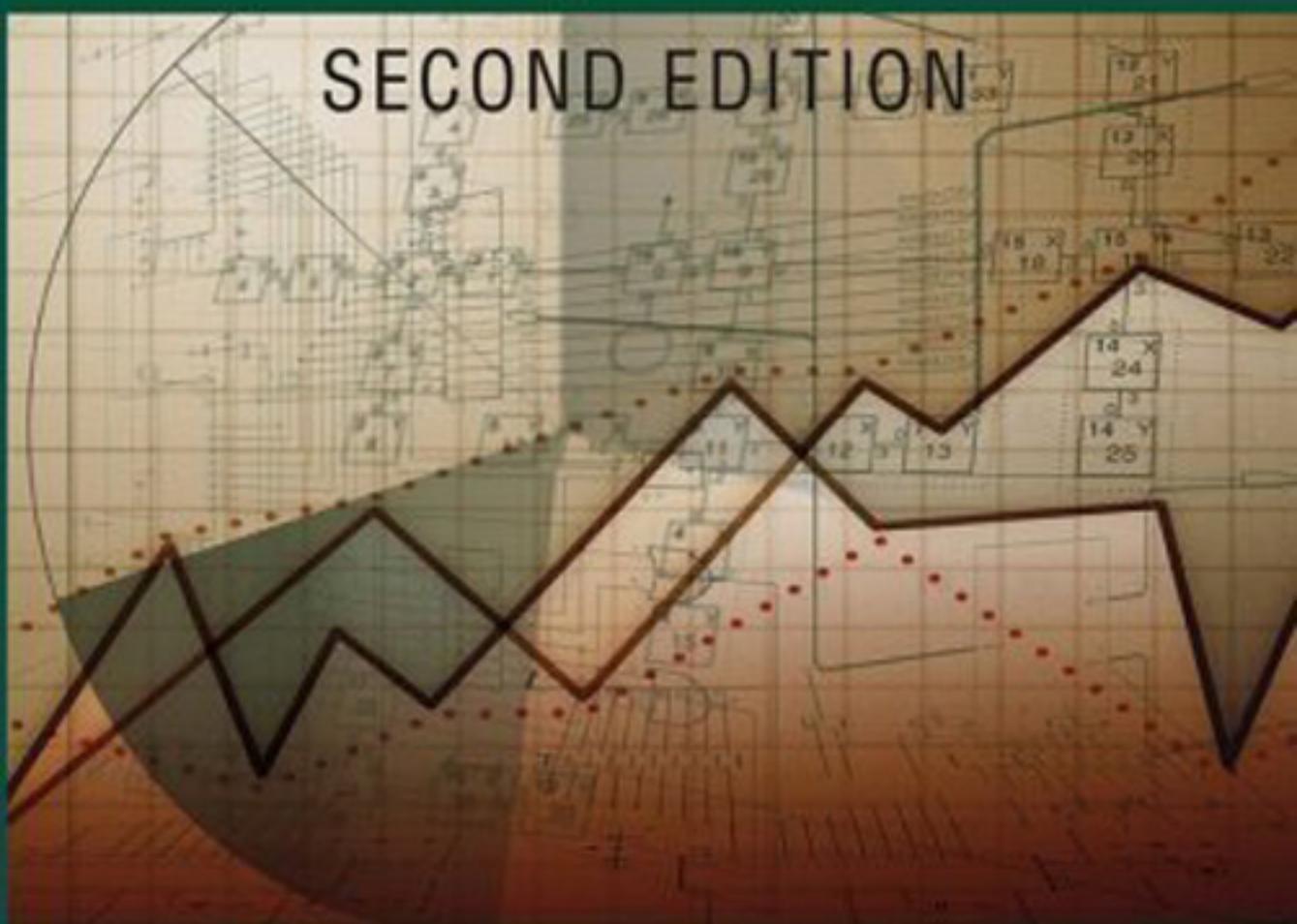




Chapter One Only
presented by inspirasi.co

Encyclopedia *of* chart patterns

SECOND EDITION



Thomas N. Bulkowski

Encyclopedia of Chart Patterns

SECOND EDITION



Thomas N. Bulkowski



John Wiley & Sons, Inc.

Encyclopedia of Chart Patterns

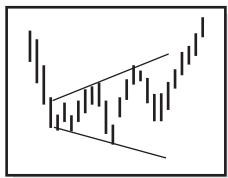
Founded in 1807, John Wiley & Sons is the oldest independent publishing company in the United States. With offices in North America, Europe, Australia, and Asia, Wiley is globally committed to developing and marketing print and electronic products and services for our customers' professional and personal knowledge and understanding.

The Wiley Trading series features books by traders who have survived the market's ever-changing temperament and have prospered—some by reinventing systems, others by getting back to basics. Whether a novice trader, professional, or somewhere in-between, these books will provide the advice and strategies needed to prosper today and well into the future.

For a list of available titles, visit our Web site at www.WileyFinance.com.

Encyclopedia of Chart Patterns

SECOND EDITION



Thomas N. Bulkowski



John Wiley & Sons, Inc.

This book is printed on acid-free paper ☺

Copyright © 2005 by Thomas N. Bulkowski. All rights reserved.

Published by John Wiley & Sons, Inc., Hoboken, New Jersey.

Published simultaneously in Canada.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning, or otherwise, except as permitted under Section 107 or 108 of the 1976 United States Copyright Act, without either the prior written permission of the Publisher, or authorization through payment of the appropriate per-copy fee to the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, 978-750-8400, fax 978-646-8600, or on the Web at www.copyright.com. Requests to the Publisher for permission should be addressed to the Permissions Department, John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030, 201-748-6011, fax 201-748-6008, or online at <http://www.wiley.com/go/permissions>.

Limit of Liability/Disclaimer of Warranty: While the publisher and the author have used their best efforts in preparing this book, they make no representations or warranties with respect to the accuracy or completeness of the contents of this book and specifically disclaim any implied warranties of merchantability or fitness for a particular purpose. No warranty may be created or extended by sales representatives or written sales materials. The advice and strategies contained herein may not be suitable for your situation. You should consult with a professional where appropriate. Neither the publisher nor the author shall be liable for any loss of profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages.

For general information about our other products and services, please contact our Customer Care Department within the United States 800-762-2974, outside the United States at 317-572-3993 or fax 317-572-4002.

Wiley also publishes its books in a variety of electronic formats. Some content that appears in print may not be available in electronic books. For more information about Wiley products, visit our Web site at www.wiley.com.

Library of Congress Cataloging-in-Publication Data:

Bulkowski, Thomas N., 1957—

Encyclopedia of chart patterns / Thomas N. Bulkowski.—2nd ed.

p. cm. — (Wiley trading series)

Includes index.

ISBN-13 978-0-471-66826-8

ISBN-10 0-471-66826-5 (cloth)

1. Stocks—Charts, diagrams, etc. 2. Commodity futures—Charts, diagrams, etc.

3. Investment analysis. I. Title: Chart patterns. II. Title. III. Series.

HG4638.B85 2005

332.63'222—dc22

2004059094

Printed in the United States of America.

10 9 8 7 6 5 4 3 2 1

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.

Preface to the Second Edition

On March 24, 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 2½ 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 postbreakout 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, making many of the statistics rock solid.
- 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.

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 are 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.

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, now editorial director for 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 Pettinato 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.

Contents

Introduction	1
PART ONE Chart Patterns	9
1 Broadening Bottoms	11
2 Broadening Formations, Right-Angled and Ascending	28
3 Broadening Formations, Right-Angled and Descending	45
4 Broadening Tops	63
5 Broadening Wedges, Ascending	81
6 Broadening Wedges, Descending	98
7 Bump-and-Run Reversal Bottoms	115
8 Bump-and-Run Reversal Tops	132
9 Cup with Handle	149
10 Cup with Handle, Inverted	164
11 Diamond Bottoms	179
12 Diamond Tops	196
13 Double Bottoms, Adam & Adam	213
14 Double Bottoms, Adam & Eve	229
15 Double Bottoms, Eve & Adam	244
16 Double Bottoms, Eve & Eve	259
17 Double Tops, Adam & Adam	275
18 Double Tops, Adam & Eve	291

xvi Contents

19	Double Tops, Eve & Adam	307
20	Double Tops, Eve & Eve	321
21	Flags	335
22	Flags, High and Tight	350
23	Gaps	362
24	Head-and-Shoulders Bottoms	374
25	Head-and-Shoulders Bottoms, Complex	390
26	Head-and-Shoulders Tops	405
27	Head-and-Shoulders Tops, Complex	421
28	Horn Bottoms	438
29	Horn Tops	451
30	Island Reversals	464
31	Islands, Long	480
32	Measured Move Down	496
33	Measured Move Up	510
34	Pennants	522
35	Pipe Bottoms	536
36	Pipe Tops	550
37	Rectangle Bottoms	563
38	Rectangle Tops	579
39	Rounding Bottoms	595
40	Rounding Tops	608
41	Scallops, Ascending	624
42	Scallops, Ascending and Inverted	639
43	Scallops, Descending	654
44	Scallops, Descending and Inverted	670
45	Three Falling Peaks	684
46	Three Rising Valleys	698
47	Triangles, Ascending	711
48	Triangles, Descending	730

Contents	xvii
49 Triangles, Symmetrical	748
50 Triple Bottoms	765
51 Triple Tops	779
52 Wedges, Falling	795
53 Wedges, Rising	811
PART TWO Event Patterns	827
54 Dead-Cat Bounce	829
55 Dead-Cat Bounce, Inverted	844
56 Earnings Surprise, Bad	855
57 Earnings Surprise, Good	868
58 FDA Drug Approvals	880
59 Flag, Earnings	893
60 Same-Store Sales, Bad	908
61 Same-Store Sales, Good	921
62 Stock Downgrades	934
63 Stock Upgrades	950
Statistics Summary	965
Glossary and Methodology	982
Index of Chart and Event Patterns	993
Index	1001

Encyclopedia of Chart Patterns

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 is retailing. He passes on part of the savings to his customers, while watching his margins widen, and plows the profits back into building more stores.

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 bustling around with 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.

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 the pundits. 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.

2 Introduction

Several months go by and the economic outlook is as bleak as ever. The stock eases down to 9. 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.

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 large 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 does not appear to be a rush for the exits—just a slow trickle as the smart money quietly folds up shop.

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' recommendation 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 it 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 of 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.

Let me tell you how I followed one trail of footprints. I sold my holdings in Alaska Air because I thought the stock was going down. Here is my notebook entry: “9/6/2001. I put a stop at 31.50 this morning and it hit. The stock has breeched a support level and with weakness in the economy and September/October upon us, it’s time to leave with a small loss [2.5%]. I should have bought at the breakout price [of an Eve & Adam double bottom]. The relative strength index peaked twice and now is headed down, suggesting a sale, and the commodity channel index says sell, too.”

I sold the airline two trading days before the terrorist attacks of 9/11. Four days after trading resumed, the stock bottomed at 17.70, nearly half the price at what I sold. The footprints did not lie; they led away from a cliff.

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 you are following really is. The tools will not make you rich; tools rarely do. But they are instruments to greater wealth. Use them wisely.

The Database

For this book, I used several databases in which to search for chart patterns. The main database consists of 500 stocks, each with durations of 5 years beginning

4 Introduction

from mid-1991. I included the 30 Dow Jones industrials and familiar names with varying market capitalizations. Stocks included in the database needed a heartbeat (that is, they were not unduly flat over the 5-year period) and did not have consistently large intraday price swings (too thinly traded or volatile).

I usually removed stocks that went below \$1.00, assuming bankruptcy was right around the corner. Most of the names in the database are popular American companies that trade on the NYSE, AMEX, or Nasdaq. The numerous illustrations accompanying each chapter give a representative sample of the stocks involved.

To capture the bear market of 2000–2002 and expand on the bull market since 1996, I included two additional databases. The first uses about 200 stocks that I follow daily. The other contains about 300 stocks that I no longer follow but that have historical data of limited duration (some issues no longer trade).

For rare chart patterns, I use all three databases and search from 1991 to the most recent date available. For plentiful patterns, I use already found patterns and add those appearing during the bear market. Thus, the number of stocks I use to find patterns and the amount of historical price quotes varies.

In the first edition of this book, I used a combination of computerized algorithms and manual searching to find chart patterns. The current edition includes the 15,000 patterns from the first edition and others found manually since then, for a total of more than 38,500 patterns.

Stock Performance from 1991 to 2004

Before reading about the various chart patterns in this book, it is wise to review the performance of the stock market during the period. Figure I.1 shows a monthly price chart of the Standard & Poor's 500 stock index. Beginning in mid-1991, you can see that the market moved up at a leisurely pace, pausing during much of 1994, and then resuming the climb at a steeper angle in 1995. The index stumbled in August 1998 and made lower lows for 2 more months before continuing upward, peaking in March 2000, and signaling an end to the bull market. The move capped a rise of 418% from the start of the period. After that, the downhill bear run began, reaching a low in October 2002, for a decline measuring 51%. The index bounced once but made a higher low in March 2003, signaling a trend change. Thus, the October low marked the end of the bear market.

What does all this mean? The bear market measures from March 24, 2000, to October 10, 2002—about 2.5 years long. For data collection purposes, the bull market is everything else, about 11 years long. That covers the period I used to search for chart patterns in this edition.

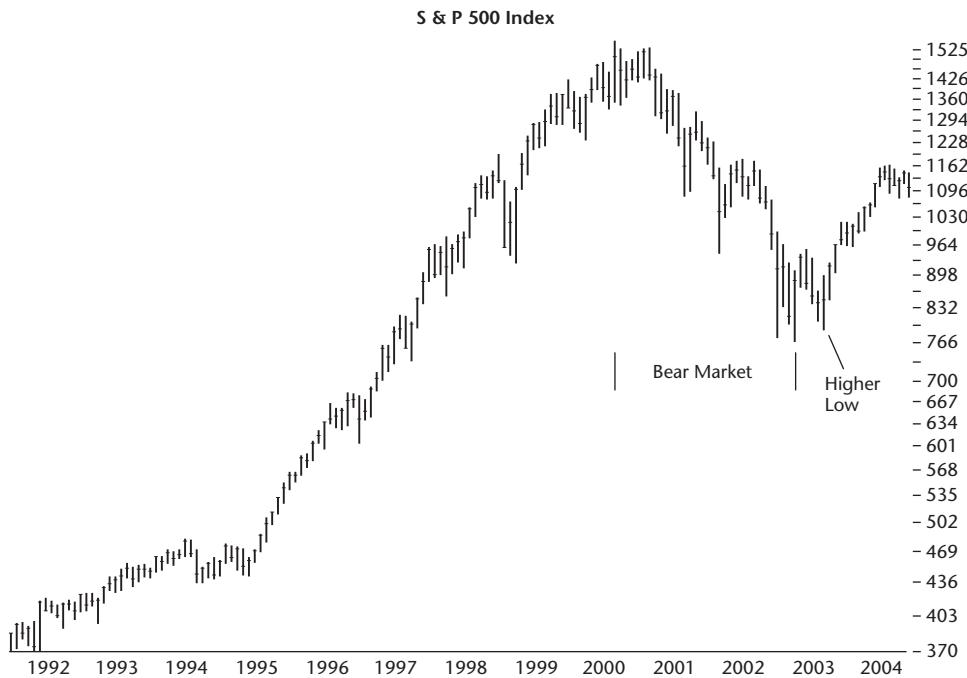


Figure I.1 Standard & Poor's 500 stock index from 1991 to 2004.

Investing Using Chart Formations

I could give a dentist's drill to any person walking by, but that doesn't mean I would let that person near my teeth. This book is just like that. *It gives you the tools to invest successfully.* It suggests which chart patterns work best and which ones to avoid. Whether you can make money using them is entirely up to you.

I call this book an encyclopedia because that is how I use it. Whenever I see a chart pattern forming in a stock I own, or am thinking of buying, I read the applicable chapter. The information refreshes my memory about identification quirks, performance, and any tips on how I can get in sooner or more profitably. Then I search for similar patterns in the same stock (using different time scales), and if that does not work, I search for similar patterns in stocks in the same industry. I look at them closely to determine if their secrets are applicable to the current situation. I try to learn from their mistakes.

Developing an Investment Style

The question I am asked most often is, *how do I develop an investment style?* It is usually not asked like that. Most take a more direct approach: *How do I make money trading stocks?* When first asked this question, I stumbled over the answer. I think it is like showing four people the color blue and asking them to

6 Introduction

describe it. One person is color blind so you automatically throw out whatever he says. One says it is solid blue. Another says it is not blue at all but green, while the third says it looks like a combination: blue-green. To each individual, blue looks like blue—just do not try to compare answers.

Developing a trading style is a lot like that. It is an individual endeavor that has a lot in common with experience. I cannot give you experience; I can only suggest ways to acquire your own.

If you read a chapter on a bullish chart pattern and buy the first stock showing the pattern in a bull market, you will probably be successful. The first trade nearly always works for the novice, maybe even the second or third one, too. Eventually, though, someone is going to pull the rug out from under you (who knows, maybe it occurs on the first trade). You will make an investment in a chart pattern and the trade will go bad. Maybe you will stumble across a herd of bad trades and get flattened. You might question your sanity, you might question God, but one thing is for certain: Your trading style is not working.

Most people buy stocks like they buy fruit. They look at it, perhaps sniff it, and plunk down their money. We are not talking about \$1.59 here. We are talking about thousands of dollars for part ownership in a company.

If you have ever been a board member, you know what I am talking about. You have a fiduciary responsibility to the people who elected or appointed you to that position. Not only should you study the material handed to you by the staff, but you have to get out in the field and kick the tires. Do not assume that what the staff says is always correct or represents the best solution. Question everything but learn in the process and try to be helpful without being a pest (I always seem to fall into the pest category). As a shareholder—an owner of the company—should it be any different?

Once, I considered buying a position in a company showing an upward breakout from a symmetrical triangle. My computer program told me the company is a member of the machinery industry and further research revealed that it makes refractory products. I continued doing research on the company until the problem gnawing at me finally sank in. I did not have the slightest idea what a *refractory product* was. Despite my search for an answer, I was not getting the sort of warm fuzzies I usually get when researching a possible investment. So, I passed it over. I am trading it on paper, sure, but not in real life. Call it the Peter Lynch Syndrome: Do not invest in anything you cannot understand or explain in a paragraph. Good advice.

Of course, if you blindly invest in chart squiggles and it works for you, who am I to tell you you are doing it wrong? The fact is, you are not. If you consistently make money at it, then you have developed an investment style that fits your personality. Good for you!

My investment style, as you might have guessed, combines fundamental analysis, technical analysis, emotional analysis, and money management. Just because I rely on technical analysis does not mean I do not look at the price-to-earnings, price-to-sales, and other more esoteric ratios. Then there is the

emotional element. After going for months without making a single trade, suddenly a profitable opportunity appears and I will take advantage of it. Three days later, I will want to trade again. Why? Am I trading just because it feels good to be finally back in the thick of things? Am I trading just because the single woman living nearby does not know I exist, and I am acting out my frustrations or trying to impress her with the size of my wallet? That is where paper trading comes in handy. I can experiment on new techniques without getting burned. If I do the simulation accurately enough, my subconscious will not know the difference, and I will learn a lot in the process.

Once I come to terms with any emotional issues, I look at money management. How much can I realistically expect to make, and how much can I lose? What is the proper lot size to take? When should I add to my position? How long will it take for the stock to reach my target and should I invest in a less promising but quicker candidate?

Investing using chart formations is an exercise in probability. If you play the numbers long enough, you will win out. Sure, some of your investments will fail, and you must learn to cut your losses before they get out of hand. But the winners should serve you well, providing you let them ride. Just do not make the mistake of watching a stock double or triple only to reverse course and drop back to where it started. Or worse.

Day Traders, Position Traders, Buy-and-Hold Investors

As I was writing this book, I kept asking myself *what is the time horizon for chart patterns?* Are they best for day traders, position traders, or buy-and-hold investors? The answer I kept coming up with is: Yes! Chart formations can be profitable for day traders—those people who are in and out of a trade during a single day. Many day traders have trading styles that depend on chart formations, support, and resistance. They concentrate on reliable formations that quickly fulfill their measure rule predictions.

For position traders, those who hold the trade longer than a day but not forever, chart patterns offer convenient entry and exit signals. I put myself in this category. If the trade goes bad, I am out quickly. If it is profitable, I see no need to cut my profits short. When the gains plateau, or if the stock has moved about all it is going to, I consider moving on. Like the day trader, I try to keep cash employed by buying formations that promise reliable returns and reach the ultimate high quickly.

For the long-term investor, chart patterns also signal good entry and exit points. I remember buying an oil services company knowing that the investment would not make a significant return for 2 or 3 years. (I was wrong: It doubled in 3 weeks) I believe that in 3 years' time, the stock will be in the 30s, a sixfold increase from its low. It probably will not qualify as a ten-bagger, but it is not small change either. In the short term, the road is going to be rocky, and

I have added to my position as the stock has come down. Since I am in it for the long term, I have an outstanding order to buy more shares. If this stock goes nowhere, then my analysis of the market trend was wrong, and I will have learned a valuable lesson.

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 to minimize your losses.

Statistics: “I Don’t Believe the Numbers”

A high, tight flag has an *average* rise of 69% in a bull market. Question: If you trade this pattern often enough in a bull market, will you make an average of 69%? Answer: No. Why not? Well, you may be like a friend of mine who has traded stocks a dozen times but made money only once (a few hundred bucks). But here is another reason: The 69% average rise represents 253 *perfect* trades. A perfect trade is one in which you buy at the breakout price and sell at the ultimate high—the highest high before prices decline by at least 20%. Not only are the trades *perfect*, but also commissions are not included. Your return may be lower . . . or higher. However, I used the same spreadsheet formulas from pattern to pattern, so you can compare performance in most cases (the exceptions: flags, measured moves, and pennants) without worrying about whether you believe the numbers.

“If I reproduce your tests, will I get similar results?” Yes. A person in India I know is pulling 30%, 40%, and more out of the market on a consistent basis. He would claim my statistics are too conservative! A hedge fund manager reports that my numbers for the dead-cat bounce are dead solid perfect. Another says that while she was able to reproduce my dead-cat bounce numbers, she was having trouble reproducing others. If you do not follow the methods I used, your results will vary. Guaranteed. So, this edition includes a Glossary and Methodology chapter to explain how I measured each result.

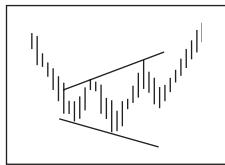
The method I used opened a door to a new world. In this world, you will find that a month after a breakout in a bear market, price often shows strength. You will discover that when pullbacks occur, performance suffers. You will find that failure rates start low but increase rapidly. Volume shapes, price gaps, pattern size, and a dozen other performance clues help some patterns but not others. Findings like these are what make this book unique. The numbers tell a story of fact that I share with you within the following pages.

PART ONE

Chart Patterns

1

Broadening Bottoms



RESULTS SNAPSHOT

Upward Breakouts

Appearance	Price trend is downward leading to the formation. Megaphone appearance with higher highs and lower lows that widen over time. Breakout is upward.	
Reversal or continuation	Short-term bullish reversal	
	Bull Market	Bear Market
Performance rank	17 out of 23	12 out of 19
Break-even failure rate	10%	9%
Average rise	27%	21%
Change after trend ends	-34%	-35%
Volume trend	Upward	Upward
Throwbacks	41%	44%
Percentage meeting price target	59%	53%
Surprising findings	Throwbacks hurt performance. Tall patterns perform better than short ones; narrow ones perform better than wide ones. Patterns with falling volume and a random shape outperform.	
See also	Broadening Tops	

12 Broadening Bottoms

Downward Breakouts

Appearance	Same, but breakout is downward.	
Reversal or continuation	Short-term bearish continuation	
	Bull Market	Bear Market
Performance rank	17 out of 21	18 out of 21
Break-even failure rate	16%	9%
Average decline	15%	18%
Change after trend ends	52%	46%
Volume trend	Upward	Flat
Pullbacks	42%	56%
Percentage meeting price target	44%	31%
Surprising findings	Performs better when the breakout is near the yearly low. Tall patterns perform better than short ones. Patterns both tall and narrow outperform. Patterns with a rising volume trend and random shape do well.	
See also	Broadening Tops	

Broadening bottoms (BBs) are middle-of-the-road performers, sporting a 9% break-even failure rate except in bull markets when double digits prevail (a poor showing). The average rise or decline is also below that posted by other chart pattern types.

Surprises are many and a few appear in the snapshot. I discuss them in more detail later.

Tour

You may be wondering what differentiates a broadening bottom from a broadening top. A broadening bottom has a price trend leading down to the start of the formation; a broadening top has prices trending up. This differentiation is an arbitrary designation I made to separate the two formation types. I ignore brief dips or rises a few days before the pattern as Figure 1.1 shows.

Some maintain that a broadening bottom does not exist. They simply lump every broadening pattern into the broadening top category. I decided to separate the two on the chance that their behavior differs.

Figure 1.1 is an example of a broadening bottom. This particular one is called a five-point reversal because there are five alternating touches, two

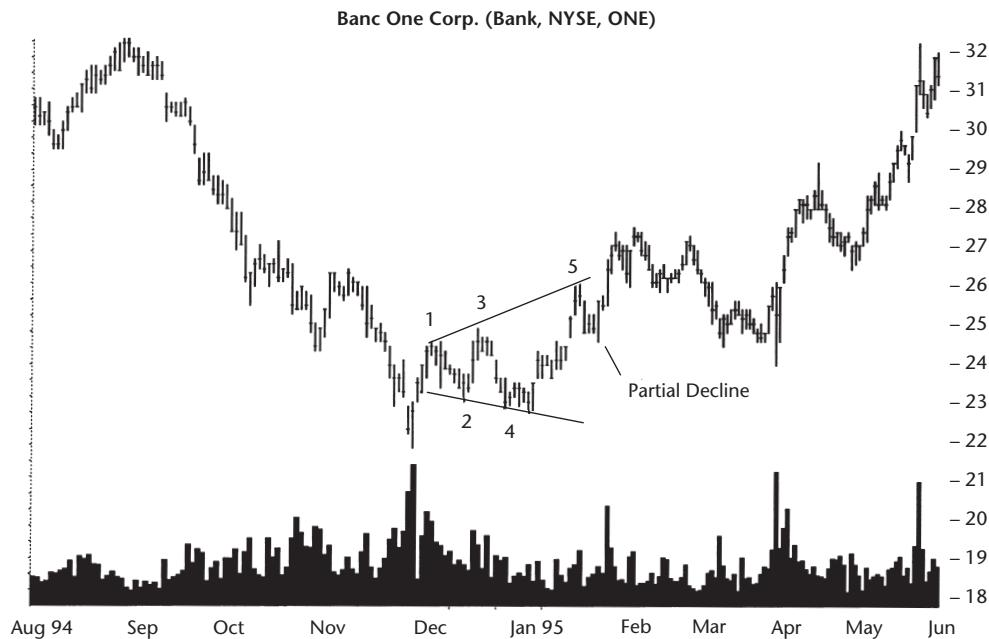


Figure 1.1 A broadening bottom formation, specifically a five-point reversal, so called because of the two minor lows (the even numbers) and three minor highs (the odd numbers).

minor lows and three minor highs. A five-point reversal is also rare: I located only 5 in the 77 broadening bottoms I examined. The price trend begins moving down in late August and reaches a low 2 days before the formation begins. Yes, prices do move up for several days, leading to the first touch of the top trend line, but I still consider the overall price trend to be moving down to the formation. Price overshooting or undershooting the formation start is common.

This particular chart pattern shows a partial decline. Prices move down from 26 to 24.50, then reverse course and shoot out the top. The stock reached a high of 38.50 just over a year later.

Identification Guidelines

Table 1.1 lists the identification guidelines for broadening bottoms.

Price trend. As mentioned earlier, a declining price trend precedes a broadening bottom. Even if prices rise just before the formation begins, ignore it. It is still a bottom. This arbitrary designation also makes intuitive sense: A bottom should appear at the end of a downtrend, not when prices are climbing to the moon.

Table 1.1
Identification Characteristics of Broadening Bottoms

Characteristic	Discussion
Price trend	The short-term price trend should be downward leading to the formation.
Shape	Megaphone shape with higher highs and lower lows.
Trend lines	Prices follow two trend lines: The top one slopes up and the bottom one slopes down.
Touches	Should have at least two minor highs and two minor lows, but not necessarily alternating touches.
Volume	The overall trend is usually upward, sometimes with a U shape.
Breakout	A breakout occurs when price closes above the formation's high (upward breakout) or below the pattern's low (downward breakout). See text for details. The breakout can occur in either direction and prices may move horizontally for several months before staging a definitive breakout.

Shape. The shape of the formation is distinct. It reminds me of chaos theory where small disturbances oscillate back and forth, then grow unbounded, wreaking havoc. In the stock market, price reaches a new high then crosses over and makes a new low, creating the broadening pattern. When you draw a trend line across the minor highs and another connecting the minor lows, the formation looks like a megaphone.

Trend lines. The two trend lines drawn across the minor highs and lows are important. The top trend line should slope up; the bottom one should slope down. The diverging trend lines distinguish the broadening bottom from other types of formations, such as the right-angled broadening formation (which has one horizontal trend line) or the broadening wedge (both trend lines slope in the same direction). So it is important that each trend line has a slope that is opposite the other.

Touches. A broadening bottom needs at least two minor highs and two minor lows to be a valid formation. Anything fewer means you are incorrectly identifying the formation. What is a minor high or low? A minor high is when prices trend up, then drop back down, leaving a clearly defined peak. A minor low is just the same thing flipped upside down: Prices move lower, then head back up leaving a clearly defined valley. Figure 1.1 shows five minor highs or lows, labeled by numbers. The odd numbers tag the minor highs and the even numbers are the minor lows. Let me stress that the minor highs and lows need not be alternating, as in Figure 1.1. Just as long as you can count at least two peaks and two valleys—wherever they may appear—that is fine.

Volume. There is nothing magical in the volume trend. I performed linear regression from the start of each formation to the end point (not the breakout point that is usually a month beyond the end of the formation) and found that volume rises about 57% of the time.

If you look closely at broadening bottoms, you will find that volume sometimes follows price. In Figure 1.1, the price decline between peak 1 and trough 2 shows a receding volume trend. When prices head up from point 2 to point 3, so does volume. If you were to place a thin wooden plank between the volume peaks in late November and late January, it would bow downward in a U shape. A U-shaped volume pattern occurs slightly more often than other shapes.

Breakout. The breakout point is difficult to identify in a broadening formation as it develops. I look for the place where price pierces the up or down trend line or makes an extended move. If price pierces the trend line, then the penetration point becomes the breakout point. If prices move up and follow along the top trend line without piercing it, then I backtrack to the prior minor high and draw a horizontal line forward in time until prices cross it. When that happens, that is the breakout point.

Let me give you an example. Consider the broadening bottom shown in Figure 1.2. The price trend over the preceding month leading to the formation is downward. The two trend lines outline a widening price pattern as you would expect from a broadening formation. There are more than two minor highs and two minor lows pictured, meeting another criterion mentioned in Table 1.1.

Where is the breakout? This formation is particularly easy. If you extend the top trend line upward, you find that prices rise well above the line, signaling an upward breakout. Then it is just a matter of backtracking to the highest minor high and drawing a horizontal line to determine the actual breakout price. Point A marks the highest high in the formation.

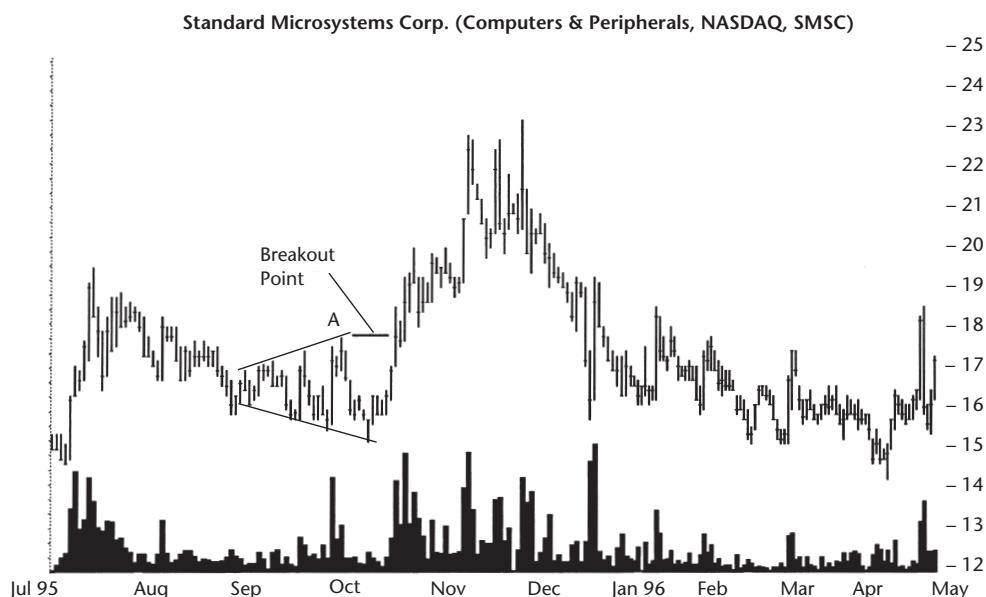


Figure 1.2 A breakout from the broadening bottom occurs when prices rise above the highest high in the formation, shown as point A.

Focus on Failures

Figure 1.3 shows a broadening bottom failure. Prices head down and appear to suffer a small dead-cat bounce lasting from April to August. I do not recommend taking a position in any stock that shows a dead-cat bounce regardless of how attractive the formation looks. Obey this recommendation for 6 months to a year while the stock recovers and management gets its house in order (or solves the cause of whatever is ailing the stock).

In the 3 weeks before the formation appeared, prices were heading higher in reaction to the dead-cat bounce. In June they moved horizontally from the formation top for over a month before easing down. During this time, prices rose above the high of the formation (see point A).

A breakout occurs when price closes beyond the formation high or low. Point A is not an upward breakout because the close is at 33.88, well below the formation high of 34.25. Two days later, price peaks above the high, but the close is also below the formation high.

However, look what happens when prices begin sinking in mid-July. They drop below the formation and close even lower. The price needs to drop

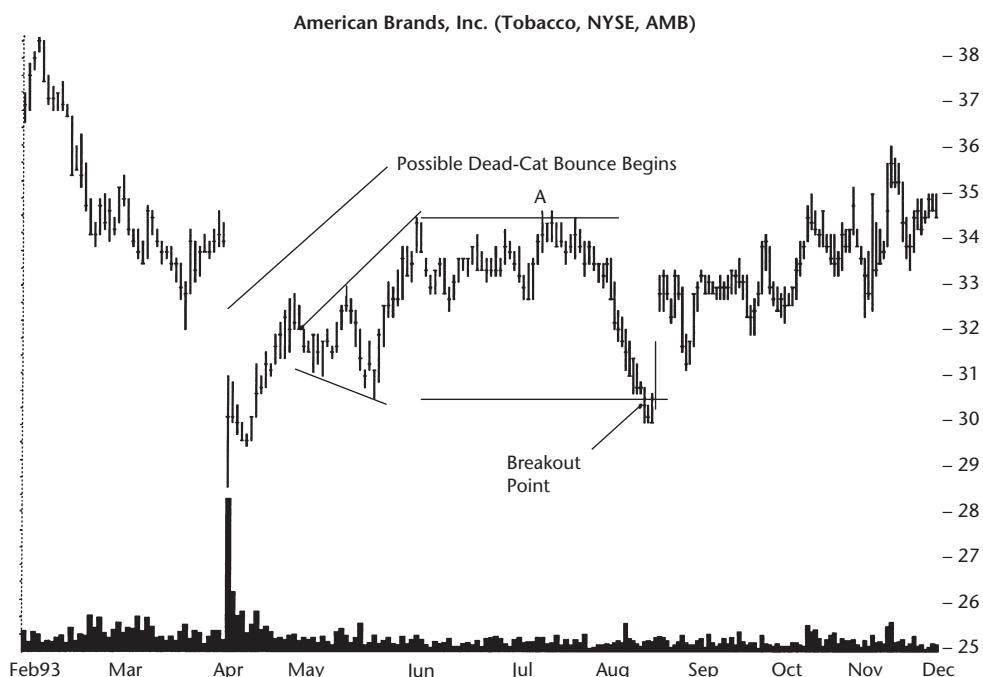


Figure 1.3 This broadening bottom forms as part of the recovery process from a dead-cat bounce. When price closes below the formation low, a downward breakout occurs. Point A shows where prices move above the high but do not close higher. The formation is a failure because prices do not move down by more than 5% below the breakout point before reversing.

below 30.38. At its lowest point, it closes at 29.88. That is just fifty cents below the low, but it is enough to signal a downward breakout. Within a week of moving below the formation low, prices shoot to 33 and continue up using a slower trajectory.

Figure 1.3 represents what I call a 5% failure. Prices break out lower but fail to continue moving in the breakout direction by more than 5% before heading back up. The reverse is also true for upward 5% failures: Prices move up by less than 5% before turning around and tumbling.

Statistics

Table 1.2 shows general statistics for the broadening bottom chart pattern.

Number of formations. I found 237 patterns in 500 stocks using data from mid 1991 to 2004.

Reversal or continuation. You can see that more patterns act as reversals than continuations. By definition, a bottom pattern has prices entering from the top and exiting any way it darn well pleases.

In a bull market, reversals outperform continuations, but in a bear market, the situation reverses: continuations outperform reversals.

Average rise or decline. Notice how upward breakout performance improves in a bull market and downward breakout performance is better in a bear market. Think of it as a rising tide that lifts all boats. This is an example of how trading with the prevailing market trend will improve your results.

Table 1.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	92	34	79	32
Reversal (R), continuation (C)	92 R	34 R	79 C	32 C
RC performance	23% R, 13% C ^a	21% R, 16% C ^a	-11% R ^a , -15% C	-9% R ^a , -19% C ^a
Average rise or decline	27%	21%	-15%	-18%
Rises or declines over 45%	18 or 20%	5 or 15%	1 or 1%	2 or 6%
Change after trend ends	-34%	-35%	51%	46%
Busted pattern performance	51% ^a	28% ^a	-26% ^a	-43% ^a
Standard & Poor's 500 change	14%	-3%	1%	-11%
Days to ultimate high or low	112	65	40	24

Note: Minus sign means decline.

^aFewer than 30 samples.

Rises or declines over 45%. Outstanding performance is rare for BBs. The best showing comes from upward breakouts in a bull market, with 20% of the patterns climbing more than 45%. That may sound like a lot, but other patterns do much better. Thus, do not expect a large move. Downward breakouts almost never fare well in this category.

Change after trend ends. In a bull market, once prices reach the ultimate low after a downward breakout, prices rise an average of 51%. Even in a bear market, the climb measures 46%. Thus, if you can determine when the downtrend ends, buy the stock and surf the rising tide.

Busted pattern performance. Few patterns bust, so the performance numbers are not solid. Still, they show how much better a busted pattern does than one that works. If you see prices move less than 5% after the breakout and then return to the pattern, consider trading the new direction, but only if it breaks out the other side.

Standard & Poor's 500 change. Compare the change in the index with the average rise or decline. Large moves in the index associate with large moves in the stock. For best performance, trade with the market trend (bull markets, upward breakouts and bear markets, downward breakouts).

Days to ultimate high or low. It takes between a month to 4 months to reach the ultimate high or low. The numbers say that the move in a bear market takes less time than in a bull market. Thus, the decline after a BB in a bear market must be at a steeper slope than is the rise in a bull market.

Table 1.3 shows failure rates for BBs. The 5% break-even failure rate is lowest in a bear market (9%). The failure rates climb quickly as the maximum price rise or decline changes. For the 10% failure rate benchmark, BBs fail between two and three times more often than at the 5% rate. Over half the pat-

Table 1.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	9 or 10%	3 or 9%	13 or 16%	3 or 9%
10	23 or 25%	10 or 29%	27 or 34%	8 or 25%
15	33 or 36%	14 or 41%	46 or 58%	18 or 56%
20	43 or 47%	19 or 56%	52 or 66%	19 or 59%
25	54 or 59%	20 or 59%	63 or 80%	24 or 75%
30	63 or 68%	24 or 71%	70 or 89%	26 or 81%
35	70 or 76%	26 or 76%	73 or 92%	27 or 84%
50	74 or 80%	32 or 94%	78 or 99%	30 or 94%
75	84 or 91%	33 or 97%	79 or 100%	32 or 100%
Over 75	92 or 100%	34 or 100%	79 or 100%	32 or 100%

Table 1.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	30 days	23 days	39 days	23 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L20%, C44%, H36%	L41%, C38%, H21%	L71%, C27%, H1%	L78%, C19%, H3%
Percentage rise/decline for each 12-month lookback period	L28% ^a , C24%, H30%	L19% ^a , C26% ^a , H15% ^a	L17%, C12% ^a , H8% ^a	L20% ^a , C13% ^a , H21% ^a
Throwbacks/pullbacks	41%	44%	42%	56%
Average time to throwback/ pullback ends	13 days	10 days	12 days	11 days
Average rise/decline for patterns with throwback/pullback	25%	15% ^a	-12%	-19% ^a
Average rise/decline for patterns without throwback/pullback	28%	25% ^a	-17%	-18% ^a
Performance with breakout gap	23% ^a	30% ^a	-15% ^a	-22% ^a
Performance without breakout gap	28%	20%	-15%	-18% ^a
Average gap size	\$0.74	\$0.34	\$2.17	\$0.92
Partial rise, downward breakout	N/A	N/A	28/42 or 67%	11/17 or 65%
Partial decline, upward breakout	43/54 or 80%	11/17 or 65%	N/A	N/A
Partial rise performance	N/A	N/A	-10%	-22%
Partial decline performance	29%	20% ^a	N/A	N/A
Intraformation partial rise failure	4/92 or 4%	2/34 or 6%	8/79 or 10%	4/32 or 13%
Intraformation partial decline failure	6/92 or 7%	1/34 or 3%	5/79 or 6%	2/32 or 6%

Notes: Minus sign means decline. N/A means not applicable.

^aFewer than 30 samples.

terns with downward breakouts fail to drop more than 15%. For upward breakouts, patterns cross the halfway mark between rises of 15% and 25%.

These results suggest that you should not depend on a large rise or large decline after a BB. Scanning down each row, we also see that BBs in bull markets with upward breakouts have the lowest failure rates. Those are the ones to buy.

Another way to use Table 1.3 is to assess how likely it is that your trade will fail. If you have a cost of trading of 5% and you want to make 20%, how many patterns in a bull market with upward breakouts will fail to rise at least 25% ($5 + 20$)? Answer: 59%. Just 41% of the patterns will meet your profit margins. Since the majority will fail, your winners must do quite well to compensate for the losses.

Table 1.4 shows statistics related to BB performance after the breakout.

Formation end to breakout. There is a delay between price touching the trend line the final time and closing above it. This delay averages between 3 weeks and 5 weeks. It takes longer to break out in a bull market than a bear market because the decline in a bear market is often steeper.

Yearly position. Most of the breakouts occur near the yearly low. This makes sense for downward breakouts, especially those in bear markets. The only exception is in bull markets. They show 44% of the breakouts occurring in the middle of the yearly price range.

Yearly position, performance. In most entries, the sample counts are few, making the results unreliable. Those BBs with breakouts following the market trend (bull market, up breakout and bear market, down breakout) do best when the breakout is near the yearly high.

Throwbacks and pullbacks. The throwback/pullback rate hovers around 43% except for BBs in a bear market with a downward breakout. They pullback 56% of the time. Still, the rates are too low to use in forming a reliable trading strategy.

The average time for the stock to return to the breakout price is less than 2 weeks. In most cases, when a throwback or pullback occurs, performance suffers. Look for overhead resistance to an upward move or underlying support to a downward breakout before investing. If the congestion zone is nearby (less than 5% away), prices will likely push through, but overhead resistance will retard momentum and performance will suffer.

Gaps. Gaps help performance in a bear market, but the result may change with additional samples. In a bull market, breakout day gaps either hurt performance or have no influence.

Partial rises and declines. The next four lines of Table 1.4 concern how often a partial rise or decline occurs and if they do occur, how the pattern performs. A partial decline correctly predicts an upward breakout 80% of the time in a bull market. The other variations are less successful, being right about two-thirds of the time. Figure 1.1 shows a good example of a partial decline and Figure 1.4 shows a partial rise. See the Glossary and Methodology chapter for more information.

Performance improves when the breakout duration agrees with the general market (upward breakouts, bull market or downward breakouts, bear market) and a partial rise or decline occurs. For countertrend trades, performance suffers after a partial rise or decline.

Intraformation partial rises and declines. Intraformation partial rises and declines appear as small loops hanging from the trend lines. They are partial rises or declines that failed to breakout: Prices made another crossing of the broadening pattern. Intraformation partial rises or declines occur 13% or less of the time.

Table 1.5 shows a frequency distribution of time to the ultimate high or low. Using numbers, it tells how soon your chart pattern will likely top or bottom out. For example, in a bear market with a downward breakout, over half (53%, or 25 + 28) bottom out within 2 weeks. At the other end of the table, almost half the patterns (45%) in a bull market take longer than 2 months (over 70 days) to reach the ultimate high.

Notice the slight blip in the numbers around days 35 and 42. Bear markets with upward breakouts and bull markets with downward breakouts show more trend changes during that period. Thus, 5 to 6 weeks after the breakout, look for a trend change.

Table 1.6 shows size-related statistics. The results suffer from low sample counts, so keep that in mind.

Height. Tall patterns perform better than short ones. Before you trade a BB, compute its height and divide the difference by the breakout price. If the result is above the median listed in the table, you have a tall pattern. It may not outperform, but it places the probability on your side.

Width. Wide patterns usually perform better than narrow ones. I used the median length as the separator between narrow and wide.

Table 1.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	29%	6%	12%	6%	9%	3%	3%	9%	6%	0%	18%
Bull market, up breakout	14%	13%	5%	3%	2%	5%	3%	1%	3%	4%	45%
Bear market, down breakout	25%	28%	19%	6%	3%	0%	3%	3%	0%	0%	13%
Bull market, down breakout	24%	15%	9%	4%	5%	10%	5%	8%	1%	1%	18%

Table 1.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout ^a	Bull Market, Down Breakout	Bear Market, Down Breakout ^a
Tall pattern performance	27%	28%	-17%	-24%
Short pattern performance	26%	16%	-13%	-12%
Median height as a percentage of breakout price	15.13%	18.06%	17.50%	20.06%
Narrow pattern performance	31%	22%	-15%	-19%
Wide pattern performance	22%	19%	-15%	-18%
Median length	45 days	31 days	49 days	35 days
Average formation length	55 days	35 days	55 days	52 days
Short and narrow performance	30%	16%	-14%	-13%
Short and wide performance	19% ^a	15%	-11% ^a	-9%
Tall and wide performance	24%	24%	-16% ^a	-23%
Tall and narrow performance	36% ^a	30%	-19% ^a	-24%

Note: Minus sign means decline.

^aFewer than 30 samples.

Average formation length. The average width is between 1 and 2 months long.

Height and width combinations. Tall and narrow patterns outperform the other combinations. You will want to avoid short and wide patterns. They perform worst.

Table 1.7 shows volume-related statistics for broadening bottoms. The sample counts are few in this table, so the conclusions you reach may change with a larger sample size.

Volume trend. Up breakouts do better when the volume trend is falling, and downward breakouts do better with a rising volume trend.

Volume shapes. In all cases, a random volume shape—neither U- nor dome-shaped—performed better than the other shapes. A random shape includes flat, rising (trending up), and falling (trending down) volume trends.

Breakout volume. Patterns in bear markets perform better after a heavy volume breakout. The other two columns either show no difference or show light volume breakouts outperforming.

Table 1.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout ^a	Bull Market, Down Breakout	Bear Market, Down Breakout ^a
Rising volume trend performance	25%	16%	-17%	-19%
Falling volume trend performance	29%	27%	-12%	-18%
U-shaped volume pattern performance	29%	18%	-15%	-18%
Dome-shaped volume pattern performance	21%	22%	-14% ^a	-18%
Neither U-shaped nor dome-shaped volume pattern performance	32%	26%	-16% ^a	-20%
Heavy breakout volume performance	26%	25%	-15%	-19%
Light breakout volume performance	28% ^a	12%	-15% ^a	-15%

Note: Minus sign means decline.

^aFewer than 30 samples.

Trading Tactics

Table 1.8 shows trading tactics for broadening bottoms.

Measure rule. The first tactic is to determine how much money you are likely to make in a trade. The measure rule helps with the prediction. Subtract the highest high from the lowest low in the formation to give you the formation height. Then add the value to the highest high to get the target price for upward breakouts and subtract the height from the lowest low for downward breakouts.

In a bull market, this method correctly predicts an upward breakout target 59% of the time. The worst showing is from BBs in a bear market with a downward breakout. The prediction is correct just 31% of the time. I consider values above 80% to be reliable, so this prediction method is dismal.

Figure 1.4 makes the computation clear. Point A shows the highest high in the chart pattern at 14.13. The lowest low is point B at 12. The formation height is the difference between the two or 2.13. Add the value to the high to arrive at the upward price target. This turns out to be 16.26. I compute the

24 Broadening Bottoms

Table 1.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the difference between the highest high and the lowest low in the formation. Add or subtract this value from the most recent minor high or low, respectively. The result is the target price for upward and downward breakouts.
Go long at the low	Once recognizing a broadening formation, buy after the stock makes its turn at the lower trend line.
Long stop	Place a stop-loss order 0.15 below the minor low to protect against a trend reversal.
Go short at the high	Sell short after prices start heading down from the top trend line.
Short stop	Place a stop 0.15 above the minor high to protect against an adverse breakout. Cover the short when price turns at the bottom trend line and starts moving up. For a downward breakout, cover as it nears the target price or any support level.
Move stops	Raise or lower the stop to the next closest minor low or high once prices make a new high (for long trades) or low (for short sales).
Other	If a broadening bottom shows a partial decline or rise, trade accordingly (on a partial decline, go long; on a partial rise, short the stock).

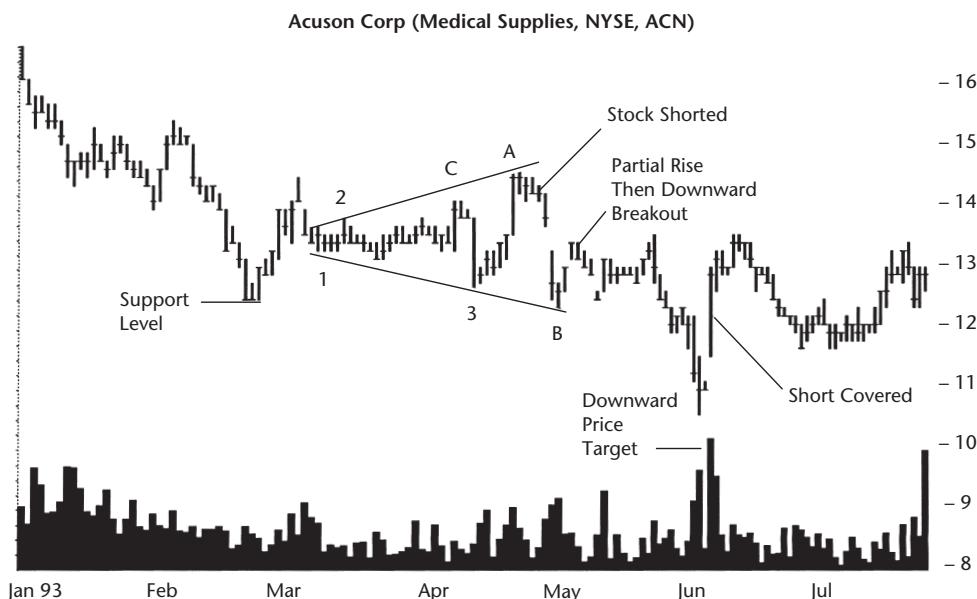


Figure 1.4 A broadening bottom with five alternating touches. Expect a downward breakout because a partial rise appears.

downward target by subtracting the height from the lowest low (that is, 12 – 2.13 or 9.87). You can see in Figure 1.4 that the price never quite reaches the downward price target.

Go long at the low. Once you have uncovered a broadening bottom, with two minor highs and two minor lows, you can think about trading it. When the price bounces off the lower trend line, buy the stock. Sell when prices turn down. The downturn may occur as a partial rise partway across the formation, or prices may cross completely to the other side, touch the top trend line, and head down. Remember, the formation may stage an upward breakout, so do not sell too soon and cut your profits short.

Long stop. In a rising price trend, place a stop-loss order 0.15 below the minor low. Should the stock reverse and head down, you will be taken out with a small loss. As the stock rises to the opposite side of the formation, move your stop upward to 0.15 below the prior minor low. The minor low may act as a resistance point, so you will be giving the stock every opportunity to bounce off the resistance level before being cashed out.

Go short at the high. The trading tactic for downward breakouts is the same. When prices touch the top trend line and begin moving down, short the stock.

Short stop. Place a stop-loss order 0.15 above the highest high in the formation, then pray that prices decline.

Move stop. If luck is on your side and the stock heads down, move your stop lower. Use the prior minor high—place the stop 0.15 above it.

Other. If the stock makes a partial rise or decline, consider acting on it. This is a reliable breakout signal. Take advantage of it but make sure you place a stop-loss order in case the trade goes bad.

Once prices break out and leave the broadening pattern, consider selling if the price nears the target. There is no guarantee that the price will hit or exceed the target, so be ready to complete the trade, especially if there is a resistance level between the current price and the target. The stock may reach the resistance point and turn around.

Sample Trade

Susan likes to think of herself as the brains in the family. While her husband is suffering in foul weather as a carpenter, she is hammering away at her keyboard, a slave to her computer masters. She is an active position trader who is not afraid to short a stock, given good profit potential and an especially weak fundamental or technical situation. It is a stressful life, but making money often is.

When she spotted the broadening bottom shown in Figure 1.4, she began her analysis. The stock reached a high of 37.38 in early November 1991 and has been heading down ever since. Now, with the stock trading at 14, she

wondered how much downside remained. She drew the two trend-line boundaries and counted the number of alternating touches (in Figure 1.4, three are labeled as numbers and Point A is the fourth alternating touch).

Since most broadening formations tend to break out after four alternating touches and since the price was near the top of the formation heading down, she guessed that the stock would break out downward on the next crossing. So she sold the stock short and received a fill at 13.88. It was a gamble, sure, but one she was comfortable making. In any case, she immediately placed a stop at 14.25, or slightly above the high at point A.

Susan was overjoyed to see the stock plummet 2 days later and race across to the other side of the formation, touching the bottom trend line at point B. Usually, her trades are not that easy. She decided to protect her profit and lowered the stop to the nearest minor high, shown as point C, at 13.75 or 0.15 above the high. Then she waited.

The stock bounced off the lower trend line instead of busting through as she hoped. She decided to be patient and see what the stock did next. With her stop-loss order in place at the break-even price, she felt protected and comfortable in letting the trade ride.

The stock bounced off the 12 support level and did a partial rise before meeting resistance and heading back down. Two days after cresting, she made the determination that on the next touch, the stock would pierce the lower trend line and continue down. She doubled her stake by selling more stock short at 12.75. She was wrong. The stock continued down 1 more day before moving up again. Susan adjusted her stop-loss order to include the additional shares, but kept it at the same price level (13.75). Again she waited. The stock slowly climbed and reached a minor high of 13.13 before heading down again. This time the decline was strong enough to punch through the support zone at the lower trend line.

When the stock descended below point B, Susan lowered her stop-loss order to 0.15 above that point or 12.15. Then she looked at the measure rule for the price target. She calculated a target of 9.88 and wondered if the stock would really reach that price. To be safe, she decided to cash out if the stock reached 10.15, or 0.15 above the common support price of 10 (a whole number typically shows support).

When the stock plunged to 10.38 on high volume, she wondered if she was looking at a one-day reversal chart pattern. With those formations, it is difficult to be sure if prices would reverse or not. She decided to hold on to her original target.

Two days later, prices zoomed upward and her stop closed out the trade at 12.15. She did not make much money (about 9% with a hold time of just over a month), but she gained experience and a few pennies to put in the bank.

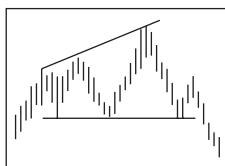
For Best Performance

The following list includes tips and observations to help you select better performing broadening bottoms. Refer to the associated table for more information.

- Use the identification guidelines to correctly select a broadening bottom—Table 1.1.
- Trade with the market trend. Select BBs that occur in a bull market with an upward breakout or in a bear market with a downward breakout—Table 1.2.
- If you see a busted pattern, trade it—Table 1.2.
- BBs in bull markets with upward breakouts have the lowest failure rates. Avoid trading downward breakouts in a bull market—Table 1.3.
- Performance usually suffers after a throwback or pullback. Search for overhead resistance (upward breakouts) or underlying support (downward breakouts) before trading—Table 1.4.
- Use partial rises or declines to enter a trade sooner with little increase in risk—Table 1.4.
- BBs in a bear market bottom quicker than BBs in a bull market, so short BBs in a bear market for the quickest turnover (but the payoff will be lower, on average)—Table 1.5.
- Watch for the price trend to change 5 to 6 weeks after the breakout—Table 1.5.
- Select tall or narrow patterns—Table 1.6.
- BBs both tall and narrow outperform the other combinations. Avoid short and wide ones—Table 1.6.
- Select BBs with a falling volume trend for upward breakouts. A rising volume trend works better for downward breakouts—Table 1.7.
- Pick patterns with a random volume shape (flat, rising or falling)—Table 1.7.

2

Broadening Formations, Right-Angled and Ascending



RESULTS SNAPSHOT

Upward Breakouts

Appearance	Horizontal bottom with higher highs following an up-sloping trend line. Breakout is upward.	
Reversal or continuation	Short-term bearish reversal	
	Bull Market	Bear Market
Performance rank	19 out of 23	15 out of 19
Break-even failure rate	11%	11%
Average rise	29%	15%
Change after trend ends	-31%	-38%
Volume trend	Upward	Upward
Throwbacks	47%	43%
Percentage meeting price target	68%	43%
Surprising findings	Throwbacks and breakout day gaps hurt performance. Tall patterns perform better than short ones. Patterns both tall and wide outperform. Heavy breakout volume helps performance.	

Downward Breakouts

Appearance	Same, but breakout is downward.	
Reversal or continuation	Short-term bearish continuation	
	Bull Market	Bear Market
Performance rank	19 out of 21	14 out of 21
Break-even failure rate	20%	8%
Average decline	15%	22%
Change after trend ends	53%	47%
Volume trend	Upward	Upward
Pullbacks	65%	52%
Percentage meeting price target	32%	51%
Surprising findings	A pullback hurts performance. Tall patterns perform better than short ones.	

Before I began studying this formation, I assumed prices would climb away from it, simply because the word *ascending* is in the title. However, that is not how the formation performs. It is bearish. The word *ascending* refers to the minor highs that rise over time. The base of this formation is flat but the tops generally follow an up-sloping trend line.

Surprises for this pattern include throwbacks and pullbacks that hurt performance when they occur. They interrupt price momentum. Tall patterns perform better than short ones, and for upward breakouts, patterns both tall and wide perform better than other combinations.

Tour

Figure 2.1 puts the formation in perspective. There are two formations shown in the chart. The first one is somewhat ill-formed but better performing than the second. Both formations have a base outlined by a horizontal trend line connecting the minor lows. The up-sloping trend line skirts the tops of the minor highs. The result is a triangle-appearing formation with prices that broaden out, but do not let the ascending price pattern fool you. This formation is bearish: Prices plummet through the base of the formation most of the time.

Why do right-angled ascending broadening formations form? Consider Figure 2.2. The rise began in mid-December 1991 on volume that was higher than anything seen in almost 2 months. By late February, the stock had reached a new high and was rounding over after meeting selling resistance at 14. The stock returned to 12.25 where it found support. At that point, it paused for

30 Broadening Formations, Right-Angled and Ascending



Figure 2.1 Two right-angled ascending broadening formations bounded by a horizontal base and up-sloping trend line. Prices decline after a downward breakout.

