

FREE SAMPLE · CHAPTER 4

The Pivotwright Trading Manual



Price Action, Market Structure and Risk, from First Chart to Trading Plan

Chapter 4: Trends and Swing Structure

PIVOTWRIGHT

THE PIVOTWRIGHT TRADING MANUAL

Free sample from the first edition, version 1.0: Chapter 4, Trends and Swing Structure. Dark edition.

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All charts in this book are generated by code from synthetic data. They illustrate the rules in the text and do not show real market prices. Prices, costs and account sizes in the examples are illustrations chosen for easy arithmetic, not quotes from any broker.

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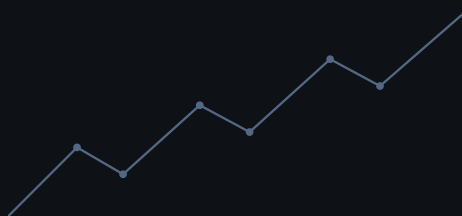
Trends and Swing Structure

LEVEL: BEGINNER

Before you can trade a trend, you need a way to say whether one exists. This chapter gives you rules that two people can apply to the same chart and get the same answer.

IN THIS CHAPTER YOU WILL

- Find swing highs and swing lows with a fixed five-candle rule, and know when each one is confirmed
- Label structure as higher highs, higher lows, lower highs and lower lows
- Tell a trend from a range, and an impulse leg from a correction
- Mark breaks of structure and changes of character by candle closes
- Read structure on two scales without mixing them up



4.1 Why structure comes first

Almost everything in the later chapters, from support and resistance to entries and stop placement, assumes you already know what the market is doing: rising, falling or moving sideways. Indicators can help with that question, but they are calculated from price and they trail behind it (Chapter 10). Structure is price itself: the highs and lows the market has printed, in the order it printed them.

The trouble is that “the trend is up” means different things to different people. One trader looks at the last three days, another at the last three months. One counts every wick, another ignores anything that looks small. Two people can study the same chart, disagree, and neither can prove the other wrong.

This chapter replaces that kind of judgment with rules. Every swing point, label and break in this book comes from a definition you can check candle by candle. The rules are not the only reasonable ones, and they are not a trading strategy. They are a shared vocabulary. Once you can mark structure the same way every time, you can test ideas against it, which is what the rest of the book does.

ABOUT THE CHARTS

Every chart in this book is drawn from synthetic prices generated by code. The charts show how the rules work; they are not records of any real market. The same rules apply to a stock, a currency pair or a cryptocurrency, on any timeframe.

4.2 Swing highs and swing lows

A trend is made of swings. Price rises to a high, pulls back to a low, and rises again. The turning points are called swing highs and swing lows, and this book marks them with a fixed five-candle rule.

RULE: SWING POINTS

Swing high. A candle whose high is higher than the highs of the two candles before it and the two candles after it.

Swing low. A candle whose low is lower than the lows of the two candles before it and the two candles after it.

Confirmation. A swing point is confirmed when the second candle after it closes. Until then it is only a candidate.

Figure 4.1 shows the rule at work. Triangles above the candles mark swing highs, and triangles below mark swing lows. The bracket covers the five candles around the highest swing high, at 105.20: the two candles on each side have lower highs, so the middle candle qualifies.



Figure 4.1 Swing highs (triangles above) and swing lows (triangles below) found with the five-candle rule. The swing high at 105.20 is confirmed only when the second candle after it closes (outlined).

Now look at the outlined candle. The swing high could not be confirmed until this candle, the second one after the high, had closed. Before that, either of the next two candles could have traded higher and taken its place. This delay is built into every swing point. On a live chart, the two most recent candles can never be confirmed swing points, and if you label the candle that is still forming as a swing high, you are guessing.

A few details make the rule precise:

- **Highs are compared with highs, and lows with lows.** Opens and closes play no part in finding swing points. They matter for breaks, in Section 4.5.
- **Ties do not count.** If a neighboring candle has exactly the same high, the candle is not a swing high under the strict rule. Exact ties are uncommon on most instruments, and Chapter 8 deals with equal highs and lows separately, because they matter there.
- **The window is a choice, so make it once.** One candle on each side marks almost every wiggle. Three or more marks fewer, larger swings and confirms them later. Two on each side is a common middle ground, and many charting platforms include a “fractals” indicator built on the same five-candle pattern, so you can check your marking against it. Whatever window you choose, use it on every chart. Changing it after the fact, so a chart looks the way you hoped, defeats the purpose of having a rule.

