

J. Peter Steidlmayer: In step with the markets

By David Bukey

©2005, Reprinted with permission of Active Trader magazine (www.activetradermag.com)

J. Peter Steidlmayer has been an independent trader and member of the Chicago Board of Trade (CBOT) for more than 40 years, but he is best known as the developer of Market Profile and the Liquidity Data Bank (LDB), which are data displays and resources that show price action in terms of how often (and how much) a market is trading at a particular price level. Steidlmayer conceived these tools from 1981 to 1983 while serving a three-year term on the CBOT's board of directors.

After graduating from the University of California at Berkeley in 1960 with an accounting degree, Steidlmayer moved to Chicago and began trading bonds and commodities as a pit trader at the CBOT. Monitoring market action led to the realization that prices tended to follow a "bell-curve"-type distribution throughout the day — most of the trading took place at certain price levels, with progressively less activity occurring the farther above and below the market moved from this "value area." This discovery, combined with measuring market action in 30-minute intervals, formed the basis of Market Profile. The LDB is Market Profile's complementary volume database.

Steidlmayer, 65, has written four books explaining his theories: *Markets and Market Logic* (with Kevin Koy, Porcupine Press, 1986), *New Market Discoveries* (with Heidi Steidlmayer, self published, 1990), *141 West Jackson* (Steidlmayer Software, 1997), and *Steidlmayer on Markets, Second Edition* (Wiley, 2003). Since creating Market Profile and LDB, Steidlmayer and fellow trader Steven Hawkins, who co-wrote *Steidlmayer on Markets*, created Capital Flow software — a program based on their experiences trading these methods over the past 20 years.

Steidlmayer's outlook has continued to evolve, and he has created several new CBOT data products, such as On Floor Information (OFI) — a ratio of average buy orders to sell orders — as well as short-term customized spreads called X-funds (see "CME hopes X marks the spot," *Active Trader*, January 2005), which consist of a portfolio of theoretical futures positions (long or short) picked to profit within a two-week period. The underlying contracts aren't traded, but their movement determines the X-fund's profitability. (The CBOT introduced X-funds in 2002 and has offered them in conjunction with the Chicago Mercantile Exchange since October 2004.)

While Steidlmayer doesn't disavow the basic tenets of Market Profile, he is quick to point out that popular Market Profile trading methods used in the late 80s are no longer viable because "the imbalance between the buyers and sellers is overwhelming the immediate liquidity of the marketplace."

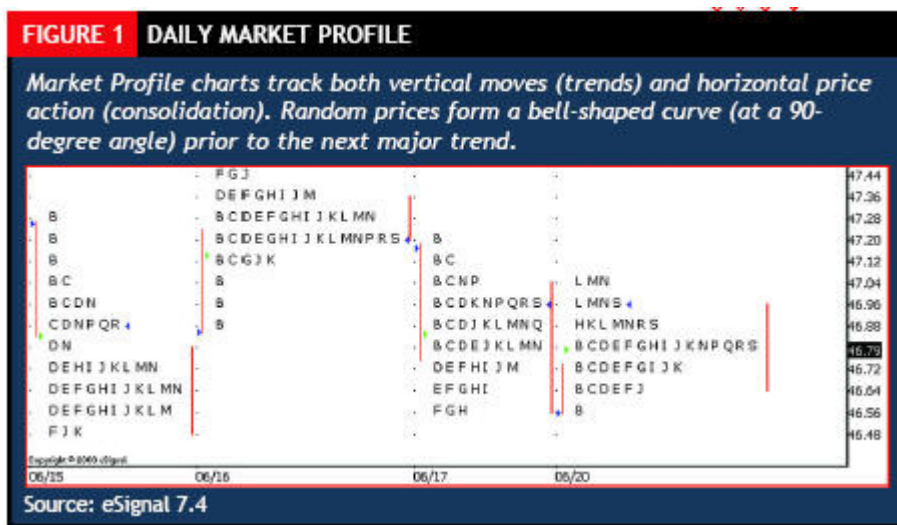
Profile of a market

Profile of a market Steidlmayer sees the market as an auction process, which moves up and down in search of price efficiency, or the level at which buyers and sellers are in balance. The market should move horizontally when buyers and sellers are in balance, and vertically (up or down) if demand exceeds supply or vice versa.