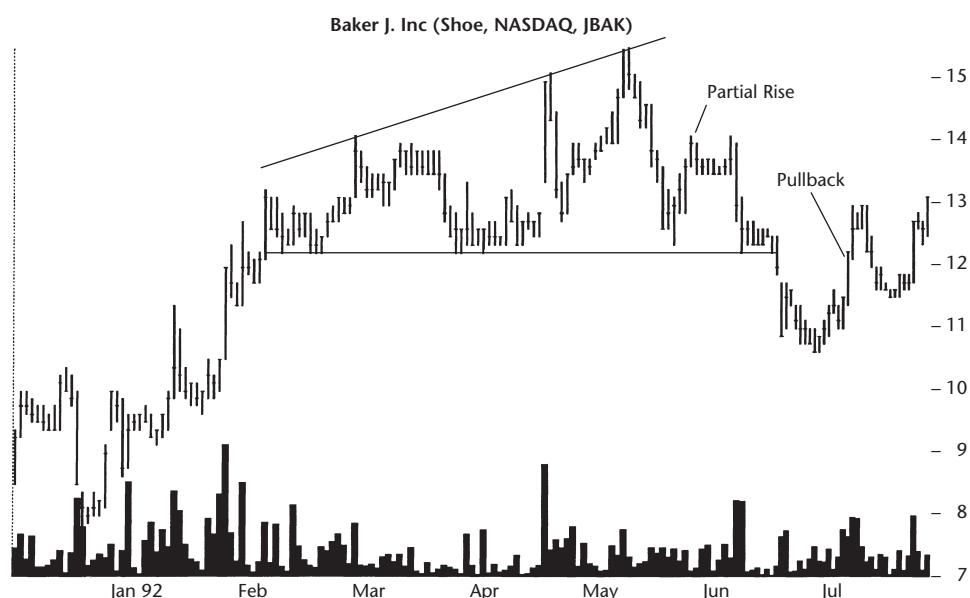


Figure 2.2 A pullback to the base of the formation. Pullbacks occur often in ascending broadening formations.

about 2 weeks and established the base on which a horizontal trend line appears.

The reason for the horizontal trend line is one of perceived value. As the stock approached the \$12 level, more investors and institutional holders purchased the stock. The desire to own the stock at what they believed a good value outweighed the reluctance of sellers to part with their shares. The demand halted the decline in the stock and eventually sent prices skyward again. This happened in mid-April as volume spiked along with the price. The enthusiasm caused the stock to reach a new high. Momentum was high enough so that the next day, prices rose even further before closing lower. With the second peak, a tentative trend line drawn along the tops of the formation sloped upward and gave character to the broadening formation.

The stock moved rapidly back down even as volume increased. This decline stopped before it reached the lower trend line, signaling continued enthusiasm. Prices pushed higher and reached a new high, this one at 15.50 on May 6. The up-sloping trend line resistance area repelled any further advance. The stock simply did not have enough upward momentum to push through the selling pressure at the new level.

The next day volume dried up, but there was enough momentum remaining for another try at the summit. When the attempt failed, the smart money headed back for base camp and volume receded even further. As prices collapsed, other investors joined in the retreat and volume moved up. In less than 2 weeks, prices were back at the lower trend line.

Another feeble attempt at a new high floundered on unremarkable volume. The stock moved horizontally and stalled out—a partial rise that often spells trouble for a stock. On June 4, prices dropped on high volume and returned to the horizontal trend line. The stock paused there for just over a week before moving down and punching through the support level at 12.25.

A pullback in a bull market is quite common for ascending broadening formations, so it is no surprise that after a rapid 13% retreat, the stock turned around and pulled back to the base of the formation. Although not shown in Figure 2.2, the stock continued moving up until it began forming another ascending broadening formation in late October with a base at 16.50.

The ascending broadening formation represents the desire of investors and traders to own the stock at a fixed price, in this case about 12.25. Their buying enthusiasm pushes prices higher until mounting selling pressure causes a halt to the rise and sends the stock tumbling. With each attempt, fewer people are left willing to sell their shares until they receive an even higher price, so a broadening range of prices appears at the top. Eventually, the buying enthusiasm at the base of the formation collapses and removes the support for the stock. When that happens, the stock punches through the support level and declines. It continues moving down until reaching a point where other investors perceive significant value and buy the stock.

Identification Guidelines

What are the characteristics of an ascending broadening formation? To answer the question, peruse the selection guidelines outlined in Table 2.1. While considering the table, look at Figure 2.3, an ascending broadening formation on a weekly scale.

Shape. The overall shape of the formation looks like a megaphone with one side horizontal.

Horizontal bottom support line. The bottom of the formation follows a horizontal trend line, while an up-sloping trend line bounds the top side.

Up-sloping top trend line. The top trend line touches at least two minor highs. The horizontal trend line also shows two minor low touches as prices descend to the trend line. The various touch points help define the boundary of the formation.

Volume. The volume trend is usually upward and U shaped, especially in the last third of the pattern. In Figure 2.3, you can see the U shape from February 1992 to the September 1992 peak, and then rounding down again before heading up to the peak in March 1993.

Premature breakouts. I define premature breakouts to be prices that close outside the formation boundary but return before the formation ends.

Table 2.1
Identification Characteristics

Characteristic	Discussion
Shape	Looks like a megaphone with the base of the formation horizontal and bounded on the top by an up-sloping trend line.
Horizontal bottom support line	A horizontal, or nearly so, trend line that connects the minor lows. Must have at least two distinct minor lows before drawing a trend line.
Up-sloping top trend line	An up-sloping trend line bounds the expanding price series on top. Must have at least two minor highs to create a trend line.
Volume	Upward trend with a slight tendency to be U-shaped.
Premature breakouts	Very rare. A close below the horizontal trend line is most likely a genuine breakout.
Price action before breakout	Prices sometimes move horizontally for many months before moving outside the formation high or low.
Downward breakout	Prices drop below the horizontal trend line usually accompanied by a surge in volume.
Support and resistance	Follows the two trend lines into the future.

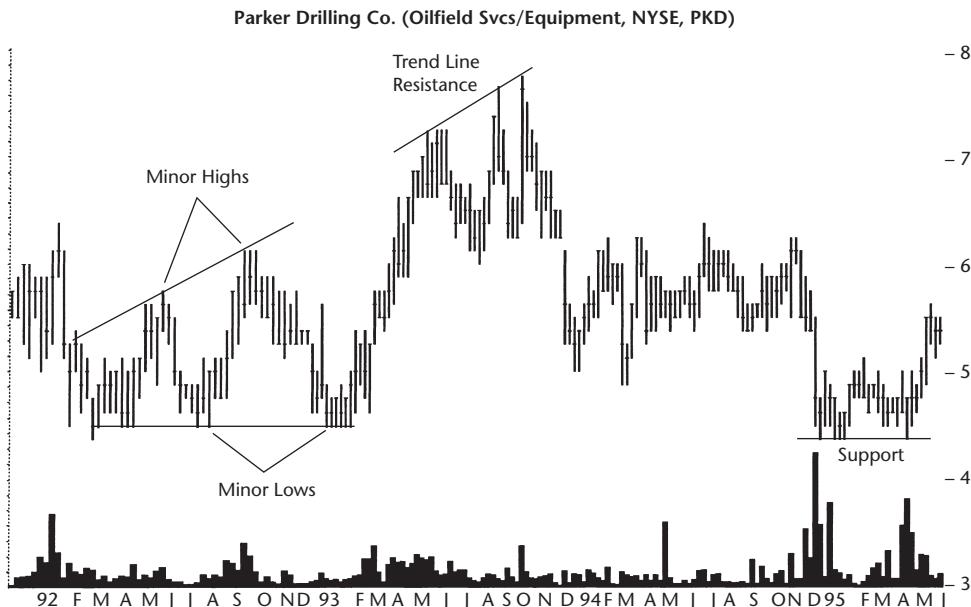


Figure 2.3 Support and resistance areas on a weekly time scale. They appear along the trend-line axis and can extend far into the future, as in this case.

Premature breakouts for this formation are rare enough that they should not be of concern.

Price action before breakout. In some ascending broadening formations, prices make higher highs and form a solid, horizontal base at the start but then move sideways for many months. Eventually, prices rise above the formation top or slide through the bottom trend line and stage a breakout.

Downward breakout. Once a breakout occurs, a pullback sometimes happens. Prices may continue moving up but they usually bounce off the lower trend line and continue back down. A pullback gives investors another opportunity to short the stock or add to their short position. Before shorting, however, make sure the pullback is complete and prices are declining once again.

Support and resistance. I chose Figure 2.3 because it shows the two common areas of support and resistance. These areas follow the trend lines. Along the base of the formation projected into the future, the support area repels the decline over 2 years after the formation ends. The rising trend line tells a similar tale; it repels prices three times nearly a year later. The implications of this observation can be profound. If you own a stock and it is breaking out to new highs, it would be nice to predict how high prices will rise. One way to do that is to search for formations such as this one. Many times, extending the trend lines into the future will predict areas of support and resistance.

Although the trend line did not predict the absolute high, it did suggest when prices would stall. The resistance area turned out to be a good opportunity to sell the stock.

Focus on Failures

What can we learn from a review of the failures of this formation? Figure 2.4 shows two broadening formations; the one on the left fails to descend but the one on the right makes up for it. The figure makes one lesson clear: Always wait for a confirmed breakout before taking a position in a stock; that is, wait for prices to fall below the lower trend line before selling your long position or selling short. Even though most ascending broadening formations break out downward, the failure rate is too high to hazard an investment before knowing the outcome. Had you sold the stock short during the first formation, your position would not have made money for almost half a year. Look back at Figure 2.3. A short position in the stock at the lower trend line would have lost money for years.

Selling a stock prematurely is just as bad. If you held a long position in the stock shown in Figure 2.4 but sold it during June, you would have regretted your trade until December when the footwear company slipped. Had you waited for a downward breakout, you would have remained in the stock as it ascended. Once the second broadening formation took shape, a sale after prices pierced the horizontal trend line would have gotten you out at a better price.



Figure 2.4 Two broadening formations. The formation on the left fails to descend below the lower trend line. You should wait for the breakout before investing in ascending broadening formations.

Table 2.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	92	37	186	65
Reversal (R), continuation (C)	20 R, 72 C	10 R, 27 C	136 R, 50 C	39 R, 26 C
R/C performance	29% R, 29% C	11% R, 17% C	-14% R, -20% C	-23% R, -22% C
Average rise or decline	29%	15%	-15%	-22%
Rises or declines over 45%	24 or 26%	0 or 0%	6 or 3%	4 or 6%
Change after trend ends	-31%	-38%	53%	47%
Busted pattern performance	41% ^a	35% ^a	-25% ^a	-40% ^a
Standard & Poor's 500 change	14%	-4%	1%	-13%
Days to ultimate high or low	131	39	47	42

Note: Minus sign means decline.

^aFewer than 30 samples.

Statistics

Table 2.2 shows general statistics for this formation.

Number of formations. I found 380 patterns using data from mid-1991 to 2003 in 500 stocks, separated into breakout directions and market conditions.

Reversal or continuation. Usually, the pattern acts as a reversal of the prevailing price trend due to the overwhelming number of samples in a bull market with a downward breakout. Patterns acting as continuations perform better than do those acting as reversals.

Average rise or decline. As a bull market, upward breakout play, this pattern performs poorly. Prices rise 29% after the breakout. In a bear market, the rise is even less, 15%, as you would expect from a countertrend breakout. Downward breakouts perform worse than the average decline posted by all other chart pattern types.

Rises or declines over 45%. Just over a quarter (26%) of the patterns with upward breakouts in a bull market climb over 45%. The remainder of the combinations of market type and breakout direction show few large gains. This finding is expected for downward breakouts, and the low sample size explains the poor showing for upward breakouts in a bear market.

Change after trend ends. When prices reach the ultimate high or low, what happens next? After an upward breakout, prices tumble between 31% and 38%. For downward breakouts, prices rise between 47% and 53%. Thus, you can make a pile of money if you correctly call the bottom and invest for the long term.

Busted pattern performance. Few busted patterns occur, so the numbers are unreliable. Still, they indicate the type of move prices make after traveling less than 5% after the breakout. With downward breakouts, busted patterns should be easy to spot as they drop below the horizontal trend line and then shoot upward.

Standard & Poor's 500 change. In a bull market, the index moved up and in a bear market, it closed lower. The numbers emphasize the importance of trading with the trend. Compare the move in the index with the average rise or decline. Breakouts in the direction of the general market trend perform better than countertrend trades.

Days to ultimate high or low. How long will your trade last? It lasts as long as you do not close out your position. Measuring the time from the breakout to the ultimate high or low shows that declines in a bear market are steeper than rises in a bull market. I am not a big fan of shorting, but to keep your capital fully employed (maximizing the number of trades per year), short this pattern in a bear market. Your exposure to the market will be shorter, on average, and your returns may be almost as good as going long in a bull market.

Table 2.3 lists failure rates for the broadening pattern. With the exception of a downward breakout in a bull market, the break-even failure rates are

Table 2.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	10 or 11%	4 or 11%	37 or 20%	5 or 8%
10	21 or 23%	9 or 24%	85 or 46%	14 or 22%
15	30 or 33%	15 or 41%	117 or 63%	20 or 31%
20	40 or 43%	25 or 68%	145 or 78%	30 or 46%
25	47 or 51%	32 or 86%	158 or 85%	39 or 60%
30	53 or 58%	36 or 97%	168 or 90%	45 or 69%
35	60 or 65%	36 or 97%	176 or 95%	50 or 77%
50	71 or 77%	37 or 100%	183 or 98%	62 or 95%
75	83 or 90%	37 or 100%	186 or 100%	65 or 100%
Over 75	92 or 100%	37 or 100%	186 or 100%	65 or 100%

Table 2.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	31 days	23 days	13 days	21 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L7%, C8%, H86%	L14%, C30%, H57%	L31%, C40%, H28%	L29%, C58%, H12%
Percentage rise/decline for each 12-month lookback period	L18% ^a , C18% ^a , H31%	L16% ^a , C18% ^a , H13% ^a	L21%, C15%, H10%	L23% ^a , C22%, H20% ^a
Throwbacks/pullbacks	47%	43%	65%	52%
Average time to throwback/pullback ends	10 days	10 days	11 days	10 days
Average rise/decline for patterns with throwback/pullback	23%	14% ^a	-15%	-20%
Average rise/decline for patterns without throwback/pullback	35%	16% ^a	-16%	-25%
Performance with breakout gap	28% ^a	10% ^a	-25% ^a	-22% ^a
Performance without breakout gap	29% ^a	16%	-13%	-22%
Average gap size	\$0.77	\$0.41	\$0.45	\$1.48
Partial rise, downward breakout	N/A	N/A	107/144 or 74%	38/48 or 79%
Partial decline, upward breakout	22/27 or 81%	18/22 or 82%	N/A	N/A
Partial rise performance	N/A	N/A	-12%	-21%
Partial decline performance	27%	13%	N/A	N/A
Intraformation partial rise failure	4/92 or 4%	3/37 or 8%	8/186 or 4%	7/65 or 11%
Intraformation partial decline failure	7/92 or 8%	3/37 or 8%	28/186 or 15%	4/65 or 6%

Notes: Minus sign means decline. N/A means not applicable.

^aFewer than 30 samples.

reasonable. However, the excluded column has the most samples, so its failure rate is probably solid.

Notice that the failures double or nearly triple for moves of just 10%. For example, 8% of the broadening patterns with downward breakouts in a bear market fail to drop more than 5%. This almost triples to 22% failing to drop more than 10%. Over half (60%) fail to drop more than 25% after the breakout.

Comparing the columns, we see that the bull market, up breakout column shows the lowest failure rates. This makes sense because it is also the best performer (it has the highest average rise, as per Table 2.2).

Table 2.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. It takes between 2 and 4 weeks for prices to close outside the trend-line boundary. This observation suggests that prices often bounce off the trend line, curl around, and then take their time making their way back to pierce the boundary.

Yearly position. Most of the breakouts occur near the yearly high for upward breakouts, and in the middle of the yearly price range for downward breakouts.

Yearly position, performance. Mapping the performance over the yearly price ranges, we find that upward breakouts occurring near the yearly high in a bull market perform well. Downward breakouts do well when the breakout is near the yearly low.

Throwbacks and pullbacks. Throwbacks and pullbacks occur about half the time, and it takes the stock about 10 days to return to the breakout price. When they occur, performance suffers, as Table 2.4 shows.

Gaps. For patterns with upward breakouts, gaps hurt performance, but the low sample count may be the reason. For downward breakouts, gaps either help performance or cause no pain. Notice the large gap size in a bear market after a downward breakout.

Partial rises and declines. A partial rise or decline is an accurate gauge of an impending breakout. Consult the Glossary on how to recognize them. Using a partial rise or decline, you can get into the stock at a better price than if you wait for the breakout.

Does a partial rise or decline interfere with momentum? Yes. If you compare the average rise or decline from Table 2.2 with the partial rise or decline performance in Table 2.4, you will find that performance suffers after a partial rise or decline. However, using the feature to enter a trade earlier than the breakout will tend to help performance.

Intraformation partial rises and declines. How often does a partial rise or decline fail to predict an immediate breakout? Answer: between 4% and 15% of the time, depending on the market conditions and breakout directions.

Table 2.5 shows a frequency distribution of time to the ultimate high or low. We have seen that the decline in a bear market is usually swift. Almost half of downward breakouts reach the ultimate low in less than 2 weeks. Upward breakouts take more time to reach the ultimate high, sometimes much longer. In a bull market, 48% are still searching for the top after 70 days.

Table 2.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	16%	11%	16%	11%	8%	5%	3%	5%	3%	3%	19%
Bull market, up breakout	22%	5%	3%	1%	2%	8%	4%	4%	0%	2%	48%
Bear market, down breakout	31%	14%	11%	6%	3%	2%	2%	0%	0%	5%	28%
Bull market, down breakout	34%	13%	8%	4%	3%	5%	5%	2%	3%	1%	22%

What does all this mean? In a bull market and with a pattern having an upward breakout, be patient. For other combinations of market conditions and breakout directions, watch your stock closely for fatigue. Use the measure rule to estimate a target price and consider selling if prices near the target. Remember, you never go broke taking a profit (just be sure to keep those losses in check).

Also, watch for weakness a month after the breakout. During that time, prices tend to reverse. Table 2.5 shows this movement during days 42 (bull market, up breakout) and 42 to 49 (bull market, down breakout).

Table 2.6 shows size-related statistics.

Height. In all cases, broadening patterns that are taller than the median height performed better than did their shorter counterparts.

Width. Wide patterns performed better than narrow ones for breakouts that agree with the prevailing market trend (upward breakout, bull market or downward breakout, bear market). Countertrend trades show either no difference or narrow patterns that perform slightly better. I used the median length as the divider between narrow and wide.

Average formation length. The average pattern length from the first minor high/low trend-line touch to the last averages between 2 and 2.5 months.

Height and width combinations. Tall and wide patterns outperform all other combinations. Avoid short and wide ones for the best performance.

Table 2.7 shows volume-related statistics.

Volume trend. Some analysts suggest that low volume before the breakout implies a powerful situation. In a bull market, that appears to be the case with this chart pattern. Bear markets show the reverse, with patterns having a rising volume trend performing better than do those with a falling trend.

Volume shapes. Most of the broadening patterns do well when a dome-shaped volume pattern appears. The one exception is a bull market with a downward breakout; they perform better with U-shaped volume.

Breakout volume. Heavy breakout volume helped the pattern perform in all cases except downward breakouts in a bear market. There, patterns with light breakout volume showed better performance.

40 Broadening Formations, Right-Angled and Ascending

Table 2.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout ^a	Bull Market, Down Breakout	Bear Market, Down Breakout
Tall pattern performance	36%	16%	-16%	-23%
Short pattern performance	23%	14%	-15%	-22%
Median height as a percentage of breakout price	13.24%	14.77%	14.70%	17.22%
Narrow pattern performance	27%	15%	-16%	-21%
Wide pattern performance	31%	15%	-15%	-24%
Median length	59 days	49 days	64 days	56 days
Average formation length	79 days	58 days	78 days	65 days
Short and narrow performance	25%	15%	-16%	-22% ^a
Short and wide performance	19% ^a	14%	-10% ^a	-23% ^a
Tall and wide performance	38%	16%	-17%	-25% ^a
Tall and narrow performance	32% ^a	15%	-14% ^a	-19% ^a

Notes: Minus sign means decline.

^aFewer than 30 samples.

Table 2.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout ^a	Bull Market, Down Breakout	Bear Market, Down Breakout
Rising volume trend performance	27%	16%	-13%	-23%
Falling volume trend performance	31%	14%	-18%	-21% ^a
U-shaped volume pattern performance	28%	16%	-19%	-22% ^a
Dome-shaped volume pattern performance	32%	16%	-14%	-23% ^a
Neither U-shaped nor dome-shaped volume pattern performance	26% ^a	12%	-8% ^a	-19% ^a
Heavy breakout volume performance	30% ^a	15%	-17%	-22%
Light breakout volume performance	22% ^a	14%	-11%	-26%

Note: Minus sign means decline.

^aFewer than 30 samples.

Trading Tactics

Table 2.8 lists trading tactics.

Measure rule. The measure rule predicts a target price. Compute the height, the difference between the highest high and the horizontal trend line in the formation. For upward breakouts, add the height to the highest high in the pattern. For downward breakouts, subtract this value from the value of the horizontal trend line. The result is the target price. The target should serve as the minimum price move to expect, but with ascending broadening formations, prices *usually* miss the target. Bull market accuracy ranges from 68% (up breakouts) to 32% (down breakouts). Bear markets targets are correct 43% (up breakouts) and 51% (down breakouts) of the time.

For a more conservative approach, try calculating the formation height and dividing by 2, and then applying the difference to the pattern's high or low price.

Figure 2.5 makes the measure rule clear. The height of the formation is the difference between the highest high (34.13) and the trend-line price (29.25), or 4.88. Subtract the result from the trend-line price, giving a target price of 24.37. The nearer target in the figure uses half the formation height, or 2.44, to give a price target of 26.81.

Partial rise or decline. A partial rise or decline can be difficult to trade because prices often pause partway across the chart pattern on their way to the opposite side. This pause looks like a partial rise or decline. Wait before buying to be sure that prices are unlikely to continue in the original direction. Try buying when prices close beyond the halfway point between the minor low/high and the trend line.

For example, if the top trend line is at 20 and prices have declined from there to 14 then started back up in what you suspect is a partial decline, buy when the price closes above 17 (that is half the distance between 20 and 14). You might use Fibonacci retracements of 38%, 50%, or 62% as buying locations. If prices turn at those retracement levels, then consider opening a position.

Table 2.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the formation height from highest high to the horizontal trend line. For upward breakouts, add the height to the highest high in the pattern. For downward breakouts, subtract the height from the value of the horizontal trend line. The result is the target price. More accurate targets use a formation height divided by 2.
Partial rise or decline	Use a partial rise or decline as an entry signal.
Wait for confirmation	If you own the stock and prices close below the lower trend line, sell.
Intraformation trade	For tall patterns, buy near the lower trend line and sell near the top as prices curl down.

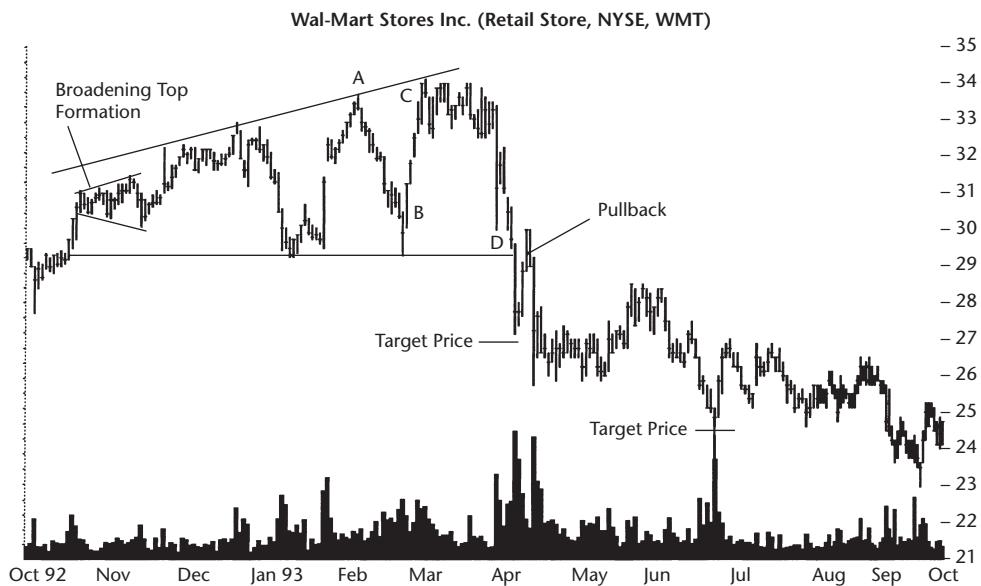


Figure 2.5 Ascending broadening formation. Predicted price targets using half and full formation heights. A broadening top formation appears in late October.

Wait for confirmation. If you own a stock and it shows a broadening pattern, get worried. Many times the breakout will be downward, so be ready to sell. Only sell when the price *closes* below the horizontal trend line. Premature breakouts are rare, but they do occur. Do not be fooled; wait for a close below the lower trend line.

Intraformation trade. If the pattern is tall enough, consider trading between the two trend lines. Buy after prices bounce off the lower trend line and sell after they turn down at the top. If you are lucky, the pattern will breakout upward and you can ride prices even higher. Use progressive stops to protect your profits. When the stock climbs above the nearest minor *high*, raise your stop to just below the prior minor *low*. That strategy should give the stock plenty of wiggle room.

Sample Trade

Palmer is a wiry sort of guy, one who acts as if he has swallowed too much caffeine. I am sure you have met the type. Faced with the situation shown in Figure 2.5, he took swift, decisive action. At point A, where the stock touched the top trend line, he quickly sold it short and received a fill at 33.38. He placed a stop at 34 in case the trade went against him. Then he waited.

It did not take long for the stock to cross the formation and reach the horizontal trend line. Unfortunately, Palmer did not use an order to automatically

cover his short at 29.38 (the value of the trend line). So when prices bounced off the low, he covered his short the following day, shown as point B, at 30.50. Immediately, he went long and bought the stock at the same price.

Palmer placed a stop-loss order just below the horizontal trend line, at 29.25, just in case. Then he extended the top trend line but worried that the stock might not reach it. He opted to put a target price below the old high at point A. In less than a week, the stock reached his target and sold at 33.50 (point C). Since the stock was still showing an upward bias, he laid back for a bit and waited for the trend to reverse. Three days later he sold the stock short again at 33. This time, he put a sell order above the lower trend line at 29.50. The trade went against him. It rose to 34 and oscillated up and down for nearly 3 weeks, never quite reaching his stop-loss point of 34.38. Then the stock plunged and zipped across the formation. It hit his target price at point D, and he covered his short.

Sensing a shift in the investment winds, he went long on the stock at the same price but put a stop loss below the lower trend line. The following day prices hit his stop at 29.25 and he took a small loss. For some unexplained reason, Palmer walked away from the stock at this point. Perhaps it was the small loss he incurred on his last trade, or perhaps he was just running low on caffeine.

For Best Performance

The following list includes tips and observations for selecting patterns for better performance. Refer to the associated table for more information.

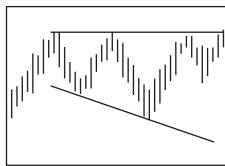
- Review the identification guidelines to be sure you have the pattern correct—Table 2.1.
- Trade with the market trend: In bull markets, buy upward breakouts; in bear markets, short downward breakouts—Table 2.2.
- Trade busted patterns or after price reaches the ultimate high or low—Table 2.2.
- Patterns in bull markets with upward breakouts have the lowest failure rates for moves above 15%—Table 2.3.
- In bull markets, select patterns with the upward breakout near the yearly high. Downward breakouts should be near the yearly low, regardless of market type—Table 2.4.
- Throwbacks and pullbacks hurt performance. Look for nearby support or resistance to a price move—Table 2.4.
- Gaps hurt performance after upward breakouts—Table 2.4.
- Use a partial rise or decline to buy in early. They correctly signal a breakout over 74% of the time—Table 2.4.

44 Broadening Formations, Right-Angled and Ascending

- In a bull market, let your profits ride because it takes time for prices to rise. In a bear market, the decline is likely to be steep and short, so use a profit target to get out—Table 2.5.
- Watch for price weakness 6 to 7 weeks after the breakout in a bull market—Table 2.5.
- Select tall patterns—Table 2.6.
- Wide patterns perform better when the breakout direction follows the general market trend (upward breakout, bull market and downward breakout, bear market)—Table 2.6.
- Select patterns that are both tall and wide; avoid short and wide ones—Table 2.6.
- In a bull market, pick patterns with a falling volume trend; in a bear market, look for a rising volume trend—Table 2.7.
- Select patterns with dome-shaped volume except in a bull market with downward breakouts—Table 2.7.
- Choose patterns with heavy breakout volume except for those patterns with downward breakouts in a bear market—Table 2.7.

3

Broadening Formations, Right-Angled and Descending



RESULTS SNAPSHOT

Upward Breakouts

	Bull Market	Bear Market
Appearance	Horizontal top with lower lows following a down-sloping trend line. Breakout is upward.	
Reversal or continuation	Short-term bullish continuation	
	Bull Market	Bear Market
Performance rank	23 out of 23	7 out of 19
Break-even failure rate	19%	6%
Average rise	28%	23%
Change after trend ends	-26%	-35%
Volume trend	Upward	Upward
Throwbacks	52%	50%
Percentage meeting price target	63%	42%
Surprising findings	Upward breakouts occur near the yearly high. Throwbacks and breakout day gaps hurt performance. Tall patterns perform better than short ones. A rising volume trend and U-shaped volume suggests better postbreakout performance.	

Downward Breakouts

	Bull Market	Bear Market
Appearance	Same, but breakout is downward.	
Reversal or continuation	Short-term bearish reversal	
Performance rank	13 out of 21	4 out of 21
Break-even failure rate	14%	4%
Average decline	15%	23%
Change after trend ends	55%	55%
Volume trend	Upward	Flat
Pullbacks	51%	57%
Percentage meeting price target	44%	51%
Surprising findings	Downward breakouts occur near the yearly low. Pullbacks hurt performance. Patterns with dome-shaped volume and heavy breakout volume do well.	

After searching for this pattern in daily price data, I found 140 patterns with upward breakouts and 134 with downward ones. Upward breakouts show the pattern performing as a continuation of the uptrend twice as often as a reversal. Downward breakouts show the opposite: more act as reversals. Continuations perform better in bull markets, reversals in bear markets, regardless of the breakout direction.

The bull market break-even failure rate is about three times the bear market rate. This finding suggests the pattern is happier in a bear market. That analysis changes for higher failure rates. In other words, this pattern performs well in a bear market to begin with, but for longer trades, patterns in a bull market show smaller failure rates.

After the breakout and after prices reach the ultimate low, the rebound is spectacular: 55%. Thus, if you can correctly identify when the trend changes, you can make a ton of money—even if you are late getting into the trade.

However, the right-angled and descending broadening (RADB) chart pattern gives lackluster performance. The average rise or decline is well below that of other chart pattern types, so trade this one carefully.

Tour

What do descending broadening formations look like and why do they form? Figure 3.1 is an example of the chart pattern. The characteristic flat top and down-sloping bottom are apparent in the figure. These are the two key ingre-

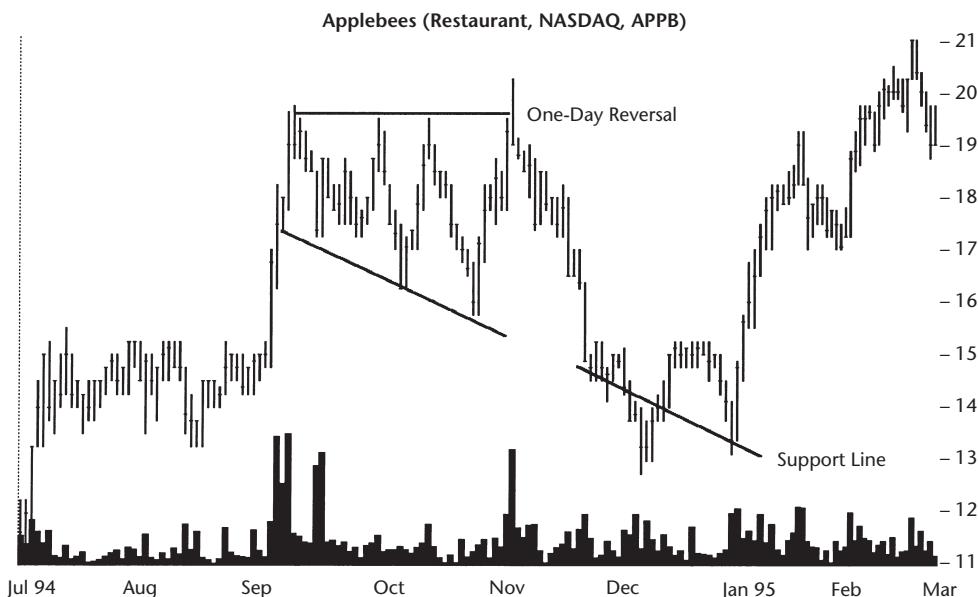


Figure 3.1 Descending broadening formation. A horizontal trend line along the top and a down-sloping trend line connecting the minor lows is characteristic of this chart pattern. The extended, down-sloping trend line shows future support and resistance zones. A one-day reversal appears on November 3 when prices pushed above the formation top on high volume, but closed at the low for the day.

dients. Prices at the top of the formation reach the same price level before declining. Over time, a horizontal trend line can be drawn connecting them. Along the bottom of the formation, the minor lows touch a down-sloping trend line. Eventually, prices break out of the formation by either closing above the top trend line or below the bottom one.

In Figure 3.1, the breakout is downward since prices close below the lower trend line. I require prices to *close* outside the trend line so that is why the peak on November 3 does not classify as an upward breakout. On that day, prices close at 19, the low for the day, and below the top trend-line value of about 19.50.

Figure 3.2 shows an example of an upward breakout. The top of the formation is well formed with several minor peaks reaching the same price level. However, three one-day touches compose the lower trend line. A trend-line touch is a trend-line touch regardless of whether it is composed of one-day spikes or many days of consecutive touches.

Figure 3.2 shows a broadening formation with an upward breakout providing a 10% rise in just over 2 weeks. During May 1996, the stock reached 29, for a 25% gain. The figure also shows a throwback to the top of the formation. This one occurs almost 4 weeks after the breakout. I consider throwbacks or pullbacks that occur later than 30 days to be just normal price action, not due to the throwback or pullback. This one just makes the cut at 27 days.

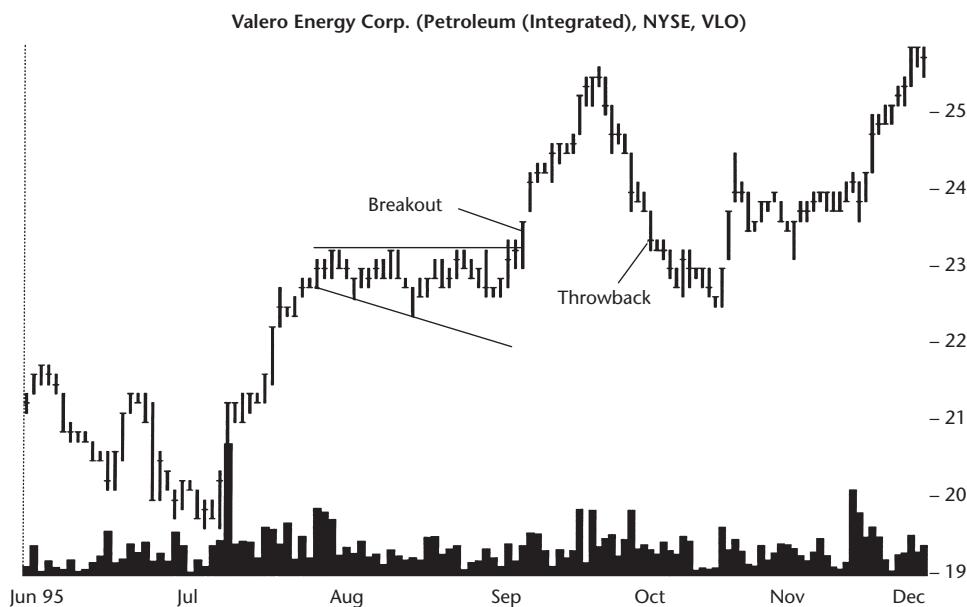


Figure 3.2 Another descending broadening formation, but this time the breakout is upward. Almost 4 weeks after the breakout, prices throw back to the formation before ultimately moving higher.

Why do these chart patterns form? Look at Figure 3.3. During 1993, the stock entered the first formation in early April and moved higher on moderate volume until it reached about 35. There, investors selling the stock matched buyers eager to own the security and the rise stalled. It traveled sideways until May 10 when it moved below the prior minor low. As the stock approached the 31 level, it entered a support zone set up by the retracement in mid-March. The decline stalled and moved sideways for several days. Due to the support level, many investors believed that the decline was at an end and the stock would move higher. It did. As volume climbed, the price gapped upward and quickly soared back to the old high.

The stock ran into selling pressure from institutions and others trying to sell blocks of shares at a fixed price. The available supply halted the advance. Prices hung on for a few days, moved a bit lower, and paused before beginning a rapid decline to a new minor low.

As volume climbed, the stock declined until it touched the lower trend line, a region of support. Suspecting an oversold stock, investors bought and forced it higher again. When the stock reached the old high, there were fewer shares available for purchase. Apparently, those investors and institutions who were trying to get 35 a share for their stock sold most of their shares in the preceding months. Soaking up the available supply, the stock gapped upward and closed above the old high. An upward breakout was at hand.

The stock moved higher but soon formed another descending broadening formation. This one was compact and tight but had bearish implications.

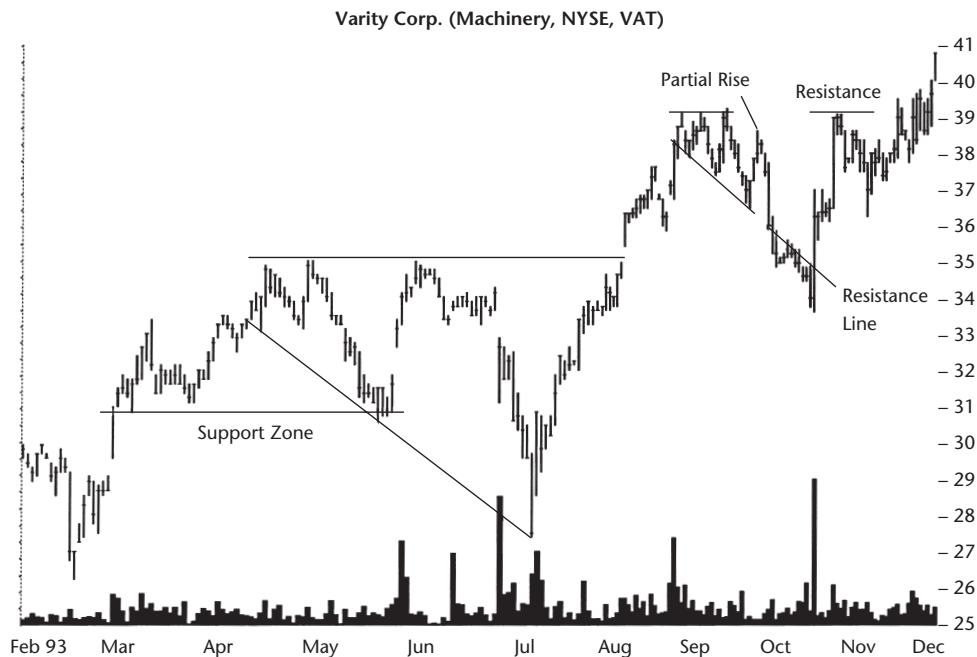


Figure 3.3 Two descending broadening formations. The first formation shows a trend-line rebound resulting from an earlier support zone. The second formation shows a partial rise that often precedes the ultimate breakout. Shown are two resistance areas that parallel the trend lines.

When the stock tried to reach the top trend line but could not, the partial rise foretold the coming decline. The stock plunged through the lower trending in late September and continued lower.

If you look at both formations, their stories are nearly the same. There is a supply of stock available at a fixed price. After exhausting the supply, prices either rise above the top trend line or decline below the lower one. The determination on which way things will go is not clear. Sometimes the supply overwhelms buyers and the stock declines, unable to recover as it pierces the lower trend line. At other times, the supply gives out and enthusiastic buyers jump in and push the price higher.

Identification Guidelines

Are there some guidelines that can assist in identifying descending broadening formations? Yes, and Table 3.1 outlines them.

Shape. The shape of the formation looks like a megaphone with the top held horizontal. Prices climb until they touch the top trend line, then reverse direction. On the lower edge, prices decline making a series of lower lows until they touch the lower trend line.

Table 3.1
Identification Characteristics

Characteristic	Discussion
Shape	Looks like a megaphone, tilted down, with the top of the formation horizontal and bounded on the bottom by a down-sloping trend line.
Horizontal top resistance line	A horizontal line of resistance joins the tops as a trend line. Must have at least two distinct touches (minor highs) before drawing a trend line.
Down-sloping trend line	The expanding price series is bounded on the bottom by a down-sloping trend line. Must have at least two distinct minor lows to create a trend line.
Volume	Upward trend with a domed shape.
Premature breakouts	Very rare. A close outside the trend line is most likely a genuine breakout.
Breakout	Prices can break out in either direction, usually accompanied by a rise in volume that soon tapers off.
Partial rise or decline	For an established formation, when prices climb toward the top trend line or decline toward the lower one but fail to touch it, prices often reverse direction and break out of the formation.
Support and resistance	Follows the two trend lines into the future but is sporadic.

Horizontal top resistance line. When two minor highs achieve the same, or nearly the same, price level, you can draw a horizontal trend line connecting them.

Down-sloping trend line. The same applies to the down-sloping trend line: It requires at least two distinct touches before drawing the trend line. There is usually ample time to recognize a broadening formation, and many times there are more than two touches of each trend line.

Volume. Volume tends to rise over the length of the chart pattern, sometimes following the price action. The shape of the pattern looks like a dome more often than a U-shaped pit or a random pattern.

Premature breakouts. Premature breakouts are rare, so if price closes above the top trend line or below the bottom trend line, consider it a genuine breakout.

Breakout. A breakout occurs when price closes outside (above or below) the trend-line boundaries. The breakout can occur in any direction, but the pattern acts as a reversal of the prevailing price trend slightly more often than not.

Partial rise or decline. A partial rise, as shown in Figure 3.3, or a partial decline is often a clue to the ultimate breakout direction. When prices curl around on a partial rise or decline and return to the trend line, they usually break out immediately (that is, without crossing the formation again).

Support and resistance. The trend lines, when projected into the future, can sometimes act as areas of support or resistance, depending on which side prices are approaching (Figures 3.1, 3.3, and 3.6 show examples). Sometimes the support or resistance level is active for months or even years at a time.

Focus on Failures

Since descending broadening formations can break out in either direction, I show both views of failed breakouts. The first one, Figure 3.4, is characterized by the telltale partial decline in late November. From there, the stock climbs and eventually pierces the top trend line, as predicted. Once price closes above the trend line, you would expect it to throw back to the formation top then continue higher or simply move upward. In this situation, prices stall at 45 and return to the formation proper—a classic throwback. Unfortunately, instead of rebounding and heading higher like a typical throwback, the stock continues down. It does more work inside the formation before shooting out the other side in a straight-line run.

Had you purchased after the upward breakout, you would have seen the stock decline from a purchase point of about 44.50 to a low of 36.88. Even a stop at the lowest point of the formation would have gotten you out at 39, still

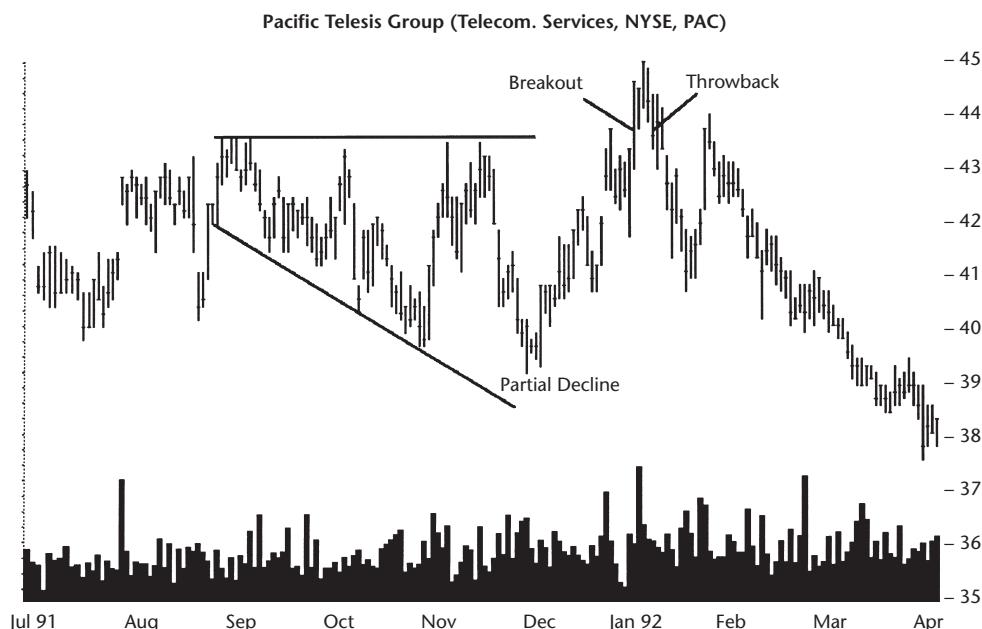


Figure 3.4 A descending broadening formation with prices that fail to continue moving up. The partial decline suggests the ultimate breakout will be upward, but the rise falters and prices move downward instead.

a hefty decline. However, if you held onto the stock (not recommended, by the way), it would have been rewarding. The low occurred on April 8 (not shown), and it turned out to be the lowest price reached during the next 2 years. The stock hit its peak in early November 1993 at a price of nearly 60.

Figure 3.5 shows a more harrowing tale because it involves a short sale. Investors watching the sharp 2-day decline beginning October 14, 1994, would be tempted to short the stock the next day. Had they done so, or even waited a few days, they would have bought near the low. From that point on, the stock moved higher, back into the formation before ultimately soaring out the top. If you were a novice investor and had not placed a stop on your short sale, your loss would have taken you from a low of 24.38 to 53, where it peaked near the end of the study.

Figure 3.5 represents a failure type I call *5% failures*. That is when prices break out in a given direction and move less than 5% before moving substantially in the direction opposite the breakout. This type of failure can turn a small profit into a large loss if stops are not used.

If there is a bright side to the situations shown in Figures 3.4 and 3.5, it is that failures do not occur very often. The statistics follow, but for now let me point out that 8 of every 10 formations continue moving in the direction of the breakout, at least for a little while. The two figures should also provide a warn-

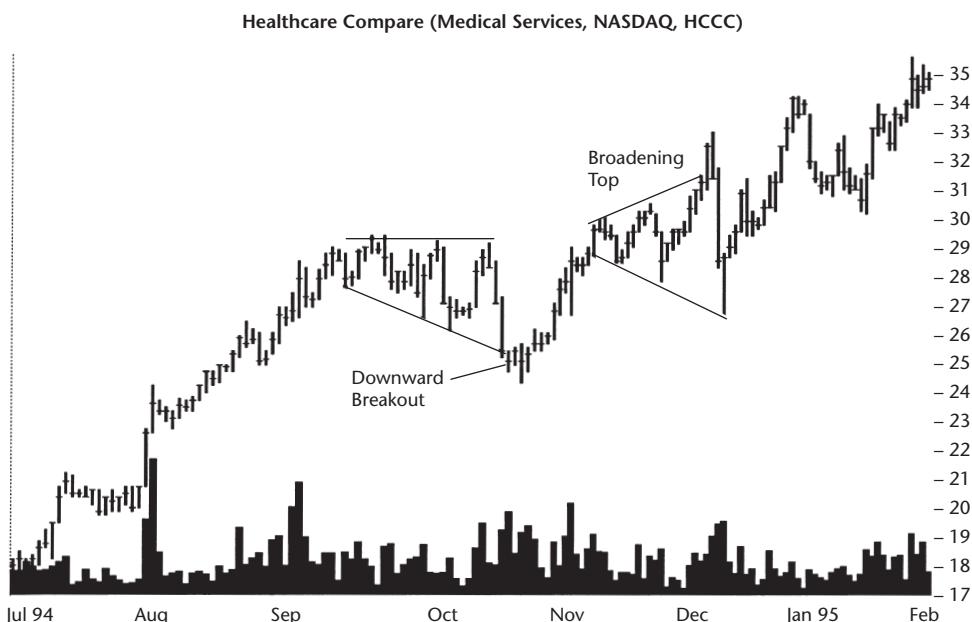


Figure 3.5 A downward breakout failure. Prices decline less than 5%, turn around, and eventually hit 42. Such failures are rare, but they do occur, so stop-loss orders are always important. A broadening top formed in early November.

ing to make sure you use stops to limit your losses. Even if you choose to hold a mental stop in your head, be sure to pull the trigger once things begin to go bad.

Statistics

Table 3.2 shows general statistics for right-angled and descending broadening formations.

Number of formations. I searched through 500 stocks from mid-1991 to mid-1996 and from 1999 to 2003, with additional patterns found outside of those ranges. I found 274 patterns.

Reversal or continuation. Patterns acting as reversals occur 143 times, and 131 act as continuations of the prevailing price trend. In a bull market, RABDs acting as continuations outperformed. In a bear market, reversals performed better.

Average rise or decline. Both breakout directions perform poorly when compared to other chart pattern types. If you insist on trading this pattern, do so in the direction of the prevailing market trend: upward breakouts in bull markets and downward breakouts in bear markets.

Rises or declines over 45%. Up breakouts in a bull market make a strong showing with 25% climbing over 45%. Downward breakouts never

Table 3.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	104	36	87	47
Reversal (R), continuation (C)	36 R, 68 C	11 R, 25 C	61 R, 26 C	35 R, 12 C
R/C performance	20% R, 32% C	29% R, 21% C	-13% R, -20% C	-24% R, -20% C
Average rise or decline	28%	23%	-15%	-23%
Rises or declines over 45%	26 or 25%	3 or 8%	2 or 2%	2 or 4%
Change after trend ends	-26%	-35%	55%	55%
Busted pattern performance	44% ^a	35% ^a	-26% ^a	-55% ^a
Standard & Poor's 500 change	13%	-5%	2%	-15%
Days to ultimate high or low	146	67	45	41

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 3.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	20 or 19%	2 or 6%	12 or 14%	2 or 4%
10	31 or 30%	9 or 25%	34 or 39%	5 or 11%
15	39 or 38%	14 or 39%	51 or 59%	18 or 38%
20	49 or 47%	20 or 56%	66 or 76%	24 or 51%
25	56 or 54%	26 or 72%	73 or 84%	30 or 64%
30	66 or 63%	27 or 75%	76 or 87%	38 or 81%
35	74 or 71%	28 or 78%	82 or 94%	40 or 85%
50	79 or 76%	33 or 92%	86 or 99%	45 or 96%
75	90 or 87%	33 or 92%	87 or 100%	47 or 100%
Over 75	104 or 100%	36 or 100%	87 or 100%	47 or 100%

score well in this category but in the bear market, upward breakout should be about double the 8% posted.

Change after trend ends. If you can determine when the trend ends, trade the stock. When prices peak after an upward breakout, they drop between 26% and 35%. For downward breakouts, after price reaches the ultimate low, they climb an astounding 55%, on average.

Busted pattern performance. The numbers tell you how awful things can get if you hang onto a stock that makes a disappointing move. For example, after climbing less than 5% in a bear market, two stocks tumbled an average of 55%.

Standard & Poor's 500 change. Compare the performance of the index with the average rise and decline and you will see how the market influences stocks. The numbers suggest you should trade with the prevailing market trend.

Days to ultimate high or low. It takes between 6 weeks and 5 months before prices finish trending. Upward breakouts take longer, especially in a bull market. The numbers demonstrate that the decline in a bear market is steeper than is the rise in a bull market, but the move does not go as far or last as long.

Table 3.3 shows various failure rates for the different market conditions and breakout directions. Bull market failures start out high, at 14% and 19% and get higher as the scale on the left increases. Bear markets show a similar trend but start from lower numbers. Bear markets have lower failure rates until prices move more than 15%, then patterns with upward breakouts in a bull market have fewer failures.

Table 3.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout ^a	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	25 days	34 days	45 days	22 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L1%, C27%, H72%	L6%, C33%, H61%	L45%, C33%, H22%	L51%, C36%, H13%
Percentage rise/decline for each 12-month lookback period	L11%, C37%, H27%	L26%, C24%, H22%	L14%, C16%, H15% ^a	L26%, C20%, H24% ^a
Throwbacks/pullbacks	52%	50%	51%	57%
Average time to throwback/pullback ends	9 days	11 days	9 days	12 days
Average rise/decline for patterns with throwback/pullback	21%	21%	-15%	-22% ^a
Average rise/decline for patterns without throwback/pullback	36%	26%	-16%	-24% ^a
Performance with breakout gap	23% ^a	17%	-18% ^a	-22% ^a
Performance without breakout gap	29%	25%	-15% ^a	-23%
Average gap size	\$0.26	\$0.42	\$0.43	\$1.78
Partial rise, downward breakout	N/A	27/50 or 54%	16/20 or 80%	
Partial decline, upward breakout	52/82 or 63%	N/A	N/A	
Partial rise performance	N/A	N/A	-13% ^a	-22% ^a
Partial decline performance	28%	25%	N/A	N/A
Intraformation partial rise failure	12/104 or 12%	6/36 or 17%	10/87 or 11%	4/47 or 9%
Intraformation partial decline failure	8/104 or 8%	4/36 or 11%	5/87 or 6%	3/47 or 6%

Notes: Minus sign means decline. N/A means not applicable.

^aFewer than 30 samples.

Just as with other chart pattern types, the failure rates climb substantially for minor increases in the maximum price rise or decline. About half the patterns will fail to move more than 20%.

Later I discuss the measure rule, but suppose it says that prices will climb from 10 to 13, a 30% move. How likely is that in a bull market? Table 3.3 shows the answer. Since 63% fail to climb more than 30%, it seems unlikely that prices will reach 13. Be conservative and set a lower target.

Table 3.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. It takes between 3 and 6 weeks before prices close outside the pattern's trend-line boundary. Thus, if you do not immediately recognize the broadening pattern, you should still have plenty of time to take appropriate action.

Yearly position. Where in the yearly price range do we find the breakout from the broadening pattern? For upward moves, the breakout occurs most often within a third of the yearly high. Downward moves show the reverse, with many patterns breaking out near the yearly low.

Yearly position, performance. Which of the three price ranges performs best? The results map across market conditions. Broadening patterns in bull markets seem to perform best when the breakout is in the middle of the yearly price range. For bear markets, those with breakouts near the yearly low perform best.

Throwbacks and pullbacks. Throwbacks and pullbacks occur about half the time, and it takes the stock less than 2 weeks to return to the breakout price. When a throwback or pullback occurs, performance suffers. Look for nearby support or resistance zones that might interfere with price movement and cause a retracement.

Gaps. Most of the time, breakout day gaps hurt performance. The lone exception is in a bull market with a downward breakout from an RABD. In that case gaps help, but the samples are few.

Partial rises and declines. A partial rise or decline works best in a bear market. They correctly predict the breakout direction between 66% and 80% of the time. Bull markets do not fare as well, being correct between 54% and 63% of the time. Still, a partial rise or decline allows you to enter a position in a stock before the breakout and at a better price.

If you compare the average rise or decline from Table 3.2, you will find that a partial rise or decline usually hurts performance.

Intraformation partial rises and declines. Intraformation partial rises and declines are rare, ranging between 17% for patterns with upward breakouts in bear markets, to 6% for patterns with downward breakouts. An intraformation partial rise or decline looks like a loop touching the trend line. They occur once the pattern is established (at least two touches of each trend line), but a breakout in the anticipated direction does not follow. Instead, prices cross the pattern to the opposite trend line. Since the numbers are so low, they should not be of concern.

Table 3.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	19%	14%	6%	3%	11%	0%	6%	3%	0%	0%	39%
Bull market, up breakout	20%	9%	3%	4%	4%	2%	2%	2%	3%	2%	49%
Bear market, down breakout	17%	17%	17%	15%	9%	2%	0%	2%	6%	0%	15%
Bull market, down breakout	33%	9%	10%	3%	3%	5%	5%	6%	0%	0%	25%

Table 3.5 shows a frequency distribution of time to the ultimate high or low. A pattern in a bull market with an upward breakout stands the best chance of a good gain. Just 29% (20 + 9) reach the ultimate high in two weeks—the best (lowest) of the group—but it also shows that nearly half (49%) continue rising after 70 days. This finding suggests that the combination (bull/up) is the best performing, and a look back at Table 3.2 confirms that expectation.

What do all the numbers mean? If you have a broadening pattern with a downward breakout and the general market (as measured by the S&P 500 index) is bullish, scan the table to help determine how long it will take to reach the ultimate low. There is a good chance that it will occur in the first week, as 33% reach bottom in that period. Since the numbers are additive, nearly half (42%, or 33 + 9) bottom within 2 weeks. If prices are still tumbling after 3 weeks, then you might be in for a good run. Lower your stops to protect your profits as the trade progresses.

Watch for trend changes a month into the trade, especially in a bear market (11% flame out 35 days after an upward breakout).

Table 3.6 shows size-related statistics.

Height. Tall patterns perform better than short ones except in bear markets with downward breakouts. How do you use this result? Compute the pattern height from the price of the top trend line to the last touch of the lower trend line (the lowest low in the pattern). Divide the difference by the breakout price. If the result is above the median, then you have a tall pattern; below the median means it is a short one. Invest only in tall patterns unless you feel confident of your assessment.

Width. Narrow patterns outperform wide ones in a bear market. In a bull market, there is either no performance difference or wide patterns do slightly better. I used the median length to separate narrow patterns from wide ones.

Table 3.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout ^a	Bull Market, Down Breakout	Bear Market, Down Breakout ^a
Tall pattern performance	35%	25%	-18%	-21%
Short pattern performance	23%	21%	-13%	-24%
Median height as a percentage of breakout price	13.13%	19.13%	14.20%	22.18%
Narrow pattern performance	28%	26%	-14%	-26%
Wide pattern performance	28%	20%	-17%	-19%
Median length	63 days	63 days	55 days	47 days
Average formation length	76 days	82 days	66 days	64 days
Short and narrow performance	27% ^a	25%	-13%	-26%
Short and wide performance	18% ^a	14%	-13% ^a	-16%
Tall and wide performance	39%	24%	-20% ^a	-21%
Tall and narrow performance	30% ^a	29%	-16% ^a	-23%

Note: Minus sign means decline.

^aFewer than 30 samples.

Average formation length. The average length measured about 2 months long.

Height and width combinations. The worst performance comes from patterns that are both short and wide. You will want to avoid those. The best performance hits twice on tall and wide, once on tall and narrow, and once on short and narrow.

Table 3.7 shows volume-related statistics.

Volume trend. In three out of four cases, patterns with a rising volume trend do better than do those with falling volume. The last case resulted in a tie.

Volume shapes. Patterns with upward breakouts and U-shaped volume performed better than the other shapes. For downward breakouts, patterns with dome-shaped volume worked best.

Breakout volume. Most of the time, heavy breakout volume associated with better performance. Only from patterns in a bull market with upward breakouts did light volume outperform, but the samples were few.

