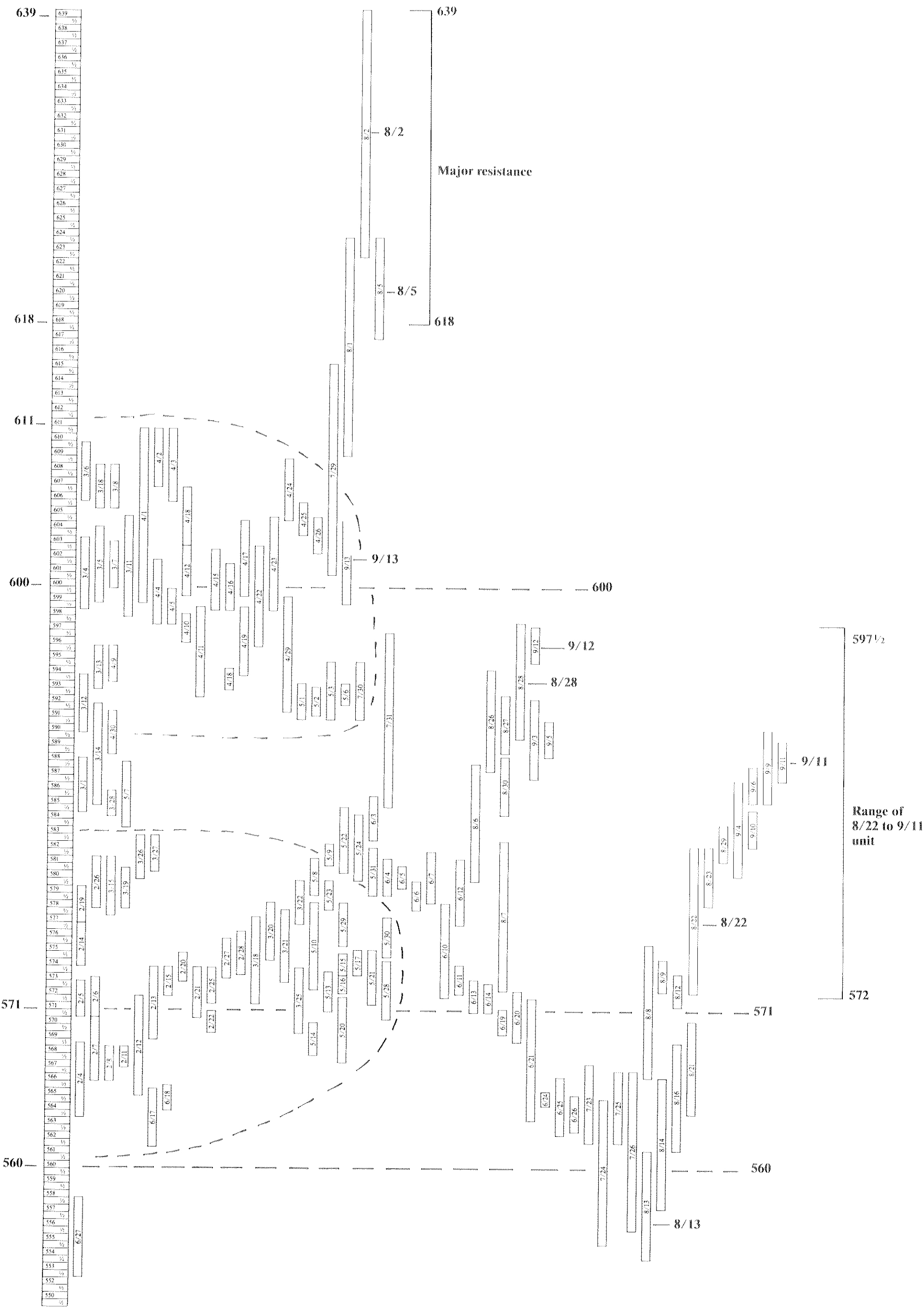
On page 237, you can see how the intermediate unit relates to the larger unit. The market has come into balance between the 600 equilibrium area (value area) and the 571 equilibrium area.

Note that the beginning on 8/22 occurred at 572. So the unfair low of this unit (572) is just above the 571 mean of the lower value area in the long-term distribution. The unfair high at $597\frac{1}{2}$ is just below the 600 mean of the higher value area in the long-term distribution.

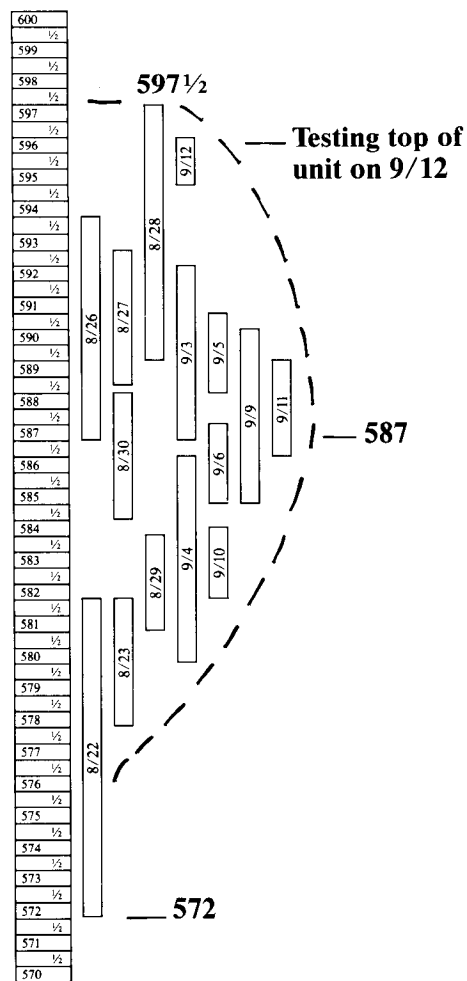
Finally, what is the perception of value at the time?

There is uncertainty about the harvest and about Russian export demand; market participants can't decide if beans are worth 600 or 571. The market has come into balance roughly between these two prices while it waits for more news. Keep this in mind as we monitor activity. It's your background.

Soybean Futures: 2/4/91 to 9/13/91 Long-Term Activity



Intermediate-Term
Time Frame:
8/22/91 to 9/12/91



See the opposite page. On 9/13, the market opens at 604—above the 600 reference point—but it can't trade higher than 605. What happens next? The market reverses and trades down in E, F, G, H, and I periods. Then what happens? 595½ stops the move, and you can see from the Market Profile graphic that the session developed around 599½. (Remember, first there's a price that stops a move and then there's a price around which the move develops.)

Market participants might be uncertain about value—this is a down day—but they're not rejecting the 600 price level because the session developed around 599½. This suggests that they believe beans are worth 600.

In addition, the 70% range is near the top of the session's range. This shows that, even though the range extension is down, the market wasn't facilitating trade on the downside.

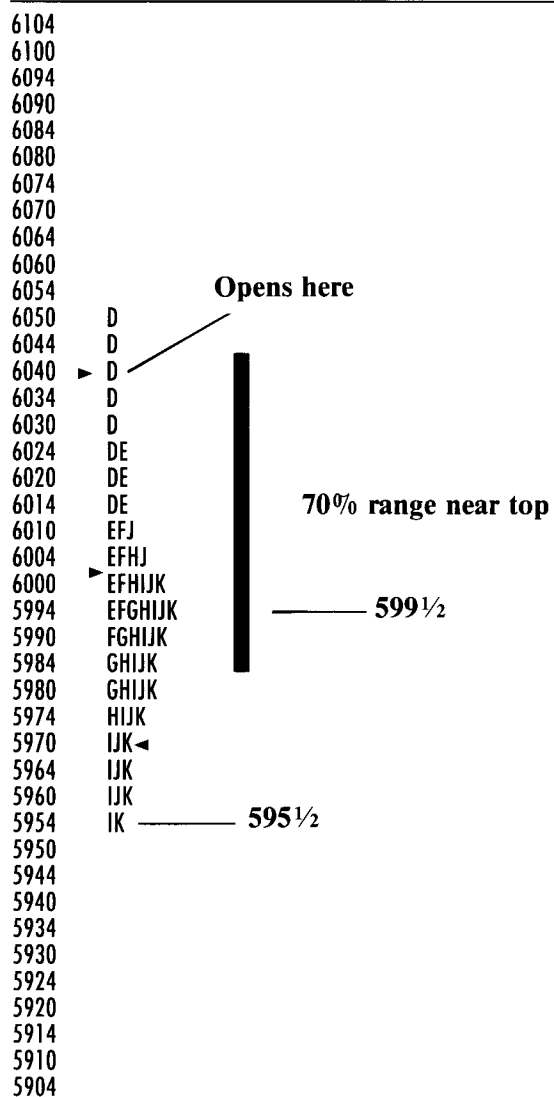
Where are we in relation to long-term development? See page 237. We're testing the 600 mean. Is that parameter going to hold? Consider what happened in the session. 595½ stopped the down move; value is mostly above 600. These developments suggest that the 600 parameter will hold. In other words, the parameter will contain the move on the downside and provide a floor.

Before the market opens on 9/16, there is talk again about the possibility of a severe frost. What happens in the marketplace?

Near-Term Activity: 9/13/91

SX1

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■ 9/13

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See the opposite page. On 9/16, the market opens in the critical 600 price area. This is the mean of the longer-term unit...see page 237...roughly the top of the intermediate-term unit...see page 239. Initially, market participants test the downside.

To be good on the downside, the market has to trade below 600. What happens here? $599\frac{1}{2}$ stops the move. The market reverses. We're trading at yesterday's control price ($599\frac{1}{2}$) or mean. A new beginning generally starts at the mean. So the buying as the market reverses in D period could be the start of a new move to the upside.

Activity picks up as E period moves higher. This suggests that the market is going to test the upside above 600. Let's say you go long at $602\frac{1}{2}$.

How long do you hold?

F period can't trade below $605\frac{1}{2}$. The single ticks in E period show strong buying competition from $603\frac{1}{2}$ to 605. This buying is between your trade location at $602\frac{1}{2}$ and the developing value area at $605\frac{1}{2}$. It is a form of minus development. The cash flow is with you. You continue to hold.

The market approaches the 610 level in G period. In H period, market participants trade through the 611 level. (This is the top of the long-term equilibrium area controlled by 600. See page 237 again.) The H period move continues up to $614\frac{1}{2}$. This price level brings in selling in I period which stops the up move.

Your trade location is $602\frac{1}{2}$. You might start to think of offsetting when the selling (an opposite response) enters in I period. Why? The selling suggests that the market is shifting from imbalance to balance and this could mean that the range expansion phase is over in this session.

As noted in Part IV, first there is a price that stops the directional move. $614\frac{1}{2}$ seems to have stopped the move. Then there is a price around which the market develops. We could have found a fair price at 609. This price already traded in three time brackets: E, G and H periods. If you don't want to carry the position overnight, these are reasons to look for a spot to exit.

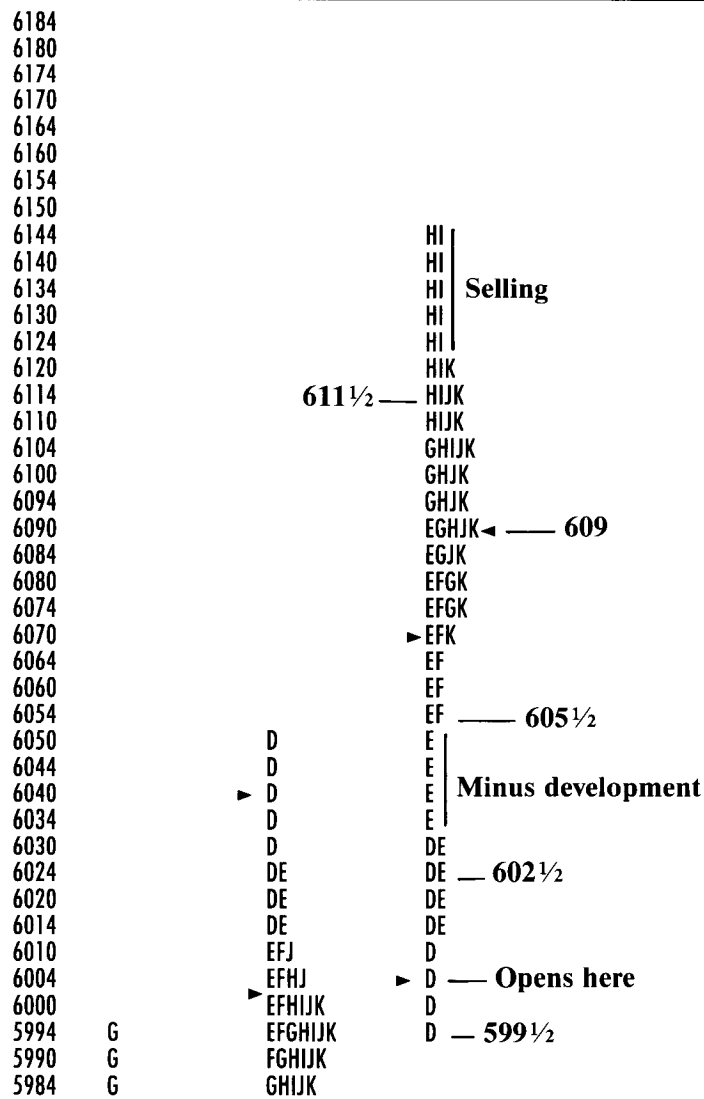
Now, let's say you put the position on because you believe the prospects of a frost will take the market higher. *In other words, you're a longer-term trader. How long do you hold?*

The market came into balance around 609 today. Your trade location ($602\frac{1}{2}$) is below value. The single prints in E period (minus development) indicate that the cash flow is up because the market developed above the directional move. You can wait to see if the frost materializes before making a decision to exit.

Near-Term Activity: 9/16/91

SX1

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■	9/12	9/13	9/16
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See the opposite page. On 9/17, the market trades sideways – 610 now seems to be controlling activity. The downside test in F period fails. 607 stops the move. The market tries to trade down again in J period and again fails. J period can't trade lower than 609. Your trade location ($602\frac{1}{2}$) is good in relation to today's activity because the minus development between $603\frac{1}{2}$ and $605\frac{1}{2}$ is still there. There is also minus development from $599\frac{1}{2}$ to 601.

But how does today's activity relate back in time to the larger unit?

In the intermediate-term, value – the control price – seems to be roughly 587. See page 239. In the long-term, value – the control price – seems to be roughly 560. See page 237. Therefore, near-term activity is currently above both intermediate- and long-term value.

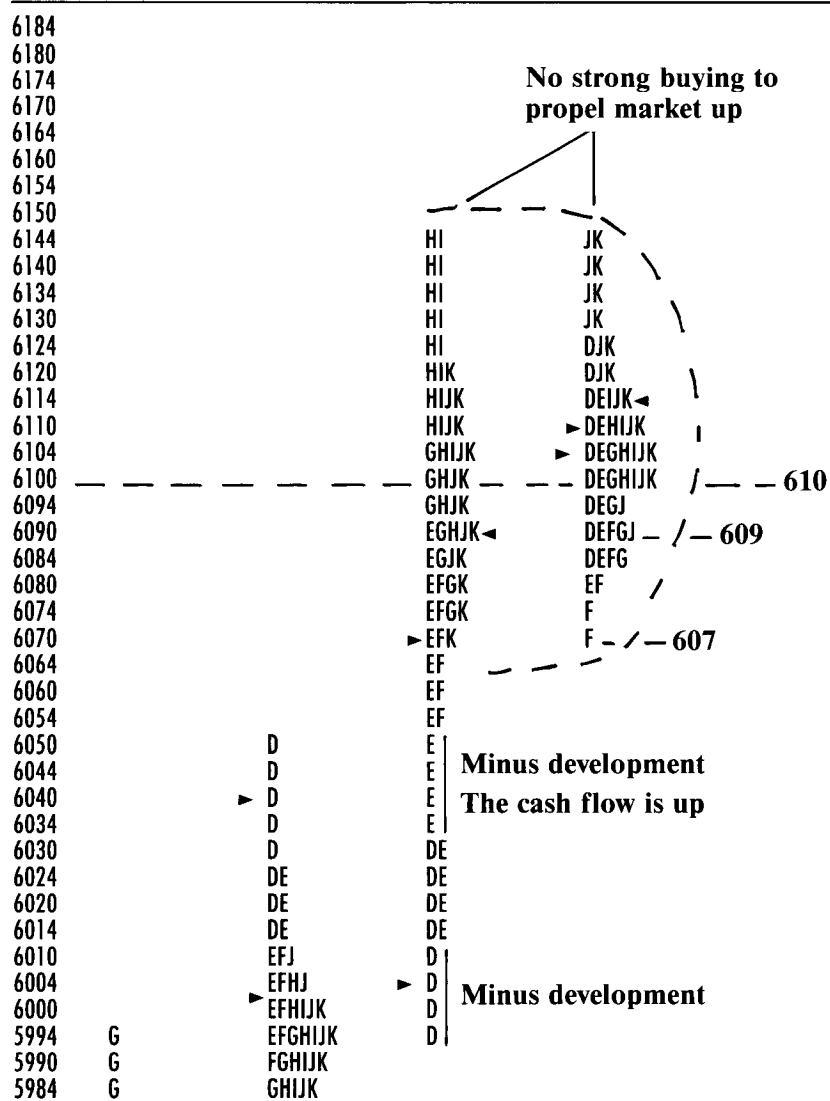
You don't have to make a decision yet because the market is still balanced. If you don't see some strong buying at this level soon, however, you might start to think about offsetting.

The lack of buying here is a form of minus development. In order to develop at a higher level, the market needs a directional move up. We're not getting it. The minus development suggests that the cash flow is down in a longer-term time frame.

Near-Term Activity: 9/17/91

SX1

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On 9/18...see the opposite page...the market opens at 613 – above the 611 parameter. (611 is the top of the long-term value area around 600...see page 237.)

Market participants initially test the upside in D period. The move up stops at 616 and the market trades down in E period. Buying comes in, however, and stops the down move at 610½. It seems as though the near-term mean at 610 is containing activity on the downside. *You continue to hold.* Now, the market reverses and approaches the 618 level.

There is major resistance above 618. The beginning of the down move that took the market from the 640 level on 8/5 back to the long-term mean (560) on 8/13 is above 618...see page 237.

The range extends to 617½ in I period. J period tests 617½ again but can't reach 618. J period starts to reverse. It seems that the resistance is going to hold. *You offset.*

Is it time to go short? How is the market trading at this critical price level?

You can see from the activity on the opposite page that market participants are not trading confidently. Why? The more uncertain the market, the more it rotates.

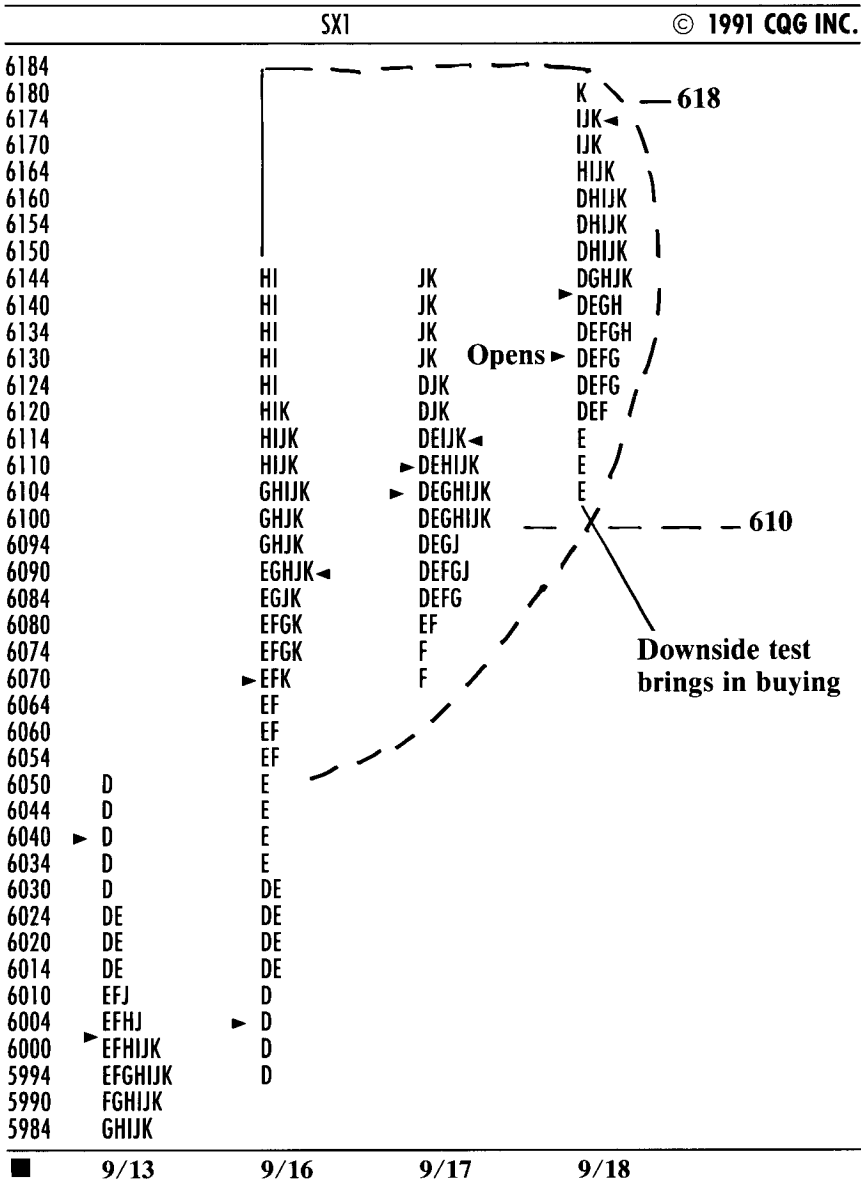
Sellers tested the downside in F period on 9/17 and in E period on 9/18 but weren't confident enough to continue. The result: attempts to expand the range down failed. But at the same time, there was no strong up move to propel the market through the 618 level.

As noted earlier, this is a form of minus development. Whenever a parameter holds, it contains activity. The result: minus development.

Why are the buyers uncertain? The prospect of a killing frost brought capital into the market on 9/16. Now, the weather is warming up. In addition, there is no firm news on the Russian grain sales.

The market still seems to be balanced and near-term value is moving up. (The control price is now 611½. Add the control price for each session, 609, 610½, 614½, and divide by three.) Nevertheless, near-term activity suggests that the 618 parameter might contain the up move. If the market can't develop at a higher level, the market might be getting ready to break.

Near-Term Activity: 9/18/91



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To sum up...

- We're at the high of the move that started at 572 on 8/22.
- There is major resistance above us.
- There has not been any strong buying at the 618 level.
- If the market can't trade up, it's logical to anticipate a test of the downside.
- Since market participants are uncertain and uncertain activity is volatile, the capital that entered the market on 9/16 might exit. We could trade back to the intermediate-term control price at 587.

This is the background. We're going to look for a spot to put on a short position if activity confirms our bias.

See the opposite page. On 9/19, the market opens below $611\frac{1}{2}$ at 608 and initially tests the upside in D period. What happens?

Market participants don't trade above 609. We can't reach the control price of $611\frac{1}{2}$. This is a form of minus development. To be good on the upside, we have to trade above the near-term control price and $611\frac{1}{2}$ seems to be containing activity.

The market reverses and trades down to 604 in F period. The minus development on 9/16 contains the move and buying comes in. The market reverses again in G and H periods.

As noted above, the control price for this near-term unit is $611\frac{1}{2}$ and the market can't make it back to this price. H, I and J periods can't trade above $609\frac{1}{2}$. This seems to be the evidence we're looking for. The market reverses. You go short.

How long do you hold?

K period starts trading at 607. Then the market trades down opposite the minus development from $603\frac{1}{2}$ to $605\frac{1}{2}$ on 9/16—taking out the single prints. Some of the buyers are liquidating.

