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Findings

Arguably, you are reading the most important chapter because it discusses the discoveries I made about candles while researching this book. You may already know some of them, but the others are new. I'll refer to many of them in later chapters.

A Number of Candles Do Not Work as Expected

This is the big surprise for candle lovers. A candle that functions as a reversal of an upward trend should cause price to drop. Thus, a close above the top of the preceding candle would be a failure because price climbed instead of fell, whereas a close below the previous low would be a success. Similarly, a continuation candle should have price break out in the same direction as it entered. If price rose into the candle, for example, it should break out upward; a downward breakout would be a failure. How many of the 103 candles I looked at passed or failed according to this method?

Passed: 69%

Failed: 31%

If you listen closely, you may hear the half-glass-full people screaming. Yes, 69% of the candles worked, so let's discuss additional tests. If I say that a success rate of less than 60% is considered just random, then how many candles worked at least 60% of the time? There are 412 different combinations of 103 candles that acted as reversals or continuations in bull and bear markets. Of the 412, only 100 candles qualified, so the answer is 24%.

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If I filter the group by using a frequency rank of 51 or better, then just 10% qualify. The 51 rank is about midway in the list of 103 candles. As a reference, the candle with rank 51 appeared 1,973 times out of 1,204,083 candle lines in 500 stocks over 10 years, including bull and bear markets. In other words, just 10% of candles work at least 60% of the time and occur frequently enough to be found.

If I raise the bar to a 66% success rate (meaning the candle should work as expected in two of three trades) and keep the frequency rank the same, then only 6% qualify. That means just 6% of the candles I consider to be investment grade.

Please remember that this applies only to stocks and not futures, exchange-traded funds, or other security types, so the results could change dramatically.

The following lists the investment grade candles:

- Above the stomach
- Belt hold, bearish and bullish
- Deliberation
- Doji star, bearish
- Engulfing, bearish
- Last engulfing bottom and top
- Three outside up and down
- Two black gapping candles
- Rising and falling windows

These are the candle patterns in which price reverses or continues in the anticipated direction frequently, but it does not indicate how far price trends after that. For a more detailed description of performance over time, see Chapter 2, Statistics Summary.

An Unusually Tall Candle Often Has a Minor High or Minor Low Occurring within One Day of It

I looked at tens of thousands of candles to prove this, and the study details are on my web site, ThePatternSite.com.

Figure 1.1 shows examples of unusually tall candles highlighted by up arrows. A minor high or low occurs within a day of each of them (before or after) except for A and B. Out of 11 signals in this figure, the method got 9 of them right, a success rate of 82% (which is unusually good).

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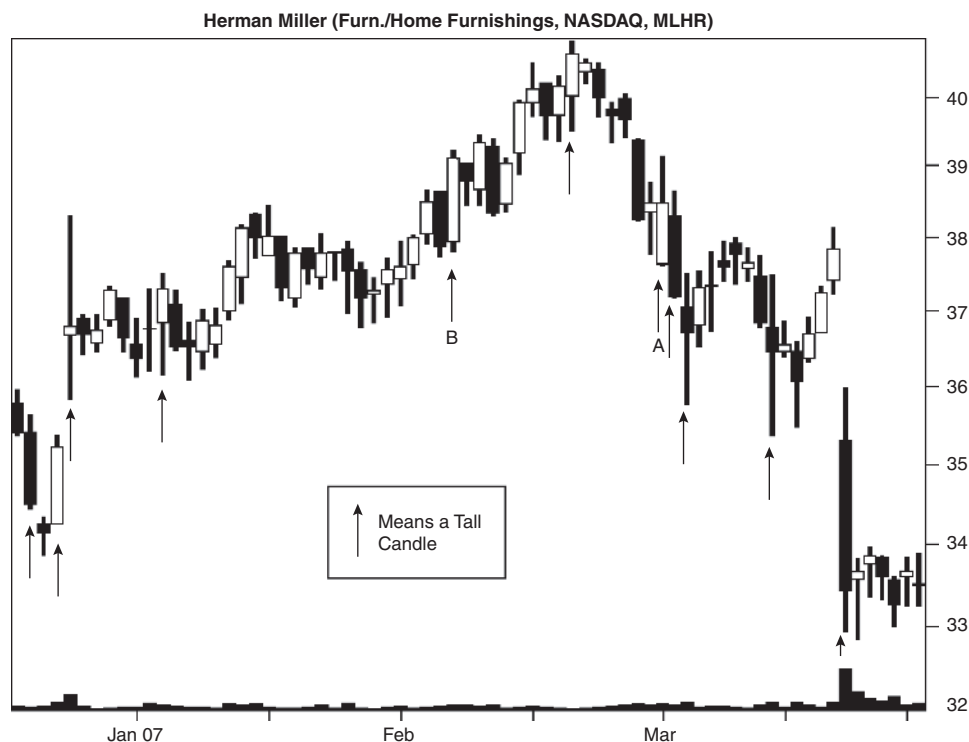