Table 3.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout ^a	Bull Market, Down Breakout	Bear Market, Down Breakout
Rising volume trend performance	30%	24%	-16%	-23% ^a
Falling volume trend performance	26%	21%	-14%	-23% ^a
U-shaped volume pattern performance	34%	27%	-12%	-23% ^a
Dome-shaped volume pattern performance	28%	23%	-19%	-25% ^a
Neither U-shaped nor dome-shaped volume pattern performance	14% ^a	13%	-13% ^a	-19% ^a
Heavy breakout volume performance	26%	24%	-16%	-23%
Light breakout volume performance	37% ^a	21%	-14% ^a	-22% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Trading Tactics

Table 3.8 outlines trading tactics for descending broadening formations.

Measure rule. Figure 3.6 illustrates the use of the measure rule. Compute the formation height by first taking the difference between the highest high (49.50) and the lowest low (43.50). Add the result (6) to the value of the horizontal trend line to get a target price of 55.50. Prices reach this target during mid-March 1996 as the stock climbs on its way to 60.

If the stock breaks out downward, the measure rule computation is nearly the same. Subtract the formation height from the lowest low giving a target price of 37.50. Be aware that upward breakouts in a bull market are more likely to reach their targets (63%) than other combinations. Refer to the Results Snapshot, “Percentage meeting price target” for the statistics.

Wait for confirmation. You might think that price will break out upward in a rising price trend, but it does not a surprising percentage of the time. Thus, you should wait for confirmation—price to close outside the trend-line boundary—before trading the stock.

Table 3.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the formation height by taking the difference between the horizontal top and the lowest low in the formation. For upward breakouts, add the result to the value of the horizontal trend line. For downward breakouts, subtract the value from the lowest low. The result is the expected target price.
Wait for confirmation	It is unclear which way prices will break out, so it is best to wait for prices to close outside the trend lines. Once they do, expect prices to continue moving in the direction of the breakout. Place your trades accordingly.
Stops	Once a breakout occurs, consider the opposite side of the formation as the stop-loss point. However, in many cases you will want something closer to your purchase price, so look for nearer support or resistance zones. Once the stock moves substantially, advance the stop to the break-even point or higher.
Intraformation trading	For aggressive traders, consider placing a trade as prices reverse course at the trend line. Go long at the bottom and short at the top, but be sure to use stops to protect against an adverse breakout.
Partial rise	Short a stock if you see a partial rise once prices curl around and begin heading back down in a bear market.

Stops. Once you know the target price, you can make a profit and loss assessment of the trade. What is the likely downward move compared with the target price? Does the potential profit justify the risk of the trade? For Figure 3.6, there is support in the 46 to 47 area. Examining the peaks and valleys of the prior price action determines support and resistance levels. In March 1995 (not shown in the figure), there is an area of congestion bounded by a symmetrical triangle with an apex at about 46. Additional resistance appears in July and October, as shown. Together, the 46 to 47 area makes a good location for a stop-loss order.

Let us say the stop is 45.75, just below the bottom of the support area. If the trade happens at 50.50, which is the close the day after the upward breakout, that gives a potential loss of less than 10%. With a target price of 55.50, or 10% upside, the win/loss ratio is an unexciting one to one. In such a situation, you could either tighten your stop by moving it higher (and risk getting taken out by normal price action) or look elsewhere for a more profitable trade. Remember there is no rule that says you have to place a trade.

Intraformation trading. If the broadening pattern is tall enough, go long after prices rebound off the lower trend line and short when they rebound off the upper trend line.

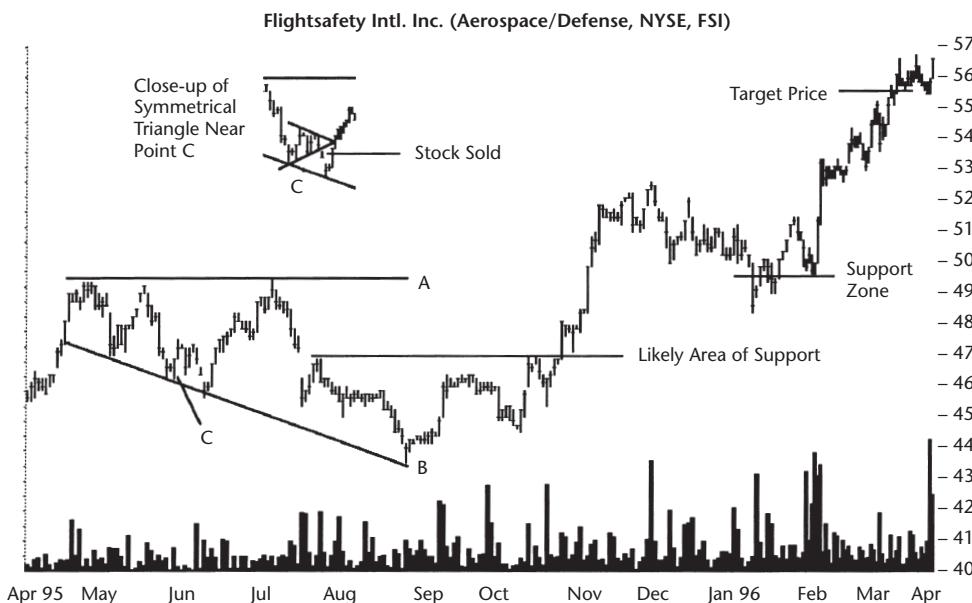


Figure 3.6 An upward breakout from a descending broadening formation. To compute the measure rule for upward breakouts, find the difference between the high and low in the formation, denoted by points A and B. Add the result to point A to get the target price. It took almost 7 months for prices to exceed the target. A small symmetrical triangle appears at point C.

Partial rise. The Statistics section of this chapter discusses partial rises—80% of the time in a bear market downward breakouts follow. That is high enough to risk a trade. If you see a partial rise occur (and it really does not matter how far up it rises, so long as it is not touching or coming too close to the upper trend line) and it begins heading back down, short the stock. With any luck, price will shoot out the bottom of the formation and continue lower. As always, be sure to place a stop-loss order and lower it as prices drop.

Sample Trade

Ralph is a formation trader with a measure of experience milking chart patterns for all they are worth. When he noticed what he thought was either a descending broadening wedge or a right-angled descending broadening formation, he bought the stock. His order, placed at point C in Figure 3.6 (46.38), was just after the stock bounced off the lower trend line.

He monitored it closely and watched the stock move up the very next day, then ease lower. After a few days, Ralph saw a symmetrical triangle form and he became worried. Those formations, he reasoned, usually follow the trend and the trend was downward. When the stock moved below the lower triangle trend line, Ralph sold the stock and received a fill at 46.50.

When he erased the lines from his computer screen and looked at the fresh price chart, he knew he had made the right decision because a partial rise, such as where the triangle formed, usually portends an immediate downward breakout.

Sure enough, the following day prices dropped even further, tagging the broadening formation trend line again. Then they rebounded. In the coming days, he watched as prices surprisingly zipped across the formation and touched the top trend line. Ralph took a small loss after factoring in commissions. Did he sell too soon or was he just being cautious, and what lessons did he learn? Spend some time searching for the answers in your own trades and you will rapidly become a better investor.

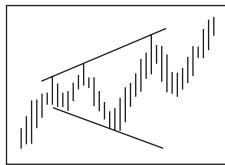
For Best Performance

The following list includes tips and observations for selecting broadening patterns for improved performance. Refer to the associated table for more information.

- Use the identification guidelines to select a pattern—Table 3.1.
- Select patterns that follow the trend: upward breakouts in a bull market, downward breakouts in a bear market—Table 3.2.
- If you can determine when the trend changes, buy after the stock bottoms and hang on as price rises an average of 55%—Table 3.2.
- Failure rates are lowest for patterns with small moves in a bear market with downward breakouts. Patterns in a bull market with upward breakouts do better for price runs longer than 15%—Table 3.3.
- In a bull market, select patterns with breakouts in the middle of the yearly price range. In a bear market, select those with breakouts near the yearly low—Table 3.4.
- Throwbacks and pullbacks hurt performance. Pick patterns with little overhead resistance or underlying support—Table 3.4.
- Breakout day gaps hurt performance—Table 3.4.
- A partial rise correctly predicts the downward breakout direction 80% of the time in a bear market—Table 3.4.
- Watch for a trend change a month after an upward breakout in a bear market—Table 3.5.
- Select tall patterns—Table 3.6.
- Pick narrow patterns in a bear market—Table 3.6.
- Choose patterns with a rising volume trend—Table 3.7.
- Patterns with a U-shaped volume pattern do well after an upward breakout. Select patterns with dome-shaped volume and downward breakouts—Table 3.7.

4

Broadening Tops



RESULTS SNAPSHOT

Upward Breakouts

	Bull Market	Bear Market
Appearance	Price trend is upward leading to the formation. Megaphone appearance with higher highs and lower lows that widen over time. Breakout is upward.	
Reversal or continuation	Short-term bullish continuation	
Performance rank	19 out of 23	13 out of 19
Break-even failure rate	15%	11%
Average rise	29%	24%
Change after trend ends	-33%	-33%
Volume trend	Upward	Upward
Throwbacks	54%	53%
Percentage meeting price target	62%	61%
Surprising findings	The best performers have breakouts near the yearly low. Performance improves without a breakout day gap. A partial decline correctly signals an upward breakout over 70% of the time. Light breakout volume helps performance.	
Synonyms	Expanding triangle, orthodox broadening top, and five-point reversal	
See also	Broadening Bottoms	

64 Broadening Tops

Downward Breakouts

Appearance	Same, but breakout is downward.	
Reversal or continuation	Short-term bearish reversal	
	Bull Market	Bear Market
Performance rank	18 out of 21	11 out of 21
Break-even failure rate	18%	3%
Average decline	15%	20%
Change after trend ends	53%	49%
Volume trend	Upward	Upward
Pullbacks	48%	62%
Percentage meeting price target	37%	32%
Surprising findings	Most perform best when the breakout is near the yearly low. A pullback hurts performance. Tall patterns perform better than short ones. Patterns with U-shaped volume perform best.	
Synonyms	Same as for upward breakouts	
See also	Same as for upward breakouts	

Broadening tops, not surprisingly, act a lot like broadening bottoms. What separates a top from a bottom is the price trend leading to the chart pattern. For tops, the price trend is upward; for broadening bottoms, it is downward. This is an arbitrary distinction I made just to see if the two formations act differently. In answer to the question you have probably posed right now: The two formations have slightly different performance.

A brief review of the Results Snapshot shows that the break-even failure rate starts out at a high 11% to 18% unless this is a bear market with a downward breakout. In that case, the failure rate is just 3%. At best, broadening tops have gains averaging 29%, well below the average rise of 36% for all bullish chart pattern types. Downward breakouts perform just as bad by falling short of the 18% to 24% average decline for all chart pattern types.

Tour

Broadening formations come in a variety of styles and names. There are the broadening tops and bottoms, right-angled ascending and descending, expanding triangle, orthodox broadening top, and five-point reversal. The last three—expanding triangle, orthodox broadening top, and five-point reversal—are

synonyms of the broadening top formation, with the last two being based on five turning points.

For a tour of the formation, look at Figure 4.1. The stock began an uphill run in December 1994 and paused for about 2 months in May and June. Then it continued its climb and reached a high in mid-September at a price of 53.75. Holders of the stock, witnessing the long run, decided to sell their shares, and the stock headed lower. On September 25, 1995, volume spiked upward and halted the decline. Investors, seeing a 40% retrace of their gains from the June level, apparently thought the decline overdone and purchased the stock, sending prices higher.

Prices peaked at a higher level, 54.50, on October 19. Many diligent investors probably suspected that a double top was forming and promptly sold their holdings to maximize their gains, sending the price tumbling. Prices confirmed the double top when they fell below the confirmation point, or the lowest low between the two peaks, at 48.75.

Volume picked up and the struggle between supply and demand reasserted itself. The decline stalled as traders willing to buy the stock overwhelmed the reluctance to sell. The stock turned around and headed higher. By this time, chart followers could draw the two trend lines—one across the twin peaks and another below the two valleys—giving birth to the broadening

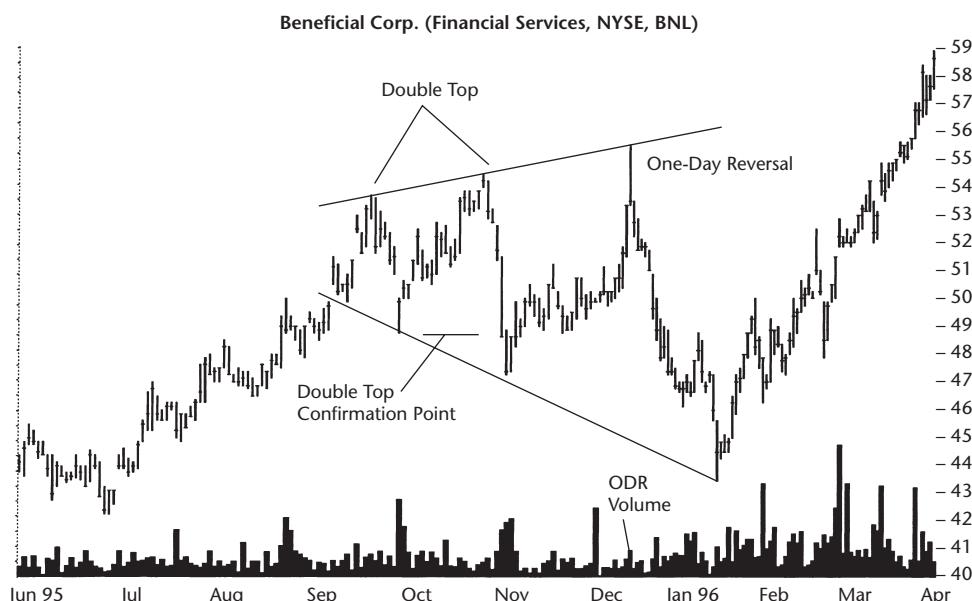


Figure 4.1 A double top changed into a broadening formation. The one-day reversal appeared as the third peak after an unsustainably quick price rise. The broadening top formation marked a struggle between eager buyers and reluctant sellers at the lows and the quick-to-take-profit momentum players at the peaks.

top formation. Astute traders jumped on the bandwagon at this point and purchased the stock. They wanted to play the anticipated rise as the formation broadened out. The stock cooperated and moved higher, reaching the top trend line once again at a new high of 55.50.

The steepness of the ascent in the latter stages was unsustainable. The peak looked like a one-day reversal, with a close near the low of the day and a tall daily price swing. However, volume was unconvincing. It was higher than during the prior week, but it certainly was not of the caliber of the late November spike. In any case, the stock tumbled and soon reached a new low of 43.50, stopping right at the down-sloping trend line. Once the stock began moving higher, the momentum players jumped on board and volume increased along with the price. Buying enthusiasm and rising momentum pushed the stock higher, climbing through the top trend line. An upward breakout occurred.

Throughout the various peaks and troughs of this formation, there was a struggle between buyers and sellers. Near the lows, the buyers believed the stock was oversold and they eagerly bought it. At the top, they quickly sold their shares and pocketed handsome profits. This selling, of course, sent the stock back down.

Some investors, seeing the stock decline below their purchase price and still believing that the stock had value, bought more. That behavior also helped turn the stock around at the lows and probably explained their heightened nervousness at the tops. They wanted to keep their gains this time, instead of watching them evaporate should the stock decline again.

The formation in Figure 4.1 also makes evident that identifying the ultimate breakout is exceedingly difficult. It appears that each new high or new low may be the final breakout. Only when prices move in the opposite direction is it clear that prices will not break out. We explore ways to profit from this behavior in the Trading Tactics section.

Identification Guidelines

Table 4.1 shows the identification guidelines for the broadening top formation.

Price trend. The first criterion is the price trend leading to the formation. This price trend is what differentiates a broadening top from a broadening bottom. For a broadening top, the price trend should be leading up to the formation, not down as in its bottom counterparts. This is just an arbitrary designation I have chosen to distinguish the two formations.

Shape and trend lines. Trend lines drawn across the peaks and valleys resemble a megaphone. Higher highs and lower lows make the formation obvious to those versed in spotting chart patterns. The slope of the trend lines is what distinguishes this formation from some others. The top trend line must slope up and the bottom one must slope down. When one of the two trend

Table 4.1
Identification Characteristics

Characteristic	Discussion
Price trend	The intermediate-term price trend leading to the formation should be up.
Shape	Megaphone shape with higher highs and lower lows. Five-point reversals have three peaks and two troughs.
Trend lines	Prices are bounded by two trend lines: The top one slopes up and the bottom slopes down.
Touches	Should have at least two minor highs and two minor lows, but not necessarily alternating touches.
Volume	Trends upward, often with a U-shape.
Breakout	The breakout can occur in either direction and, in several cases, prices move horizontally for several months before staging a definitive breakout.

lines is horizontal or nearly so, the formation classifies as a right-angled ascending or descending broadening formation. When the two trend lines slope in the same direction, the formation is a broadening wedge.

Touches. There should be at least two minor highs and two minor lows before the chart pattern becomes a broadening top. Figure 4.1 shows three minor highs touching the top trend line and four minor lows either nearing or touching the bottom trend line. The minor highs and minor lows need not alternate as prices crisscross the formation.

Volume. Linear regression on the volume trend shows it trending up. Many times, the volume pattern mimics the price pattern: rising and falling along with price. However, my research shows that a U-shaped volume pattern occurs most often.

Breakout. A breakout happens when prices move outside the trend-line boundaries or follow a trend line for an extended time. In Figure 4.1, if you extend the top trend line upward, it will intersect prices at about 58. Prices push through this level and move higher. When a breakout occurs, I consider the actual breakout price to be the value of the highest peak in the formation. In Figure 4.1, for example, the breakout price is 55.50, or the high at the early December peak.

For an example of how to apply the various guidelines, consider the broadening top shown in Figure 4.2. At first glance, it looks like a large megaphone with price trends that generally follow two sloping trend lines. The top trend line slopes upward and the bottom one slopes downward, each intersecting the minor highs or lows at least twice. Prices, over time, form higher highs and lower lows until they break out of the formation, generally moving beyond the line of trend before retracing.

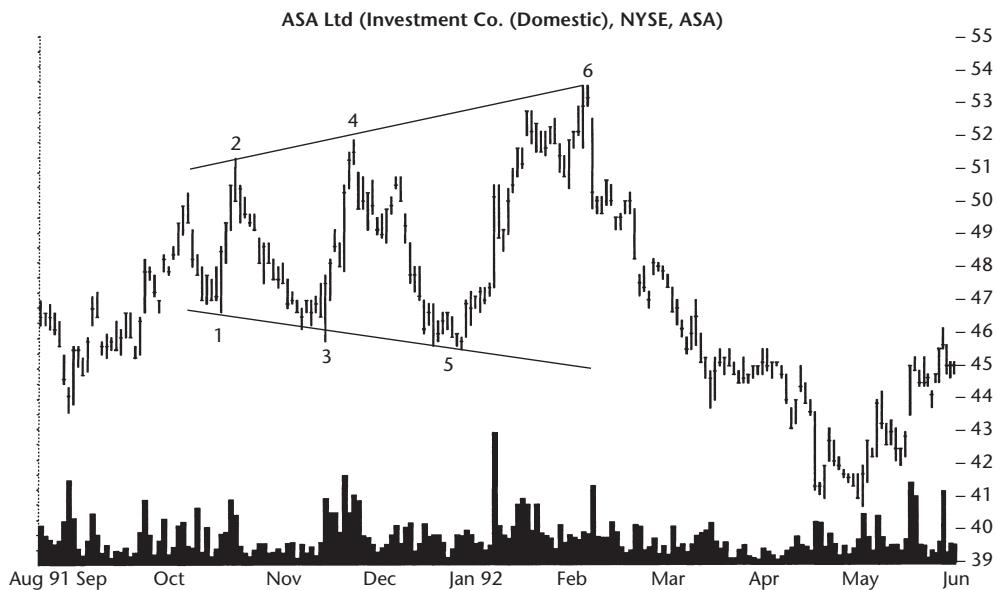


Figure 4.2 The broadening top has higher highs and lower lows as the price action widens over time.

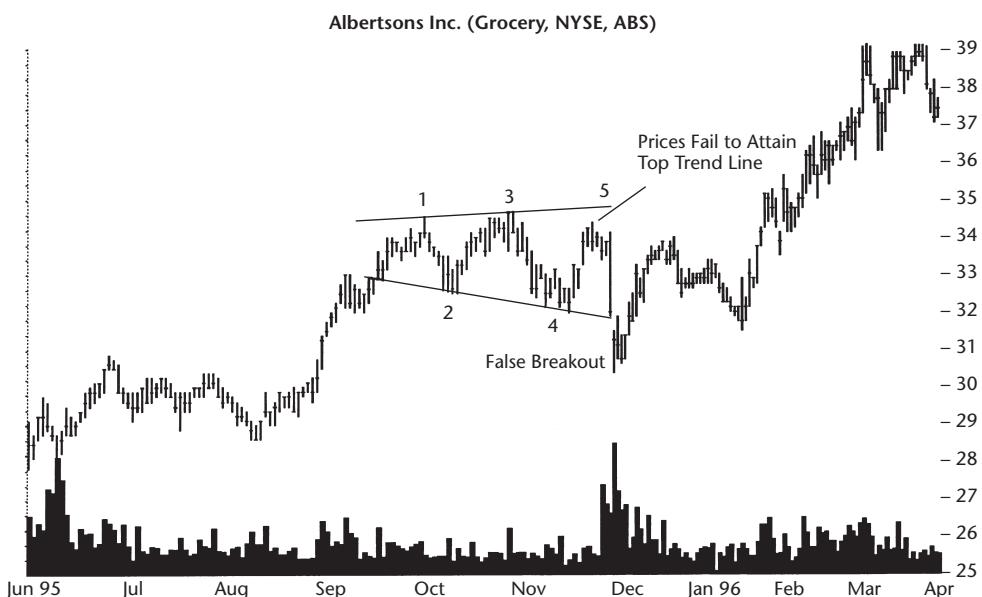


Figure 4.3 A weak example of a five-point reversal or orthodox broadening top. It has three minor highs and two minor lows composing the five turning points.

The volume pattern generally rises as prices move up and recedes as prices move down. Figure 4.2 shows this quite clearly. During the rise in mid-November, for example, volume jumped upward as prices peaked, then just as quickly receded as prices declined. Figure 4.3 shows a U-shaped volume trend. Volume is higher in September and December, and lower in the intervening months.

Orthodox broadening tops and five-point reversals describe the same type of formation. They are simply broadening tops that have three minor highs and two minor lows. Figure 4.3, for example, falls into this category. Other than the name, I found no substantial difference between broadening tops and orthodox broadening tops or five-point reversals.

Some analysts say five-point reversals are bearish indicators; that the formation predicts a downward breakout. My statistics, admittedly on only 30 formations, suggest this is untrue. Sixteen break out upward and the others break out downward. The sample size is too small to make a definitive statement.

Focus on Failures

What does a failure look like? Look at Figures 4.3 and 4.4, two examples of broadening patterns that fail to continue in the expected direction. Figure 4.3 shows a sharp downward thrust that pierces the trend line on high volume. Since

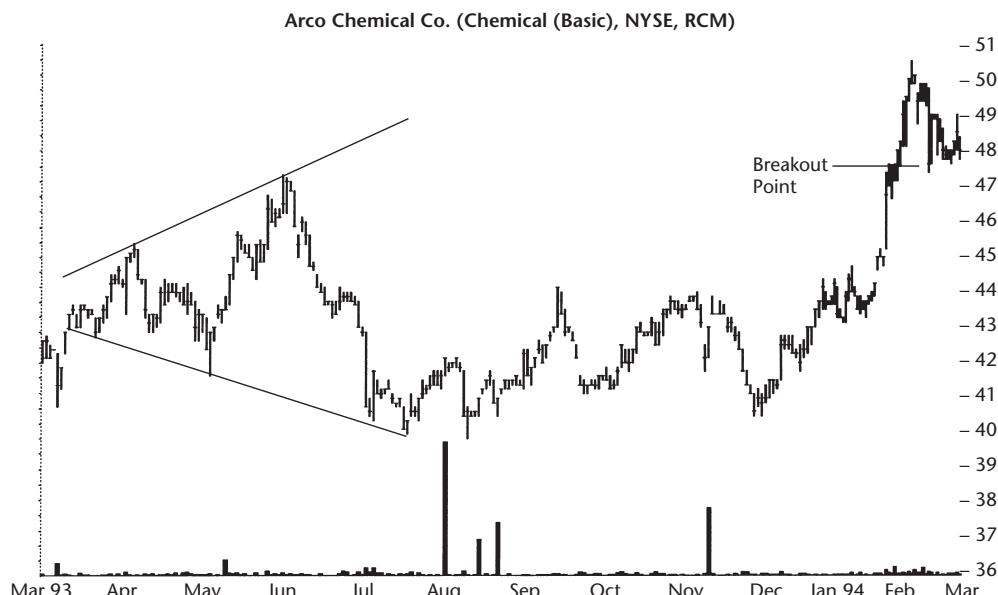


Figure 4.4 Prices in this broadening top moved horizontally for 6 months before staging an upward breakout. This horizontal movement is a common occurrence with broadening tops.

this is clearly outside the lower trend line, and coupled with the failure of prices to attain the upper trend line, a downward breakout is at hand. But the downward movement stalls on very high volume, turns around, and moves higher. This is an example of a 5% failure; that is, prices break out then move less than 5% in the direction of the breakout before heading substantially in the other direction.

Contrast the behavior shown in Figure 4.3 with that shown in Figure 4.4. I include this chart because I have noticed that a large number of broadening formations act this way. Instead of making a clear up or down thrust that pierces the trend line, prices move horizontally for months before finally moving above or below the formation highs or lows.

In the case of Figure 4.4, prices decline below the low in early July and halt. They climb for a bit then recede again and reach a new low in early August. Another recovery sees prices rise no higher than 44 for about half a year before finally staging an upward breakout.

Statistics

Table 4.2 shows general statistics for this chart pattern.

Number of formations. I found 493 broadening tops in data from mid-1991 to mid-1996 and from 1999 to 2003 in 500 stocks.

Table 4.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	183	62	182	66
Reversal (R), continuation (C)	183 C	62 C	182 R	66 R
R/C performance	24% R ^a , 29% C	N/A R, 24% C	15% R, 16% C ^a	20% R, N/A C
Average rise or decline	29%	24%	-15%	-20%
Rises or declines over 45%	43 or 23%	11 or 18%	4 or 2%	5 or 8%
Change after trend ends	-33%	-33%	53%	49%
Busted pattern performance	40% ^a	42% ^a	-33% ^a	-27% ^a
Standard & Poor's 500 change	11%	-4%	1%	-14%
Days to ultimate high or low	116	81	50	29

Note: Minus sign means decline. N/A means no available samples.

^a Fewer than 30 samples.

Reversal or continuation. The pattern splits almost evenly between acting as reversals of the prevailing price trend and as continuations. By definition, since we are dealing with a top, an upward breakout is a continuation and a downward breakout means a reversal.

When statistics are available, continuations perform better than reversals, but the small sample size might change results.

Average rise or decline. The pattern is a poor performer. Both upward and downward breakouts fall short of the average rise or decline for all chart pattern types.

Rises or declines over 45%. Almost a quarter (23%) of the broadening patterns in a bull market with upward breakouts climb over 45%. That is respectable. Downward breakouts never fare well in this category.

Change after trend ends. After prices reach the ultimate high, they tumble by about 33%. Since that decline is above the average rise, you give back all of your gains and more if you do not sell in a timely manner. Downward breakouts do substantially better by rising about 50% after the breakout. Of course, if you shorted the stock and it dropped 20% and then soared by 50%, you would be kicking yourself for not closing out your position. Trade this one carefully.

Busted pattern performance. If a pattern busts, consider trading it in the new direction. Due to the low sample counts, do not expect to achieve the results shown in the table.

Standard & Poor's 500 change. Notice how the general market helped or hindered prices. The numbers, when compared to the average rise or decline, suggest you trade with the market trend (bull market, upward breakouts and bear market, downward breakouts).

Days to ultimate high or low. The time it takes price to rise to the ultimate high or sink to the ultimate low varies from 116 days to 29. The decline in a bear market must be steeper than is the rise in a bull market, but prices do not move as far.

Table 4.3 shows failure rates for broadening tops. Bear markets with downward breakouts have the lowest failure rates, 3%, but the edge over bull markets with up breakouts does not last long. For moves of 15% and higher, the bull market, up breakout combination shows the lowest failure rate.

Notice how the failure rate increases as the maximum price rise or decline changes. For bear markets with downward breakouts, just 3% fail to decline more than 5%, but 23% fail to decline more than 10%, almost eight times as many as the 3% rate. This nearly doubles again, to 45%, for patterns that fail to decline more than 15%.

Table 4.4 shows breakout- and postbreakout-related statistics for broadening tops.

Formation end to breakout. It takes about a month before prices close outside the trend-line boundary in a breakout. Thus, even though you may be

Table 4.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	28 or 15%	7 or 11%	32 or 18%	2 or 3%
10	53 or 29%	14 or 23%	74 or 41%	15 or 23%
15	73 or 40%	24 or 39%	103 or 57%	30 or 45%
20	89 or 49%	36 or 58%	133 or 73%	45 or 68%
25	98 or 54%	42 or 68%	149 or 82%	50 or 76%
30	109 or 60%	44 or 71%	158 or 87%	54 or 82%
35	120 or 66%	44 or 71%	167 or 92%	57 or 86%
50	145 or 79%	54 or 87%	179 or 98%	62 or 94%
75	161 or 88%	57 or 92%	182 or 100%	65 or 98%
Over 75	183 or 100%	62 or 100%	182 or 100%	66 or 100%

late spotting a broadening top, you may still have time to trade it. Bull markets take about a week longer to break out than bear markets.

Yearly position. Where does the breakout from a broadening top occur most often in the yearly price range? As you might guess, upward breakouts appear near the yearly high, but downward breakouts occur in the middle of the range.

Yearly position, performance. The best performing patterns have breakouts near the yearly low, but many have low sample counts.

Throwbacks and pullbacks. A throwback or pullback occurs about half the time, and it takes fewer than 2 weeks for the stock to return to the breakout price. When a throwback or pullback occurs, it hurts performance except in countertrend breakouts (bear market, up breakout and bull market, down breakout).

Gaps. When a gap occurs during an upward breakout, performance suffers. Downward breakouts show minimal performance difference. However, notice how large the gaps are for downward breakouts.

Partial rises and declines. Using a partial rise or decline to enter a trade before the breakout is a reliable trading technique. You get in at a better price, and it accurately predicts the breakout direction. The best showing is when a partial decline occurs in a bear market. An upward breakout follows 79% of the time. Table 4.4 shows the other combinations and results.

Intraformation partial rises and declines. How often does a partial rise or decline occur that does not lead to an immediate breakout? The rate ranges

Table 4.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	33 days	28 days	34 days	26 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L3%, C9%, H88%	L5%, C26%, H69%	L19%, C48%, H33%	L29%, C49%, H22%
Percentage rise/decline for each 12-month lookback period	L36% ^a , C19% ^a , H29%	L34% ^a , C27% ^a , H23%	L18%, C16%, H12%	L23% ^a , C22%, H15% ^a
Throwbacks/pullbacks	54%	53%	48%	62%
Average time to throwback/pullback ends	11 days	11 days	9 days	11 days
Average rise/decline for patterns with throwback/pullback	24%	25%	-15%	-18%
Average rise/decline for patterns without throwback/pullback	34%	24% ^a	-15%	-25% ^a
Performance with breakout gap	26%	16% ^a	-15% ^a	-21% ^a
Performance without breakout gap	29%	26%	-15%	-20% ^a
Average gap size	\$0.44	\$0.39	\$0.78	\$1.00
Partial rise, downward breakout	N/A	N/A	110/181 or 61%	44/59 or 75%
Partial decline, upward breakout	63/88 or 72%	31/39 or 79%	N/A	N/A
Partial rise performance	N/A	N/A	-16%	-19%
Partial decline performance	29%	21%	N/A	N/A
Intraformation partial rise failure	17/183 or 9%	6/62 or 10%	14/182 or 8%	3/66 or 5%
Intraformation partial decline failure	15/183 or 8%	4/62 or 6%	14/182 Or 8%	13/66 or 20%

Notes: Minus sign means decline. N/A means not applicable.

^aFewer than 30 samples.

Table 4.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	18%	10%	5%	8%	8%	3%	2%	2%	0%	5%	40%
Bull market, up breakout	22%	5%	5%	2%	6%	3%	3%	3%	2%	2%	48%
Bear market, down breakout	30%	18%	12%	9%	5%	8%	5%	2%	2%	0%	11%
Bull market, down breakout	34%	8%	5%	4%	5%	4%	5%	4%	2%	3%	26%

from 5% to 20%. These are the information partial rises and declines. They look like loops touching a trend line, and they occur after the pattern is established.

Table 4.5 shows a frequency distribution of days to the ultimate high or low. For example, in a bull market with an upward breakout, almost half (48%) take longer than 70 days to reach the ultimate high. About a quarter (27%, or 22 + 5) top out in fewer than 2 weeks. This observation suggests that in a bull market, you should be patient.

In a bear market with a downward breakout, 30% reach bottom in the first week. Half (48%) bottom in 2 weeks. Just 11% are still searching for the ultimate low after 70 days. Thus, be prepared to take profits quickly.

Scan across the rows for upward blips in the numbers. They usually occur about a month after the breakout and signal a possible trend change. Bear markets are especially prone to this behavior (4 to 6 weeks after the breakout, according to Table 4.5).

Table 4.6 shows statistics related to size.

Height. In most cases, tall patterns do better than do their short counterparts. The one exception is in a bear market with an upward breakout.

To use this information, measure the pattern's height from the highest high to the lowest low. Divide the difference by the breakout price (for upward breakouts, it is the highest high in the pattern; for downward breakout, use the lowest low). Then compare the result with the median shown in Table 4.6. A result higher than the median means you have a tall pattern; lower means a shorter pattern. For best results, select tall broadening tops and avoid short ones.

Width. Sometimes wide patterns outperform (bull market, up breakout and bear market, down breakout), and sometimes narrow ones do better (bear market, up breakout). I used the median length as the separator between wide and narrow.

Table 4.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Tall pattern performance	39%	21%	-17%	-21%
Short pattern performance	22%	28%	-13%	-19%
Median height as a percentage of breakout price	14.66%	16.53%	15.95%	21.72%
Narrow pattern performance	27%	28%	-15%	-20%
Wide pattern performance	31%	21%	-15%	-21%
Median length	52 days	40 days	49 days	38 days
Average formation length	65 days	49 days	56 days	61 days
Short and narrow performance	21%	35% ^a	-15%	-19% ^a
Short and wide performance	23%	18% ^a	-10% ^a	-19% ^a
Tall and wide performance	36%	23% ^a	-17%	-22% ^a
Tall and narrow performance	45%	19% ^a	-15% ^a	-20% ^a

Note: Minus sign means decline.

^aFewer Less than 30 samples.

Average formation length. The average pattern width ranges from 49 days to 65 days, or about 2 months long. If you compare the average length with the average rise or decline from Table 4.2, you see that the highest average length (bull market, up breakout) is also the best performer. For downward breakouts, the widest pattern (bear market, downward breakout) is also the best performer.

Height and width combinations. Table 4.6 shows the performance results after combining the characteristics of height and width. Due to the low sample counts, the results are inconsistent.

Table 4.7 shows volume-related statistics.

Volume trend. Patterns in bull markets do better with a falling volume trend. Bear market patterns excel with a rising volume trend.

Volume shapes. Most of the time, patterns with U-shaped volume perform well. The exception is for patterns with upward breakouts in a bull market. They perform better with dome-shaped volume.

Breakout volume. In all cases, light breakout volume either has no effect or helps performance.

Table 4.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Rising volume trend performance	27%	27%	-14%	-21%
Falling volume trend performance	32%	18% ^a	-16%	-17% ^a
U-shaped volume pattern performance	25%	32%	-17%	-22%
Dome-shaped volume pattern performance	34%	20% ^a	-15%	-19% ^a
Neither U-shaped nor dome-shaped volume pattern performance	25%	16% ^a	-9%	-13% ^a
Heavy breakout volume performance	28%	24%	-15%	-19%
Light breakout volume performance	32%	25% ^a	-15%	-24% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Trading Tactics

Table 4.8 outlines trading tactics for broadening top formations.

Measure rule. The first thing to consider about trading tactics is the measure rule. The measure rule predicts the price to which the stock will move. For many formations, one simply computes the height of the formation and adds the result to the breakout price. Broadening formations are not much different. Consider Figure 4.5. The height of the formation is the difference between the highest high (12.13) and the lowest low (10), or 2.13. For upward breakouts, add the height to the highest high in the chart pattern giving a minimum price move of 14.26, as shown in the figure.

How do you make use of the measure rules? Imagine that you are considering purchasing the stock. Since it is never clear which way a broadening formation will ultimately break out, it is difficult to pick a good long-term entry point. The easiest way to invest using the formation is to buy just after the stock turns at the bottom trend line.

Go long at the low. Since a broadening formation requires two points along the top trend line and two along the bottom before the formation appears, point A in Figure 4.5 shows one likely investment location. Before placing the

Table 4.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the height between the highest high and the lowest low in the formation. Add or subtract the height from the highest high or lowest low, respectively. The results are the target prices for upward and downward breakouts.
Go long at the low	Once a broadening top appears, buy after the stock makes its turn at the low.
Long stop	Place a stop-loss order 0.15 below the minor low. Should the stock reverse course, you will be protected.
Go short at the high	Sell short after prices start heading down at the top.
Short stop	Place a stop 0.15 above the minor high to protect against an adverse breakout. Cover the short when it turns at the bottom trend line and starts moving up. For a downward breakout, cover as it nears the target price or any support level.
Partial decline	Go long if a broadening top shows a partial decline. Consider adding to your position once it makes an upward breakout.

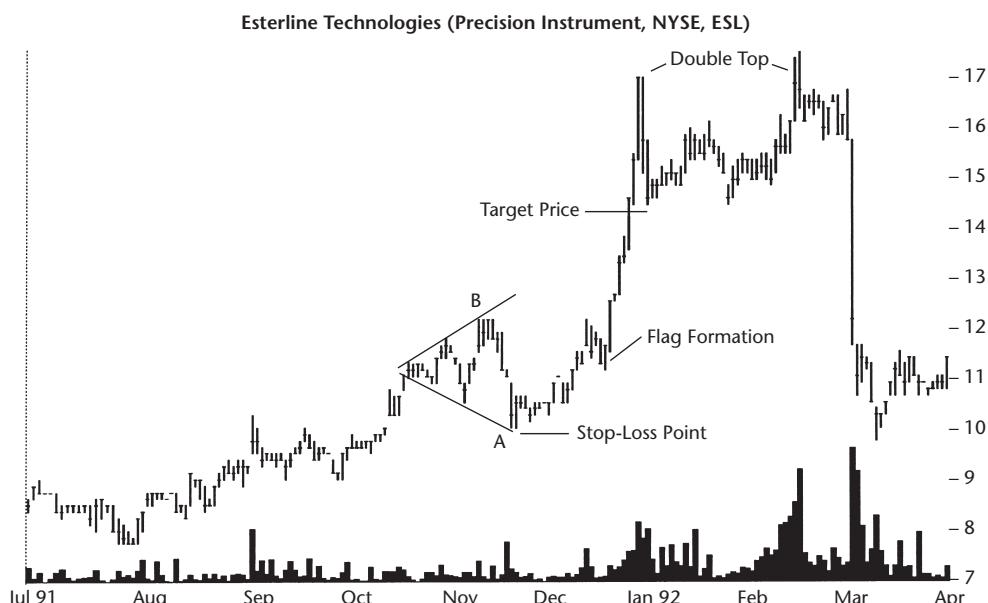


Figure 4.5 Use the measure rule to compute the target price. First, compute the formation height from the highest high to the lowest low then add or subtract the height from the highest high or lowest low, respectively. Depending on the breakout direction, the result is the expected target price.

buy order, compute the target price using the measure rule. The target price will help you determine if the potential gain is worth the risk. In the example shown in Figure 4.5, the purchase price is about 10.38 and the target price is 14.25, a 37% move. The stop loss should be 9.85, for a potential loss of 5%, which gives a reward-to-risk ratio of 7 to 1, more than enough to risk a trade.

On an upward breakout, prices reach the target about 60% of the time. Thus, do not depend on prices reaching the target.

Long stop. Buy the stock as soon after it touches the lower trend line and moves higher. Place a stop-loss order 0.15 below the lowest low (0.15 below point A). Should prices drop, your position will likely be sold before a large loss occurs.

If the stock fails to break out upward, perhaps you can join the ride to the upper trend line. Buy when prices turn upward at the lower trend line, then be ready to sell once prices reach the old high. Prices may pause for a bit before moving higher and tagging the top trend line or they may reverse at this point. Make sure your stops have been raised to protect your profits.

What about the measure rule for downward breakouts? Again, the formation height is 2.13. Subtract 2.13 from the lowest low (10) to arrive at the target price of 7.87. If prices break out downward, they should reach 7.87. However, the reliability of the target price for downward breakouts is just 35% —not very reassuring.

Short tips. For short positions in broadening tops, open the short after the price touches point B and begins heading down. Place a stop 0.15 above the highest high (12.28 in this case) to limit your losses. Lower your stop to the next minor high or apex of the broadening top (either 11.88 or 11.13 in this case) once the stock nears point A. Sometimes the stock will not make it down to the trend line before beginning to move up. At other times, there is a lengthy pause before prices turn around or continue down. A lower stop-loss point helps you achieve at least some measure of profit.

Partial decline. The last trading tactic is to look out for partial rises or declines, which occur when prices begin to cross the formation but do not come close to the opposite side. Instead, prices reverse course and break out soon after. When you see a partial rise or decline, place a trade once the stock reverses course. If a breakout happens, then consider adding to your position.

Sample Trade

Sandra has always taken a liking to the stock market but never had enough money to jump into the game. Still, she paper traded stocks just to get a feel for the markets and dreamed of one day trading for real. Then her parents died in a tragic car accident with a drunk driver.

The year that followed was tough for Sandra because she was close to them and missed them dearly. She bought a dog to help fill the void in her life,

but it was not the same. Fortunately, her parents had insurance and a few savings, all of which she inherited. After paying taxes to the government, she suddenly realized there was no need to continue working. "Why wait till I'm older when my health might be gone or I might die young like my parents?" She retired at 29.

Sandra knew that if she cut her expenses to the bone she could live off the savings. She paid off the mortgage, the car loan, and the credit card balances, and she stopped going out to eat in restaurants. Her lifestyle changed to accommodate the limited income, but one thing she would not compromise: her paper trading.

After opening a brokerage account, she waited for the perfect trade and finally found it; the one shown in Figure 4.5. She saw the broadening top formation early enough to buy into the stock before the breakout. Two days after the stock reached point A, she placed her order and received a fill at 10.50. Immediately, she placed a stop 0.15 below the lowest low, or 9.85 for a potential loss of 6%.

Sandra applied the measure rule and was looking at a target of 14.25. If everything worked as expected, that would give her a return of over 35%. After she placed the trade, she sat back and waited but kept an eye on the price action. When prices paused at the high of the formation, she wondered if the trend was going to reverse. She considered taking her profits and running but decided against it. After a few days, she recognized a flag formation and hoped that it represented a half-staff move (the flag being a halfway point in the upward move). If that were true, she could expect a climb to 13.25 (that is the distance from the top of the flag (12.13) to the start of the move at 10 projected upward using the lowest low in the flag at 11.13).

A few days later, the stock not only fulfilled the measure rule for the flag formation, but for the broadening top as well. Did Sandra sell? No. Since the stock was moving up, she decided to let her profits ride. However, she did raise her stop to 11.85, or 0.15 below the formation high. She viewed this point as a support zone and hoped that should the stock retreat to that level, it would rebound before taking her out.

In mid-February, just after the second peak around 17 appeared, she recognized a double top formation. She moved her stop to 0.15 below the confirmation point, or 14.25. About 2 weeks after raising her stop, her position sold when the stock plunged from the prior close at 15.63 to 12.13. After commissions, she made 33% in less than 4 months.

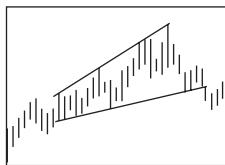
For Best Performance

The following list includes tips and observations to help select broadening tops that perform better after the breakout. Consult the associated table for more information.

- Review the identification guidelines for correct selection—Table 4.1
- Select patterns in line with the market trend (bull market, upward breakout or bear market, downward breakout). They show the best performance—Table 4.2.
- Bear markets decline at a steeper slope than bull markets rise, but the move is not as far—Table 4.2.
- Select patterns in a bull market with upward breakouts for the lowest failure rates—Table 4.3.
- Pick patterns with breakouts near the yearly low—Table 4.4.
- A partial rise or decline correctly predicts the breakout direction most of the time—Table 4.4.
- Half the bear market patterns with down breakouts reach the ultimate low in about 2 weeks. Be prepared to take profits quickly—Table 4.5.
- In a bear market, expect a trend change 4 to 6 weeks after the breakout—Table 4.5.
- Select tall patterns—Table 4.6.
- Pick bull market patterns with a falling volume trend and bear market patterns with a rising volume trend—Table 4.7.
- Most patterns do best with U-shaped volume—Table 4.7.

5

Broadening Wedges, Ascending



RESULTS SNAPSHOT

Upward Breakouts

	Bull Market	Bear Market
Appearance	Prices follow two up-sloping trend lines that broaden out. Breakout is upward.	
Reversal or continuation	Short-term bullish continuation	
Performance rank	6 out of 23	10 out of 19
Break-even failure rate	2%	0%
Average rise	38%	18%
Change after trend ends	-31%	-30%
Volume trend	Upward	Flat
Throwbacks	50%	70%
Percentage meeting price target	69%	60%
Surprising findings	Throwbacks hurt performance. Patterns with heavy breakout volume perform better.	

Downward Breakouts

Appearance	Same, but breakout is downward.
Reversal or continuation	Short-term bearish reversal

	Bull Market	Bear Market
Performance rank	14 out of 21	20 out of 21
Break-even failure rate	11%	14%
Average decline	17%	21%
Change after trend ends	49%	37%
Volume trend	Upward	Upward
Pullbacks	57%	52%
Percentage meeting price target	58%	86%
Surprising findings	Pullbacks hurt performance but breakout day gaps help. A partial rise predicts a downward breakout. Narrow patterns perform better than wide ones. Heavy breakout volume propels price farther.	

The Results Snapshot shows statistics for the ascending broadening wedge (ABW). Since the pattern is so rare in a bear market, many of the remarks in this chapter concern bull markets only. The break-even failure rate is probably higher than the 2% shown in a bull market due to the low sample count. For downward breakouts, the break-even failure rate is probably accurate at 11%. The 38% average rise is above the 36% rise for other bullish chart patterns.

If you can tell when the trend changes, you can make a lot of money after a downward breakout. For example, after the stock reaches the ultimate low, prices rise an average of 49%. Thus, even if you miss the turn, there are still profits waiting if you trade the pattern properly.

ABWs have a few surprises, most of which we have seen before. A partial rise comes at the end of the pattern, and it accurately predicts a downward breakout about 75% of the time. More about that and the other surprises in the Statistics section.

Tour

What does an ascending broadening wedge look like? Consider the chart pattern in Figure 5.1. The first thing you notice is the two sloping trend lines; the top one has a slightly steeper slope than the bottom one. Together, the two trend lines spread out over time but both slope upward. Once prices pierce the bottom trend line, they drop rapidly. The chart looks like a pie-shaped wedge that slopes uphill. That is why it is called an ascending broadening wedge. The price action alternates and is contained by two nonparallel trend lines.

Figure 5.2 shows a better example of a broadening wedge, with two up-sloping trend lines where the slope of the top trend line is much steeper than the bottom one.

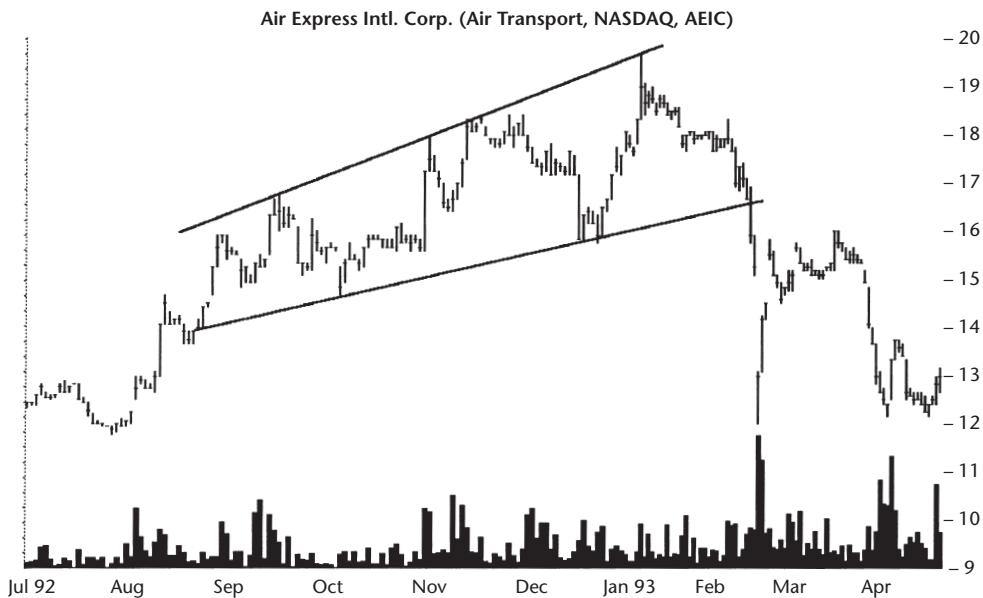


Figure 5.1 An ascending broadening wedge. Two up-sloping trend lines contain prices that broaden over time.



Figure 5.2 An ascending broadening wedge. The broadening feature is clear in this chart. The partial rise and failure to touch the upper trend line is a signal of an impending trend change.

Figures 5.1 and 5.2 both show a similar situation. The formation appears at the end of a rising price trend and signals a reversal. Although a reversal is not always the case, nor is the formation required to be at the end of a rising price trend, both situations occur more often than not.

Figure 5.2 also shows an interesting pattern that is key in identifying the start of a new price trend: the partial rise. After touching the lower trend line, prices again move up but fail to touch the higher trend line. As prices descend, they pierce the lower trend line and continue moving down. The chart also shows a similar situation that occurs earlier in the price pattern, around the start of the new year: That rising price trend fails to touch the upper trend line. Prices return to the lower trend line, then rebound and zoom up again to touch the higher trend line. The partial rise fails to predict a change in trend. We explore partial rises later.

Why does a broadening wedge form? Pretend for a moment that you are the head of an investment conglomerate that has big bucks to spend and wants to buy shares in another company. When the price is low, you instruct your trading department to begin buying. The sudden buying demand forces the price to climb even though the trading department spreads its orders over several days and through several brokers. The trading department tries to keep its buying quiet, but the word gets out that you are in the market. The momentum players jump on your coattails and ride the stock upward by buying too. This sends the stock higher than you expected, so your trading department stops buying for the moment.

Value investors, sensing an overbought situation developing, are willing to sell their shares at the higher price. Soon the stock is moving down again. But before it can reach its old low, the buy-the-dip crowd jumps in and halts the decline. Your trading department, seeing a higher low form, jumps back in and buys while the price is still reasonable. Some new value investors also decide the stock is worthy of a flyer and add to the buying pressure. The company itself gets into the act and buys shares authorized by the board of directors as a share-buyback program announced long ago. The buyback program is nearing the expiration date and the company feels it is the right time to buy to complete their promise to shareholders.

The stock makes a new high. When it climbs high enough, the selling pressure overwhelms the buying demand and sends the shares lower, but the price will not drop far—not with everyone trying to buy at a good price. What you have then are much higher highs from the unbridled buying enthusiasm and higher, but more sane, lows as your conglomerate and the company itself try to buy near a fixed low price. You never quite succeed and pay higher and higher prices as the minor lows move up.

Soon, however, the stock is too pricey even for your tastes. You may even decide it is time to sell some, or all, of your holdings. Meanwhile, the momentum players send the stock coasting higher, but this time the price does not come close to the upper trend line.

Everyone has an ear to the ground listening, trying to figure out what all the buying enthusiasm is about. In the distance, a rumble sounds. The same-store sales numbers are going to be lower this quarter, the shorts say. This time the rumor finds sympathetic ears. The rumble heard earlier is the stampede of the smart money running for the exits. The price drops quickly. It may hover for a bit around support zones while novice investors, who have not gotten the word, buy the stock. When they finish placing their trades, the meager buying demand abates and the stock crashes through the lower trend line and heads down further.

Identification Guidelines

There are a number of identification guidelines, outlined in Table 5.1, that make this formation unique. As I discuss the different guidelines, consider the ascending broadening wedge depicted in Figure 5.3. This formation is different from Figures 5.1 and 5.2 in that it is born from a region of consolidation. From the beginning of the study in July 1991, prices move generally horizontally and do not fall much below the 15.38 level (Figure 5.3 shows only a portion of the prior price action).

The situation changes just before the new year. Prices start moving up on December 23. They reach a new high in mid-January but soon move down. At that point, two tentative trend lines connect the highs and lows. Although it is too early to form a definitive conclusion, a broadening wedge appears to be taking shape. After prices move up and touch the upper trend line then pull

Table 5.1
Identification Characteristics

Characteristic	Discussion
Shape	Looks like a megaphone, tilted up, with price action that outlines two up-sloping trend lines.
Trend lines	The top trend line has a steeper upward slope than the lower one and neither is horizontal.
Touches	There should be at least <i>three</i> distinct touches (or near touches) of the trend lines on each side. This helps assure proper identification and performance of the formation.
Volume	Irregular with a slight tendency to rise over the length of the formation.
Premature breakouts	Very rare. A close below the lower trend line is usually a genuine breakout.
Breakout	The breakout direction is downward the vast majority of times, but an upward breakout is not unheard of.
Partial rise	Prices touch the lower trend line, climb toward the top trend line, but fail to touch it. Prices reverse direction and break out downward from the formation.

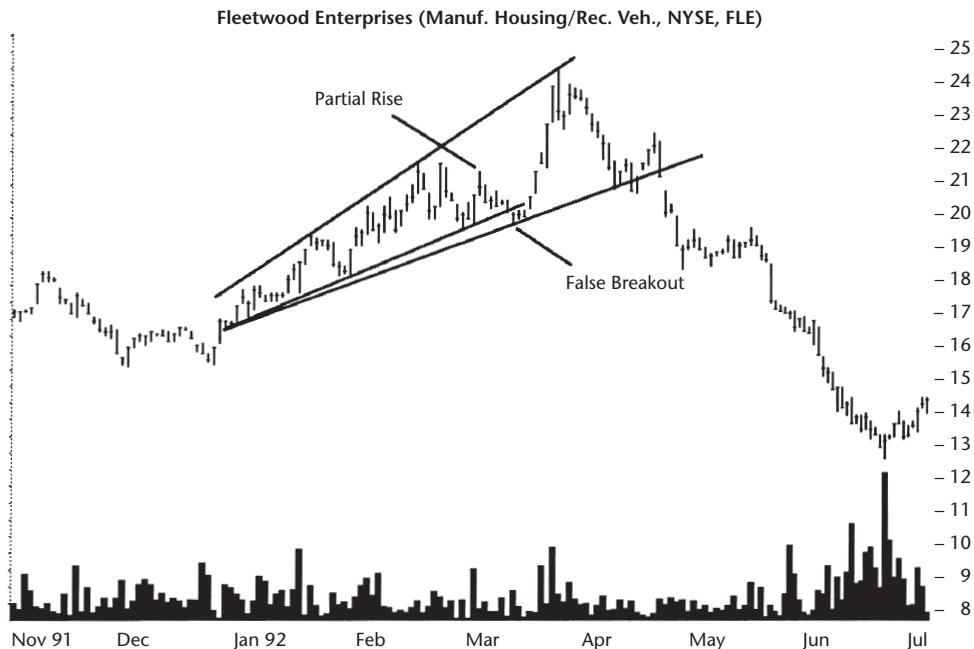


Figure 5.3 A broadening formation that fails to continue moving down, requiring a redraw of the formation boundaries. The internal partial rise is rare, occurring in about 5% of the formations.

back to the lower one again, the broadening wedge formation is clearly visible. At the start of March, prices move higher but quickly stall, turn around, and pierce the lower trend line. The partial rise and trend-line penetration suggest a trend change is at hand.

It is a false breakout. Prices travel higher for 3 days in a tight, narrow pattern then zoom upward and touch the upper trend line. The bottom trend line has to be redrawn to accommodate the slight decline below the old trend line. Clearly, prices have more work to do before declining below the lower trend line.

A month later, prices return to the lower trend line and move higher for a few days. However, the rise stalls and prices pierce the lower trend line. Like a replay of the price action a month earlier, prices pull back to the trend line and start moving higher. However, this rise falters on low volume and prices quickly return to the lower trend line. When prices gap down on April 16, the genuine breakout occurs. In rapid fashion, prices plummet to below 12.75, nearly a 50% decline from the high.

Shape and trend lines. Looking back at Figures 5.1, 5.2, and 5.3, there are several characteristics that ascending broadening wedges have in common. The overall shape appears as a megaphone, but this megaphone tilts upward: both trend lines slope higher. The upper trend line has a higher slope than the lower one, giving the formation a broadening appearance.

Touches. In my studies of ascending broadening wedges, I select formations that have at least *three touches of each trend line* (or at least come close). The

three-touch minimum helps remove consideration given to normal price action and helps identify reliable chart patterns.

Volume. The volume pattern is irregular but generally rises as prices move up and recedes as prices decline. Although it is not clear from the charts, volume tends to rise over time. However, this tendency is slight when considering all ascending broadening wedges and is not a mandatory selection guideline.

Breakouts. Figure 5.3 shows an exceptional premature breakout. Usually, prices follow the lower trend line and do not penetrate it until very near the breakout. When prices do break out, the price action can be messy, as shown in the figure. Sometimes price runs straight through the lower trend line without pausing, and sometimes it weaves around the trend line before finally continuing down. In either case, the breakout is usually downward.

Partial rise. The partial rise, already mentioned, occurs in half of the ascending broadening wedges. Since it usually occurs just before a breakout, it is an important trend change indicator. In a partial rise, prices start moving up, after having touched the lower trend line, then stop before touching (or coming close to) the upper one. Prices return to the lower trend line and usually head lower, staging a genuine breakout. Note that a partial rise must begin from the lower trend line, not as an upward retrace from the top trend line.

Focus on Failures

Figure 5.4 shows what a failure looks like. Although prices break out downward, they fail to continue moving down by more than 5%. The breakout

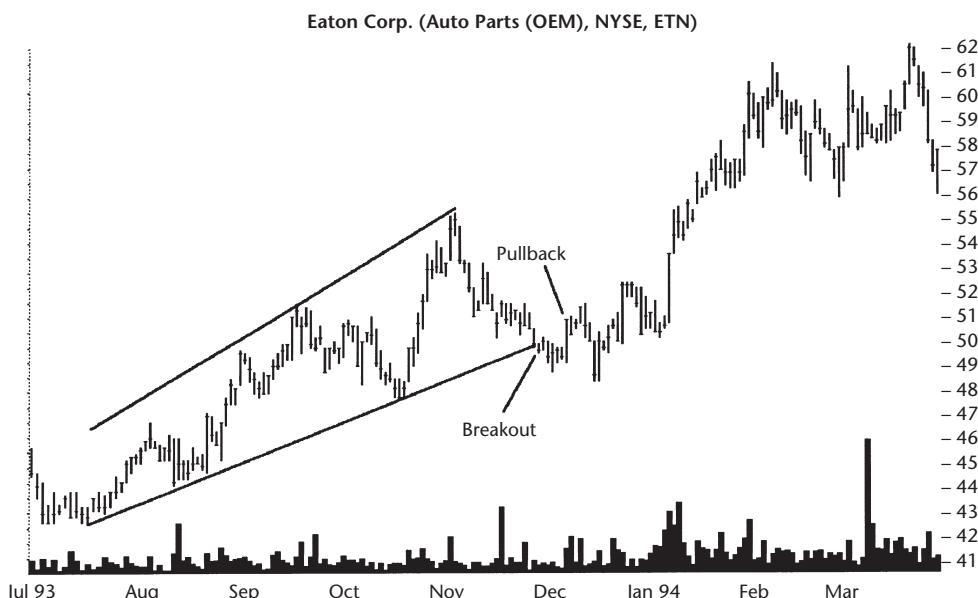


Figure 5.4 An ascending broadening wedge that fails to continue moving down. Prices decline less than 5% below the breakout point before moving higher.

occurs at a price of 50.13 and prices move to a low of 48.63 about 2 weeks later, resulting in a 3% decline—too small to register as a success.

