TRADING TECHNIQUES

Pay Attention To Understand Your Market

Daytrading With Market Value

Markets are complex, self-regulating, and driven by feedback. The message is clear: Decipher the feedback to understand your market.

by Donald L. Jones

How can you understand the market? With feedback. What is feedback? Feedback is market response. For instance, heavy demand leads to increased market activity; feedback is apparent as more ticks, more volume, increased volatility, and higher prices. You already know this, but how can you interpret this data?

Most technical indicators are not adequately coupled to the market because markets are dynamic and changing. Decoding feedback requires a market-attuned approach, something flexible enough to keep up with changes in the feedback itself. An important characteristic of feedback is that it takes time to develop a signal. A market acts, for example, and price jumps. All traders receive the information at about the same time. You consider the new information and then react to it in your own way at your own pace, and other traders do the same. The sum of all traders' actions creates the total feedback reaction to the initial market movement.

This takes time, since each trader's response time frame is different. Ultimately, there is a new feedback message to which you and other traders may respond. This feedback-reaction-feedback cycle continues as long as the market trades. Average feedback response time has been measured to be some dozens of minutes.

WHAT SHOULD YOU MEASURE?

Ticks, volume, volatility, or price all have utility, but generally, the short-term variation of each is quite large. Value is an indirect market measure that is defined as price over time or volume over time. Value is the price (range) the market prefers. To find value, you must use a measurement methodology that is consistent with the feedback response behavior. In short, you must "decode" the feedback.

Feedback decoders have been around for 20 years. First was Market Profile, developed by Peter Steidlmayer at the Chicago Board of Trade (CBOT), which was then followed by Meta-Profile. Both use market input to find value. Some quote vendors offer a product also called "Market Profile" to find intraday value, which can be read as support and resistance, but it's not the actual CBOT Market Profile. As with most such products, quote vendors' "Market Profile" generally comes with little explanation; it is simply there to be used.

This article will help you understand how the original Market Profile and Meta-Profile can find value and how you can evaluate

CBOT Volume Report (LDB)

Trading date: 09/09/04
Contract: Dec 04 Wheat (CBOT) day

Trading begins: 0930 (CST)
Trading closes: 1315
TPO symbols: DEFGHIJK
First period: 30 minutes
All subsequent periods: 30 minutes

Price	Volume	%Vol	%CTI1	%CTI2	%CTI3	%CTI4	Brackets(*)
3234	208	0.9	50.0	0.0	0.0	50.0	E
3232	48	0.2	50.0	0.0	0.0	50.0	E
3230	902	3.9	51.9	0.0	5.4	42.7	DEF
3226	1330	5.7	49.4	0.3	9.5	40.8	DEF
3224	2480	10.6	47.5	0.0	4.9	47.6	DEFGIK
3222	638	2.7	54.4	1.6	5.2	38.9	DEFI
3220	3684	15.7	44.2	0.6	5.6	49.5	DEFIJK
3216	1748	7.5	56.7	0.0	2.5	40.8	DEFGHIJK
3214	2490	10.6	45.6	0.6	5.3	48.6	DFGHIJK
3212	820	3.5	50.7	0.0	8.5	40.7	DFGHIJK
3210	1746	7.5	48.3	1.1	5.0	45.6	DFGHIJK
3206	1052	4.5	34.5	0.0	3.3	62.2	DFGHIJK
3204	2524	10.8	41.8	1.2	4.5	52.5	DEFGHJK
3202	1330	5.7	48.6	0.2	5.0	46.2	DEFGHJK
3200	1324	5.7	47.4	0.0	5.4	47.2	DGHJK
3196	398	1.7	51.0	0.3	4.5	44.2	GHJK
3194	394	1.7	54.8	0.0	4.1	41.1	DGHJK
3192	278	1.2	50.4	3.6	10.4	35.6	FGH
3190	10	0.0	70.0	0.0	0.0	30.0	G

70% Volume Summary

Price	Volume	%Vol	%CTI1	%CTI2	%CTI3	%CTI4	Brackets
3224	17182	73.4	46.3	0.6	4.9	48.2	DEFGHIJK
3204							

FIGURE 1: WHAT IS THE SUPPORT AND RESISTANCE FOR THE TRADING DAY? The value area in the Liquidity Data Bank (LDB) may have the answer. On September 9, 2004, for the December 2004 wheat contracts it was between 3204 and 3244.

MARKET PROFILE

your findings. However, this powerful tool has its own idiosyncrasies. This article will also clarify the use of value in daytrading and illustrate a major potential pitfall in its use.