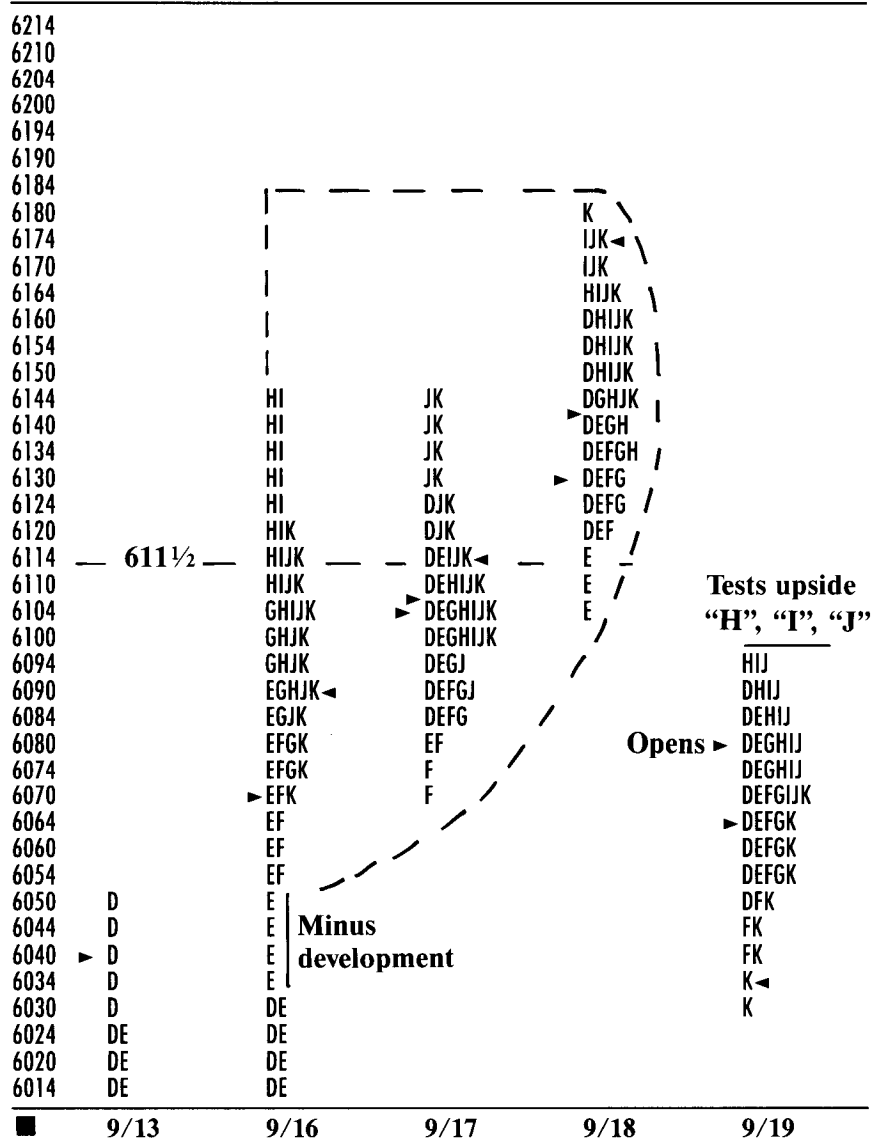
In other words, some of the money that entered on 9/16 is exiting. But we're at another parameter and it is K period. This session is almost over. The market is extremely uncertain (tested the upside initially in D period, then the downside in F period, then the upside again in H, I and J periods and now the downside again in K period) and thus volatile. You're not comfortable holding the position overnight. *You offset.*

At the same time, we're approaching the beginning of the up move on 9/16. Let's relate this activity back in time to a larger unit.

Near-Term Activity: 9/19/91

SX1

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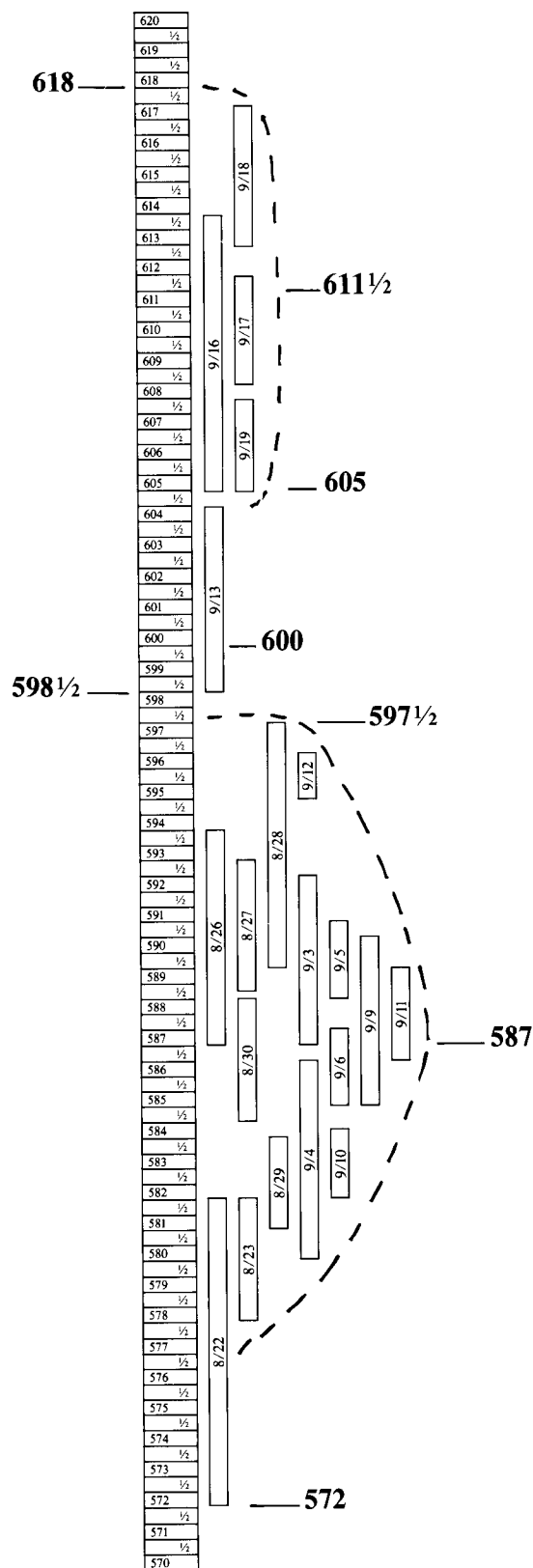
See the opposite page. We're at the bottom of the balance area around $611\frac{1}{2}$. If we trade through the 605 to $598\frac{1}{2}$ area, we could break the control of $611\frac{1}{2}$.

If the liquidation brings in new selling, this could be the start of something new to the downside.

If the market trades through the 600 level on heavy volume, it could continue down—first to the intermediate-term control price of roughly 587 and then to the low parameter of the intermediate-term unit at 572. If the market trades through the 572 level, it could continue down to the long-term control price of roughly 560...see page 237.

What happened on 9/20?

**Intermediate-Term
Time Frame:
8/22/91 to 9/19/91**



See the opposite page. Before the market can open, weather forecasters are again mentioning the possibility of another cold wave next Monday and Tuesday. It is possible—not likely but possible—that temperatures might be lower than this past Thursday (9/12). Russian grain sales are still a question mark.

The market opens above the $611\frac{1}{2}$ mean at 615 and initially tests the upside. The up move reaches 618, bounces off that price level and reverses.

The 618 area is a near-term and a longer-term parameter.

Market participants have been uncertain about violating it. The market tested the 618 level on 9/18 and couldn't trade above it. When the market tests this area again today and bounces off, it appears that the market has indeed rejected the upside.

This seems to confirm our bias. *You go short.* (We'll use the same reference points to monitor activity on the way down that we used on the way up.)

Now that the position is on, how long do you hold?

D period trades below the $611\frac{1}{2}$ mean to $608\frac{1}{2}$. E period continues the down move to 607, stops and trades back up to $611\frac{1}{2}$. This is the near-term control price or mean. As noted above, it's a parameter that can contain the move. If the market is going to be good on the upside, buyers have to trade above $611\frac{1}{2}$ with conviction.

But the market doesn't trade above $611\frac{1}{2}$. This unit (unfair high 618, unfair low $606\frac{1}{2}$, value about 609) has come into balance. We have a J shape. G period can't trade above 610. Rotations are getting narrower. The unit seems to be coming to an end.

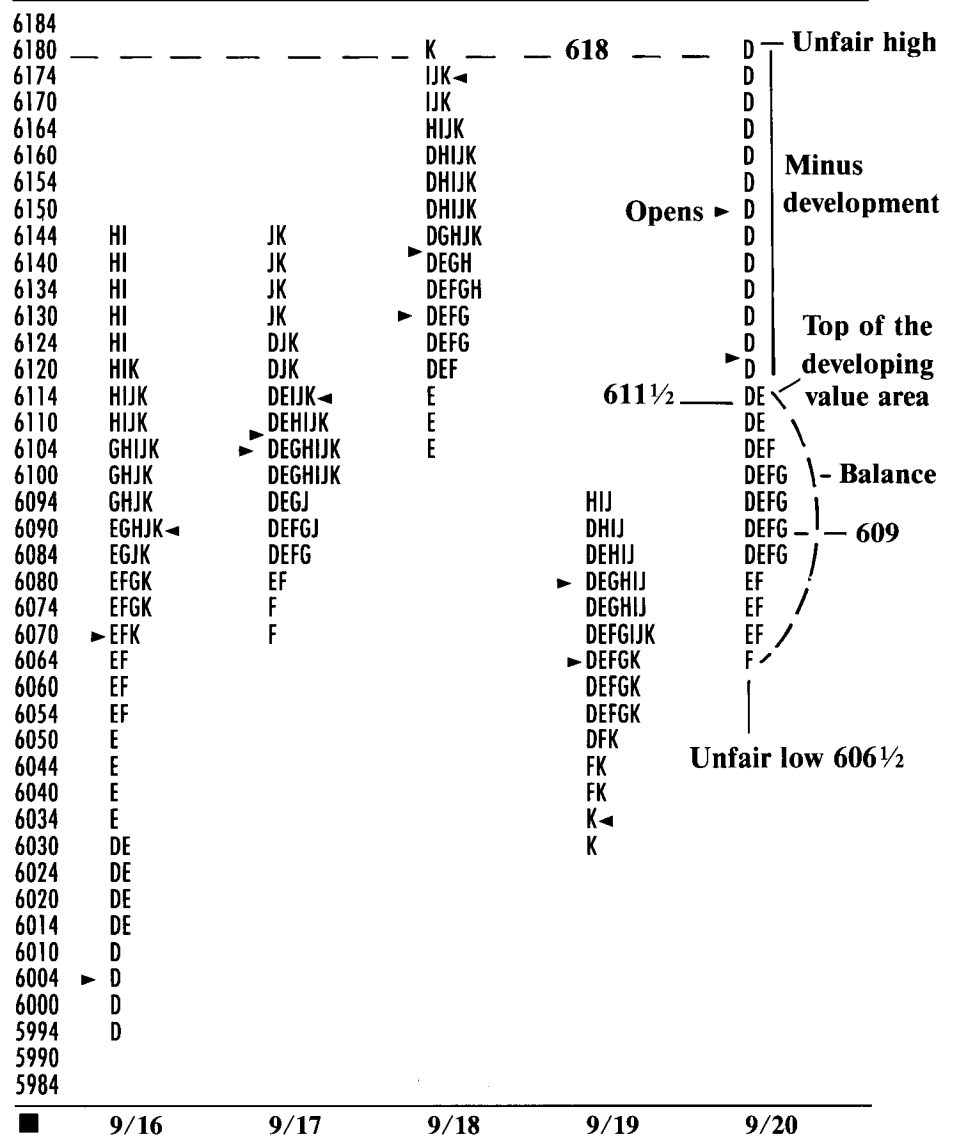
Is the next directional move going to be up or down?

There is minus development from 618 to 612. The cash flow is down. (The market developed value below the directional move in D period.) The top of this unit's developing value area is $611\frac{1}{2}$. So today's activity is developing value below the $611\frac{1}{2}$ control price. In other words, $611\frac{1}{2}$ appears to be containing activity. The market seems to be getting ready to tip to the downside. *You continue to hold.*

Near-Term Activity: 9/20/91

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See the opposite page. The market tips in H period. The rest of the money that entered the market on 9/16 seems to be exiting. The H move is a new beginning in the session. As noted earlier, a new beginning generally starts at the mean and you can see that the H move starts just below 609. (The widest part of this unit is 609½ to 608. Also note how the market ends and begins in the same price area.)

The H period move reaches 600. We're at a critical price level again. The 600 level could stop the move—at least in this session. *Do you continue to hold?*

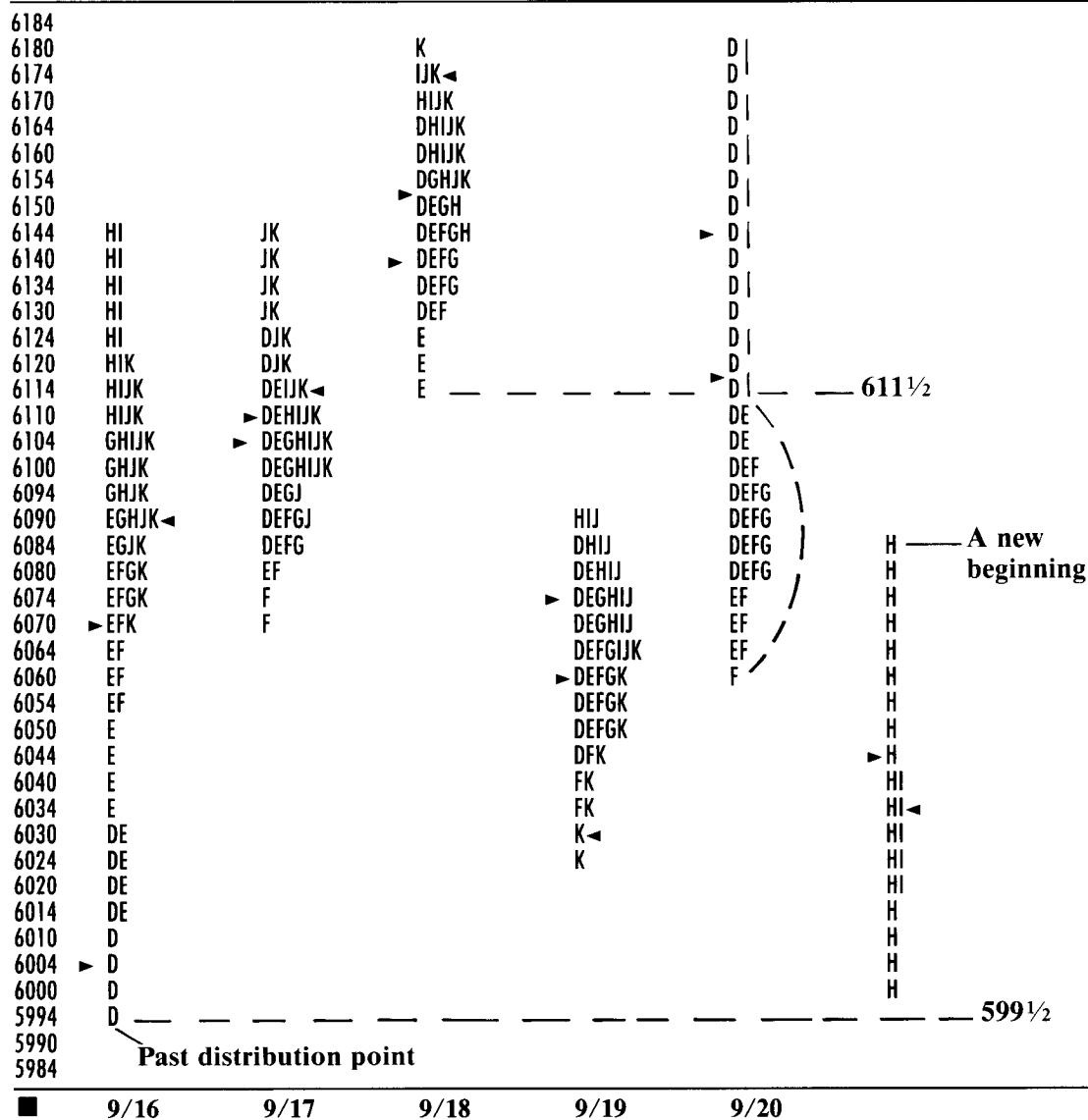
Let's consider the situation. We're approaching a "past distribution point" (the up distribution started at 599½ on 9/16 when capital entered the market).

What's happening in the marketplace?

Near-Term Activity: 9/20/91

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See the opposite page. The down move brings in buying and I period retraces – but just to 604. The bottom of the balance area around $611\frac{1}{2}$ is 605 (see page 251). J period starts trading down. 605 seems to be containing the move on the upside. Still, the market closes in another 45 minutes and 600 is a potential parameter. This price level could contain the range expansion in this session.

A short-term trader might look for a spot to exit.

J period trades down to 599 and buying comes in again. Now the market seems to be coming into balance (in J and K periods). This seems to be the range for this session.

If you're a longer-term trader, do you continue to hold?

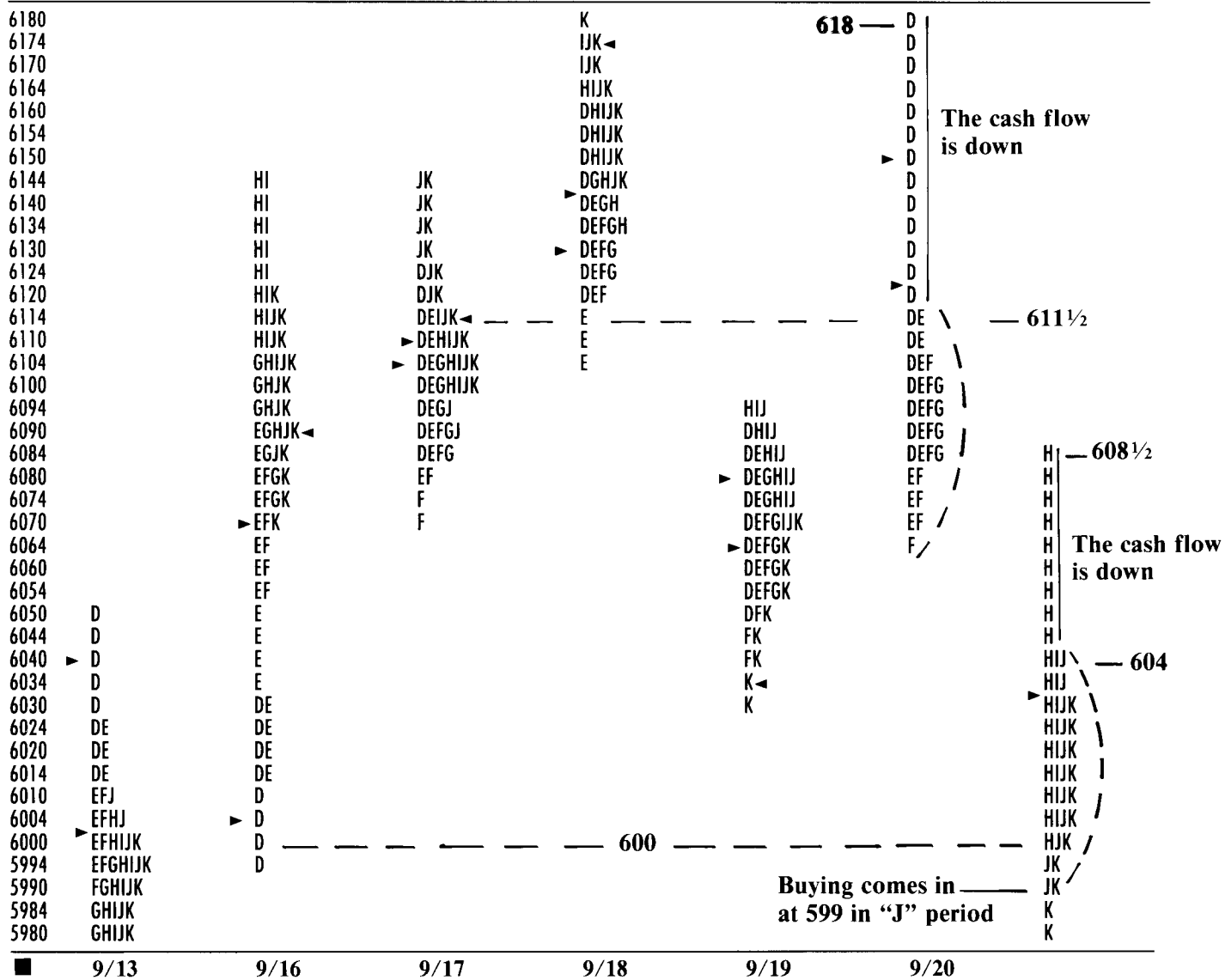
- The money that entered the market on 9/16 has exited.
- The cash flow is down (single prints from 618 to 612 and from $608\frac{1}{2}$ to $604\frac{1}{2}$). In other words, now the minus development is to the downside.
- The market is developing value just above the 600 level and should have to move lower to shut off the activity.
- The conditions that affect value seem bearish: the cold wave is only a possibility, Russian grain sales aren't confirmed.
- We've traded below $611\frac{1}{2}$ and the activity seems to have broken the control of $611\frac{1}{2}$.
- The price influence seems to be forward. The intermediate-term control price at 587 seems to be pulling the market down.

Against this background, a long-term trader might decide to hold the short position.

Near-Term Activity: 9/20/91

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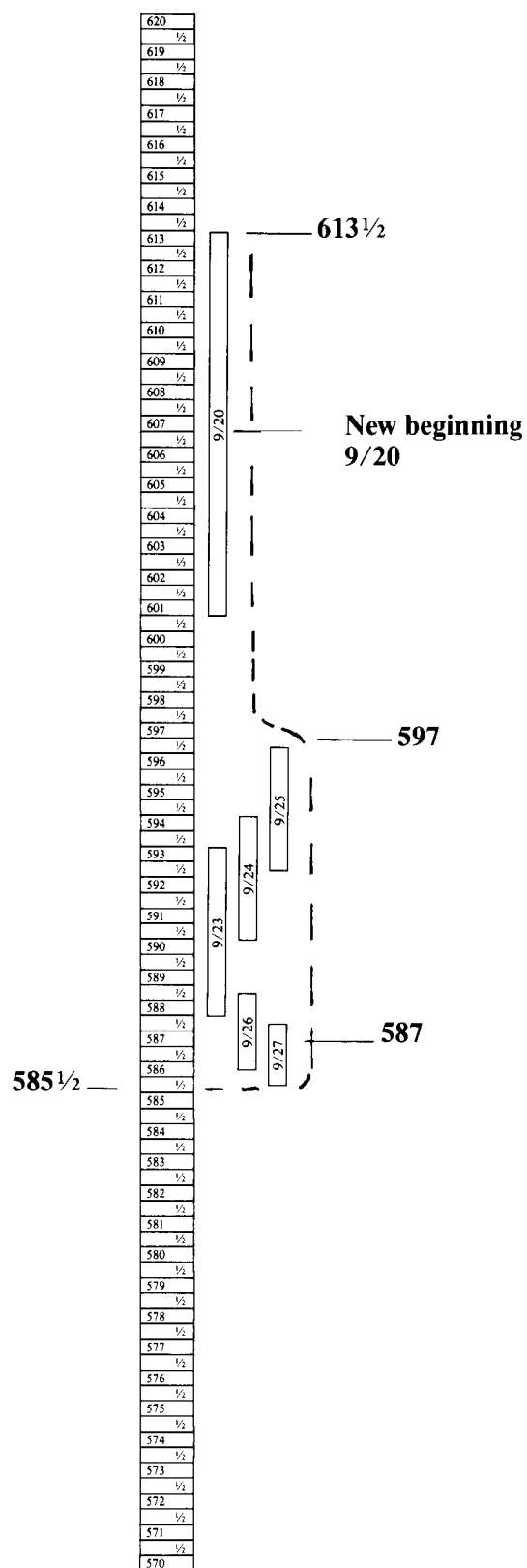
What happened after 9/20?

See the opposite page. The new beginning on 9/20, propelled the market down to 587 on 9/26 and 9/27. The market tested the upside on 9/25 but value only reached 597. Now we're at the bottom of the near-term unit.

The cash flow is down because the market developed below the directional move. In other words, there is minus development from $613\frac{1}{2}$ to 597.

Now, let's relate this near-term part to the larger whole.

Near-Term Unit:
9/20/91 to 9/27/91



See the opposite page. You can see that activity on 9/25 was testing the top of the balance area and failed to violate it. On 9/26 and 9/27, the market is tightly balanced at the intermediate-term control price (587). It is in position for a directional move.

This whole unit (8/22 to 9/27) was a test of the 618 level. That parameter held. If the market can't facilitate trade on the upside, anticipate a test of the downside. This is exactly what happened. By mid-October, the market was below the long-term control price at 560 and was testing the 546 level.

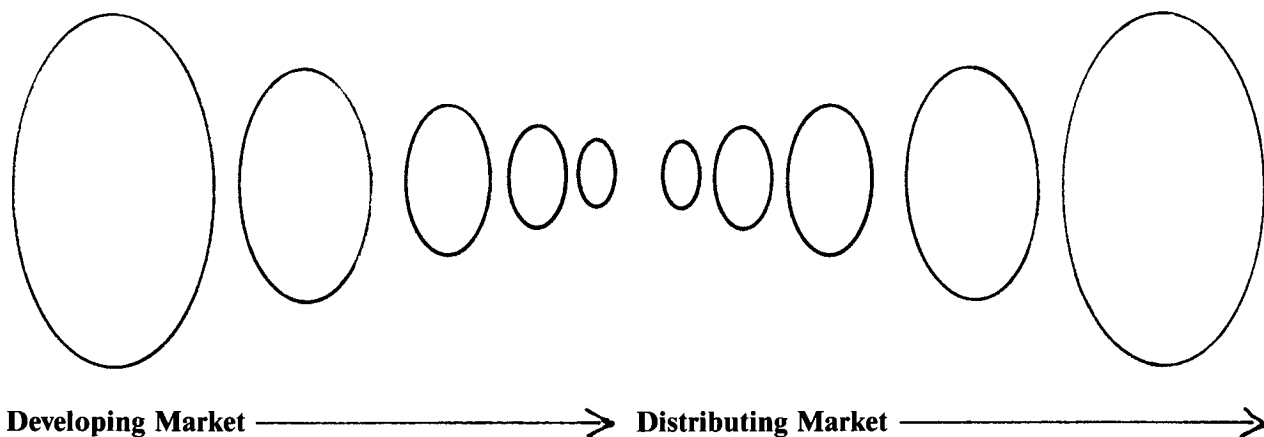
Before we sum up, let's relate this entire example to the graphic below.