Only 22 out of 187, or 12%, of the formations breaking out downward fail to continue moving down by more than 5%. However, failures do occur. A friend of mine found out the hard way. She blindly shorted an ascending broadening wedge, and, despite a 74% chance that the formation would break out downward, she was stuck with a losing position when the probability went against her. As with most chart patterns, it pays to wait for a confirmed break-out before investing.

Statistics

Table 5.2 shows general statistics for ascending broadening wedges.

Number of formations. Despite searching through years of daily price data, I did not find as many patterns as I wanted: 255. When you split them into four categories and most of them bunch into a bull market with a downward breakout, what is an author to do? I decided to leave the tables in the standard format, hoping that even a little information is better than none.

Reversal or continuation. The vast majority of the time (64%, anyway), the pattern acts as a reversal of the prevailing price trend. When the breakout is upward, we find more acting as continuations of the trend than reversals. When the breakout is in the direction of the prevailing market trend (upward breakout, bull market or downward breakout, bear market), reversals outperform continuations.

Table 5.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	58	10	166	21
Reversal (R), continuation (C)	14 R, 44 C	1 R, 9 C	132 R, 34 C	17 R, 4 C
R/C performance	46% R, 36% C	14% R, 19% C	-17% R, -17% C	-21% R, -19% C
Average rise or decline	38%	18%	-17%	-21%
Rises or declines over 45%	19 or 33%	0 or 0%	5 or 3%	1 or 5%
Change after trend ends	-31%	-30%	49%	37%
Busted pattern performance	45% ^a	30% ^a	-37% ^a	N/A
Standard & Poor's 500 change	17%	-2%	3%	-7%
Days to ultimate high or low	161	78	63	51

Notes: Minus sign means decline. N/A means no samples available.

^aFewer than 30 samples.

Average rise or decline. When the breakout goes against the prevailing market trend, performance suffers. Thus, it is more profitable to trade with the trend instead of against it.

Rises or declines over 45%. Only in a bull market with an upward breakout does the pattern begin to shine. Thirty-three percent of the 58 patterns rise more than 45%. For the other categories, do not expect a large gain.

Change after trend ends. Once price reaches the ultimate high or low, what happens? After the high, prices tumble 30% on average. After the low, they climb 37% in a bear market and 49% in a bull market. If you can tell when the stock has topped out or bottomed, take appropriate action by selling short or buying, respectively.

Busted pattern performance. When price moves less than 5% after the breakout and reenters the chart pattern, trade the new direction.

Standard & Poor's 500 change. Table 5.2 shows the influence of the general market on the average rise or decline. In a bull market, for example, the rise was 17% and prices climbed 38%, the best of the upward breakouts. In a bear market, the index dropped 7% and prices dropped 21%.

Days to ultimate high or low. How long does it take to reach the ultimate high or low? It varies from 78 to 161 days to reach the ultimate high and 51 to 63 days to reach the ultimate low. The difference depends on market conditions. Note that prices after an ABW breakout in a bear market drop at a steeper slope than the rise in bull markets.

Table 5.3 shows failure rates. How do you make sense of the numbers? Let me give you two examples. In a bull market with a downward breakout, 11% of the patterns failed to drop more than 5%. In a bull market with an upward breakout, 10% failed to rise at least 10%.

Table 5.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	1 or 2%	0 or 0%	19 or 11%	3 or 14%
10	6 or 10%	2 or 20%	56 or 34%	4 or 19%
15	13 or 22%	5 or 50%	84 or 51%	7 or 33%
20	18 or 31%	5 or 50%	103 or 62%	10 or 48%
25	25 or 43%	6 or 60%	127 or 77%	13 or 62%
30	31 or 53%	7 or 70%	142 or 86%	18 or 86%
35	35 or 60%	8 or 80%	145 or 87%	18 or 86%
50	43 or 74%	10 or 100%	165 or 99%	21 or 100%
75	51 or 88%	10 or 100%	166 or 100%	21 or 100%
Over 75	58 or 100%	10 or 100%	166 or 100%	21 or 100%

You can see how the failure rates start comparatively small then shoot up as the maximum price rise or decline increases. Ignoring the small sample counts for bear markets, the lowest failure rates occur in patterns with an upward breakout in a bull market. Half the patterns fail to rise more than about 27% under those conditions (bull/up).

Table 5.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. It takes between 12 and 30 days before price closes outside the trend-line boundary. That is an average, so your results will vary. Upward breakouts take longer than downward ones to pierce the trend line. This observation makes sense because the upper trend line has a steeper slope and prices are rising along with the trend line. For downward breakouts, the trend line slopes up but prices are falling.

Yearly position. Where in the yearly price range do ABWs occur? The breakout usually happens near the yearly high except in a bear market with a downward breakout, which shows more breakouts in the middle of the yearly range.

Yearly position, performance. Mapping performance onto the yearly price range, we find that the middle of the yearly price range performs better than the other ranges. The exception is for ABWs with downward breakouts in a bull market, but the sample size is small.

Throwbacks and pullbacks. Throwbacks and pullbacks occur about half the time, and it takes the stock between 9 and 13 days to return to the breakout price. However, when throwbacks and pullbacks occur, performance suffers, as Table 5.4 shows (except for ABWs in a bear market with upward breakouts).

Gaps. Most of the time, when a breakout day gap occurs, performance improves. The exception: the 51% rise in a bull market may come down with additional samples.

Partial rises and declines. Consider the bull market, down breakout column that has a good sample size. A partial rise correctly anticipated the downward breakout 74% of the time. When a partial rise occurs, prices drop 17% after the breakout, on average, meeting the average decline for ABWs.

Intraformation partial rises and declines. Intraformation partial rises and declines—those that occur within the pattern but with prices that continue crossing the pattern—occur, at most, 17% of the time. Thus, you should feel safe trading a partial rise or decline. They get you into the trade before the breakout and correctly predict the breakout direction (usually). Consult the Glossary if you are unfamiliar with a partial rise or decline.

Table 5.5 shows a frequency distribution of time to the ultimate high or low. Since the bear market samples are few, look at the two bull market rows. Over half (52%) of upward breakouts do not reach the ultimate high before 70 days. Half of all downward breakouts will bottom in the first month ($20 + 10 + 14 + 7 = 51\%$ in 28 days). If price reaches the ultimate high or low quickly, the return is usually below those patterns that take longer. Thus, the key to this

Table 5.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout ^a	Bull Market, Down Breakout	Bear Market, Down Breakout ^a
Formation end to breakout	30 days	16 days	14 days	12 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L2%, C11%, H88%	L20%, C20%, H60%	L10%, C32%, H58%	L14%, C48%, H38%
Percentage rise/decline for each 12-month lookback period	L37% ^a , C38% ^a , H38%	L10%, C26%, H20%	L20% ^a , C15%, H17%	L17%, C26%, H15%
Throwbacks/pullbacks	50%	70%	57%	52%
Average time to throwback/pullback ends	11 days	9 days	10 days	13 days
Average rise/decline for patterns with throwback/pullback	32% ^a	20%	-16%	-18%
Average rise/decline for patterns without throwback/pullback	42% ^a	13%	-19%	-24%
Performance with breakout gap	51% ^a	18%	-22%	-28%
Performance without breakout gap	37%	20%	-16%	-20%
Average gap size	\$0.29	\$0.24	\$0.17	\$1.77
Partial rise, downward breakout	N/A	N/A	97/131 or 74%	18/23 or 78%
Partial decline, upward breakout	7/20 or 35%	3/3 or 100%	N/A	N/A
Partial rise performance	N/A	N/A	-17%	-19%
Partial decline performance	43% ^a	13%	N/A	N/A
Intraformation partial rise failure	2/58 or 3%	1/10 or 10%	10/166 or 6%	0/21 or 0%
Intraformation partial decline failure	5/58 or 9%	0/10 or 0%	28/166 or 17%	2/21 or 10%

Notes: Minus sign means decline. N/A means not applicable.

^aFewer than 30 samples.

Table 5.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	10%	0%	20%	10%	10%	10%	0%	0%	0%	0%	40%
Bull market, up breakout	5%	10%	3%	5%	0%	9%	3%	2%	7%	3%	52%
Bear market, down breakout	14%	24%	10%	5%	10%	0%	0%	0%	0%	10%	29%
Bull market, down breakout	20%	10%	14%	7%	4%	6%	3%	2%	4%	3%	27%

chart is selecting patterns that have long rises or declines. Those would be upward breakouts in a bull market and downward breakouts in a bear market. This pattern also plays into the “trade with the trend” theory.

Notice the slight up move in ABWs in a bull market (both breakout directions) at day 42. Look for a trend change to occur about 6 weeks after the breakout.

Table 5.6 shows size-related statistics.

Table 5.6
Size Statistics

Description	Bull Market, Up Breakout ^a	Bear Market, Up Breakout ^a	Bull Market, Down Breakout	Bear Market, Down Breakout ^a
Tall pattern performance	50%	13%	-18%	-20%
Short pattern performance	30%	20%	-16%	-21%
Median height as a percentage of breakout price	18.60%	28.10%	23.31%	19.25%
Narrow pattern performance	35%	21%	-18%	-25%
Wide pattern performance	39%	15%	-16%	-15%
Median length	66 days	60 days	83 days	54 days
Average formation length	89 days	61 days	99 days	61 days
Short and narrow performance	27%	26%	-18%	-26%
Short and wide performance	33%	13%	-12% ^a	-8%
Tall and wide performance	45%	22%	-18%	-20%
Tall and narrow performance	73%	6%	-17% ^a	-20%

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 5.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout ^a	Bull Market, Down Breakout	Bear Market, Down Breakout ^a
Rising volume trend performance	38%	19%	-17%	-17%
Falling volume trend performance	38% ^a	18%	-17%	-26%
U-shaped volume pattern performance	48% ^a	18%	-17%	-19%
Dome-shaped volume pattern performance	39% ^a	20%	-17%	-23%
Neither U-shaped nor dome-shaped volume pattern performance	30% ^a	18%	-17%	-22%
Heavy breakout volume performance	38%	18%	-18%	-22%
Light breakout volume performance	37% ^a	14%	-16%	-18%

Note: Minus sign means decline.

^aFewer than 30 samples.

Height. Only bull markets with downward breakouts had enough samples to trust. Tall patterns perform better than short ones, by dropping 18% versus 16%, respectively. How do you use this finding? Compute the price difference between the highest high and the lowest low and then divide by the breakout price. If the result is higher than the median, the pattern is tall; lower than the median, the pattern is short.

Width. Most of the time, narrow patterns perform better than wide ones. I used the median length as the divider between wide and narrow.

Average formation length. The average ABW length varies from 61 to 99 days, or about 2 to 3 months long.

Height and width combinations. Even in a bull market with downward breakouts, the sample size is small. What we can say is that ABWs that are both short and wide have poor performance. Other combinations of height and width show better performance.

Table 5.7 shows volume-related statistics.

Volume trend. The volume trend shows little influence on postbreakout performance, especially when you take the sample size into consideration (large samples show no performance difference).

Volume shapes. Patterns in bull markets were either unchanged or performed better with U-shaped volume. In a bear market, patterns with dome-shaped volume did best.

Breakout volume. Heavy breakout volume helped performance across the board.

Trading Tactics

Table 5.8 lists trading tactics.

Measure rule. The measure rule for this formation is different from most other formations in that it is based on the lowest low in the pattern, not on the height of the formation (for downward breakouts only). Upward breakouts use the height from highest high to lowest low added to the highest high. The result is the target price. The Results Snapshot lists the “Percentage meeting price target” results.

Figure 5.5 shows two ascending broadening wedges and application of the measure rule. Both formations are well formed, but the first one has a tendency to rise slightly above the top trend line before beginning its downhill run. The chart marks the lowest low in each formation. The low serves as the expected minimum price move. The formation on the left shows prices reaching the target in mid-November just as prices turn around and rebound. The formation shown on the right has prices hitting the target when they plummet.

The reason for choosing the lowest low in the formation is simply for performance. Using the formation low as the target price allows 58% to 86% of the formations to achieve the target. I like to see performance numbers above 80%, so the 58% value is poor. As you look at the formation on the right, you can see how close the price target really is to the breakout price.

Table 5.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	For downward breakouts, use the lowest price in the formation as the minimum price move to expect. For upward breakouts, use the formation height added to the breakout price.
Wait for confirmation	Although this formation breaks out downward 73% of the time, it is best to wait for a downward breakout before shorting the stock.
Partial rise	If a stock shows a partial rise and begins to head back toward the lower trend line, consider selling short. A downward breakout follows a partial rise.

Wait for confirmation. This formation has a good track record of downward breakouts. However, 27% of the time prices break out upward. If you wait for a breakout before investing, you substantially increase your chances of a profitable trade. Once prices decline below the lower trend line, sell the stock short. Be prepared to cover the short as prices near the target, especially if the price approaches an area of support.

In Figure 5.5, the lowest formation low on the left is also a support point. Prices decline to the low in early August then head up and create the formation. Several months later, prices decline to that level and turn around. As prices decline after the second formation, the support level at 36 changes into resistance. During March, prices try to rebound but turn away near the 36 level.

Partial rise. An exception to the wait for breakout-confirmation rule is if a partial rise occurs. Looking again at Figure 5.5, you might conclude that there is a partial rise in the right formation. Wrong. I define a partial rise as when prices touch the lower trend line, move up, then return to the lower trend line. The figure shows prices starting from the *top* trend line, not the lower one. Figure 5.2 shows a properly identified partial rise.

If you detect a partial rise, consider shorting the stock. In 74% to 78% of the cases, a downward breakout follows a partial rise. Since you are buying before the breakout, your profits should be larger. When the stock declines to the lower trend line, move your stop-loss order to break even. If the stock should turn around at the trend line and head up, consider closing out your position.

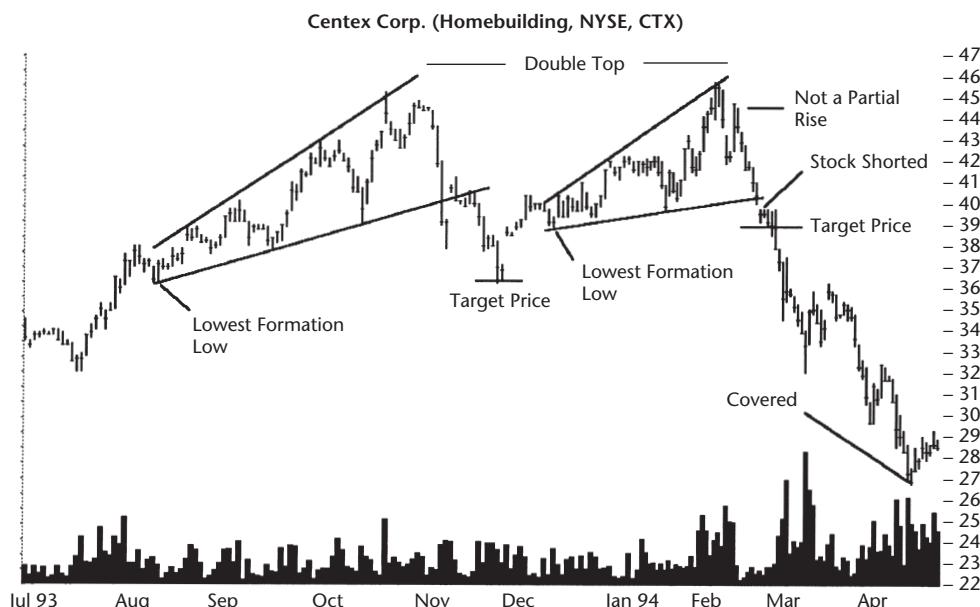


Figure 5.5 The measure rule as it applies to two ascending broadening wedges. Astute investors will recognize the twin peaks as a double top.

Sample Trade

Curtis works the night shift at a large bakery near his home. Working at night frees the daylight hours for other activities, such as sleep. Occasionally, he spots a situation such as that shown in Figure 5.5, one that makes the morning sun seem even brighter.

Each day before he hit the sack, he plotted the stock and watched with amusement as the first broadening wedge formed. When the second one appeared, he wiped the sleep from his eyes and took notice. It was not so much the broadening wedge that excited him; it was the wedge coupled with the double top. Together, they spelled an especially bearish situation, one that he was willing to shell out his hard earned money to trade.

The day after the stock closed below the lower trend line, Curtis sold the stock short and received a fill at 39.50. He used the double top measure rule to estimate his target price. With a top at 45.75 and a valley low of 36.25, the target turned out to be 26.75 (that is 45.75–36.25 subtracted from 36.25). He decided to place an order to cover the short at 27.13, just above the whole number and just above where everyone else was likely to place theirs. Then he went to bed.

Each day, before he closed the curtains to get some sleep, he would check on his stock. To him, it was pleasing to see the stock begin moving down immediately and sailing below the nearest broadening wedge target price (38.88). He lost some sleep worrying about the upward retrace in March, and wondered if the party were over.

Curtis hung in there and the stock eventually pierced the resistance zone and kept moving down. He hoped that the March resistance was just the corrective phase of a measured move down, which would place the target price at 22.50, well below his target at 27.13. He decided not to be greedy and lower his target.

On April 18 he was rudely awakened from his REM state by a phone call from his broker. The short was covered at his target price. He made about \$12 a share. That put a smile on his face, and he went back to his dream of telling his boss what he could do with the night shift.

For Best Performance

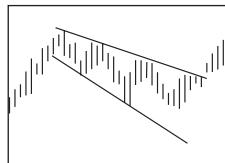
The following list includes tips and observations to select patterns that perform well. Refer to the associated table for more information.

- Use the identification guidelines to select a pattern—Table 5.1.
- Most broadening wedges breakout downward—Table 5.2.
- Trade with the market trend: Select wedges in a bear market with a downward breakout or in a bull market with an upward breakout—Table 5.2.

- The lowest failure rates occur with patterns in a bull market and upward breakout—Table 5.3.
- Throwbacks and pullbacks hurt performance. Look for overhead resistance or underlying support before trading—Table 5.4.
- Breakout day gaps usually help performance—Table 5.4.
- A partial rise or decline allows you to enter a trade sooner and usually predicts the breakout direction—Table 5.4.
- Look for a trend change 6 weeks after the breakout in a bull market—Table 5.5.
- Select tall or narrow patterns—Table 5.6.
- Pick patterns with heavy breakout volume—Table 5.7.

6

Broadening Wedges, Descending



RESULTS SNAPSHOT

Upward Breakouts

Appearance	Price follows two down-sloping trend lines that broaden out. Breakout is upward.	
Reversal or continuation	Short-term bullish reversal	
Bull Market		
Performance rank	12 out of 23	14 out of 19
Break-even failure rate	6%	11%
Average rise	33%	24%
Change after trend ends	-33%	-32%
Volume trend	Upward	Upward
Throwbacks	53%	61%
Percentage meeting price target	79%	58%
Surprising findings	Throwbacks hurt performance but breakout day gaps help. Tall patterns perform better than short ones. Patterns with a falling volume trend perform better.	

Downward Breakouts

Appearance	Same, but breakout is downward.	
Reversal or continuation	Short-term bearish, evenly split between reversal and continuation	
	Bull Market	Bear Market
Performance rank	11 out of 21	6 out of 21
Break-even failure rate	9%	2%
Average decline	20%	25%
Change after trend ends	47%	49%
Volume trend	Upward	Upward
Pullbacks	53%	66%
Percentage meeting price target	36%	32%
Surprising findings	Breakout day gaps help performance. Tall or narrow patterns perform better than short or wide ones. Patterns with a rising volume trend and U-shape do well.	

“What’s going on?” I asked, and saw my dog’s ears perk up. She was nearby when I started comparing the statistical results with the last edition. Everything changed. With 117 samples, the descending broadening wedge (DBW) acted as a consolidation, but no longer. The failure rate used to be 37%, but that included patterns breaking out in the wrong direction. The average rise was 46%, but with three times the number of samples and a different way of measuring, the average rise is now lower. Even the measure rule changed (that is, the percentage meeting the predicted price target). I used the formation height and added it to the breakout price to get the target. Now the formation top suffices.

I took my dog outside and played ball with her until I decided what to do. Although I had 300 samples, I needed more. So, I scoured the three databases I used for this book and found 464 patterns. Even so, splitting the numbers into bull and bear markets with up and down breakouts made the sample counts sometimes too small. The Results Snapshot shows the new numbers.

Tour

What does the formation look like? Figure 6.1 shows a well-formed descending broadening wedge. The stock begins rising in June 1994 and rounds over at the top a year later, in August. In September, the stock starts down in tight oscillations that broaden over time. A month later, two trend lines drawn across the highs and lows make the wedge shape clear.

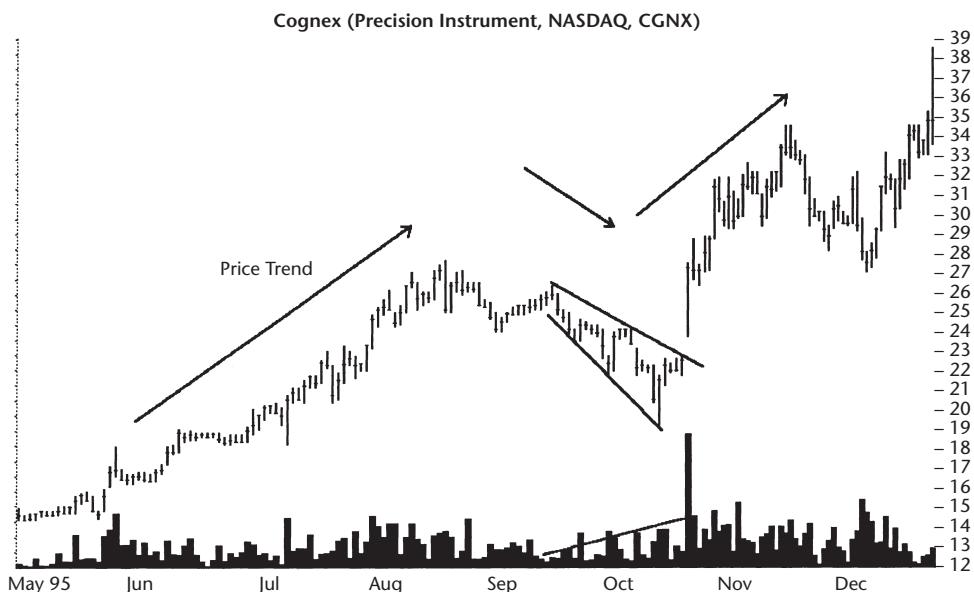


Figure 6.1 This descending broadening wedge acts as a consolidation of the upward trend. Two down-sloping trend lines outline price action that broadens out. Volume usually increases over time.

Volume at the start of the formation is well below normal. As the formation develops, volume is erratic, but trends higher. Computing the slope of the volume line using linear regression confirms the result; the slope is positive, which indicates volume is increasing.

In mid-October, prices gap up and shoot above the upper trend line. A breakout occurs. Volume spikes upward and continues to be heavy for several days as prices climb.

As you look at the chart, you may make an interesting observation. The price trend has three stages: The first stage is the long bull-run from June 1994 to August 1995, leading to a consolidation or retrace for 2 months (second stage), then prices move higher (third stage). In Figure 6.1, the broadening formation is a consolidation of the upward trend. Taken as a whole, it looks like the corrective phase of a measured move up chart pattern.

Contrast Figure 6.1 with Figure 6.2, where a descending broadening wedge acts as a reversal of the intermediate-term price trend. Prices peak in May 1992 and head lower. During August, prices begin to broaden out as they continue their downward spiral. By mid-September, a descending broadening wedge forms.

Volume is low at the start of the formation but does have a few spikes. Into September, volume moves up and becomes even more irregular. At the start of October, as prices begin moving up, volume recedes. Prices pierce the top trend line on negligible volume and head higher. A trend reversal is at hand.

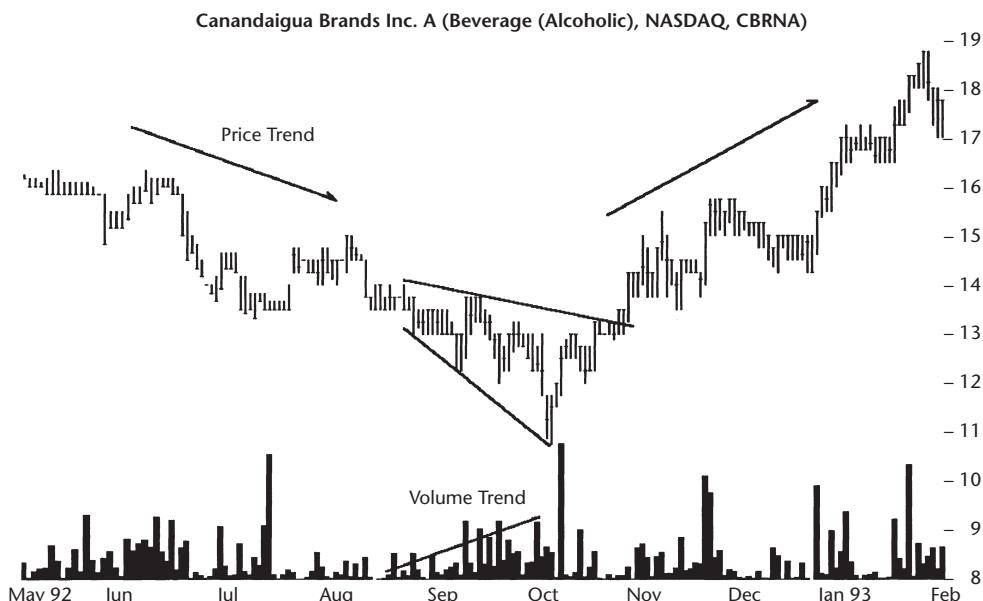


Figure 6.2 This descending broadening wedge formation acts as a reversal of the intermediate-term downward trend.

Identification Guidelines

Table 6.1 outlines the identification guidelines for the formation, and Figure 6.3 shows another example of a descending broadening wedge.

Shape and trend lines. The figure shows two down-sloping trend lines that encompass a series of oscillating prices. The two trend lines look like a megaphone, tilted down. The chart pattern is narrow at the start but gets wider

Table 6.1
Identification Characteristics

Characteristic	Discussion
Shape	The formation looks like a megaphone tilted down.
Down-sloping trend lines	Both trend lines slope downward, with the lower trend line having a steeper slope. Thus, the two lines broaden out over time. Neither trend line is horizontal.
Touches	The formation requires at least two distinct touches of each trend line.
Volume	Usually rises over the length of the formation. However, the volume pattern is not a prerequisite.
Breakout	Can be in any direction but 55% of the time, price breaks out opposite the prevailing price trend.
Partial decline	For a partial decline, prices must touch the top trend line and move down, turn around, then head higher without coming close to the lower trend line. An upward breakout usually follows a partial decline.

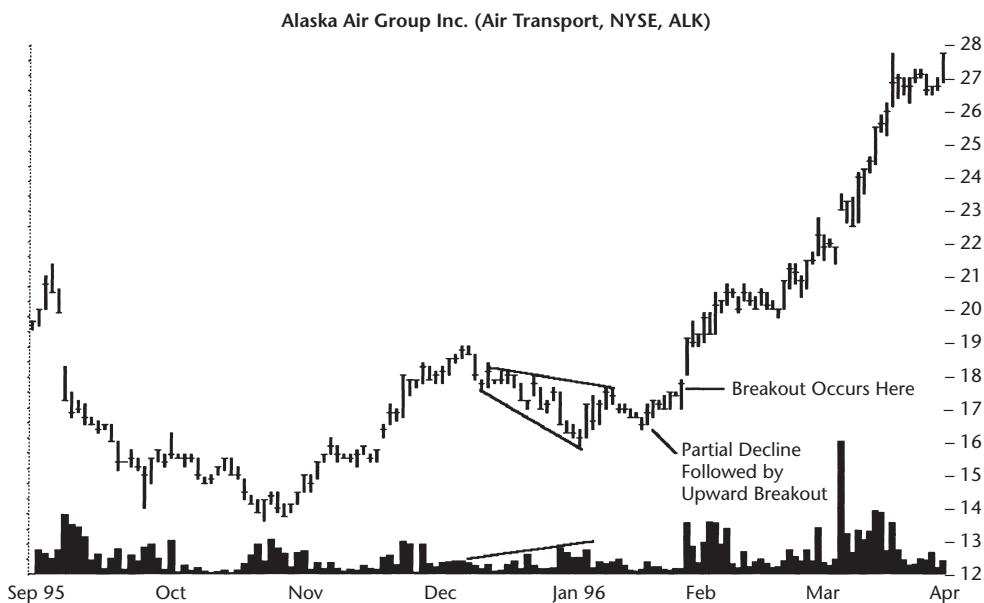


Figure 6.3 A descending broadening wedge as a consolidation of the rising trend. Volume moves higher even as prices head down. A partial decline signals that an upward breakout is coming.

over time. Neither trend line is horizontal, which is a key consideration since it differentiates this formation from other types of broadening formations.

Touches. There are a number of touches of the minor highs against the top trend line and the minor lows against the bottom one. There should be at least two distinct touches—two minor highs (top trend line) and two minor lows (bottom trend line)—to correctly define a broadening formation.

Volume. The slope of the volume trend is usually upward, unlike formations from the narrowing wedge family. The increasing volume pattern seems to catapult prices higher, sending them out the top of the formation. Volume at the breakout is usually high but need not be. As long as demand exceeds supply, prices will rise.

Breakout. Just over half the time, the formation acts as a reversal of the trend. Figure 6.2 shows an example. There is no easy way to differentiate a budding consolidation from a reversal. Only the breakout direction decides which is which.

Partial decline. The partial decline, such as that shown in Figure 6.3, often indicates an impending upward breakout. This works quite well for consolidations or reversals.

Why do these formations form? The chart pattern, as do many formations, illustrates the struggle between supply and demand. In Figure 6.3, after attempting to close the September gap in early December, the stock stalls. Buying enthusiasm dries up and the stock heads lower.

Volume sometimes rises as prices near whole dollar amounts and at 38%, 50%, or 62% retraces of the prior rise or fall. At those points, prices are somewhat more likely to stage a rebound. That is what occurs in Figure 6.3. Prices rise from a low of 13.63 to a high of 18.88. A 38% retrace of this range takes prices back to 16.88. This is quite close to 17, and you can see some hesitation in the stock at that level. However, once the stock approaches the 62% retrace level (15.63), the smart money knows the jig is up. They start buying heavily for the 5 days surrounding the new year. Prices halt their decline and move higher. However, sellers are not sitting by idly. They sell into the rally and prices eventually stall then drift lower, forming the partial decline highlighted in Figure 6.3.

As it happens, volume dries up as prices trace a V-shaped pattern. Low volume before an upward breakout reminds me of the calm before an approaching storm. Formations such as ascending and descending triangles commonly have low volume just before a breakout. Volume spikes upward the day prices close above the prior minor high (where the top trend lines ends in January). The momentum players take the upper hand, and prices surge higher on very high volume.

Focus on Failures

Look at Figure 6.4. Before the formation begins, prices are rising. Immediately after the breakout, prices are also rising. The breakout process starts on September 3 when prices punch through the top trend line. However, they do not

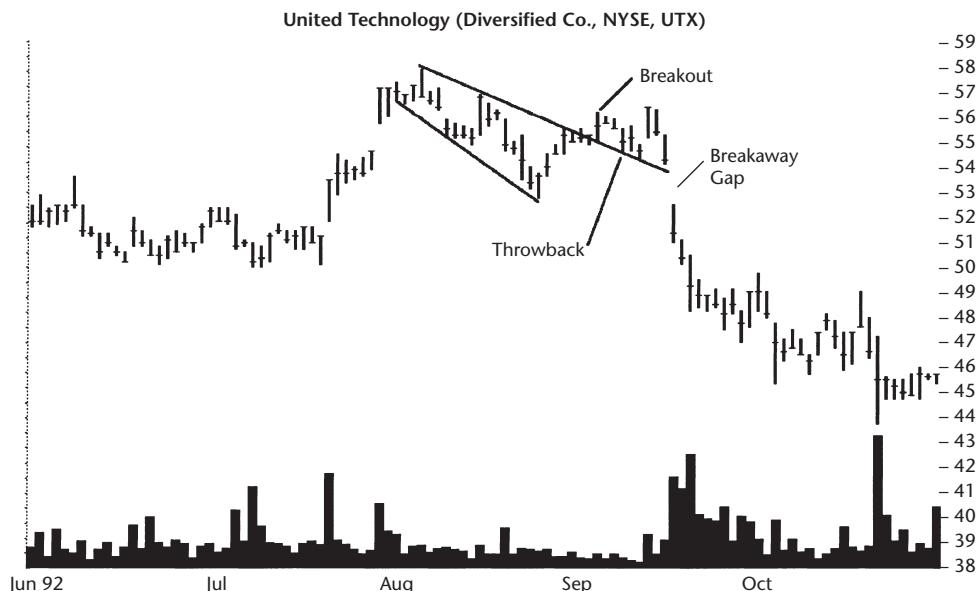


Figure 6.4 This formation is a failure according to the 5% rule. Prices fail to move up from the formation by more than 5% before moving down.

travel very far before returning to the trend line. I have extended the top trend line in Figure 6.4 to make the throwback clear. You see that prices ride along it until they gap down (a breakaway gap) on September 17.

This formation is what I call a 5% failure, that is, when prices breakout and move less than 5% before reversing. This type of failure is rare, occurring just 6% of the time.

Why these failures occur is unclear. Sometimes overhead resistance to an up move or underlying support to a downward move will halt prices and cause a failure. Traders change their minds about a stock and bolt for the exits, causing price to move in an unexpected direction.

Statistics

Table 6.2 shows general statistics for the descending broadening wedge.

Number of formations. I combed through the database searching for this pattern and found 464 from 1991 to late 2003 in about 500 stocks. This is not an easy pattern to find; it is somewhat rare. It appears most often in a bear market if you prorate the numbers.

Reversal or continuation. If you total the reversals, 255, and continuations, 209, we find that the chart pattern acts as a reversal 55% of the time. That is just above a fair coin toss, so if you expect prices to reverse after a

Table 6.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	270	97	47	50
Reversal (R), continuation (C)	157 R, 113 C	52 R, 45 C	21 R, 26 C	25 R, 25 C
R/C performance	30% R, 38% C	20% R, 28% C	-22% R, -19% C	-25% R, -25% C
Average rise or decline	33%	24%	-20%	-25%
Rises or declines over 45%	83 or 31%	16 or 16%	4 or 9%	2 or 4%
Change after trend ends	-33%	-32%	47%	49%
Busted pattern performance	24% ^a	43% ^a	-20% ^a	-25% ^a
Standard & Poor's 500 change	9%	-5%	-5%	-16%
Days to ultimate high or low	131	66	40	23

Note: Minus sign means decline.

^aFewer than 30 samples.

DBW, you may be mistaken. Always trade in the direction of the breakout and use stops in case prices reverse.

DBWs with upward breakouts that acted as continuations of the trend vastly outperformed those acting as reversals. For downward breakouts, reversals did slightly better in a bull market, but performance was unchanged in a bear market.

Average rise or decline. This pattern is a strong performer when the breakout is downward (meaning the numbers beat the averages for all chart pattern types). For the best performance, go long in a bull market with an upward breakout and go short in a bear market with a downward breakout. Those “trade with the trend” patterns have the lowest failures and highest gains.

Rises or declines over 45%. Upward breakouts do well in this category but downward breakouts suffer. In both directions, the numbers are about what one would expect.

Change after trend ends. Once prices reach the ultimate high or low, what happens? On average, prices tumble 33% from the high and rise almost 50% from the low. Thus, if you can determine when the trend changes, you can profit handsomely. Use whatever method floats your boat to spot the trend change, and then be patient. Prices drop faster than they rise, so keep that in mind.

Busted pattern performance. Another way to look at performance is to see how the pattern does after it fails to climb more than 5%. Unfortunately, the sample counts are too small to make the numbers reliable. For example, the 43% rise in a bear market uses only one sample. Another way to look at the numbers is to be thankful that the nonbusted patterns work so well.

Standard & Poor's 500 change. The index changes between rising 9% to declining 16%. You can see how the general market supported the DBW's average rise or decline.

Days to ultimate high or low. How long does it take to reach the ultimate high or low? The average varies from a high of 131 days to a short 23 days. If you consider that it takes 3 weeks to drop 25% and 4.5 months to rise 33%, you can guess that the decline is steeper.

Table 6.3 shows failure rates for this pattern. The lowest failures begin with a bear market and a downward breakout until the maximum price decline reaches 20%. At that point, the bull market, up breakout takes over and shows the lowest failure rate. Keep in mind that downward breakouts have comparatively few samples.

What do the numbers mean? Look at the bull market, upward breakout column. Six percent of the patterns fail to rise more than 5%. A quarter (26%) fail to rise at least 15%. Half fail to make a 30% rise. Bull markets with downward breakouts are the worst performers: Half of those fail to rise more than 15%.

By matching the breakout direction and the general market condition (bull/bear) to your DBW, you can get a sense of how your pattern will perform. Remember that each failure occurs when prices reverse direction and move

Table 6.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	15 or 6%	11 or 11%	4 or 9%	1 or 2%
10	46 or 17%	25 or 26%	12 or 26%	3 or 6%
15	70 or 26%	34 or 35%	24 or 51%	10 or 20%
20	95 or 35%	45 or 46%	31 or 66%	18 or 36%
25	120 or 44%	55 or 57%	34 or 72%	28 or 56%
30	141 or 52%	65 or 67%	37 or 79%	33 or 66%
35	161 or 60%	74 or 76%	40 or 85%	40 or 80%
50	196 or 73%	82 or 85%	43 or 91%	49 or 98%
75	228 or 84%	91 or 94%	47 or 100%	50 or 100%
Over 75	270 or 100%	97 or 100%	47 or 100%	50 or 100%

more than 20%. Thus, if you buy a stock and it moves up 5% before reversing, failure to sell may mean incurring a large loss or an extended recovery time.

Table 6.4 shows statistics related to breakout and postbreakout performance of the DBW.

Formation end to breakout. It takes at least 2 weeks, and sometimes 3, between the end of the pattern and the actual breakout. During that time, prices may cross the pattern and approach the opposite trend line before reversing.

Yearly position. Dividing the yearly price range into thirds for each DBW, where does the breakout occur most often? Upward breakouts appear most often in the middle of the yearly price range, but downward breakouts occur near the yearly low.

Yearly position, performance. Mapping performance over the yearly price range, we find that the results show no consistent trend. In a bear market, we can say that the worst performance comes from patterns near the yearly high.

Throwbacks and pullbacks. Bear markets show a return to the breakout price a bit more frequently than do patterns in a bull market. This finding suggests that the breakout in a bull market is stronger than in a bear market. When a throwback or pullback occurs, it takes between 9 and 11 days, on average, to complete the return to the breakout price.

Most of the time, a throwback/pullback hurts performance. The exception is for patterns in bull markets with downward breakouts, but the sample count is small.

Gaps. Breakout day gaps help performance under all market conditions and breakout directions.

Table 6.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	17 days	16 days	22 days	16 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L35%, C37%, H28%	L36%, C41%, H23%	L47%, C42%, H11%	L66%, C32%, H2%
Percentage rise/decline for each 12-month lookback period	L34%, C34%, H34%	L27%, C29%, H15%	L23%, C17%, H26%	L24%, C26%, H20%
Throwbacks/pullbacks	53%	62%	53%	66%
Average time to throwback/pullback ends	10 days	9 days	10 days	11 days
Average rise/decline for patterns with throwback/pullback	30%	20%	-24% ^a	-23%
Average rise/decline for patterns without throwback/pullback	37%	33%	-16% ^a	-29%
Performance with breakout gap	44%	38% ^a	-38% ^a	-32% ^a
Performance without breakout gap	32%	21%	-17%	-24%
Average gap size	\$0.30	\$0.37	\$0.97	\$1.39
Partial rise, downward breakout	N/A	N/A	5/35 or 14%	6/13 or 46%
Partial decline, upward breakout	168/193 or 87%	66/92 or 72%	N/A	N/A
Partial rise performance	N/A	N/A	-19% ^a	-13% ^a
Partial decline performance	35%	26%	N/A	N/A
Intraformation partial rise failure	27/270 or 10%	10/97 or 10%	9/47 or 19%	7/50 or 14%
Intraformation partial decline failure	12/270 or 4%	2/97 or 2%	2/47 or 4%	3/50 or 6%

Notes: Minus sign means decline. N/A means not applicable.

^aFewer than 30 samples.

Partial rises and declines. Figure 6.3 shows an example of a partial decline. Prices touch the top trend line then head toward the lower trend line, curl around, and stage an upward breakout. In a bull market, a partial decline precedes an upward breakout 87% of the time. Partial rises do not fare as well because of the low sample counts.

When a partial rise or decline happens, does performance suffer? Yes and no. For upward breakouts, patterns having a partial decline show improved performance. For downward breakouts, a partial rise hurts the postbreakout decline, but that may change with more samples.

Intraformation partial rises and declines. Intraformation partial rises and declines look like normal partial rises and declines, but prices continue crossing the pattern instead of breaking out. They look like small loops attached to the trend line. The good news is that they do not happen often. Thus, you can trade on a partial rise or decline and get a better price (than the breakout), without worrying about whether a breakout will follow immediately (without prices crossing the formation again). It usually does, at least 80% of the time.

Table 6.5 shows a frequency distribution of time to the ultimate high or low. Notice how often prices reverse trend in the first few weeks. DBWs in a bull market with downward breakouts show 58% bottoming in the first 3 weeks. DBWs in a bull market with upward breakouts show the fewest trend reversals: 27% in 3 weeks. They also show the most after 70 days: 49% are still looking for the ultimate high.

Notice the slight rise in bear market patterns changing trend 35 to 42 days after the breakout. I have seen this rise in other bearish chart patterns, too (and some bullish ones like downward breakouts at day 49). Be prepared to take profits 5 to 6 weeks after the breakout.

Table 6.6 shows statistics related to DBW size.

Table 6.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	29%	11%	7%	2%	6%	8%	3%	0%	3%	3%	27%
Bull market, up breakout	15%	6%	6%	7%	3%	3%	3%	3%	4%	2%	49%
Bear market, down breakout	36%	14%	12%	8%	4%	8%	4%	2%	4%	2%	6%
Bull market, down breakout	30%	17%	11%	4%	4%	4%	6%	0%	0%	4%	19%

Table 6.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout ^a	Bear Market, Down Breakout ^a
Tall pattern performance	43%	30%	-21%	-28%
Short pattern performance	26%	20%	-20%	-23%
Median height as a percentage of breakout price	21.77%	31.23%	22.40%	35.49%
Narrow pattern performance	34%	21%	-25%	-26%
Wide pattern performance	33%	27%	-14%	-23%
Median length	52 days	47 days	55 days	52 days
Average formation length	64 days	54 days	62 days	56 days
Short and narrow performance	29%	19%	-25%	-24%
Short and wide performance	22%	22% ^a	-13%	-17%
Tall and wide performance	41%	30%	-16%	-26%
Tall and narrow performance	49%	29% ^a	-26%	-33%

Note: Minus sign means decline.

^aFewer than 30 samples.

Height. Tall patterns perform better than short ones across the board. To use this finding, compute the pattern's height from the highest high to the lowest low in the pattern and divide by the breakout price. If the result is higher than the median, then you have a tall pattern; lower than the median, your pattern is short. Try to trade tall patterns for the best performance.

Width. Narrow patterns usually perform better than wide ones. The lone exception is from DBWs in a bear market with upward breakouts. I used the median length to separate narrow patterns from wide ones.

Average formation length. The average length ranged from 54 to 64 days. Patterns in a bull market were slightly longer than were those in a bear market.

Height and width combinations. Combining the traits, we find that tall and narrow patterns usually beat the other combinations. Look at the bull market, up breakout statistics. Tall patterns climb 43% and narrow patterns climb 34%. When you combine the results, we find that tall and narrow patterns climb 49%—higher than they scored individually.

Avoid short and wide patterns because they usually perform worse than the other combinations.

Table 6.7 shows volume-related statistics.

Volume trend. Does a rising or falling volume trend over the life of the chart pattern suggest better or worse performance after the breakout? For upward breakouts, performance improves when the pattern has a falling

Table 6.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Rising volume trend performance	33%	22%	-24% ^a	-26% ^a
Falling volume trend performance	35%	27%	-17% ^a	-22% ^a
U-shaped volume pattern performance	29%	27%	-27% ^a	-26% ^a
Dome-shaped volume pattern performance	35%	24%	-16% ^a	-25% ^a
Neither U-shaped nor dome-shaped volume pattern performance	38%	20% ^a	-20% ^a	-24% ^a
Heavy breakout volume performance	38%	23%	-22%	-25%
Light breakout volume performance	28%	25%	-14% ^a	-27% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

volume trend. After a downward breakout (beware: low sample counts), patterns with a rising volume trend outperformed.

Volume shapes. DBWs with U-shaped volume tended to outperform the other volume shapes. The one exception is for DBWs with upward breakouts in a bull market. They did better with a random volume shape.

Breakout volume. Performance split according to market direction. In a bull market, DBWs with heavy breakout volume performed substantially better. In a bear market, DBWs with light breakout volume performed marginally better.

Trading Tactics

Table 6.8 outlines trading tactics for descending broadening wedges.

Measure rule. For upward breakouts, the price target is the top of the pattern. That sounds like it would be easy to reach, but only 79% reach it in a bull market and 58% in a bear market. Downward breakouts do not have a measure rule that works. You might try taking the height of the pattern (highest high minus lowest low) and subtracting the difference from the lowest low. That only works about a third of the time (see the Results Snapshot, “Per-

Table 6.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	For upward breakouts, use the highest high. For downward breakouts, use the pattern height subtracted from the lowest low in the pattern. However, that strategy works only 32% to 36% of the time.
Wait for confirmation	Wait for prices to <i>close</i> beyond the trend lines before placing a trade.
Partial decline	If a stock shows a partial decline from the top trend line and begins to head back up, consider going long. An upside breakout most often follows a partial decline.
Trade the trend lines	If the formation is especially broad, buy at the lower trend line and sell at the top. If the stock executes a partial rise and begins falling, close out the position as it may break out downward. Alternatively, sell short at the top trend line once prices are heading down and close the position after it rebounds off the lower trend line.
Stops	For intraformation trading, place a stop on the other side of the trend line, just to catch an adverse breakout. Move the stop as prices cross the formation. Pick areas showing support or resistance.

centage meeting price target”). Perhaps a better method is to look for underlying support and assume prices will stop there.

Wait for confirmation. If you are considering buying the stock shown in Figure 6.5, it is not obvious at first that a broadening wedge is forming. Over time, once enough minor highs and lows appear, draw the two trend lines. Then, it becomes a matter of waiting for a breakout. Since most descending broadening wedges break out upward, that is the way to trade it. Wait for prices to close above the top trend line before buying.

Partial decline. An exception to the rule about waiting for confirmation is the partial decline. As prices move down from the top trend line, watch them closely. If prices reach a support zone and begin moving up, buy because that is a partial decline, and it usually signals an impending upward breakout. Place a stop 0.15 below the curl low, just in case.

Trade the trend lines; stops. If the formation is especially wide, try an intraformation trade. Buy at the lower trend line and sell at the top one, or sell short at the top and cover near the bottom. With the trend lines sloping downward, a short sale will be more profitable. Use a stop 0.15 beyond the appropriate trend line in case of an adverse breakout. Adjust your stop as prices move in your favor. Place them 0.15 below a support zone (long trades) or above a resistance area (short trades).

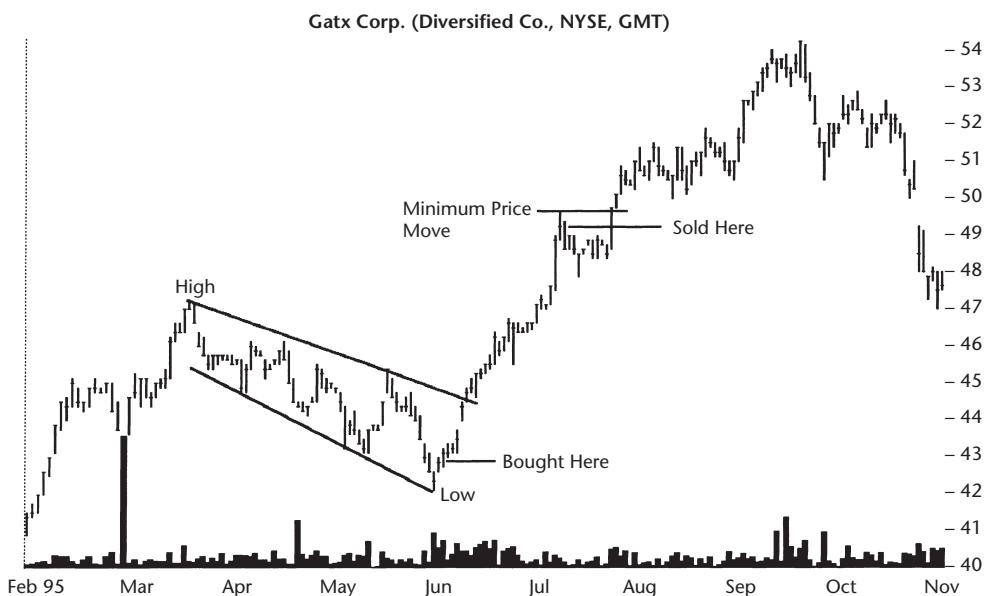


Figure 6.5 As described in the Sample Trade, Mary used the formation height projected upward as a price target. For maximum profit, she should have raised her stop-loss price until the stock triggered a sale.

Sample Trade

“Do you feel lucky, punk?” Mary says as she looks at her computer screen (Figure 6.5). She just finished watching a Dirty Harry movie and is feeling ornery.

She decides to buy the stock as an intraformation trade once it rebounds off the lower trend line. When it is clear the stock is climbing again, she pulls the trigger and receives a fill at 43. Immediately, she places a stop-loss order 0.15 below the lower trend line, at a price of 42. If things go wrong, she only will lose 3%. Then she waits.

The stock cooperates by moving higher each day. Soon it is at the top trend line, and she waits for it to ricochet off the line and begin heading down. It does not. Prices close above the top trend line, signaling an upward breakout. She calculates the price target, 49.63, using the formation height added to the breakout price, and that is where she places her sell order. She raises her stop-loss point to 44, slightly below the minor low in mid-April.

As the stock advances each day, she keeps wondering why it has not paused. She shrugs her shoulders and does not worry about it. When the stock makes a new high at 47.38, she raises her stop to 45.25, slightly below the two minor highs in late April and mid-May.

In a burst of energy, the stock zooms up over a 2-day period and reaches her sell point. The stock sells at the high for the day, 49.63. She has cleared over \$6 a share on her trade. Even better, the stock moves lower for several days, reinforcing her sell decision.

It turns out that she sold too soon, but she does not care. She spots another promising formation in a stock she has been following for quite some time. She leans back in her chair, smiles and mumbles something about luck, then runs to the VCR and plugs in another Dirty Harry movie.

This trade shows the problem with placing a sell order at the price target. Yes, Mary sold at a good price, but if she had used the stop-loss order to take her out, she probably would have made more. To let your profits run, raise the stop price, placing it slightly below the prior minor low, and raise it to the next higher minor low when prices climb to a new high. Eventually, prices will decline and your position will be sold. However, this gives the stock every opportunity to continue making new highs.

For sophisticated traders, compute the average daily trading range of the stock over the prior month and set a stop no closer than 1.5 times the average. For example, if the stock has a daily trading range of \$2, set the stop no closer than \$3 below the current daily low. If a minor low is \$2.25 below the current low, it is too close to use as a stop-loss point. Select one farther away. This technique allows the stock room to fluctuate without you being stopped out.

For Best Performance

The following list includes tips and observations on selecting patterns for better performance. Refer to the associated table for more information.

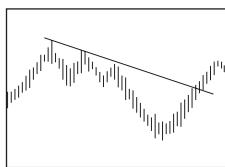
- Use the identification guidelines to select your pattern—Table 6.1.
- Trade with the trend: Select patterns with upward breakouts in a bull market, downward breakout in a bear market—Table 6.2.
- Patterns in a bull market with an upward breakout have the lowest failure rates for extended moves—Table 6.3.
- Bull markets throw back/pull back less often than do bear markets—Table 6.4.
- Throwback or pullbacks hurt performance—Table 6.4.
- Breakout day gaps help performance—Table 6.4.
- A partial decline in a bull market correctly predicts an upward breakout 87% of the time and performance improves, too—Table 6.4.
- In a bear market, look for a trend change 5 or 6 weeks after the breakout, 7 weeks in a bull market—Table 6.5.

114 Broadening Wedges, Descending

- Select patterns that are both tall and narrow. Avoid those that are short and wide—Table 6.6.
- Patterns with a falling volume trend perform best when the breakout is upward. A rising volume trend does well for downward breakouts—Table 6.7
- Patterns with U-shaped volume usually perform best postbreakout—Table 6.7.

7

Bump-and-Run Reversal Bottoms



RESULTS SNAPSHOT

Upward Breakouts

Appearance	Looks like a frying pan with the handle on the left following a trend line down until a large decline ensues. The breakout is upward.	
Reversal or continuation	Short-term bullish reversal or continuation	
	Bull Market	Bear Market
Performance rank	8 out of 23	3 out of 19
Break-even failure rate	2%	1%
Average rise	38%	31%
Change after trend ends	-29%	-34%
Volume trend	Upward	Upward
Throwbacks	59%	73%
Percentage meeting price target	68%	64%
Surprising findings	Throwbacks hurt performance. Tall and wide patterns perform better than short and narrow ones.	
See also	Cup with Handle; Rounding Bottoms	

More than a year after I discovered the bump-and-run reversal (BARR) top, I decided to look for its complement: the BARR bottom. The reasoning is simple. Many formations, such as double tops, ascending triangles, and triple tops all have bottom versions. Why not the bump-and-run reversal? It never dawned on me to look for the formation before then. As I searched through the data looking for candidates, I was skeptical that the formation added real value. Some looked like cup-with-handle formations with the handle coming first, whereas others looked like rounding bottoms. Only after I compiled the statistics did my thoughts change.

The pattern is a strong performer with postbreakout gains between 31% and 38%. The break-even failure rate is small, coming in at 2% or less. The pattern also has a few surprises but ones we have seen before: A throwback hurts postbreakout performance, and patterns both tall and wide perform better than short and narrow ones.

Tour

What is a bump-and-run reversal, anyway? If I had to name this formation independent of all others, I would probably call it the frying pan or spoon formation because that is what it looks like. However, the formation is just a BARR top flipped upside down, so I call it a BARR bottom. I guess a more accurate description is an inverted BARR.

Why do BARR bottoms occur? Like the top version, the BARR bottom is a study of momentum. Consider the chart shown in Figure 7.1 on a weekly scale. Since late 1991, the stock was moving sideways—a trading range between 6.50 and 11. However, that changed during the last week of October 1993, when the stock moved up and closed higher than the prior week. At first, this did not seem unusual since many weeks close higher than the prior week, but this one was different. It initiated a long climb to the highs of early January. On the highest volume that the stock had seen in years, the stock hit a new high of 14.38 during the week of January 14, 1994. Volume began tapering off, although it was still high, and prices tagged a much smaller peak during the week of March 25, at 14. The two minor highs, one in mid-January and another in late March, formed the basis of a down-sloping trend line.

As weekly volume trended lower, so did enthusiasm for the stock. Eventually, bullish sentiment could not sustain the high price and the stock collapsed. As it headed down, volume continued to taper off. The upward momentum experienced during the rise to the highs in January was now working against the stock. Over the course of a year, the stock gave back all its gains and, by mid-February 1995, it started sinking to new lows.

High volume a month later was key as it signaled a turning point. A week later, again on high volume, the stock closed higher by over 10%. The upward move had begun but soon stalled out. The stock moved sideways for another 2

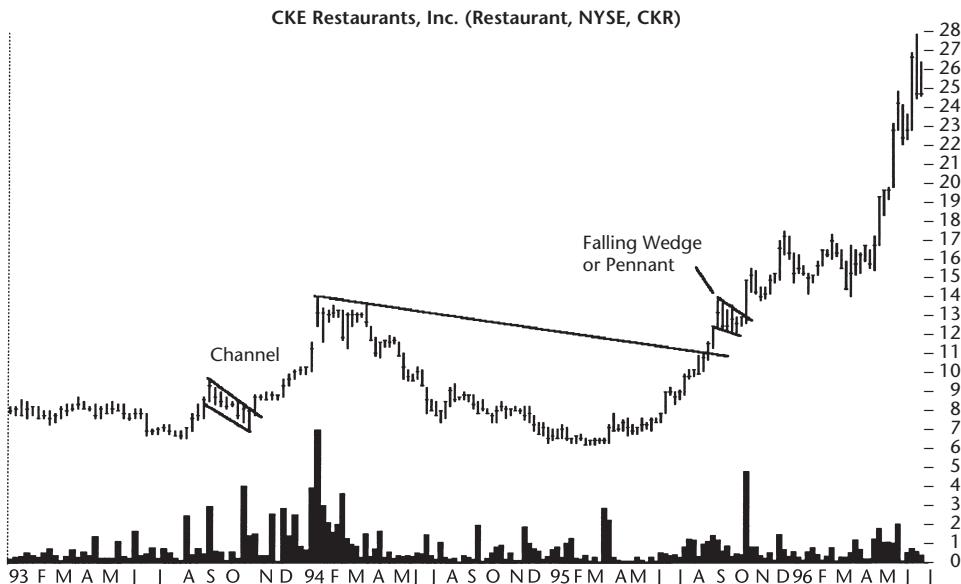


Figure 7.1 Bump-and-run reversal bottom. Upward momentum propels prices higher during late 1993 then stalls at the start of the new year. Volume tapers off and prices follow. A cup-with-handle formation or rounding bottom takes shape and prices climb 350% from the 1995 lows. A channel appears in late 1993 and a falling wedge in late 1995.

months, gathering strength for the uphill run. Then it took off, not jumping up, but slowly moving higher, almost week after week. When the stock reached the trend line in mid-August, it was clear that it had executed a massive rounding bottom—a turn in the trend that signaled higher prices.

The stock pushed through the trend line on relatively high volume, then paused for a month, and formed a falling wedge or pennant. Following that, on very high volume, prices jumped up to new highs, but this did not last very long as the stock entered a consolidation phase just below 18. There it stayed for many months before the stock jumped up and ran still higher. By late June, the stock had touched 28.75, a rise of about 140% from the breakout, and 350% from the low.

Many would recognize this formation as a cup-with-handle, and indeed it is. But it is also a BARR bottom, as a cup does not depend on a down-sloping trend line and a larger handle on the left such as that shown in Figure 7.1. Whatever you call the formation, the result is still the same: Prices move higher.

Identification Guidelines

Table 7.1 shows a host of characteristics that correctly identify a BARR bottom. Figure 7.2 illustrates the various characteristics outlined in Table 7.1.