Steidlmayer realized that during horizontal moves, the price levels at which a market traded tended to form a bell-shaped curve, in which prices are distributed around the mode (most frequently occurring) value. A Market Profile chart organizes price data according to this principle, except it turns the bell curve on its side 90 degrees.

Market Profile charts group price into 30-minute intervals, intervals, called Time Price Opportunities (TPOs), represented by different letters. For example, a trading day (for equities) lasts six and a half hours, and each 30-minute segment of the day is designated by one of the 13 letters from A through M.

Figure 1 shows a daily Market Profile chart of Dupont (DD). The stock traded above 47 during the opening TPO (9:30 a.m. ET to 10 a.m.) on June 15 before closing below that threshold. It climbed the next morning, retraced some of those gains, and closed higher. The stock slid on June 19 and 20 to close at 46.79.



The shape of a profile is what's important. The widest sections of the profile represent areas where the market traded most frequently; most of the day's volume also typically occurs there. The chart plots additional rows as subsequent TPOs trade outside the prior interval's range.

Classifying daily profiles

A profile's "initial balance" (IB) refers to the first hour of trading in any market when mainly specialists and independent traders place trades. (The light red lines to the left of Figure 1's profiles show each day's initial balance.)

This area was a critical reference point for Steidlmayer when he began trading the Market Profile display in the 80s because it allowed him to organize price action in terms of the relationship between shorter- and longer-term traders.

Steidlmayer classified different types of daily profiles into six groups (non-trend, normal, normal variation, trend, neutral, and running trend neutral) based on how the market's first-hour price action compared to the remaining periods' movement. For example, a non-trend day's trading activity occurs almost exclusively within its initial balance, and its range is narrow, as few longer-term traders take positions.

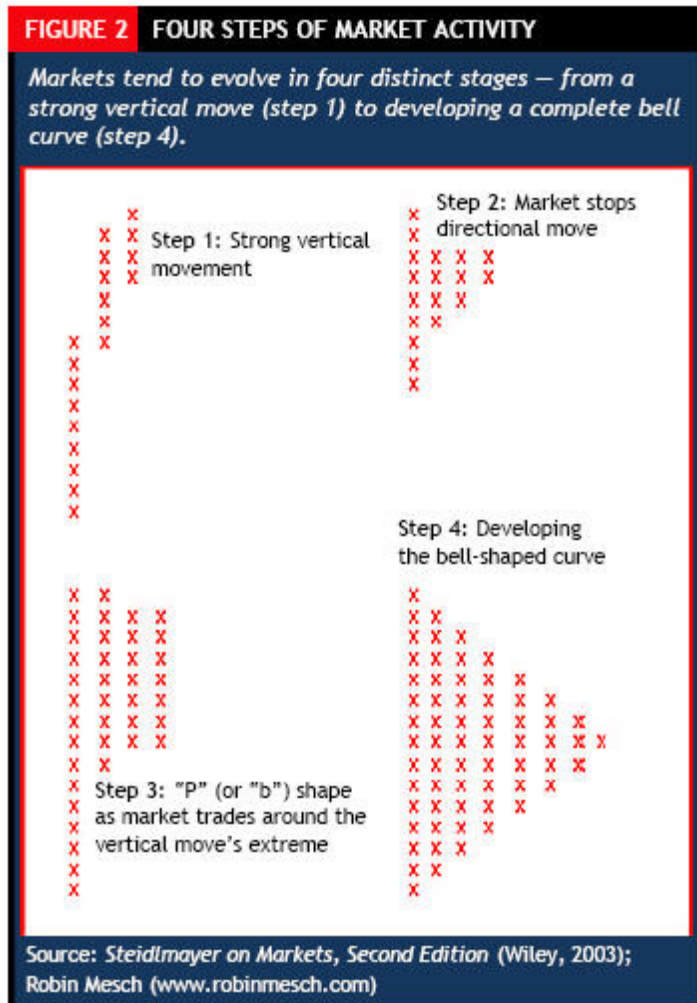
In contrast, a trend day features a narrow IB followed by a large directional move (caused by longer-term traders entering the market) and a close near its high or low. The remaining three groups identify price action somewhere in between a flat and trending market.

