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THOMAS BULKOWSKI

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Encyclopedia of Chart Patterns

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Encyclopedia of Chart Patterns

THIRD EDITION



Thomas Bulkowski

WILEY

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To my parents,
*who continued to love me even after my homemade
rocket set the lawn on fire, and to my four-legged best friend,*

Rusty,
who saved my life; it grieves me that I couldn't save yours.

Titles by Thomas Bulkowski

Chart Patterns after the Buy

Describes key elements involved in making chart patterns work so you can profit after you buy. It provides a number of scenarios to compare against your current situation to see if your selection will outperform.

Encyclopedia of Candlestick Charts

The only candlestick book that statistically tests 103 candle patterns and reports on performance in a clear and concise manner.

Encyclopedia of Chart Patterns

A popular reference book that takes apart 75 chart patterns, tests them, and describes how they behave.

Fundamental Analysis and Position Trading: Evolution of a Trader

Describes how value investing can improve your wealth. It tests fundamentals such as the price-to-earnings ratio, book value, debt levels, and so on. Do they work?

Getting Started in Chart Patterns

A popular, low-cost choice for people wishing to become familiar with chart patterns and how to trade using them.

Swing and Day Trading: Evolution of a Trader

A how-to book that explains swing and day trading using chart patterns.

Trading Basics: Evolution of a Trader

Covers the basics of trading and investing, like position sizing, scaling in and out of positions, leverage, and so on, and then tests them to see which work best.

Trading Classic Chart Patterns

Presents a chart pattern scoring system to select patterns that outperform.

Visual Guide to Chart Patterns

An entry-level guide to chart patterns, in color, including buy and sell signals, quizzes, and more.

Preface to the Third Edition

I receive a lot of emails from people wanting to know the fastest way to lose money. They don't phrase it like that, of course. "I want to trade Forex full time," using massive leverage. "I need to make money because I quit my job, I have \$10 in trading capital, and I'm in debt up to my eyeballs. Can you help?"

One trader, let me call her Lisa, found success using this book. In just over a year, she made \$5 million. On paper. Then she used real money, funded in part by help from her parents.

What happened?

Lisa made over a thousand percent and bought her dad a boat.

Can I adopt her?

For some, like Lisa, this book is a shortcut to making money. I've done the heavy lifting by researching and cataloging chart patterns for more than two decades. I packaged that research and experience into this book. It's a thick book. It's an expensive book. And it's worth every cent as Lisa found out.

All of my books sell well because I do one thing which few authors do: I prove what I write. I don't just copy the ideas of others who copied them from someone else. My books break new ground. I'm the person others are stealing their ideas from. You'll find my ideas between the covers of this book in easy-to-understand language. There, I share performance details on 75 chart patterns. Some patterns work. Some are best left untouched. And some that don't work turn into money makers when they bust their downward breakouts.

This Book

This book has information that will give you an edge to put you ahead of other traders. But information is only one ingredient to success. You have to understand how to use it.

In the Glossary near the back of this book, I have listed the Results Snapshot followed by nine statistics tables, the same ones used in most chapters. There, I explain each table entry. If you're ever confused about the meaning of a table entry or how I measured performance, then check the Glossary.

Following the Glossary is terminology. It explains important terms used in this book.

There's also a Visual Index of chart patterns hidden back there. If you can't make sense of the squiggles on your price chart, then maybe the visual index can help identify the pattern.

This book is a reference tool, not a novel where you discover the butler did it, and it's not a book you'll want to read from cover to cover. I tried to lighten up the prose in this edition. You may find my humor misses the mark. At least I woke you up.

What's New?

Maybe you already own the first or second edition. Why buy the book again? The first edition was like owning a horse. The second edition was like owning a model T. This edition is like owning the DeLorean time machine from the movie *Back to the Future*.

- I added chapters covering **23 new chart patterns**.
- Additional samples. This edition reports on **150,000** samples, ten times the first edition (15,000) and almost four times the second edition (38,500).
- **New tables**. All tables are still easy to understand. The new tables are:
 - **How often stops hit** (provides guidance for placing stop loss orders)
 - **Performance and failures over time** (do chart patterns work as well today as they did 30 years ago?)
 - **Busted patterns** (can you make more money trading failed patterns?)
 - **Special features** (shows statistics unique to some chart patterns)
- **Experience** section. If I have traded a chart pattern, I discuss my experience with it, including lessons learned.
- **Easy to use**. Bold table references (example: **Table 34.1**), chart references (example: **Figure 27.5**), and descriptive table entries (example: **Days to ultimate high**) help make finding your place in the text and locating the discussion for a table entry or figure easier.