TOOLS YOU CAN USE

When value-based market analysis was introduced by Steidlmayer, the CBOT began offering a revolutionary new kind of data, the Liquidity Data Bank (LDB), which included trading volume at price, a breakdown of volume amid the four classes of traders on the floor, and a pictorial of the time trades cleared at each price. See Figure 1 for an example of an LDB report for December 2004 wheat contract on September 9, 2004.

While the volumes traded by the four classes of members can be of interest for market analysis, the primary focus here is on the two prices below the table, titled "70% Volume Summary" (also called *value area*, or VA). VA is 70% of the day's trading volume centered around the peak volume (3684 contracts at a price of 3220 in Figure 1). Value area (prices 3224 to 3204) identifies and defines support and resistance for that day.

A Market Profile is embedded in the LDB report. It includes the price, volume, and brackets(*) of the LDB as shown in Figure 2. Brackets(*) identify, by letters, the half-hour periods in which the prices were cleared: 323:4 cleared in E period (10:00 to 10:30 am), the price 323:0 cleared (traded) in periods D, E, and F (9:30 to 10, 10 to 10:30, and 10:30 to 11). The letters for the half-hour time frames are called *time-price-opportunity* (TPOs).

Note that the profile day is broken into half-hour periods. The half-hour was Steidlmayer's choice for the feedback response time, a time measured much later to be from 25 to 30 minutes. The volume value area (70% volume summary) is also a part of Market Profile. A daytrader the next day (September 10, 2004) has the value prices of September 9 as a starting point. The VA of September 9 is not an artifice of a formula; it is a measure of the actual behavior of the individuals who form the market, or their feedback. For tomorrow, a wheat trader knows the near-term support and resistance: that a price above 3224 represents a move above previous value; a price below 3204 is below previous value.

MARKET PROFILE LIMITATIONS

While the CBOT LDB and Market Profile broke new ground in market information, both products fell short of satisfying the needs of daytraders. First was the lack of current information within the trading day. Initially, LDB reports were released by

Market Profile From CBOT LDB Data

Price	Volume	Brackets(*)
3234	208	E
3232	48	E
3230	902	DEF
3226	1330	DEF
3224	2480	DEFGIK
3222	638	DEFI
3220	3684	DEFIJK
3216	1748	DEFGHIJK
3214	2490	DFGHIJK
3212	820	DFGHIJK
3210	1746	DFGHIJK
3206	1052	DFGHIJK
3204	2524	DEFGHJK
3202	1330	DEFGHJK
3200	1324	DGHJK
3196	398	GHJK
3194	394	DGHJK
3192	278	FGH
3190	10	G

High Volume Price (Point of Control)

70% Volume Summary

Price
3224
3204

FIGURE 2: THE VALUE AREA IS YOUR STARTING POINT. For any given trading day, the value area measures the feedback. Before starting your trading day, you will know what the previous day's near-term support and resistance were.

Tick-TPO Meta-Profile Report

Trading date: 09/09/04
Contract: Dec 04 Wheat (CBOT) day

Price	TPT
3234	E
3232	E
3230	DE
3226	DEF
3224	DEFI
3222	DEFI
3220	DEFIJK
3216	DFHIJK
3214	DFHIJK
3212	DFHIJK
3210	DFGHJK
3206	DFGHJK
3204	DGHJK
3202	DGHJK
3200	DGHJK
3196	GHJ
3194	GHJ
3192	G
3190	G

Center of TPTs (Point of Control)

TPT Analysis

Value area from TPTs

Upper	3220
Lower	3200

FIGURE 3: HOW IS THE META-PROFILE DIFFERENT FROM THE MARKET PROFILE? The Meta-Profile is more regular and if you compare Figure 2 with this one, you will note that the TPOs don't exactly match the TPTs. The value areas between the two are close. Another difference is that the TPT letters are continuous between the highest and lowest prices traded.

the clearing house at the end of day, around 8 pm. CBOT now provides periodic intraday LDB reports from 9 am to 11 pm. However, the LDB report depends on completion of the clearing process, so the reported data always lags the actual market, sometimes by as much as an hour or more. A larger limitation is that LDB data are only available on CBOT-cleared markets. No Market Profile exists for traders of crude oil, gold, cotton, and so on.