Figure 1.1 The up arrows highlight candles taller than average. A minor high or minor low occurs within plus or minus one day of most of the tall candles.

Follow these steps to use the results.

1. The tall candle must be above the highs of two and three days ago (for uptrends) or below the lows of two and three days ago (for downtrends).
2. Find the average high-low height of the prior 22 trading days (a calendar month), not including the current candle.
3. Multiply the average height by 146%. If the current candle height is above the result, then you have an unusually tall candle.

Expect a peak within a day from unusually tall candles 67% of the time during an uptrend and a valley within a day 72% of the time in a downtrend. Additional peaks or valleys can occur after that, so the minor high or low need not be wide or lasting. However, if you have a desire to buy a stock after a tall candle, consider waiting. The chances are that price will reverse and you should be able to buy at a better price.

The Best Performance Comes from Candles with Breakouts within a Third of the Yearly Low

This is true regardless of bull or bear markets, up or down breakouts. The percentages of chart patterns with breakouts within a third of the designated range that showed the best performance are:

Highest third: 5%

Middle third: 11%

Lowest third: 84%

I discovered another trend during chart pattern research that is similar. Here is where breakouts from the best-performing chart patterns with upward breakouts reside in the yearly price range:

Highest third: 27%

Middle third: 32%

Lowest third: 41%

For downward breakouts from chart patterns, the performance list is:

Highest third: 20%

Middle third: 25%

Lowest third: 55%

The results confirm that you should not short stocks making new highs but, rather, concentrate on those making new lows.

Gaps Don't Work Well as Support or Resistance Zones

Read the chapters on windows (both rising and falling) if you don't believe me. I looked for minor highs or minor lows in a price gap and found that most often price just shoots through the gap without stopping. Here are the results:

Gaps in an uptrend (rising window): Price finds overhead resistance within the gap only 20% of the time in a bull market and 16% of the time in a bear market.

Gaps in a downtrend (falling window): Price finds underlying support within the gap only 25% of the time in a bull market and 33% of the time in a bear market.

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Reversals Occur Most Often Near Price Extremes

I split the yearly price range into thirds and then mapped those patterns with reversals onto the yearly price range (based on the breakout price). I found that those within a third of the yearly high acted as reversals most often, followed closely by those within a third of the yearly low. Here are the results:

Highest third: 45%

Middle third: 12%

Lowest third: 43%

I would like to say that if you see a candle that usually acts as a reversal in the middle of the yearly price range you should ignore it—chances are price will not reverse, and if it does it probably won't be a lasting move. However, I'm not sure that's correct.

For continuations, here is where they appear most often, based on the location of the breakout price:

Highest third: 42%

Middle third: 10%

Lowest third: 48%

For reference, this is where all candle types (whether signaling a reversal, a continuation, or indecision) appear within the yearly price range. Some candles are neither a reversal nor a continuation, like a high wave, spinning top, or doji.