The long-term market was developing value. So the move up to 618 and back down – first to 587 (the intermediate-term control price) and then to 560 (the long-term control price) – was part of the long-term development phase. In other words, it was simply a long-term value area rotation.

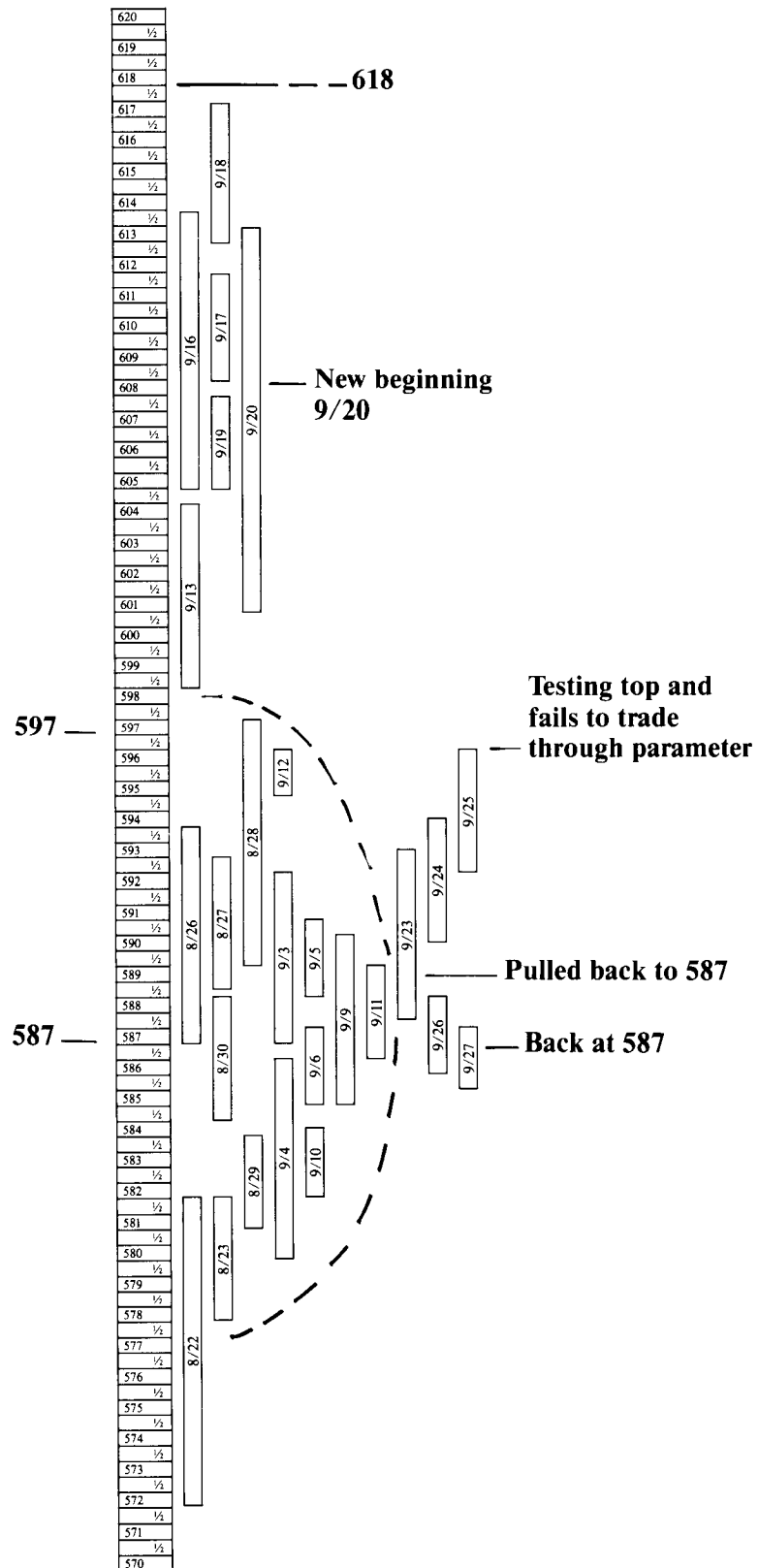
Therefore, we used reference points from larger circles (longer-term time frames) to trade smaller circles (shorter-term time frames).

The market was pulled up, away from value, to 618 by a forward price influence and then pulled back – first to intermediate-term value at 587 and then to long-term value at 560 – by a backward price influence.

The price probe up to 618 failed because a backward price influence was dominant in the long-term time frame and, ultimately, the mean in the longest-term time frame controls activity.



**Intermediate-Term Unit:
8/22/91 to 9/27/91**



To Sum Up

The market moves from control price to control price.

It is propelled from one equilibrium area to another by money entering or exiting the market when market participants' perception of value changes. This perception—commonly called market sentiment—is a key factor in any market analysis because it sparks activity.

While market sentiment is intangible, you can see how market participants feel by monitoring their behavior.

The way market participants trade in relation to value (the control price or mean in each equilibrium area) indicates whether they are bullish or bearish. Their buying or selling—or the lack of activity—can help you judge if the old control price still represents value...or if a new higher or lower control price is coming to the fore.

With Market Profile data, you can identify the control price—or value—in each time frame.

The format also lets you see whether market participants are currently accepting or rejecting these various control prices. If a control price is containing activity—in other words, stopping the move—they are rejecting it. As you work with the data, be aware of previous control prices because they can establish parameters for a current trading range.

In our example...see page 237...600 (the control price for the top equilibrium area) and 571 (the control price for the bottom equilibrium area) roughly defined the range.

It does take time to identify and keep track of control prices in all time frames. Nevertheless, if you make the effort, you'll see that this information is critical. Why? In a nutshell, it can help you to buy low and to sell high more often.

In Part VI of this Home Study Guide, we'll relate LDB® volume data to the distribution process.

You'll see why volume data, by itself, is meaningless and how to relate LDB data to activity (buying or selling) in order to anticipate whether the market is going to move up, down or sideways.

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PART VI

LIQUIDITY DATA BANK® VOLUME ANALYSIS



Chicago Board of Trade

Internet Address *<http://www.cbot.com>*

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**PART VI:
LIQUIDITY DATA BANK®
VOLUME ANALYSIS**

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Market Profile® data consists of two parts. Part I organizes price and time into the Market Profile graphic. The Liquidity Data Bank® (LDB® for short) is Part II. It adds actual volume data to price and time. Volume is significant because it confirms market activity and price direction. In other words, volume reinforces what you see in the profile graphic.

We're going to use the volume data to identify signs of continuation or change in the marketplace. This is always the issue—whether you're using historical LDB data or on-line volume as it is developing. We're using historical LDB data in this section of the Study Guide. The same principles, however, apply to on-line volume.

Basically, we're using the data to judge how effectively the marketplace is facilitating trade in a direction. This judgment is of key importance to profitable trading decisions.

It sounds simple enough. In practice, however, it is one of the most difficult decisions a trader has to make. Why? Because trade facilitation is intangible. Even if you're using a buy/sell system with preset entry and exit prices, you still have to make a decision: whether or not to make the trade. Deciding if a trend is going to continue or if it is going to reverse is always going to require subjective judgment.

LDB volume data can help you quantify this choice.

Used properly, LDB volume data can help confirm continuation of a move or indicate a change in market direction. Therefore, it can help you to react earlier and to make better decisions. If volume increases as price moves up or down, the market is facilitating trade. If the market is facilitating trade, the move generally tends to continue. Why? The market has to go higher or lower to shut off the activity. If, on the other hand, volume decreases as price moves up or down, the move might be coming to an end.

As we move forward, you'll see for yourself that LDB volume provides some of the most valuable information that the market generates. Nevertheless, it is critical to recognize that volume data by itself is meaningless.

Why? Because volume created by selling means one thing and volume created by buying means something quite different. Therefore, to use LDB volume effectively, it is essential to know what market participants are doing. Are they buying? Are they selling? Are they standing on the sidelines? We're going to relate volume to their behavior in order to anticipate if the market is going to move up, down or sideways.

Of course, what we're talking about here is the distribution process. Therefore, we're going to take LDB volume and relate it to the end product of this process: the market's natural units—in other words, the distributions in all time frames.

The beginning of each unit is the low of an uptrend or the high of a downtrend. And knowing where the unit's volume base is located can help you judge if a trend is going to continue at an increasing rate, at a decreasing rate, or if it is going to come to an end. We'll relate volume data to activity as we move forward, but first, a look at an actual report.

An LDB Report Comprises...

Breakdown Of CTI Market Participants

There are four CTI volume classifications of market participants:

- CTI1** – local floor traders
(Personal accounts)
- CTI2** – CBOT commercial clearing
members (Proprietary or
house account)
- CTI3** – members filling orders for
other members
- CTI4** – members filling orders for
the public or for any
other type of customer

*CTI stands for Customer Trade Indicator

The example on the right shows the Liquidity Data Bank report for Sep 93 U.S. Treasury bond futures for 6/24/93.

...The first column shows the **price range** for the session.

...The second column shows the **actual volume at each price**. (Currently, LDB volume reflects both sides of a transaction. That is the buy and sell side of each trade. To get the actual number of contracts traded, divide by two.)

...The third column shows the percent of the **day's total volume that traded at each price**.

...The fourth column shows the **CTI1 (Customer Trade Indicator) activity at each price**. This is volume executed by local floor traders (i.e., CBOT members trading for their own accounts).

...The fifth column shows the **CTI2 activity at each price**. This is volume executed by CBOT commercial clearing members trading for their house account (i.e., an investment bank trading for its house account).

To get the residual volume at each price—in effect, the outside customer participation—add the two percents together (CTI1 + CTI2) and subtract from 100.

The last column shows the session's **completed Market Profile graphic**.

Underneath the six columns, you can see...

...The **70% range**. This is the range in which 70% of the session's trade occurred—in other words, the value area. In this session, it is 112-30 to 113-02.

...Under the CTI2 column, you can see the **average commercial CBOT clearing member participation in the value area**.

...The report also shows **total volume for this particular contract** and **total volume for all bond contracts** currently trading.

As noted earlier, volume data in a vacuum is meaningless. Therefore, before we analyze a report, we're going to discuss 1) how to relate volume data to the surrounding situation and 2) why the categories in the LDB report—total volume, commercial behavior, volume distribution throughout the range, etc.—can help you understand what's happening in the marketplace.

LIQUIDITY DATA BANK® REPORT

VOLUME DETAIL REPORT FOR 06/24/93

Updated 06/24/93 18:14:01

A

Commodity – U.S. Bonds

Future – SEP 93

NOTE: Volume figures shown are actual number of contracts multiplied by 2.

Contract SEP 93	B Trade Price	C Volume	D % Of Total	CT1 1%	CT1 2%	Half-Hour Bracket Times At Which Prices Occurred	G
	112 18/32	20	0.0	0.0	50.0	G	
	112 19/32	4724	0.6	E 28.5	F 33.7	noprsG	
	112 20/32	4496	0.6	31.0	8.4	mnoprsG	
	112 21/32	2204	0.3	37.7	2.7	mnG	
	112 25/32	20	0.0	60.0	0.0	O	
	112 26/32	15074	2.1	58.0	6.9	Oc	
	112 27/32	30948	4.2	57.8	12.2	Ocd	
	112 28/32	37148	5.1	53.2	13.8	OPcd	
	112 29/32	23192	3.2	58.3	11.3	PQcd	
	112 30/32	59880	8.2	53.8	8.7	PQRSTXbcd	
	112 31/32	139030	19.1	59.2	12.6	PQRSTVWXabcde	
	113	166410	22.8	53.8	11.8	PQRSTUVWXabde	
	113 1/32	86520	11.9	52.9	15.8	PQRSTUVWXabde	
	113 2/32	71626	9.8	57.0	14.7	PRSTUVWa	
	113 3/32	34788	4.8	56.9	12.5	PRSUVa	
	113 4/32	33774	4.6	58.8	8.5	RS	
	113 5/32	13544	1.9	60.6	12.3	RS	
H	113 6/32	5356	0.7	52.1	1.2	R	
70% RANGE OF DAILY VOLUME	112 30/32 TO 113 2/32	523466	71.8	55.5	12.7	PQRSTUVWXabcde	
I						% OF TOTAL	
						CT11 CT12	
Total Volume for SEP 93 U.S. BONDS	—	728,754				55.5 12.4	
Total Volume for U.S. BONDS	—	732,086				55.6 12.3	
Total Spread Volume for SEP 93 U.S. BONDS	—	14,934				23.8 12.5	

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- A. The date and time the LDB report is compiled;** as of this writing hourly LDB updates are provided by the CBOT (in conjunction with the Board of Trade Clearing Corporation).
- B. Price levels at which nonspread trades occurred** (and cleared) as of the time of the report.
- C. Nonspread volume** at each traded/cleared price level as of the time of the report; generally equal to the actual number of contracts multiplied by 2 since both buy and sell sides of a trade are reported separately¹.
- D. Nonspread volume** at each traded/cleared price level as of the time of the report **expressed as a percentage of total contract volume.**
- E. Local floor traders' nonspread volume** (trading for their own accounts) at each traded/cleared price level expressed as a percentage of total contract volume as of the time of the report.
- F. CBOT commercial clearing members' nonspread volume** (trading for their house accounts) at each traded/cleared price level expressed as a percentage of total contract volume as of the time of the report.
- G. Time brackets** at which the nonspread price levels were traded/cleared as of the time of the report. Note that Market Profile/LDB reports are available from the CBOT by day, evening, or GLOBEX® trading sessions, or (as shown) the composite².
- H. The Value Area** is defined as the price range where 70 percent of the nonspread traded/cleared volume took place (i.e., one standard deviation rounded up to 70 percent).
- I. Futures nonspread (contract and commodity) volume and spread volume summary information;** except for grain futures, volume is generally equal to the actual number of contracts multiplied by two since the buy and sell sides of a trade are reported/counted separately. Note that spread information comes from the pit traders' trading cards. Also, more detailed spread information is available from the CBOT as a special request item.

¹However, as of this writing, the LDB report shows CBOT grain futures trading in a contract size of 5,000 bushels (but the last three zeros are left off). Therefore, an adjustment factor of 10 must be used to convert LDB grain futures volume numbers to traded contracts.

²For the Market Profile database at the CBOT (as of the time of this writing), all GLOBEX trades are shown in the G time bracket regardless of the actual times traded.

Why Does LDB Data Need A Context To Be Meaningful?

To demonstrate, we're going to consider the same volume situation in two different contexts. First, we'll relate it to buying and then to selling. You'll see for yourself that the conclusion in each case is different.

Relating volume to behavior is an unfamiliar approach for most traders. So we're going to start with relatively simple situations. We're using single sessions from 1988 to introduce the concept because they offer clear examples. As we move forward, you'll see that you apply the same principles to the distribution process—in other words, to the market's natural units, in short- and long-term time frames.

See example on page 271. Here's the volume situation: most of the volume is in the top half of the range.

Specifically, 57.4% of the day's total volume is in the top half of the range versus 42.7% in the bottom half. (A quick way to do this is to add the percentages in quadrants 1 and 2 for volume in the top half of the range; add the percentages in quadrants 3 and 4 for volume in the bottom half of the range.)

The 70% range is 93-19 to 92-26. So the value area—the range in which 70% of the day's trade occurred—is also near the top of the range.

Now let's say we're at the top of an up move.

You can see that the activity in this session is buying because the directional move is up. In A period, the market trades from 92-16 to 92-26. In J period, the market trades at 93-19. The profile graphic seems to indicate strong buying. Why?

The minus development (single prints) in A and E period show that cash is flowing directly into the market. Development above the directional move shows that the cash flow is up.

Does LDB volume confirm this strength? In other words, does LDB data suggest continuation of the trend?

Since the directional move is up, volume in the top half of the range shows that the activity level of the buyer is increasing as the price moves up. The market should have to go higher to shut off this activity. We're at the top of an up move. So volume at the top, in this case, suggests that the uptrend could continue.

Continuation

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 For 88/02/18 U.S. Bonds MAR 88 Updated 88/02/19 18:14:01
 Note: Volume figures are actual numbers of contracts multiplied by 2.

Volume Detail Report

Trade Price	Volume	% Of Total	CT11 %	CT12 %	Half-Hour Bracket Times At Which Prices Occurred	
93 19/32	1592	0.3	54.3	5.7	J	Directional move up
93 18/32	9028	1.7	55.9	14.7	JK	
93 17/32	18936	3.7	55.9	10.4	IJK	
93 16/32	15076	2.9	52.6	19.5	IJK	
93 15/32	24980	4.8	49.9	15.8	IJKL	
93 14/32	28894	5.6	60.2	12.4	GIJKL	
93 13/32	30908	6.0	60.0	14.5	FGHIJKL	
93 12/32	23682	4.6	52.9	12.3	FGHIJKL	
93 11/32	25892	5.0	62.3	10.9	FGHIK	
93 10/32	21724	4.2	58.1	11.9	FGHI	
93 9/32	12258	2.4	55.8	10.6	FGH	Minus development
93 8/32	12158	2.3	69.3	5.3	FGH	
93 7/32	7446	1.4	56.2	9.5	EF	
93 6/32	10554	2.0	58.0	9.1	EF	
93 5/32	12324	2.4	55.5	9.9	E	
93 4/32	9950	1.9	60.6	11.2	E	
93 3/32	6782	1.3	52.9	14.1	E	
93 2/32	24572	4.7	40.3	8.3	E	
93 1/32	2314	0.4	56.1	11.3	E	
93	5314	1.0	56.9	12.0	E	
92 31/32	3450	0.7	55.6	17.7	CDE	Minus development
92 30/32	16552	3.2	58.1	13.1	CDE	
92 29/32	12206	2.4	53.6	12.7	CD	
92 28/32	9772	1.9	58.3	12.5	CD	
92 27/32	9048	1.7	62.7	10.4	BCD	
92 26/32	15166	2.9	58.1	12.3	ABC	
92 25/32	16280	3.1	61.0	10.3	ABC	
92 24/32	18000	3.5	57.2	11.0	ABC	
92 23/32	8144	1.6	54.1	21.6	AB	
92 22/32	12160	2.3	57.8	13.3	AB	
92 21/32	22110	4.3	54.9	15.3	AB	Minus development
92 20/32	23034	4.5	50.8	12.6	AB	
92 19/32	16150	3.1	60.1	12.4	A	
92 18/32	18412	3.6	59.2	19.3	A	
92 17/32	11728	2.3	59.0	12.2	A	
92 16/32	948	0.2	43.7	21.1	A	

Value area at the top shows that buying increased as price moved up

Total Volume U.S. Bonds Mar 88=517544 Total Volume U.S. Bonds=554518

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 For 88/02/18 U.S. Bonds MAR 88 Updated 88/02/18 18:14:01

Volume Summary Report

57.4% in top half of range (93-19 to 93-02)

Top half

42.7% in bottom half of range (93-01 to 92-16)

Bottom half

Category	Price	Tot. Vol.	%	CT11%	CT12%	Bracket Times
OPEN	93 17/32	22274	4.3	57.8	10.5	E
TO	93 15/32					
CLOSE	93 14/32	53874	10.4	55.4	14.0	GIJKLM
TO	95 15/32					
HIGH	93 19/32	1592	0.3	54.3	5.7	J
QUADRANT	93 19/32	178988	34.6	57.7	13.4	FGHIJKL
1 TO	93 11/32					
QUADRANT	93 10/32	117768	22.8	54.8	9.8	EFGHI
2 TO	93 2/32					
QUADRANT	93 1/32	90102	17.4	58.3	12.1	ABCDE
3 TO	92 25/32					
QUADRANT	92 24/32	130686	25.3	56.1	14.4	ABC
4 TO	92 16/32					
LOW	92 16/32	948	0.2	43.7	21.1	A
70% Range of Daily Volume	93 19/32					
	92 26/32	370578	71.6	56.3	12.1	ABCDEFGHIJKL

Value area

Now let's consider the same volume situation in relation to selling. See page 273. We're going to ask the same question: Does the volume indicate continuation or change? But here we're at the bottom of a downtrend.

You can see that volume is again in the top half of the range.

Of the day's total volume, 78.7% is in the top half of the range versus 21.4% in the bottom half. Furthermore, the spread between volume in the top and volume in the bottom is much stronger in this session than in the first example. (In that session, there was 57.4% in the top versus 42.7% in the bottom. In this session, it's 78.7% versus 21.4%.) Does the volume situation in this session also indicate continuation?

This time, remember, we're at the bottom of a down move. The minus development in I, J and K periods (single prints) shows that the cash flow is still down. In this case, however, the market developed first and then moved down directionally.

The volume base at the top of the range here suggests that the down move could be coming to an end. In other words, volume at the top of the range here suggests a change in market direction.

The same volume situation – volume in the top half of the range – meant something different in each case because volume in the first session reflected buying and in the second session, it reflected selling. The other crucial factor was where we were in the longer-term move.

To underscore that point, let's consider the same session in two different locations and ask the same question: Does LDB volume suggest continuation or a change in market direction?

Change

Liquidity Data Bank® Volume Detail Report
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 For 87/06/08 Corn DEC 87 Updated 87/06/08 18:03:21
 Note: Volume figures shown are actual number of bushels multiplied by 2.

Trade Price	Volume	% Of Total	CT11 %	CT12 %	Half-Hour Bracket Times At Which Prices Occurred
200 3/4	200	0.1	47.5	5.0	E
200 1/2	1990	1.3	50.3	1.3	E
200 1/4	3580	2.4	59.9	2.5	DE \
200	13250	9.0	30.9	26.4	DE \
199 3/4	13210	8.9	53.9	17.0	DEFH
199 1/2	17180	11.6	54.9	8.7	DEFGH
199 1/4	16510	11.2	54.7	10.8	DEFGH
199	24440	16.5	41.0	14.4	DFGHI
198 3/4	9060	6.1	54.8	13.0	DFHI
198 1/2	6340	4.3	39.2	22.3	DFHI
198 1/4	1240	0.8	44.0	19.0	I
198	3820	2.6	60.5	2.9	IJ
197 3/4	5480	3.7	59.9	21.4	IJ
197 1/2	7380	5.0	44.3	19.1	IJ
197 1/4	3160	2.1	48.1	20.4	J
197	2320	1.6	42.2	17.2	JK
196 3/4	3300	2.2	44.7	6.1	K
196 1/2	1790	1.2	56.1	20.4	K
196 1/4	2520	1.7	58.7	11.5	K
196	3520	2.4	52.6	10.4	K
195 3/4	2160	1.5	58.1	0.9	K
195 1/2	2910	2.0	66.8	6.4	K
195 1/4	2370	1.6	52.7	5.3	K
195	210	0.1	54.8	0.0	K

Total Volume Corn Dec 87=147940 Total Volume Corn=251100

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 For 87/06/08 Corn DEC 87 Updated 87/06/08 18:03:21

78.7% in top half
 of range (200 3/4 to 197 3/4)

Top half

21.4% in bottom half
 of range (197 1/2 to 195)

Bottom half

Category	Price	Tot. Vol.	%	CT11%	CT12%	Bracket Times
OPEN	198 3/4	33500	22.6	44.7	14.7	DFGHI
TO	199					
CLOSE	197	5620	3.8	43.7	10.7	JK
TO	196 3/4					
HIGH	200 3/4	200	0.1	47.5	5.0	E
QUADRANT	200 3/4	65920	44.6	49.9	13.9	DEFGH
1 TO	199 1/4					
QUADRANT	199	50380	34.1	46.8	15.1	DFGHIJ
2 TO	197 3/4					
QUADRANT	197 1/2	17950	12.1	46.0	16.8	IJK
3 TO	196 1/2					
QUADRANT	196 1/4	13690	9.3	57.7	7.2	K
4 TO	195					
LOW	195	210	0.1	54.8	0.0	K
70% Range of Daily Volume	200 1/4					
	198 1/2	103570	70.0	47.6	14.7	DE

Value area

See page 275. As noted previously, there is more volume in the top half of the range; the 70% range (the value area) is also in the top half of the range. Activity in the session is buying.

First, we're going to take the session and again put it at the top of an uptrend. And now that we have introduced our method of using volume data, let's look at the activity in greater detail.

■ The cash flow is up. There is minus development in A and E periods. After the money entered in A period, the market tried to find a fair price around which to develop in B, C and D periods. It was unable to do so.

■ More money entered the market in E period and expanded the range. This move propelled the market up to 93-19. The session finally developed around 93-12 – almost a point higher than the low of the day.

■ The value area developed near the top of the range. Therefore, the move brought in more activity as the price moved higher. If a move is bringing in heavy volume, the market generally has to go further to shut the activity off.

■ In addition to the strong buying, there is no evidence of selling in this session. Therefore, the market doesn't seem to have moved high enough yet to bring in an opposite response.

The conclusion: the volume, in this case as we said earlier, seems to indicate a strong trend that should continue.

Now let's put this same session at the bottom of a downtrend. Nothing has changed except the location in the longer-term move. Nevertheless, in this case, the volume situation suggests that the down move might be over.

Why?

■ There is no selling in the session. The market has to stop the old activity, in this case, selling, before it can begin something new. The lack of selling suggests that sellers no longer believe the market is undervalued at this price level.

■ We've also gone low enough to bring in buying. Furthermore, the opposite response seems strong enough to reverse market direction. Why? The direct cash flow into the market – the minus development in A and E periods – shows that the buying is strong.