Although these groups helped Steidlmayer trade Market Profile on a daily basis, he also found these concepts made sense on longer-term timeframes. For example, the market's range from Monday to Tuesday could be that week's IB, while the market's price action from Wednesday to Friday determines which of the five categories describe that week's behavior.

Four steps of market activity

The construction of profiles and their daily classifications rely on chronological time (e.g., 30-minute, daily, or weekly increments), but Steidlmayer urged traders to look beyond that to measure "market time," which means understanding how bell-shaped curves develop.

Steidlmayer's "four steps of market activity" describe patterns the market forms as it attempts to find an efficient price. Figure 2 shows the process for an uptrend begins with a strong up move that eventually loses momentum as buying demand falters and sellers appear (steps 1 and 2). The market then trades sideways around the rally's end before filling in the lower portions of the bell curve (steps 3 and 4).



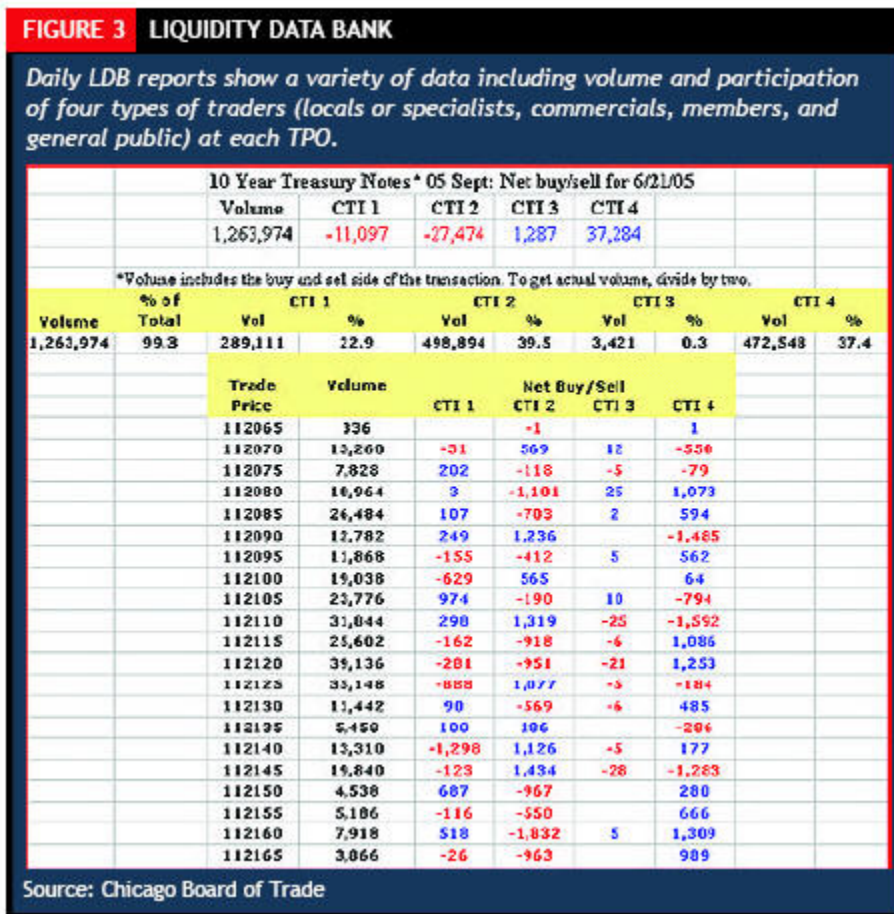
Although Figure 2 profiles an uptrend, the four steps evolve around sell-offs in a similar way. Traders who follow traditional profile analysis try to determine when a market has built a bell-shaped curve and then look for a directional move out of the “mode line” — the price level with the most horizontal movement.