Table 7.1
Identification Characteristics

Characteristic	Discussion
Arithmetic scale	Use the arithmetic chart, not a semilogarithmic one.
Frying pan shape	The formation looks like a frying pan with the handle on the left sloping downward to the pan. After a deepening decline that takes prices into the pan base, prices level out and eventually soar out the right side.
Down-sloping top trend line, lead-in height	The handle forms a down-sloping trend line that approximates 0–45 degrees (but this varies with scaling). The handle portion of the formation is called the <i>lead-in</i> as it leads in to the bump phase. The lead-in height measures from the trend line drawn across the highs to the low (not necessarily the lowest low) of the formation. Select the widest distance from the trend line to the low, measured vertically, in the first quarter of the formation. The duration of the lead-in should be at least a month, but varies depending on the situation.
Bump phase	The bump is analogous to the frying pan base. The down-sloping trend line deepens to 60 degrees or more. Prices drop rapidly then level out and turn around, usually forming a rounded turn. After the turn, prices move up and sometimes pause at the 30-degree trend line before moving higher. The bump height, as measured from the trend line to the lowest low, should be at least twice the lead-in height. Strict adherence to this rule is not required, but it serves as a good general guideline.
Uphill run	Once prices lift out of the bump phase, they begin an uphill run that carries prices higher.
Volume	Volume is typically high during the three critical parts of the formation: formation start, bump start, and upward breakout. However, high volume is not a prerequisite.

Arithmetic scale. Use the arithmetic scale, not a semilogarithmic one, because the semilog scale distorts vertical distances.

Frying pan shape. Overall, the formation appears as a frying pan. The handle, or lead-in phase, forms a trend line that slopes downward at an angle of about 30 degrees to 45 degrees, more or less. Draw the trend line along the daily high prices as the line signals a buying opportunity once pierced.

Unlike BARR tops, sometimes *horizontal* trend lines in the lead-in phase contain valid BARR bottoms. Such situations are rare, though, and should be avoided. The trend lines in this study are higher on the left and slope downward—these give the best performance.

Down-sloping top trend line, lead-in height. Calculate the lead-in height once a trend line forms. Do this by finding the widest distance from the

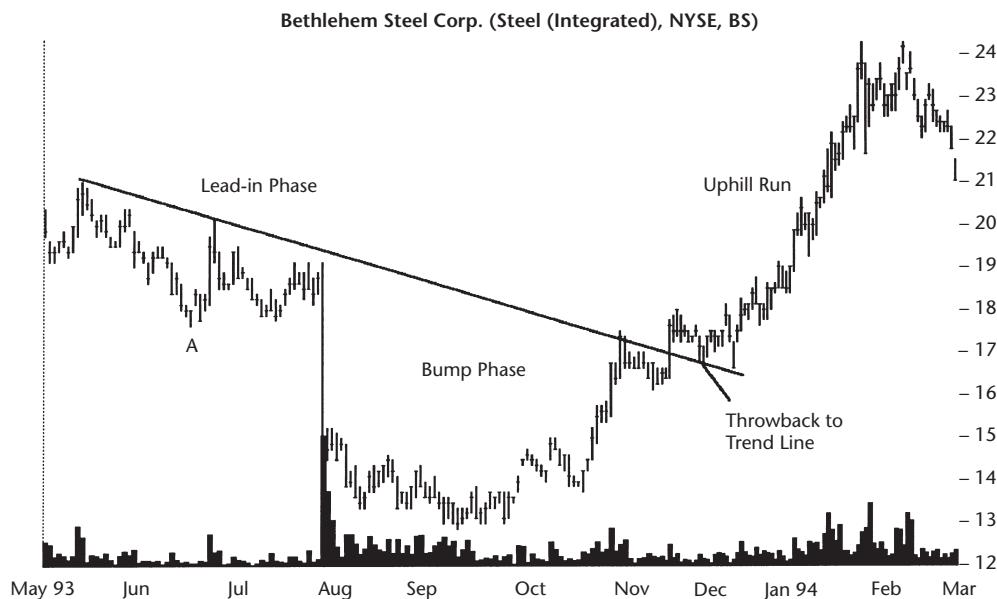


Figure 7.2 Various components of a bump-and-run reversal bottom. A price drop-off follows the lead-in phase where prices move in a narrow range. The bump forms, then rounds upward as prices leave the bowl and move higher on the uphill run to new highs.

trend line to the daily low, measured vertically, in the first quarter of the formation. In Figure 7.2, the lead-in height calculation uses prices on June 16 (point A). On that day, the low is 17.63 and the trend line has a value of about 20.38. Thus, the lead-in height is the difference between these two, or 2.75. The minimum bump height uses the lead-in height, so the calculation is important.

Bump phase. After the lead-in phase comes the bump phase. Prices decline rapidly, although not as rapidly as that shown in Figure 7.2, and form a new trend line that slopes down at about 45 degrees to 60 degrees or more. Volume is noticeably higher at the start of the bump, but selling pressure overtakes buying demand and the truth finally comes out: There are problems with the company. The stock continues down as the smart money and the momentum players leave the stock in droves.

Eventually, downward pressure abates allowing the stock to recover. It rounds over and touches the original 30-degree trend line. Here, it may move lower for a while or it may sail right through the trend line. Over half of the time, prices start moving higher, then throw back to the trend line before continuing up.

Uphill run; volume. Volume picks up as prices break out of the formation and move higher. Rising prices characterize the uphill run phase.

Focus on Failures

Figure 7.3 shows what a BARR bottom failure looks like. The stock starts its ascent in June 1994 when it hits a low of 24.50 (not shown). Although the rise is not a straight-line path, prices reach a new high a year later (the highest peak on the left). Then it is downhill from there. The decline is quite orderly with peaks that follow the trend line down. During early September, however, prices drop rapidly on high volume as the bump forms. Prices quickly reach a low of 33.63 before rebounding. Having sliced through the trend line and moving just a bit higher, prices throw back and follow the trend line lower. Prices following a trend line lower are not unusual, but what is unusual is that prices do not continue their climb. Instead, they drop off the end of the trend line and plummet. By late June, they slip to under \$20 a share, less than half what they were at the high.

Why did the BARR fail? This formation is not a perfect example of a BARR bottom, but few formations are. In this case, the bump height is less than twice the lead-in height. However, the height depends on how the trend line is drawn. Drawing a trend line beginning from the peak at point A, the bump to lead-in height is about 2 to 1. The new trend line also touches the peak at B. So, if you wait for prices to move above the new trend line before

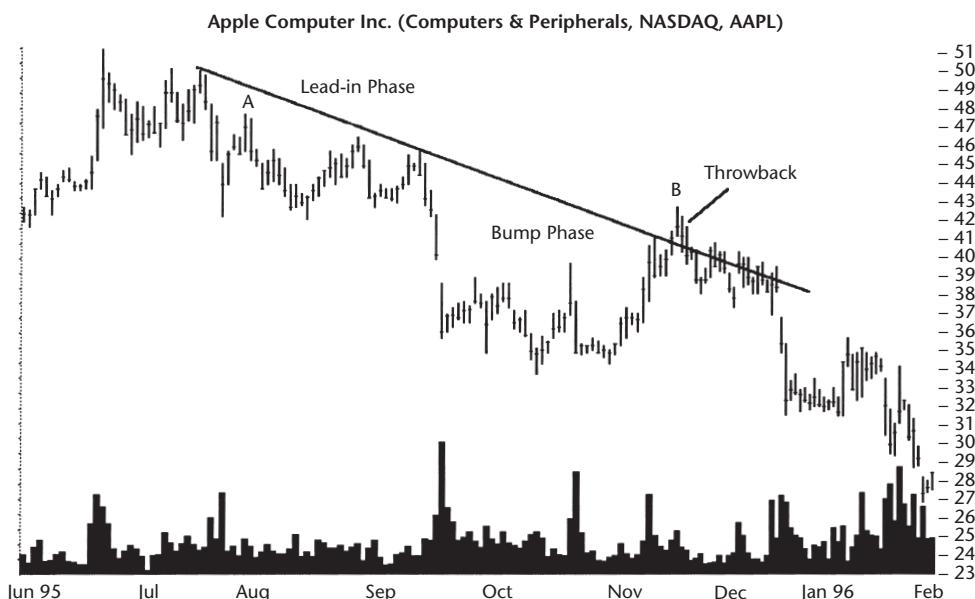


Figure 7.3 A bump-and-run reversal bottom failure. The bump height is less than twice the lead-in height, a clue that the pattern is not worth investing in. A trend line drawn from point A to B (not shown) satisfies the bump to lead-in height guideline. An investor waiting for prices to move above the new trend line would not buy this stock.

investing, you would not purchase this stock. Sometimes it is wise to draw alternative views just to see how the chart pattern behaves.

Statistics

Table 7.2 shows general statistics for BARR bottoms.

Number of formations. I found 532 patterns in the stocks I looked at using 500 stocks from mid-1991 to mid-1996 and another batch surrounding the 2000 to 2002 bear market with a few others sprinkled between those ranges. Most were found in a bull market because the duration was several times the length of the bear market.

Reversal or continuation. Technically the pattern acts as a reversal, but that is because six more patterns reverse than consolidate. Reversals perform better than continuations, however.

Average rise. The average rise is a strong 38% in a bull market and 31% in a bear market, beating the average rise of 36% and 25%, respectively, of other chart pattern types.

Rises over 45%. Continuing the strong showing, 25% to 34% of the patterns I looked at posted rises over 45%. As you would expect, the BARR pattern performs better in a bull market than a bear one.

Change after trend ends. What happens after the uptrend ends? Prices decline between 29% and 34%, giving back most of the gain from the way up. The larger decline is in a bear market, as one might guess.

Table 7.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout
Number of formations	412	120
Reversal (R), continuation (C)	203 R, 209 C	66 R, 54 C
R/C performance	40% R, 36% C	31% R, 30% C
Average rise	38%	31%
Rises over 45%	142 or 34%	30 or 25%
Change after trend ends	-29%	-34%
Busted pattern performance	-28% ^a	-24% ^a
Standard & Poor's 500 change	14%	-7%
Days to ultimate high	186	109

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 7.3
Failure Rates

Maximum Price Rise (%)	Bull Market, Up Breakout	Bear Market, Up Breakout
5 (breakeven)	8 or 2%	1 or 1%
10	42 or 10%	7 or 6%
15	84 or 20%	26 or 22%
20	124 or 30%	39 or 33%
25	169 or 41%	54 or 45%
30	193 or 47%	69 or 58%
35	223 or 54%	79 or 66%
50	289 or 70%	95 or 79%
75	339 or 82%	108 or 90%
Over 75	412 or 100%	120 or 100%

Busted pattern performance. Few busted patterns occur, so the performance numbers are not solid. Still, they show decent declines. The problem with trading a busted pattern is that a short throwback looks like a busted pattern. Should prices rebound, as they do in most cases, your short position will end in a loss. Trade busted patterns carefully.

Standard & Poor's 500 change. The index had average gains of 14% in a bull market, and it lost 7% in a bear market. The influence of the general market on the average rise is less than what I would have expected. Between the two markets, there was a 21 percentage point swing in the S&P but only a 7% difference between the average rises.

Days to ultimate high. Patterns in a bull market take more than 6 months (186 days) to reach the ultimate high but about 3.5 months in a bear market. This timeline means the rises in a bear market are steeper but they do not climb as far.

Failure rates appear in Table 7.3 and they show respectable results. Few patterns flame out before climbing at least 5%—in a bull market 2% fail and in a bear market 1% fail. The failure rate increases as the maximum price rises. Half the patterns in a bull market will climb less than 35%, and half in a bear market will top out before rising 30%. For larger moves (over 10%), bull market patterns show lower failures.

How do you use this table? Let me give you an example. Say your cost of trading is 5% and you want to make a 30% profit for a total of 35%. How many patterns will fail to rise at least 35%? Answer: 54% in a bull market and 66% in a bear market. Between half and two-thirds of the trades you make will fail to meet your goal. That means your winners will have to perform dramatically to compensate for all the losers you will have.

Table 7.4 shows breakout- and postbreakout-related statistics.

Table 7.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout
Formation end to breakout	4 days	3 days
Percentage of breakouts occurring near the 12 month low (L), center (C), or high (H)	L40%, C41%, H19%	L36%, C53%, H12%
Percentage rise for each 12-month lookback period	L41%, C41%, H29%	L39%, C27%, H32% ^a
Throwbacks	59%	73%
Average time to throwback ends	11 days	7 days
Average rise for patterns with throwback	37%	28%
Average rise for patterns without throwback	40%	39%
Performance with breakout gap	46%	25% ^a
Performance without breakout gap	37%	33%
Average gap size	\$0.26	\$0.18
Number of dual bumps	20%	21% ^a

^aFewer than 30 samples.

Formation end to breakout. Piercing the trend line is quick with this pattern, taking between 3 and 4 days from the end of the pattern to a close above the trend line.

Yearly position. Where in the yearly price range does this pattern breakout? Most of the time, the breakout is in the middle or low end of the yearly price range.

Yearly position, performance. Mapping performance over the yearly price range, we find that the best performing BARRs are those with breakouts far from the yearly high (meaning the low or middle). Those are the ones in which you want to trade.

Throwbacks. Over half the patterns (59%) in a bull market and 73% in a bear market throw back. The stocks return to the breakout price in a quick 7 days in a bear market and a more normal 11 days in a bull market. As with many other chart patterns types, a throwback hurts performance, as Table 7.4 shows.

Gaps. Gaps help performance in a bull market, but hurt it in a bear market. With additional samples, the results might change.

Number of dual bumps. About 20% of the time, the BARR bottom has a second bump. Prices touch the trend line on their way to the breakout then, instead of continuing higher, they decline and form a second bump.

Figure 7.4 shows a good example of a multiple bump BARR. The first bump completes in mid-August 1993 when prices touch the down-sloping trend line. If you purchased the stock at any time during the first bump, you

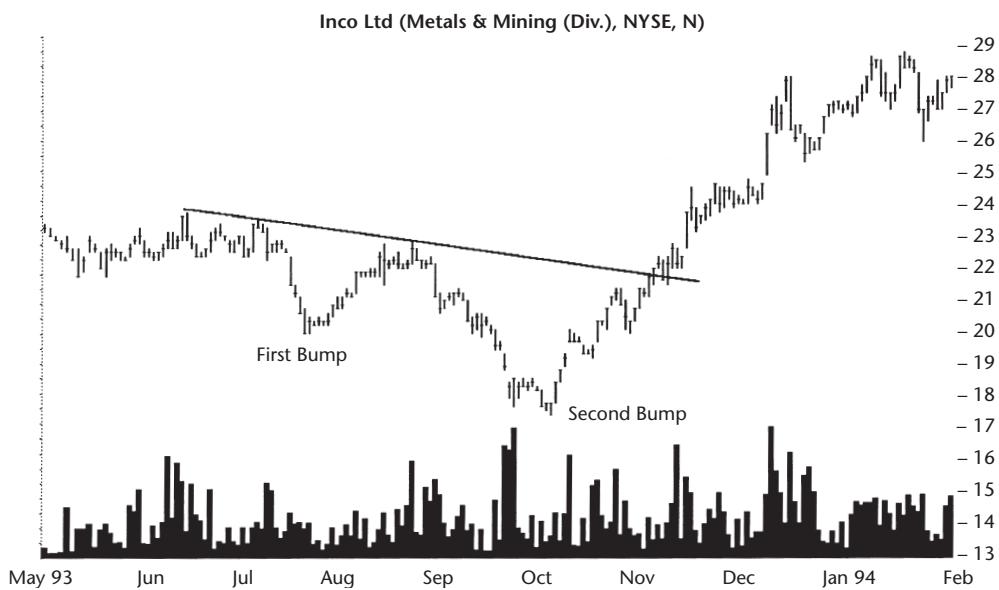


Figure 7.4 A dual bump-and-run reversal bottom. Consider waiting to buy the stock until after it breaks out upward. Had you bought into this situation during July, you would have lost money in the short term.

would have been toast. From the high of 22.75 on August 19, the stock declined to 17.38 on October 1, nearly a 25% fall.

After that, it is all uphill. The stock moves up smartly and crests at 28.50 in mid-January 1994. From the bump low, that is a 64% move and a 33% rise from the breakout. Figure 7.4 imparts a valuable lesson: Consider waiting for the upward breakout before buying into a situation. Not surprisingly, this lesson applies to many formations, not just the BARR bottom.

The dual bump is unusual in that the second bump is lower than the first. As mentioned, dual bumps are a rarity, occurring only 20% of the time. Of course, that is scant comfort if you already bought into a situation and it begins declining again.

Table 7.5 shows a frequency distribution of time to the ultimate high. Patterns in both markets perform similarly. They both have large numbers in the over-70 column. At the other end of the scale, few patterns flame out in the first week or two. Generally, the longer it takes to reach the ultimate high, the larger the gain, so the table shows good news.

Table 7.5
Frequency Distribution of Days to Ultimate High

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	9%	10%	6%	4%	6%	5%	5%	3%	6%	0%	47%
Bull market	7%	7%	5%	4%	3%	5%	2%	3%	3%	3%	59%

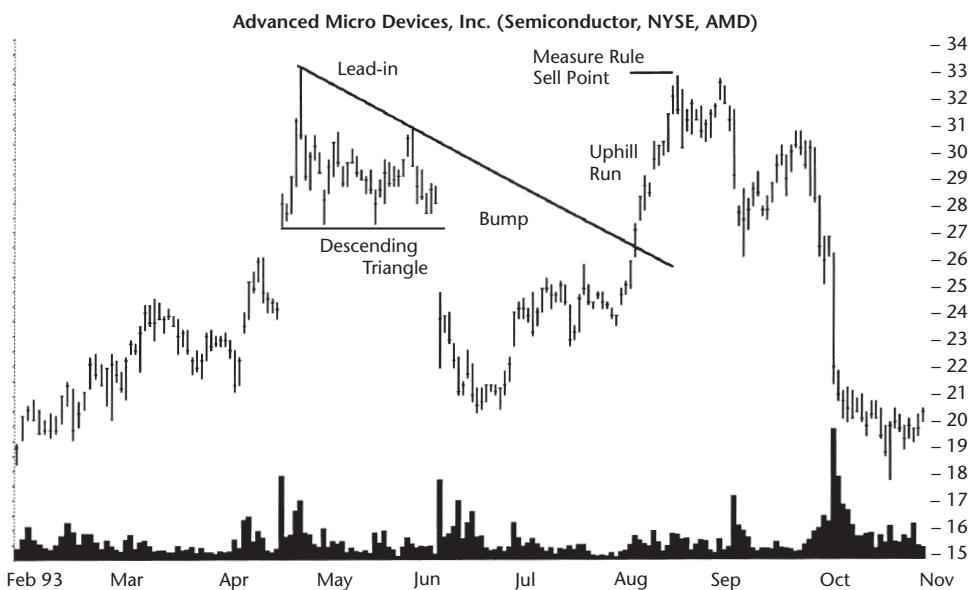


Figure 7.5 Bump-and-run reversal that stopped rising within 15% of its old highs. Between 48% and 63% of bump-and-run reversals perform this way.

Notice how the bear market patterns show a slight blip 35 days after a breakout and, in a bull market, at 42 days. I have seen this blip in other patterns. A month or so after the breakout and the uptrend weakens. Be prepared for a trend change then (and another one 2 months after the breakout in a bear market).

How often does price rise to the level at the start of the pattern? The answer depends on market conditions. In a bull market, 48% of the time the ultimate high occurs within 15% of the starting price. In a bear market, 63% stop within 15% of the old high. Figure 7.5 shows an example. Prices begin the pattern at 32.88 and then form a descending triangle. In June, parts began falling off the semiconductor stock. It plummeted over \$4 to close at 23.75 on June 7, then continued lower, reaching a low in June in the middle of the bump phase. From the low, prices recovered and moved higher until reaching a high just 25 cents below the price at the start of the BARR pattern.

Table 7.6 shows size statistics for the BARR bottom pattern.

Height. Tall patterns perform better than short ones. To use this information, measure your pattern from the highest high to the lowest low and divide by the breakout price (where price closes above the down-sloping trend line). Compare the result with the median in Table 7.6. If your value is higher than the median, then consider your pattern a tall one; lower than the median means it is a short one. Trade tall patterns for the best performance.

Width. Wide patterns perform better than narrow ones. I used the median length as the separator between narrow and wide.

Table 7.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout
Tall pattern performance	44%	39%
Short pattern performance	34%	25%
Median height as a percentage of breakout price	35.87%	46.95%
Narrow pattern performance	34%	29%
Wide pattern performance	42%	33%
Median length	120 days	98 days
Average formation length	143 days	110 days
Short and narrow performance	31%	24%
Short and wide performance	39%	28% ^a
Tall and wide performance	45%	38%
Tall and narrow performance	44%	41% ^a

^aFewer than 30 samples.

Average formation length. BARRs are long patterns, averaging between 110 and 143 days or about 4 to 5 months long.

Height and width combinations. Patterns that are both tall and wide do better than other combinations in a bull market. In a bear market, BARRs that are both tall and narrow perform well. The worst performance comes from patterns that are short and narrow, so avoid trading those.

Table 7.7 shows volume-related statistics, and it is as disappointing as watching a helium-filled party balloon getting caught in the trees instead of playing chicken with airplanes.

Table 7.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout
Rising volume trend performance	38%	31%
Falling volume trend performance	38%	31%
U-shaped volume pattern performance	40%	35% ^a
Dome-shaped volume pattern performance	38%	30%
Neither U-shaped nor dome-shaped volume pattern performance	32%	51% ^a
Heavy breakout volume performance	40%	27%
Light breakout volume performance	34%	35%

^aFewer than 30 samples.

Volume trend. The volume trend shows no performance difference for BARRs.

Volume shapes. In a bull market, BARRs with U-shaped volume performed best. In a bear market, BARRs with random-shaped volume did well, but the samples are few.

Breakout volume. Heavy breakout volume helps performance in a bull market, but hurts it in a bear market.

Trading Tactics

Table 7.8 outlines trading tactics for BARR bottoms.

Measure rule. After properly identifying a BARR bottom, you will want to determine how profitable is a trade likely to be. You do that using the measure rule. I changed the measure rule from a computation to simply the top of the chart pattern. The highest high is the target, and prices reach the high 64% to 68% of the time.

Wait for confirmation. The confirmation point is when price closes above the trend line formed during the lead-in phase. Should the price close above the trend line, buy the stock.

Sell at old high. I have discussed how often a stock showing a BARR bottom stops near the old high (which is the start of the formation). Place a sell order near the price level of the old high. That will keep your profits intact should the stock then turn down. If you are reluctant to sell your holdings, why not sell half when the stock reaches the old high, then see what happens?

Stops. As always, place a stop-loss order 0.15 below the nearest support zone. Move the stop upward as the stock advances. That way, when prices turn down, you will not lose too much. Only paying taxes is worse than riding a stock up and following it all the way back down.

Table 7.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	The highest high in the pattern is the target.
Wait for confirmation	Waiting for the breakout improves investment performance. The close should be above the down-sloping trend line before you buy the stock.
Sell at old high	When prices rise to the old high, consider selling if the stock shows weakness.
Stops	Place a stop 0.15 below prior resistance. As prices rise, raise the stop.

Sample Trade

Perhaps the most interesting way to illustrate trading tactics is by example. John is new to investing, and he did not take the time to learn thoroughly about BARR bottoms. As he flipped through his stock charts one day, he noticed an intriguing situation developing in the stock depicted in Figure 7.6. During August, the stock peaked, declined a bit, then formed a second minor high. As the stock declined from the second high, John drew a tentative trend line down connecting them. Soon, he noticed that the stock was descending in a sort of channel. He drew a second trend line, parallel to the first, that connected the lows.

However, the stock soon pierced through the second trend line and moved lower. When it declined even further, John thought he recognized a BARR bottom forming. He drew a third trend line, parallel to the other two and lead-in height apart.

As the stock dipped below the lowest trend line, he believed that the decline was at an end. So, the following day he pulled the trigger and bought 100 shares at 18.25. He was pleased to acquire the stock a bit below the closing price for the day.

For the next week, the stock shot upward and pierced the second trend line. John was brimming with enthusiasm and believed that picking stocks was an *easy game*, as he put it. As the stock moved into a consolidation period, John showed no concern. Flat periods of trading often follow quick rises.

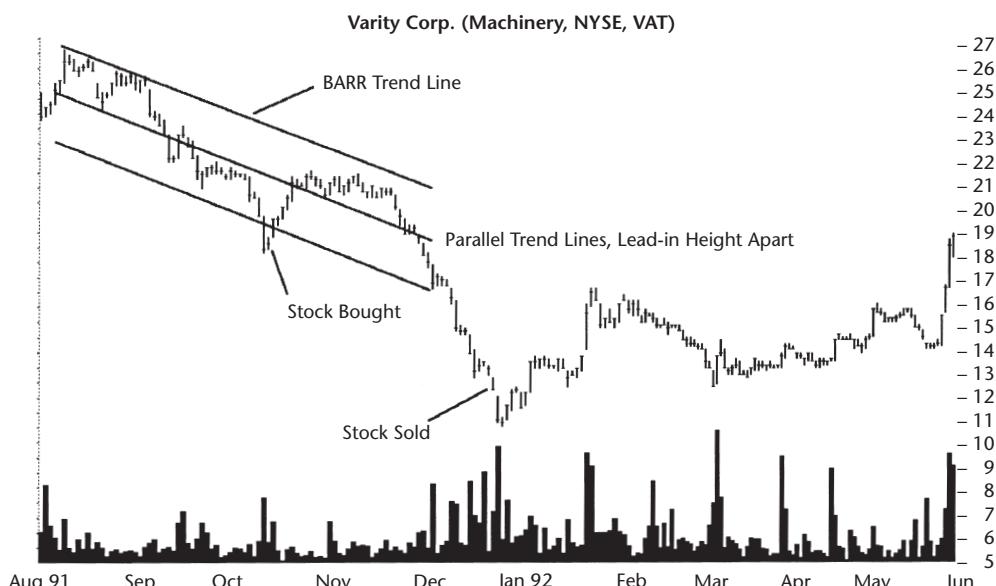


Figure 7.6 A bump-and-run reversal bottom failure in which John invested. He finally sold the stock just 2 days before it reached its low.

When the stock neared the top trend line, John calculated the target price, using the old method instead of the highest high in the pattern. He computed the lead-in height by subtracting the daily low from the trend line at its widest part in the first quarter of the formation. He used the low of August 20, at 24, and subtracted this from the trend line value of 26, measured vertically. This left him with a lead-in height of \$2. John believed that the stock would likely break out at about 21.25, so this gave him a target price of 23.25, which is the lead-in height added to the breakout price.

John was confident that he could hold out for larger gains. From his purchase point, he calculated that he would receive at least a 25% return if everything worked out as planned.

For about a month, the stock moved sideways, but this did not alarm him. He even expected the stock to decline a bit and recapture some of its quick gains. Secretly he hoped that the stock would soon break out of its trading range and head higher. He was confident that it would move up—it was only a question of when.

He was wrong. Indeed, the stock *did* break out of its trading range, but it headed *lower*, not higher. After it approached the top trend line, the stock continued down and touched the middle trend line. John knew that a stock often retraces 38% to 62% of its gains. He grabbed his calculator and computed the retrace value.

The stock reached a high of 21.43 in a straight-line run from the low at 18, a rise of about 3.50 points. Now the stock was retracing the gains and had moved down to 18.75, a 78% retrace. Clearly, this was out of the realm of a simple retrace. John suspected that a trend change had occurred, but hoped that the pause he was seeing as it touched the middle trend line would give the stock support and call an end to the decline. For a while, it did. The stock paused for 3 days at the trend line then started moving lower again. It quickly fell below the purchase price and headed down.

Although John had purchased the stock as a short-term play, he convinced himself that he really liked the company and would not mind holding it for the long term. Now, at least, that is what it would take for him to recoup his losses and get out at breakeven.

The stock moved through the third trend line, heading lower. The *easy game* was now turning into a disaster. John first considered selling on December 11, when the stock reached 12.75, for a 30% loss. He delayed the selling decision by saying that the holding was a long-term one and he should expect to come across such declines in the short term.

The next day, the stock closed higher, and it gave him renewed hope. Indeed, it closed even higher the following day. But the 2-day recovery was an illusion and the stock declined again. As it plunged below 12.75, John threw up his hands and told his broker to dump the dog. He received a fill at 12.25, the low for the day. Two days later, the stock bottomed out at about 10.75. From the buy point, John lost 35%.

As upset as this made John, the stock was not finished tormenting him. He continued to follow the stock and watched it move higher. He extended the BARR trend line downward (Figure 7.7) and noticed that a new, larger BARR had formed. After suffering through the large bump, the stock moved higher until it touched the BARR trend line. Then, the stock followed it lower, unable to pierce the resistance line.

During the week of March 27, 1992, the stock closed above the trend line for the first time in months. The BARR was complete and a confirmed breakout was occurring. Did John buy the stock? No. For several months, he watched its progress as it moved higher almost week after week. Disgusted, he quit following the stock.

In April 1994, John took another look at the stock and was surprised to see that it continued moving higher. It had just reached a high of 50.13, a climb of almost 370%. He grabbed his calculator and realized that his mistake cost him over \$3,000.

What did he do wrong? Several things. He did not wait for the BARR to pierce the trend line and move higher. If he had, he would have purchased closer to the low, saving him precious capital. Next, he did not cut his losses short. After he bought the stock, he should have determined his sell point. The middle trend line would have been a good place for a stop-loss order. In this case, it would have taken him out of the stock at about 17.88, a small decline from the purchase price of 18.25. Instead, he followed the stock down and changed his investment philosophy from a short-term trade to a long-term holding.

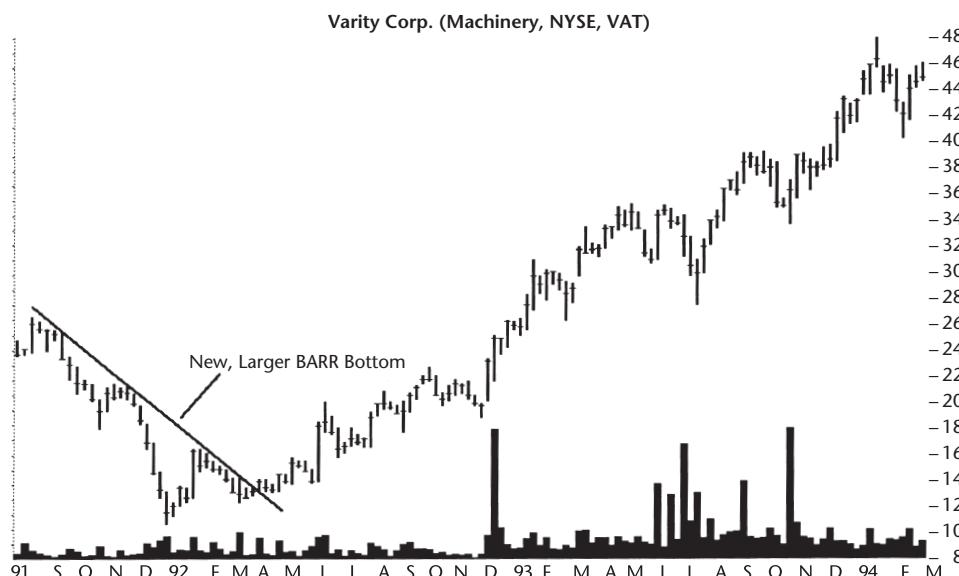


Figure 7.7 A bump-and-run reversal bottom on a weekly scale. After the breakout, the stock climbed over 350%.

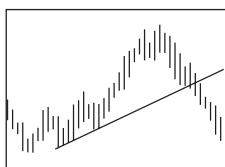
For Best Performance

The following list includes tips and observations on selecting BARR bottoms that perform well. Consult the associated table for more information.

- Use the identification guidelines to help select the pattern—Table 7.1.
- Select reversals in a bull market. They rise higher than in a bear market—Table 7.2.
- Bear market failure rates start small, but bull markets do better for gains over 10%—Table 7.3.
- Pick patterns with breakouts near the yearly low—Table 7.4.
- Throwbacks hurt performance. Look for overhead resistance before trading—Table 7.4.
- Look for price weakness 5 to 6 weeks after the breakout—Table 7.5.
- Select patterns that are tall or wide. Avoid those that are both short and narrow—Table 7.6.
- Heavy breakout volume helps bull market patterns, but light breakout volume helps bear market BARRs—Table 7.7.

8

Bump-and-Run Reversal Tops



RESULTS SNAPSHOT

Downward Breakouts

Appearance

Prices rise steadily along a trend line, bump up, round over, then decline through the trend line and continue down.

Reversal or continuation

Short-term bearish reversal

Performance rank

Bull Market

Bear Market

3 out of 21

4 out of 21

Break-even failure rate

5%

1%

Average decline

19%

27%

Change after trend ends

53%

48%

Volume trend

Upward

Upward

Pullbacks

62%

65%

Percentage meeting price target

78%

90%

Surprising findings

The best performing patterns have breakouts in the middle of the yearly price range. Pullbacks hurt performance but breakout day gaps help. Tall patterns perform better than short ones.

If you were thinking of buying stock in a company, wouldn't it be wonderful if you knew the purchase price would be less tomorrow? Of course! But how do you predict tomorrow's price? That is the problem I was researching when I discovered the bump-and-run reversal top formation. I was trying to figure out a reliable way to determine if tomorrow's price would be higher or lower than today's and by how much.

I tried all sorts of mathematical games to boost the accuracy of the prediction with only limited success. Then I moved to the visual world. I drew a trend line along a stock chart and wondered if I could determine how far prices would decline below the line. I looked at many stock charts and trend lines trying to see if there was a relationship between a trend line and the breakdown of the trend. That is when I discovered it: the bump-and-run formation—BARF for short. I toyed with the idea of leaving the name as is but decided that the investment community would not believe the veracity of the new formation. So, I changed the name to bump-and-run reversal (BARR), a slightly more descriptive and palatable acronym.

Tour

As I looked at the various trend lines, I discovered that pronounced breakdowns share several characteristics. Look at Figure 8.1, a good BARR example. The overall formation reminds me of a mountain range. The foothills at the start of the formation are low and subdued, not venturing too far above the up-sloping plain. Volume at the start of the formation is high but quickly recedes. The mountains themselves rise well above the foothills on high volume. Investor enthusiasm continues as prices round over at the top, then diminishes on the far side. When the mountains end, prices decline sharply and continue moving down. That is a BARR. Prices bump-up, round over, and run back down again. The formation is the visual representation of momentum. The base of the formation follows a trend line that always slopes upward. It signals investors' eagerness to acquire the stock. As each day goes by, investors bid higher to reluctant sellers and the price rises.

Other momentum players eventually notice the rise in the stock price. Many jump on the bandwagon the day after a surprisingly good earnings announcement. That is when the bump begins. Volume spikes upward along with the stock price. Quickly rising prices entice others to join the fray and that, in turn, sends the stock even higher. As momentum increases, prices jump to form a new, higher-sloping trend line. Then things start going wrong.

Supply catches up with demand. As that happens, the rise slows and the smart money turns cautious. Investor enthusiasm wanes and the war between supply and demand turns. The stock rounds over and starts heading down.

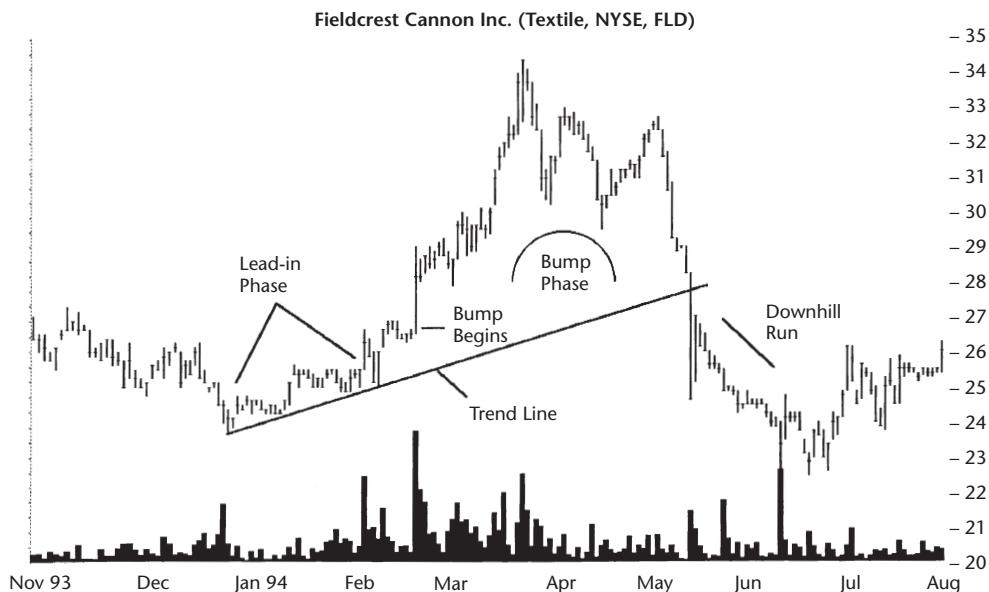


Figure 8.1 Good example of a bump-and-run reversal. Prices move up along the trend line in the lead-in phase, jump up during the bump phase, then crash down through the trend line during the downhill run. Volume at the start of the formation and again at the start of the bump is usually high but tapers off as the bump rounds over. About half the time volume picks up as prices pierce the trend line.

When the smart money sees prices falling, they sell and the decline picks up speed. Downward momentum increases and returns prices to the trend line. At this point, buying enthusiasm may increase and send prices back up for one last try at a new peak. Usually, however, prices do not bounce off the trend line but continue moving down. Sometimes there is a pause and sometimes prices just plunge straight through the resistance line, as illustrated in Figure 8.1.

Once prices pierce the trend line, volume increases as investors dump the stock. This selling alarms more investors and the downward trend feeds on itself. Eventually, after several months of declining prices, the selling pressure abates and buying enthusiasm halts the downward slide. Prices tentatively level out and perhaps even rebound a bit. Once the cause of the reversal fades from memory, prices start rising again and the process begins anew.

Identification Guidelines

Table 8.1 outlines the various parts of the formation that are illustrated in Figure 8.1.

Table 8.1
Identification Characteristics

Characteristic	Discussion
Arithmetic scale	Do not use a semilogarithmic scale; instead use an arithmetic one.
Rising trend line	A trend line connecting the lows rises steadily: no horizontal or near-horizontal trend lines. The trend line usually rises at about 30–45 degrees (although this varies with scaling). Avoid trend lines that are too steep (over 60 degrees): There is not enough room for the bump.
Lead-in, lead-in height	The lead-in is the section just before prices move up sharply in the bump phase. Lead-in prices should have a range of at least \$1 (preferably \$2 or more), as measured from the highest high to the trend line, vertically, during the first quarter of the overall formation length. Minimum lead-in length is 1 month with no maximum value.
Rounded bump	Prices rise up (trend line slope is 45–60 degrees or more) on high volume usually after a favorable event (unexpectedly good earnings, an analyst recommends or upgrades the stock, higher store sales, that sort of thing). Prices eventually round over and decline back to the 30 degree trend line. The bump must be at least twice the lead-in height, measured from highest high to the trend line, vertically.
Downhill run	After returning to the trend line, prices may bounce back up and form additional bumps or slide along the trend line. Eventually prices drop through the trend line and continue down.

Arithmetic scale. Use the arithmetic scale not a semilogarithmic one because the semilog scale distorts vertical distance.

Rising trend lines. In the figure, a trend line drawn below the lows in the stock extends until it intersects prices as they decline in May. Volume is high at the start of the pattern and the trend is up. That is a key consideration: Prices must be rising. The trend line should be approximately 30 degrees, but the degree of slope depends on the scaling used to view the chart. *If the trend line is flat or nearly so, it is not a good BARR candidate.* A rising trend line shows investor enthusiasm for the stock. However, the trend line should not be too steep either. Steep trend lines (over 60 degrees or so) do not allow enough room for the bump to complete properly.

Lead-in, lead-in height. The first part of the formation, called the lead-in phase, leads to the bump phase. The lead-in phase should be at least 1 month long and usually falls in the 2- to 3-month range, but can be considerably longer. Prices oscillate up and down in this phase and have a range of at least \$1 as measured from the highest high to the trend line. This range, called the lead-in height, is calculated using prices from the first quarter of the formation.

Figure 8.1, for example, shows that the highest high during the first quarter of the formation occurs on January 12, 1994, at 25.63. The trend line

directly below this date has a value of about 24.25, giving a lead-in height of 1.38. The height is important because the minimum bump height and target price, calculated later, use this value. A more accurate approach is to use the *largest* distance from the trend line to the high, which is not necessarily found between the *highest* high and the trend line. Use whatever method makes you feel comfortable.

During the lead-in phase, subdued price action looks as if the stock is gathering strength for the bump phase. Prices do not move very far away from the trend line and usually appear rounded. If you visualize the formation as a mountain range, the lead-in phase represents the foothills.

Volume during the lead-in phase is high at the start. Often this is due to events that occur just before the formation begins. Volume drops off until the start of the bump, when it suddenly rises. The higher share turnover and expanding enthusiasm for the stock forces prices up. In Figure 8.1, this price rise occurs on February 17 and is accompanied by volume that is the highest in half a year.

Rounded bump. Prices jump up at the bump start and quickly rise from a low of 26.50 to a high of 34.38 during late March. Volume remains high throughout this period then quickly tapers off as prices round over at the top. Many times, the top takes on the appearance of a head-and-shoulders formation or a double or triple top. If you recognize any of these formations on your chart, ignore the BARR top formation and obey the implications of the individual formations.

The bump height, as measured from the highest high to the trend line, should be at least twice the lead-in height. In this example, the bump height is 8 (that is, 34.38–26.38). This is more than twice the lead-in height of 1.38.

The reason for the minimum two-to-one ratio is arbitrary. The idea is to make sure that investor enthusiasm and, hence, momentum are getting carried away. An up-sloping trend line that turns into a bump with a higher sloping trend line emphasizes the rising momentum. Sustaining such unbounded enthusiasm for too long is difficult and the stock price eventually declines. In Figure 8.1, that is exactly what happens. Prices round over and start heading down. Sometimes the decline is orderly and sometimes it is choppy. In nearly all cases, prices return to the trend line. Once there, the stock may do several things. Fairly often prices bump up again, and that is called a BARR with a dual bump or a dual BARR. Occasionally, a dual BARR consists of several bumps but the result is still the same. Prices eventually fall below the trend line.

Downhill run. Sometimes prices slide up along the trend line for a month or so before continuing down. At other times, prices drop straight through the trend line, turn around and climb again, before ultimately dropping. In a few rare cases, prices descend from the bump high and never make it back to the trend line before moving higher. These cases commonly appear on weekly or monthly price charts.

Focus on Failures

In Figure 8.2, a weekly chart, the first BARR on the left shows high volume during the initial stages of the bump, as you would expect. The bump height to lead-in height ratio looks good (over 2:1), and clearly investor enthusiasm is high. However, prices continue climbing instead of rounding over and heading down.

Contrast the failed BARR with the one in the center. The middle BARR has a nicely rounded appearance. The volume pattern is what you would expect: high at the start, at the start of the bump, and when prices cross the trend line. However, prices drop below the trend line by just 4%. Any formation recovering after moving less than 5% below the breakout point is called a 5% failure.

The BARR on the right is a dual BARR. Prices near the trend line in late March 1994, then just as quickly climb again forming a second peak before dropping through the trend line. Often the peak of the second bump is below the first.

On weekly and monthly price charts, you often see prices moving up steadily over time. However, without the sharp bump-up of prices, the rising trend should

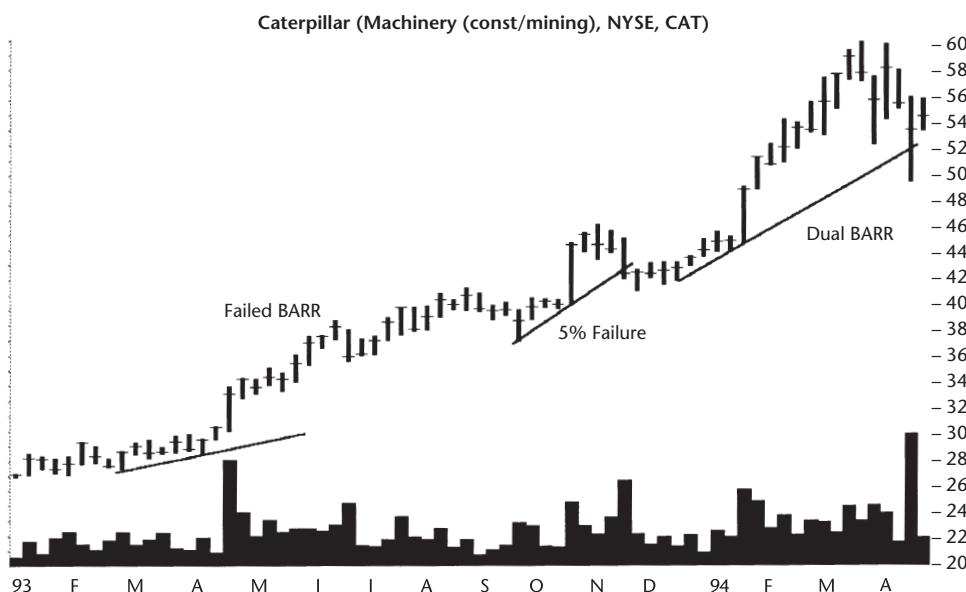


Figure 8.2 A bump-and-run reversal on a weekly chart. The formation on the left fails as prices climb away instead of moving below the trend line. The rounded-appearing center bump-and-run reversal has good volume characteristics—high volume at the formation start, bump start, and trend line crossing. However, prices decline below the trend line just 4%. That is called a 5% failure. The right bump-and-run reversal is a dual bump-and-run reversal formation because prices approach the trend line in March, form a second peak, then drop below the trend line.

not be labeled a budding BARR. The slope of the price trend line should rise from about 30% at the start to 60% or higher during the bump phase.

To reduce the failure rate, wait for prices to close below the trend line. Waiting boosts the success rate but reduces the profit that you would make if you sold near the top. In the Trading Tactics section of this chapter, I show you how to sell near the top before the decline really begins. That way you can keep more of your profits or make even more by shorting.

Statistics

Table 8.2 shows general statistics for BARR tops.

Number of formations. BARR tops are plentiful. I found nearly 800 of them with most occurring in a bull market (because it was longer than the bear market).

Reversal or continuation. Most of the patterns acted as a reversal of the prevailing price trend, not as a consolidation. This occurrence is even truer in a bear market, where nearly all acted as reversals. Reversals perform better than continuations in a bull market but worse in a bear market. This may not be an accurate comparison because of the small sample size for continuations in a bear market.

Average decline. As you would expect, the average decline in a bull market (19%) is less than the superb results in a bear market (27%). Both are better than the average decline for all chart pattern types.

Declines over 45%. Rarely does a bearish pattern have many samples showing declines over 45%, and BARR tops are no exception.

Table 8.2
General Statistics

Description	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	673	104
Reversal (R), continuation (C)	556 R, 117 C	94 R, 10 C
R/C performance	-20% R, -13% C	-26% R, -32% C
Average decline	19%	27%
Declines over 45%	20 or 3%	7 or 7%
Change after trend ends	53%	48%
Busted pattern performance	39% ^a	31% ^a
Standard & Poor's 500 change	8%	-11%
Days to ultimate low	68	39

Note: Minus sign means decline.

^aFewer than 30 samples.

Change after trend ends. If you can tell when the downward trend ends (that is, when it reaches the ultimate low), buy the stock. The rise off the bottom is huge: 53% in a bull market and 48% in a bear market.

Busted pattern performance. Table 8.2 shows the performance numbers for busted patterns, but few occur, so the numbers are likely to change.

Standard & Poor's 500 change. In a bull market, the S&P 500 index climbed 8%, and in a bear market, the index dropped 11%. Notice how a strong bear market helped the average BARR decline 27%.

Days to ultimate low. In a bull market, it takes just over 2 months (68 days) to reach the ultimate low, but in a bear market, the drop takes 39 days. Thus, patterns in a bear market have prices that drop farther in less time, meaning a steeper decline. This finding suggests that if you own a stock with a BARR top and prices confirm by closing below the trend line, sell immediately. Otherwise, the price rip tide may drag your profitable position into a losing one.

Table 8.3 lists failure rates for BARR tops. The failures start small, especially in a bear market. Just one pattern, or 1%, fails to drop at least 5%. As one might expect, the failure rates in a bear market are below those of the bull market. Half the patterns in a bear market will fail to drop at least 25%. In a bull market, the halfway mark passes at about 18%, meaning half the patterns will fail to decline more than 18%. Compared to other bearish chart patterns, these failure rates are small.

One way to use the table is with the measure rule. Later, in Trading Tactics I discuss the rule, but suppose it predicts a decline from 20 to 15, or 25%. How likely is it that prices will actually decline that far? Table 8.3 shows the answer. In a bull market, 73% will fail to drop at least 25% and in a bear market, 59% will fail. Thus, in both markets, price is unlikely to make a 25% drop.

Table 8.4 shows breakout- and postbreakout-related statistics for BARR tops.

Table 8.3
Failure Rates

Maximum Price Decline (%)	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	34 or 5%	1 or 1%
10	134 or 20%	6 or 6%
15	275 or 41%	27 or 26%
20	386 or 57%	45 or 43%
25	490 or 73%	61 or 59%
30	569 or 85%	72 or 69%
35	610 or 91%	85 or 82%
50	662 or 98%	99 or 95%
75	673 or 100%	104 or 100%
Over 75	673 or 100%	104 or 100%

Table 8.4
Breakout and Postbreakout Statistics

Description	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	3 days	2 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L11%, C41%, H48%	L7%, C41%, H52%
Percentage decline for each 12-month lookback period	L18%, C20%, H18%	L29% ^a , C32%, H23%
Pullbacks	62%	65%
Average time to pullback ends	10 days	10 days
Average decline for patterns with pullback	18%	24%
Average decline for patterns without pullback	21%	32%
Performance with breakout gap	20%	33% ^a
Performance without breakout gap	19%	26%
Average gap size	\$0.40	\$0.90
Number of dual bumps	28%	38%

^aFewer than 30 samples.

Formation end to breakout. The breakout happens quickly in BARR tops, taking between 2 and 3 days.

Yearly position. Most of the BARR tops I looked at had the breakout near the yearly high. This makes sense as we are dealing with an up-sloping trend line after a price run up.

Yearly position, performance. Where do the best performing BARR tops breakout? The star performers have breakouts in the middle of the yearly price range.

Pullbacks. A pullback occurs between 62% and 65% of the time, and it takes 10 days for the stock to return to the breakout price. When a pullback happens, performance suffers.

Check for underlying nearby support—anything that might send prices higher. If you short a stock and prices head back up, it may be a temporary situation caused by a pullback. Prices should return to the breakout price then, eventually, resume their downward trip. If they continue moving higher, close out your short position. If they continue down, consider adding to your short position or opening a new one.

Gaps. Breakout day gaps help performance. Notice that the bear market gap size is double the bull market size.

Number of dual bumps. Sometimes prices will bounce off the trendline and form another bump. That is what I call a dual bump. Compare Figure 8.3 with Figure 8.4. The stock in Figure 8.3 has a bump with a rounded appearance, giving investors plenty of time to sell the stock near the high. Figure 8.4

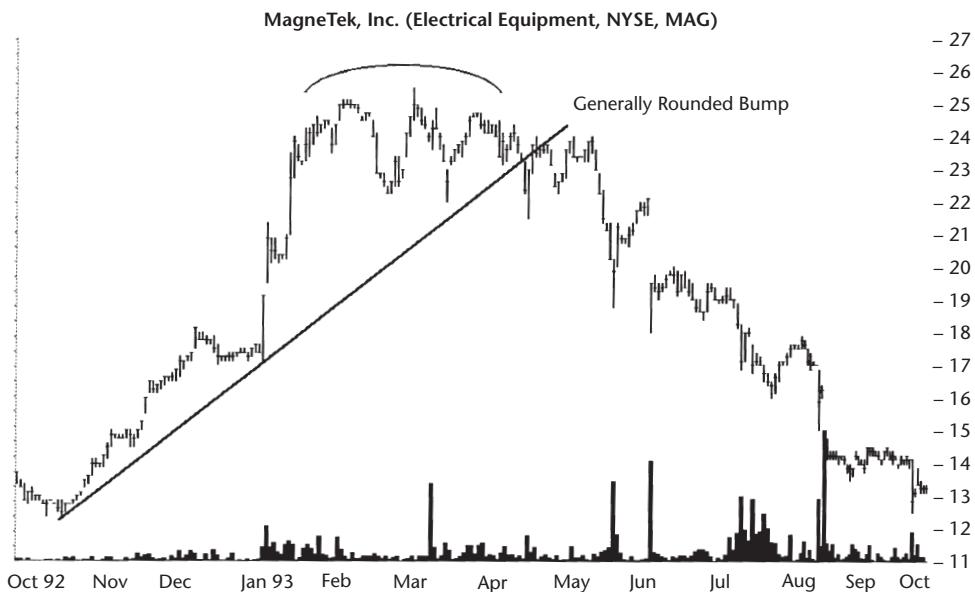


Figure 8.3 A bump-and-run reversal with a rounded bump occurs 76% of the time, on average. Notice the premature downward breakouts in mid-April, a week or two before the actual breakout. The ultimate low reached in October is at a price of 12.25, a decline of over 50%.

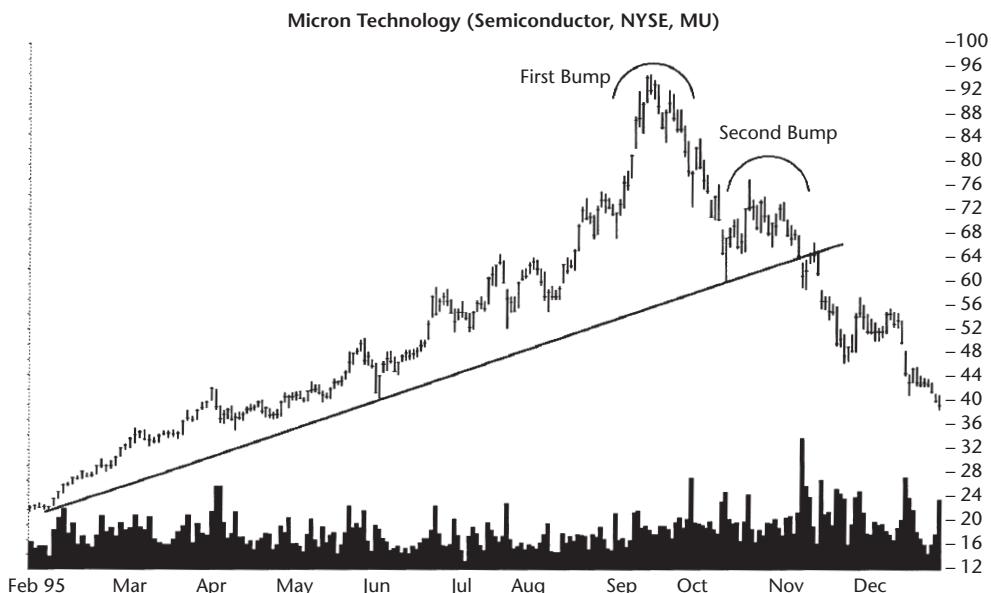


Figure 8.4 A bump-and-run reversal with a pointed-looking first bump, leaving investors precious little time to get out of the stock. Many semiconductor stocks showed similar price patterns in late 1995, setting the stage for an industry-wide downturn. The ultimate low reached in mid-January 1996 comes after a decline of nearly 70%.

Table 8.5
Frequency Distribution of Days to Ultimate Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	24%	14%	11%	6%	9%	4%	5%	6%	2%	3%	17%
Bull market	22%	9%	8%	8%	7%	4%	3%	4%	2%	3%	30%

shows a chart pattern with a much narrower peak. Investors had only a few days to catch the top before prices moved down quickly. The chart in Figure 8.4 is also a dual BARR. There is a second smaller bump just before prices head below the trend line. Dual or multiple bump BARRs occur 38% of the time with only 8% of second or additional bumps having peaks that rise above the first bump.

Table 8.5 shows a frequency distribution of time to the ultimate low. As with other bearish chart patterns, we find that many flame out early. By that, I mean it does not take a long time to reach the ultimate low. Almost half ($24 + 14 + 11 = 49\%$) of the bear market patterns bottom in less than 3 weeks. BARRs in bull markets do better, but 39% reach the ultimate low in 3 weeks. At the other end of the scale, where large declines come into play, we find that 17% of bear market patterns have not found the ultimate low in less than 70 days. For bull markets, 30% have not bottomed by day 70.

Notice the slight rise in patterns bottoming out around day 35 (bear market) and day 56. If you short a stock in a bear market, the trend may change a month after the breakout, so be on the lookout for that.

Table 8.6 shows size statistics.

Table 8.6
Size Statistics

Description	Bull Market, Down Breakout	Bear Market, Down Breakout
Tall pattern performance	21%	29%
Short pattern performance	18%	25%
Median height as a percentage of breakout price	43.48%	45.47%
Narrow pattern performance	20%	25%
Wide pattern performance	18%	29%
Median length	161 days	127 days
Average formation length	192 days	131 days
Short and narrow performance	18%	25%
Short and wide performance	16%	25% ^a
Tall and wide performance	20%	31%
Tall and narrow performance	24%	25% ^a

^aFewer than 30 samples.

Table 8.7
Volume Statistics

Description	Bull Market, Down Breakout	Bear Market, Down Breakout
Rising volume trend performance	19%	25%
Falling volume trend performance	19%	30% ^a
U-shaped volume pattern performance	19%	29% ^a
Dome-shaped volume pattern performance	19%	27%
Neither U-shaped nor dome-shaped volume pattern performance	19%	23% ^a
Heavy breakout volume performance	19%	28%
Light breakout volume performance	19%	25%

^aFewer than 30 samples.

Height. Tall patterns perform better than short ones. I computed the difference between the highest high in the pattern and the lowest low and then divided by the breakout price. Values above the median I considered tall; values below the median, short. Do the computation for your pattern, and trade only tall ones.

Width. Narrow patterns perform better than tall ones in a bull market, but do worse in a bear market. I used the median length as the divider between narrow and wide.

Average formation length. The average pattern length measures between 4 months (bear market) and 6 months (bull market).

Height and width combinations. The best combination in a bull market associates with patterns both tall and narrow. In a bear market, tall and wide ones do well. Avoid BARRs that are short and wide; they perform worst.

Table 8.7 shows volume-related statistics. Judging from the numbers, downward breakouts in a bull market are not influenced by volume. The following analysis pertains to bear markets.

Volume trend. BARRs with a falling volume trend performed better than did those with a rising volume trend.

Volume shapes. BARRs with U-shaped volume performed best. BARRs with a random shape performed worst.

Breakout volume. Heavy breakout volume helped propel BARRs in a bear market to outsized gains.

Trading Tactics

Table 8.8 lists tools to help judge when to sell a stock that contains a BARR as well as the minimum price decline (the measure rule—discussed later) to expect

Table 8.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the lead-in height (see Table 8.1 for the definition) and subtract the result from the breakout price. The result is the <i>minimum price</i> move to expect. About 8 out of 10 stocks meet their price targets.
Warning line	Drawn parallel to the trend line and lead-in height above it. The line warns that the stock is making a move and is entering the sell zone, an area between the warning and sell lines.
Sell line	A second trend line parallel to the warning line and lead-in height above it. Consider selling when prices touch the sell line, especially if the bump is narrow. Delay selling if prices continue moving up. Draw additional lines parallel to the original trend line and lead-in height above the prior line. When the stock rounds over and touches the lower trend line, sell it.

from such a formation. As you view your stock charts periodically, some stocks will follow trend lines upward. These are the ones to monitor closely. Occasionally, one will begin a rapid climb on high volume and enter the bump phase.

Warning and sell lines. By definition, a BARR is only valid when the bump height, as measured from the highest high to the trend line, is at least twice the lead-in height. Two lines parallel to the trend line assist in that determination. The first line, called the warning line, is lead-in height above the trend line. A second trend line, parallel to the first two and lead-in height above the warning line, is the sell line.