■ Volume is at the top of the range which confirms the strength. Therefore, the market should have to go higher to shut off the activity.

The conclusion: volume, in this case, suggests a change in market direction.

These are simple examples – and we've kept them simple to illustrate the concept. Nevertheless, they make an important point. You can see that the same volume situation – or even the same session – can mean continuation in one context and change in another. Therefore, when you are analyzing volume data, ask yourself:

...What was the activity in the session?

...How does this activity relate to the larger move?

The answers to these questions can make a big difference.

Location Makes A Difference

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For 88/02/18 U.S. Bonds MAR 88 Updated 88/02/19 18:14:01
Note: Volume figures are actual numbers of contracts multiplied by 2.

Trade Price	Volume	% Of Total	CT11 %	CT12 %	Half-Hour Bracket Times At Which Prices Occurred	
93 19/32	1592	0.3	54.3	5.7	J	
93 18/32	9028	1.7	55.9	14.7	JK	
93 17/32	18936	3.7	55.9	10.4	IJK	
93 16/32	15076	2.9	52.6	19.5	IJK	
93 15/32	24980	4.8	49.9	15.8	IJKL	
93 14/32	28894	5.6	60.2	12.4	GIJKL	
93 13/32	30908	6.0	60.0	14.5	FGHIJKL	
93 12/32	23682	4.6	52.9	12.3	FGHIJKL	Fair price
93 11/32	25892	5.0	62.3	10.9	FGHIK	
93 10/32	21724	4.2	58.1	11.9	FGHI	
93 9/32	12258	2.4	55.8	10.6	FGH	
93 8/32	12158	2.3	69.3	5.3	FGH	
93 7/32	7446	1.4	56.2	9.5	EF	
93 6/32	10554	2.0	58.0	9.1	EF	
93 5/32	12324	2.4	55.5	9.9	E	
93 4/32	9950	1.9	60.6	11.2	E	
93 3/32	6782	1.3	52.9	14.1	E	
93 2/32	24572	4.7	40.3	8.3	E	More money expands range
93 1/32	2314	0.4	56.1	11.3	E	
93	5314	1.0	56.9	12.0	E	
92 31/32	3450	0.7	55.6	17.7	CDE	
92 30/32	16552	3.2	58.1	13.1	CDE	
92 29/32	12206	2.4	53.6	12.7	CD	
92 28/32	9772	1.9	58.3	12.5	CD	
92 27/32	9048	1.7	62.7	10.4	BCD	Unable to find a fair price
92 26/32	15166	2.9	58.1	12.3	ABC	
92 25/32	16280	3.1	61.0	10.3	ABC	
92 24/32	18000	3.5	57.2	11.0	ABC	
92 23/32	8144	1.6	54.1	21.6	AB	
92 22/32	12160	2.3	57.8	13.3	AB	
92 21/32	22110	4.3	54.9	15.3	AB	
92 20/32	23034	4.5	50.8	12.6	AB	
92 19/32	16150	3.1	60.1	12.4	A	
92 18/32	18412	3.6	59.2	19.3	A	
92 17/32	11728	2.3	59.0	12.2	A	
92 16/32	948	0.2	43.7	21.1	A	

Total Volume U.S. Bonds Mar 88 = 517544 Total Volume U.S. Bonds = 554518

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Note: Volume figures are actual numbers of contracts multiplied by 2.
For 88/02/18 U.S. Bonds MAR 88 Updated 88/02/18 18:14:01

Category	Price	Tot. Vol.	%	CT11%	CT12%	Bracket Times
OPEN	93 17/32	22274	4.3	57.8	10.5	E
TO	93 15/32					
CLOSE	93 14/32	53874	10.4	55.4	14.0	GIJKLM
TO	95 15/32					
HIGH	93 19/32	1592	0.3	54.3	5.7	J
QUADRANT	93 19/32	178988	34.6	57.7	13.4	FGHIJKL
1 TO	93 11/32					
QUADRANT	93 10/32	117768	22.8	54.8	9.8	EFGHI
2 TO	93 2/32					
QUADRANT	93 1/32	90102	17.4	58.3	12.1	ABCDE
3 TO	92 25/32					
QUADRANT	92 24/32	130686	25.3	56.1	14.4	ABC
4 TO	92 16/32					
LOW	92 16/32	948	0.2	43.7	21.1	A
70% Range of Daily Volume	93 19/32					
	92 26/32	370578	71.6	56.3	12.1	ABCDEFGHIJKL

Value area

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Why Are The Categories In The LDB Report Significant?

Total volume, activity in the value area, the way volume is distributed throughout the range, and CTI2 activity can give you valuable insight into what's happening in the marketplace. Using the data, as noted earlier, however, is not a one-step process. You have to relate volume to behavior to make it meaningful. Therefore, it helps to understand the reasons for monitoring these items.

Why Look At Total Volume?

This is one of the broadest measures of how successfully the market is distributing its goods and services.

The more activity a price move brings in, the better the marketplace is facilitating trade. And when a price move is bringing in more activity as it moves up or down, it generally has to go higher—or lower—to shut off the activity. That's why trade facilitation generally indicates continuation. Think of a runner. If he is running fast, he usually can't stop on a dime. His momentum carries him a little further before he can come to a stop.

To demonstrate, let's look at an actual situation. In addition to the volume data, we're also going to consider news events and developments that are affecting value at the time.

See page 279. On 5/13/92, we're at the top of a corn futures move. Total volume is extremely heavy—more than double the volume in the previous session. Is this up move going to continue?

On 5/14 to 5/18, the market comes into balance. It's trading sideways and testing the $269\frac{1}{2}$ level—a long-term unfair high at the time. On 5/15, the momentum from the heavy volume on 5/13 expands the range to $268\frac{1}{2}$.

At the same time, there is no strong buying here at the top of the move. In addition, even though the 70% range is higher on 5/15, the session is a down day.

Put the sessions from 5/13 to 5/18 together visually. The cumulative graphic suggests that the market is becoming efficient. Note how tightly balanced the market is on 5/18. This suggests that the up move could be coming to an end.

Decreasing total volume reinforces what you see in the profile graphic because it shows that the price move is bringing in less activity as the market trades sideways.

An efficient (balanced) market is in position to move directionally. We're at a potential parameter (the $269\frac{1}{2}$ level). The market can't seem to violate it. That's a form of minus development.

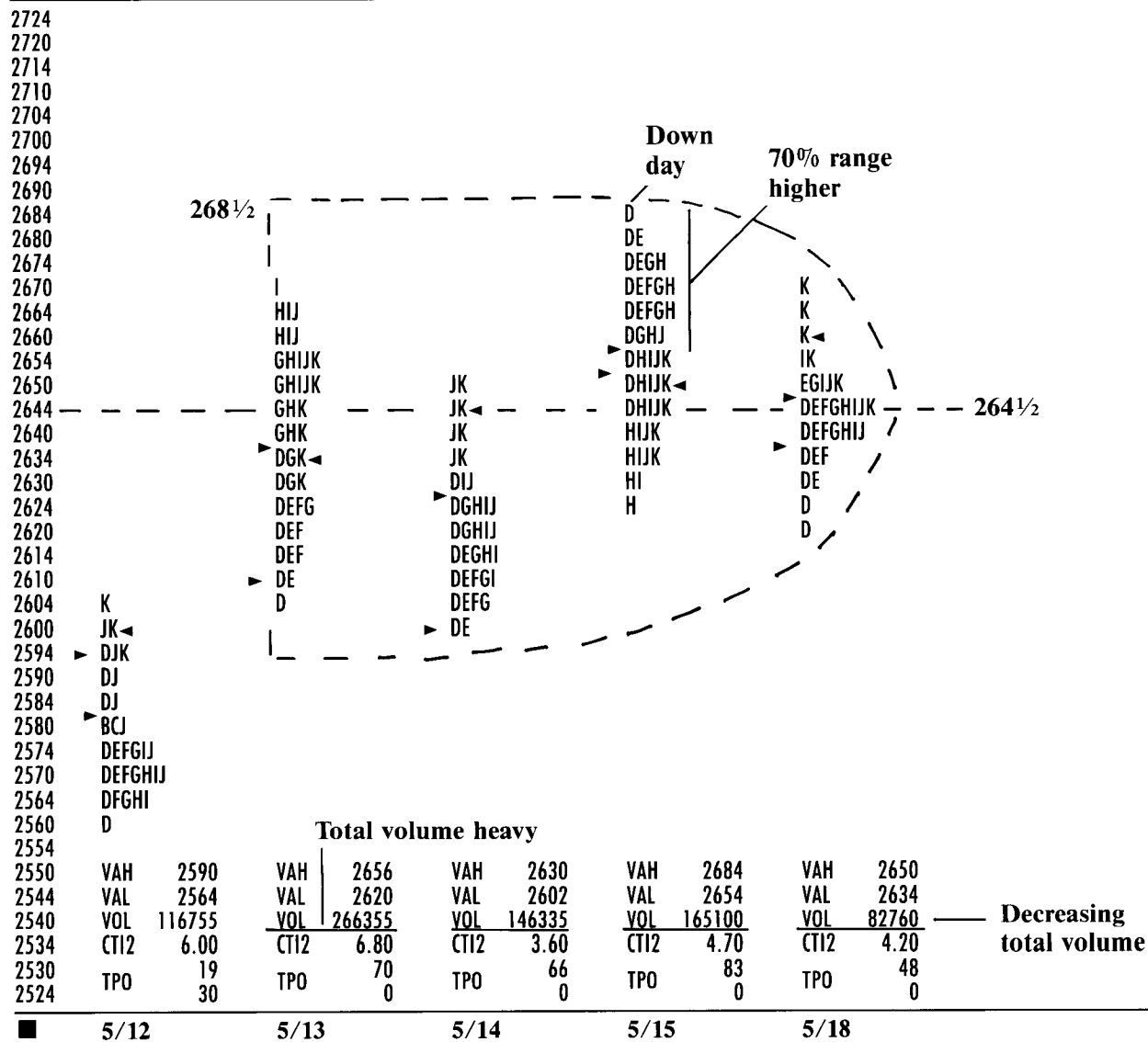
Therefore, the cash flow at the top seems to be down. Cash flow to the downside suggests that the directional move out of this balance area is going to be down.

What happened?

An Efficient Market Is Ready To Move

C72

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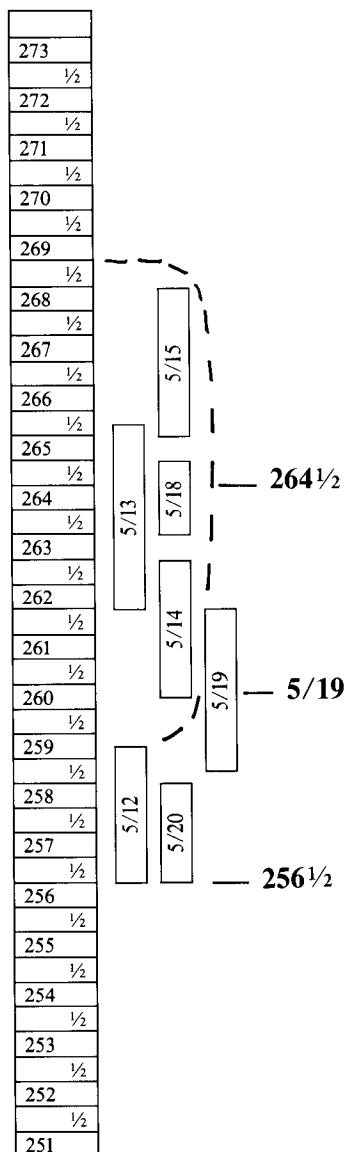
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See page 281. This graphic (the construction is discussed in Parts IV and V) organizes value areas for each session so that you can see distribution development plainly. The up unit comprises sessions from 5/12 to 5/18. (A complete unit includes a directional move plus development.) In this case, after moving up directionally on 5/12 and 5/13, the market came into balance on 5/14 to 5/18.

We tested the downside of the balance area on 5/14 and the upside on 5/15. Now we're trading in the middle. The market's in position for another directional move.

The session on 5/19 was the start of a move back to $256\frac{1}{2}$ on 5/20.

**Dec 92 Corn Futures:
5/12/92 to 5/20/92**



See page 283. This example shows a unit in the soybean futures market which begins on 10/1/92. Note the heavy volume. This activity establishes the unfair high.

The directional move continues on 10/2. Volume is lighter but still relatively heavy. LDB data suggests that the market should have to go lower to shut off the selling.

Then on 10/5, the market opens at 525 and tests 524½. Where are we in the long-term move? We're at the low of a move that started in July at the 614½ level.

What happens in the marketplace? The down move brings in strong buying and the market reverses. This buying establishes the unfair low.

The market comes into balance on 10/6, 10/7 and 10/8. The cumulative profile looks as though this unit is coming to an end because value is roughly in the middle between an unfair high and an unfair low.

Note the decreasing volume in these three sessions. Since volume decreases as the market becomes efficient, this reinforces our analysis. As noted earlier, an efficient market is in position to begin something new.

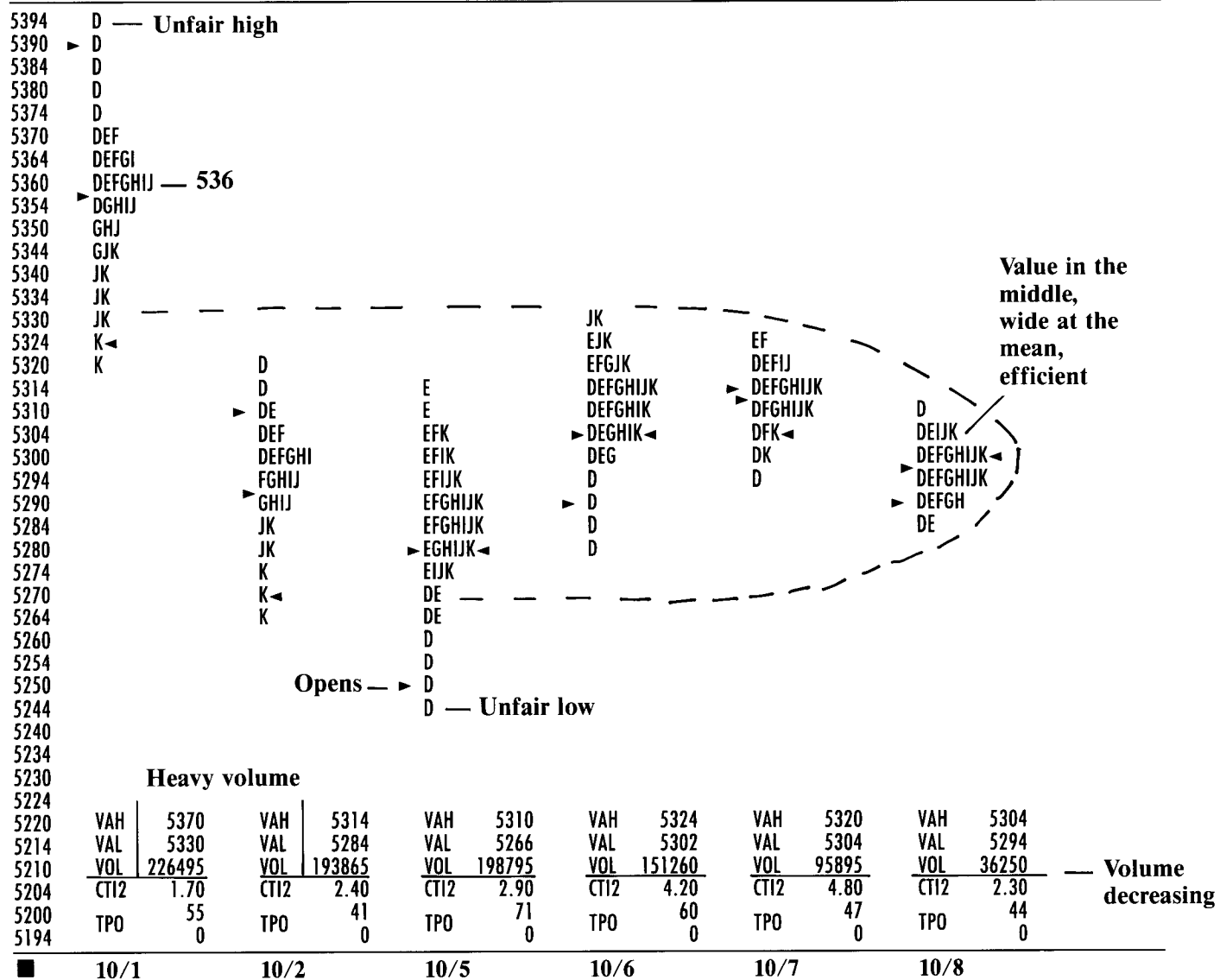
What happens here?

On 10/9, the market tests the 536 level. The new beginning on 10/12 was the start of a move up to 550 on 10/22.

Another Efficient Unit

SX2

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Why Look At The Value Area?

It's important to know where value is because value typically has to trade above the top of a move or below the bottom if a trend is going to continue. In other words, the marketplace has to facilitate trade at the high or at the low if a move is going to continue.

The wider the 70% range, the better the marketplace is facilitating trade. Keep in mind, though, that a wide value area has to be related to whatever activity—buying or selling—occurs in the session.

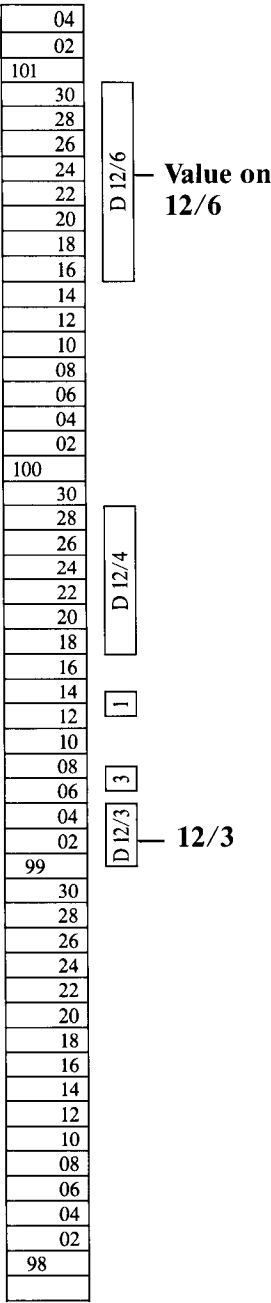
To explain, see the example on page 285.

The market started trading up on 12/3. On 12/6, value (the 70% range) is higher and wider. Activity in the session, however, is selling. Therefore, the higher and wider value area reflects an opposite response. Instead of continuation up, the higher and wider value area could indicate a change in market direction.

Now let's take our example above a step further. Where is this 12/6 value area (the volume base) located in the session's range?

Let's say the volume base in this session is located near the low end of the range. In other words, as the price moved down, it brought in more activity. Broadly speaking, this is additional confirmation that the market should have to go lower to shut off the activity. In other words, it seems to reinforce the idea of a change in market direction.

Higher And Wider Value Area

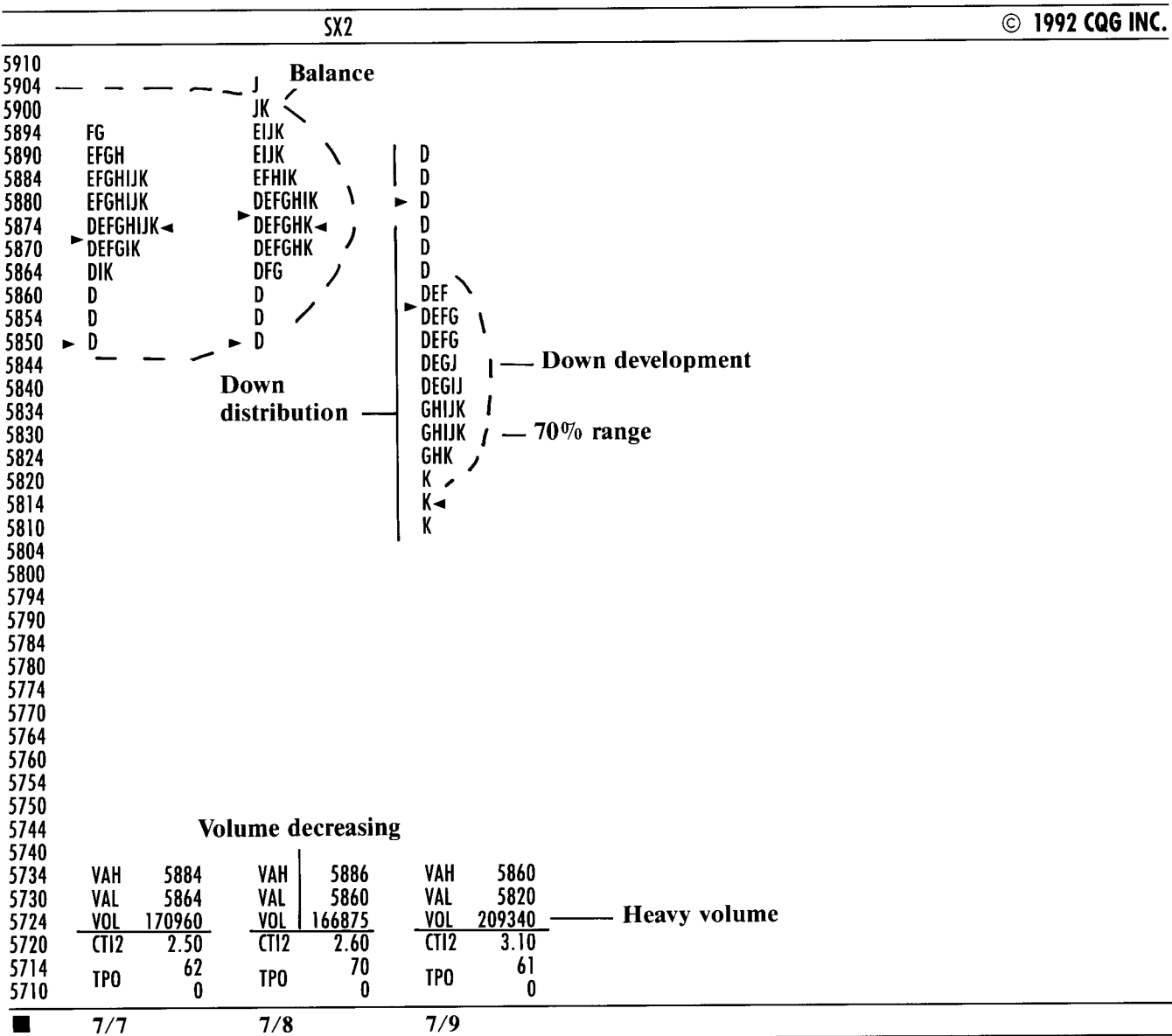


Let's look at the location of the 70% range in another example.

See page 287. On 7/7 and 7/8, the market is balanced. It seems to be developing around $587\frac{3}{4}$. Volume is decreasing. Then on 7/9, we have what seems to be a new beginning.

Total volume is heavy. The directional move in the session is down. The value area is at the bottom of the range. This is down distribution with down development. This combination strongly suggests continuation down because both elements (distribution and development) are pulling together. There is no conflict in the marketplace. What happened?

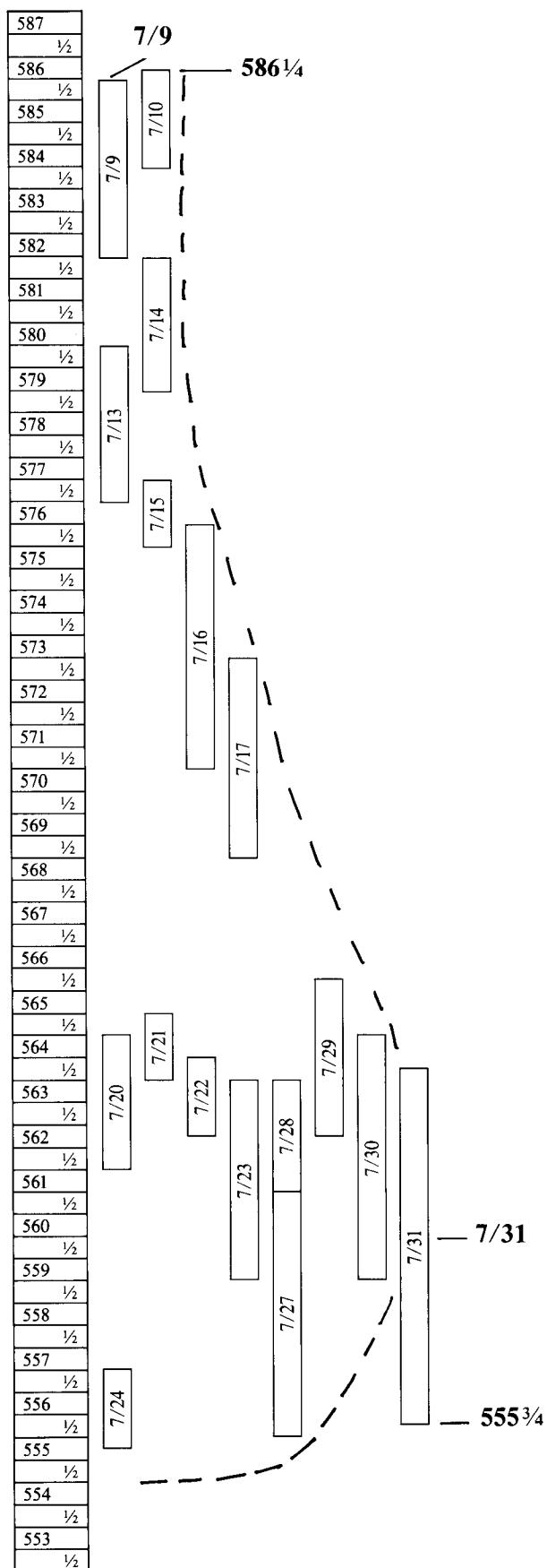
Down Distribution With Down Development



See example on page 289. On 7/10, the market tested the upside but value couldn't trade above $586\frac{1}{4}$. The strong volume situation on 7/9 combined with the fact that value couldn't trade above $586\frac{1}{4}$ on 7/10 could help you to decide to go short.