4.3 Labeling structure: HH, HL, LH, LL

Once the swing points are marked, label each one by comparing it with the previous swing point of the same kind:

- A swing high above the previous swing high is a **higher high (HH)**. Below it, it is a **lower high (LH)**.
- A swing low above the previous swing low is a **higher low (HL)**. Below it, it is a **lower low (LL)**.
- The first swing high and the first swing low on a chart have nothing to compare with. This book marks them simply **H** and **L**.

Ties are labeled by what they failed to do. An equal high is not a higher high, so it is labeled LH. An equal low is not a higher low, so it is labeled LL.

With labels in place, a chart falls into one of three states (Figure 4.2). In an **uptrend**, swing highs keep printing HH and swing lows keep printing HL. In a **downtrend**, they print LH and LL. In a **range**, price swings between a ceiling and a floor, and the labels mix without building a sequence.

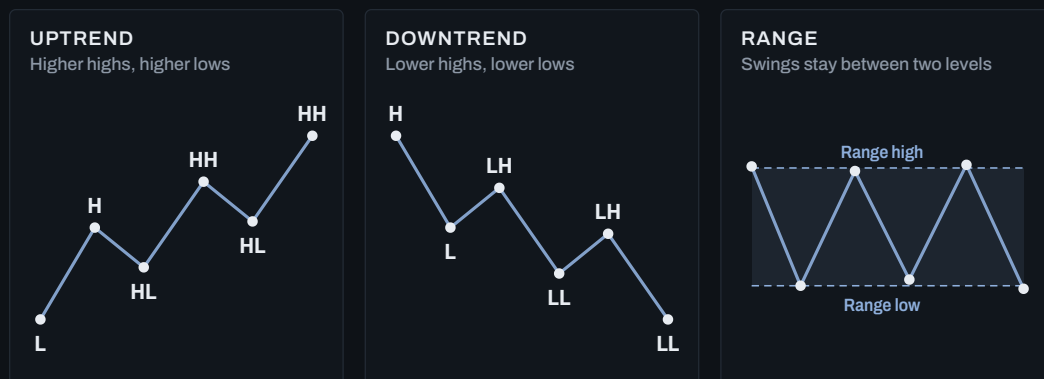


Figure 4.2 The three states of structure. An uptrend prints higher highs and higher lows, a downtrend prints lower highs and lower lows, and a range swings between two levels.

Labels describe each swing, but on their own they cannot tell you exactly when a trend starts or ends. Is one lower high enough to end an uptrend? What about a higher high made by a single long wick? For those questions the book uses breaks, measured by candle closes (Sections 4.5 and 4.6). Keep this sentence in mind for the rest of the chapter: **labels describe; closes decide.**

4.4 Impulse and correction

Trends do not move in straight lines. In an uptrend, price alternates between two kinds of legs:

- An **impulse leg** moves in the direction of the trend, from a swing low up to a higher high.
- A **correction leg** moves against the trend, from that high back down to the next higher low.

In a downtrend it is the mirror image: impulses fall from a swing high to a lower low, and corrections climb back to a lower high.