The warning line serves as a signal that a BARR may be forming. Once prices move solidly above the line, consider doing any fundamental or technical research on the stock to prepare yourself for a sale.

By the time prices touch the sell line, you should have a firm grasp of the company, industry, and market outlook. The sell line is not an automatic sell trigger, but it does confirm that a BARR is present. The sell line touch indicates that the momentum players have the upper hand. The game could continue for several weeks or months before the downhill run phase sets in, so do not be in too much of a rush to sell. Since most bumps appear rounded, there is ample time to sell the stock. By waiting, you are giving the momentum players additional time to push the stock even higher.

However, there are situations when you will want to pull the trigger quickly. If the company, industry, or market look dicey, then perhaps it is time to take profits. You might not be selling at the exact top, but you never go broke taking a profit. Also, if the bump does not appear rounded, then consider selling. A quick decline often follows a quick rise.

Figure 8.5 shows the BARR trend line and the parallel warning and sell lines, each line lead-in height from the other. The chart is on a weekly scale

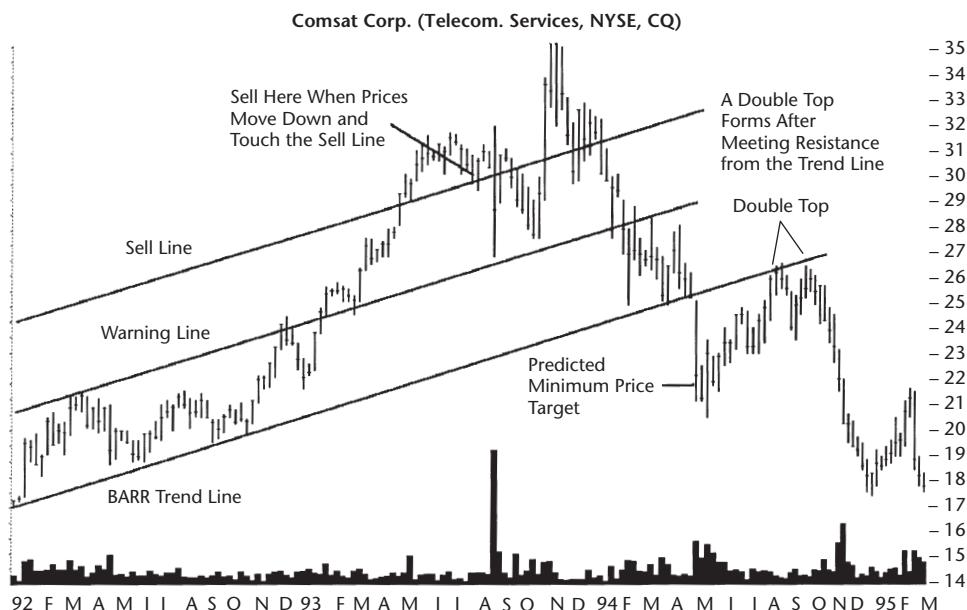


Figure 8.5 Bump-and-run reversal trend line and two parallel warning and sell lines. There is plenty of time to take profits in this bump-and-run reversal. The stock reached a low of 17.50 in December, a 40% decline from the sell point in July. Also shown in the July to September period is a double top.

and emphasizes the relaxed nature of some BARRs. If you owned the stock depicted in Figure 8.5 and sold it when prices pierced the sell line moving down, you would not have sold at the top. However, you would have avoided the 40% decline that followed. The decline also points out that it can be easy to make money, on paper, in the stock market but difficult to keep it.

Measure rule. Figure 8.5 also shows the measure rule in action. The measure rule is a method used to predict the *minimum* price decline of the stock. For BARRs in this study, about 8 out of 10 stocks decline below the predicted price.

To compute the predicted minimum decline, calculate the lead-in height by splitting the formation along the trend line into four equal parts. In the first quarter of the formation, compute the height from the highest high to the trend line, measured vertically (or use the widest distance between the two). Subtract the result from where the trend line is pierced, heading down (the breakout). In Figure 8.5, the lead-in height is 3.50 (that is, 21.50–18). The target price is thus 21.63 (25.13–3.50), reached during the week of the breakout.

After the breakout, the stock rises back up to meet the trend line before resuming its decline. Since a trend line denotes a resistance area when approached from below, it is no surprise prices turn away. Prices form a double top in the July to September period and plunge downward.

Sample Trade

Jenny is a librarian. Before she goes home at the end of each day, she logs onto the Internet and checks her stock portfolio. She did not notice it at first, but by mid-September, Jenny spotted a BARR forming in a stock she owned (Figure 8.6). She spent an hour searching the Internet for anything she could find about the company. She checked the fundamentals, analysts' recommendations, insider buying and selling patterns, and anything else she could think of.

She reviewed the reasons she bought the stock. Using the Peter Lynch style of investing—that of buying a stock one is familiar with—held a special appeal to her. She liked shopping at the grocery store chain and the products they sold were something she could really sink her teeth into. She felt comfortable owning the stock.

Jenny printed out the price chart and examined the BARR in detail. She drew the trend line along the bottom, divided the length of it into four equal parts, and computed the lead-in height. Then she drew the warning and sell lines parallel to the trend line, each separated by the lead-in height. She computed the minimum target price to which the stock was likely to decline. From the current price of 30, the target price was 23, a decline of almost 25%. Even though she still liked the stock, such a large decline made her nervous.

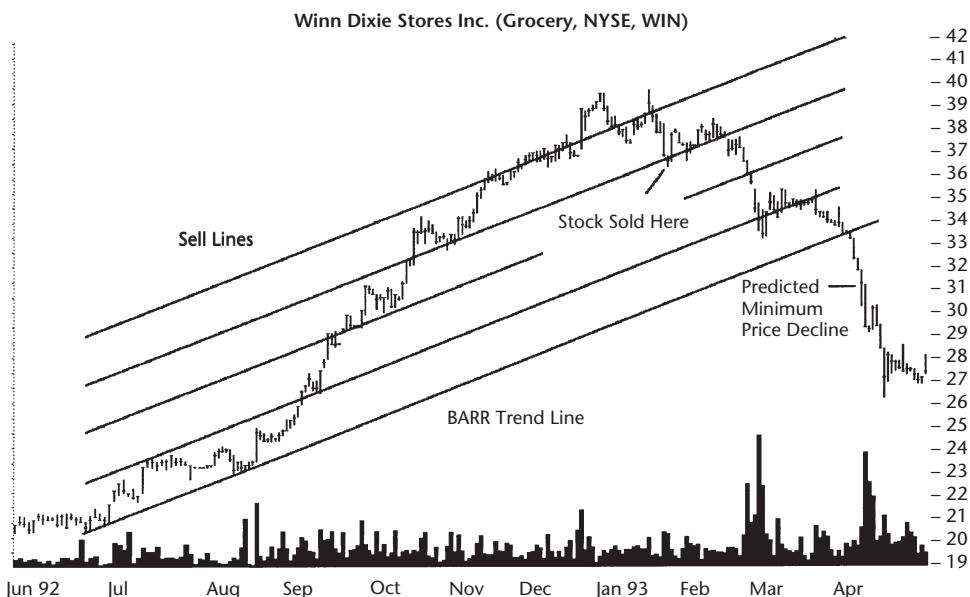


Figure 8.6 Detailed bump-and-run reversal with sell lines. As described in the Sample Trade, Jenny raised her sell point as the stock climbed. Eventually, she sold the stock the day after it pierced a lower sell line.

She looked back through the chart price history and searched for support zones so she could better gauge the area where any decline might stop. The first support area was in the 23 to 24 zone, where a prior advance had paused. Interestingly, that was also the predicted decline point for the stock. If the stock fell below the support point, she noticed a second, more robust support area between 20 and 22.

What of the possible reward? How high could she expect the stock to rise? Long-term price charts were no help as the stock was making new highs almost daily. Jenny shrugged her shoulders as there was no way to determine where the rise would stop. Her only guess was that it might pause at 35, 40, or 45, price points where investors might decide to sell. Any one of those points could turn the stock downward, she decided. Even the current 30 level might be the highest price the stock sees.

After her analysis was complete, she was still confident that the stock held promise of additional gains. As with any stock caught by upward momentum, there was no telling how high the stock would climb before it stopped. She decided to hang onto the stock. If the stock declined to the warning line, she would sell it. She placed a stop-loss order at 27.50, the current value of the warning line.

During late September and into the start of October, the stock followed the sell line upward. On October 12, the stock jumped upward again. After a week or so, Jenny was able to draw another sell line parallel to the original BARR trend line that intersected stock prices. She decided that should the stock fall to the lower sell line, she would dump the stock. She raised her stop-loss point to 31. But the stock did not return to the lower sell line.

The stock reached a minor high of 34.38 on October 19, then retraced some of its prior gains. It curled around and reached a low of 32.88 before turning around. Jenny printed out another price chart and drew a new trend line. This line had a slope of about 60 degrees. She smiled as the BARR was performing exactly as predicted.

During the first part of December, prices pierced the 60 degree trend line when the stock began moving sideways. Jenny suspected that the rise was nearly over, but one could never tell for sure until it was too late. She decided that should the stock decline below the latest sell line, she would close out her position.

The stock moved up again. A few days after Christmas, the stock reached a new high of 39.75 and Jenny was able to draw another sell line. During the next 2 weeks, the stock declined to the lower sell line, then rebounded to challenge its recent high. On January 15, it peaked at 39.88, a smidgen below the 40 resistance number she estimated earlier.

To Jenny, the day looked like a one-day reversal, but she could not be sure. Taken together, the two highest points looked like a double top, but the recession between them was not deep enough to qualify and the two peaks were a bit too close together. Still, it was a warning sign and it made her nervous.

Less than a week later, the stock declined below the lower sell line. Should she sell or hold on for additional gains? She looked back at the profit she had made so far and decided not to be greedy. She sold the stock at 36.75 on January 22. The next trading day, the stock closed up 1.25 at 38, and she was crestfallen.

She continued to monitor the stock and watched it hesitantly move higher over the next 2 weeks. She tried to take solace in the large profit she achieved, but it was little comfort in the face of missed gains. Did she sell too soon? On February 23, her question was answered when the stock dropped below her sell point, heading down.

Jenny watched the stock drop to 35 and find support at that level. Then, it continued moving down. In early April, the stock declined below the original trend line and she calculated the minimum target price of 31. This was reached within the week and the stock continued falling.

She turned her attention to other interesting situations and forgot her trade until July 1994. By chance, she pulled up a chart of the company and was horrified to see that the stock had declined to a low of about 21, almost a 50% decline from the high.

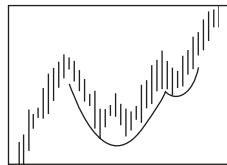
For Best Performance

The following list includes tips and observations to help select better performing BARR tops. Consult the associated table for more information.

- Follow the identification guidelines to select BARR tops—Table 8.1.
- Select BARRs in a bear market for the largest average decline—Table 8.2.
- The decline in a bear market is steeper than in a bull market—Table 8.2.
- Pick BARRs in a bear market for the lowest failure rate—Table 8.3.
- Select patterns with breakouts in the middle of the yearly price range—Table 8.4.
- Pullbacks hurt performance. Look for underlying support before trading—Table 8.4.
- Breakout day gaps help performance—Table 8.4.
- Almost half of the bear market patterns reach the ultimate low in fewer than 3 weeks. Look for a trend change a month after the breakout—Table 8.5.
- Pick tall patterns and avoid those that are both short and wide—Table 8.6.
- A falling volume trend may suggest better postbreakout performance in a bear market—Table 8.7.

9

Cup with Handle



RESULTS SNAPSHOT

Upward Breakouts

	Bull Market	Bear Market
Appearance	Looks like a cup profile with the handle on the right.	
Reversal or continuation	Short-term bullish continuation	
Performance rank	13 out of 23	9 out of 19
Break-even failure rate	5%	7%
Average rise	34%	23%
Change after trend ends	-30%	-34%
Volume trend	Downward	Upward
Throwbacks	58%	42%
Percentage meeting price target	50%	27%
Surprising findings	Patterns that are tall, have short handles, and a higher left cup lip perform better.	
See also	Bump-and-Run Reversal Bottom; Rounded Bottom	

This pattern sports a low failure rate but a below average rise when compared to other chart pattern types. The Results Snapshot shows the numbers. A few surprises are unique to this pattern. A cup with a short handle (shorter than the median length) tends to outperform those with longer handles. If the left cup

lip is higher than the right, the postbreakout performance is also slightly better. The higher left lip is a change from the first edition of this *Encyclopedia* where cups with a higher right lip performed better. I believe the difference is from the change in methodology and a larger sample size.

Tour

The cup-with-handle formation was popularized by William J. O’Neil in his book, *How to Make Money in Stocks* (McGraw-Hill, 1988). He gives a couple of examples such as that shown in Figure 9.1. The stock climbed 295% in about 2 months (computed from the right cup lip to the ultimate high). Unfortunately, it does not meet O’Neil’s criteria for a cup-with-handle formation. I discuss my interpretation of his criteria in a moment, but let us first take a closer look at the chart pattern. The stock began rising in early August at a price of about 5.50 and climbed steadily until it bumped up in early December. Volume, incidentally, was very high for the stock at this stage. The stock climbed robustly then rounded over and plunged back through an earlier trend line. It completed a bump-and-run reversal (BARR). During its climb, the stock reached a high of 26.88 during late December and a low of 12.38 after the BARR top—a loss of 54%. The rise and decline formed the left side of the cup. Over the next 2 months, prices meandered upward and pierced the old high during late March. The rise to the old high completed the right side of the cup.

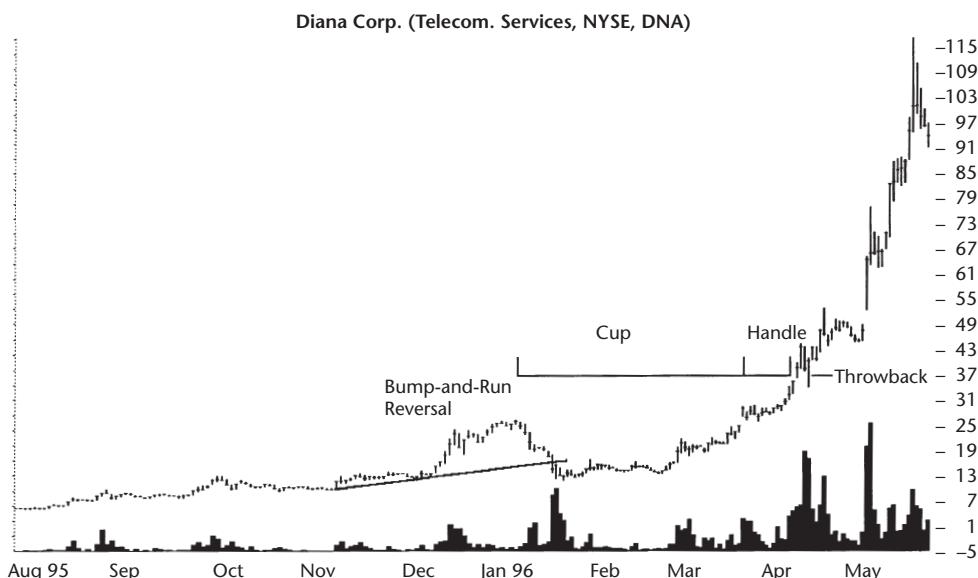


Figure 9.1 Bump-and-run reversal that leads to a cup-with-handle formation. Note the price scale as the breakout occurs at about 30 and the stock climbs to 120 in fewer than 2 months. The cup handle is a high, tight flag formation.

Profit-taking stunted the climb and prices moved horizontally for almost 2 weeks before resuming their rise. This movement formed the cup handle (incidentally, the handle in this formation is a high, tight flag formation). Volume during formation of the handle was down sloping—higher at the start and trending lower. When prices rose above the cup lip, a breakout occurred. This accompanied a surge in volume that propelled prices higher. However, a week after the breakout, prices threw back to the handle top before continuing upward. This throwback allowed nimble investors the opportunity to enter long positions or add to existing ones. By late May, just 44 days after the breakout, the stock reached the ultimate high of 120.

Identification Guidelines

In the study of chart formations, when I search a database for various patterns, I ignore most conventional selection criteria. I let the formations determine their own characteristics. That is the approach I used in selecting the cup-with-handle formation. Table 9.1 shows both the O’Neil selection criteria and the guidelines I used to choose patterns.

Table 9.1
Two Different Approaches to O’Neil’s Cup-with-Handle Pattern

O’Neil Criteria	Bulkowski Selection Guidelines
Improving relative strength	None
Substantial increase in volume during prior uptrend	None
Rise before cup is at least 30%	Same
U-shaped cup	Same
Cups without handles allowed	Cup must have handles
Cup duration: 7 to 65 weeks	Same
Cup depth: 12% or 15% to 33%; some decline 40% to 50%	None
Handle duration: usually at least 1 to 2 weeks	1 week minimum
Handle downward price trend	None
Handle downward volume trend	None
Handles form in upper half of cup	Selected if handle <i>looks like</i> it formed in upper half
Handle forms above 200 day price moving average	None
Handle price drop should be 10% to 15% from high unless stock forms a very large cup	None
High breakout volume, at least 50% above normal	None
Saucer with handle price pattern has more shallow cups	None
None suggested	Cup edges should be at about the same price level

In the first edition of this book, I applied as many of his guidelines as I could and found that fewer than 10% of the patterns I considered valid cups were chosen. Plus, the performance of the selected few was not as good as the cups I found using the Bulkowski guidelines shown in Table 9.1. For more information about the cup with handle pattern, consult O’Neil’s book.

Here is a brief review of the guidelines I found important.

Rise before cup is at least 30%. As I was selecting cup-with-handle patterns, it became apparent that locating cups during an uptrend was important. So I used O’Neil’s minimum rise to the left cup lip of 30%. To measure this, I applied the same method as for finding the trend start (see the Glossary for a definition) and reviewed those that fell short of 30%. If the trend start using the mechanical method was shy (usually by just a few percentage points) of the required 30% but the price trend appeared longer on examination, I accepted the pattern. Just 15 of 471 patterns (3%) were in this category.

U-shaped cup, handle duration. I removed all V-shaped cups and kept the U-shaped ones. I am not sure about the performance effect of this. Also removed were those cups with handles shorter than 7 days (5 trading days). A cup without a handle is a rounding bottom. I considered the handle length as the distance from the right cup lip to the breakout.

Cup duration. I used a strict interpretation of O’Neil’s cup duration. Removed were short cups (fewer than 7 weeks) and overly long ones (over 65 weeks).

Handles form in upper half of cup. I used a more lax interpretation of where the handle forms on the cup. In other words, I visually inspected the cups to be sure prices in the handle drifted no lower than halfway down the cup. I removed those drifting lower (include all with downward breakouts). When measuring distance, use an arithmetic chart, not a semilogarithmic chart.

Cup lips near same price. Finally, I selected cups with lips (tops) at approximately the same price level. Cups with uneven lips are better classified as scallops. I assign no hard percentages to the difference. Use your own judgment and the figures in this chapter as guides.

Figure 9.2 shows another good example of the cup-with-handle pattern. The cup gently rounds over and climbs just beyond the old high then pauses. Prices drift down in the handle, along with a down-trending volume pattern before the breakout. Then volume surges and prices move smartly upward. Two days after the breakout, prices move marginally lower again and enter the region of the right cup lip. After a brief throwback, prices are soon on their way again. Less than 2 months later, the stock tops out at 15.50 for a rise of 22%.

If you look on either side of the cup in Figure 9.2 you will find two additional cups (portions of which are shown) that fail. The one on the left breaks out downward and the one on the right fails to continue rising by more than

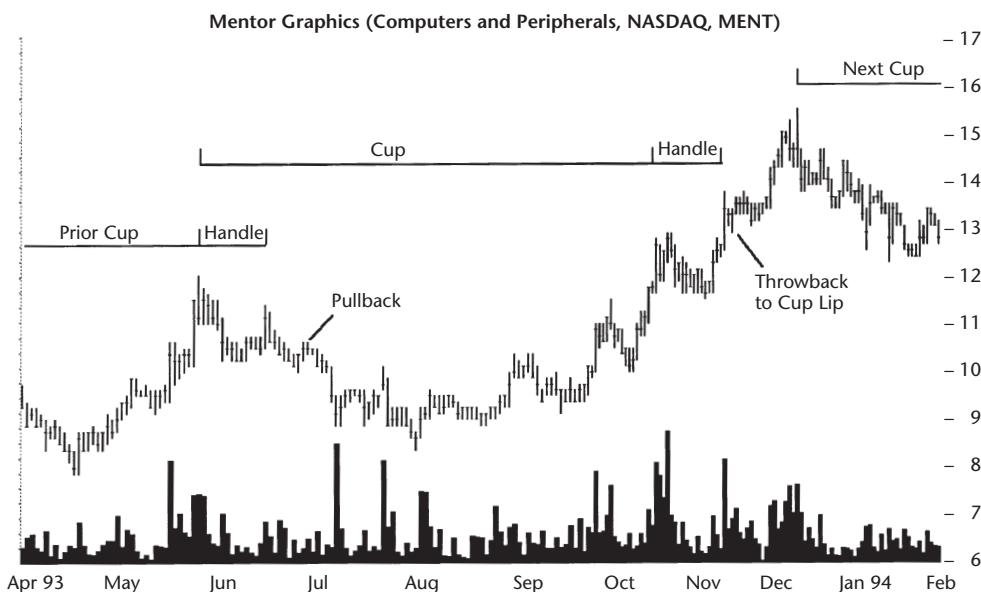


Figure 9.2 A cup-with-handle pattern. The cup and handle are shaped nicely, with the right cup lip slightly higher than the left.

5%, so it, too, is a failure. Only the center cup works as expected but even it shows muted gains.

Figure 9.3 also shows a cup-with-handle formation but on the weekly time scale. When I was searching for the various formations, I found that weekly scales provide an easy way to identify many of the formations. Of course, I also looked at daily price data to refine the weekly patterns and identify new formations that I may have missed.

The chart in Figure 9.3 shows an example of a cup-with-handle formation in which the rise falters after rising just 11%. Fortunately, after declining back to the handle base, the stock recovers and goes on to form new highs. Ultimately, the stock gains 52%.

Figure 9.3 also highlights an incorrectly selected cup: an inner cup. There is no 30% rise leading up to the formation (since prices are trending downward) and the handle lasts just 2 days. However, inner cups offer wonderful trading opportunities as they allow you to get in on the ground floor of an impending rise. Even if prices only rise to the height of the outer left cup lip, the move can be significant.

Figure 9.4 shows another example of an errant cup selection. The rise from point A to point B is less than 30%. Had you invested in this pattern after prices rose above the cup lip, you would have seen the stock climb to 34.50, an increase of just 11%. After it reached the high, the stock plummeted. In less than a month, prices declined to 21.50, a loss of 38%.

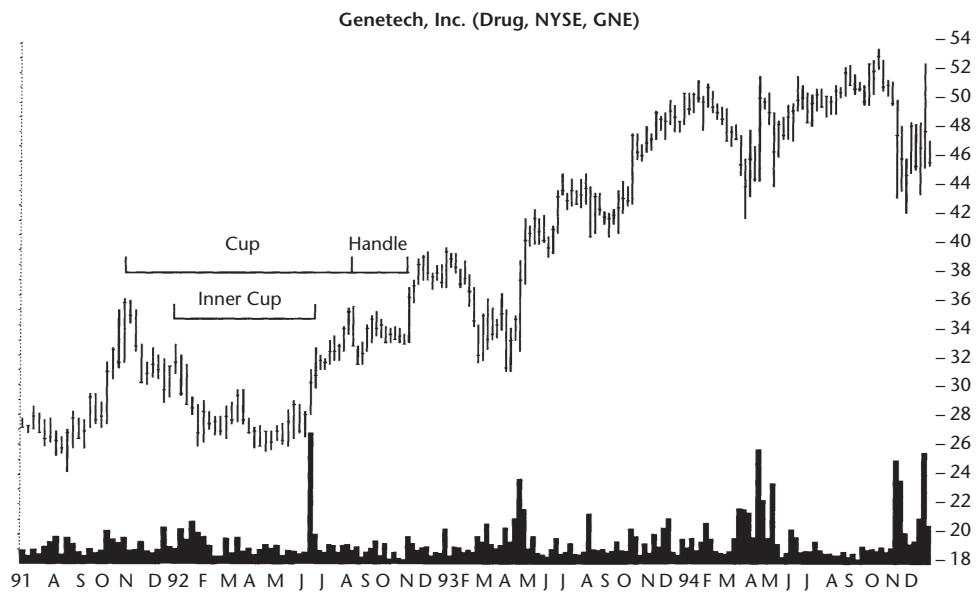


Figure 9.3 Cup-with-handle pattern on a weekly scale. The failure at 10% to 15% above the breakout is quite typical for this formation. However, this stock recovered and continued upward.

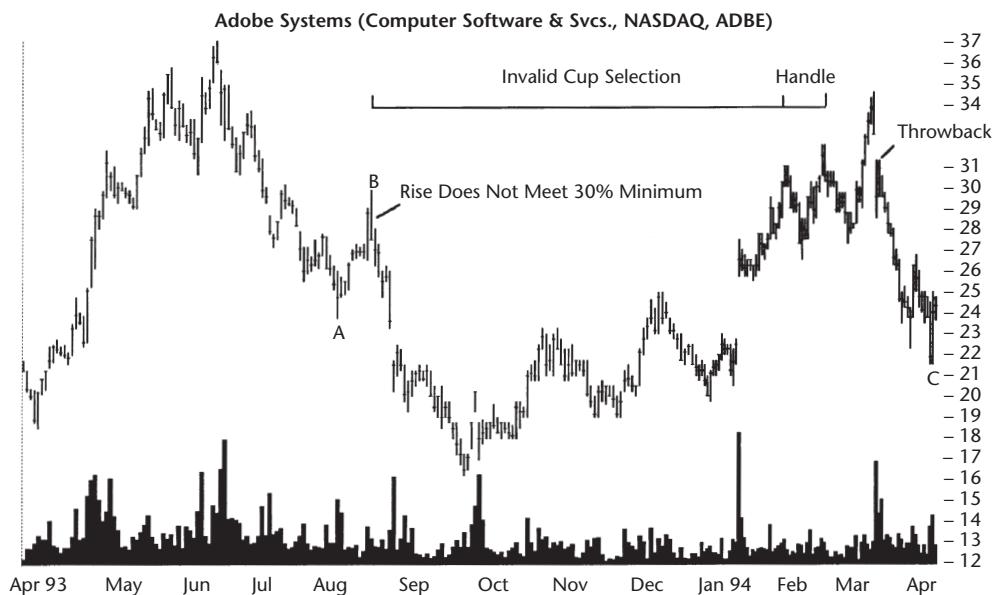


Figure 9.4 An invalid cup-with-handle pattern. The rise from point A to point B is less than 30%. The two outer peaks (in June and March) do not create a cup either because the handle drops down too far (point C)—well below the cup midpoint.

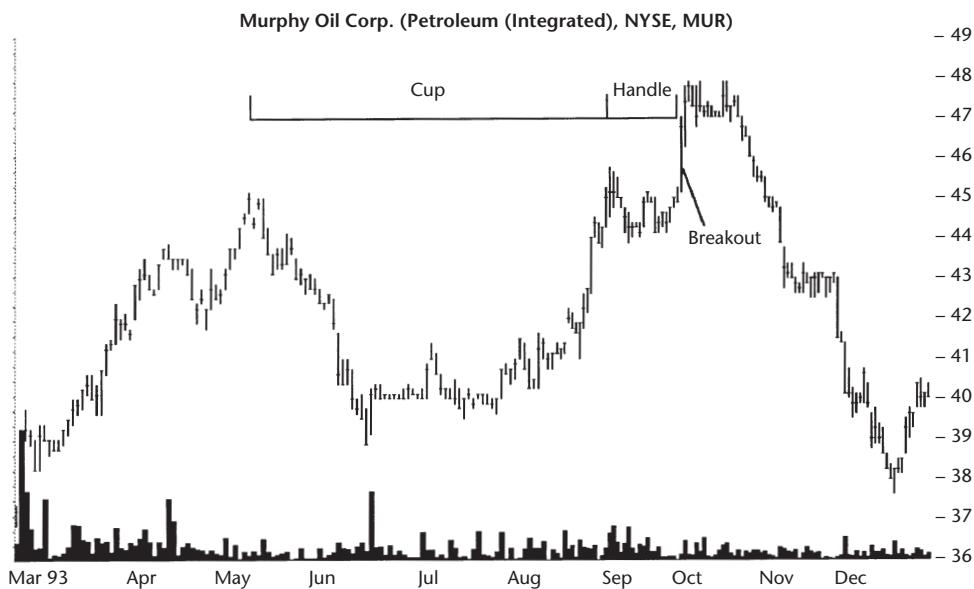


Figure 9.5 A cup-with-handle formation 5% failure. Although prices break out upward, they move less than 5% away from the cup lip before plunging downward.

Focus on Failures

Like most patterns, cups fail because of the inability of the stock to rise by at least 5% before declining. Figure 9.5 shows this situation. The nicely shaped cup forms after an extended price rise from 33 to 45. The two cup edges are at about the same price level. The handle seems to form a small cup of its own. Prices move up sharply in late September and break above the right cup lip and continue higher, but only briefly. The stock tops at 47.88, moves horizontally for about 3 weeks, then starts down. Two months later, the stock hits a low of 37.63. The rise after the breakout is slightly less than 5%. I classify as a failure a stock that does not continue moving more than 5% in the direction of the breakout.

Statistics

Table 9.2 shows general statistics for cup-with-handle patterns.

Number of formations. Cups in a bear market are like birds at a feeder when a cat is around—few cups occur. This rarity is because of the identification guidelines that require a 30% rise leading to the cup plus an upward breakout. Not all stocks decline in a bear market, so cups do occur—they just underperform those in a bull market.

Reversal or continuation. By definition, with price rising into the pattern and an upward breakout, a continuation of the prevailing price trend is suggested. Sometimes, however, the cup will reverse the price trend. This

Table 9.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout
Number of formations	412	59
Reversal (R), continuation (C)	20 R, 392 C	0 R, 59 C
R/C performance	15% R ^a , 35% C	0% R, 23% C
Average rise	34%	23%
Rises over 45%	117 or 28%	8 or 14%
Change after trend ends	-30%	-34%
Busted pattern performance	-28% ^a	-29% ^a
Standard & Poor's 500 change	16%	-5%
Days to ultimate high	167	63

Note: Minus sign means decline.

^aFewer than 30 samples.

occurs as part of a bounce from a downward price trend. The performance from these reversals is well below continuations and they are rare.

Average rise. The pattern is an average performer, falling just shy of the average rise from all other chart pattern types.

Rises over 45%. How well does the pattern perform? Over a quarter of the patterns (28%) rise more than 45% in a bull market. In a bear market, the rate is nearly half that. The values are about normal for bullish chart patterns.

Change after trend ends. When the upward trend ends, what happens? Prices drop over 30%. Keep that in mind when someone tells you to buy and hold a stock showing a cup-with-handle pattern. The drop also means that you return nearly all of your gains in a bull market. Pick price targets carefully and sell when appropriate. Hanging onto a profitable position too long may spell disaster. Remember that the longer you are in the market, the more risk you take.

Busted pattern performance. Few samples make the numbers in the table, but they show how far prices decline after a busted pattern. If you see prices climb then reverse, consider a short sale only if the industry and market agree with the direction of the new trend.

Standard & Poor's 500 change. In a bull market, the index gained 16%, and in a bear market, the index dropped 5%. Coupling this finding with the average rise, we see the effect of the general market trend on a stock's performance. In short, a bullish pattern does better in a bull market than in a bear one. No kidding, right?

Days to ultimate high. How long does it take price to reach the ultimate high? In a bull market, the climb lasts 167 days (5.5 months) on average. The lower price rise in a bear market is easier to reach, thus the climb is shorter too, lasting just 63 days (2 months). If you prorate the bear market numbers, you will find that the climb in a bear market must be steeper than the rise in a bull market.

Table 9.3
Failure Rates

Maximum Price Rise (%)	Bull Market, Up Breakout	Bear Market, Up Breakout
5 (breakeven)	22 or 5%	4 or 7%
10	68 or 17%	10 or 17%
15	117 or 28%	18 or 31%
20	158 or 38%	27 or 46%
25	199 or 48%	34 or 58%
30	224 or 55%	41 or 69%
35	256 or 62%	44 or 75%
50	308 or 75%	51 or 86%
75	356 or 86%	57 or 97%
Over 75	412 or 100%	59 or 100%

Table 9.3 shows cup failure rates. I removed from consideration all cups with downward or horizontal breakouts. As with other chart pattern types, cups show a break-even failure rate that climbs rapidly as the maximum price rises. I mean that 22, or 5%, of the cups in a bull market fail to rise more than 5%. Over a quarter (28%) fail to rise at least 15%, and half do not make it to a 30% gain. Cups in a bear market show a similar trend with the failure rates a bit higher.

Table 9.4 shows breakout- and postbreakout-related statistics.

Table 9.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout
Formation end to breakout (handle length)	34 days	26 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L1%, C5%, H93%	L2%, C8%, H90%
Percentage rise for each 12-month lookback period	L100% ^a , C29% ^a , H34%	L45% ^a , C18% ^a , H23%
Throwbacks	58%	42% ^a
Average time to throwback ends	11 days	11 days
Average rise for patterns with throwback	30%	25% ^a
Average rise for patterns without throwback	40%	21%
Performance with breakout gap	39%	20% ^a
Performance without breakout gap	33%	23%
Average gap size	\$0.29	\$0.29

^aFewer than 30 samples.

Formation end to breakout. How long does it take price to reach the breakout from the right cup lip, that is, a close above the right side high? In both markets, it takes about a month. The distance from the right cup lip to the breakout is also the handle length.

Yearly position. As you can see in the table, the vast majority of breakouts occur near the yearly high. Since the breakout is at the top of a 30% rise leading to the cup, the results are no surprise.

Yearly position, performance. Where in the yearly price range do the best performing cups reside? I consider the results meaningless because of the low sample counts. If you believe the statistics, those cups with a breakout near the yearly low soar well above the gains posted by the middle or high ranges. I looked closer at this observation and found that there were 6 cups involved (bull market only) and most showed gains any trader would love.

Throwbacks. A throwback occurs about half the time if you average the two values. This is still too infrequent to rely on. In other words, do not depend on a throwback allowing you another opportunity to buy into the situation.

When a throwback occurs, it takes 11 days for the stock to return to the breakout price. In a bull market, a throwback hurts performance. In a bear market, a throwback helps performance, but the sample count is low. In most chart pattern types, throwbacks are detrimental.

Gaps. Gaps help performance in a bull market but hurt it in a bear market, as Table 9.4 shows.

Table 9.5 shows a frequency distribution of time to the ultimate high. You can see that in a bull market, over half of all cups take more than 70 days to reach the ultimate high. In a bear market, only a third of the patterns will still be climbing toward the high after 70 days.

On the other end of the scale, few patterns flame out early. Usually a quick rise to the ultimate high does not result in a large gain, so higher numbers on the right of the table are a plus. The table shows that 15% of the cups in a bear market will top out in the first week. Half the patterns will drop at least 20% before day 35. The 20% decline is part of the definition of the ultimate high. See the Glossary for more details on the ultimate high.

Table 9.6 shows size-related statistics.

Height. Do tall patterns perform better than short ones as they do in many other chart pattern types? Yes. To compute cup height, measure from the higher of the cup lips to the formation low, and then divide by the high of

Table 9.5
Frequency Distribution of Days to Ultimate High

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	15%	3%	10%	10%	10%	5%	3%	2%	2%	5%	34%
Bull market	10%	5%	4%	5%	2%	1%	4%	4%	3%	4%	57%

Table 9.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout
Tall pattern performance	37%	26% ^a
Short pattern performance	32%	20%
Median height as a percentage of breakout price	27.41%	36.80%
Narrow pattern performance	36%	20%
Wide pattern performance	33%	26%
Median length	155 days	132 days
Average formation length	166 days	151 days
Short and narrow performance	33%	20% ^a
Short and wide performance	31%	19% ^a
Tall and wide performance	34%	29% ^a
Tall and narrow performance	43%	19% ^a
Short handle performance	37%	23% ^a
Long handle performance	32%	20% ^a
Median handle length	23 days	22 days
Higher right cup lip performance	34%	19%
Equal cup lip performance	32% ^a	20% ^a
Higher left cup lip performance	35%	29% ^a

^aFewer than 30 samples.

the right cup lip (the breakout price). Compare the result to the median in the table. For best performance, select tall cups.

Width. Narrow patterns perform better in a bull market but wide ones outperform in a bear market. I used the median length as the separator between narrow and wide.

Average formation length. The cup length was similar regardless of market conditions, measuring over 5 months long. Recall that the cup must be between 7 weeks and 65 weeks (49–455 days).

Height and width combinations. In a bull market, cups both tall and narrow outperform. In a bear market, tall and wide cups perform best, but the sample count is low. The worst performing cups are short and wide.

Handle length. In the first edition of the *Encyclopedia*, I discovered that cups with shorter handles performed better than do those with long ones. In other words, if the rise to the breakout is quick, expect better performance.

Higher cup lip. I separated cups into those with a higher right lip, cups with equal highs, and those with higher left cup lips. Those with higher left cup lips performed better after the breakout than the other two combinations.

Table 9.7 shows volume-related statistics.

Table 9.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout
Rising volume trend performance	34%	18%
Falling volume trend performance	34%	28%
U-shaped volume pattern performance	38%	28% ^a
Dome-shaped volume pattern performance	30%	16% ^a
Neither U-shaped nor dome-shaped volume pattern performance	37%	26% ^a
Heavy breakout volume performance	34%	25%
Light breakout volume performance	37%	17% ^a

^aFewer than 30 samples.

Volume trend. The volume trend only seemed to matter in a bear market, where cups with a falling volume trend outperformed those with a rising volume trend.

Volume shapes. Cups with U-shaped volume performed better post-breakout than the other volume shapes.

Breakout volume. Cups with light breakout volume performed well in a bull market, but those with heavy breakout volume did better in a bear market.

Trading Tactics

Table 9.8 lists trading tactics.

Table 9.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the formation height by subtracting the lowest low reached in the cup from the high at the right cup lip. Add the difference to the high at the right cup lip and the result is the target price to which prices will climb, at a minimum. Only 50% of the formations rise that far in a bull market; 27% hit the target in a bear market. Use half the cup height to get a more realistic price target (met 76% of the time in a bull market; 55% in a bear market).
Buy inner cup	If you discover a cup within a cup, buy on the breakout of the inner cup (when prices rise above the inner cup lip). Be prepared to sell at the price of the old high.
Stop loss	Place a stop-loss order 0.15 below the handle to limit losses. Raise the stop to breakeven or just below the nearest support zone when prices rise.

Measure rule. The measure rule predicts the price to which the stock will rise, at a minimum. The traditional method involves determining the height of the formation from lowest low in the cup to the high at the right cup lip. Adding the difference to the high at the right cup lip results in the target price. However, this method only has a 50% success rate (half the formations reach their price targets in a bull market—fewer, 27%, in a bear market). For a better target, compute the cup height and take half of it. Then continue as before. The stock reaches the new, lower-priced target 76% of the time in a bull market; 55% in a bear market. This is still shy of the 80% number I consider reliable, but it gives a more accurate indication of the likely price rise.

Figure 9.6 is an example of the two measure rules in practice. Compute the cup height by taking the difference between the right cup high (point A at 19) and the cup low (point B at 10). Add the difference (9) to the right cup lip to get the price target (28). Mid-May sees prices hit the target but plummet the following week.

A more conservative price target uses half the formation height. This method gives a target of just 23.50, reached during early July. The stock climbs to the nearer target quickly and without the severe declines experienced on the way to the more risky price target.

Buy inner cup. Figure 9.6 also shows an inner cup. If you are going to trade this formation and can identify an inner cup, buy it. An inner cup appears

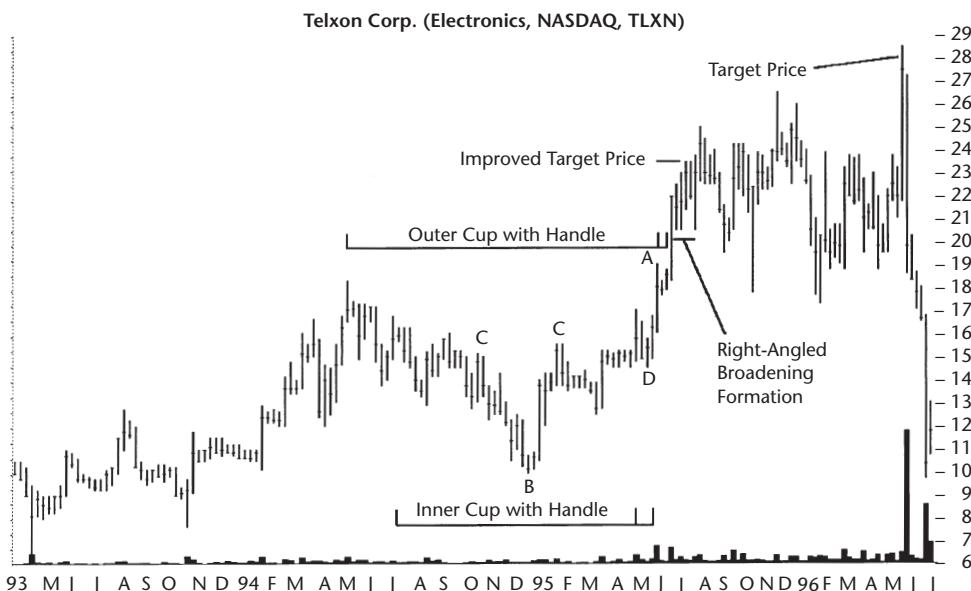


Figure 9.6 Example of the two measure rules in practice. Compute the formation height, divide by 2, and add the value to the right cup lip to get a conservative price target. Trade the inner cup-with-handle formation for a better entry price. A right-angled ascending broadening top appears during June and July 1995.

as two widely spaced minor highs that are at about the same price level. You score as the stock advances to the old high (the outer, left cup lip) and further if the outer cup-with-handle formation succeeds. Playing the inner cup shown in Figure 9.6 would have boosted profits about \$2 a share or 12%.

Stop loss. Once you initiate a trade, place a stop-loss order 0.15 below the handle low. The handle is a place of support and sometimes declines will stop at that point. Placing a stop just below the low point will get you out of those situations when the stock continues tumbling.

When the stock rises, move your stop to 0.15 below the support zone nearest your break-even point. That way, if the stock declines, you will be protected. Continue raising the stop as prices climb. This technique forces you to eventually take profits but saves you from watching them fritter away during a reversal.

Sample Trade

Cody is in high school. He is not sure what he wants to do for a living, but he still has a few years to figure it out before he graduates. When he is not chasing cheerleaders, he either has his nose buried in the financial pages or is reviewing charts on the computer screen. His interest in stocks follows in his father's footsteps: The man works for a brokerage firm and taught Cody the ropes.

Although Cody does not belong to the investment club at school, he pals around with the players. One day, he overheard them talking about the stock pictured in Figure 9.6. At first he did not think much about it until he looked deeper. That is when he saw it: a cup-with-handle pattern.

He was not convinced the stock was a good trade, and but did not have the money to buy it anyway. He decided to paper trade it to see what he could learn. On the daily time scale, he saw an inner cup forming at point C, so that is the one he decided to trade.

Week after week, he waited for the buy signal but it did not come. Eventually, the stock climbed above the right cup lip but he missed it. When he pulled up the stock chart on his computer, a throwback had already occurred. So he waited for prices to climb above the cup lip again.

That happened on May 9, his girlfriend's birthday. Sensing a positive omen, he made a notation to buy the stock, on paper, at the closing price the following day (filled at 15.25). When he met his girlfriend the next day, she was not impressed with the birthday present he gave her, and the stock closed lower as well.

Two weeks later, the stock was moving up. Cody placed his stop 0.15 below the handle low, at 14.38 (point D, which also marks the purchase point). When the stock climbed above the outer cup, he raised the stop to 0.15 below the handle low or 17.50. Then he noticed a problem forming: a right-angled

broadening top formation. To him that was a bearish signal, so he moved his stop up to just below the base at 20.25. Then he waited.

He got word that the stock was in trouble from his pals. They were not too happy with the company for some reason. When he pulled the stock up on his computer screen, he noticed that it had hit his stop in late August when prices momentarily dipped. Cody whipped out his calculator and tallied up his gains. He made \$5 a share for a gain of over 30%. He chuckled to himself that next time he would use his paper profits to buy his girl something other than cubic zirconium.

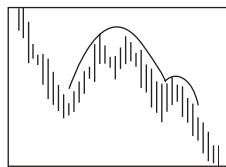
For Best Performance

The following list includes tips and observations on selecting cup-with-handle patterns for best performance. Refer to the associated table for more information.

- Use the identification guidelines to select cups—Table 9.1.
- Select cups in a bull market and avoid those in a bear market—Table 9.2.
- Cups in a bull market have a lower failure rate—Table 9.3.
- Select cups with breakouts near the yearly low—Table 9.4.
- After the breakout, prices take longer to reach the ultimate high in a bull market, giving them a better chance of a larger gain—Table 9.5.
- Pick tall cups—Table 9.6.
- Choose cups with short handles and higher left cup lips—Table 9.6.
- Cups with U-shaped volume perform best—Table 9.7.

10

Cup with Handle, Inverted



RESULTS SNAPSHOT

Downward Breakouts

Appearance	Price follows the shape of an inverted cup followed by a handle. Price breaks out downward.	
Reversal or continuation	Short-term bearish reversal	
	Bull Market	Bear Market
Performance rank	8 out of 21	1 out of 21
Break-even failure rate	11%	2%
Average decline	16%	26%
Change after trend ends	56%	54%
Volume trend	Downward	Downward
Pullbacks	54%	48%
Percentage meeting price target (based on handle height, not cup height)	47%	49%
Surprising findings	The pattern occurs more often in a bear market. For declines less than 20%, the pattern fails in a bull market almost twice as often as in a bear market. Pullbacks hurt performance but breakout day gaps help. Tall or narrow patterns perform better than short or wide ones.	
See also	Rounding tops	

To find this new pattern, I had two things to work with: a picture of an idealized inverted cup from a Web site and one line of text describing it. That was enough. I searched through my databases for the pattern, created some identification guidelines, and then gathered statistics. The pattern performed better than I thought.

As the accompanying Results Snapshot shows, in a bear market the patterns have a 2% breakeven failure rate—very low. The average decline is 26%, a good showing for a bearish pattern.

The measure rule, the height of the pattern subtracted from the right cup rim, fails. Just 12% of the time in a bear market (15% in a bull market) does price reach or exceed the target. I consider values above 80% to be reliable. So I changed the measure rule to use the handle height applied to the low at the right rim. This approach works better, as the Snapshot shows, but still falls well short of the 80% benchmark. I also tried half the cup height but the success rates were in the 30% range.

Tour

Figure 10.1 shows an example of an inverted cup-with-handle pattern (icup). The pattern looks like a rounded top but includes a handle. In this example, the

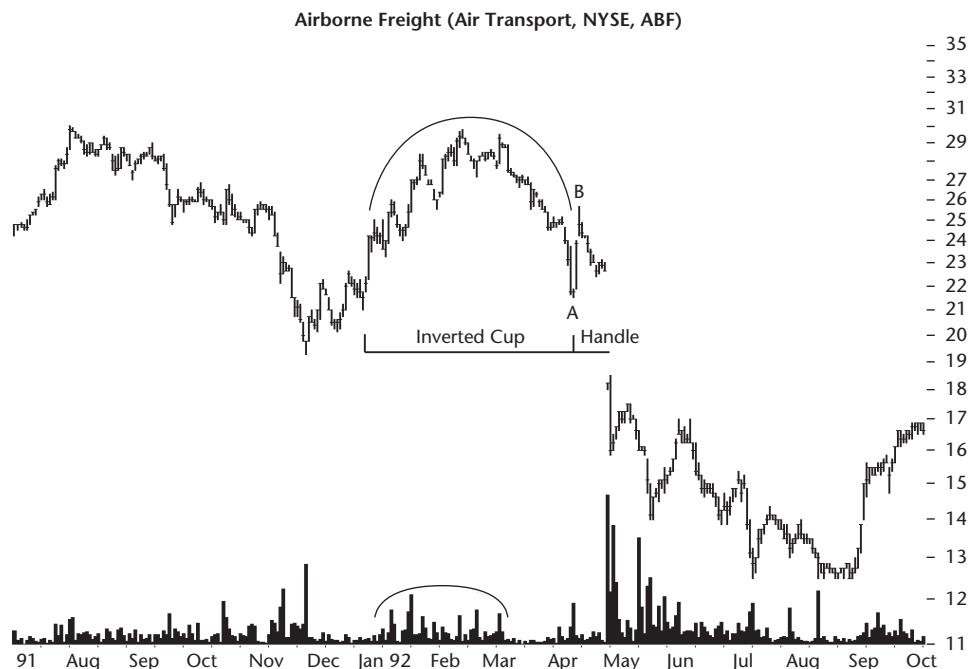


Figure 10.1 An inverted cup-with-handle pattern appears along with dome-shaped volume. The handle retraces the decline by rising from A to B, and then prices move lower before gapping below the right cup rim, confirming the pattern.

cup portion appears rounded and a handle follows the pattern on the right. This particular handle is narrow and tall, retracing (from A to B) a significant portion of the decline from the top of the pattern to the right cup rim (point A). Prices continue dropping, confirming the pattern as a valid one when it closes below point A, the low of the right cup rim. The figure shows price gapping lower on high volume, but do not expect such behavior. Once the icup confirms, prices drop but usually not as steeply as that shown.

Figure 10.1 also shows what a dome-shaped volume pattern looks like. The rounded volume pattern roughly mimics the price pattern. That is not always the case as sometimes the dome volume pattern is wider, extending beyond the icup price boundaries.

Identification Guidelines

Table 10.1 shows identification guidelines for icups. Refer to Figure 10.2 as I discuss them.

Upward price trend. The pattern acts as a reversal of the prevailing price trend 57% of the time. Since the breakout is downward, that means prices must enter the pattern from the bottom. In Figure 10.2, price drops into the pattern. Thus, this example acts as a continuation of the downward price trend, not a reversal.

Rounded cup. I did not check the performance of rounded cups versus V-shaped cups, and I tried to limit my selections to the U shape. I consider Figure 10.2 to have the V-shape (but used it in the study anyway) and the other figures in this chapter to be U-shaped or rounded. You may find it easier to picture an inverted teacup in your mind as you search for it.

Table 10.1
Identification Characteristics

Characteristic	Discussion
Upward price trend	Just over half the time, the pattern forms as a price top, meaning that prices enter and exit the pattern from the bottom.
Rounded cup	Look for a smooth, rounded cup, but accept deviations.
Cup rims	The starting and ending points of the cup should stop near the same price, usually less than 6% difference.
Cup handle	Between the right cup rim and the breakout is the handle. It can be any length. The median is 40 days long.
Cup retrace	Price in the handle must not climb above the top of the pattern but should bounce upward. The three most frequent retrace amounts are, in order, 42%, 35%, and 60%.
Breakout	Price must close below the right cup rim before the pattern is valid.

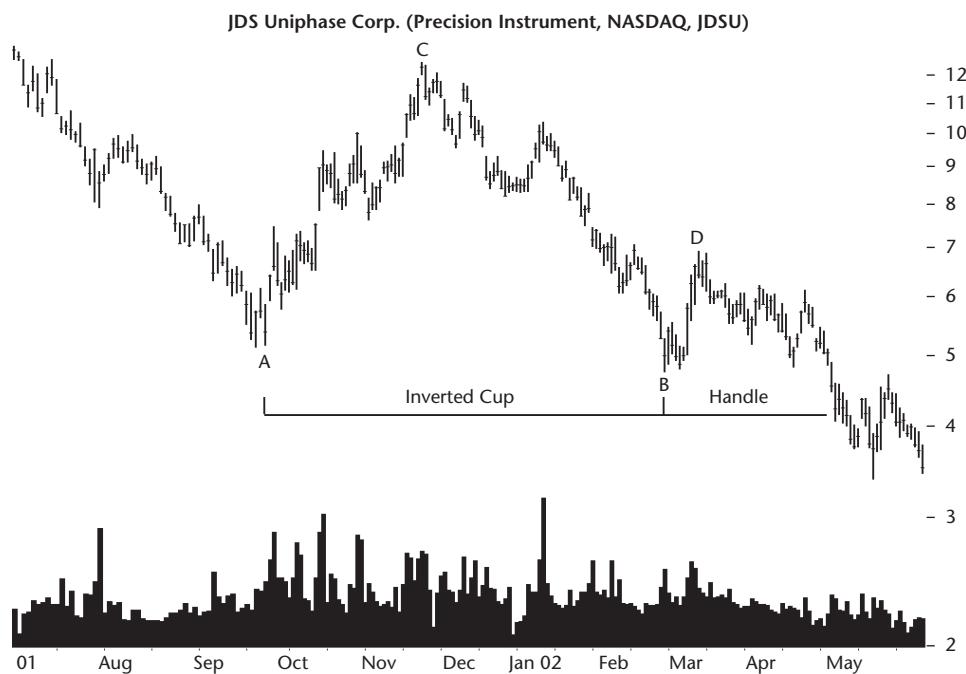


Figure 10.2 The most common retrace amount is 42%, the measure from B to D as compared to B to C.

Cup rims. The cup rims are points A and B in Figure 10.2. Few patterns I looked at had the same price across the cup rim. Usually, prices in the bottom of the pattern varied by no more than 6%.

Cup handle. I define the cup handle as the price pattern from the right cup rim to the breakout (that is, until price closes below the level of the right cup rim). In the figure, the handle is from point B until almost May. The median handle length is 40 days, so that gives you some idea of how long handles are. Expect variations.

Cup retrace. I followed two rules: (1) the handle could not rise above the cup top and (2) there must be at least some rise—a bounce to the stock after the decline from the top of the cup. When prices in the handle bounced up, the most common retrace was 42%. That is, prices climbed 42% of the way to the top of the cup before returning to the breakout. The next two most common retrace amounts were 35% and 60%, respectively. All of these numbers are closing in on their respective Fibonacci retrace values of 50%, 38%, and 62%.

For example, Figure 10.2 shows the retrace as the distance from B to D compared to the distance from B to C. The distance from B to D is 2.16 (6.90 – 4.74). The distance from B to C is 7.70 (or 12.44 – 4.74). The retrace is the ratio of these two values, 28%, or $2.16/7.70$. Although it may not look like the retrace is a quarter of the distance to the top, that is because the chart uses a logarithmic scale.

Breakout. You must wait for the breakout with this pattern before trading. Too many of the patterns I looked at had prices moving upward instead of downward, especially in a bull market. A breakout is a close below point B, the lowest low on the right rim.

Figure 10.3 shows another example of an inverted cup-with-handle. This icup has uneven rims and a top that is really an Eve and Eve double top chart pattern. Points A and B are 9% apart. That is wider than I like to see, but I consider it a valid icup.

An interesting thing about Figure 10.3 is the volume shape. Look from late July to the October peak in volume. See how the pattern shows higher volume at the edges and diminished volume in the middle of the handle—a U shape? You can see several of these shapes below the cup, too.

Focus on Failures

What do failures look like and what causes them? Figure 10.4 shows one type of failure—an identification failure. The cup appears in an upward price trend, suggesting it may act as a reversal. The cup itself is rounded with rims that are 5% apart in price. That is close enough for government work, as the saying goes. The handle retrace measures 46%. The pattern qualifies as an icup with one glaring exception. Do you know what it is?

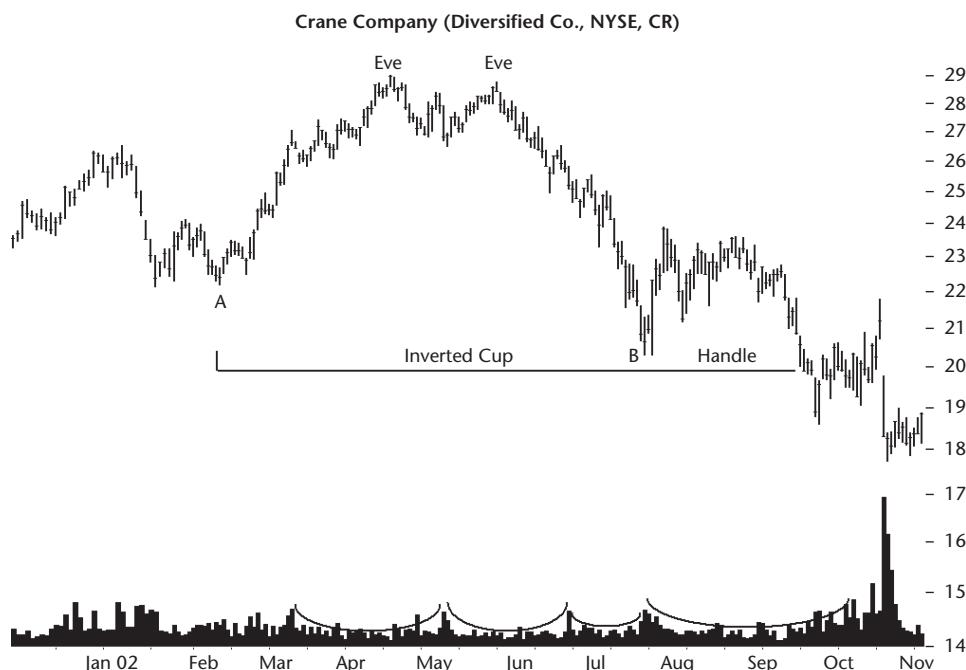


Figure 10.3 This inverted cup-with-handle has uneven rims and U-shaped volume.

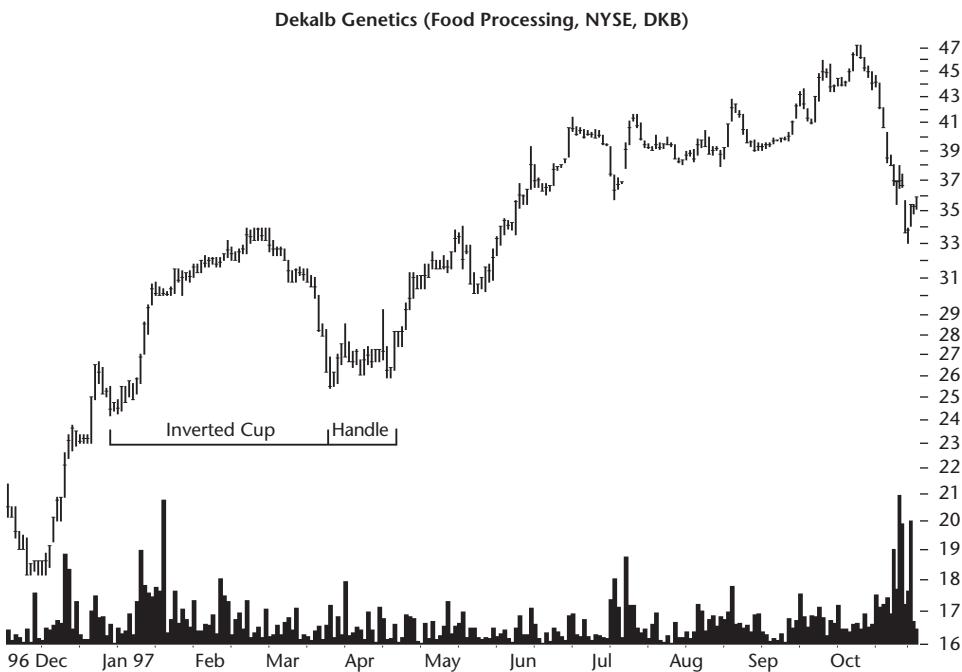


Figure 10.4 This is not an inverted cup-with-handle because price fails to drop below the right cup rim and confirm the pattern.

As you probably guessed, the breakout is upward. Had you shorted the stock in the handle, you would be looking at a loss. Figure 10.4 is a glaring example of why you should wait for the breakout, especially when considering a short sale.