By 7/31/92, the low of value was $555\frac{3}{4}$. Furthermore, this session on 7/31 was the beginning of a move down to $524\frac{1}{2}$ on 10/5/92. (Refer back to page 283.)

**Soybean Futures:
7/9/92 to 7/31/92**



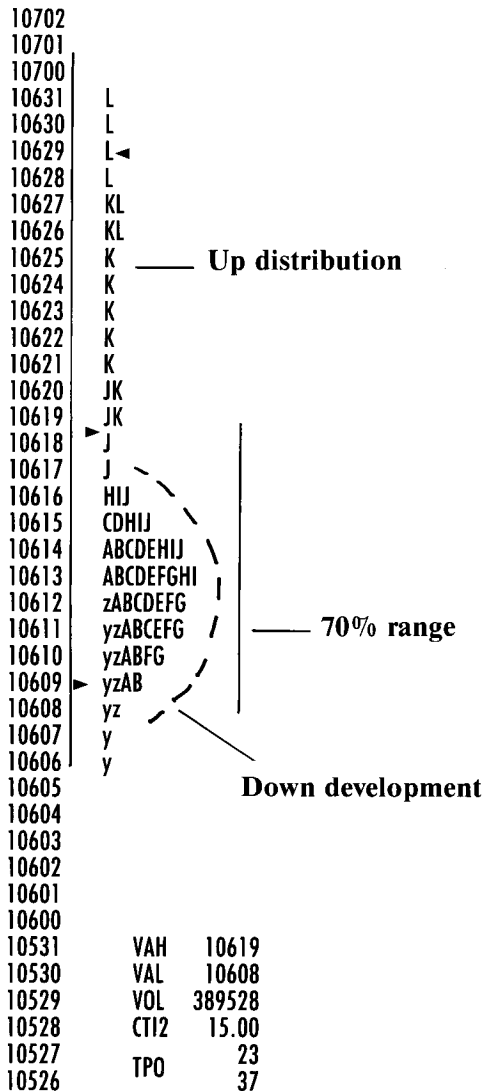
On the other hand, there is a conflict in the bond futures market in the example below.

On 9/8, the directional move is up. The value area, however, is near the bottom of the range. This is up distribution with down development. The two elements are not pulling together. In addition, the value area is not very wide. Buyers don't seem to be confident. This suggests that the up move could be coming to an end.

A Conflict In The Market

BDZ2

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■ 9/8

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What happened?

See the example below. On 9/8/92, we were trading near the high of a long-term trend that started at the 97-20 level on 4/28/92.

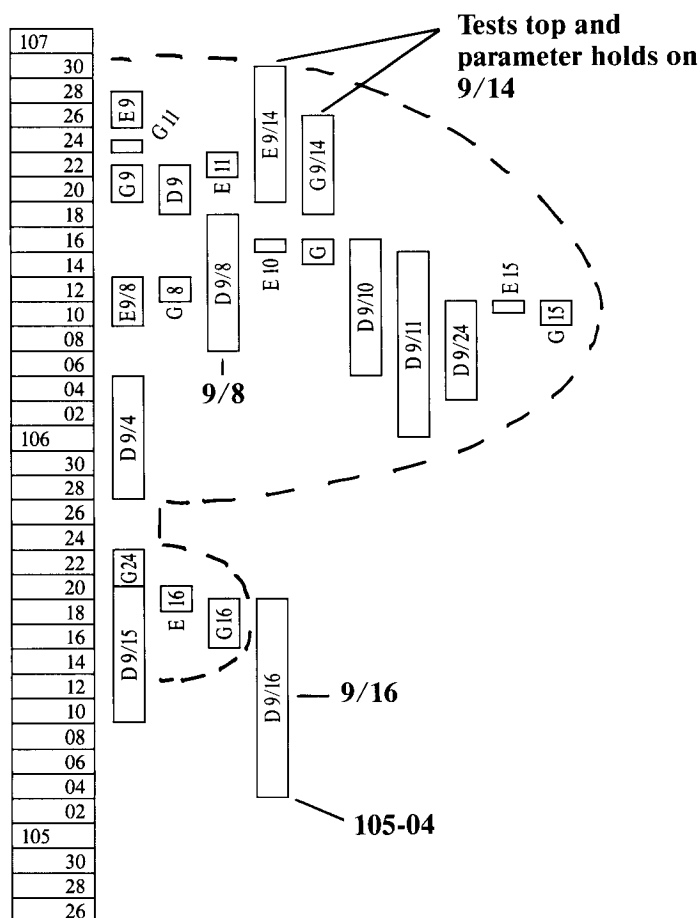
When Germany lowered its interest rates slightly, the market tested the 107 level in the evening session at the CBOT® and in the Globex® session on 9/14. In spite of the somewhat bullish news, you can see that the parameter at the 107 level held.

The conflict in the market on 9/8 suggested that buyers weren't confident at this level. The market's inability to rally after good news on 9/14 could help you decide to go short. This reaction suggests that the parameter at 107 is going to hold.

You can see below that this is indeed what happened. On 9/16, the low of value was 105-04. By 10/26, the long-term range had expanded down to the 102 level.

In the example on page 290, a conflict in the market suggested a trend was coming to an end. A value area in the middle of the range can also suggest a change in market direction. Why? Value in the middle of the range indicates an efficient market. Once the market becomes efficient, it's ready to begin something new.

Bond Futures: 9/4/92 to 9/16/92



See page 293. This example shows soybean futures at the top of an uptrend that began at 598 on 5/1/92.

On 6/1, we are above the 640 level—the long-term unfair high at the time. The 70% range is in the middle of the range. You can see from the volume profile that the high volume price is also in the middle of the range.

The market seems to be balanced and in position to move directionally. Decreasing volume suggests that the directional move could be down. In other words, low volume as the price moves up suggests that this could be the end of the up move.

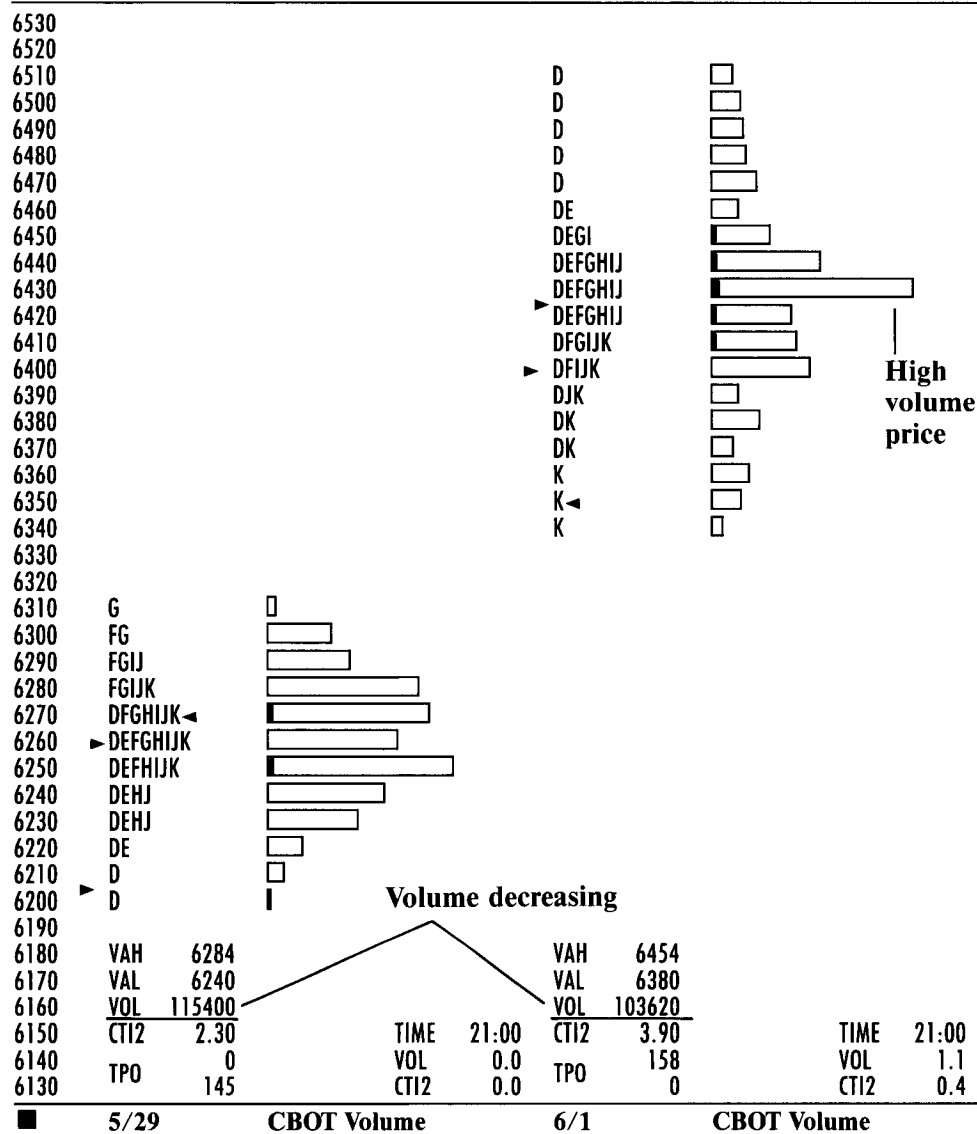
What happened?

The market traded down to 623½ on 6/8, reversed and tested the top once more on 6/9. Again the market failed to trade through the long-term unfair high. The session on 6/1 was the beginning of the down move that hit 524½ on 10/5/92 (refer to page 283).

An Up Move Comes To An End

SX2

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Why Look At The Percent Of Total Column To See How Volume Is Distributed Throughout The Range?

This information can help you judge if a trend is going to continue at an increasing rate, continue at a decreasing rate, or come to an end. In other words, the location of the volume base in a session can help you gauge market momentum.

Many traders find it difficult to relate volume data to longer-term moves at first. Therefore, we're going to illustrate this concept with the profile graphic. Once you grasp the concept, it's much easier to relate and interpret the volume data. Look at the trend on page 295.

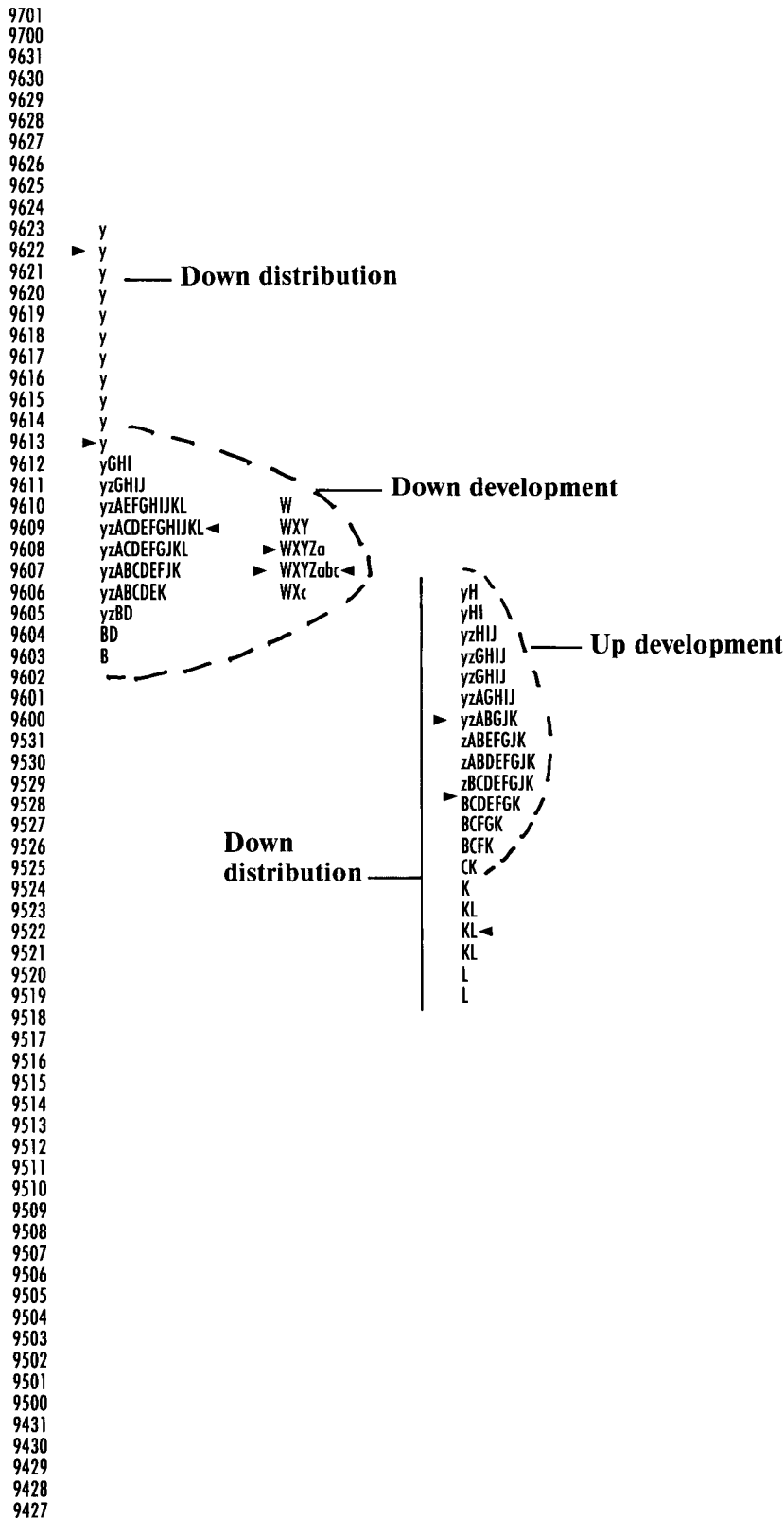
You can see at a glance that starting on 4/19 the down trend is losing momentum. Why?

After a strong beginning on 4/18 (down distribution and down development), the volume base on 4/19 is at the top of the range. In other words, although the market is still moving down, development is at the top of the range. This conflict suggests that the down move—at the very least—is starting to slow down. It may be starting to come to an end.

Continuing At A Decreasing Rate

BDM1

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■ 4/18 4/18 4/19

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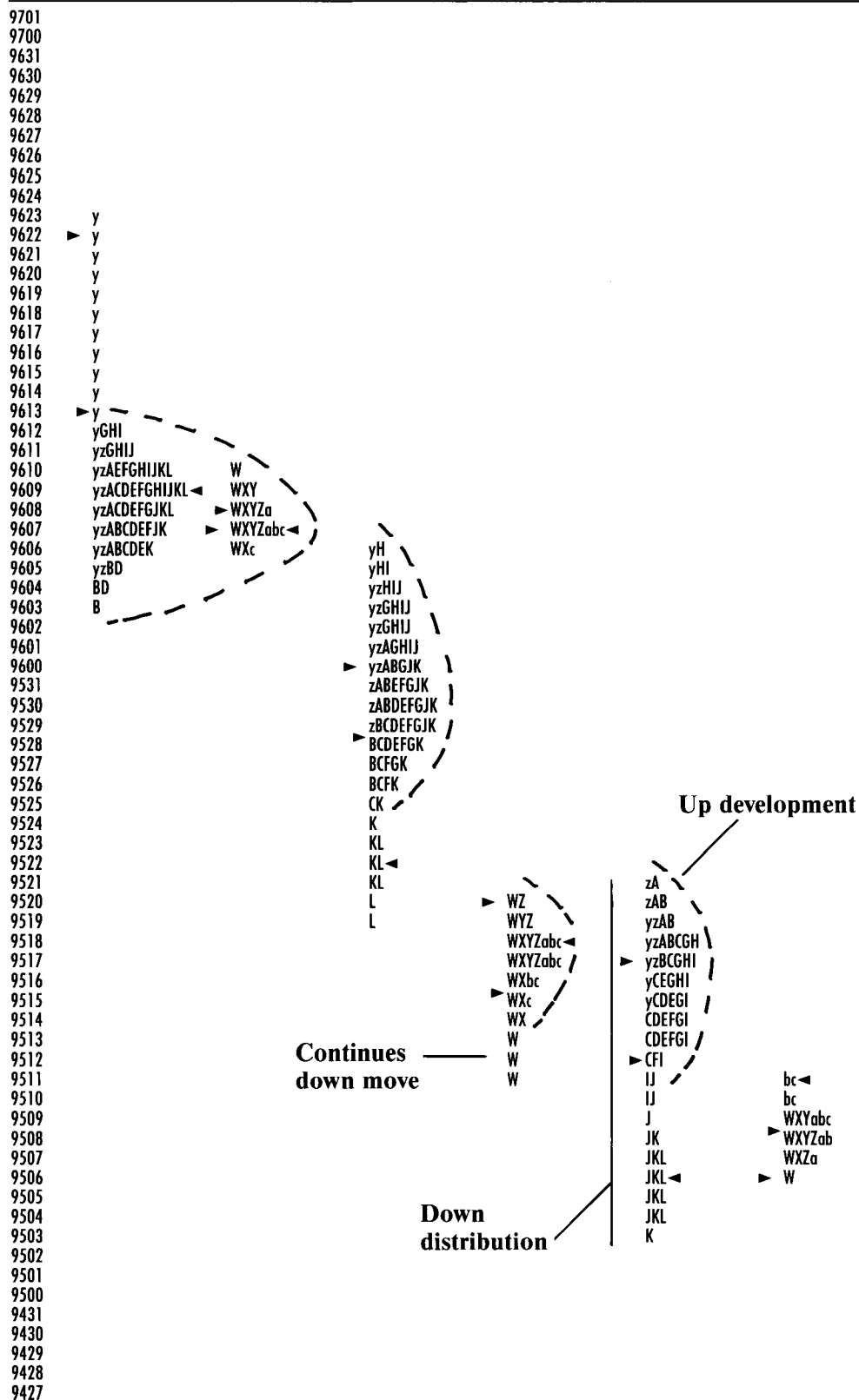
See page 297. The night session on 4/21 continues the down move but, again, with development at the top of the range. On 4/22, even though we trade down to 95-03, development is at the top of the range.

The night session trades sideways and the market starts to fill in the area opposite the directional move.

Coming Into Balance

BDM1

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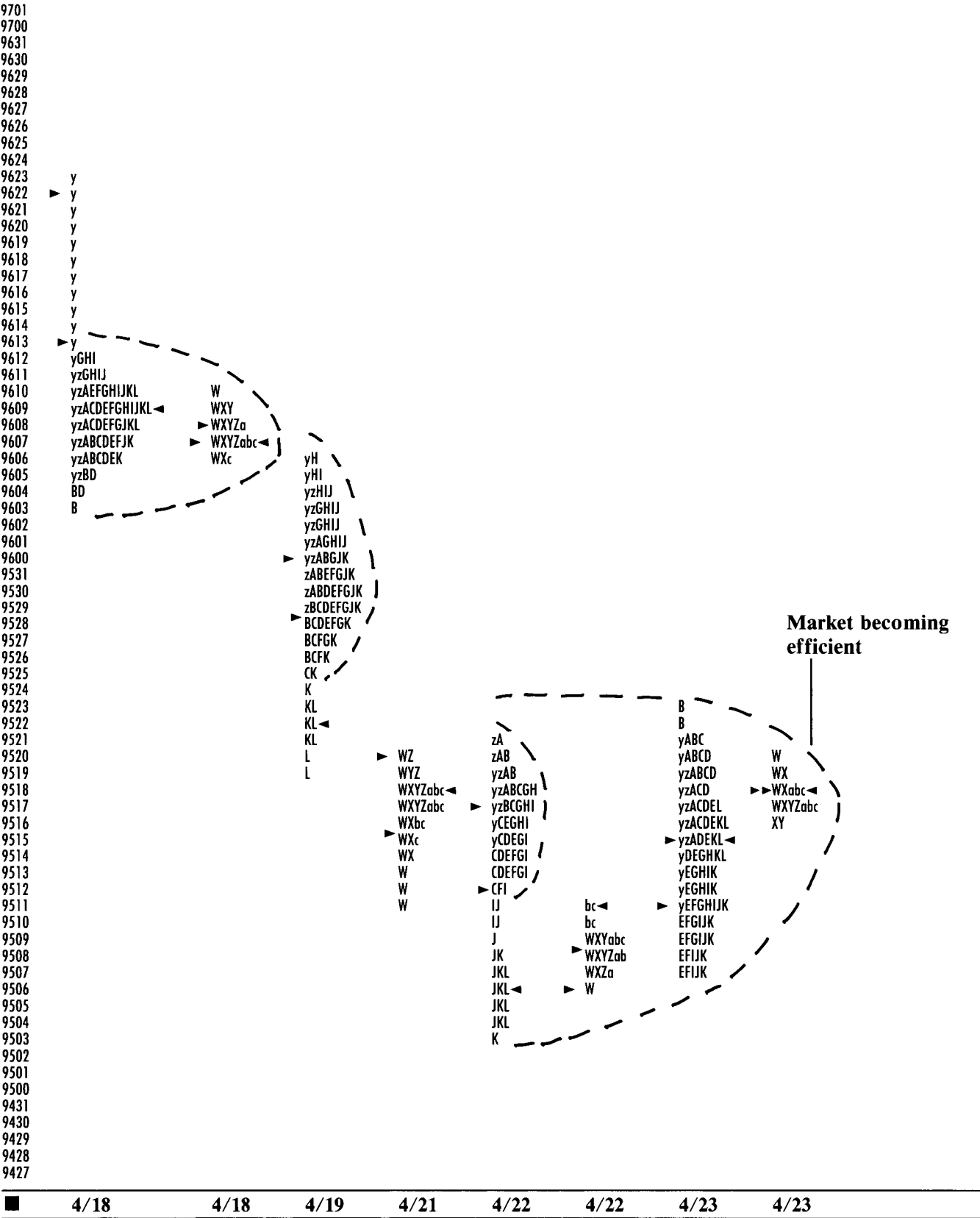
See page 299. The day session on 4/23 is also trading sideways. Put the three sessions (4/22 day, 4/22 night and 4/23 day) together visually. You can see that the market is becoming more balanced. It is becoming efficient.

The market is tightly balanced in the night session on 4/23 and is in position to move directionally again.

Continuing To Trade Sideways

BDM1

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See page 301. This down move comes to an end on 4/24 and the market begins something new to the upside in G period. You can see that the market used the sideways balance area first to stop the down move and then to become efficient.

The session on 4/24 shows why it is crucial to relate volume to the distribution process. We're trading at the bottom of the trend. Considered in a vacuum, the location of the volume base at the bottom of the range seems to suggest that the market is going lower.

In the context of the distribution process, however, the volume base on 4/24 completes the down unit which began on 4/18. In G period on 4/24, the market was ready to begin something new to the upside.

Market Changes Direction

BDM1

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Starts something new in "G"

Completes down unit in “y” through “F”

■ 4/18 4/18 4/19 4/21 4/22 4/22 4/23 4/23 4/24

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Why Look At CTI2 Volume?

Commercials, as a group, have known behavior patterns. This means that their behavior can be a reliable indicator. In addition, since they're using the market as part of their regular business operations, they're generally acutely aware of the conditions that affect value. If they didn't have a handle on value, they'd soon be out of business. Consequently, their behavior can give you valuable insight into the market.

Typically, commercials do most of their business in the value area. The value area is the first standard deviation. In other words, the market has found a fair price and is rotating around it. Since commercials want to do regular business at a fair price, it is logical that they do most of their business in this area.

Heavy CTI2 activity in the value area indicates that commercials are comfortable doing regular business at this price level. They consider the area a fair price and their routine activity helps the marketplace to facilitate trade.

By definition, a fair price doesn't mean windfall profits but it does mean an acceptable profit margin. If commercials are not comfortable doing business in the current value area, their activity decreases. The result: the market is less able to facilitate trade effectively at that price level.

Expected behavior

Generally speaking, commercials are responsive traders. Their normal behavior pattern is to buy below the fair price and to sell above it. This is expected behavior and basically doesn't move the market directionally.

To explain, let's say the market is trading sideways in a range, developing a longer-term value area. In other words, the market is developing around a longer-term control price. This control price is longer-term value. In this situation, commercials doing their routine business in each session can help the market move up to the top and down to the bottom of the range.

These moves, however, are simply longer-term value area rotations. The commercial is buying below longer-term value at the bottom of the range and then selling above longer-term value at the top. The market is basically balanced in a longer-term time frame. Price is just moving away from longer-term value and then back to it.

On the other hand, when you see commercials buying above the control price or selling below it, their behavior is unexpected.

Unexpected behavior

Since the commercial is routinely seeking a fair price, not an excessively advantageous price, you won't see unexpected behavior often. When you do see CTI2 buying above value or CTI2 selling below, it can be significant.