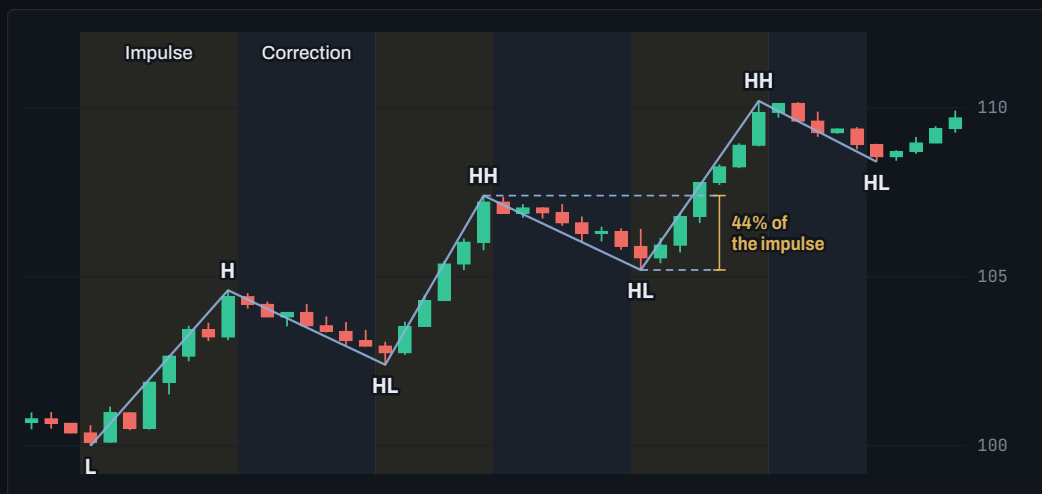


Figure 4.3 An uptrend alternates impulse legs (warm shading) and correction legs (cool shading). The second correction gave back 2.20 of the 5.00 impulse before it, or 44 percent.

In Figure 4.3 the impulse legs cover more distance in fewer candles, and most of their candles close in the direction of the trend. The corrections drift back with smaller, mixed candles. In this example each correction took at least as many candles as the impulse before it, and none of them gave back half of it: the three corrections retraced 48, 44 and 36 percent of their impulses.

To measure a correction, divide its size by the size of the impulse before it. The second impulse in Figure 4.3 ran from 102.40 to 107.40, a move of 5.00. The correction that followed fell to 105.20, a move of 2.20. Divide 2.20 by 5.00 and you get 0.44: the correction retraced 44 percent of the impulse.

Retracement depth describes a trend. It does not predict where a correction will stop, and no percentage works as a reliable stopping point. One boundary does matter. A correction that retraces more than 100 percent has fallen below the low its impulse started from. On a clean chart that low is the most recent confirmed swing low, and a candle closing below it breaks the uptrend's own rule. That is a change of character, the subject of Section 4.6.

Many traders read corrections that grow deeper and slower than the impulses around them as a sign that a trend is tiring. That is a fair observation to note, but it is not a rule. Until a close breaks something, the structure has not changed.

WHERE THESE IDEAS COME FROM

Dow Theory. Describing a trend as a series of rising or falling peaks and troughs goes back to Charles Dow, co-founder of Dow Jones & Company and the first editor of The Wall Street Journal. His editorials from around 1900 were later developed into what is now called Dow Theory, mainly by William Hamilton and Robert Rhea. Two of its ideas run through this chapter. Markets move on several scales at once, which Dow Theory calls the primary trend, secondary reactions and minor movements. And a trend is assumed to stay in force until a clear signal says it has reversed. Breaks of structure and changes of character are a precise, candle-by-candle version of that signal.

Elliott Wave. In the 1930s Ralph Nelson Elliott proposed that trends unfold in five waves in the direction of the trend, followed by three waves against it. The idea is popular, and its vocabulary of impulses and corrections overlaps with Section 4.4. In practice, wave counts are subjective: two analysts can count the same chart differently, and counts are often revised as new prices arrive. This book does not use wave counts. The swing rules give one answer for one chart, which is what you need for testing.

4.5 Break of structure (BOS)

A trend makes progress when price gets past the swing point that stood in its way. This book measures that with closes.

RULE: BREAK OF STRUCTURE

Break of structure (BOS). A candle closes beyond the most recent confirmed swing point in the direction of the trend: above the last swing high in an uptrend, or below the last swing low in a downtrend.

Close, not wick. A wick beyond the level with the close back on the other side is not a break.

The first break. At the left edge of a chart there is no trend yet. The first close beyond a confirmed swing point sets the trend, and it is also labeled BOS.

Figure 4.4 compares two cases that look alike at a glance. In the left panel a candle closes at 103.46, above the swing high at 103.00. That close is a BOS: the high that stood in the way is now behind the market. In the right panel a candle trades up to 103.45, also above 103.00, but closes at 102.55, back below it. By the five-candle rule that candle even counts as a new swing high, so its label is HH. Yet no candle closed above 103.00, so there was no break of structure.