This process seems fairly straightforward, but it doesn't adhere to chronological time, which makes it difficult to spot on daily profiles. Instead, traders must combine TPOs from several days to find out what stage the market is in. And most charting platforms that offer Market Profile can't combine TPOs from different days. (Aspen Graphics, CQG, and Steidlmayer's Capital Flow software let you consolidate multiday profiles.)

For more information about Market Profile, visit the CBOT's Web site (www.cbote.com). Also, see “Trading order flow with Market Profile” (Active Trader, May 2005) for a detailed explanation of the four steps of market activity.

Liquidity Data Bank

While Market Profile is primarily a price display, the Liquidity Data Bank is only available on CBOT contracts and contains important volume information, including the number of cleared trades for each 30-minute TPO and a percentage breakdown for the four types of traders — locals or specialists, commercial clearing members, members trading for other members, and general public (see Figure 3).



These categories, known as Customer Trade Indicator (CTI) codes, can be used to find out how different traders reacted to market conditions. For example, commercial traders, or hedgers (not speculators) tend to “fade” an intraday trend and take the opposite position at the day’s extreme, according to Steidlmayer. The “commercials” may not be right, he says, but the LDB allows you to trade with them, or any other trader type, if you choose.

The LDB, provided by the CBOT on an intraday or daily basis, also includes each contract’s so-called “value area,” at which 70 percent of trading occurs.

The evolving nature of markets

In the 60s Steidlmayer noticed that markets tended to form bell-shaped curves each day as they found an efficient price by the closing bell. He profited from selling daily highs and buying daily lows in anticipation of an intraday trend reversal.

However, this “responsive” behavior shifted in the late 60s as commodity funds formed and their managers began buying high and (hopefully) selling higher in anticipation of a continuing trend. Steidlmayer altered his trading style to adapt to the changing environment, a shift that taught him to focus on the present tense as opposed to using historical patterns to predict the future.

Steidlmayer says today markets don’t actively form profiles each day because “imbalances,” or directional moves, are now so overwhelming the market can’t integrate them and form an efficient price by day’s end as it did 40 years ago.

“The market’s basically changed to where we have selling followed by buying,” he says. According to Steidlmayer, the market used to move sideways to integrate the imbalances (as it formed a bell-shaped curve), but it now moves down and back up in two separate phases. This means the basic tenets of Market Profile such as the five daily classifications and the four steps of market activity don’t work as well as they did in the past.

New concepts

Many of Steidlmayer’s new insights are based on volume analysis, which is an internal, or market-generated measurement as opposed to an external one, such as a moving average.

Analyzing volume is essential for electronic traders because it’s the only internal information they have. In contrast, pit traders had many cues such as activity and mood to gain insights regarding market direction.

Steidlmayer’s On Floor Information (OFI) calculation is one compelling example of his new discoveries since developing Market Profile and LDB more than 20 years ago. OFI is a ratio of each day’s average buy order to its average sell order:

$$\text{(Bought contracts / buy orders)} / \text{(Sold contracts / sell orders)}$$

Steidlmayer has suggested going long if the OFI is above 1 and early buying occurs the next day; he recommended shorting the market in response to the opposite conditions (OFI below 1 followed by early selling).