About the Statistics

With four times as many samples as in the second edition, and with performance drifting over the 15 years since I updated this book, many statistics will have changed, sometimes substantially.

Don't be alarmed.

The statistics in this book allow you to compare the performance of one chart pattern to another (which I make easy in the Statistics Summary at the back of the book). The performance results are *not* meant to suggest you can make 55% trading bump-and-run reversal bottoms (the best performing chart pattern with an average rise of 55%). You *can* make 55%, but only if you trade the chart pattern perfectly, and do so 1,099 times. Is that going to happen?

No.

You can do better.

If you're serious about trading the stock market, or investing for the long haul, this book might be the answer to your dreams. And if not, then each night read one of the Sample Trades to your children as a bedtime story. Most won't give them nightmares, and they are too young to care anyway.

But they might grow up to be traders like Lisa who'll buy you a boat.

THOMAS N. BULKOWSKI
January 2021

Preface to the Second Edition

On 24 March 2000, the financial world changed. No, that was not the date this book first hit the store shelves, but the beginning of a bear market that lasted 2.5 years. Finally, I had bear market data to use for finding chart patterns!

After spending nearly 5 years recovering from the work needed to complete the first edition, I decided to undertake an update. I changed the editorial content of the book in small ways, but made substantial improvements in others. Here is the list of the important changes:

- Bull and bear market statistics for complete coverage.
- Expanded statistics, all in a similar format:

Results Snapshot, at the start of each chapter, shows the most important numbers and surprises.

General statistics, including the average rise or decline, busted pattern performance, and benchmark performance.

Failure rates, a list of ten breakpoints to show how often a pattern fails.

Breakout and post-breakout statistics, showing performance over the yearly price range, pullback rates, and performance after a gap.

Frequency distribution of days to the ultimate high or low, showing when the trend is likely to end.

Size statistics, describing how performance varies for pattern height, width, and combinations of both.

Volume statistics, including volume trend, a new concept I call *volume shapes*, and breakout day volume.

For best performance, a list of trading tips and where to find them in each chapter.

- More chart patterns. I added 14 new chart patterns.
- Event patterns. I added 9 new types of patterns, which I call event patterns. These include earnings surprises, drug approvals, store sales, and stock upgrades and downgrades.
- More samples. I found over 38,500 chart pattern samples, more than double the 15,000 used in the first edition.
- Keyed table entries. Each table entry appears in bold at the start of its corresponding text discussion for easy locating.
- Glossary and methodology. Instead of peppering the text with repeated explanations, a new chapter explains how I arrived at each table entry.

Thanks to the thousands who purchased the first edition. I am confident that this second edition will help you become a more knowledgeable and successful trader.

THOMAS N. BULKOWSKI
January 2005

Preface to the First Edition

When I was a little tyke, I decided the easiest way to riches was to play the stock market. It was, after all, a level playing field, a negative-sum game with somebody winning and somebody losing. (*Hint:* The winner is always the broker.) All one had to do to win was pick stocks that went up and avoid stocks that went down. Easy.

I kept this in mind when I graduated from Syracuse University with an engineering degree and showed up early for my first professional job. Each morning I cracked open the newspaper and plotted my stock picks on a piece of graph paper taped to the wall. Bob, my office mate, used the same newspaper to select his stocks. I chose my selections after exhausting fundamental research, but Bob simply closed his eyes, twirled his hand around, and plunged his finger into the newspaper. When he opened his eyes and removed his finger, he announced another pick.

After several months of tracking both our selections, I made a startling discovery: I was getting creamed. Bob's random selections were beating the tar out of my carefully researched choices. I also discovered something else: I was learning a lot by paper trading.

With the hesitancy and distrust inherited from my parents, I studied two dozen firms before making my final selection and first purchase: I opened a money market account. The timing was excellent; I was earning over 17% on my cash. At first glance, the return might imply a very risky investment, but it was not. The prime rate was, after all, at 21%.

Flush with success, I gathered my courage and opened a brokerage account and began investing the few pennies I saved. Again, the timing was excellent as I caught the beginning of a major bull market. I bought a stock at a split-adjusted price of 88 cents and watched it go to \$30 and change.