Figure 4.4 Left: a candle closes above the swing high at 103.00, a break of structure. Right: a wick reaches 103.45, but the candle closes at 102.55, below the level. No break.

This is where labels and breaks part ways. The label says the market printed a higher high. The close says price could not stay above the old high. When the two disagree, this book goes with the close, for three reasons:

- **A close is checkable.** A wick shows where price traded for a moment. A close shows where price stood when the candle's time ran out. Anyone looking at the same chart and timeframe gets the same answer.
- **Wicks through obvious highs and lows are common,** because that is where many stop orders rest (Chapter 8 explains why). Counting every wick as a break would flip the trend back and forth.
- **The cost is speed.** A close always comes later than the first trade beyond a level. You give up some speed in exchange for clarity.

Two more details. First, any close beyond the level counts, even by a single tick. Some traders require a buffer, such as a fraction of the average candle range (Chapter 15). That is a reasonable choice, but it belongs in your written strategy

rules, decided in advance, not chart by chart. Second, a close means a close on the chart you are reading. A 5-minute candle closing above a daily high is not a daily close above it.

4.6 Change of character (CHoCH)

If a BOS is the trend making progress, a change of character is the trend failing its own test.

RULE: CHANGE OF CHARACTER

Change of character (CHoCH). The first candle that closes beyond the most recent confirmed swing point against the trend: below the last swing low in an uptrend, or above the last swing high in a downtrend.

After a CHoCH the trend label flips. Breaks in the new direction are labeled BOS, and a close back the other way is another CHoCH.



Figure 4.5 An uptrend breaks upward twice (BOS), then a candle closes below the last higher low (CHoCH). A lower high and a close below the next low confirm the downtrend.

In an uptrend, the swing low that matters is the most recent confirmed one, usually the higher low that launched the latest impulse. The uptrend is intact for as long as no candle closes below it, which is why some traders call it the protected low.

Figure 4.5 follows a trend from start to finish. Price breaks upward twice, at 104.00 and 106.60, and tops out at 108.20. The correction from the top ends in a higher low at 106.00, still in line with an uptrend. The next rally stalls at 107.50, a lower high, which is the first warning in the labels. But a label is not a break, and the trend is still up. Then a candle closes at 105.50, below the higher low at 106.00. That close is the change of character.

What comes next decides whether the change sticks. In Figure 4.5 price bounces to another lower high at 105.60 and then closes at 103.96, below the low at 104.30: a BOS in the new direction. The downtrend now has both a lower high and a break, the same evidence an uptrend needs, in reverse.

A CHoCH is a fact about the past, not a forecast. It tells you the uptrend's rule has been broken. It does not tell you a downtrend will follow. Price can turn around and close back above the last swing high, which the rules would mark as a CHoCH in the other direction. For that reason many traders wait for the sequence in Figure 4.5, a CHoCH followed by a lower high and a BOS in the new direction, before they treat a new trend as established. Waiting costs part of the move. Acting earlier means acting on a change that may not last. Neither choice is free, and Chapter 16 shows how to make it part of a written strategy.

4.7 Two scales: swing structure and internal structure

Every leg of a trend contains smaller swings, and every trend is itself a leg of something larger. On any chart, the five-candle rule will find swings of different sizes, and mixing those sizes up is the most common source of confusion in reading structure. So this book names two scales:

- **Swing structure** is the structure of a higher timeframe. In this book's figures it is found by merging every four candles into one, as a chart four times slower would show them (for example, 1-hour candles built from 15-minute candles), and applying the same five-candle rule to the merged candles.
- **Internal structure** is made of the smaller swings inside one leg of the swing structure, found with the five-candle rule on the chart itself.

