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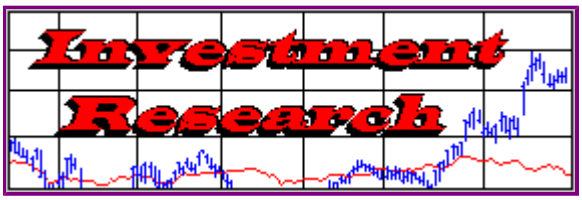


Introducing the MIDAS Method of Technical Analysis (14)
by Paul Levine

This is the fourteenth article in a series. Click here to go to the **first**, **second**, **third**, **fourth**, **fifth**, **sixth**, **seventh**, **eighth**, **ninth**, **tenth**, **eleventh**, **twelfth**, or **thirteenth** article.

Strongly trending price moves are distinguished by their motion away from the theoretical S/R level launched at the start of the move. In several examples we have seen how these accelerated moves find support (resistance) at a TOPFINDER (BOTTOMFINDER) curve which frequently has the ability to predict the cumulative volume at which the move will end. In this article we present the TOPFINDER algorithm and discuss its implications.

To understand TOPFINDER, it is worthwhile to rewrite slightly the algorithm used to generate the S/R levels. In the first figure we collect all of the MIDAS algorithms, written in their most useful form. The S/R levels are given by the quantity called "P-Bar-Star", where P stands for price, Bar for average, and Star being an acronym for "subsequent to a reversal". By this device, the symbol itself - when given its mathematical pronunciation - describes how it is to be computed (the average price subsequent to a reversal)!

MIDAS ALGORITHMS:

Definitions:

$\overline{P}^{*}_{ij}$ = value on day # i of S/R level "launched " on day # j
("P-BAR-STAR": "P" = price; "BAR" = average
"STAR" = Subsequent To A Reversal)

$\hat{P}_{ij}$ = value on day # i of TOPFINDER "launched" on day # j
("P-HAT": "HAT" = Hitting A Top)

P_i = average price on day # i = .5*(High + Low)

V_i = Volume on day # i

x_i = cumulative volume on day # i = $\sum_{k=1}^{i} V_k$

y_i = cumulative price*volume on day # i = $\sum_{k=1}^{i} P_k * V_k = y(x_i)$

d_{ij} = cumulative volume difference between days ≠ i and j
= $x_i - x_j$

Equations:

$\overline{P}^{*}_{ij} = [y(x_i) - y(x_i - d_{ij})] / d_{ij}$

$\hat{P}_{ij} = [y(x_i) - y(x_i - e_{ij})] / e_{ij}$; $e_{ij} = d_{ij} * (1 - d_{ij} / D)$

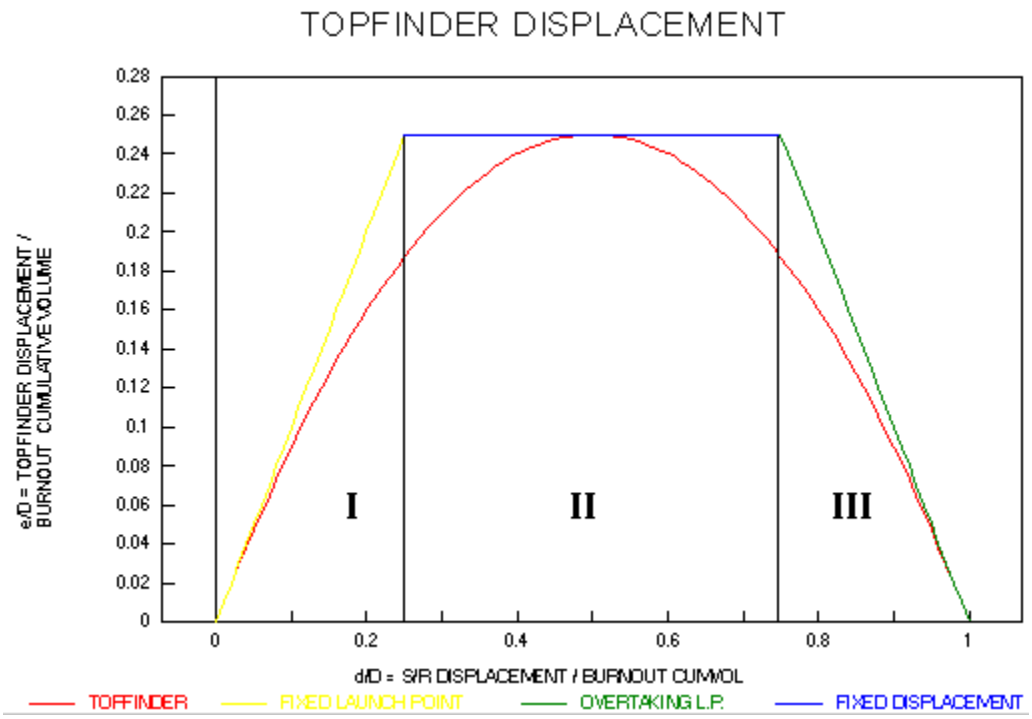
From the equation for P-Bar-Star, it is seen that it is now expressed in terms of the cumulative volume difference (or "displacement" as we shall call it) between the launch point and the point of computation. The S/R level is simply the cumulative price*volume at the given instant minus the cumulative price*volume at a point d units of cumulative volume

earlier, all divided by d, where d is the displacement measured from the (fixed) launch point.

