Capitalising on High Probability Time Zones during the Trading Day

The Intraday Market Cycle

Have you ever noticed the extreme volatility at the start of the trading day and how the trading range from the first 30-60 minutes of the day tend to set the bias for the rest? After reading this article you will know how to use this time zone to predict the intraday market cycle and identify where highs and lows of the day are most likely to occur.

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As you can see in Figures 1 and 2, the trading day can be divided into three stages. First we have the volatile and emotional opening range (OR), followed by the boring midday doldrums (MD) and then the closing range (CR). Two of these stages or time zones have a high probability of containing extreme readings (high or the low of the day) while one has a very low probability of such readings.

The Three Stages of the Day

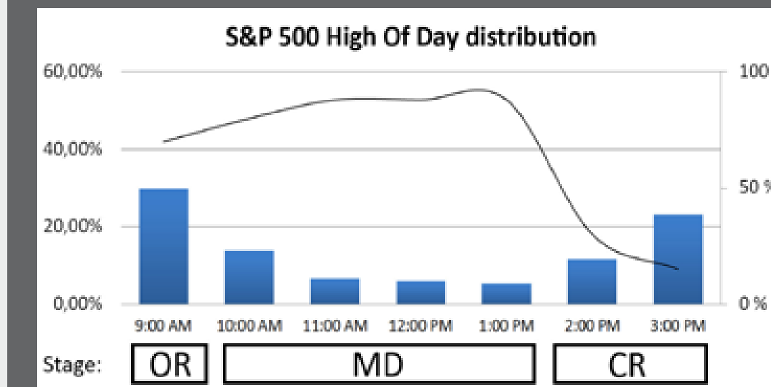
The opening range is the first stage of the trading day and represents the first opportunity for traders and market participants to react on information such as yesterday's price action, overnight news, this mornings economic reports and today's opening price action. The excess volatility with whipsaws and overreactions at the beginning of each trading day is due to the fact that any of these conditions can dramatically change a trader's bullish or bearish sentiment. This makes the opening range both emotional and volatile until the dust settles down after the first 30-60 minutes of trading. You have probably noticed the market changing character around this time.

In the accompanying charts you can clearly see how high the probability of hitting a day high or a day low during the first trading hour is. A 30 per cent chance of a day high and a 38 per cent of a day low is a higher probability of extreme pivots than you achieve at any other time zone during the trading day. Knowing that the first hour of trading is the one time zone with highest probability of standing as the high of the day, does it not make sense to sell into bull euphoria 30 minutes after the opening rather than to join the crowd and buy?

The second stage is the "midday doldrums" spanning from 10 am until 2 pm. As the name implies there is not much action during this stage of the day and the probability of this time zone standing at the high or low of the day is minimal at best. The nature of days like this might explain why such intraday movements are considered potent reversal signals by technicians. In a candlestick chart a day with a significant low during the midday doldrums (like scenario B in Figure 3) might stand out as a hammer.

The third and last stage is the closing range which contains the last trading hours of the day. Just like the opening range this time zone also has a high probability of containing the extreme pivots of the day. There is 23 per cent