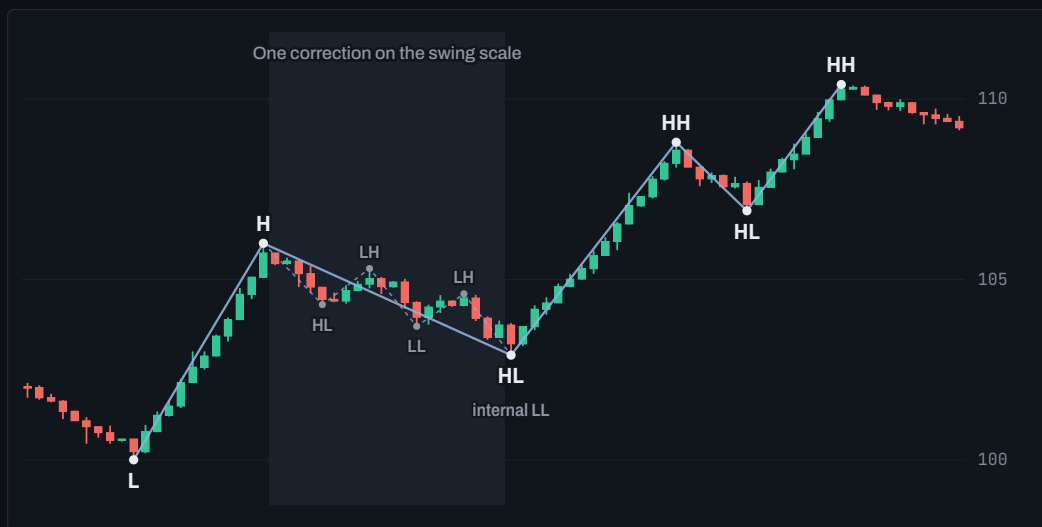


Figure 4.6 Swing structure (solid line, from candles merged four at a time) and internal structure (dashed line) on the same chart. The correction from 106.00 to 102.90 is one leg on the swing scale and a small downtrend inside.

In Figure 4.6 the solid line connects the swing structure: a low at 100.00, a high at 106.00, a higher low at 102.90, and higher highs after it. On that scale everything between 106.00 and 102.90 is a single correction. Inside it, the internal structure tells a different story. The dashed line shows lower highs and lower lows, a small downtrend of its own. (Its first low is labeled HL only because it is compared with the previous swing low on the chart, the low at 100.00.) The low at 102.90 is a higher low on the swing scale and, at the same time, an internal lower low. Neither label is wrong; they describe different scales.

The internal downtrend ended when a candle closed at 104.80, above the last internal lower high at 104.60. That was an internal change of character. On the swing scale nothing had changed: the uptrend was intact the whole time, and price went on to a higher high at 108.80.

Decide which scale you are reading before you label anything, and say it in full: “On the 4-hour chart the trend is up; inside the current correction, the 1-hour structure is down.” Both statements can be true at once. A common way to use them together is to take direction from the larger scale and timing from the smaller one, which Chapter 3 covers as top-down analysis.

4.8 When there is no trend: ranges

Not every chart is trending. Often price swings back and forth between a ceiling and a floor, and the labels flip between higher and lower without building a sequence. That is a range.

Structure gives a simple test for one. Swing points keep forming, but no candle closes beyond the most recent swing high or swing low, so there is no BOS and no CHoCH. Mark the edges at the first swing high and the first swing low of the sideways phase. Later swings that poke beyond an edge with a wick and close back inside do not move the edges.



Figure 4.7 A range between 104.00 and 100.40. A wick below the range low closes back inside. A close above the range high ends the range.

In Figure 4.7 the edges are the swing high at 104.00 and the swing low at 100.40. Over the next 45 candles the labels went LH, HL, HH, LL, LH and HL: every kind, in no useful order. One candle reached 99.85, below the range low, but closed at 100.80, back inside. By the close rule nothing broke. Chapter 8 calls a move like that a sweep and looks at why sweeps cluster around obvious levels.

The range ended when a candle closed at 104.31, above the range high. That close also broke the most recent swing high inside the range, at 103.60, so the rules mark it as a BOS upward.

Inside a range, the labels are noise as far as trend is concerned. The useful information is the edges. Chapter 19 trades from the edges of a range, and Chapter 18 trades the break out of one.

4.9 A worked example

Figure 4.8 puts the rules together on a longer chart. Candle numbers run along the bottom, starting with candle 1 at the left edge. Read it from left to right, the way the chart was printed, and at each step ask only what the rules allow you to know at that moment.



Figure 4.8 A downtrend turns into an uptrend. Every label and break follows the rules in this chapter. At the last candle the trend is up, and 110.00 and 106.50 are the prices that would change the picture.