Figure 10.5 shows the next example of a failed trade. Running through the identification guidelines, the price trend leading to the pattern is flat. The cup is rounded with rims at the same price. The handle has an upward bounce that measures 61%, close to the Fibonacci retrace of 62%. Even the breakout is downward, as required by the guidelines. However, prices drop just 3% before rebounding. What happened?

Looking back on the weekly scale shows extensive support beginning in mid-1999 (not shown) and lasting for a year. Price could not pierce 6.50 (moving up) and stay above that level for any length of time, creating a support zone. That price is also where the rim of the icup formed. When the downward breakout occurred, prices ran into stiff support and stopped declining 3% below the breakout.

This is a good example of how important stops are when trading. After opening a short position, place a stop just above the prior high or above a nearby resistance zone. Do not place it too close or you will be stopped out on normal price volatility. Using a stop would have saved a trader from an embarrassing loss.

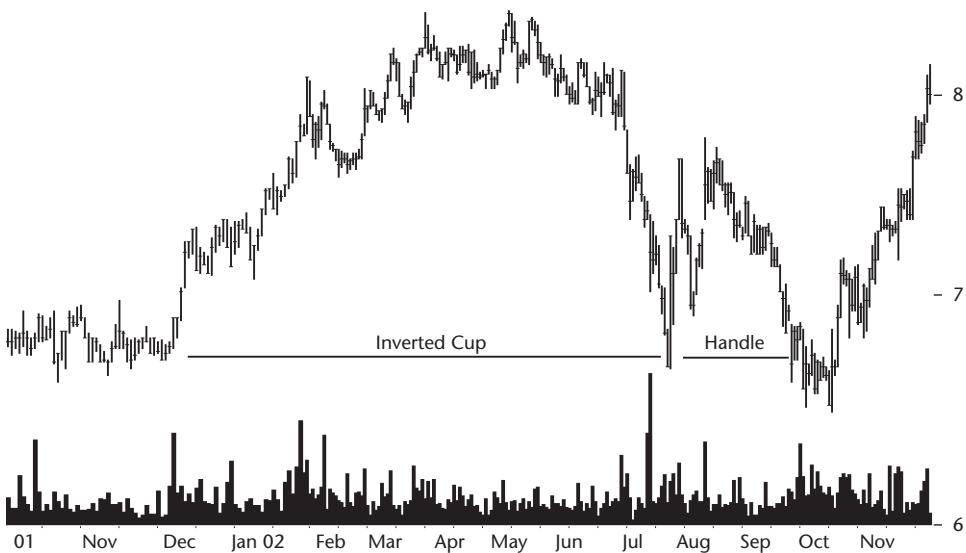


Figure 10.5 A large flat base before the start of the cup supported price and stopped the decline.

Statistics

Table 10.2 shows general statistics for icups.

Number of formations. I split the search for this pattern into three pieces: the bull market from mid-1991 to mid-1996 on 500 stocks, the bear market from 2000 to 2002 on 200+ stocks, and another 300 stocks from 1999 to 2004, but these had varying durations. I found 438 patterns. What does this mean? It shows that this pattern occurs more often in a bear market (prorated) than it does in a bull market.

Reversal or continuation. The pattern acts as a reversal 57% of the time and a continuation of the prevailing price trend the remainder. In a bull market, look for the pattern to appear near the top of the price trend. In a bear market, the pattern is likely to appear as part of an existing downward price trend. I found no performance difference between reversals and continuations.

Average decline. The performance of this pattern in a bull market is just 16%, below the 18% posted by many bullish chart pattern types. In a bear market, performance excels as prices drop an average 26%, above the 24% average decline by other chart pattern types.

Declines over 45%. Since we are dealing with a bearish chart pattern, there are few large declines.

Table 10.2
General Statistics

Description	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	257	181
Reversal (R), continuation (C)	163 R, 94 C	88 R, 93 C
R/C performance	16% R, 16% C	26% R, 26% C
Average decline	16%	26%
Declines over 45%	5 or 2%	11 or 6%
Change after trend ends	56%	54%
Busted pattern performance	62% ^a	65% ^a
Standard & Poor's 500 change	4%	-16%
Days to ultimate low	53	27

^aFewer than 30 samples.

Change after trend ends. Once prices reach the ultimate low, what happens? Prices rise by an average of 54% to 56%, depending on market conditions. If you can determine when the trend changes—even if you are late—you can make a lot of money.

For example, by definition, the ultimate low occurs when prices reach a low and rebound by at least 20%. If you used a 20% turn to mark a trend change, that would still leave 35 percentage points of the rise remaining, on average.

Busted pattern performance. Only 20 patterns qualified as busted patterns so the performance numbers are unreliable and seem high. Usually, the numbers are closer to the “change after trend ends” findings.

If you see prices drop a small amount and then soar, trade the new direction. Expect price to pause near the handle top and pattern top.

Standard & Poor's 500 change. You can see how the general market influenced the average decline. In a bull market, it impeded the decline but in a bear market, it helped dramatically.

Days to ultimate low. In a bull market, it takes prices almost twice as long to reach the ultimate low as it does in a bear market. The bear market decline must be steeper than the decline in a bull market. If you want to short this pattern, do so in a bear market.

Table 10.3 shows the failure rates for icups. In a bear market, rates start small but shoot upward. Still, just 36% of the patterns in a bear market fail to decline more than 20% compared to a bull market failure rate that is almost double (66%). Trade this pattern in a bear market and avoid it in a bull market. Half the patterns in a bear market will fail to decline more than 25%. Keep that in mind if you think you will make a lot of money trading this pattern.

Table 10.4 shows breakout- and postbreakout-related statistics.

Table 10.3
Failure Rates

Maximum Price Decline (%)	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	29 or 11%	3 or 2%
10	90 or 35%	22 or 12%
15	121 or 47%	44 or 24%
20	169 or 66%	66 or 36%
25	200 or 78%	92 or 51%
30	221 or 86%	113 or 62%
35	233 or 91%	143 or 79%
50	253 or 98%	175 or 97%
75	257 or 100%	181 or 100%
Over 75	257 or 100%	181 or 100%

Formation end to breakout. Both markets show nearly the same time from the bottom of the right cup rim to the breakout: 54 to 58 days. As I define it, this is also the length of the handle. This extended time to the breakout gives you an opportunity to spot the pattern.

Yearly position. Where in the yearly price range does the pattern occur most often? Since the breakout is at the bottom of the pattern, you would expect

Table 10.4
Breakout and Postbreakout Statistics

Description	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout (handle length)	54 days	58 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L68%, C27%, H4%	L84%, C16%, H0%
Percentage decline for each 12-month lookback period	L17%, C16%, H13% ^a	L25%, C29% ^a , H0%
Pullbacks	54%	48%
Average time to pullback ends	11 days	12 days
Average decline for patterns with pullback	14%	23%
Average decline for patterns without pullback	19%	29%
Performance with breakout gap	-18%	-27%
Performance without breakout gap	-16%	-25%
Average gap size	\$0.85	\$1.13

^aFewer than 30 samples.

it to appear away from the yearly high. In fact, the vast majority of the time, the breakout is within a third of the yearly low.

Yearly position, performance. Does performance change depending on where in the yearly price range the breakout occurs? The answer is mixed. In a bull market, the best performing patterns have breakouts near the yearly low. In a bear market, the middle of the range works best, but the sample count uses 29 patterns. With additional patterns, the results may change.

Pullbacks. A pullback occurs about half the time. That is not often enough in which to formulate a trading plan (such as wait for the pullback before shorting). It takes, on average, nearly two weeks for the stock to return to the breakout price, completing the pullback.

When a pullback occurs, performance suffers. You can see the effect in the table. Look for nearby support zones—regions that might repel the downward price trend before taking a position in the stock.

Gaps. Icups with gaps show improved performance after the breakout, but the differences are slight.

Table 10.5 shows a frequency distribution of time to the ultimate low. For example, in a bear market, 29% of the patterns bottom in the first week. Nearly half (47% or 29 + 18) reach the ultimate low in less than 2 weeks. A quarter of the patterns in a bull market are still searching for the ultimate low after 2.5 months.

Notice the slight rise in the number bottoming out at day 42 (bear market) and 49 (bull market). Keep an eye out for a trend change 6 to 7 weeks after the breakout.

Table 10.6 shows size-related statistics.

Height. Tall patterns perform better than short ones. To use this observation, compute the formation height by taking the difference between the top of the cup and the lower of the two rims and then divide by the price of the right rim low. If the result is higher than the median, the pattern is tall.

Width. Narrow patterns perform slightly better than wide ones. I used the median length as the separator between narrow and wide.

Average formation length. Icups are wide beasts—about 4 to 5 months long—on average. Icups in a bull market are narrower than in a bear market, but the reason for this is not clear.

Height and width combinations. In both markets, icups that are both tall and narrow perform best. The worst performance comes from icups that are short and wide, so you will want to avoid those.

Table 10.5
Frequency Distribution of Days to Ultimate Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	29%	18%	13%	10%	5%	6%	3%	4%	1%	2%	9%
Bull market	24%	9%	9%	8%	7%	4%	5%	4%	3%	3%	25%

Table 10.6
Size Statistics

Description	Bull Market, Down Breakout	Bear Market, Down Breakout
Tall pattern performance	-18%	-29%
Short pattern performance	-15%	-23%
Median height as a percentage of breakout price	31.93%	52.95%
Narrow pattern performance	-17%	-27%
Wide pattern performance	-15%	-25%
Median length	107 days	123 days
Average formation length	118 days	145 days
Short and narrow performance	-16%	-24%
Short and wide performance	-13%	-21% ^a
Tall and wide performance	-17%	-27%
Tall and narrow performance	-19%	-32% ^a
Short handle retrace performance	-16%	-28%
Tall handle retrace performance	-16%	-24%
Median handle retrace as a percentage of breakout price	45.20%	41.31%
Even rim performance	-19% ^a	-26% ^a
Uneven rim performance	-16%	-26%

^aFewer than 30 samples.

Handle retrace. In a bull market, the amount of retrace did not affect performance. In a bear market, those patterns with retraces less than the median showed declines of 28%, four percentage points better than handles with large retraces.

Rims. Rims are the two lowest lows in the pattern, one on each side of the cup. When the rims shared the same price, the patterns showed declines measuring 19% in a bull market. This compares to declines of 16% when the rim prices were unequal. In a bear market, there was no change. Let me warn you that the sample counts were small for evenly priced rims.

Table 10.7 shows volume statistics for the icup pattern.

Volume trend, volume shapes, and breakout volume. As you scan down the table, notice that the performance difference is minor, regardless of which category you are looking at. Thus, volume is not a good predictor of performance, at least for the samples I used in the study.

Table 10.7
Volume Statistics

Description	Bull Market, Down Breakout	Bear Market, Down Breakout
Rising volume trend performance	-16%	-26%
Falling volume trend performance	-17%	-26%
U-shaped volume pattern performance	-16%	-26%
Dome-shaped volume pattern performance	-16%	-26%
Neither U-shaped nor dome-shaped volume pattern performance	-16%	-26%
Heavy breakout volume performance	-16%	-26%
Light breakout volume performance	-17%	-24%

Trading Tactics

Table 10.8 shows trading tactics.

Measure rule. I tried various methods to get the measure rule to work and found that using the handle height applied to the low at the right cup rim worked best. For example, suppose the handle price peaks at 20 and the breakout (the low at the right cup rim) is at 17. Subtract the difference, 3, from the right cup rim, 17, to get the target price of 14. Price reaches the target 47% of the time in a bull market and 49% in a bear market. That is far short of the 80% rate I like to see.

Table 10.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the handle height then subtract it from the price of the right rim low. Warning: This only works about half the time
Head-and-shoulders	Look to the left of the cup to see if another handle appears. If so, this might be a head-and-shoulders top with a fat head and two handles as shoulders.
Open short	When price closes below the right rim low, short the stock.
Close short	If prices decline quickly, several points in a few days (almost vertical), consider closing the short position. Prices usually rebound after such quick declines.
Trend line	Draw a trend line down from the handle. When price closes above the trend line, cover your short.
Measured move down	The handle may be the corrective phase of a measured move down (MMD). Sell when prices near the amount of the first leg decline.

Head-and-shoulders. Look to the left of the cup to see if another handle looks like the one on the right. If so, then you may have a head-and-shoulders top. Consult the head-and-shoulders top chapter for more information.

Open short. This reminds me of the time I tested my new circuit board for the Patriot air defense system. Each time I applied power to the board, the breaker tripped. I discovered that the layout people wired power to ground. Oops.

When price closes below the right rim low, open a short position. Be sure to use a stop or other method to exit the stock in case price rises.

Close short. If prices drop quickly—a straight-line run of several points in a few days—consider closing out your short when prices stop declining. Usually, when the sharp decline ends, the price has reached bottom and then rebounds quickly.

Trend line. Another exit method is to draw a trend line down the right side of the cup. After the breakout, the slope of the decline will usually be steeper than the slope of the cup trend line. If so, when prices have declined below the breakout, draw another trend line from the breakout to the current price (or use the handle high as the top of the trend line). When price closes above the trend line, close out the position.

Measured move down. One last exit method is to look for a measured move down. In some cases, the handle is the corrective phase of an MMD. Consult the chapter on MMDs for more information.

Sample Trade

Sam, short for Samantha, works as a blackjack dealer in Las Vegas. She takes the money earned from tips and invests it in the stock market. In the decade since she started tossing cards, she has built a tidy nest egg. Figure 10.6 shows the inverted cup-with-handle dealt her and how she traded it.

The first thing Sam did was to qualify the pattern. Did it meet the identification guidelines listed in Table 10.1? Quickly running through them, we find that price leading to the pattern was drifting down in a bull market. A downward price trend was good as you want to trade with the trend, but it would have been better if the pattern appeared in a bear market. The cup looked rounded with rims uneven but not too apart in price. The handle showed a distinct bump up but some distance from the cup. She did not know if this made any difference. The handle retrace measured 69%, higher than the Fibonacci retrace of 62%.

Next she reviewed the “For Best Performance” list to improve her odds of a successful trade. Was a pullback likely? No (good), because there was no price action as far back as late 1992 and little underlying support in the two years before that. Was the pattern tall? No (bad). The pattern high was at 10.63, the low at 8.13, and the breakout at 8.38. The result was 29.83%, just shy of the 31.93% median, making the pattern short. Was the pattern wide? No (good).

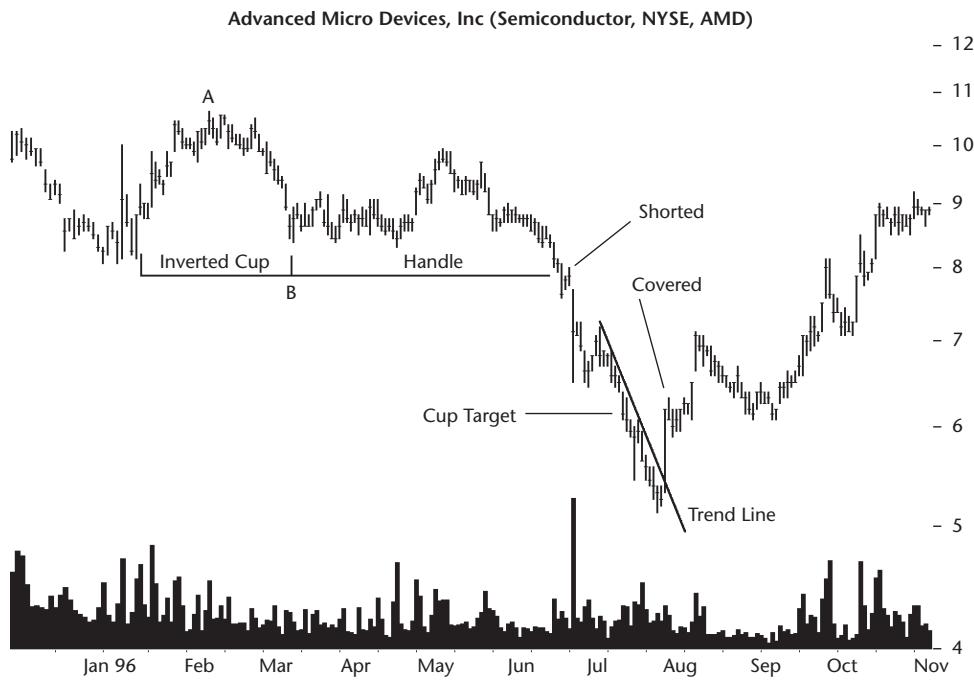


Figure 10.6 As described in the Sample Trade, Samantha traded this inverted cup-with-handle by drawing a down-sloping trend line as a sell trigger. A stop-loss order closed out her position automatically, though.

It was 58 days wide, about half as wide as the median. Were the rims even? No (bad). Clearly, she faced mixed technical evidence.

Patiently, she counted cards until the odds stacked in her favor. When price closed below the right cup lip, she shorted the stock and received a fill at 7.90. The following day's wide trading range bothered her, but the close was in the middle of the intraday range (so it was not a one-day reversal). Price eased down each day (but not quickly enough to suggest a sale), attempted a pullback at the start of July, but soon continued lower. After a few weeks, she drew a trend line down as shown in Figure 10.6.

She measured the cup height then applied it to the right cup lip and found that prices had declined below the target. Since only 15% of the patterns in a bull market meet the target, she guessed the downside was limited. [Note: She used the cup height, not the handle height, to find a price target]. So, she placed a stop loss order at 6.10, just a few cents above the minor high in mid July (the "Cup Target" in the figure points to just above her stop price).

After her shift ended each night at the casino, she logged onto the Web and updated her position. When prices jumped upward in late July, the stop took her out at 6.10. She made about 22% after commissions. The trend changed in week six after the breakout, just as Table 10.5 warned.

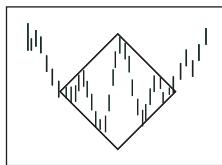
For Best Performance

The following list includes tips and observation for improving your selection of icups for the best performance. Refer to the associated table for more information.

- Select inverted cup-with-handle patterns that meet the guidelines—Table 10.1.
- This pattern performs best and occurs more often in a bear market—Table 10.2.
- If you can tell when price reaches the ultimate low or if the pattern busts, buy the stock and ride it upward—Table 10.2.
- Trade this pattern in a bear market because the failure rates are lower—Table 10.3.
- Check for underlying support. Is a pullback likely? Pullbacks hurt performance—Table 10.4.
- Gaps help performance—Table 10.4.
- Look for price to change trend 6 to 7 weeks after the breakout—Table 10.5.
- Select tall or narrow patterns—Table 10.6.
- Patterns with even rims perform better—Table 10.6.

11

Diamond Bottoms



RESULTS SNAPSHOT

Upward Breakouts

Appearance	Diamond pattern forms after a downward price trend. Breakout is upward.	
Reversal or continuation	Short-term bullish reversal	
	Bull Market	Bear Market
Performance rank	8 out of 23	2 out of 19
Break-even failure rate	4%	3%
Average rise	36%	36%
Change after trend ends	-33%	-36%
Volume trend	Downward	Downward
Throwbacks	53%	60%
Percentage meeting price target	81%	60%
Surprising findings	The best performers have breakouts near the yearly low. Throwbacks hurt performance but breakout day gaps help. Tall or wide patterns perform better than short or narrow ones.	
See also	Diamond Tops	

Downward Breakouts

Appearance	Same, but breakout is downward.	
Reversal or continuation	Short-term bearish continuation	
	Bull Market	Bear Market
Performance rank	1 out of 21	2 out of 21
Break-even failure rate	10%	0%
Average decline	21%	44%
Change after trend ends	59%	48%
Volume trend	Downward	Downward
Pullbacks	71%	40%
Percentage meeting price target	63%	80%
Surprising findings	The best performers have breakouts near the yearly low. Pullbacks hurt performance. Tall patterns perform better than short ones. Patterns with a random volume shape or heavy breakout volume outperform.	
See also	Same as for upward breakouts	

How is a diamond bottom like asking a girl out on a date? When dealing with either, it is all in the approach. Diamond bottoms have prices entering the pattern from the top; diamond tops have prices entering from the bottom. What more is there to know? Plenty, and the Results Snapshot just scratches the surface. Here is a quick review.

Diamond bottoms have low break-even failure rates, usually in the single digits. The average rise is respectable, too, 36%. After reaching the ultimate high, prices tumble and give back nearly all of their gains. Thus, you will want to take profits and not buy and hold.

Downward breakouts perform well for bearish patterns, dropping 21%. The 44% average decline in a bear market is based on too few samples to be believable. In fact, many of the statistics use few samples, so be careful drawing conclusions.

Tour

Figure 11.1 shows an example of what a diamond bottom looks like. Notice that the price trends downward into the pattern then the diamond appears and prices reverse. Prices dropping into the pattern mean it is a diamond bottom and not a top.

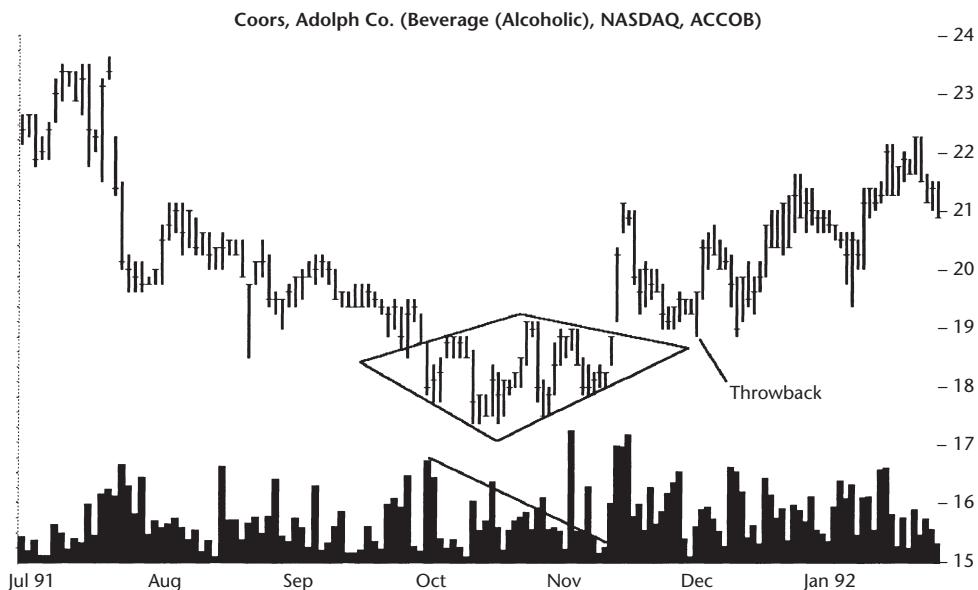


Figure 11.1 A diamond bottom reversal. Volume typically recedes through the formation until the breakout day.

The diamond bottom begins by widening out and tracing higher highs and lower lows, then the process reverses. The price range narrows until the breakout occurs.

Volume throughout the formation is diminishing. The breakout usually sports a significant rise in volume. Figure 11.1 shows high volume on the breakout when prices gap through the diamond boundary. In less than 3 months, the stock climbs over 20% to a high of 22.25.

A diamond bottom represents the struggle between buyers and sellers. Buying demand pushes prices up to a new minor high until selling pressure forces prices back down. If the selling pressure is strong enough, prices drop to a new minor low. The widening pattern continues, but usually not for many swings.

On the other half of the diamond, greedy holders—seeing a good price for the stock—sell, and the price rise stops, turns around, and drops. Sellers buy but do so before prices make a new low. They are excited about the stock and buy in before prices can reverse and leave them without a position. This activity blunts the downward momentum and creates a higher minor low. Thus, prices begin narrowing on the far side of the diamond.

Eventually, one of the warring parties will win, and overwhelming buying demand or selling pressure will cause prices to break out of the pattern. Prices continue in the breakout direction until they pause several points beyond the diamond boundary. For upward breakouts, the pause may be frightening enough that holders sell, driving the price back to the diamond trend line (a throwback).

For downward breakouts, buying demand from traders believing they are getting the stock at fire sale prices creates a pullback. The smart money knows

the score and takes the last opportunity to dump their holdings. This additional selling pressure forces the stock down again, usually for quite some time (weeks to months).

That is the life of a diamond. If you are nimble enough, you can participate in the intraformation buying and selling. Buy when prices bottom and sell near the top then go short and cover at the bottom of the diamond. It sounds easy, but it is not (unless you like losing money).

Identification Guidelines

How do you identify a diamond bottom? Review the identification characteristics shown in Table 11.1.

Prior price trend. Since we are dealing with diamond bottoms and not tops, the prevailing price trend is downward leading to the diamond.

The hardest part of identifying any pattern is seeing the shape prices make. For diamonds, they are especially difficult to identify. However, they occur many times at price turning points. Thus, look for diamond bottoms at the end of a downward price trend. Rarely, diamonds appear in the middle of the trend and prices continue lower instead of reversing.

Diamond shape. When prospecting for diamonds look for prices to widen out over time forming higher highs and lower lows. The price pattern should look like a broadening bottom chart pattern. Then, prices narrow, forming lower highs and higher lows. The second half should look like a symmetrical triangle. If you draw trend lines around the minor lows and highs, the result should appear diamond shaped. More likely, the diamond's top or bottom will be pushed to one side, making it appear as though the chart pattern is leaning over.

Volume trend. Volume usually trends downward over the course of the pattern, but need not. Do not discard a chart pattern simply because volume trends upward instead of downward. In fact, the volume *shape* most often resem-

Table 11.1
Identification Characteristics

Characteristic	Discussion
Prior price trend	Prices trend down into the pattern.
Diamond shape	Prices form higher highs and lower lows in the first part of the pattern then lower highs and higher lows. Trend lines surrounding the price action look like a diamond. The diamond need not appear symmetrical.
Volume trend	Downward from the start of the pattern to the end, with a surge during the breakout.

bles a dome 44% of the time, a U-shape 32% of the time, and a random pattern the remainder. The volume *trend* (slope) is downward 69% of the time and upward the remainder.

The breakout day volume is usually high—meaning it is above the 1-month average 53% of the time. Again, do not discard a diamond because the breakout volume is light instead of heavy.

Here are three examples of diamonds. Figure 11.2 shows the first example. The price trend is downward for nearly 2 months, leading to the formation. Prices rebound slightly and the range widens as higher highs and lower lows appear. Then the tide turns and the range narrows; higher lows follow lower highs. The diamond pattern takes shape after connecting the boundaries of the price movements.

Trading volume throughout the formation is receding. This occurrence is typical but not a prerequisite for a well-formed diamond bottom. There are often wide variations in the volume pattern. Overall, however, the volume trend diminishes over time until the breakout, then volume usually jumps upward. Figure 11.2 shows that breakout volume is four times the prior day but is just slightly above average for the stock.

Figure 11.3 illustrates the support area often promoted by diamond bottoms. The figure shows support at the \$10 level on a weekly scale. Although support varies from diamond to diamond, when it appears after a diamond



Figure 11.2 A diamond bottom with receding volume trend. Prices quickly recover and reach new highs.

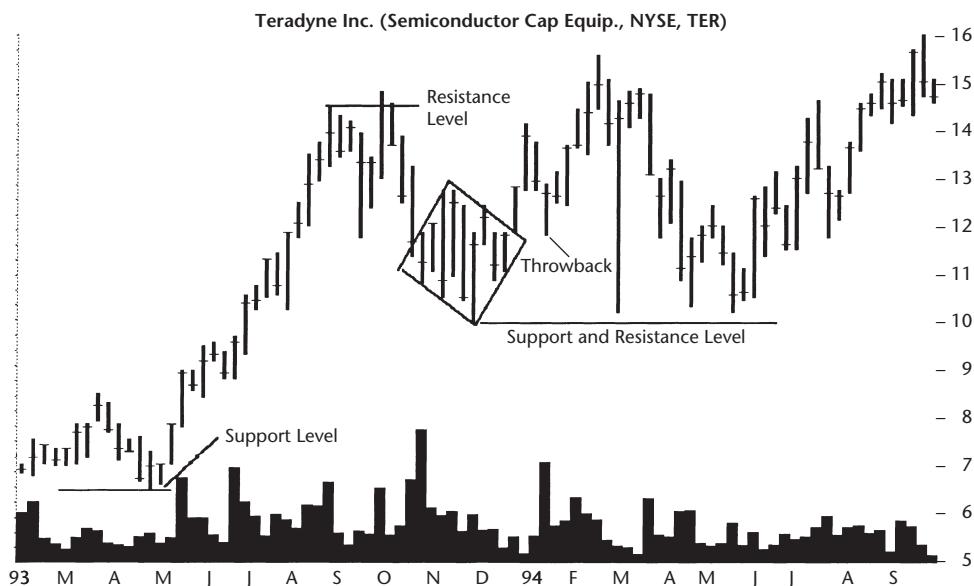


Figure 11.3 Support areas for diamond bottoms are near the base of the formation. Shown here is support at 10 on a weekly scale.

bottom, it is usually near the base of the formation. Another area of support commonly appears when the stock throws back to the level of the breakout. Figure 11.3 shows an example of this. Climbing away from the formation after the breakout, a stock sometimes pauses, reverses course, and heads lower. Support meets prices that decline into the formation area, usually stopping briefly near the breakout price, then prices turn around again and head back up. This throwback to the formation happens more than half the time (53%) and represents another opportunity to initiate a trade or add to a position.

Figure 11.4 shows the last example of a diamond bottom. Does it obey the identification characteristics from Table 11.1? Yes. The prevailing price trend is downward leading to the diamond. The minor highs and lows touch the associated trend lines often enough except on the upper left facet. I scratched my head drawing the slope of that edge because it does not have two minor highs to connect, but one (the top of the pattern). I connected the high of a day and joined up with the lower left trend line. Does that make it any less of a diamond? I will let you decide.

The volume trend slopes downward (very high on the left side and diminished on the right). Breakout day volume is high, too.

The diamond is also a head-and-shoulders bottom. I have marked the two shoulders (S) and head (H) to illustrate the pattern. The down-sloping neckline is the trend line marking the right top of the diamond. Whether you conclude it is a diamond bottom or a head-and-shoulders, the bullish implications are clear. The rise after the breakout is exquisite.

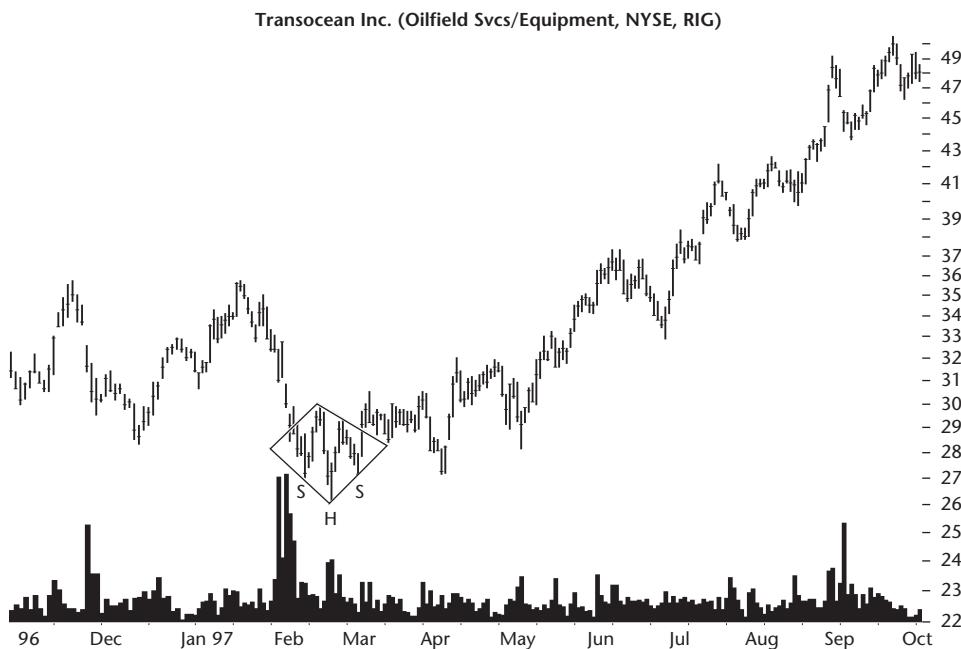


Figure 11.4 A diamond bottom also appears as a head-and-shoulders bottom with bullish implications.

Focus on Failures

I changed the definition of a failure for chart pattern types. I no longer consider a breakout in the adverse direction as a failure. If you want to trade a diamond with an upward breakout and it breaks out downward, you will simply look for another trade. Thus, only 5% failures remain. These are when price breaks out of the pattern, moves in the intended direction, but stops and reverses direction before moving far.

Figure 11.5 shows an example. Is this a valid diamond? Prices trend downward into the pattern, the diamond shape is clear, but volume trends upward (higher on the right than the left). Is the rising volume trend cause for concern? No. Breakout day volume is also low instead of high. Everything looks fine except for volume. If this were my trade, the volume anomalies would not even register. I would be more worried about something else. Do you know what it is?

Look at the figure again. See that descending triangle hanging above the diamond like storm clouds? Although you may not recognize the triangle pattern, you should be on the lookout for overhead resistance. That solid block of near horizontal price movement starting in October—where the triangle begins—to December where it ends, would scare me off. The only way I would take this trade would be to short it once prices turned down at the triangle.

That is essentially what happened. Price broke out upward and the massive overhead resistance stopped the rise. Prices threw back to the diamond

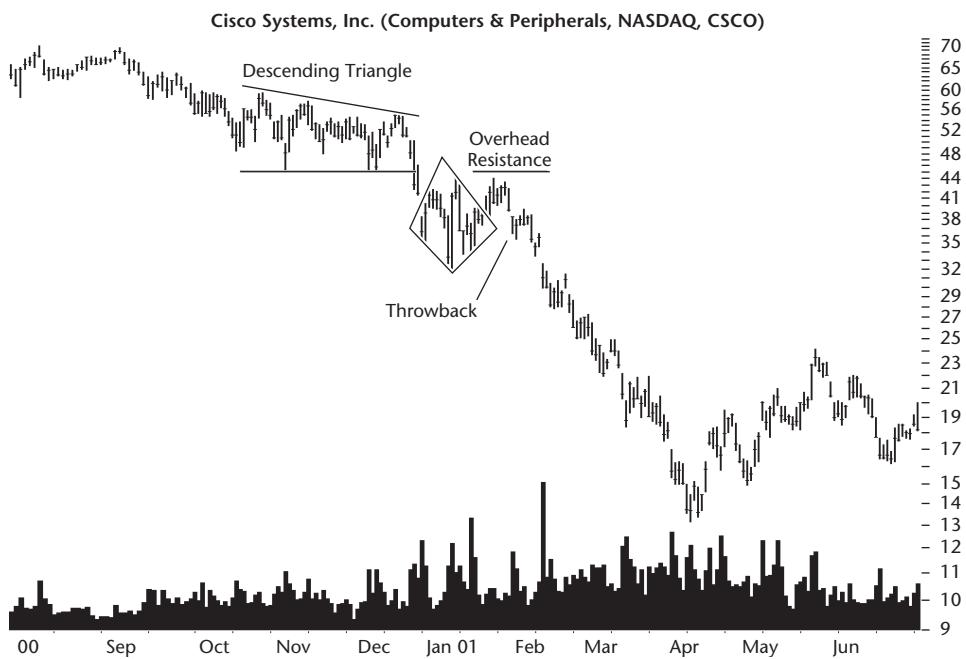


Figure 11.5 Overhead resistance blocks the upward breakout from this diamond bottom.

but kept going down. Let me also mention that this pattern occurred in the middle of a bear market. So, we had a bear market, a falling price trend leading to the diamond, and massive overhead resistance. The only surprise would be if the price floated like pumice instead of sinking as does a diamond tossed into a pond. Your job as a trader is to find the gems that float.

Statistics

Table 11.2 shows general statistics for this chart pattern.

Number of formations. In the first edition of this book, I found only 45 bottoms, so I am pleased to report that I have now located 295. Unfortunately, that is not enough for a good statistical analysis when you split it into four columns. You will see a notation in many of the tables (for individual entries or the entire column) when samples are below 30. Diamonds in a bear market with a downward breakout are a good example. I found only 20.

Reversal or continuation. As the table shows, most often diamonds act as reversals of the prevailing price trend. For a bottom pattern, that means prices usually break out upward. The low sample count makes a fair comparison of reversal and continuation performance impossible.

Average rise or decline. The average rise is 36% and the average decline is 21%. Ignore the 44% decline. No bearish pattern that I know of has such a

Table 11.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	140	63	72	20
Reversal (R), continuation (C)	140 R	63 R	72 C	20 C
R/C performance	36%R, 58%C ^a	36%R, N/A C	23%R ^a , 21%C	82%R ^a , 34%C ^a
Average rise or decline	36%	36%	-21%	-44%
Rises or declines over 45%	47 or 34%	16 or 25%	3 or 4%	5 or 25%
Change after trend ends	-33%	-36%	59%	48%
Busted pattern performance	25% ^a	N/A	-21% ^a	-26% ^a
Standard & Poor's 500 change	11%	2%	-2%	-8%
Days to ultimate high or low	119	72	35	28

Notes: Minus sign means decline. N/A means no samples available.

^aFewer than 30 samples.

large average decline. In other words, expect additional samples to drop the number almost in half.

Rises or declines over 45%. About a third of the bull market diamonds with upward breakouts climb at least 45%. That is the best of the bunch. As one might expect, downward breakouts do less well in this category.

Change after trend ends. Once price reaches the ultimate high, it drops over 30%, giving back most or all of the prior gain. For downward breakouts, after price reaches the ultimate low, it rebounds an astonishing 59% in a bull market! That may sound unbelievably large, but other chart pattern types do better.

Busted pattern performance. I found no busted diamonds with upward breakouts in a bear market. The other combinations moved in a percentage range from the low to mid-20s. Additional samples will change results.

Standard & Poor's 500 change. The index helped prices rise in a bull market and sucked them down in a bear market. What is surprising is that the 36% rise in bull and bear markets for upward breakouts are the same despite the general market moving 11% to 2% upward. It sounds as if the bear market had a few stocks with powerful rallies.

Days to ultimate high or low. How long does it take price to reach the ultimate high or low? Answer: between a month and 4 months. Most of the time, you will see upward breakouts taking longer to reach the ultimate high than do downward breakouts reaching the ultimate low. Compare the bear market,

downward breakout's 44% decline in 28 days with the bull market, up breakout's 36% climb in 119 days. Clearly, the bear market decline must be at a much steeper slope than the bull market rise.

Table 11.3 shows how often the pattern fails. For example, 4% of the diamonds in a bull market with an upward breakout fail to rise more than 5%. A total of 12% fail to rise at least 10%. One last example for downward breakouts in a bear market: 30% fail to drop more than 25%.

That is how the table works, but what do all the numbers mean? Since there are so few samples for bear market, down breakouts, remove that column from consideration. The lowest failure rates usually accompany diamonds with upward breakouts in a bull market. In second place is the bear market, up breakout column.

Bottom line: Buy diamonds with upward breakouts for the lowest rate of failure.

Table 11.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. How long does it take from the end of the diamond to the breakout? Just a few days (2 to 3). Much of this delay is due to the way my computer displays the diamond and from the requirement that price must *close* outside the diamond boundary, not just pierce it.

Yearly position. Where in the yearly price range do diamonds breakout? Most often, the breakout occurs near the yearly low or middle.

Yearly position, performance. Where are the best performers located in the yearly price range? Diamonds that perform best break out near the yearly low most of the time.

Table 11.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	5 or 4%	2 or 3%	7 or 10%	0 or 0%
10	17 or 12%	10 or 16%	20 or 28%	2 or 10%
15	34 or 24%	14 or 22%	26 or 36%	3 or 15%
20	44 or 31%	17 or 27%	37 or 51%	5 or 25%
25	53 or 38%	26 or 41%	46 or 64%	6 or 30%
30	61 or 44%	34 or 54%	53 or 74%	8 or 40%
35	72 or 51%	41 or 66%	60 or 83%	12 or 60%
50	99 or 71%	47 or 75%	69 or 96%	15 or 75%
75	116 or 83%	58 or 92%	72 or 100%	19 or 95%
Over 75	140 or 100%	63 or 100%	72 or 100%	20 or 100%

Table 11.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout ^a
Formation end to breakout	3 days	2 days	3 days	3 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L37%, C41%, H22%	L59%, C35%, H6%	L49%, C33%, H19%	L45%, C45%, H10%
Percentage rise/decline for each 12-month lookback period	L42%, C37%, H26%	L37%, C38% ^a , H20% ^a	L22%, C21%, H15%	L57%, C31%, H31%
Throwbacks/pullbacks	53%	60%	71%	40%
Average time to throwback/ pullback ends	11 days	12 days	12 days	16 days
Average rise/decline for patterns with throwback/pullback	30%	33%	-18%	-22%
Average rise/decline for patterns without throwback/pullback	43%	42% ^a	-26% ^a	-53%
Performance with breakout gap	40%	56% ^a	-26% ^a	-44%
Performance without breakout gap	36%	33%	-20%	-45%
Average gap size	\$0.34	\$0.85	\$0.51	\$0.62

Note: Minus sign means decline.

^aFewer than 30 samples.

Throwbacks and pullbacks. Throwbacks and pullbacks—when price returns to the breakout price or diamond border—occur over half the time. The exception is the 40% pullback rate for diamonds in a bear market, but the sample count is low.

When a throwback or pullback occurs, it takes 11 to 16 days, on average, to complete the move back to the breakout price. When a throwback or pullback occurs, performance suffers as the numbers show. To avoid a throwback or pullback, look for overhead resistance or underlying support before trading. Avoid the diamond when congestion is nearby.

Gaps. I compared the performance of diamonds with and without breakout day gaps. Most often, gaps help performance, but that finding might change with additional samples.

Table 11.5 shows a frequency distribution of time to the ultimate high or low. This table is useful because you want to find a pattern in which prices move as far as they can as quickly as they can. I know from experience and statistical measures that downward breakouts drop *faster* than upward breakouts rise. Upward breakouts take longer but rise *farther*.

Diamonds in a bear with upward breakouts seem to congregate near the ends of the table. Fully 46% reach the ultimate high in the first 2 weeks, and 32% take longer than 70 days. Bull market, down breakouts show a similar drop (46%) in the first 2 weeks.

Notice the slight upticks just over a month after the breakout. More diamonds in a bear market with upward breakouts begin reaching the top near day 35 to 42. Diamonds with upward breakouts in a bull market top out a bit sooner, days 21 to 28. Thus, look for your diamond to top or bottom out around a month after the breakout.

Table 11.6 shows statistics related to size.

Height. Tall formations perform better than short ones. To use this result, compute the diamond height by subtracting the lowest low in the diamond from the highest high and then divide by the breakout price (the point where price

Table 11.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	25%	21%	5%	2%	5%	8%	2%	0%	2%	0%	32%
Bull market, up breakout	19%	4%	8%	6%	1%	4%	4%	1%	2%	2%	49%
Bear market, down breakout	20%	10%	25%	10%	5%	10%	0%	5%	0%	10%	5%
Bull market, down breakout	22%	24%	13%	4%	6%	6%	7%	7%	3%	0%	10%

Table 11.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout ^a
Tall pattern performance	43%	42%	-23%	-63%
Short pattern performance	31%	30%	-19%	-23%
Median height as a percentage of breakout price	13.19%	19.69%	13.42%	17.78%
Narrow pattern performance	33%	34%	-22%	-33%
Wide pattern performance	40%	39%	-20%	-53%
Median length	27 days	26 days	27 days	24 days
Average formation length	36 days	35 days	39 days	25 days
Short and narrow performance	29%	34% ^a	-19% ^a	-27%
Short and wide performance	36% ^a	25% ^a	-18% ^a	-17%
Tall and wide performance	42%	50% ^a	-21% ^a	-70%
Tall and narrow performance	44% ^a	34% ^a	-28% ^a	-46%

Note: Minus sign means decline.

^aFewer than 30 samples.

closes outside the diamond trend-line boundary). If the result is larger than the median, then you have a tall pattern.

Width. Most wide diamonds perform better than narrow ones, with the exception being diamonds with downward breakouts in a bull market. I used the median length as the separator between narrow and wide.

Average formation length. How wide are diamonds? Although it varies, the average width is about a month long. Do not be alarmed if your diamond is very short or excessively long.

Height and width combinations. Diamonds that are both tall and wide perform better than most of the other combinations. The worst performers are short and wide diamonds. Avoid those.

Table 11.7 shows volume-related statistics.

Volume trend. The results paired with market conditions: Diamonds having a rising volume trend in bull markets performed best postbreakout; diamonds in bear markets did best with a falling volume trend.

Volume shapes. I see no consistent trend except the random shape does well for downward breakouts. Diamonds with upward breakouts do well with dome-shaped volume (bull market) and U-shaped volume (bear market).

Breakout volume. Does heavy volume breakout propel prices farther? Yes, most of the time. The lone exception happens to diamonds with light breakout volume, but the performance difference is insignificant.

Table 11.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout ^a
Rising volume trend performance	41%	28% ^a	-25% ^a	-40%
Falling volume trend performance	35%	41%	-19%	-46%
U-shaped volume pattern performance	37%	47% ^a	-21% ^a	-22%
Dome-shaped volume pattern performance	38%	38% ^a	-19% ^a	-47%
Neither U-shaped nor dome-shaped volume pattern performance	32% ^a	26% ^a	-24% ^a	-53%
Heavy breakout volume performance	36%	42% ^a	-23% ^a	-44%
Light breakout volume performance	37%	32%	-18%	-43%

Note: Minus sign means decline.

^aFewer than 30 samples.

Trading Tactics

Table 11.8 shows trading tactics.

Measure rule. The Results Snapshot (“Percentage meeting price target”) at the beginning of this chapter shows how often the measure rule works. For an example, refer to Figure 11.6. In both diamonds, compute the height by subtracting the lowest price in the pattern (point B) from the highest high (point

Table 11.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Measure the diamond height from the highest high to the lowest low and then add the result to the breakout price if the breakout is upward; subtract the result from the breakout price for downward breakouts. The result is the target price.
Quick rise/fall	Prices often return to the base following a quick rise or fall preceding the diamond.
Wait for breakout	The diamond can break out in any direction, so wait for the breakout.

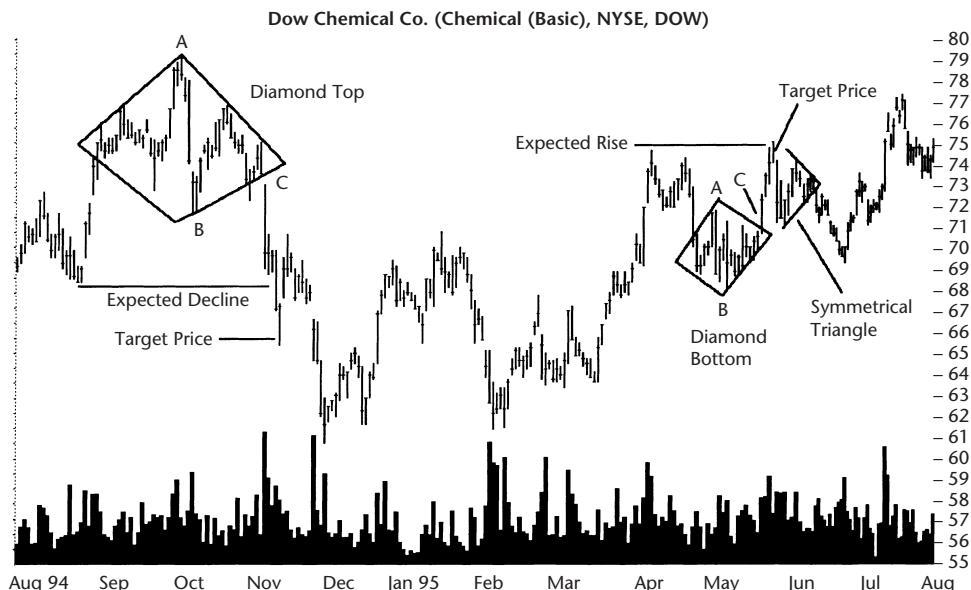


Figure 11.6 A diamond top and a diamond bottom. Compute the measure rule using the formation height by subtracting point B from point A. For diamond tops, subtract the difference from point C; for bottoms, add the difference. The result is the expected minimum price move. Diamonds often return to their base. The “Expected Decline” and “Expected Rise” lines are another way to gauge the minimum price move. A symmetrical triangle appears in late May.

A) then adding to (upward breakouts) or subtracting from (downward breakouts) the breakout price (point C). The breakout occurs the day price closes outside the diamond boundary.

Specifically, the diamond top in Figure 11.6 shows a height of 7.62. That is, $79.25 - 71.63$, the high minus the low. Since the breakout is downward, subtract the result from the breakout price. That gives a target of 65.88 or $73.50 - 7.62$ (the breakout price minus the height).

Quick rise/fall. Figure 11.6 also shows an alternative way of guessing the magnitude of the rise or decline. When prices shoot upward (in the case of the diamond top, pictured), a quick decline often follows, which takes prices back to the launch point. I show this as the “Expected Decline” in the figure.

The diamond bottom shows a similar situation. Prices make a steep drop into the pattern and soar back out in a similar trend. They stop climbing near the launch point (shown as the “Expected Rise”).

Wait for breakout. Before you invest in a stock showing a chart pattern, wait for the breakout. Since diamonds break out either up or down, you cannot predict the breakout direction with much certainty. Thus, wait for the breakout—a close outside the pattern boundary—before taking a position. Yes, premature breakouts do occur but they are rare. A premature breakout is when price closes outside the diamond boundary but returns in a day or two. In the 288 diamonds I looked at, I found less than a dozen with premature breakouts.

Sample Trade

Scott graduated from engineering college and took his first professional job at a growing software company. The job pays well, but he has many school loans and a mountain of dept. He thought of using his paycheck to keep ahead of the bills while depending on the bull market to furnish the luxuries.

He had his eye on a new stereo system and wanted it for a party he was hosting during the Fourth of July festivities. That did not leave him much time, so he searched for a chart pattern he could trade profitably. He chose the diamond bottom shown in Figure 11.6. Scott first noticed the diamond in May, a few days before the breakout. He believed that the price would not decline below 69.88, 0.12 below the round number of 70 and at the same level as a couple of price peaks in January.

Risking just \$0.75 with a possible reward of \$3.75 gave him a risk to reward ratio of 1:5. If everything worked as planned, he would make a tidy sum, enough to buy the stereo.

The day after the stock broke out upward, he bought and received a fill at 71.75 (near point C in Figure 11.6). That was higher than he liked, but with the strength shown, he was sure the trade would work out. Scott dutifully placed his stop-loss order at 69.88 with his broker. Three days later the stock closed at 75, above the target price. He dropped by the music store just to fiddle the knobs and flip the switches of his dream machine.

Then things began going wrong. The stock closed down nearly \$3 to 72.13. It dropped to 71.38 the next day and made a lower low a day later. Suddenly, Scott was losing money and his stereo pipe dream was in danger of plugging. Should he sell the stock and put off the party for another time?

Luck was on his side and prices began climbing again. Soon, they were at 74, but the honeymoon did not last long. Prices completed a symmetrical triangle but Scott did not see it. They broke out downward through the support trend line (extend the lower right diamond diagonal toward the triangle). The stock even gave him another chance to get out at a profit when it attempted a pullback to the triangle boundary. Scott was busy making party plans and missed the signal. When he received a call from his broker in mid-June reporting that the stop took him out at 69.88, Scott scratched his head and wondered what went wrong. Do you know the answer?

The answer is greed. Since he needed money for a stereo, once prices cleared the top of the diamond, he should have put a limit order to sell at his target price. Although this technique limits the profit potential (because you get taken out even though the stock may double after that), it allows a trader to capture the turn near a high point. I have seen this behavior with event patterns. Prices shoot up, hit the target and then just as quickly decline. If you do not sell, you lose your profit. An example from my own trading: A few days ago, a stop-loss order sold my position in Rohm & Haas for a \$113 profit in an earnings flag trade. If I used my profit target, I would have made \$1,000.

Another factor is the psychological pressure of *having* to profit from a trade. If your trading profits determine whether you will eat or not, then there is a good chance your trading will suffer. You will feel pressured to remain in a bad trade longer than necessary or buy into risky situations that you normally would avoid.

Fortunately, Scott was smart enough to use a stop-loss order to protect himself. If he had noticed the downward breakout from the symmetrical triangle, that would have signaled a sell, too.

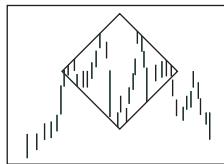
For Best Performance

The following list includes tips and observations to help select diamond bottoms that perform better after the breakout. Consult the associated table for more information.

- Review the identification characteristics for correct selection—Table 11.1.
- Trade with the trend. Select diamonds with upward breakouts in a bull market or downward breakouts in a bear market—Table 11.2.
- Diamonds with upward breakouts in a bull market have the lowest failure rates of the three columns with large samples—Table 11.3.
- Select diamonds with breakouts near the yearly low—Table 11.4.
- Throwbacks and pullbacks hurt performance—Table 11.4.
- Breakout day gaps improve performance—Table 11.4.
- Expect a trend reversal 5 to 6 weeks after the breakout—Table 11.5.
- Tall patterns perform better than short ones—Table 11.6.
- Select wide patterns—Table 11.6.
- Diamonds with a rising volume trend do best in bull markets; a falling volume trend, in bear markets—Table 11.7.
- Heavy breakout volume suggests better performance—Table 11.7.

12

Diamond Tops



RESULTS SNAPSHOT

Upward Breakouts

	Bull Market	Bear Market
Appearance	Diamond pattern forms after an upward price trend. Breakout is upward.	
Reversal or continuation	Short-term bullish continuation	
Performance rank	21 out of 23	2 out of 19
Break-even failure rate	10%	0%
Average rise	27%	33%
Change after trend ends	-29%	-34%
Volume trend	Downward	Downward
Throwbacks	59%	54%
Percentage meeting price target	69%	79%
Surprising findings	Throwbacks hurt performance but breakout day gaps help.	
See also	Diamond Bottoms	

Downward Breakouts

Appearance	Same, but breakout is downward.
Reversal or continuation	Short-term bearish reversal

	Bull Market	Bear Market
Performance rank	7 out of 21	10 out of 21
Break-even failure rate	6%	4%
Average decline	21%	24%
Change after trend ends	47%	47%
Volume trend	Downward	Downward
Pullbacks	57%	57%
Percentage meeting price target	76%	59%
Surprising findings	Pullbacks hurt performance but breakout day gaps help. Tall and narrow patterns perform better than other combinations. Patterns with light breakout volume perform better.	
See also	Same as for upward breakout.	

The Results Snapshot shows the important results of diamond tops. In appearance, the only difference between diamond top and bottom patterns is the price trend leading to the formation. For tops, the prior price trend is upward, whereas diamond bottoms have price trends that lead down to the formation.

A review of the numbers shows that the 0% break-even failure rate in a bear market (upward breakout) is deceptive as the sample count is too small to get an accurate measure. Still, the other failure rates are at or below 10% and that is quite good. An odd finding is that patterns in a bear market rise 33%, beating patterns in a bull market, which rise 27%. The low sample count (28 samples) is the reason.

Diamonds with downward breakouts do well as far as the average decline goes. The other numbers in the Results Snapshot are self-explanatory except for the “Percentage meeting price target.” I used the height of the diamond added to or subtracted from the breakout price as the target. That method worked just over half the time, far less than the 80% success rate I like to see.

Tour

What does a diamond top look like? Figure 12.1 shows a good example. This diamond signals a reversal of the prevailing price trend and shows the typical behavior of a top: Prices return to the level before the diamond begins. In this regard, the reversal stands out like a sore thumb. Of course, not all tops act this way. Some signal a reversal of the primary trend and prices not only retrace their recent gains but continue moving down.

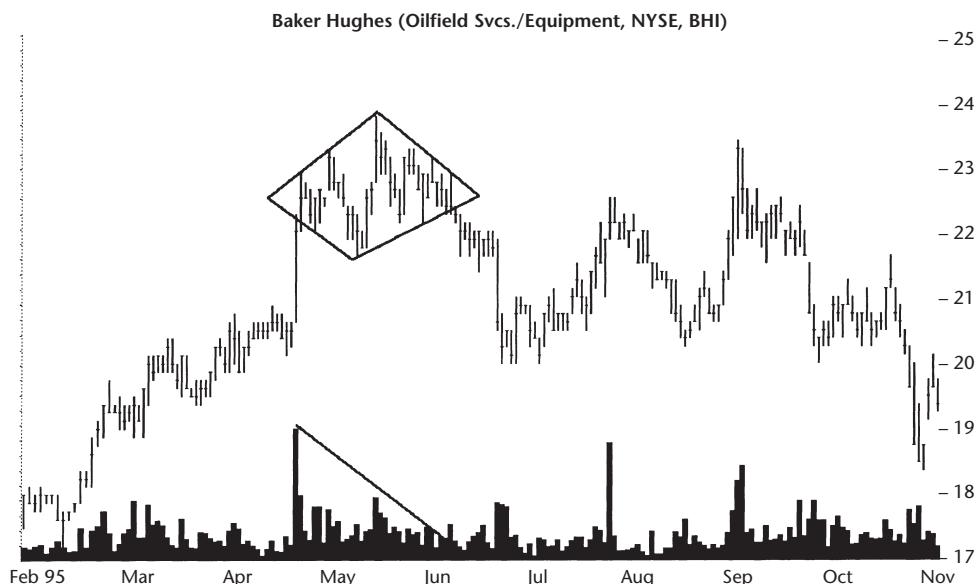


Figure 12.1 A good example of a diamond top. Notice that prices quickly return to the \$20 level.

Identification Guidelines

Table 12.1 lists identification guidelines for diamond tops. Consider the diamond top pictured in Figure 12.2.

Prior price trend. The short-term price trend is up just before the formation, leading to the minor high on the left. Then prices decline and form a minor low before moving higher again. In late September, prices reach a new high before cascading downward to finish below the prior minor low. Again,

Table 12.1
Identification Characteristics

Characteristic	Discussion
Prior price trend	Prices trend up to the formation. With this definition, diamond tops need not form at the top of a price chart—they can form anywhere.
Diamond shape	Prices form higher highs and lower lows (widening appearance), then lower highs and higher lows (narrowing appearance). Trend lines surrounding the minor highs and lows resemble a diamond. The diamond need not appear symmetrical.
Volume trend	Diminishing over the length of the formation.
Breakout volume	Usually high and it can continue high for several days.
Support and resistance (SAR)	The formation creates a location for support or resistance. Diamond tops usually show SAR near the top of the formation. SAR duration can last up to a year or more.

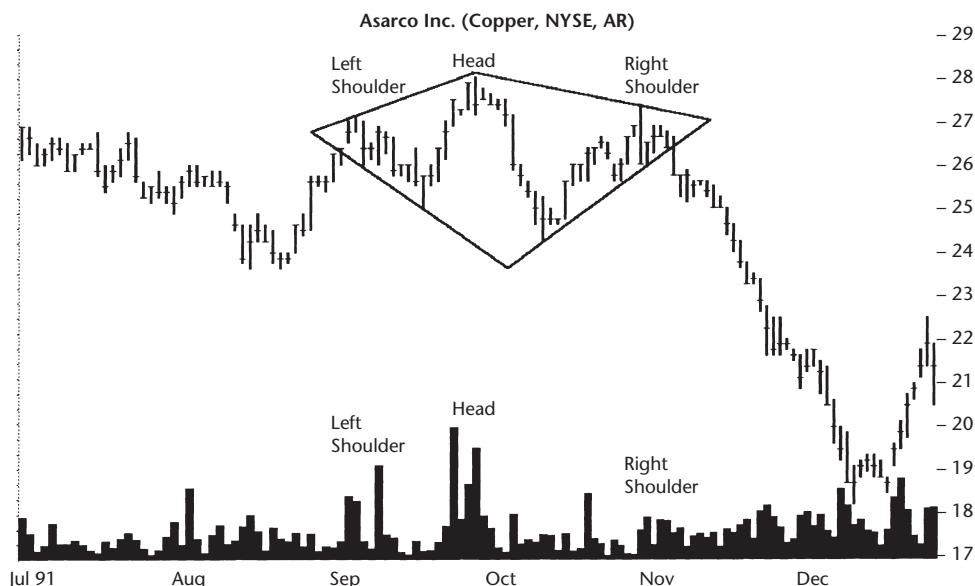


Figure 12.2 A diamond top masking a head-and-shoulders top. In either case, the bearish outlook is certain.

prices rise up and form another minor high before breaking down through the upward trend line on the right.