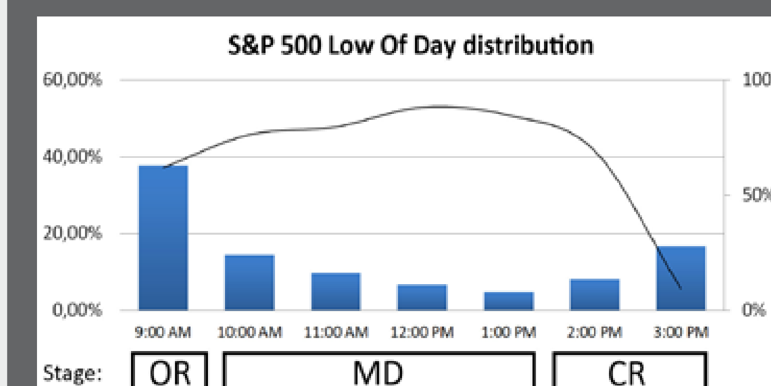
F1) S&P 500 High of Day Distribution



Notice how the trading day seems to have three stages; the "opening range" (OR) and the "closing range" (CR) which both represent a high probability of containing high of the day readings. In between we have the boring "midday doldrums" (MD) with little action. The black line and the scale on the right axis represent the probability of achieving a high of the day later the same day if printing a new high at any given time zone. I.e. if the index makes a new high between eleven and twelve you know there is around 80 per cent probability of the market to reach an even higher level later the same day.

Source: Øystein Nerva

F2) S&P 500 Low of Day Distribution



As you can see the probabilities of reaching a low of the day are distributed similar to the high of day in Figure 1. There are still three time zones whereas two have a significantly higher probabilities of standing as the low of the day than the last. Just as in Figure 1 the black line and the scale on the right axis represent the probability of achieving low of day later the same day, if reaching a new low at any given time zone.

Source: Øystein Nerva

chance of a high of day and an almost 17 per cent chance of a low of the day during the last trading hour.

New Highs during the "Midday Doldrums"

The fact that the beginning and the end of each day are most likely to contain the high or low makes the emerging of a new high or low after the opening range communicate valuable information about the market. When the market manages to move away from the opening range and sets a new high or low after 10:00 am this indicates that one of the sides is stronger than the other. When a stock moves above the opening range the bulls are in control and the prevailing sentiment in the stock is bullish. The same but opposite applies when a stock moves below the opening range which indicates that the stock is weak and the bears are in control.

Knowing that extreme readings during the midday are very unlikely to stand as the high or low of the day we can calculate the probability of achieving an even higher price later the same day if the index breaks above the opening range. The black graph and the scale on the right side of Figure 1 track the probability of higher prices later the same day if the market at any given time makes a new high. In Figure 1 you can see how a new day high between 1 and 2 pm in the S&P 500 estimate 90 per cent probability of the stock to continue and reach a higher price later the same day. You can read the probabilities of day low the same way in Figure 2.

Conclusion

The first hour of trading represents slightly more than 14 per cent of the trading day. If the market action is truly a random walk then the high of the day for a stock should occur during the first hour of trading only about 14 per cent of the time. The research presented here shows that the high for the day occurs in the first hour 30 per cent of the time, and the low of the day 38 per cent of the time.

The research also shows how a new high or low during the midday is likely to represent a trend that will continue. The likelihood of this trend of continuing depends on when the breakout occurs, but this is now easy for you to track using the charts in this article as a template. Knowing how to take advantage of this statistical bias in the market can help you identify opportunities and reduce risk independent of your trading style.

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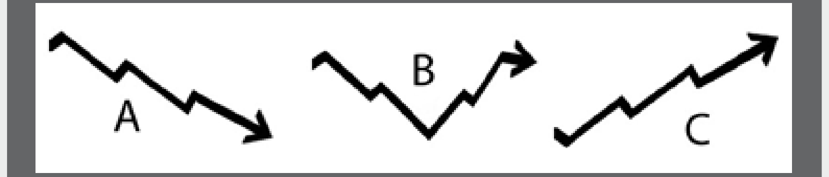
Data Sample Used

The study is done with data from the S&P 500 index in a time period spanning from January 2009 throughout June 2011. The test period contains 615 trading days in total (354 up days and 261 down days).

F3) What the Opening Range Tells Us



More often than not the equity markets are either declining (A) or climbing (C) throughout the day. Sometimes we experience reversals as in scenario B, but this movement does not occur as often as A and C. Knowing this, we can eliminate scenario B and C if we observe the market at a new low after the opening range. The same is true in reverse where trading above the opening range should make C your primary scenario for the day. You should, however, always use stops to protect your trading account for the times your strategy move against you.

Source: Øystein Nerva