1. The first swing high is at candle 5 (109.20) and the first swing low at candle 11 (106.00). A lower high follows at candle 16 (107.60). There is no trend yet, because nothing has been broken.
2. Candle 20 closes at 105.62, below the swing low at 106.00. The first break sets the trend to down, and it is labeled BOS.
3. The downtrend continues with a lower low at candle 23 (104.20) and a lower high at candle 28 (105.60). Candle 32 closes at 103.92, below 104.20: another BOS.
4. Price makes a lower low at candle 35 (102.40) and a lower high at candle 41 (104.40). Then comes the first sign of change: the low at candle 46 (102.90) is a higher low. But a label is not a break, and the trend is still down.
5. Candle 50 closes at 104.70, above the lower high at 104.40. This is the first close against the downtrend, a CHoCH, and the trend label flips to up.

6. The new uptrend builds: a higher high at candle 53 (106.40), a higher low at candle 59 (104.60), and candle 63 closes at 106.56, above 106.40. BOS.
7. A higher high at candle 67 (108.60) and a higher low at candle 73 (106.50) follow. Candle 77 closes at 108.62, just 0.02 above the high at 108.60. By the rule that is a break, even though it barely looks like one. If you want a minimum distance, decide it before you look at the chart.
8. Price makes a higher high at candle 81 (110.00). The last candles pull back to 108.20 at candle 87. That low cannot be confirmed before candle 89 closes, so for now it is not a swing low.

Where does that leave you at the last candle? Two prices define the picture:

- A close above **110.00**, the last confirmed swing high, would be a BOS. The uptrend continues.
- A close below **106.50**, the last confirmed swing low, would be a CHoCH. The uptrend's rule is broken.

Between those two prices, structure has nothing new to say. That is useful in itself, because it tells you which levels matter and which moves do not change the picture.

4.10 Common mistakes

- 1 **Labeling unconfirmed swings.** The latest candle looks like a top, so it gets marked as a swing high. Until two more candles close, it is only a candidate.
- 2 **Counting wicks as breaks.** A wick through a level is a test, not a break (Figure 4.4). Wait for the close.
- 3 **Mixing scales.** Labeling some swings from a 15-minute chart and others from a daily chart produces sequences that make no sense. Pick one scale, label everything on it, and mark the other scale separately.
- 4 **Bending the rules after the fact.** Skipping a swing because it “does not count,” or widening the window when a chart looks messy, makes your marking match your opinion instead of the chart.
- 5 **Forcing a trend onto a range.** When the labels alternate and no close breaks anything, the honest description is a range.

- 6 Treating structure as a forecast.** A BOS says the trend made progress. It does not say the next candle will follow. Structure tells you where you are; risk management (Chapter 22) decides what you can afford when you are wrong.

4.11 A routine for any chart

Everything in this chapter fits into five steps. Use them in this order on every chart. The goal is to reach the same answer every time, not to be fast.

- 1. Choose the scale.** Decide which timeframe you are reading, and whether you are marking swing structure or internal structure.
- 2. Mark confirmed swings only.** Apply the five-candle rule from left to right. Leave the last two candles alone; they cannot be confirmed yet.
- 3. Label every swing.** Compare each swing high with the previous swing high, and each swing low with the previous swing low.
- 4. Walk the closes.** Go candle by candle from the left. Each time a candle closes beyond the most recent confirmed swing point, mark a BOS or a CHoCH and update the trend.
- 5. Write down the state.** At the right edge, note the trend and the two prices that would change it: the last confirmed swing high and the last confirmed swing low.

Key terms

TERM	MEANING IN THIS BOOK
Swing high / swing low	A candle whose high (low) is beyond the highs (lows) of the two candles on each side
Confirmation	The close of the second candle after a swing point, which makes it final
HH, LH	A swing high above or below the previous swing high
HL, LL	A swing low above or below the previous swing low
Impulse leg	A move in the direction of the trend that makes a new extreme
Correction leg	A move against the trend between two impulses
Retracement	The size of a correction as a percentage of the impulse before it