Lest you think that everything was easy, consider what happened. My stock portfolio was growing by leaps and bounds, but my professional career was about to take a turn for the worse. After switching careers more often

than I sometimes like to admit, I landed a job with a company I could finally call home—a job that would last a lifetime, or so I hoped. Almost 6 months *after* my 10-year anniversary with the company, I received a letter from the chairman. He congratulated me on my decade with the company and looked forward to even more success for me in the coming years.

Six weeks later I was laid off.

The Missing Million

I took stock of the situation and decided that, at the age of 36, I had enough. Newspapers term guys like me *The Missing Million*. We are the ones who, for whatever reason, leave their jobs and decide not to go back into the workforce. We retire. Everyone, and I mean *everyone* (with the notable exception of my cousin Mary Ann—bless her heart), thinks we are nuts.

They're right, of course!

For the longest time, I have been fascinated with technical analysis of stocks. In the early years, I considered the little squiggles to be nothing short of voodoo. Still, I was curious as to why the major brokerage houses were hiring technical analysts in droves. But I did not dare take my eye off the fundamentals simply because I did not know anything about the technicals.

Then I discovered *Technical Analysis of Stocks and Commodities* magazine. During my lunch hour, I would take the elevator down to the library and read back issues. Although I saw chart patterns in the stocks I bought, I never really attached much significance to them. As some of my selections went sour, I began to view chart patterns with more respect. The fundamentals always looked good, but the technicals were signaling a trend change just as I was about to pull the trigger. The stocks I bought either lost money outright or I sold them too soon and cut my profits short.

Perhaps this has happened to you. You do fundamental research on a stock and then buy it, only to watch it go nowhere for a year or more. Even worse, once you get in, the stock tumbles. Had you looked at the chart the answer was always there. Prices pierced a trend line, a head-and-shoulders top appeared out of nowhere, the relative strength index signaled an overbought situation. In short, any number of technical indicators were screaming that a buy now would cost you your shirt. But you never saw the signs.

You are not alone; I did the same thing for years. I eventually got so frustrated with the performance of my stock selections that I decided to do my own research on technical analysis. I went to the library and read the same thing in many books: A head-and-shoulders formation works *most of the time*. What does that mean? Does it mean they are successful 51% of the time or 90% of the time? No one had the answer. I was not willing to risk my hard-earned dollars on simple bromides. As an engineer I wanted hard, cold facts, not fuzzy platitudes. So, I wrote this book.

Book Layout

At the back of the book is an Index of Chart Patterns. If you suspect your stock is making a chart pattern but do not know what to call it, the Index of Chart Patterns is the first place to look. Page numbers beside each pattern direct you to the associated chapter.

The chapters are arranged alphabetically in two sections: chart patterns and event patterns. Within each chapter, you are first greeted with a “Results Snapshot” of the major findings followed by a short discussion. Then, a “Tour” invites you to explore the chart pattern. “Identification Guidelines,” in both table form and in-depth discussion, make selecting and verifying your choices easier.

No work would be complete without an exploration of the mistakes, and the “Focus on Failures” section dissects the cause of failures. The all-important “Statistics” section follows. How do you trade a chart pattern? That is what the “Trading Tactics” and “Sample Trade” sections explore. The “For Best Performance” section includes a list of tips and observations on how to select better performing patterns.

If you have ever worked on a car or done some woodworking, then you will recognize the importance of selecting the right tool for the job. You would not want to use a flat-head screwdriver when a Phillips works better. Both do the job, but they are hardly interchangeable. Sometimes it is not a screwdriver you should be using, but a chisel. Selecting the proper tools and knowing how to use them is half the battle. This book is a lot like that, helping to sort the wheat from the chaff. Sometimes a chart pattern is frightening enough that you will want to take profits. At other times, the best trade that you can make is none at all.

I cannot give you the experience needed to make money in the stock market using chart patterns. I can only give you the tools and say, “Go to work on paper first.” That is the first step in developing a trading style that works for you, one you are comfortable with, one that improves as you do. If you review your paper trades, you will understand why a stop-loss order is more than a tool for the professionals. You will improve your ability to predict support and resistance levels that will, in turn, allow you to tighten your stops and get out near the top, cut your losses short, and let your profits run. You will understand why the statistics in this book are useful for comparison purposes, but your trading results may fall short. You may discover that your girlfriend loves diamonds, but as a chart pattern, they are a lousy investment. One word says it all. Experience.