Why? The commercial is now trading with a longer-term time frame and the role of the longer-term trader is to move the market directionally.

This long-term activity – instead of just helping the marketplace to facilitate trade as his routine business in the value area does – can help propel the market from an old value area to a new one. Therefore, when commercials see an opportunity for more than just an acceptable profit, their activity can spark a trend.

Let's say the market is moving sideways at the low of a move. Since the commercial trader normally buys below value and sells above it, CTI2 activity should generally be equally balanced at the top and the bottom of a session's range. Typically, you would expect to see equal concentrations at the top and the bottom of the range.

Here, however, CTI2 activity is skewed to the upside which shows increasing commercial activity as the price moves up. This change from normal behavior suggests that the commercial believes the market is undervalued at this level. If commercials believe that the market is undervalued here, this could be the bottom of the down move.

Most of the time, it won't be obvious if commercials are buying or selling because most of their activity occurs in the value area. So before you can come to a conclusion, you need to determine if CTI2 volume reflects net buying or net selling.

The CBOT is testing a new CTI2 information product that assists you in this determination.

CTI2 net activity

This product shows you whether the commercials' net activity is buying or selling. Currently, this new product is available on an hourly basis to subscribers on the internal CBOT TV system. For those with access to the CBOT system, the product eliminates the need for guesswork. You know what CTI2 activity represents: net selling or net buying.

If you don't have access to this valuable tool, knowing that commercials can overwhelm a distribution with big orders can help you determine if their activity is net buying or selling.

How? See page 305. This example shows the Market Profile graphic for the day session on 9/10/90.

The market resumed at 89-14 to 89-18. Then it tried to trade up past 89-21 in Q, R, U, and V periods. In W period, the market touched 89-22. The test failed and the market reversed, trading down to 88-28 in d period.

Note the flat top of the profile at 89-21. This is the kind of pattern that results when commercial orders overwhelm a distribution. In this case, their activity seems to reflect selling orders because the market couldn't trade up.

Overwhelming a distribution is a form of minus development because it keeps the market from developing at a higher or lower level. Here it suggests that the cash flow is down.

CTI2 Activity Overwhelming A Distribution

Liquidity Data Bank® Volume Detail Report
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For 90/09/10 U.S. Bonds DEC 90
Note: Volume figures are actual numbers of contracts multiplied by 2.

	Trade Price	Half-Hour Bracket Times At Which Prices Occurred
	89 22/32	W
	89 21/32	QRUVW — Flat top
	89 20/32	PQRUVW
	89 19/32	PQRSUVW
	89 18/32	OPQRSUVW
	89 17/32	OPQRSTUWV
Resumes	89 16/32	OPQRSTUWVX
	89 15/32	OQRSTUWX
	89 14/32	OSTXb
	89 13/32	Xabc
	89 12/32	Xabc
	89 11/32	Xabc
	89 10/32	Xabc
	89 9/32	Xc
	89 8/32	c
	89 7/32	cd
	89 6/32	cd
	89 5/32	cd
	89 4/32	d
	89 3/32	d
	89 2/32	d
	89 1/32	d
	89	d
	88 31/32	d
	88 30/32	d
	88 29/32	d
	88 28/32	d — 88-28

On page 307, you can see the LDB Report for this session. (The evening session is included in the report.) Note the heavy CTI activity at 89-19, 89-20, and 89-21.

LDB Report For 9/10/90

Liquidity Data Bank® Volume Detail Report
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 For 09/10/90 U.S. Bonds DEC 90
 Note: Volume figures are actual numbers of contracts multiplied by 2.

Trade Price	Volume	% Of Total	CTI1 %	CTI2 %	Half-Hour Bracket Times At Which Prices Occurred
88 28/32	1044	0.3	60.2	11.0	de
88 29/32	3920	1.0	44.3	11.4	de
88 30/32	8690	2.2	50.9	8.9	de
88 31/32	6288	1.6	51.9	12.3	de
89	3178	0.8	55.1	11.7	d
89 1/32	5096	1.3	52.7	17.8	d
89 2/32	10278	2.6	54.7	10.2	d
89 3/32	11784	2.9	63.3	16.6	d
89 4/32	9756	2.4	54.1	12.9	d
89 5/32	6800	1.7	50.3	16.2	cd
89 6/32	10326	2.6	58.3	18.4	cd
89 7/32	4412	1.1	64.7	10.0	cd
89 8/32	4402	1.1	52.0	18.4	c
89 9/32	5166	1.3	57.7	10.1	stXc
89 10/32	8728	2.2	52.4	10.8	stXabc
89 11/32	21162	5.3	64.0	13.5	rsXabc
89 12/32	24794	6.2	56.1	10.9	mpqrsXabc
89 13/32	11398	2.8	58.4	14.7	mnopqrXabc
89 14/32	8846	2.2	52.0	11.9	mnopqOSTXb
89 15/32	26148	6.5	59.8	12.8	mnopQQRSTUWX
89 16/32	56966	14.1	47.8	15.3	mnopOPQRSTUWVX
89 17/32	23614	5.9	64.0	14.8	noOPQRSTUWV
89 18/32	36386	9.0	58.2	14.0	oOPQRSUVW
89 19/32	43210	10.7	62.0	11.2	PQRSUVW
89 20/32	37390	9.3	59.8	10.9	PQRUVW
89 21/32	12772	3.2	48.7	9.7	QRUVW
89 22/32	266	0.1	62.0	0.0	W
70% Range Of Daily Volume 89 11/32 TO 89 20/32 289914 72.0 57.6 13.1 mnopqrsOPQRSTUWVXabc Heavy CTI2 activity Flat top					

	Total Volume	% of Total	
		CTI1	CTI2
Total Volume for Dec 90 U.S. Bonds	402,820	56.7	13.0
Total Volume for U.S. Bonds	442,070	55.6	13.1
Total Spread Volume for Dec 90 U.S. Bonds	30,210	38.3	18.0

On page 309, you can see another example of CTI2 activity overwhelming a distribution.

This time the LDB data is presented in a graphic format. The bar indicates the volume that traded at each price. The solid part of the bar shows CTI2 activity.

You can see that the top of this profile is flat. The market can't trade above 89-21 in z, A, D and E periods. In addition, the solid part of the bars shows that the commercial is active at the top of the range.

The fact that the commercial is active at the top and that the market basically couldn't trade above 89-21 (the one tick extension in F period is a test that failed) suggests that the commercial was selling at the top of the range.

Why is this information valuable? It can help you pick entry and exit spots.

For example, look at page 309 again.

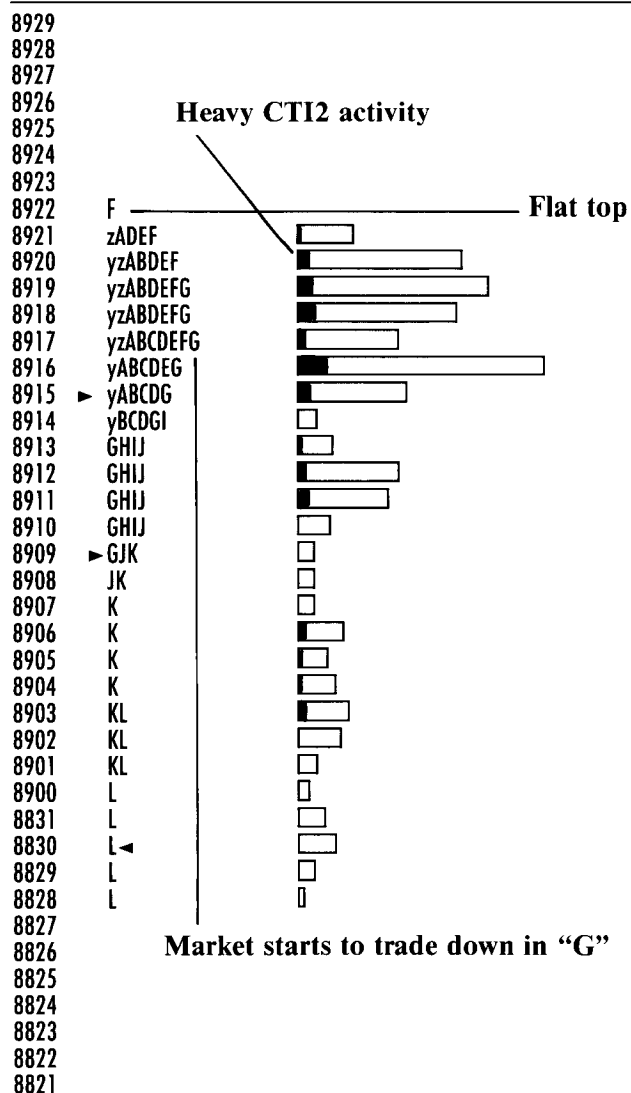
In this session, it was a reason for going short after the test of 89-22 in F period. Why?

If commercial selling is containing the market on the upside, it is logical to anticipate a test of the downside. The market starts to trade down in G and breaks down to 88-28 in L period.

CTI2 Selling Contains Activity

BDZO

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■ 9/10 CBOT Volume

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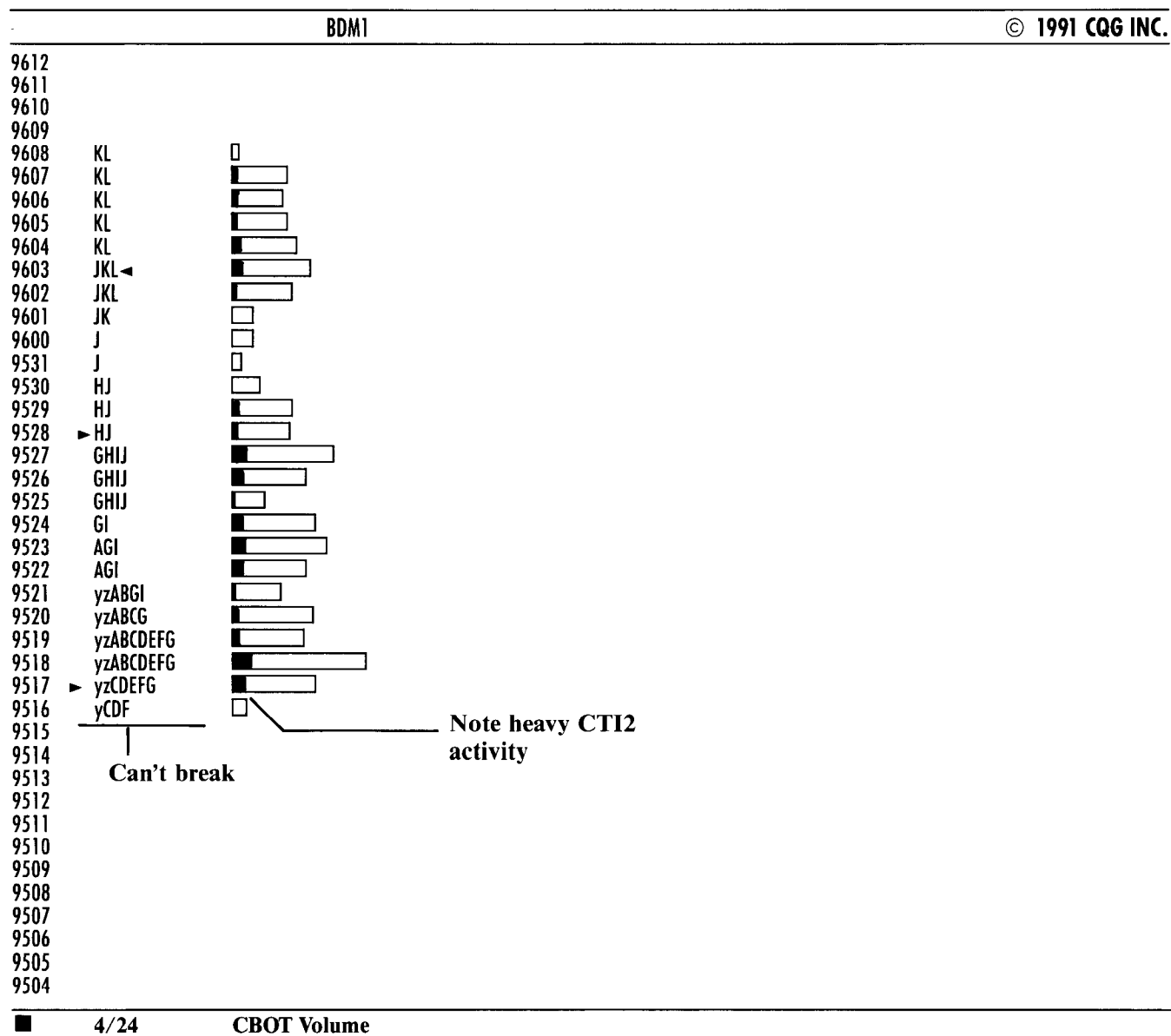
There is another example of CTI2 activity overwhelming a distribution on page 311. This time, it is CTI buying that contains the market on the downside.

You can see that the market can't break below 95-16. Note how active CTI2 is at 95-17 (the solid part of the bar). The flat bottom suggests that commercial buying is preventing the market from developing at a lower level.

If you are more certain at the time—as you can with the CBOT's new product—it can help you decide to go long early and enter at the bottom of the move in G period. This trend takes the market to 96-08 in K period.

Now let's relate this behavior pattern to a longer-term unit in order to recognize the beginning of a longer-term trend.

CTI2 Buying Contains Activity



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See page 313. We're at the top of a longer-term move in wheat futures. On 6/22/92, there is heavy CTI2 activity at the top of the range (the solid part of the top bar). The top of the volume profile is flat. Even without the volume analysis, you can see that the market is in position to rally at the top of the move—and it doesn't.

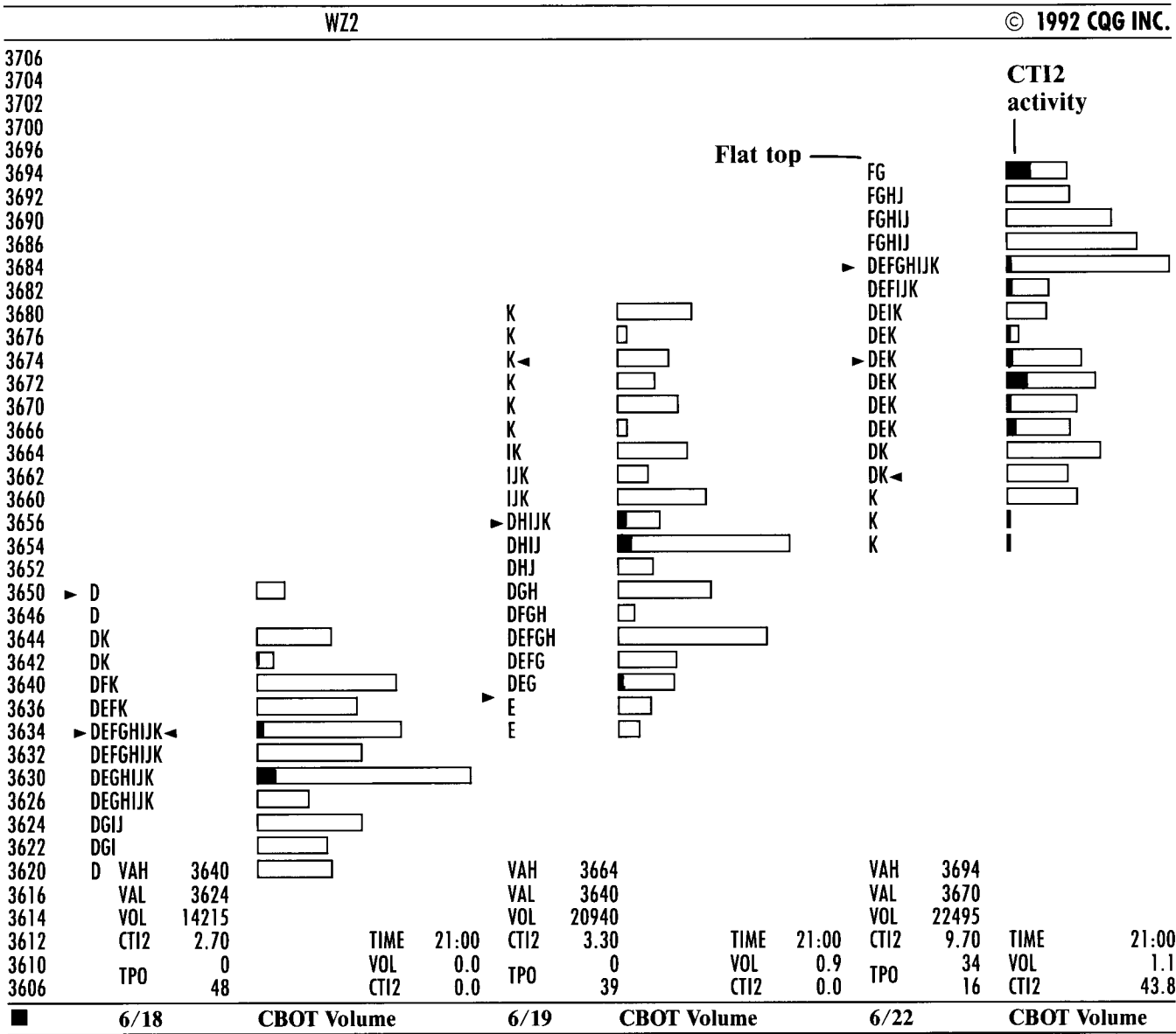
The CTI2 activity seems to be overwhelming the distribution. In other words, the fact that the market can't trade up suggests that CTI2 selling is preventing the market from developing at a higher level.

This is a form of minus development. The lack of activity suggests that the cash flow up here at the top of the move is down.

Keep in mind that LDB volume data is not predicting that this price level is the top of the move. Still, the CTI2 selling does suggest that commercials believe that the market is overvalued at this level. At the very least, the market will have a hard time distributing up in the face of solid CTI2 selling.

If commercials—whose business it is to be aware of the conditions that affect value—think that wheat is overvalued here, this information can suggest that the up move is coming to an end. What happened here?

CTI2 Activity At The Top Of A Move



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See page 315. You can see that the session on 6/22 was the beginning of a move down to $344\frac{1}{2}$ on 7/13/92. The up move in D and F periods on 6/22 (refer back to page 313) was a test of the 370 level which failed.

Commercial selling at the top of the range on 6/22 suggested that the market was overvalued at 370. This, in turn, suggested that the market might reverse direction.

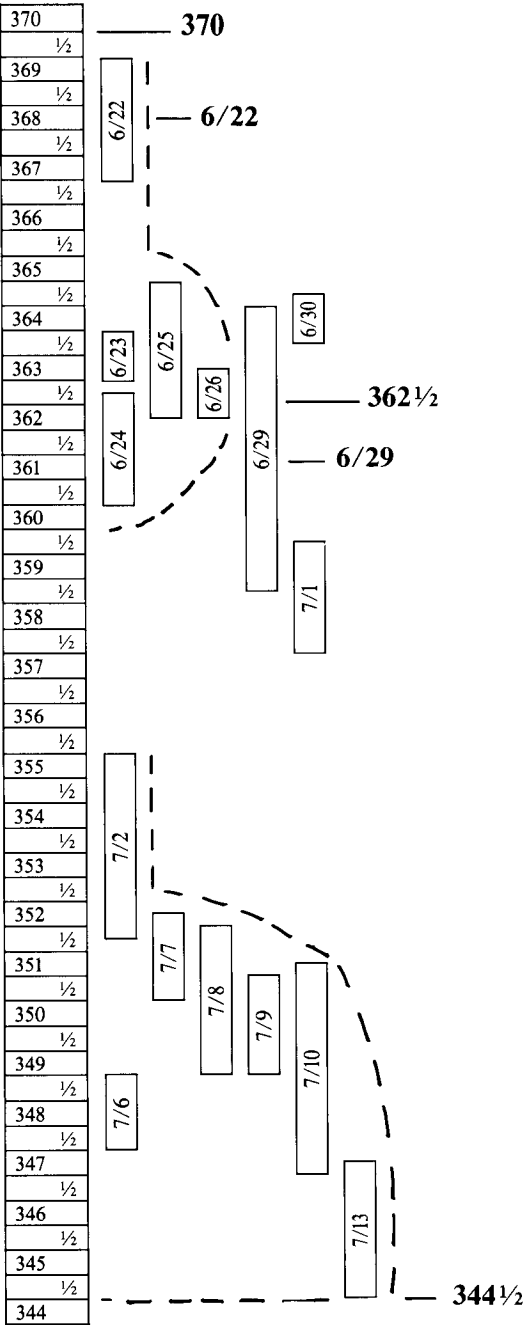
The market came into balance again around $362\frac{1}{2}$ on 6/25 and 6/26 and tested the upside once more on 6/30. However, by 7/13, the low of value was $344\frac{1}{2}$.

Before we look at another example, let's consider what an absence of commercial selling at the top of a trend would tell us about continuation or change. Say we are at the top of a bean move and there is no evidence of CTI2 selling.

If bean futures are overpriced, commercials should be selling. You can tell from LDB volume, however, that there is no heavy CTI2 selling at this price level. That lack of selling by the commercials could be an indication that the market may go higher.

Why? No CTI2 selling seems to suggest that commercials believe beans are still undervalued at this price level.

Wheat Futures:
6/22/92 to 7/13/92



How else can CTI2 data help you make decisions?

The example on page 317 shows corn futures from 5/8/92 to 5/12/92. Note the increase in CTI2 volume in the value area on 5/12. On 5/8, it is 3.3%; on 5/11, it is 2.5%. Then on 5/12, it jumps to 6%. In addition, the CTI2 activity in the value area appears to reflect buying because the market begins an up move in J period opposite the heavy CTI2 activity at $257\frac{1}{4}$.

At the time, 256 is the longer-term control price and the control price reflects value.

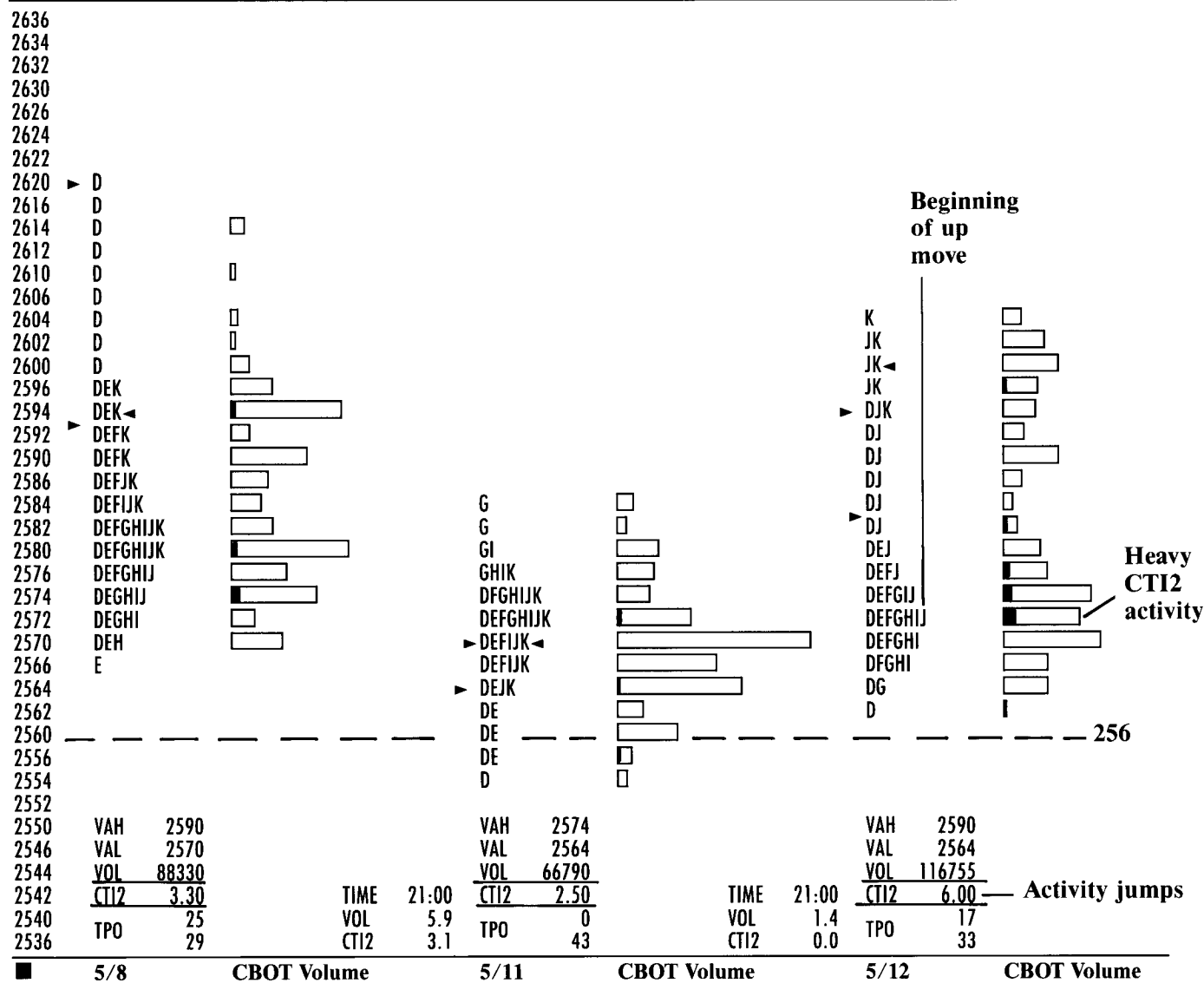
Weather conditions are turning bullish and heavy commercial buying above value suggests that they believe the market is undervalued here. Furthermore, commercial buying above value is unexpected behavior. The CTI2 buying—in this particular case—might help you decide to go long.