TERM	MEANING IN THIS BOOK
Break of structure (BOS)	A close beyond the most recent confirmed swing point in the direction of the trend
Change of character (CHoCH)	The first close beyond the most recent confirmed swing point against the trend
Swing structure	Structure on a higher timeframe; in this book, candles merged four at a time
Internal structure	The smaller swings inside one leg of the swing structure
Range	A phase where swings form but no close breaks the most recent swing high or low
Sweep	A wick beyond a level that closes back on the other side (Chapter 8)

Key points

- A swing high is a candle whose high is above the highs of the two candles on each side; a swing low is the mirror image. A swing point is confirmed only when the second candle after it closes.
- Each swing is labeled against the previous one of the same kind: HH or LH, HL or LL. Labels describe; closes decide.
- A BOS is a close beyond the most recent confirmed swing point in the direction of the trend. A CHoCH is the first such close against it. Wicks do not count.
- Read structure on one scale at a time. A higher low on the swing scale can be a lower low inside it.
- Structure does not predict. It tells you which prices would change the picture.

Exercise: mark the structure

Figure 4.9 shows 66 candles with no markings. Candle numbers run along the bottom, and the first candle on the left is candle 1. Work on a printout, on a screenshot with a drawing tool, or in a notebook.



Figure 4.9 Exercise chart: 66 candles, no markings.

1. Find every confirmed swing high and swing low with the five-candle rule. Write down the candle number and the price of each one. Read prices off the axis as closely as you can; the answers give exact values.
2. Label each swing: H or L for the first ones, then HH, LH, HL or LL.
3. Find every BOS and CHoCH. For each one, note the candle that made the close and the swing point it broke.
4. At the last candle, what is the trend? Which close would continue it, and which would change it?

Then compare your work with Figure 4.10 and the answers on the next page.

Answers



Figure 4.10 Exercise answer: swings, labels and breaks marked by the rules in this chapter.

Questions 1 and 2. Swing highs: candle 10 at 51.00 (H), 22 at 52.60 (HH), 34 at 53.90 (HH), 45 at 53.30 (LH) and 56 at 52.50 (LH). Swing lows: candle 4 at 48.60 (L), 15 at 49.80 (HL), 28 at 51.10 (HL), 40 at 52.20 (HL), 51 at 51.40 (LL) and 62 at 50.60 (LL).

Question 3. Candle 19 closes above 51.00: BOS, and the trend is up. Candle 33 closes above 52.60: BOS. Candle 50 closes below the higher low at 52.20: CHoCH, and the trend turns down. Candle 61 closes below 51.40: BOS.

Question 4. The trend is down. A close below 50.60, the last swing low at candle 62, would be a BOS and continue it. A close above 52.50, the last swing high at candle 56, would be a CHoCH.

If your swing points differ, check the two candles on each side again. The most common slip is a neighbor whose high or low is only slightly beyond the candidate. If your breaks differ, make sure you used closes rather than wicks, and that you compared each close with the most recent confirmed swing point at that moment, not with one you could only see later.

THE PIVOTWRIGHT TRADING MANUAL

The complete book

You have read Chapter 4. The complete book has 27 chapters in eight parts, from how markets work to your first 90 days, and eight appendices.

PART I	Foundations. How orders become prices, how a chart records them, and how charts of different timeframes fit together.	Chapters 1 to 3
PART II	Market Structure. Rules for reading what price is doing: trends, trendlines, zones and patterns, drawn the same way every time.	Chapters 4 to 7
PART III	Liquidity. Where orders rest, why price reaches for them, and what the popular liquidity concepts can and cannot tell you.	Chapters 8 to 9
PART IV	Indicators. Indicators as a second opinion on price: what each one measures and where it helps.	Chapters 10 to 15
PART V	Strategies. Four complete strategies built from the earlier chapters, and how to test a strategy before you trust it.	Chapters 16 to 21
PART VI	Risk. Position size, losing streaks and trade management: how much to risk, and what to do once a trade is open.	Chapters 22 to 23
PART VII	Psychology. Thinking in probabilities, and the habits that keep a plan intact.	Chapter 24
PART VIII	Process. A written plan, a trading journal and a first ninety days built on evidence.	Chapters 25 to 27

Appendices. A glossary, formulas, checklists, a trading plan template, journal templates, every rule of the book on a few pages, sources, and trading hours.

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