Highest third: 63%

Middle third: 9%

Lowest third: 28%

Opening Gap Confirmation Gives the Best Entry Signal

I tested three confirmation methods: closing price, candle color, and opening gap. See Glossary and Methodology, Table 6, for definitions of the three methods. Here is how often each confirmation method worked:

Closing price confirmation: 5%

Candle color confirmation: 13%

Opening gap confirmation: 82%

Candles with Breakouts below the 50-Day Moving Average Give the Best Performance

I tore apart my computer software at least three times checking to see if I had made a mistake on this one. I found that when the breakout from a candle is below the 50-trading-day moving average, performance is better than if the breakout is above the moving average. Here is how often each resulted in better performance:

Above the moving average: 14%

Below the moving average: 86%

Candles with Long Bodies Sometimes Show Support or Resistance

I looked at candle bodies (i.e., between the open and close, not the high-low price range) that were twice as tall as the one-month (22 trading days) average for the three years ending May 28, 2007, in 453 stocks. I found that minor highs or lows stop (i.e., show evidence of support or resistance) somewhere within the 41,301 tall candles 39% of the time. Candle color didn't show any performance difference (both show support or resistance 39% of the time).

Then I split the candle height into 10% divisions, did a frequency distribution of the results, and found that minor highs and minor lows stopped evenly across the candle. In other words, *the middle of a tall candle showed no greater likelihood of exhibiting support or resistance than anywhere else in a tall candle.*

A second study increased the candle height to four times the average and lengthened the time studied to 15 years. Few stocks actually covered the entire range. I found 25,285 tall candles that showed support or resistance 66% of the time. White candles showed support or resistance 65% of the time and black candles showed support or resistance 67% of the time. The results were evenly distributed across the entire candle height, meaning the middle of the candle was *not* shown to have price stop there more often than any other part of the candle.

Let me also say that the taller a candle becomes, the higher the number of minor highs and lows that will appear within its body. That's why the hit rate increases from 39% to 66% for very tall candles. Imagine that a candle covers the entire price range, from yearly low to yearly high. It would include every minor low or high and consequently show a 100% success rate. Thus, I'm not sure that a tall candle is any more effective at showing support or resistance than any other candle.

Having said that, I have used tall candle support or resistance in my trading. For example, the trade I mentioned in the Introduction used a

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Figure 1.2 Price finds overhead resistance midway up a tall black candle.

tall-bodied candle at the open. I cut the body price range in half and used it as a buy price. The stock dropped to the midpoint and most of the order filled before price climbed again.

As an example, look at Figure 1.2. I received a call from a broker when the Dow Jones Industrial Average plummeted 416 points in one session. I told him that on the way back up, the index would likely pause midway up the tall black candle. Point B shows the midpoint of body CD. Point A is where price paused. It's not exactly at the midpoint, but it's close. Since I made that prediction, I've completed the analysis of tall candles, and it indicates that my prediction (of price stopping midway along the candle) was just a lucky guess.

Tall Candles Outperform Short Ones

This is the single best predictor of performance for both candles and chart patterns. It's worth the time to select candles taller than the median height. What is the median height? You'll have to refer to the individual chapter for the actual percentage because it varies slightly from candle to candle. I found it by taking the height of all of the candles of a particular type, dividing by the

Trade Bearish Candles in a Falling Primary Trend 15

breakout price, and then finding the median. Candles with height/breakout price percentages greater than the median are tall candles. Here is how often tall or short candles performed better:

Tall: 96%

Short: 4%

Candles with Tall Shadows Get Better Performance

Candles with taller upper or lower shadows tend to perform better than do those with short shadows, regardless of the breakout direction or market condition (bull or bear). The following lists how often this worked:

Tall upper shadows: 87%

Short upper shadows: 13%

Tall lower shadows: 88%

Short lower shadows: 12%

Trade Bullish Candles in a Rising Primary Trend

If a reversal candle requires that the price trend leading to it is downward, then look for a downward retracement within an upward trend. Figure 1.3 shows an example of a morning doji star when the secondary trend is downward for a few days leading to the start of the candle formation. However, the underlying primary trend is upward.