Good luck.

THOMAS N. BULKOWSKI
December 1999

Acknowledgments

Perhaps several times in your life, something occurs that alters its direction. That happened to me several years ago when I brashly submitted my first article to *Technical Analysis of Stocks and Commodities*. Much to my surprise and delight, the editor at the time, Thom Hartle, published the work. That single event sent me spinning off in a new direction, another career.

Nearly a dozen articles later, I called Thom and chatted with him about an idea for a book. He steered me to Pamela van Giessen at John Wiley & Sons, Inc., publisher of this book. A single e-mail of my idea to her put a new set of wheels in motion. Simple words cannot express my thanks to these two outstanding individuals.

This is a great book made better by the tireless efforts of Bernice Petinato of Beehive Production Services. She did more than shepherd a 2,000-page manuscript through production. She read it and edited it without dying of boredom while making astute suggestions. Simply, she's the best. Thanks, Bernice.

T. N. B.

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* New to this edition

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Introduction

Jim is struggling.

He is the owner of JCB Superstores, and his competitor across town is beating him up; there is blood all over Jim's ledger. He decides it is time to take off the gloves: JCB goes public. He uses the money from the initial public offering to buy his competitor and add a few more stores around town.

With a growing sales base, Jim's clout allows him to negotiate lower prices for the office supplies he sells. He passes on part of the savings to his customers, while watching his margins widen, and plows the profits back into building more stores and updating existing ones.

Jim calls his friend, Tom, and tells him of his plans to expand the operation statewide. They chat for a while and exchange business tactics on how best to manage the expansion. When Tom gets off the phone, he decides to conduct his own research on JCB. He visits several stores and sees the same thing: packed parking lots, people pushing full shopping carts, and lines at the checkout counters.

He questions a few customers to get a sense of the demographics. At a few stores, he even chats with suppliers as they unload their wares. Back at the office, he does a thorough analysis of the financials and looks at the competition. Everything checks out, so he orders his trading partners to buy the stock at no higher than \$10 a share.

When news of the expansion plan hits the wires, the Street panics. It is, after all, a soft economy, and expanding willy-nilly when a recession looms is daft, maybe even criminal, according to some news outlets. The stock drops below 10 and Tom's crew makes its move. They buy as much as they can without raising suspicion. The stock rises anyway. It goes back up to 11, then 12, and rounds over at 13 before heading back down.

Several months go by, and the economic outlook is as bleak as ever. The stock eases down below 10. After Tom checks in with Jim for the latest public news, Tom's team buys more. It is an easy score because investors are willing to dump the stock, especially as year-end tax selling approaches.

2 Introduction

Six weeks later the company releases the sales numbers for JCB; they are better than expected. The stock rises 15% in minutes and closes at 10.75. And that is just for starters. Six months later, it's clear the economy was never in danger of entering a recession and everyone sees boom times ahead.

The stock hits 20.

Years go by, the stock splits a few times, and the holiday season looms. Tom interviews a handful of customers leaving JCB Superstores and discovers that they are all complaining about the same thing: The advertised goods are not on the shelves.

Tom investigates further and discovers a massive distribution problem, right at the height of the selling season. JCB has overextended itself; the infrastructure is simply not there to support the addition of one new store each week.

Tom realizes it is time to sell. He tells his trading department to dump the stock immediately but for no less than 28.25. They liquidate about a third of their holdings before driving the stock down below the minimum.

Since it is the holidays, everyone seems to be in a buying mood. Novice investors jump in at what they consider a bargain price. The major brokerage houses climb aboard and tout the stock, but Tom knows better. When the stock recovers to its old high, his trading partners sell the remainder of their holdings. The stock tops out and rounds over. During the next month and a half, the stock drifts down, slowly, casually. There is no rush for the exits—just a slow trickle as the smart money quietly folds up shop and moves on.

Then news of poor holiday sales leaks out. There is a rumor about distribution problems, merchandising mistakes, and cash flow problems. Brokerage firms that only weeks before were touting the stock now advise their clients to sell. The stock plummets 39% overnight.

One or two analysts say the stock is oversold; it is a bargain and investors should add to their positions. Many bottom fishers follow their brokers' advice and buy the stock. Big mistake. The buying enthusiasm pushes the price up briefly before a new round of selling takes hold. Each day the stock drops a bit lower, nibbling away like waves washing against a castle of sand. In 2 months' time, the stock is down another 30%.