In Figure 4 for example, the numbers above or below each daily profile in the December corn contract show OFI values. Green profiles represent days in which the average sell order is larger than its buy-order counterpart (OFI < 1); blue profiles show the opposite scenario (OFI > 1). Overall, corn tended to sell off when the OFI is less than 1 (April 27 to May 3) and rally as it crosses and remains above this threshold (May 13 to 23).

[Click here to view Figure 4](#)

Figure 5 shows Barrick Gold Corp. in Steidlmayer’s “block volume” format, which divides volume into several groups. For example, if a contract trades an average of 50,000 contracts per day, Steidlmayer labels each day’s volume based on this level (i.e., 35,000 and up equals heavy

volume, 20,000 to 24,999 is medium, and 12,000 to 19,999 is light). Here, volume is measured in half-day intervals and the morning's volume is compared to the afternoon's trading.

[Click here to view Figure 5](#)

“From April 22 to 25, volume is usually heavy in the first half and lighter in the second half (red and blue TPOs, respectively),” Steidlmayer says. “The market has that pattern so there's no real imbalance. On April 26, though, ABX has a heavy-to-heavy (morning vs. afternoon) volume imbalance that can't be taken out because the price drop represents the weighted end of the volume spectrum. If you had sold on April 26, you would have made money because our study identified this imbalance.”

The same imbalanced volume pattern appeared the next day, but ABX leveled off before retracing day, but ABX leveled off before retracing this sell-off in the following five days. At this point, normal heavy-to-light activity precedes another heavy-to-heavy imbalance, yet ABX went nowhere.

According to Steidlmayer, if ABX trades below May 10's low of 22.75 and volume becomes heavy, the stock should stay below that level without too much risk because afternoon volume can't take out the earlier heavy volume — therefore, May 11's price drop isn't surprising.

Market Profile's future as a database

Steidlmayer explained these concepts when we visited him in his CBOT offices in late May. We also spoke with him about the hurdles facing individual traders and the importance of proprietary databases, among other issues.

AT: How can traders profit from Market Profile and Liquidity Data Bank these days?

JPS: They need to get their own database, measure time, and find imbalances in the market. If you don't find imbalances, you have nothing. Trading's biggest cost is time, which is also its biggest lever. This trade (Figure 5) took time out of the market.

Take the Long-Term Capital Management's (the high-profile hedge fund that collapsed in 1998) model of trying to find historic trades and borrowing money. That's very risky.

Instead, expand your database so you don't have to rely on leverage. You'll get \$10,000 in annual interest if you're making 10 percent, but what if I give it to you in a shorter time period? Saving time pays a higher rate of return vs. leverage, which decreases as time goes on.

If your strategies don't measure time — which Market Profile does — you don't have much of a chance.

AT: So Market Profile filters out the randomness?

JPS: Right. We're measuring time, so the market's on the clock, so to speak.

AT: Similar to the way point-and-figure charts shift toward market time as opposed to chronological time?

JPS: Yes. When I started trading, point-and-figure charts were my introduction to Market Profile. It's an outgrowth of (that methodology). Point-and-figure charts can move a trader forward in terms of understanding the market — not necessarily in terms of making trading decisions. Instead of making mechanical decisions based on pure technical analysis, if you use point and figure, you've gained a better understanding of the market. This wakes up your brain a little bit vs. other chart styles.

AT: How do you compare Market Profile to traditional price based technical analysis?

JPS: Market Profile does not use chronological time. And if time is your biggest cost, you'd better have a "market time." Everyone else uses chronological time and price-to-price relationships. Price has very little or no value as a data point.

AT: Why?

JPS: Because there's a buyer and seller at each price. Time only defines price in the past tense. Assume a new contract began trading at 10. There's nothing you can say about it. But you'll have some reference if it traded at 4 last month.

Take a look at the trading industry. It's not using the database as an asset, and it's toiling instead of working. Technical analysis uses price against price, and price itself is not a data point. Moving averages don't exist in the real world.