What happened? The market traded up to $267\frac{1}{2}$ on 5/13.

CTI2 Buys Above Value

CZ2

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Commercial activity, of course, is a useful indicator in all markets. Let's consider Treasury bond futures.

The example on page 319 shows activity in the bond futures market as it moves from the CBOT day session, to the CBOT night session, to the Globex session, and back to the CBOT day session. You can see that the market starts a near-term unit to the downside on 10/9/92. The directional move begins at 104-02. (The 104-02 level is a longer-term control price or mean at the time. Note how a new beginning generally starts at the mean of a previous distribution.)

On 10/11 and 10/12, the market trades sideways and develops this unit—roughly around 103-22. The profile in the day session on 10/12 has a flat top. As noted earlier, a flat top suggests heavy CTI2 activity.

LDB data on 10/12 confirms that commercials are active at 103-22 and 103-23. (The solid part of the bar is CTI2 activity.) As noted earlier, this is the price area around which this unit seems to be developing. Therefore, it reflects a fair price or value.

Heavy CTI2 activity at 103-22 and 23 suggests that commercials feel comfortable doing routine business at this level. If they believe the 103-22 to 23 area is fair, this price level could continue to reflect near-term value—which suggests that this price level would continue to control activity.

The conditions affecting value at the time also seem to bear out this interpretation.

There seemed to be a tug-of-war between fear of the huge Federal deficit which was pushing prices down and a weak economy which was pulling prices up. Market participants weren't sure which would be the winner. The upcoming Presidential election only heightened the uncertainty. Under these conditions, it seems reasonable that the market would remain balanced while it waits for news or data that could put it on a surer footing or even a new course.

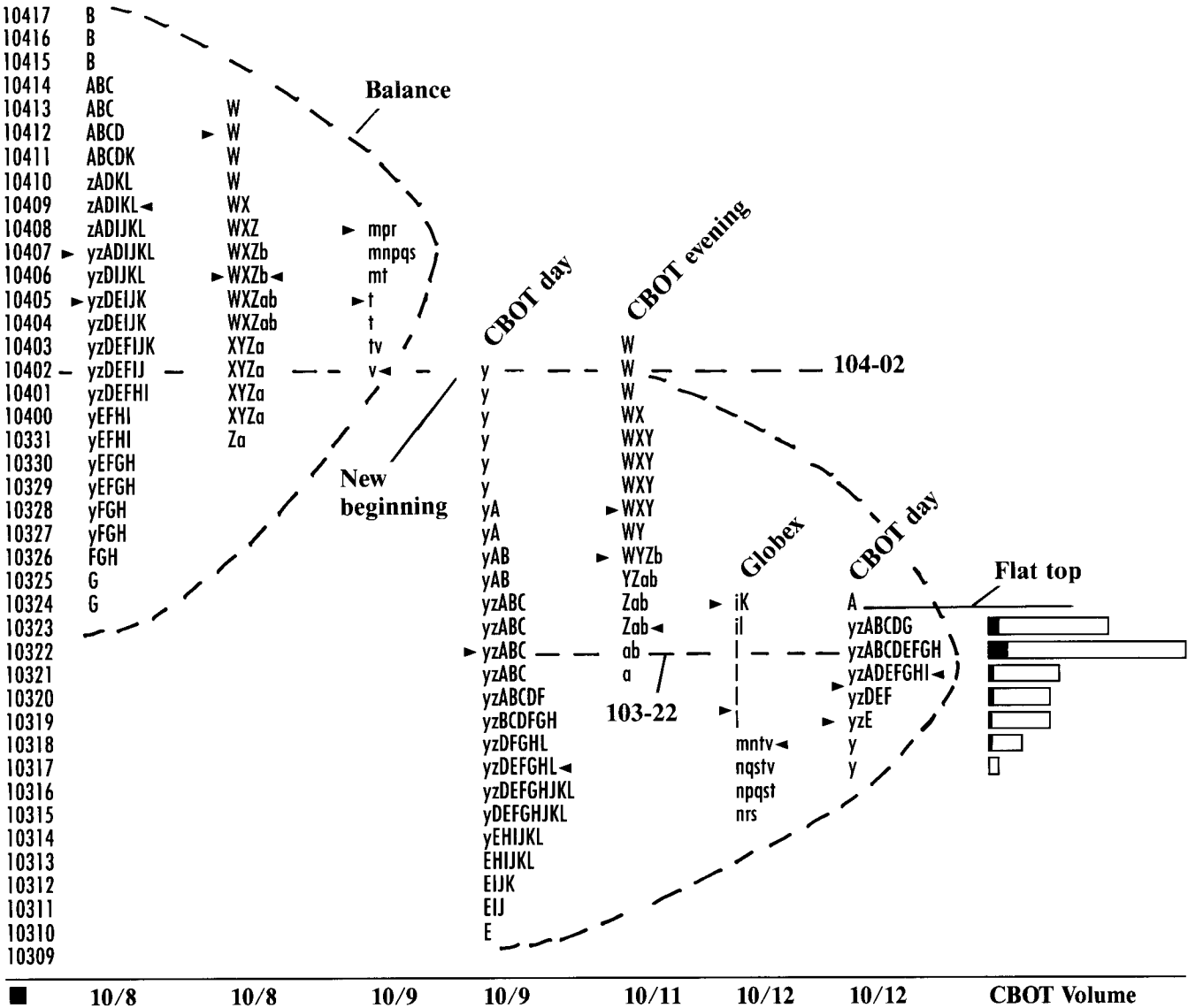
How does this background affect trading decisions?

If you believe that the market is controlled by price, you anticipate that it will trade sideways in a range. Therefore, you look for opportunities to buy breaks below 103-22 and to sell rallies above 103-22 until near-term activity tells you that the control of this price is breaking.

New Beginning On 10/9/92

BDZ2

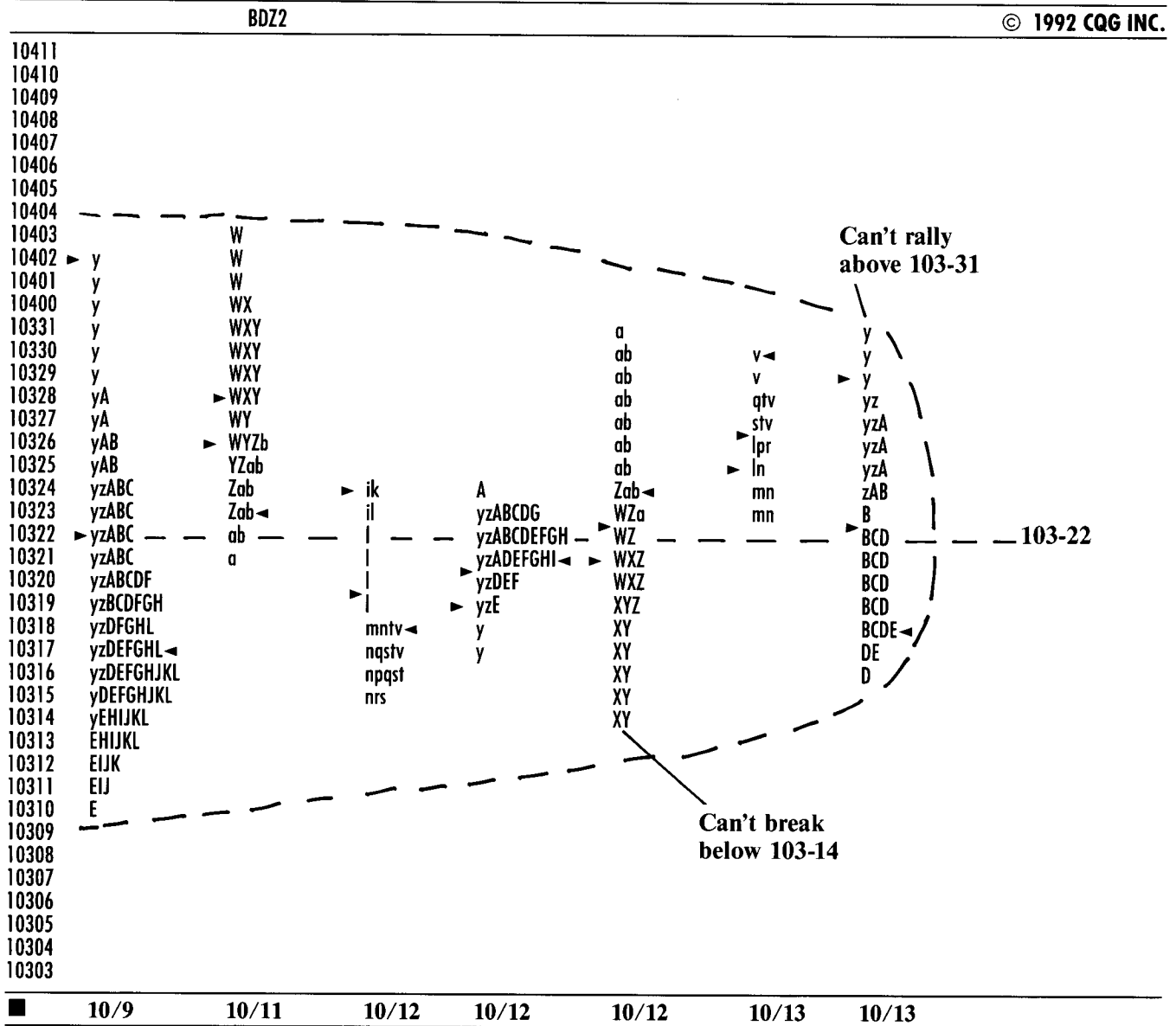
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For example, see below. On the evening session on 10/12, there is opportunity to buy when the market can't break below 103-14 in Y period. There is opportunity to sell in the CBOT day session when the market can't rally above 103-31 in y period.

Testing Area Above And Below 103-22



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See below. On 10/14 in the CBOT day session, there is opportunity to buy after the downside test fails in y period.

Continues To Rotate Around 103-22

[illegible]

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See page 323. By the day session on 10/15, we've traded up to 104-19 in B period. How are market participants trading? The market starts to reverse in C period. This suggests that 103-22 is still controlling activity. By the Globex session on 10/16, the market has been pulled back to 103-22.

After the day session resumes on 10/16, the market gets bullish news and can't rally. Weak reports on the economy again seem to be running into the hurdle of the deficit.

You know what the news is and you see the reaction in the developing profile: the market tests the upside in y period and can't trade above 103-31. The failure to rally is a form of minus development which suggests that the cash flow at this level is down. The test in y period is another opportunity to sell above value.

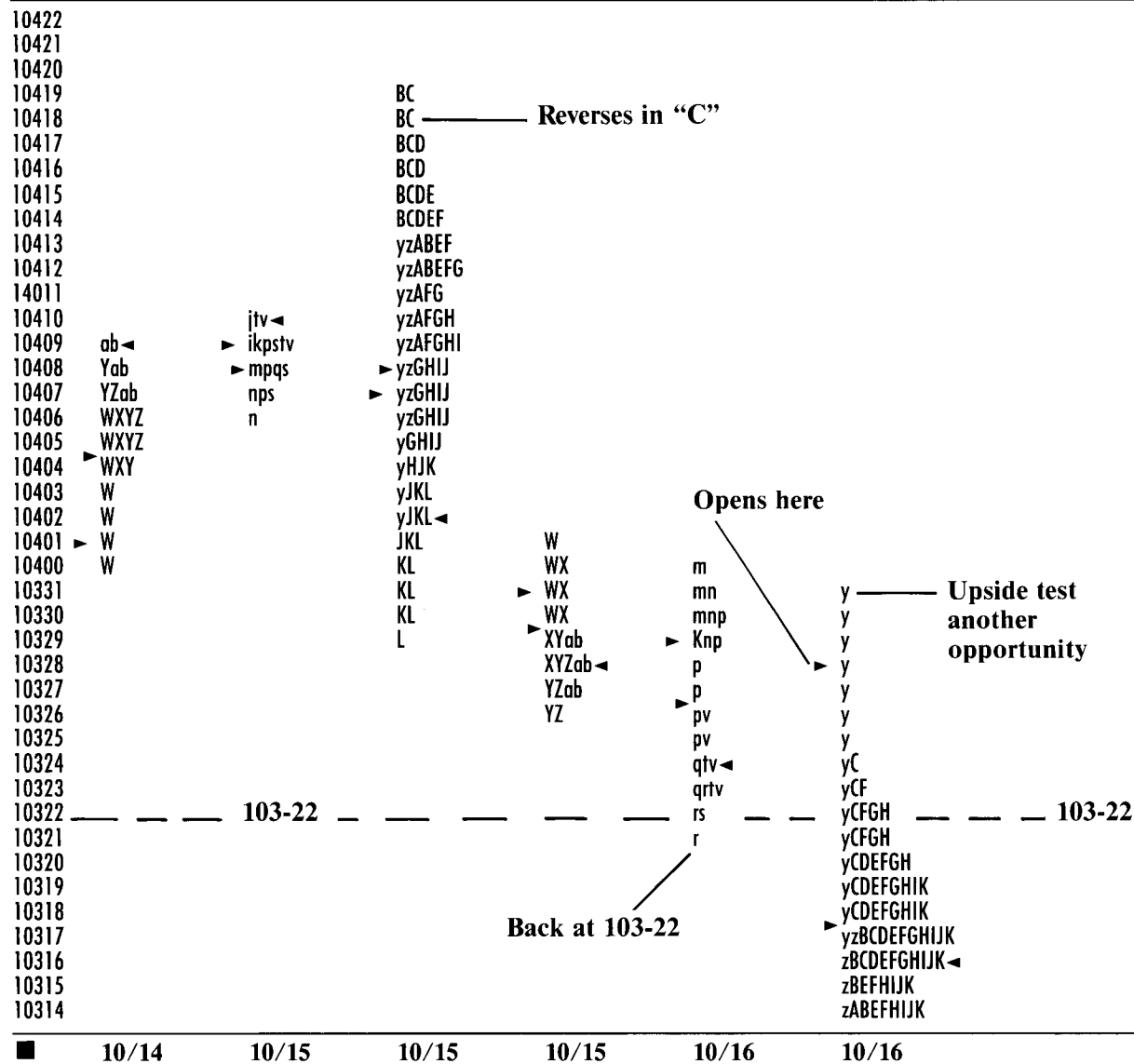
Our analysis on 10/12 helped us to recognize opportunities from 10/12 to 10/16.

We judged that 103-22 was going to continue controlling activity because of CTI2 activity. The market's reaction to economic reports and developments from 10/12 to 10/16 seems to confirm that 103-22 is still in control. Price has continually moved away from value—roughly 103-22—and then pulled back.

Testing The Downside Again

BDZ2

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To Sum Up

After going through these examples, you can see that CTI2 volume can help you anticipate whether the market is going to go up, down or sideways. In each case, however, we reached a conclusion by relating CTI2 volume first to commercial behavior patterns and then to the distribution process.

This approach may seem complicated at first because it involves several steps. As you can see from our examples, however, learning to use the data to monitor CTI2 behavior is well worth the effort.

So far, we've taken one or two pieces of LDB data and related them to market activity. Now we're going to analyze an entire report. But first, stop and test yourself on what we've covered up to this point.

Stop And Test Yourself

Q. Why does LDB volume need a context to be meaningful?

A. The same volume situation means one thing if you relate it to selling and something different if you relate it to buying.

Q. Say you're at the top of an up move. Activity in the session is buying. Does volume at the top of the range suggest continuation or change?

A. Continuation.

Q. Now say you are at the bottom of a down move. Activity in the session is selling. Does volume in the top of the range suggest continuation or change?

A. Change.

Q. What are the two factors that make volume data meaningful?

A. 1) Whether the volume reflects buying or selling. 2) Where you are in the long-term move.

Q. Why look at total volume?

A. It is one of the broadest measures of how effectively the market is distributing goods and services.

Q. The more activity a price move brings in, the _____ the marketplace is facilitating trade.

A. Better.

Q. Does decreasing volume suggest that a trend is going to continue or come to an end?

A. Come to an end.

Q. Why is it important to know whether value is getting higher or lower over time?

A. If a trend is going to continue, value has to trade up to the top of a move or down to the bottom. In other words, value has to trade above the unfair high or below the unfair low.

Q. Broadly speaking, does down distribution with down development suggest continuation or change?

A. Continuation because both elements are pulling together.

Q. Broadly speaking, does down distribution with up development suggest continuation or change?

A. Change because there is a conflict in the market. The two elements are not pulling together.

Q. Why does a value area in the middle of the range suggest change?

A. Value in the middle indicates an efficient market and once a unit has become efficient, the market is ready to begin something new.

Q. Why do you want to know how volume is distributed throughout the range?

A. This information can help you judge if a trend is going to continue at an increasing rate, at a decreasing rate or if it is going to come to an end.

Q. Down distribution with down development shows that a trend is continuing at an _____ rate.

A. Increasing.

Q. Down distribution with up development shows that a trend is continuing at a _____ rate.

A. Decreasing.

Q. Why look at CTI2 volume?

A. Because commercials, as a group, have known behavior patterns. Therefore, CTI2 activity can be a reliable indicator.

Q. Where do commercials typically do most of their business?

A. In the value area.

Q. Why?

A. Because they are seeking a fair price for their routine, everyday business.

Q. What is their normal behavior pattern?

A. Buying below value and selling above it.

Q. What kind of behavior indicates a deviation from this norm?

A. A willingness to buy above value or to sell below it.

Q. What happens when heavy CTI2 activity overwhelms a distribution?

A. It prevents the market from developing at a higher or a lower level. In other words, the CTI2 activity contains the range. This is a form of minus development.

Q. What kind of pattern do you generally see in the profile graphic when CTI2 activity overwhelms a distribution?

A. A flat top or a flat bottom.

Q. Say we're at the top of a bean futures move. There is no sign of CTI2 selling in the LDB report. What does this suggest about bean value?

A. The lack of commercial selling suggests that commercials believe beans are still undervalued at this level. This in turn suggests that the trend could continue.

Relating A Whole LDB Report To Activity

We're going to analyze the LDB report for bond futures on 9/3/86. This session is part of the down move we examined in Part II of the Study Guide. We're using it so that you can see for yourself how LDB data reinforces the conclusion in Part II.

Since it's meaningless to analyze volume in a vacuum, let's review where we are at the end of this session in the long-term move.

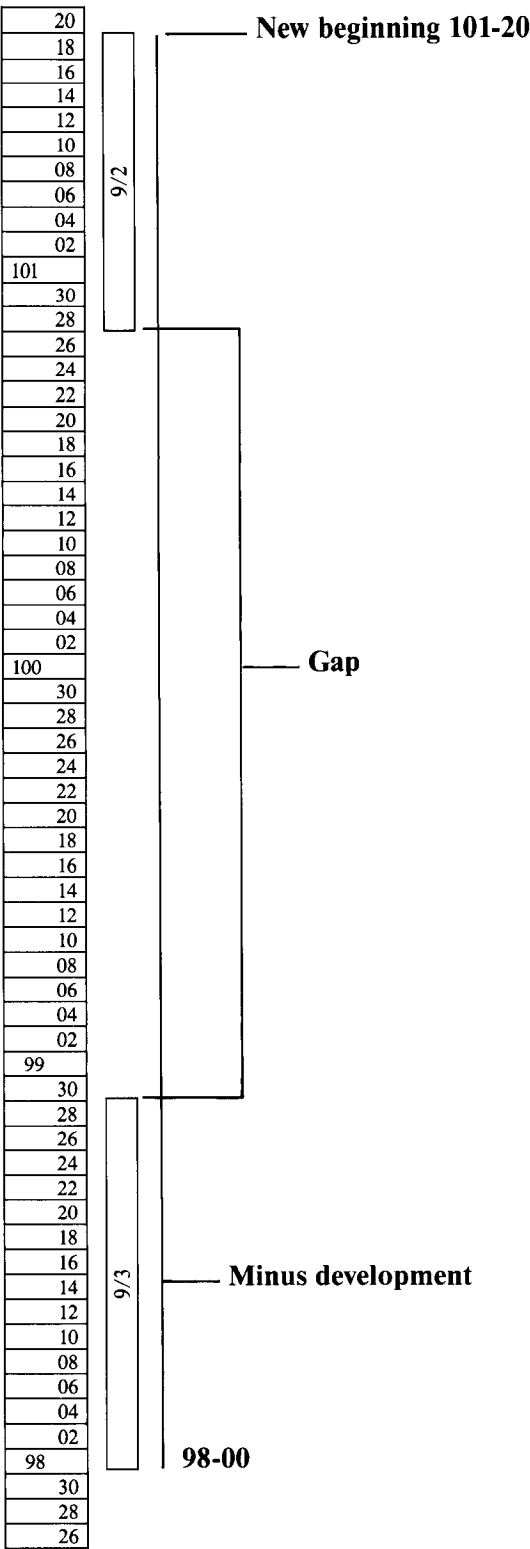
On 8/29/86, the market was testing the 102 level – a long-term unfair high at the time. It was tightly balanced and in position to move directionally. On 9/2, the market tested the upside one last time and failed to trade above the high parameter at the 102 level. This failure sparked a reversal which was the beginning of something new to the downside.

In short, we were at the top of a long-term uptrend and market participants liquidated on 9/2.

See page 327. There is no question on 9/3 that the cash flow is down because we have minus development (a directional move) from 101-20 to 98-00.

Furthermore, not only are we moving vertically but there is also a price gap of two points between the value area on 9/2 and the value area on 9/3. This gap is further confirmation that market participants are selling aggressively. The liquidation seems to have brought in new selling.

**U.S. T-Bond Futures:
9/2/86 to 9/3/86**



What happened in the session on 9/3? See page 329.

We tested the upside in A and B periods but couldn't trade above 98-30. Then the market reversed and traded all the way down to 97-13. Even though buying came in and stopped the down move in H period, the profile is basically long and narrow. This suggests that the market is still imbalanced to the downside in a longer-term time frame. In other words, the market hasn't found a fair price around which to develop yet.

Nevertheless, the buying at the bottom was strong because the volume opposite the single prints in H period is so low. (The faster the market moves out of an area, the lower the volume and the stronger the competition for opportunities.)

Will the trend continue? Or will the market reverse?

You can see that the directional move in the session is down. Range expansion to the downside shows that it's a down day. Still, it's a down day with up development. (The value area—98 to 98-30—is near the top of the range.) Therefore, we have a conflict in the market. The two elements (distribution and development) are not pulling together.

The volume base at the top of the range (the value area is near the top of the range) suggests that the down move might be losing momentum and coming to an end. We might have come far enough to bring in an opposite response strong enough to reverse market direction.

At the same time, value has dropped four points in just two days, so it's not surprising that 97-13 brought in buying. We're going to evaluate each item on the following list to see if LDB volume data can help us decide if the buying just reflects a temporary correction or a change in market direction.

Since the market was trying to go down in this session, we're going to give each item in our list a plus for continuation down and a minus for change. Even though the market retraced after the buying enters in H period, the dominant directional move, as noted above, is down.

1. Total volume. We want to know if volume is increasing or decreasing over time.

Total volume of 457,474 is almost double the volume in the previous session. The directional move in the session is down. Consequently, this is a plus for continuation down.

2. Volume at the top and bottom of the range. We want to know if volume in the top three or four ticks is more or less than volume in the bottom three or four ticks. (Use the percent of total column and add the percentages opposite the top three or four ticks and the bottom three or four.)

There is more volume at the top of the range—10% versus 1.5%. This volume distribution shows that the down move brought in less activity as price moved down. This is a minus for continuation.

3. Volume value area. We want to know if value (the 70% range) is moving vertically or horizontally. In other words, is the market distributing or developing? We also want to know if the 70% range is getting wider or narrower.

Liquidity Data Bank® Volume Detail Report
 Copyright Chicago Board of Trade 1986. ALL RIGHTS RESERVED.
 For 09/03/86 U.S. Bonds DEC 86
 Note: Volume figures are actual numbers of contracts multiplied by 2.