The following quarter JCB Superstores announces that earnings will likely come in well below consensus estimates. The stock drops another 15%. The company is trying to correct the distribution problem, but it is not something easily fixed. It decides to stop expanding and to concentrate on the profitability of its existing store base.

Two years later, Tom pulls up the stock chart. The dog has been flat for so long it looks as if its heartbeat has stopped. He calls Jim and chats about the outlook for JCB Superstores. Jim gushes enthusiastically about a new retailing concept called the Internet. He is excited about the opportunity to sell office supplies online without the need for bricks and mortar. There is some risk because the online community is in its infancy, but Jim predicts demand will expand quickly. Tom is impressed, so he starts doing his homework and is soon buying the stock again.

Investment Footprints

If you picture in your mind the price action of JCB Superstores, you may recognize three chart patterns: a double bottom, a double top, and a dead-cat bounce. To knowledgeable investors, chart patterns are not squiggles on a price chart; they are the footprints left by the smart money. The footprints are all they need to follow as they line their pockets with greater and greater riches.

To others, such as Tom, it takes hard work and pavement pounding before they dare take a position in a stock. They are the ones *making* the footprints. They are the smart money that is setting the rules of the game—a game anyone can play. It is called investing.

Whether you choose to use technical analysis or fundamental analysis in your trading decisions, it pays to know what the market is thinking. It pays to look for the footprints. Those footprints may well steer you away from a cliff and get you out of a stock just in time. The feet that make those footprints are the same ones that will kick you in the pants, waking you up to a promising investment opportunity.

This book gives you the tools to spot the footprints, where they predict the stock is heading, how far it will travel, and how reliable the trail really is. The tools will not make you rich; tools rarely do. But they are instruments to greater wealth. Use them wisely.

The Database

Let me tell you about the stocks I used to compile the statistics in this book.

- 1,396 stocks were used; most start in July 1991 and extend into 2020.
- Not all stocks covered the entire period.
- Some stocks no longer trade. It's important to include what happens when a company goes bankrupt or merged out of existence.
- All stocks use daily price data, not intraday, but some chapters use weekly or monthly data.
- *Most* chart patterns were added in real time as new data arrives each day. This avoids look-ahead bias (where I only catalog patterns I can see have done well).
- The real-time addition of data was done for more than 20 years.
- All stocks have been split adjusted unless I no longer actively follow them.
- When a new stock is added to the database, it may have been dividend adjusted by the data provider. However, I don't adjust stocks I use in my database for dividends.
- A stock becomes part of the database provided it trades above \$5 a share (usually), isn't thinly traded (I like to see daily volume over

100,000 shares), and the stock has a heartbeat (meaning it has a reasonable high–low yearly trading range).

- Market capitalization varies with all three represented (small, medium, and large).
- Most stocks chosen are from American companies whose stocks trade on the NYSE or NASDAQ exchanges.

The Sample Trade

Most of the sample trades included in the chapters of this book are fictitious. Each sample trade uses techniques I wanted to illustrate, incorporating fictitious people in sometimes unusual circumstances. Call it poetic license, but I hope they give you some ideas on how to increase your profits or minimize your losses. Maybe you'll find them entertaining, too.

Testing Chart Patterns

How do you test chart patterns? It's not an easy question to answer. If you use commonly available software that tests trading strategies, you'll enter rules to model the shape of a double bottom, for example. When price closes above the top of the pattern, it signals an entry, so the software simulates a buy.

What about the exit signal? When do you sell? Should you use a stop-loss order or a signal from MACD or even a moving average crossover? No. Why not? Because you're not testing the chart pattern. You're testing how well a stop-loss order works or you're testing MACD or the moving average crossover system.

So I invented two tools I call the ultimate high and ultimate low to solve the testing problem.

Let's look at a chart so I can explain how these work and you'll understand the statistics in this book. **Figure I.1** shows two chart patterns, a double bottom and a head-and-shoulders top. Let's take the double bottom first.

Trading the Double Bottom

It appears at AB, two valleys that bottom near the same price. A buy signal occurs when price *closes* above the top of the pattern. The top of the pattern is at C and the entry signal (breakout) happens at D when price closes above the top of the double bottom. Entry is made the next day using the opening price, which is 17.06.

Let's say you're using traditional software and place a stop-loss order a penny below the low price of B, which is 15.70.