Market Profile has survived even though the market's changed dramatically in terms of how it's used. It differs from technical analysis because you are now closer to being a part of the market rather than just making observations. There's a big difference there.

AT: What's wrong with back testing trading ideas against historical price data? Doesn't that have some value?

JPS: Well, the markets have changed a lot so you're comparing apples to oranges. First, you don't have a constant. If you're not testing the market, what are you really testing?

AT: The probability of whether a trade idea might be profitable.

JPS: No, you're testing how your tolerance works. Back-tests miss all the ingredients that may have been good.

AT: Such as?

JPS: When you look to the past for references, you're going to be late (making trading decisions) because you don't know a high or low has occurred until it's in the past. So you're looking for one scenario and the market's doing something else. Market Profile, however, shows

development that you won't see in a back-test; they only show how good your external parameters are and these (variables) dominate the results.

AT: What would you say to traders who are using Market Profile as a visual display on different charting platforms and are studying your original theories?

JPS: It's a pass-through cost (i.e., it won't be very helpful), not an asset. I'm building a database with Market Profile. Everyone should have their own database and understand the nature of the markets they're trading, which allows them to create opportunities instead of finding them — a big step.

In the future, 75 percent of bond volume will be a part of something else. If there are 200,000 bonds traded per day, there will be 800,000 contracts trading the yield curve, among other possibilities.

AT: Do you mean trading different spreads with the bonds?

JPS: Right. And spreads measure time, don't they? So as 75 percent of bond volume will be related to other products, why doesn't the CBOT relate soybeans to other products too? Why don't we combine gold with other products?

The Board of Trade could take \$7 trillion sitting in passive stock funds, and the game would be over — it'll be ours. Our industry is already in the time-cost business, so we should take time out of the equation.

The X-funds have already proven this works. The two Xfunds we introduced at the CBOT in 2002 were products created from various contracts. Each fund had a 10-day time horizon.

They gained \$23,000 within six months. One small-margin (\$1,500) grain fund made around \$7,500, and another commodity fund (\$3,500 margin) returned about \$17,000. The products also had no drawdown.

I told the CBOT it would be successful because they're investment products that take time out of the market. We made 104 trades with a winning percentage of 51 percent, yet the funds climbed 69 percent. Although we had one winner for every three losers, the winner was bigger.

X-funds are just the beginning of what exchanges can do. It was a viable product, but it wasn't successful because it required a change in nomenclature. There wasn't enough volume in 2002, but we're reintroducing them because (they performed so well).

AT: So now the CBOT and CME together are bringing back X-funds?

JPS: Yes. X-funds were created opportunities since their overall winning percentage (69 percent) exceeded the individual trades' (percentage of gains).

There are a lot of products that could help the CBOT become the leading financial institution in the world without too much effort. It's in our grasp now — the only question is whether our leadership will take these opportunities.

We have to service a new industry that will grow about 10 times by 2010. People who are buying memberships to the CBOT at these high prices aren't joining to trade soybeans.

AT: Will customized spreads — not only yield curve bets that traders have placed for years — but spreads involving com - modities and even stocks, really become viable products?

JPS: Yes. It's going to happen. I've put stocks together and a lot of these do very well.

In the future at the CBOT, someone will be able to buy IBM, 10 bonds, and 20 soybeans (futures) along with it.

And what happens to the zero sum when a third party's involved? Both principle parties win.

AT: How does that work?

JPS: The changing open interest takes care of the zero sum. Assume, for instance, you and I are in a contract (that consists of multiple positions). We share the gain, and the third party carries the loss. Third-party transactions really open up the field. That's what's happening in the yield curve. It's not one vs. one.

Say we have four products put together like an X-fund. Here, the four contracts' changing open interest flushes the zero sum elsewhere.

AT: Because they're related to other things?

JPS: Yes. (The zero sum isn't just related to one product.) Imagine buying a coupon bond and taking the coupon off. Structured products divide these instruments and trade both parts. We'll do the same thing.