We now define a new quantity called "P-Hat", where "Hat" is now an acronym for "hitting a top". P-Hat is the TOPFINDER (or BOTTOMFINDER) curve, and is computed by an equation which looks very much like that for P-Bar-Star. The difference lies in the relationship between the effective displacement, e, used in the P-Hat equation and the displacement, d, used in the P-Bar-Star equation. Specifically, e is related to d parabolically through the equation e=d*(1-d/D). D is now a new parameter which we shall call the "duration" of the move since e goes to zero when d approaches D.

The TOPFINDER algorithm (i.e. the equation for P-Hat) simply says that instead of keeping the launch point fixed (as with P-Bar-Star) one allows it to move forward in time towards the present. In effect the launch point can be visualized as chasing the present, finally catching up when the D units of cumulative volume have built up subsequent to the starting launch point. Putting it another way, as the move uses up its allotted duration, the topfinder curve represents an average price taken over successively shorter intervals, whereas the S/R level is an average taken over successively longer intervals.

This is illustrated in the second figure which shows the relationship between e and d. We have drawn the actual parabolic curve for e, as well as three linear tangents and their corresponding cumulative volume "zones" I,II, and III. In zone I, the start of the move, e and d are very close to each other so the topfinder launch point, while actually moving away from the starting launch point, doesn't move very far. The TOPFINDER and S/R urves are thus close to one another in this initial zone. (Indeed, it is the failure of the price to pull back fully to the S/R curve, that alerts us to the fact that topfinder is coming into play since a shorter displacement than d is required to "fit" the actual price pullback).



In zone II, the topfinder displacement is roughly constant at a value close to one-quarter of the duration D. If D were 100,000 shares, for example, then in zone II the price is finding support (or resistance) at a price average taken over the past 25,000 shares. This is behaving, in effect, like a conventional moving average, taken over a fixed number of shares rather than a fixed number of days.

In zone III, the effective displacement is rapidly diminishing. In fact, to a first approximation, for every new share traded while in this zone, the averaging interval shortens by one share. It is this remarkable feature of the climactic end of the move that gives us a clue as to what might be going on.

Let me describe one situation which would lead to this type of behavior. Forget for the moment that we are discussing stocks or commodities and imagine that you are a dealer in collectibles (coins, fine art, etc.) You decide that, say, snuff boxes which are now in very little demand could be promoted into a fashionable collectible. So what do you do? First, very quietly so as not to tip your hand, you start buying up all the snuff boxes that come on the market. This is zone I, where if you

recall the psychology of the "accumulator" described in article #7, the price finds support at an S/R level. When you have finally accumulated your desired level of inventory, you start promoting snuff boxes as a collectible thereby creating demand in the general public. You sell your inventory at retail and - deciding that the demand for snuff boxes will continue to be strong for some time - you replenish your inventory by buying at wholesale as the ever-present traders who have jumped on the snuff-box bandwagon take their profits. This all takes place in zone II, which we may call the "trading zone", where the fixed inventory is turned over by changing hands within a group of trend following traders (of which you are the leader by virtue of your preeminent position). Finally, you observe that the number of snuff boxes coming up for sale is diminishing because they are moving into weak hands who are putting them away in vaults for the long term. This decreased liquidity in the market means that you will not be able to make as much as a trader since the turnover will be diminishing. You therefore decide to liquidate your remaining inventory and go on to something else. In this "distribution phase" (zone III), you support the market as required by buying on pullbacks in order that the price shall continue upward to attract the remaining johnny-come-latelys to buy the last of your inventory at the top of the market. Thereafter, you no longer have any interest in supporting the price and it drops of its own weight as few buyers are now found to maintain an orderly market.

This"accumulation-trading-distribution" sequence involving a fixed number of shares or contracts can arise in a number of different ways. One is a direct analog of the above scenario where - through skillful hype - stocks are cynically promoted to unrealistic valuations and foisted upon an unsuspecting public. On a more refined - though no less cynical - level, corporate insiders wishing to sell a large block of their stock engage an investment banker to optimally distribute this block, who then through "road shows" and the like beats the drum for the institutional buyers always looking for a new "concept" . Other scenarios can no doubt be conceived (eg. short squeezes), wherein a specific number of shares are involved in a dynamic process significantly different from the normal ebb and flow of supply and demand, and where the normal dynamics are restored when such shares have been absorbed. Why the specific parabolic formula for the effective displacement should work so well remains an interesting question in search of a viable model. (Analogs to the "two-fluid" models of low temperature physics come immediately to mind).

The actual computation of P-Hat from the above equation requires some discussion which will be given in the article to follow. There, we will also give examples of stocks which are presently following topfinder curves, so that testable predictions of future tops can be made.

Return to Investment Research

Paul Levine first became interested in technical analysis when he was a "runner" on Wall Street as a high school student. After graduating from MIT and gaining a PhD in theoretical physics from CalTech, he took a fresh look at the problem some thirty years ago and stumbled upon what has now evolved into the Midas method. Following retirement as Chief Scientist and a co-founder of Megatek Corporation in 1981, he developed further elaborations of the method and is now in his fourth year as a professional trader. He can be reached via e-mail at **WinMidas website**">winmidas@winmidas.com or visit the **WinMidas website**.