META-PROFILE

Shortly after Market Profile came out, we at Cisco realized the desirability of value-based analyses for all markets, not just those on the CBOT. In addition, real-time analyses were desirable. We turned to the ticker, dividing the day into half-hour time frames with the resultant TPO-like markers for trading at price and time. Tick TPOs (TPTs) (as in, "that-price-ticked") substituted for the LDB volume used in Market Profile. We found that the tick TPOs were a valid functional substitute for the trading volume from the LDB. Figure 3 is a Meta-Profile for the same trading day as Figures 1 and 2 (September 9). The half-hour tick data for checking the Meta-Profile of Figure 3 can be found in Figure 4.

Market Profile and Meta-Profile can be compared for CBOT futures, as we do with the day market (floor) wheat trading on September 9. There are differences: the Meta-Profile of Figure 3 is more regular, and the cleared volume TPOs (Figure 2) do not match the tick TPTs exactly. Some of the mismatches can be due to differences between cleared data and ticks — for example, out-trades (errors) will be on the tick profile but not on the cleared profile of Figure 2. Other differences are not so easy to understand: Figure 2 shows trading at 322:4 in K period (13:00 to 13:30), but the tick bars of Figure 4 show no trading above 322:0 in that period. The same is true of K period trading shown at 319:6 and 319:4. The value areas agree fairly closely, to within half a cent.

It is a practice of Meta-Profile to display continuity. Each price between the high and low for a period will list the TPT for that period. Such continuity was also a feature of Market Profile until CBOT introduced a new data collection program in January 2003 that posts TPOs only at traded prices. This may be part of the reason for the discontinuity of E period on Figure 2, where prices 321:4 to 320:6 were skipped.

Period	First	High	Low	Last	TIK	PD
09:30:00	3210	3230	3200	3220	114	D
10:00:00	3222	3234	3220	3224	64	E
10:30:00	3226	3226	3206	3206	40	F
11:00:00	3210	3210	3190	3192	63	G
11:30:00	3194	3216	3194	3214	31	H
12:00:00	3220	3224	3212	3214	29	I
12:30:00	3216	3220	3194	3202	43	J
13:00:00	3210	3220	3200	3202	51	K

FIGURE 4: TICK DATA HALF-HOUR BARS. TIK refers to the number of recorded ticks in the time frame and PD is the letter designator for the period.

META-PROFILE VS. MARKET PROFILE

In a quiet, balancing market, profiles from volume and ticks find essentially the same value. If value changes within the day, there can be a substantial difference between the two. The Meta-Profile value comes from a collection of many inputs, the TPTs. Market Profile calculates value starting from one point, the high volume price (POCVOL).

Imagine a case in which the market trades in a set price range most of the day and then value changes, with highest volume in the less-traded price area. The tick-based Meta-Profile will show one value while the volume-based Market Profile finds another. Such a case is illustrated in Figure 5 (December 2004 wheat, September 17). Trading was confined to the price range 341:4 to 336:4 from the open at 9:30 am in period D through period I (12:00 to 12:30). The last hour of the day (periods J and K, 12:30 to 13:30) saw price drop to 331:0. Peak volume (POCVOL) came at 332:4, while peak TPT count (POCTPT) was earlier in the day at 339:0. The difference, 6.5 cents, is $325, quite a lot in a market where the daily range is only $525.

You now have two widely differing sets of support and resistance for this day. Which do you use? From Figure 5, the latest (in time) volume value center (POCVOL) is in the lower

LDB Market Profile			Tick - TPO Meta-Profile	
Price	Volume	Brackets	Price	TPT
3414	390	D	3414	D
3410	2164	DE	3410	D
3404	1480	DEGH	3404	DGH
3400	1452	DEFGHI	3400	DFGH
3394	1346	DEFGH	3394	DEFGH
3390	2260	DEFGHIJ	3390	DEFGHI ← POCTPT
3384	1166	DEFHIJK	3384	DEFI
3380	1940	DEIJ	3380	DEI
3374	410	DEIJ	3374	DEIJ
3370	158	IJ	3370	IJ
3364	424	DIJ	3364	IJ
3360	416	DJ	3360	J
3354	262	J	3354	J
3350	508	IJK	3350	J
3344	784	JK	3344	J
3340	968	JK	3340	JK
3334	882	JK	3334	JK
3330	2476	JK	3330	JK
3324	2532	JK ← POCVOL	3324	JK
3320	1832	JK	3320	K
3314	2388	JK	3314	K
3310	584	JK	3310	K
70% Volume Summary			Value Area From TPTs	
3392			3410	
3310			3362	

FIGURE 5: MARKET PROFILE (LEFT) AND TICK-TPO META-PROFILE (RIGHT). The differing values for the two types of analysis are an alert that value is changing during the day. But which one do you use?

price range toward the end of the day. Value from volume came latest in the day, superseding the earlier TPT value from ticks. Clearly, for this case, the volume value is the correct choice.