		Trade Price	2 Volume	10% % Of Total	CTI1 %	CTI2 %	Half-Hour Bracket Times At Which Prices Occurred				
5	52.6%	98 30/32	10646	2.3	41.5	17.3	A	3	70% range		
		98 29/32	8370	1.8	58.9	5.0	AB				
		98 28/32	12428	2.7	62.6	14.0	AB			4	TPO value area
		98 27/32	14418	3.2	62.5	9.2	AB				
		98 26/32	14560	3.2	58.9	12.3	AB				
		98 25/32	10174	2.2	64.4	9.7	AB				
		98 24/32	12572	2.7	60.6	12.8	AB				
		98 23/32	16520	3.6	50.6	7.5	ABD				
		98 22/32	12268	2.7	49.6	14.2	ABDE				
		98 21/32	11286	2.5	53.3	13.6	ABDE				
		98 20/32	22224	4.9	53.6	13.7	ABCDE				
		98 19/32	13450	2.9	58.4	13.6	ABCDE				
		98 18/32	7636	1.7	50.9	14.5	ABCE				
		98 17/32	9094	2.0	57.0	9.7	ABCE				
		98 16/32	6459	1.4	49.2	18.1	BCEL				
		98 15/32	11812	2.6	58.8	14.4	BCEL				
		98 14/32	15018	3.3	55.8	17.8	BCEL				
		98 13/32	6168	1.3	53.6	12.1	BEFL				
		98 12/32	1948	0.4	54.9	7.2	BEFL				
		98 11/32	5170	1.1	59.3	12.4	BFL				
Midpoint		98 10/32	11006	2.4	54.8	7.6	BFKL	6	CTI2 average in value area		
		98 9/32	9432	2.1	56.4	11.2	BFKL				
		98 8/32	15002	3.3	53.1	12.2	BFKL				
		98 7/32	12204	2.7	58.3	13.1	FKL				
		98 6/32	9780	2.1	59.0	11.8	FKL				
		98 5/32	5800	1.3	60.1	8.3	FKL				
		98 4/32	5116	1.1	56.8	9.2	FKL				
		98 3/32	9730	2.1	50.1	12.5	FKL				
		98 2/32	8200	1.8	60.0	11.6	FGIJKL				
		98 1/32	7314	1.6	61.5	5.7	FGIJK				
3	Volume value area	98	17508	3.8	50.2	16.5	FGIJK	6			
		97 31/32	16250	3.6	54.4	7.4	FGHIJK				
		97 30/32	14002	3.1	54.9	15.1	FGHIJK				
		97 29/32	12360	2.7	56.9	17.1	FGHIJK				
		97 28/32	8674	1.9	48.7	20.3	FGHIJ				
		97 27/32	12466	2.7	54.2	13.4	FGHIJ				
		97 26/32	10416	2.3	54.6	14.0	FGHIJ				
		97 25/32	10518	2.3	53.1	10.5	FGHIJ				
		97 24/32	8036	1.8	47.3	13.3	FGHIJ				
		97 23/32	4988	1.1	55.1	6.7	FHI				
		97 22/32	1684	0.4	58.7	14.2	FHI				
		97 21/32	2134	0.5	58.7	16.8	HI				
		97 20/32	1386	0.3	54.1	3.5	HI				
		97 19/32	2644	0.6	56.2	16.4	HI				
		97 18/32	7656	1.7	46.2	10.8	HI				
70% Range Of Daily Volume		97 17/32	4292	0.9	53.1	14.4	H	Buying			
		97 16/32	1968	0.4	49.3	16.3	H				
		97 15/32	2538	0.6	52.2	12.9	H				
		97 14/32	2122	0.5	37.0	13.7	H				
		97 13/32	28	0.0	14.3	0.0	H				
		98 TO 98 30/32	333312	2 1.5%	72.9	55.7	12.3	ABCDEFIJKL	6		

1 Total volume	Total Volume	% of Total	
		CTI1	CTI2
Total Volume for Dec 86 U.S. Bonds	457,474	55.0	12.5
Total Volume for U.S. Bonds	508,740	54.5	12.6

The chart on page 327 shows that the 70% range is almost three points lower on 9/3 than it was on 9/2. We have minus development from 101-20 to 98-00. The cash flow is definitely down and it is strong.

A vertical directional move reflects the direct entry of capital into the market. This is the strongest form of cash flow. The price gap—another form of minus development—further quantifies the seller's conviction that the market is overvalued.

You can also see that the value area on 9/3 is wider than the previous session's. A wider value area means activity is increasing as price moves down. Since the directional move in this session is down, the market is moving down at an increasing rate.

Taken together, this item is a strong plus for continuation.

4. TPO value area. The TPO value area refers to the total area with two or more single prints opposite the price range. In this session, the TPO value area is 97-18 to 98-28.

We want to know if there is a discrepancy between the 70% range and the TPO value area. In other words, is the 70% range at the top or at the bottom of the TPO value area?

There is a discrepancy here. The 70% range is higher than one might think just from looking at the profile graphic. The 70% range is 98-30 to 98, while the TPO value area is 98-29 to 97-18. As noted earlier, this is down distribution (the directional move is down) with up development (the 70% range is at the top). The two elements are not pulling together. The up development is a minus for continuation.

5. Volume in the top half vs. the bottom half of the range. We want to know if there is more or less volume in the top half of the range versus the bottom half.

There is more volume in the top half of the range—52.6% versus 47.4%. (Use the percent of total column and add all the percentages opposite the top half of the range. Then add all the percentages opposite the bottom half of the range.) Since the directional move is down and the volume is in the top half, this is a minus for continuation.

6. CTI2 activity. We want to know if the commercial is comfortable doing his routine business at this price level. Is his activity in the value area in this session more than, less than, or the same as the average over time?

First, find the commercial's average activity in the value area for whatever market you are trading. Monitor CTI2 activity in the value area for a month or two. Then add the percentages and divide by the number of sessions to get the average. Keep in mind that this average can change over time. If you notice that the average seems to be increasing or decreasing, just recheck it.

At that time, 12.3% was about average for bond futures. This suggests that commercials are comfortable doing routine business here. Their activity is helping the marketplace to facilitate trade at this level. Consequently, this is a plus for continuation.

LDB Report: 9/3/86

Liquidity Data Bank®
 Volume Detail Report
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 For 09/03/86 U.S. Bonds DEC 86
 Note: Volume figures are actual numbers of contracts multiplied by 2.

Trade Price	2 Volume	10% % Of Total	CTI1 %	CTI2 %	Half-Hour Bracket Times At Which Prices Occurred
98 30/32	10646	2.3	41.5	17.3	A
98 29/32	8370	1.8	58.9	5.0	AB
98 28/32	12428	2.7	62.6	14.0	AB
98 27/32	14418	3.2	62.5	9.2	AB
98 26/32	14560	3.2	58.9	12.3	AB
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98 20/32	22224	4.9	53.6	13.7	ABCDE
98 19/32	13450	2.9	58.4	13.6	ABCDE
98 18/32	7636	1.7	50.9	14.5	ABCE
98 17/32	9094	2.0	57.0	9.7	ABCE
98 16/32	6459	1.4	49.2	18.1	BCEL
98 15/32	11812	2.6	58.8	14.4	BCEL
98 14/32	15018	3.3	55.8	17.8	BCEL
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98 11/32	5170	1.1	59.3	12.4	BFL
98 10/32	11006	2.4	54.8	7.6	BFKL
98 9/32	9432	2.1	56.4	11.2	BFKL
98 8/32	15002	3.3	53.1	12.2	BFKL
98 7/32	12204	2.7	58.3	13.1	FKL
98 6/32	9780	2.1	59.0	11.8	FKL
98 5/32	5800	1.3	60.1	8.3	FKL
98 4/32	5116	1.1	56.8	9.2	FKL
98 3/32	9730	2.1	50.1	12.5	FKL
98 2/32	8200	1.8	60.0	11.6	FGIJKL
98 1/32	7314	1.6	61.5	5.7	FGIJK
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97 26/32	10416	2.3	54.6	14.0	FGHIJ
97 25/32	10518	2.3	53.1	10.5	FGHIJ
97 24/32	8036	1.8	47.3	13.3	FGHIJ
97 23/32	4988	1.1	55.1	6.7	FHI
97 22/32	1684	0.4	58.7	14.2	FHI
97 21/32	2134	0.5	58.7	16.8	HI
97 20/32	1386	0.3	54.1	3.5	HI
97 19/32	2644	0.6	56.2	16.4	HI
97 18/32	7656	1.7	46.2	10.8	HI
97 17/32	4292	0.9	53.1	14.4	H
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97 14/32	2122	0.5	37.0	13.7	H
97 13/32	28	0.0	14.3	0.0	H
98 TO	333312	72.9	55.7	12.3	ABCDEFGHIJKL
98 30/32					

Tested
upside

3 70% range

4 TPO value area

Buying

6 CTI2 average
in value area

1 Total volume

	Total Volume	% of Total CTI1	% of Total CTI2
Total Volume for Dec 86 U.S. Bonds	457,474	55.0	12.5
Total Volume for U.S. Bonds	508,740	54.5	12.6

Now we have to weigh the pluses and minuses. It is important to keep in mind that the items are not equally important. Typically, items one through three will weigh more heavily in your conclusion than four through six. What do we have here?

On the chart below, you can see that we have a combination of pluses and minuses – which is what you’ll see most of the time. Typically, volume data is not generally going to point to one obvious conclusion. It’s a subtle early indicator. The key to using LDB data is to integrate it into your other analysis.

Items one and three – total volume and the location of the 70% range – are strong pluses. And even though item six – commercial activity in the value area – is not as important, it is also a plus.

The activity in the session suggests that the market is still imbalanced in a longer-term time frame. The profile is basically long and narrow. Therefore, even though 97-13 stopped the down move today, the market doesn’t seem to have found a fair price yet around which it can develop. Does LDB volume confirm this analysis?

Yes, it does. LDB data seems to reinforce our feeling that the down move will continue.

Nevertheless, the volume base in today’s session is located near the top of the range. The down distribution with up development indicates a conflict in the marketplace. Consequently, it wouldn’t be surprising if the market paused and traded sideways or even up slightly.

What happened?

The market only paused here and at the 95-00 level before trading down to 93-00 on 9/12/86.

Continuation Or Change

PLUS		MINUS
1. Total volume	+	
2. Volume at top four ticks vs. bottom four ticks		—
3. Volume value area	+	
4. TPO value area		—
5. Volume in top half of range vs. bottom half		—
6. CTI2 activity	+	

To Sum Up

To monitor how effectively the marketplace is facilitating trade, we first looked at total volume and the way that volume was distributed throughout the range. Is total volume increasing or decreasing as price moves up or down? Is the volume in the top half or the bottom half of the range? Does the market have to go higher or lower to shut off the activity?

Then we looked at the value area. Is value (the 70% range) moving vertically or horizontally? Is the 70% range getting wider or narrower? Are the two elements of market activity – distribution and development – pulling together?

Finally, we looked at CTI2 activity in the value area to see if commercials were comfortable doing business at this price level.

When doing LDB volume analysis, however, it's important to keep in mind that one session is part of a longer-term process.

We didn't use the volume in this session in a vacuum. We related it to the development of the longer-term unit. Specifically, volume in this session reinforced our bias that the long-term unit hadn't gone low enough yet to find a fair price around which to develop.

It is also important to remember that when you are evaluating volume in the CTI2 column, you have to take this volume and relate it to the commercial's known behavior patterns before you can come to a conclusion. On the other hand, when you evaluate volume in the percent of total column, you are simply looking at the way the volume is distributed throughout the range.

In real trading, of course, we would also consider news events and market developments that affect value. Here, for the sake of simplicity, we just related volume data to the distribution process. The way the process develops reflects market participants' perception of value at the time. Consequently, knowing what news events and developments market participants are reacting to can help you interpret the volume data more effectively.

When Is LDB Volume Available?

Since the introduction of LDB data in 1985, the CBOT's goal has been to deliver reliable, up-to-date volume as close to real-time as possible. LDB information comes from the Board of Trade Clearing Corporation.

As of November 1992, the CBOT can deliver LDB data on an hourly basis. Data is collected and continuously updated throughout the session.

There are two major reconciliations. The first one (around 5:00 p.m.) matches 75% of the trades. The second one (around 9:00 p.m.) matches 90% to 95% of the trades.

A first look at volume for the CBOT evening session is available at approximately 1:00 a.m. (All times are Chicago time.)

A first look at volume for the Globex session is available at approximately 8:30 a.m.

The first hourly LDB report is available at approximately 9:00 a.m. This report shows trades from the previous CBOT evening session, plus trades from the Globex session, plus trades from the CBOT day session between 7:20 a.m. to 8:30 a.m. This report is then updated hourly—on a continuous basis—until the 5:00 p.m. reconciliation is available.

From 8:30 a.m. until 4:30 p.m., volume reports for financial contracts with a night session are available as a composite of evening, Globex, and day sessions. In addition, these volume reports are available on an individual basis for the evening session, the Globex session, and the day session.

Reports based on the 5:00 p.m. reconciliation are available after 5:30 p.m. Volume is available in a composite and in an individual session format.

Reports based on the 9:00 p.m. reconciliation are available after 9:30 p.m. Volume is available in a composite and in an individual session format.

In addition to the regular LDB reports, the CBOT is testing a new LDB product which shows commercial net buying or net selling. It is updated hourly—throughout the session. Currently, it is available on the CBOT internal TV system.

Conclusion

The Market Profile format has come a long way as a tool to measure market activity since its introduction in 1983.

Linking Market Profile data to the distribution process is a major breakthrough—one that makes increasingly objective analysis possible. For example, now you can identify value (the control price) precisely in each time frame. Minus development (an objective way to monitor the cash flow) can help you to quantify market sentiment.

At the same time, even though the ways to use the data have made a quantum leap forward, the basic concept hasn't changed. Neither has opportunity.

Opportunity is still price away from value. All Market Profile research, from the beginning to the present, has been designed to help traders judge whether price is going to return to the old value area or whether it is going to continue higher or lower to a new value area. In brief: Is the breakout going to fail or is it going to succeed?

In addition, no matter how sophisticated your analysis becomes, understanding the market's time frame organization and the role value plays in market activity, for instance, is going to be critical. That's why the material presented in the six parts of this Study Guide is cumulative.

Each section builds on the previous one and takes you to a higher level of understanding.

If you grasp how an extreme forms in Part I, you will have a better understanding of how a distribution begins in Part IV and why minus development indicates the direction of the cash flow in Part V. LDB volume data, discussed in this section, confirms what you see in the profile graphic and helps you to make critical distinctions. For example, a strong uptrend may look the same as a weak one in the profile graphic. Heavy or light volume, however, can help you tell the difference.

Profitable trading starts with knowing which tools can offer you a framework for better understanding the markets. Quotation prices alone simply are not enough. Market Profile/LDB analysis can improve your interpretation of trading activity in trading range and in trending markets. While judgment is an important part of every trading decision, Market Profile/LDB can help you be better informed.

Market Profile® is an analytical decision support tool for traders—not a trading system. It does not provide buy/sell or entry/exit trading signals. It does not contain any overbought/oversold, historical data backtesting or strategy optimization measures.

Market Profile® complements each trader's trading style by providing a statistical framework with which to better conceptualize market activity. However, it is prudent to constantly monitor other aspects of market activity that relate to the conditions that affect value. Experienced traders recognize that their market decisions are going to require judgment.

Some software developers have added trading systems characteristics to Market Profile®/Liquidity Data Bank® information. It is not construed that these products are in any way associated with, or endorsed by, the Chicago Board of Trade.

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Cross-referenced items are listed with the smallest subsection first and the largest category last, i.e., 1) Balanced rotations 2) Balance and imbalance 3) **Distribution Process** 4) **MARKET'S NATURAL ORDER**. To simplify the listing, all of the items cross-referenced within the **MARKET'S NATURAL ORDER** category to other items in that category use **Distribution Process** as the last reference.

GLOSSARY

Auction Framework:	An early description of the distribution process. The framework within which <i>inflows</i> of money push price <i>up</i> until there are no more buyers and <i>outflows</i> of money push price <i>down</i> until there are no more sellers.
Balance Area:	A sideways trading range. See value area, equilibrium area, volume base.
Balanced Market:	The market has reached equilibrium because equal amounts of buying and selling are present. It is trading sideways in a range.
Capital Flow:	A flow of money entering or exiting the market. An inflow pushes the price up; an outflow pushes the price down. See distribution of capital.
Composite Distribution:	Two J-shaped distributions combine to form one complete bell-shaped unit.
Condition Of The Market:	This is the market's mode—trading in a range or trending. Basically, a market is either balanced or imbalanced.
Control Price:	The price around which a unit or distribution develops—the fair price, the market's current opinion of value in this time frame. This price is in the top third, the middle third, or the bottom third of the range. As long as this price reflects market participants' current view of value, it pulls the market toward itself. See mean price.
CTI:	Short for Customer Trade Indicator.
CTI 1:	Trades executed by local floor traders, i.e., CBOT members for their own accounts.
CTI 2:	Trades executed by commercial clearing members trading for their house account, i.e., an investment bank trading for the house account.
Current Price Influence:	A more precise way to define market sentiment. <i>A forward price influence</i> pulls the market away from the current control price to a new, higher or lower level (a new higher or lower idea of value). A forward price influence causes the market to trend; it reflects long-term sentiment. <i>A backward price influence</i> pulls the market back to the current control price (an old idea of value). A backward price influence causes the market to trade sideways; it reflects short-term sentiment.
Day Time Frame:	An early description of short-term activity.
Developing Market:	The market is balanced by equal amounts of buying and selling above and below a fair price. Money is entering <i>and</i> exiting; trade is two-sided. Price is on the horizontal axis—moving sideways within a range, i.e., rotating. See price control market.

Development:	Sideways rotations that form a bulge. This bulge shows you the market's reaction to a directional move. If the bulge is in the top third of the range, market participants are bullish. If it is in the bottom third, they are bearish. The location of the bulge is obvious because it is the widest part of a trading unit or distribution. Development continues until trading volume roughly comes to a point around the fair price. See emerging market activity, value area, volume base.
Distributing Market:	The market is imbalanced. Money is <i>either</i> entering or exiting. One side dominates activity. Price is on the vertical axis—moving up and down directionally, i.e., trending. See non-price control market.
Distribution:	The market's basic building block. The market's natural trading unit. A graphic representation of a market move. Small and medium size trading units or distributions combine to form a larger whole. A long-term trend comprises many near-term and intermediate-term distributions. In addition, there is no preset time schedule for a distribution—like a session, 10 days, or life of the contract. Instead, each unit is defined by the capital flow, starting with a flow of money into or out of the market and lasting until that cash flow is neutralized.
Distribution Of Capital:	A series of prices in one direction that corrects a market imbalance, i.e., a directional move or a trend. See capital flow.
Down Distribution:	A flow of money <i>exiting</i> the market that moves the price down.
Down Development:	The market comes into balance and trades sideways opposite the bottom third of the range.
Efficient:	A trading unit or distribution becomes efficient when trading volume roughly comes to a point at the fair price, making that price level the widest part of a unit. The convergence shows that everyone recognizes value in this time frame. There is no opportunity left; the market has to move in order to distribute. That's why an efficient market is ready to begin something new.
Emerging Market Activity:	Four or more TPOs opposite the same price. Several TPOs at the same price level indicate that buying and selling are both present at this price level. The market is starting to develop a sideways bulge. See development.
Equilibrium Area:	This area is defined by balanced rotations around a fair price. In other words, roughly equal amounts of buying and selling above and below a fair price. See value area, balance area, volume base.
Facilitating Trade:	Promoting the distribution of beans, bonds, corn, etc. A market distributes by encouraging market participants to buy and sell in individual marketplaces.
Failed Auction:	An attempt at range extension that fails to continue. Defined in terms of the distribution process, an inflow or outflow of money that fails to continue.
Imbalanced Market:	Unequal amounts of buying and selling are present—one or the other is dominant. The market is searching for a new, higher or lower equilibrium level; it is trending. See distributing market.

Initiating Activity:	Buying above value or selling below value. An early way of describing a new flow of money into or out of the market. The beginning of a new directional move, a range extension.
Likely Event:	An event or development that <i>does</i> have a fundamental impact of the long-term idea of value. For example, current government farm policies are going to decrease the supply of agricultural commodities over time. This development may not be obvious to market participants at first but it has already occurred and is fully discounted by the market. <i>Long-term value</i> has already moved higher. Price has to catch up.
Market Activity:	Buying and selling by long-term traders.
Market And Marketplace:	A market is the whole. It is comprised of many marketplaces, i.e., individual exchanges. For example, the U.S. Treasury securities market includes marketplaces in Tokyo, London, New York, and Chicago.
Mean Price:	The price around which a trading unit or distribution develops. The market's current view of value. See control price.
Minus Development:	Areas that are “minus development” in a distribution (or trading unit) are areas <i>without</i> any market activity—in other words, areas that <i>lack development</i> or two-sided trade. For example, consider the space to the right of a line of single prints in the Market Profile graphic. The space is empty because the line of single prints reflects the distribution of capital. This inflow (or outflow) of money is preventing any development (two-sided trade) opposite the single prints. Empty space to the right of <i>up distribution</i> indicates an absence of selling. Since there is no selling, you know the direction of the cash flow is up. Empty space to the right of <i>down distribution</i> indicates an absence of buying. Since there is no buying, you know the direction of the cash flow is down.
Negotiating Process:	The procedure with which the market identifies market participants' view of value in each time frame, i.e., identifies a fair price in the top third, the middle third, or the bottom third of the range.
Neutral Day:	An early description of a 3-1-3 distribution.
New Beginning:	The start of a new flow of money into or out of the market. The beginning of a market move. The start of a new trading unit or distribution. See distribution of capital.
Non-price Control Market:	An imbalanced market. A market that is moving directionally. Long-term traders are controlling activity. A trending market. See distributing market.
Normal Day:	An early description of a 3-1-3 distribution.
Normal Variation Day:	An early description of a session with some development (sideways rotation) and some distribution (range extension).

1-2-3 Distribution:	A teardrop or J-shaped distribution (one-half of a complete bell curve) that develops the first standard deviation of trading volume first and then establishes the third standard deviation. The volume base is at the top or bottom.
Opposite Response:	Price moves up or down until it brings in an opposite response. For example, buying pushes the price up high enough to attract selling—an opposite response.
Other Time Frame:	An early description of long-term activity.
Past Distribution Point:	The beginning of a previous distribution of capital.
Price Control Market:	A balanced market. A market that is trading sideways. Short-term traders are controlling activity. A trading range market. See developing market.
Range Extension:	A new flow of money into or out of the market. See distribution of capital.
Responsive Activity:	Buying below value and selling above value. An early way of describing money flowing in and out of the market within an established trading range.
70% Range:	The range in which 70% of the session's trade occurred. The most precise measure of the value area.
Single Print Extremes:	Excesses in the market. Either an unfair high price area or an unfair low price area. Single print extremes are low volume areas. They correlate to the third standard deviation of trading volume. An extreme shows price rejection; it propels the market to a higher or lower level with an inflow or an outflow of money.
Support/Resistance Parameters:	Defined by the money flow, these critical price areas for each unit or distribution serve as reference points: the high and low of a unit's range, the control price, the top and bottom of the developing value area. These parameters provide valuable reference points for traders because they can potentially stop a move.
Surprise Event:	An unexpected event that <i>does not</i> have a fundamental impact on long-term value. Price moves away from current value and then it snaps back.
3-1-3 Distribution:	A bell-shaped curve. The first standard deviation of trading volume is in the middle between two third standard deviations. The volume base is in the middle. See normal day, neutral day.
3-2-1 Distribution:	A teardrop or J-shaped distribution (one-half of a complete bell curve) that establishes the third standard deviation of trading volume first and then develops the first standard deviation. The volume base is at the top or bottom.
Time Frame:	A forcing point, i.e., a point in time that forces decisions. For example, say an option expires in two months. The expiration date is going to force the holder to make a decision. The market distributes in all time frames simultaneously—near-term, intermediate-term, long-term, and everything in between. Distributions (units) in near- and in intermediate-term time frames combine to form a long-term whole. Time frames are defined by the money flow because money flowing in (or out) is the natural place to break continuous, 24-hour activity.

TPO:	Short for Time/Price Opportunity. Each letter in the Market Profile graphic represents an opportunity at a certain time at a certain price. The TPO is the basic unit for analysis in a single session.
TPO Value Area:	The total area with two or more single prints opposite a session's price range. This area develops with sideways rotations. A less precise measure of the value area than the 70% range.
Trend Day:	An early description of a distributing market, a distribution of capital.
Unfair High:	The high price of a unit or distribution. The unfair high is an advantageous price, which means it is a low volume area; it defines the top of the existing range.
Unfair Low:	The low price of a unit or distribution. The unfair low is an advantageous price, which means it is a low volume area; it defines the bottom of the existing range.
Unlikely Event:	An unexpected event that <i>may or may not</i> have an impact on long-term value. The key is whether the event changes fundamental conditions affecting value. For example, consider rain in the middle of a drought. Is this an isolated incident or is this the first in a series of rainy days? If the rain is an isolated event, price will move away from current value and then snap back. Why? Nothing has changed to suggest that the drought is over. The supply situation remains unchanged. If, on the other hand, the rain is the beginning of adequate rainfall, price and value will both move to a lower level. There has been a fundamental change in conditions. Adequate rainfall suggests a large supply of agricultural commodities.
Up Development:	The market comes into balance and trades sideways opposite the top third of the range.
Up Distribution:	A flow of money <i>entering</i> the market that moves the price up.
Value:	Value represents the market's opinion of a fair price. This price is located somewhere between the unfair high and the unfair low—in the top third of the range, in the middle third, or in the bottom third. A developing market rotates around this price. See control price, mean price.
Value Area:	The value area shows price acceptance. This area develops with sideways rotations around a fair price. This is a high volume area because market participants view this range as a fair price area; it correlates to the first standard deviation of trading volume. See balance area, equilibrium area, volume base, 70% range.
Volume Base:	This is the first standard deviation of trading volume in a session's range; it is the bulge in the outline of the Market Profile graphic. The volume base is formed by sideways rotation. If the fair price (value) is in the top third of the range, the volume base is in the top third of the range; if the fair price is in the middle third, the volume base is in the middle third; if the fair price is in the bottom third, the volume base is in the bottom third. See value area, equilibrium area, balance area.