After an upward breakout, the new trend joins the existing current and off it goes. You are much more likely to make a profit if the breakout joins the existing upward price trend than if the primary trend is downward and you expect a reversal to create a lasting trend change. That scenario *does* happen, but it's rare. This scenario is what I call the rise-retrace setup. Price retraces downward a portion of the prior up move before continuing the climb.

If price closes below the lowest low in the candle pattern, then close out a long trade. That situation represents a downward breakout and price is apt to continue moving lower.

Trade Bearish Candles in a Falling Primary Trend

This is the opposite situation of the prior tip. In this case, the best method to trade a bearish candle is when price is already tumbling. Price retraces a

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Figure 1.3 A morning doji star appears in a downward price trend (secondary) when the primary trend is upward.

portion of the down move and then the bearish reversal candle appears. Once price breaks out downward, then it's off to the races.

What you don't want to do is depend on a bearish reversal candle in a primary uptrend to act as a trend reversal. It might, but the odds of a lasting decline are slim. Should price break out upward (i.e., it closes above the highest high in the preceding candle pattern), then close out your short position.

Avoid going long when the primary trend is downward. In that situation, you are trying to swim against the current; it's possible to do well, but it's unlikely. Upward breakouts tend to be short-lived in this scenario. If the primary trend is downward, then either remain in cash or go short. If you do find yourself in this situation, then exit a long trade if price closes below the lowest low in the preceding candle formation (a downward breakout).

Figure 1.4 shows this situation. Both the primary and secondary trends are downward when the morning doji star appears. Price reverses the trend but surfaces at A before being swept away by the downward-rushing current. If you traded this candle *perfectly* you would have made a dollar a share.

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Figure 1.4 Both the primary and secondary trends are downward, leading to a short reversal.

Candle Volume Is a Poor Predictor of Performance Except for Breakout Volume

I've never been a big fan of volume. I looked at volume four ways: the volume trend leading to the candle, the trend during the candle, the average during the candle, and breakout volume. I threw out the volume trend leading to the start of the candle because it didn't work well and made no sense anyway. What remained explores the relationship of volume inside the candle and during the breakout.

How often did candles perform better with a rising or falling volume trend?

Rising: 48%

Falling: 52%

How often did candles perform better if they had above- or below-average volume?

Above-average: 58%

Average or below-average: 42%

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How often did heavy or light breakout volume lead to better performance?

Heavy breakout volume: 91%

Light breakout volume: 9%

Reversals Perform Better than Continuations

This is counterintuitive. You would expect price that resume trending after a candle pattern to perform better than those candles that reverse the trend. But what if the existing trend is getting old and feeling tired, whereas a reversal is young, vibrant, and ready to start a new day? The following shows how often reversals or continuations led to better performance:

Reversals: 59%

Continuations: 41%

Most Candlestick Patterns Perform Better in a Bear Market, Regardless of the Breakout Direction

I can understand good performance of candles with downward breakouts in a bear market. They are going with the flow, riding a downward current in a falling market. But what about upward breakouts? Upward breakouts in a bear market often perform better than do those in a bull market! The only explanation I can think of is that the sample counts are fewer for bear markets (because of a shorter measurement period) and that has led to bogus results. That would make sense in a few isolated cases, but not all the time. Here is how often candles in different market conditions perform better:

Bear market: 96%

Bull market: 4%

Price Has to Have Something to Reverse

If the move leading to a candle is short, then don't expect a large move after the breakout. In other words, reversals work only if there is a *trend* to reverse. Price won't move far if it's mired in a congestion zone.

More Candles Appear within a Third of the Yearly High than Elsewhere in the Yearly Trading Range

You will find candles sprinkled throughout the yearly price range, but more will appear with breakouts within a third of the yearly high than in the other

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two thirds. Here is where the candle breakout resides in the yearly price range:

Highest third: 63%

Middle third: 9%

Lowest third: 28%

Where Price Closes in the Last Candle Line of the Pattern Helps Determine Performance

I split the candle line into thirds (except for candles like a gravestone doji where the close is expected to be pegged at one end) and looked at performance. Here is where the closing price resides for the best performance:

Highest third: 28%

Middle third: 32%

Lowest third: 40%