Markets often display follow through after an abrupt change in value late in the day. A trader would look for continuation to the downside early the next day (September 20). Price below the support of the 70% volume summary, 331:0, would indicate continuation down. From the tick bars in Figure 6, you can see that price dropped through 331:0 in the 9:35 to 9:40 time frame. The drop continued down to 325:0 in the next five-minute period. No one can say just how any given trader would have acted, but it is certain that knowing which value to use, and understanding a market's propensity to follow through, would have offered you a near six-cent ($300) opportunity within a 10-minute time period.

Period	First	High	Low	Last	TIK	PD
09:30:00	3314	3330	3310	3314	37	D
09:34:59	3316	3320	3290	3290	47	D
09:40:00	3286	3294	3280	3280	49	D
09:45:00	3282	3284	3250	3270	32	D
09:49:59	3274	3274	3264	3272	20	D
09:55:00	3274	3280	3266	3270	18	D
10:00:00	3264	3266	3260	3262	11	E
10:04:59	3264	3274	3262	3274	26	E
10:10:00	3272	3276	3270	3272	13	E
10:15:00	3274	3280	3272	3274	13	E
10:19:59	3272	3276	3270	3270	16	E
10:25:00	3272	3276	3270	3276	11	E
10:30:00	3274	3280	3274	3274	10	F

FIGURE 6: TICK DATA FIVE-MINUTE BARS. After an abrupt change in value late in the trading day, markets often display a follow through. Here you can see that prices did drop in early trading, and this is something that traders could have benefited from.

Note that differing value determinations by the two types of profile are rare; they occur more than 20% of the time. In this case, the volume value was the correct one. About half the time, it goes the other way and tick-based profiles are the correct ones.

Those getting their values from the "Market Profiles" of quote providers are most probably receiving Meta-Profiles based on tick data. They have no way of comparing with volume-based Market Profiles unless they subscribe to the LDB (available only on CBOT futures). In the absence of a volume-based value to compare with, their best strategy is to carefully examine their Meta-Profile for a structure like that of Figure 5 (right side). Any late-in-the-day market surge is suspect. If the trading is strong and sustained, without a return to the fat part of the profile, the calculated value support and resistance prices are more than suspect; they are most likely invalid.

A TRADING EXAMPLE

You enter the trading day, Monday, September 20, knowing that value from the previous Friday is 339:2 to 331:0. You also know that Friday's market saw quite a strong downthrust late in the day. Your preferred direction is down. You would like for the market to open somewhere above 331 (support), so you could short the breakout as price moved down through 331 (should it do so). Referring to the tick bars in Figure 6, the market traded at or above 331 for the first five minutes after the open. Then price dropped below 331 and you entered short at, say, 330:6.

Now your attitude is transformed into being a congestion seeker; you are in a directional market and you want to know as quickly as possible when the market goes into congestion. In fact, the market continued down to 325 in the next 10 minutes, reaching a bottom (although you would not know it at the time). You are looking for signs of congestion signaling an end to the trend. For the next 20 minutes, price ranges between 328 and 326:6.

Sometime within that period, you should recognize the congestion buildup. So you pick a spot and get out. Just which spot do you choose? The market feedback delay gave you plenty of time to make your decision.

Had you structured your strategy on the wrong value — the one from the Meta-Profile — you would have found no entry on September 20 (low limit is 336:2). In this example, using the wrong value would have caused you to miss the trade. Little harm done there, but a bad value could have as easily gotten you in at a wrong price. The error would be compounded if you traded several times in the day.

THE BEST OF BOTH WORLDS

The differences in Market Profile and Meta-Profile are most pronounced in strongly moving markets where mismatches are found up to 50% of the time. The trending markets are just the ones you want to participate in, since those are where the opportunity lies. Having access to only one value measure, be it Market Profile or Meta-Profile, is an obvious handicap. It would be best to have both, but that is not possible for most markets. (As reporting improves on the computer-traded markets, volumes will become more available, increasing the markets for which Market Profile can be calculated.) If you do not have access to both profiles, you must be able to read the profile you do have, not just the value numbers, to avoid trading the wrong support and resistance.

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SUGGESTED READING

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†See Traders' Glossary

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