Diamond shape. The fluctuations of minor highs and lows form a diamond shape when the peaks and valleys connect such as that shown in Figure 12.2. Notice that the diamond is not symmetrical; irregular diamond shapes are common for diamonds.

Volume trend. The volume trend is receding, especially in the latter half of the formation when the price is narrowing (and the chart pattern resembles a symmetrical triangle).

Breakout volume. The breakout volume is usually high but is not a prerequisite to a properly behaved diamond. In Figure 12.2, the volume on the breakout day and succeeding days is tepid at best but trends upward as prices fall.

The pattern is a head-and-shoulders top, with the left shoulder, head, and right shoulder marked on Figure 12.2. The volume pattern is typical for a head-and-shoulders top, with the right shoulder volume vastly diminished when compared to the left shoulder or head volume.

Should you locate a diamond pattern and discover that it may be a head-and-shoulders top, do not worry. In both cases, the formation is bearish. When such a collision occurs, choose the formation that gives you the more conservative performance results (see the measure rule).

Support and resistance. Support and resistance for diamond tops commonly appear at the top of the formation, as seen in Figure 12.3. The diamond reversal forms a resistance level, repelling prices during the rise in March and April 1993, and is not pierced until a year later.



Figure 12.3 Support and resistance for the diamond appears at the top of the formation. A support and resistance zone at 31 created by the diamond lasts for a year and a half. Note the weekly time scale.

A congestion zone forms in October 1993 and lasts through March of the following year before prices climb convincingly above the resistance area. Even then, during April and May 1994, prices are buoyed by the support zone at 31 created a year and a half earlier.

Figure 12.4 shows another example of a diamond top. In the first edition of the *Encyclopedia*, I called this example a failure because prices broke out upward instead of downward. I no longer make that distinction: Breakouts can occur in any direction.

I would expect prices to breakout downward because of the quick rise leading to the pattern (late January) and drop until they found support around the 108 level, the price range of the January lows. As you can see, that did not happen. Price broke out upward instead.

Does this diamond obey the identification guidelines? Prices rise into the pattern from the bottom, so the prior price trend rule is intact. The diamond shape becomes clear after drawing trend lines along the minor highs and lows. Linear regression on the volume trend shows that it tilts downward, as expected. The breakout volume is high, but again, this is not a rule, just an observation. A breakout on low volume is fine. In short, the diamond top pictured in Figure 12.4 is valid. With an upward breakout, I would check for overhead resistance to the upward move but this figure does not show any. A look at the weekly chart would clarify the situation and allow a trader to estimate the likely rise (assuming price stops at overhead resistance).

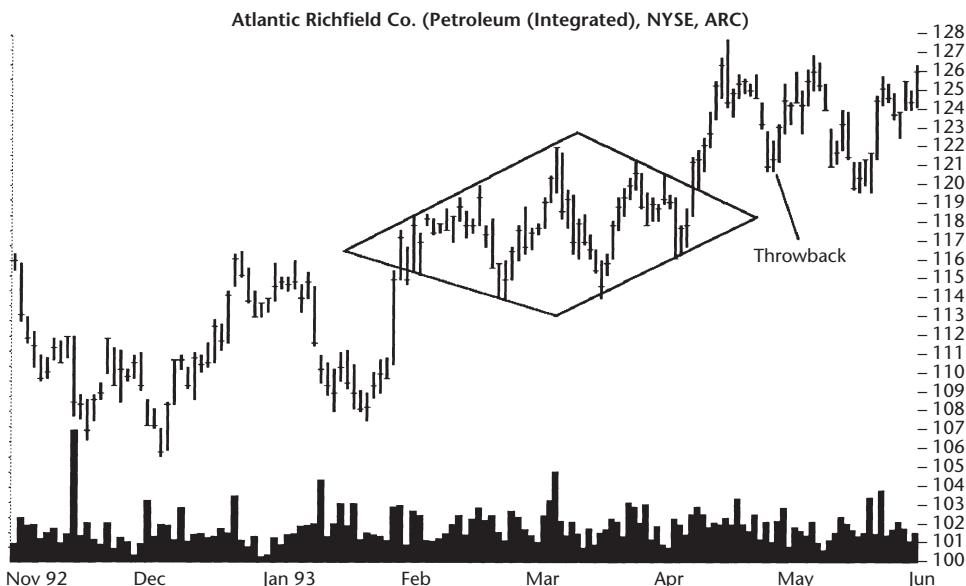


Figure 12.4 A failure of a diamond top to reverse direction.

Focus on Failures

Figure 12.5 shows a typical diamond top failure. The diamond may look odd by its unsymmetrical appearance, but does it qualify as a valid diamond? Yes. The price trend leading to the pattern is up, there are plenty of trend line touches in the pattern, and volume diminishes from being high on the left to low on the right—all are ingredients of a properly selected diamond top. Breakout volume, however, is timid, falling well short of the peaks posted during the prior three days.

Is low breakout volume the reason why prices failed to descend far (just 3%)? Maybe. A high volume breakout would have given more confidence to a bearish situation and perhaps prevented a pullback. I have noticed that high volume downward breakouts pull back less often than do low volume ones. This makes intuitive sense, as a high volume descent tends to push prices down farther than a low volume one.

Perhaps the key to this failure is like many others: Support below the pattern stops the decline. On the weekly chart (not shown), support appears in August 1996, February 1996, and May 1995, all with prices peaking near 17. Coupled with a bullish general market, the rising tide lifted all boats and prevented this one from sinking.

Based on this chart, if this were my trade, I would have seen the support in July (point A) as a warning sign. That would be my guess as to how far prices would drop. Indeed, they do stop at that level in April, but that is well after the pattern fails.

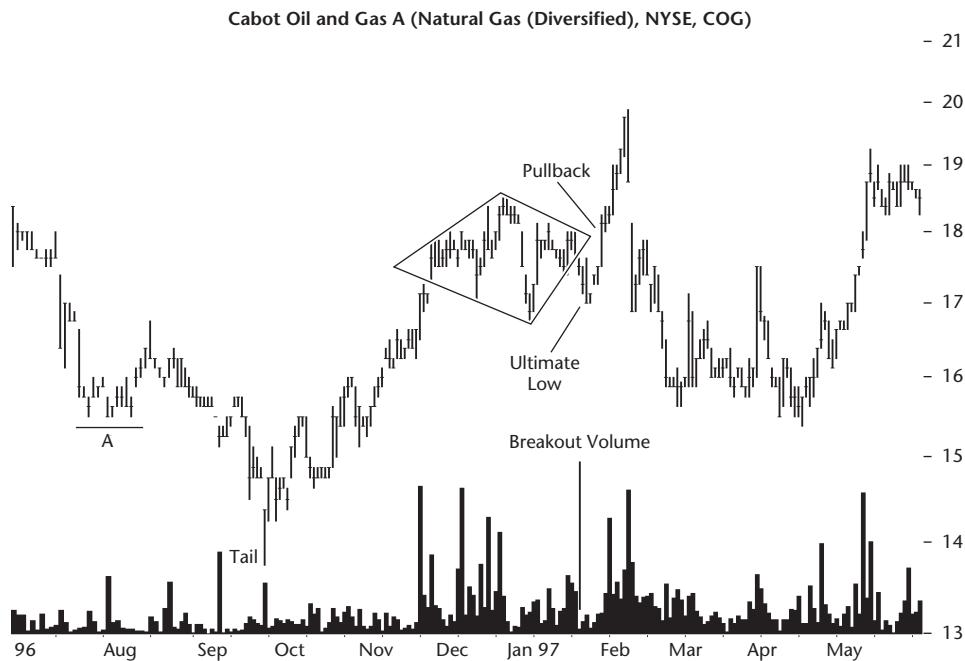


Figure 12.5 A valid diamond top breaks out downward but price fails to descend far because of underlying support.

If prices pierced the point A support zone at 15.50, I would expect a continued decline to the September low. To play it safe, perhaps a target of 14.50 (above the September tail because you do not want to place a target based on an outlier spike) would work.

A stop would have closed out my short position at the prior minor high (near the price level where the word “Pullback” points in Figure 12.5).

Why do chart patterns fail? Who knows? They just do. Use stops to protect your position and use conservative price targets.

Statistics

Table 12.2 shows general statistics for diamond tops.

Number of formations. I scoured my three databases to unearth enough diamonds to make the statistics tables worthwhile. Except for the bull market, downward breakout, I am not sure I succeeded. Still, my prospecting found 375 diamond tops. Most occur in a bull market (because that was the longest) and downward breakouts were more plentiful than upward ones. I used 500 stocks from mid-1991 to mid-1996 and another 200 stocks bracketing the bear market from 1999 to 2003. Additional samples came from periods between those two ranges.

Table 12.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	88	28	203	56
Reversal (R), continuation (C)	88 C	28 C	203 R	56 R
Average rise or decline	27%	33%	-21%	-24%
Rises or declines over 45%	24 or 27%	6 or 21%	11 or 5%	3 or 5%
Change after trend ends	-29%	-34%	47%	47%
Busted pattern performance	26% ^a	28% ^a	-19% ^a	N/A
Standard & Poor's 500 change	7%	-1%	-1%	-9%
Days to ultimate high or low	81	66	52	43

Notes: Minus sign means decline. N/A means no samples available.

^aFewer than 30 samples.

Reversal or continuation. Since tops have prices entering the pattern from the bottom, most of the diamonds acted as reversals. These are the ones with downward breakouts. Diamonds with upward breakouts act as continuations of the prevailing price trend.

Average rise or decline. Diamonds with upward breakouts did not perform well, but downward breakouts held their own, meeting or beating the average decline for all chart pattern types.

Rises or declines over 45%. How well does the pattern do? Up breakouts show a reasonable number of large climbers but downward breakouts do not. Outsized declines are unusual, however, so do not be alarmed at the poor showing.

Change after trend ends. When prices reach the ultimate high or low, what happens? Here again, the showing is poor. After reaching the ultimate low, prices climb 47%. That figure may sound great but it falls short of some patterns that climb 60%. Once prices peak after an upward breakout, they drop between 29% and 34%. That is quite good.

Busted pattern performance. Since busted patterns are those in which price moves less than 5% after the breakout, diamonds with downward breakouts in a bear market had none that qualify. The others show poor performance and low sample counts, too.

Standard & Poor's 500 change. The numbers suggest how well you could have done if you bought the stocks in the index as opposed to trading the diamonds perfectly. The numbers also show the influence of the general market on the average rise or decline. A large up move (bull market) helps prices rise, while a downward move (bear market) pulls them lower.

Days to ultimate high or low. How long does it take price to reach the ultimate high or low? It ranges between 43 and 81 days, or about 6 to 11 weeks. Notice that prices in a bear market drop quicker than they rise in a bull market.

Table 12.3 shows failure rates for diamond tops under varying breakout directions and market conditions. I am sure your eye went first to the bear market, up breakout with a 0% failure rate. Look down at the bottom of the column. I found only 28 patterns. Of course, downward breakouts are more likely to happen in a bear market than upward breakouts, as the sample sizes attest (I found 56 patterns with downward breakouts in a bear market).

For small moves, diamonds with downward breakouts are the best bets. They have the lowest failure rates (if you exclude the low sample count, bear market, up breakout column). This changes for moves higher than 20%. For large moves, patterns in a bull market with an upward breakout show smaller failure rates.

How do you make sense of the numbers? Table 12.3 shows how likely it is that your pattern may fail to rise or drop a given amount. For example, in a bull market, 10% of the diamonds with upward breakouts will fail to rise more than 5%. Twenty-seven percent will fail to climb 10%. Similarly, 6% of the patterns in a bull market with a downward breakout will fail to drop more than 5%.

Table 12.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. The delay to the breakout is due to the way my software draws the diamonds. Ignore the numbers.

Yearly position. Where in the yearly price range do breakouts occur most often? The table shows that most diamonds have breakouts near the yearly high. After all, we are talking about diamond *tops*, not bottoms.

Table 12.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	9 or 10%	0 or 0%	13 or 6%	2 or 4%
10	24 or 27%	3 or 11%	45 or 22%	8 or 14%
15	34 or 39%	5 or 18%	69 or 34%	14 or 25%
20	40 or 45%	10 or 36%	106 or 52%	24 or 43%
25	48 or 55%	12 or 43%	136 or 67%	38 or 68%
30	55 or 63%	16 or 57%	155 or 76%	43 or 77%
35	61 or 69%	18 or 64%	171 or 84%	49 or 88%
50	70 or 80%	23 or 82%	197 or 97%	56 or 100%
75	80 or 91%	26 or 93%	203 or 100%	56 or 100%
Over 75	88 or 100%	28 or 100%	203 or 100%	56 or 100%

Table 12.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout ^a	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	3 days	2 days	3 days	3 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L7%, C26%, H67%	L18%, C36%, H46%	L9%, C26%, H65%	L11%, C38%, H51%
Percentage rise/decline for each 12-month look back period	L25% ^a , C31% ^a , H22%	L54%, C21%, H36%	L22% ^a , C22%, H20%	L19% ^a , C16% ^a , H29% ^a
Throwbacks/pullbacks	59%	54%	57%	57%
Average time to throwback/pullback ends	9 days	13 days	12 days	11 days
Average rise/decline for patterns with throwback/pullback	23%	30%	19%	18%
Average rise/decline for patterns without throwback/pullback	34%	35%	24%	30% ^a
Performance with breakout gap	16% ^a	32%	20%	19% ^a
Performance without breakout gap	29%	36%	22%	27%
Average gap size	\$0.40	\$0.91	\$0.63	\$0.53

Note: Minus sign means decline.

^aFewer than 30 samples.

Yearly position, performance. Mapping performance onto the yearly price range, we find mixed results. Bull markets do better when the breakout is in the middle of the yearly price range. Bear markets have too few samples to be usable. Upward breakouts do better near the yearly low, and downward breakouts do better near the yearly high.

Throwbacks and pullbacks. How often do prices throw back (upward breakouts) or pull back (downward breakouts) to the diamond trend line border or breakout price? Answer: about half the time.

The time to complete the throwback or pullback ranges between 9 and 13 days. When a throwback or pullback occurs, performance suffers, as Table 12.4 shows. Thus, the key to selecting better performing patterns is to search for underlying support or overhead resistance before investing. Nearby support or resistance may repel the downward or upward move, respectively.

Gaps. Across the board, gaps hurt performance. By gaps, I mean a price gap that occurs on the day price closes outside the pattern boundary (the breakout day). The average gap size varies from \$0.40 to \$0.91 depending on market conditions and breakout direction. Other chart patterns show larger gaps associated with downward breakouts, but the small sample size may explain the large gap size in diamonds with upward breakouts in a bear market.

Table 12.5 shows a frequency distribution of days to the ultimate high or low. Notice how many diamonds reach the ultimate move in the first few weeks. For example, in a bear market, 55% of those diamonds with downward breakouts top out in the first month. At the other end of the table, 13% are still searching for the ultimate low after 70 days (about 2.5 months).

Also notice the slight blip around a month into the trade. In a bear market, up breakout, 11% of the diamonds top out after 35 days. Skipping down, 14% of diamonds in a bear market with downward breakouts bottom around day 42. In fact, all patterns show a slight rise during days 35 or 42. This finding suggests

Table 12.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	14%	11%	7%	7%	11%	7%	7%	4%	0%	0%	32%
Bull market, up breakout	18%	9%	10%	10%	3%	6%	2%	0%	2%	1%	38%
Bear market, down breakout	23%	11%	14%	7%	4%	14%	2%	4%	7%	2%	13%
Bull market, down breakout	18%	11%	6%	10%	6%	8%	5%	3%	2%	4%	27%

Table 12.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout ^a	Bull Market, Down Breakout	Bear Market, Down Breakout ^a
Tall pattern performance	27%	37%	-26%	-28%
Short pattern performance	27%	29%	-18%	-18%
Median height as a percentage of breakout price	12.43%	17.18%	10.70%	16.33%
Narrow pattern performance	29%	29%	-22%	-24%
Wide pattern performance	26%	36%	-21%	-23%
Median length	37 days	40 days	36 days	32 days
Average formation length	46 days	54 days	48 days	47 days
Short and narrow performance	31%	33%	-18%	-21%
Short and wide performance	22% ^a	18%	-17%	-13%
Tall and wide performance	29%	42%	-25%	-27%
Tall and narrow performance	24% ^a	16%	-28%	-28%

Note: Minus sign means decline.

^aFewer than 30 samples.

price weakness (upward breakouts) or strength (downward breakouts) a month after the breakout. Keep that in mind, as you may need to exit your trade then.

Table 12.6 shows size-related statistics.

Height. Although the bear market columns have few samples, the trend is clear: Most tall patterns perform better than short ones. To determine if the pattern is short or tall, measure the diamond height from the highest high to the lowest low in the pattern and then divide by the breakout price (where price pierces the diamond boundary). If the result is larger than the median shown in the table, they you have a tall pattern; less than the median, the pattern is short.

Width. Most of the time, narrow patterns perform better than wide ones except for diamonds with upward breakouts in a bear market. In all cases, I used the median length as the separator between narrow and wide.

Average formation length. How long is the average diamond? It varies from 46 days to 54 days. That is just shy of 2 months. Since this is an average, your results will vary.

Height and width combinations. No one combination performs better than the others do, as Table 12.6 shows. However, most of the time, patterns that are both short and wide perform worse than the other combinations.

Table 12.7 shows volume-related statistics for diamonds.

Table 12.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout ^a	Bull Market, Down Breakout	Bear Market, Down Breakout
Rising volume trend performance	30% ^a	31%	-21%	-23% ^a
Falling volume trend performance	25%	33%	-21%	-24%
U-shaped volume pattern performance	25% ^a	43%	-22%	-22% ^a
Dome-shaped volume pattern performance	27%	30%	-22%	-27% ^a
Neither U-shaped nor dome-shaped volume pattern performance	30% ^a	19%	-19%	-19% ^a
Heavy breakout volume performance	27%	28%	-21%	-23%
Light breakout volume performance	27%	48%	-22%	-24% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Volume trend. Diamonds in bear markets do best with a falling volume trend. Bull markets are either unchanged or do better with a rising volume trend.

Volume shapes. Diamonds show no consistent performance trends among the various shapes. That may be due to the small sample size. However, diamonds with a random volume shape (neither U nor domed) perform worse than three of four columns, so select diamonds with U- or dome-shaped volume.

Breakout volume. Oddly, diamonds with light breakout volume perform better than do those with heavy breakout volume most of the time (the exception is for diamonds with upward breakouts in a bull market). Many of the numbers are close or the samples few, so do not depend on the result.

Trading Tactics

Table 12.8 shows trading tactics for diamond tops.

Measure rule. Use the measure rule to predict a price target. Consider Figure 12.6, a chart of a diamond top. Compute the formation height by taking

Table 12.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the formation height by subtracting the lowest low from the highest high in the formation. For downward breakouts, subtract the difference from the location where prices pierce the diamond boundary. For upward breakouts, add the difference to the breakout price. The result is the minimum price move to expect. Alternatively, formations often return to price levels from which they begin. The base serves as a minimum price move.
Wait for breakout	For best results, wait for price to close outside the diamond trend line before placing a trade.
Risk/reward	Look for support (risk) and resistance (reward) zones before placing a trade. These zones are where the trend is likely to pause or even stop. From the current closing price (before the breakout), compute the difference between the zones and the current price. The ratio of the two must be compelling enough to risk a trade.

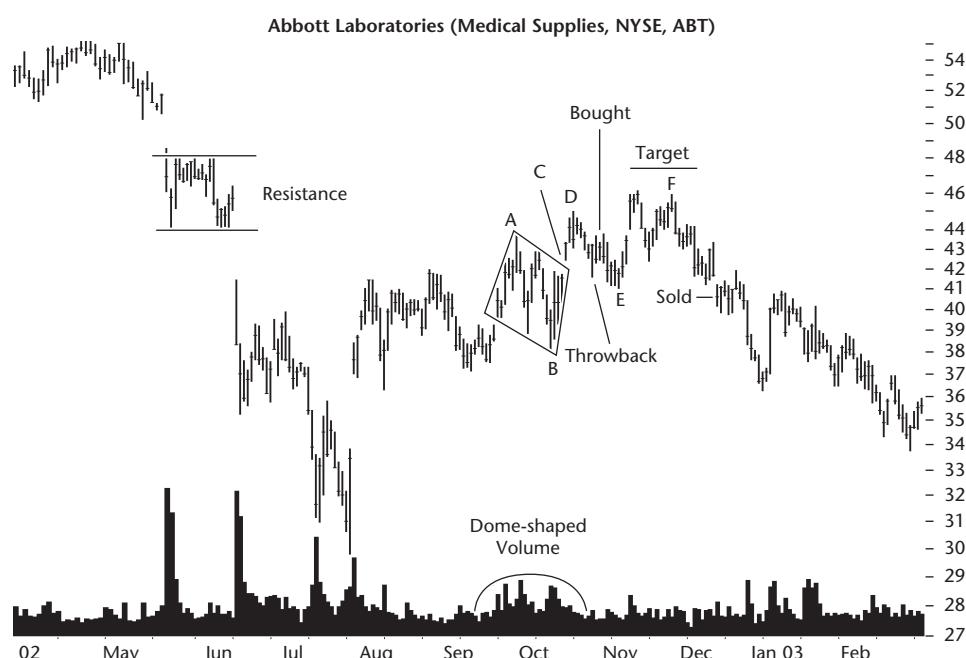


Figure 12.6 Shown is a diamond top with dome-shaped volume. To get a price target, compute the formation height ($A - B$) and add it to C , the breakout price. The result is the target price.

the difference between the high in the pattern (point A at 43.85 in this example) and the low (B at 38.08). Add the difference (5.77) to the breakout price (C at 41.85, the point at which price pierces the diamond boundary) to get the target (47.62). Price reaches the target between 69% and 79% of the time. See the Results Snapshot (“Percentage meeting price target”) for the numbers. In this example, the diamond missed the target by falling short.

However, there is an alternative method that sometimes yields more accurate results. The method involves looking at the price chart and seeing if there is something to reverse. By this I mean diamonds sometimes form after a quick run-up in prices. The reversal will usually erase these gains and return prices to where they were before the run-up.

Wait for breakout. When trading technical formations like diamond tops, it is always safest to wait for the breakout. If you do not wait for the breakout, you may face a situation similar to that shown in Figure 12.4. Instead of reversing, prices resume their original trend and the investor, shorting before the breakout, takes a loss.

Risk/reward. Before placing a trade, consider the risk/reward ratio. In essence, you first identify the support and resistance levels and calculate the difference between those levels and the current price. Trades that result in risk/reward ratios of one to two or higher are worth making. With smaller ratios, the risk may be too high to warrant a trade.

Sample Trade

Figure 12.6 shows a diamond top Lorenzo traded. He first noticed the diamond well after it formed—during the throwback to be exact. The throwback’s hooking pattern caught his attention, and he searched for a nearby chart pattern. In this case, he saw a diamond top, but was it a valid diamond or just cubic zirconia?

Lorenzo reviewed the identification guidelines and found that prices were rising into the pattern, verifying a top. The diamond shape, although pushed to one side, had an adequate number of touches of each diamond boundary (the trend lines). Volume receded from the middle of the pattern to the end, so it had a downward trend. In fact, the entire volume shape appeared domed. Dome-shaped volume for diamonds in a bull market with an upward breakout was a decent choice (not the best or worst; see Table 12.7).

Breakout volume was high but nothing to write home about and well below the peaks of a few days earlier. Prices also gapped upward, suggesting buying enthusiasm. However, he knew that breakout day gaps resulted in performance that was not as good as those diamonds without gaps. That made him nervous.

Since the breakout was upward, he checked for overhead resistance and saw the long island in May. Prices tested the region at point D, leading to the

throwback. Still, he knew that prices would eventually pierce such resistance zones, perhaps after multiple attempts to break through.

He computed the predicted price target using the diamond height projected upward from the breakout price and saw that the target was at the high end of the resistance zone. Thus, it looked likely that prices would throw back there. That meant watching the stock closely and selling when it neared the target to maximize profits. On the down side, if prices dropped, he would close out his position just below the diamond bottom (point B).

Two days after prices closed the gap in the throwback, he bought and received a fill at 43. In the days that followed, the stock dropped, and he knew from experience that many of his trades either did well immediately or fell apart. This looked as if it were going to result in a loss. He placed a stop-loss order to sell at 37.93. That was below the round number support at 38 and just below the diamond bottom.

Prices climbed. When they closed above the prior minor high, point D, he raised his stop to just below point E, a nearby minor low. Prices continued higher for two more days then retraced their gains, attempted another high (point F) and then started a long slide.

From experience, Lorenzo knew that a failure of price to make a higher high (at point F) was a bearish sign, but he hoped price would rebound. It did not. Instead, price gapped down and tripped his stop. The stock sold at 40.98, for a 5% loss.

What did he do wrong? I would not have taken this trade because of the overhead resistance. Since there are plenty of chart patterns in other stocks under more promising circumstances, why take one with high risk and limited profit potential? On the plus side, he used a stop-loss order and raised it as prices climbed. Eventually, the order took him out for a small loss. That is the way it should work when a trade goes bad. Let your profits run and cut your losses short.

For Best Performance

The following list includes tips and observations to help you select better performing diamonds. Refer to the associated table for more information.

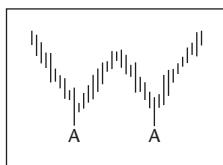
- Correctly identify the pattern using the guidelines—Table 12.1.
- Downward breakouts occur most often and perform well—Table 12.2.
- Downward breakouts have the lowest failure rates for small declines, but upward breakouts have fewer failures for larger moves—Table 12.3.
- Throwbacks and pullbacks hurt performance. Avoid trades with nearby support and resistance zones—Table 12.4.

212 Diamond Tops

- Breakout day gaps suggest poor performance—Table 12.4.
- Expect a trend change about a month after the breakout—Table 12.5.
- Tall patterns usually perform better than short ones—Table 12.6.
- Avoid short and wide diamonds—Table 12.6.
- Select patterns with light breakout volume—Table 12.7.

13

Double Bottoms, Adam & Adam



RESULTS SNAPSHOT

Upward Breakouts

	Bull Market	Bear Market
Appearance	Double bottom pattern with narrow or spike bottoms. Breakout is upward.	
Reversal or continuation	Short-term bullish reversal	
Performance rank	10 out of 23	10 out of 19
Break-even failure rate	5%	7%
Average rise	35%	24%
Change after trend ends	-33%	-32%
Volume trend	Downward	Downward
Throwbacks	64%	61%
Percentage meeting price target	66%	48%
Surprising findings	Throwbacks hurt performance. Tall patterns perform better than short ones. Performance improves for those patterns with a lower right bottom, a declining volume trend, dome-shaped volume, heavy breakout volume, and volume heavier on the left bottoms.	
See also	Double bottoms, Adam & Eve; Double bottoms, Eve & Adam; Double bottoms, Eve & Eve.	

This is the first of four chapters on double bottoms. Each chapter represents a different bottom shape. An Adam & Adam double bottom reminds me of a person on stilts: narrow legs perhaps made of single spikes that touch the ground near the same price.

The Results Snapshot shows the important numbers. Adam & Adam double bottoms (AADBs) sport decent break-even failure rates with mediocre average rises. Throwbacks occur in nearly two out of three trades, so you may be able to add to your position or initiate a new one during a throwback. Surprises are many and most relate to volume. I discuss all of them in the Statistics section.

Tour

Figure 13.1 shows the first example of an Adam & Adam double bottom. Since we are looking at bottoms, the pattern forms at the end of a downward price plunge. The pattern can also appear in the corrective phase of a measured move up. Notice the twin spikes (bottoms) that happen so often in this pattern. They drop well below the surrounding price lows yet stop near the same price level. The rounded turn connecting the two bottoms need not be rounded at all—many times, it appears irregular. Volume is higher on the left bottom than on the right, as in this example. Thus, the volume trend recedes from bottom to bottom yet takes on a U shape that extends beyond the right bottom low in this example.

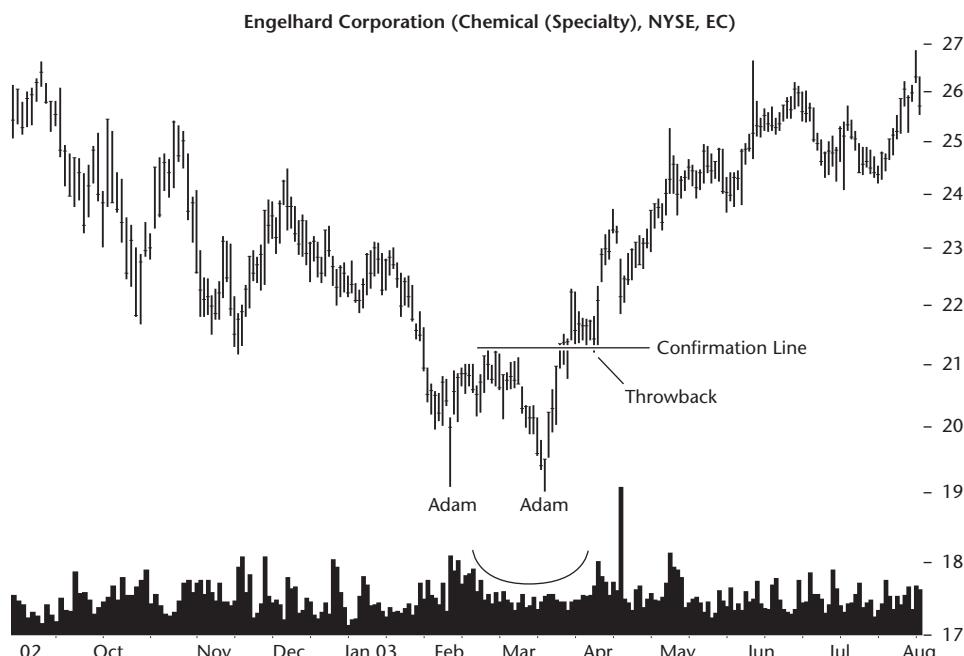


Figure 13.1 An Adam & Adam double bottom with twin spikes, volume heavier on the left bottom than the right, and U-shaped volume.

The confirmation line marks the highest high in the pattern. A twin bottom pattern is not a valid double bottom until price closes above the confirmation line. That occurrence signals a breakout and time to take a position in the stock. But before you do, check the identification guidelines to be sure you have a good pattern.

Identification Guidelines

The double bottom pattern is one of the easier patterns to identify, but I have expanded the identification characteristics table (Table 13.1) for this pattern and made the recommendations more specific.

Downward price trend. Look for price to be tending downward into the pattern. A study documented in my book, *Trading Classic Chart Patterns* (Wiley 2002), suggests that performance improves for patterns with trends leading to the pattern less than 6 months long. Most of the time (58%), a short-term (0 to 3 months) downtrend precedes the pattern.

Bottom shape. The shape of each bottom should appear similar. That means both should look narrow, not one wide and one narrow, perhaps with a long, downward price spike or tail. To gauge the width, look at the *top* of the bottom. I know that sounds confusing, but the top end of the spike will be wider than the base. (Eve bottoms will appear more rounded and wider than will their Adam counterparts.)

Table 13.1
Identification Characteristics

Characteristic	Discussion
Downward price trend	Price trends downward leading to the double bottom and should not drift below the left bottom.
Bottom shape	Narrow, V-shaped bottoms, sometimes composed of long, one-day spikes.
Rise between bottoms	At least 10% from the lowest valley to the highest peak between the two bottoms. Taller patterns perform better.
Bottom low prices	Bottom to bottom price variation is small. Best performance is between 2% and 5% variation.
Bottom separation	Bottoms should be at least a few weeks apart. Best performance is 3–6 weeks apart. Wider than 8 weeks and performance deteriorates.
Price rise after right bottom	Price must close above the confirmation point without first falling below the right bottom low.
Bottom volume	Usually higher on the left bottom than the right.
Confirmation price	The highest high between the two bottoms. A close above the confirmation point is the breakout and confirms the pattern as a valid double bottom.

When judging bottom shape, ask yourself if the bottoms look the same or different. If they look the same, then you have either Adam & Adam or Eve & Eve bottoms. Narrow bottoms signify the Adam variety and wide bottoms signify the Eve variety.

Rise between bottoms. Look for a rise between the twin bottoms of at least 10%, as measured from the lowest bottom low to the highest high between the two bottoms. For example, consider Figure 13.2, which shows an AADB. The pattern has two narrow bottoms, both with spikes (the left longer than the right), and volume that is higher on the left side than on the right. Twin bottom AB (upper left) may look like a double bottom but the 4% rise measured from A to C is not high enough to be a true double bottom. The 10% rise figure is an arbitrary one, but I will show that the higher the number, the better the performance (that is, tall patterns perform better than short ones).

Bottom low prices. From the lowest low on the left bottom to the low on the right, the price variation should be small. For example, do not try to assign double bottom status to the right bottom and point D in Figure 13.2. Point D does not drop close enough to the right bottom to qualify it as a valid bottom.

After gathering statistics on AADBs, I found that the best performance comes from bottoms in which the price variation is between 2% and 5%. Patterns with a lower right bottom also perform better after the breakout.

Bottom separation. How far apart should the bottoms be? Some texts say that bottoms must be at least a month apart, but I set no such limit. I stip-

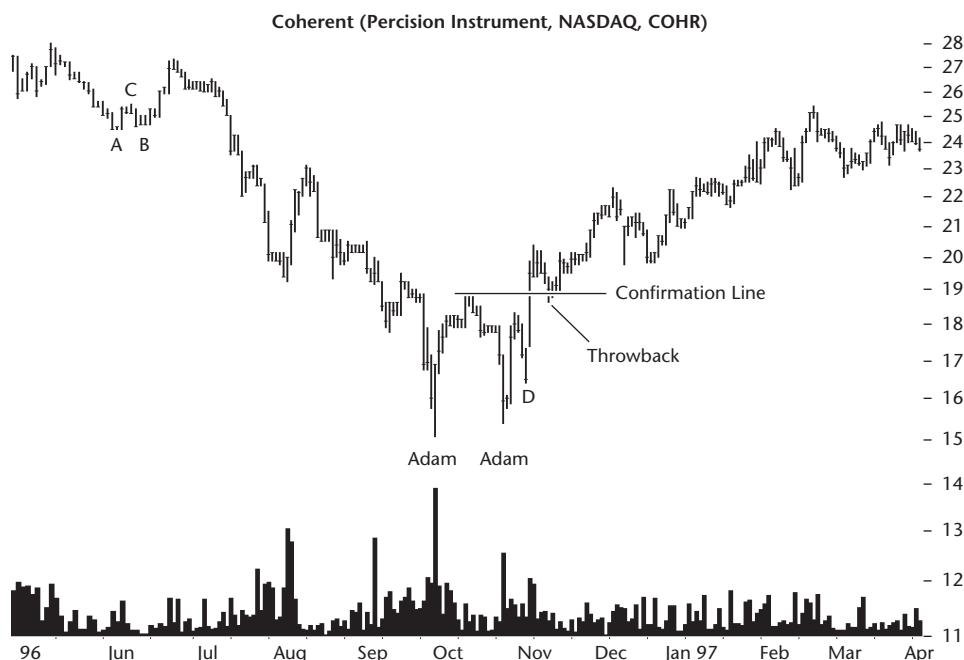


Figure 13.2 An Adam & Adam double bottom with a throwback. Pattern AB (upper left) is not a double bottom because the rise to C is not high enough.

ulated that the bottoms should be distinct minor lows, not lows that are part of the same congestion pattern. I found that the best separation is for bottoms 3 to 6 weeks apart. Bottoms farther apart than 8 weeks showed performance deteriorating. I measured the bottom distance between the lowest low in each valley (which also marked the beginning and ending of each AADB pattern).

Price rise after right bottom. After price digs the second valley in the double bottom pattern, prices take time to rise to confirmation. What you need to avoid is prices drifting down and making a third bottom. Another bottom near the same price as the first two qualifies the pattern as a triple bottom (but you still have to wait for confirmation). I removed from consideration any pattern with a third bottom falling *below* the other two (it is not a triple bottom and price did not confirm the AADB).

Bottom volume. The left bottom usually shows higher volume. However, volume higher on the right side should not exclude the pattern from consideration. Figures 13.1 and 13.2 show volume higher on the left bottom than on the right. We will see that AADBs with higher left volume perform better.

Confirmation price. A twin bottom pattern is not a valid double bottom until price closes above the high between the two bottoms. Always wait for confirmation before taking a position in a stock because price continues down 64% of the time—and that is in a bull market, too!

Figure 13.3 shows two examples of double bottoms. Are they double bottoms or just twin valley patterns? In both cases, the price trend leading to the

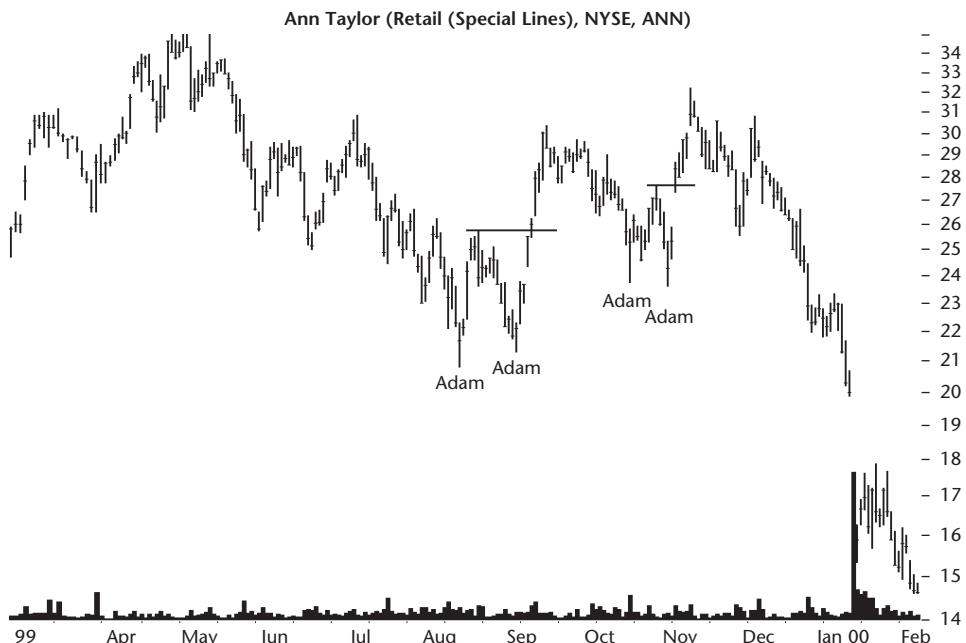


Figure 13.3 Shown are two Adam & Adam double bottoms. The horizontal lines are the confirmation lines. A close above the line means the pattern is a true AADB.

patterns is downward, as required. The bottoms are pointed with one-day spikes. All bottoms are V shaped, not rounded turns. The rise to the confirmation line is 24% for the August bottom and 17% for the October pattern.

The prices at each bottom are close enough to each other that they look like bottoms, not rising steps. The time between the twin bottoms is 3 weeks for the August example and 2 weeks for the October bottom. Prices rise to the confirmation point in a snappy manner, closing above the highest high in just a few days.

The volume pattern is unexciting, including the breakout volume. In both examples, volume is higher on the left bottom than on the right. The breakout volume is slightly above the 30-day average, classifying the breakout as having heavy volume. Thus, both patterns shown in Figure 13.3 are valid double bottoms. However, prices rise just 18% and 16% after the breakout. How can we tell the outperformers from the also-rans?

Focus on Failures

Figure 13.4 shows the first double bottom failure and it is typical. The pattern has valleys that form after a short-term downward price trend and bottom near

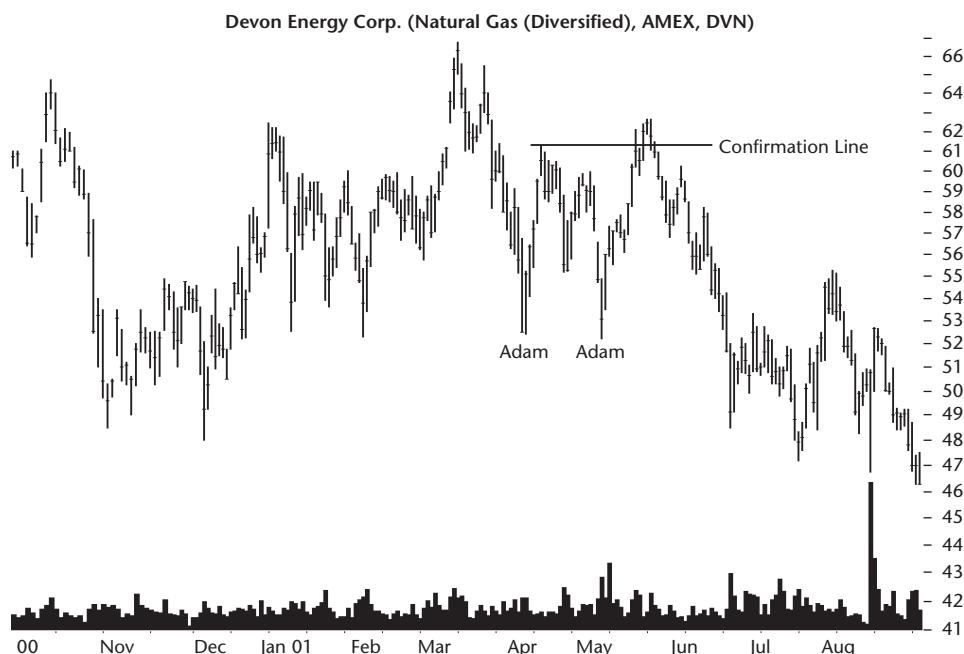


Figure 13.4 An Adam & Adam double bottom confirmed when price closed above the confirmation line, but price soon stalled. Overhead resistance (not shown) may have played a part, but other stocks in the industry were showing topping patterns.

the same price. The valleys are 29 days apart, with a 17% rise between them. The AADB pattern confirms when price rises above the confirmation line.

Price climbs just 2% after the breakout. Why so low? The first clue is that the pattern is in a bear market, which is never good for bullish chart patterns. The downward price trend starts at the March peak, so it is less than a month long. Before that, prices started climbing from the October 2000 lows. In other words, the double bottom did not act as a reversal of the longer-term prevailing price trend, but as a consolidation.

If you extended the figure to the left, you would see a long line of peaks stretching to May 2000. That line represented a massive zone of resistance that the double bottom could not pierce. A check of other companies in the diversified natural gas industry showed that most of them had stocks peaking in May or June. They all started tumbling at the same time. A check of them showed that topping patterns predominated (double tops and triple tops), signaling a downward price trend. Thus, a smart investor would have not taken this trade.

Figure 13.5 shows an example of a second type of failure that perhaps you, too, have seen. Ted is a novice investor with an attitude. He looks at the stock chart, checks the identification guidelines, and believes that the stock is making a double bottom. When prices rise after the second bottom, Ted decides to pull the trigger early and buys the stock, receiving a fill at 42.63. He reasons that all the indications suggest the stock has completed a valid double bottom.

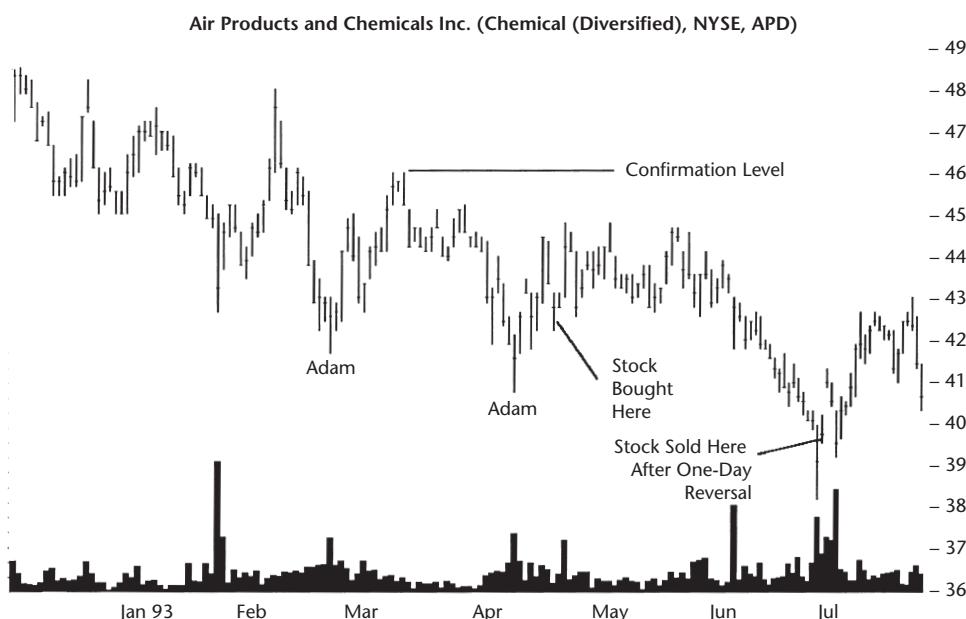


Figure 13.5 Example of second type of failure—failing to wait for breakout confirmation. Ted decided to get an early start on the double bottom but ended up losing money.

That being the case, why not get in now while the price is still low instead of waiting for prices to rise above the confirmation point (46.25)? Ted makes a good point. He is pleased with the stock's performance until it begins to round over. Does he sell out now at a small profit or should he hold on and risk a downturn while waiting for additional gains? This is a recurring investor dilemma.

He decides to hang onto his position. During May, the stock surges upward again before beginning a downhill run. Ted watches in horror as his profit vanishes and losses mount. Eventually, when prices spike downward, he sells at the opening the next day and close out his position.

What did he do wrong? He failed to wait for breakout confirmation. Prices must close above the confirmation point before a trade is placed. Otherwise your chances of success are only one in three.

Statistics

Table 13.2 shows general statistics for this chart pattern.

Number of formations. I found 281 AADBs in 500 stocks from mid-1991 to mid-1996 and from 2000 to 2004, with others between those dates.

Reversal or continuation. The pattern is a bottom with an upward breakout. Thus, all acted as reversals of the downward price trend, by definition.

Average rise. The 35% rise is about what you would expect from a bullish pattern in a bull market. The 24% bear market result surprised me because it is so low, but it nears the average of all other chart pattern types (25%).

Rises over 45%. How well does this pattern do? In a bull market, over a quarter of the patterns (28%) climbed over 45%. Patterns in a bear market also held up well, with 15% soaring more than 45%.

Table 13.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	206	75
Reversal (R), continuation (C)	206 R	75 R
Average rise	35%	24%
Rises over 45%	58 or 28%	11 or 15%
Change after trend ends	-33%	-32%
Busted pattern performance	-32% ^a	-35% ^a
Standard & Poor's 500 change	16%	1%
Days to ultimate high	136	105

Note: Minus sign means decline.

^aFewer than 30 samples.

Change after trend ends. Once prices top out at the ultimate high, then what happens? They tumble about 33%. In a bear market, the decline gives up all the gains and more.

For aggressive traders in a bear market, wait for prices to peak then short the stock and ride it down. The trick, of course, is to buy just after it peaks. How can you tell when the stock peaks? Look for topping patterns that break out downward in other stocks, especially those in the same industry. A strong market downturn is also helpful. Or, trade a busted pattern.

Busted pattern performance. Busted patterns have good bearish performance but the samples are few. Busted patterns are easy to spot (like the one in Figure 13.4) because price climbs less than 5% before tumbling. Short the stock when you are sure prices are heading down and not just completing a throwback.

Standard & Poor's 500 change. The S&P 500 index climbed in both bull and bear markets by 16% and 1%, respectively. The strong push from the general market helped the chart pattern perform in a bull market.

Days to ultimate high. How long did it take price to reach the ultimate high? Answer: about 4 months in a bull market and 3.5 months in a bear market.

Table 13.3 lists failure rates. AADBs have single-digit break-even failure rates that climb as the maximum price rises. For example, 5% of the patterns in a bull market fail to rise at least 5% after the breakout. Over a quarter (26%) rise less than 15% in a bull market and 35% fail to rise at least 15% in a bear market. Half the patterns top out after gains of just over 25% in a bull market and 20% in a bear market.

Perhaps the biggest surprise is how quickly the failure rates climb. In a bull market, they triple from 5% to 17%. Bear markets double from 7% to 15% and then double again to 35% as the maximum price climbs 5%, 10%, and 15%.

The table gives you some idea how typical double bottoms work. It also suggests that you should stick to trading double bottoms in a bull market (because of lower failure rates).

Table 13.3
Failure Rates

Maximum Price Rise (%)	Bull Market	Bear Market
5 (breakeven)	11 or 5%	5 or 7%
10	36 or 17%	11 or 15%
15	54 or 26%	26 or 35%
20	77 or 37%	37 or 49%
25	93 or 45%	42 or 56%
30	110 or 53%	51 or 68%
35	128 or 62%	58 or 77%
50	155 or 75%	67 or 88%
75	180 or 87%	68 or 91%
Over 75	206 or 100%	75 or 100%

Another use of Table 13.3 is to check on the measure rule prediction, discussed in the Trading Tactics section later. Suppose it predicts a rise from 10 to 13 in a bear market. That is a 30% move. How many patterns will rise at least that far? Answer: 32% (68%, on average, will fail to make it that far). Thus, it appears that the target is too far away, and you should anticipate price topping out sooner.

Table 13.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. It takes just over a month, on average, for prices to rise from the low at the right bottom to the breakout. As the figures in this chapter show, there is wide variation.

Yearly position. Where in the yearly price range does the AADB breakout occur most often? For both bull and bear markets, the middle of the yearly trading range is the most popular.

Yearly position, performance. Where in the yearly range do the best performing AADBs reside? The answer depends on market conditions. In a bull market, AADBs with breakouts near the yearly low do best. In a bear market, those in the middle of the range do best, but the samples are few.

Throwbacks. A throwback occurs in almost two of every three trades. That is a high return rate. Thus, if you missed investing in a double bottom, you may have another opportunity if it throws back.

The average time to throwback is 9 to 11 days. When an AADB throws back, performance suffers, so be sure to check for (and avoid) overhead resistance before trading.

Table 13.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	38 days	35 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L32%, C43%, H25%	L32%, C35%, H33%
Percentage rise for each 12-month lookback period	L40%, C32%, H39%	L28% ^a , C31% ^a , H16% ^a
Throwback	64%	61%
Average time to throwback ends	11 days	9 days
Average rise for patterns with throwback	28%	23%
Average rise for patterns without throwback	44%	26% ^a
Performance with breakout day gap	45%	24% ^a
Performance without breakout day gap	33%	24%
Average gap size	\$0.45	\$0.29

^aFewer than 30 samples.

Table 13.5
Frequency Distribution of Days to Ultimate High

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	19%	7%	8%	7%	9%	1%	3%	3%	3%	4%	37%
Bull market	14%	6%	4%	4%	5%	5%	2%	3%	4%	3%	50%

Gaps. Breakout day gaps help performance in a bull market but show no performance improvement in a bear market. Usually, the gap size in a bear market is huge compared to the bull market one, but not in this case. Blame the small sample count.

Table 13.5 shows a frequency distribution of days to the ultimate high. Many of the patterns reach the ultimate high after 70 days (50% of them in a bull market). Fewer than 20% top out in the first week.

Look what happens after 35 days. In both markets, more patterns top out (9% in a bear market and 5% in a bull market). That finding suggests price weakens slightly during that time. Thus, be prepared to close out your trade a month after the breakout.

Table 13.6 shows statistics related to size.

Table 13.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	39%	25%
Short pattern performance	33%	24%
Median height as a percentage of breakout price	17.54%	19.27%
Narrow pattern performance	35%	27%
Wide pattern performance	35%	22%
Median length	37 days	25 days
Average formation length	52 days	48 days
Short and narrow performance	37%	28% ^a
Short and wide performance	26%	18% ^a
Tall and wide performance	45%	24% ^a
Tall and narrow performance	32%	26% ^a
Small bottom price variation	34%	27%
Large bottom price variation	36%	21%
Median price variation	1.77%	1.64%
Lower left bottom performance	29%	23%
Lower right bottom performance	39%	26%

^aFewer than 30 samples.

Height. Do tall patterns perform better than short ones? Yes. To use this finding, measure the height from the highest high to the lowest low in the pattern and then divide by the breakout price (the highest high). Compare the result with the median shown in the table. A value higher than the median means you have a tall pattern. Lower than the median and you have a short one. Trade only tall patterns for the best performance.

Width. Narrow patterns outperform only in a bear market. The bull market shows no performance difference for width. I used the median length as the separator between narrow and wide.

Average formation length. The average double bottom length measured slightly fewer than 2 months. I used the time between the lowest lows of each bottom.

Height and width combinations. AADBs both tall and wide performed better in a bull market. Short and narrow AADBs did well in a bear market, but the sample size is small. Avoid short and wide patterns as they showed the worst performance.

Bottom price variation. I checked to see if AADBs with large price variations (between bottom lows) performed better or worse than did those with minor variations. In a bull market, AADBs with large price variations performed better. AADBs with small price variations did better in a bear market.

Lower bottom performance. When the right bottom had a lower price than the left, the AADB tended to outperform, sometimes substantially (bull market: 39% versus 29% rise).

Table 13.7 shows volume-related statistics.

Table 13.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	30%	19% ^a
Falling volume trend performance	38%	27%
U-shaped volume pattern performance	33%	22%
Dome-shaped volume pattern performance	43%	29%
Neither U-shaped nor dome-shaped volume pattern performance	23% ^a	18% ^a
Heavy breakout volume performance	36%	26%
Light breakout volume performance	31%	20% ^a
Heavy left bottom volume performance	37%	27%
Heavy right bottom volume performance	32%	21% ^a

^aFewer than 30 samples.

Volume trend. When volume recedes from bottom to bottom, the postbreakout performance is superior to those AADBs that have a rising volume trend.

Volume shapes. The most common volume shape is U (then domed, then random). Assigning performance to those patterns with various volume shapes, we find that those with dome-shaped volume perform best. The worst performance came from AADBs with a random volume shape.

Breakout volume. Does a heavy volume breakout propel prices farther? Yes. I compared the 1-month volume average (leading to the breakout) to the breakout day volume. Those patterns with volume heavier than the average did better than did those with light breakout volume.

Bottom volume. I tallied the 5-day average volume surrounding each bottom (2 days before to 2 days after the lowest low) and compared it to the average of the opposite bottom. The best performance came when the left bottom showed heavier volume than the right bottom.

Trading Tactics

Table 13.8 shows trading tactics.

Measure rule. Use the measure rule to compute a target price. In a bull market, prices hit the target 66% of the time, but just 48% of the time in a bear market.

To find the target, subtract the lowest low in whichever bottom is lower from the highest high between the two bottoms. Add the difference to the highest high. The result is the minimum price move to expect. For example, look at Figure 13.6. The highest high is at 20 (the breakout price or confirmation line)

Table 13.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the height from the highest high between the two bottoms to the lower of the two bottoms then add the difference to the highest high. The result is the target price.
Wait for breakout	Always wait for confirmation (a close above the highest high).
Trade with market trend	To improve your odds, trade this bullish pattern in a bull market.
Check others in the industry	Are other stocks in the same industry showing bottoming patterns?
Throwback	Initiate or add to your position once price starts rebounding after a throwback.

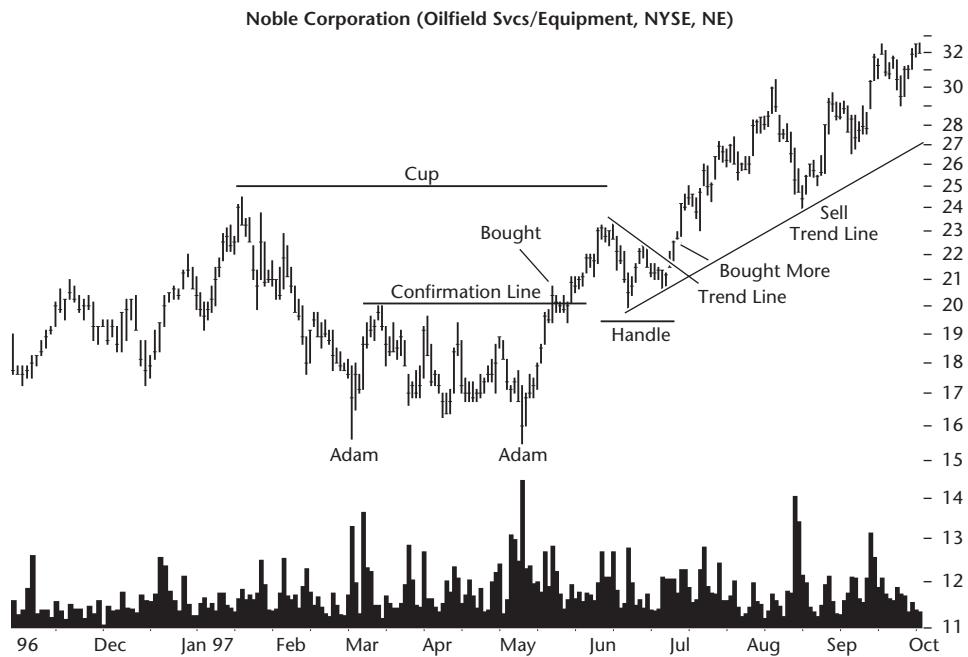


Figure 13.6 Randy traded this Adam & Adam double bottom, buying at the confirmation price, buying again when price closed above the cup-with-handle trend line, and selling when price closed below the long, up-sloping sell trend line.

and the right bottom is lower, at 15.50. Add the difference, 4.50, to the highest high to get the target, or 24.50.

Wait for breakout. Since AADBs act as reversals of the prevailing price trend, there is 64% chance that prices will continue declining instead of confirming the double bottom. That is why you should wait for a breakout (a close above the confirmation line, which is the price of the highest high between the two bottoms). Buying before the breakout is an easy way to lose money.

Trade with market trend. Since this pattern performs best in a bull market, avoid trading it in a bear market. Look at the fundamentals and see if there is a reason for the stock to reverse the downward price trend.

Check others in the industry. What are other stocks in the same industry doing? If they are showing signs of bottoming, then the AADB becomes more important. If the other stocks are continuing down, avoid trading the double bottom. Chances are the stock will fail to perform as expected.

Throwback. Since a throwback occurs 64% of the time in a bull market and 61% in a bear market, you can initiate a position after the throwback completes or add to your position. Before investing, wait for prices to begin rebounding and then buy. Otherwise, the throwback may send prices down like that shown in Figure 13.4.

Sample Trade

Randy traded the stock shown in Figure 13.6 and made a tidy sum of money. Let me tell you how he did it. First he qualified the pattern as a true double bottom by reviewing the identification characteristics listed in Table 13.1. Briefly, the stock started down in early January after a long-term uptrend that began in February 1995. The twin bottoms were narrow with one-day downward spikes. The rise between bottoms measured 29%; the bottom lows were 1% apart in price and separated by 64 days. Oddly, the right bottom showed higher volume. He placed an order to buy the stock at the confirmation price. Thus, he would get in at a good price and received a fill at 20.

The stock struggled by moving sideways for a week then achieved liftoff. Price climbed until early June when it started retracing. The retrace turned into a throwback when price pierced the confirmation line at 20. Prices moved up again and retraced, forming the handle of a cup-with-handle pattern. Randy drew a down-sloping trend line along the handle, and the day after price closed above the trend line, he bought more, receiving a fill at 22.73.

He computed the target price for the AADB (24.50, see the “Measure rule” in Table 13.8) and smiled when prices passed that, moving up. Then, he drew an up-sloping trend line following the contours of the handle (called the “Sell Trendline” in Figure 13.6). He vowed to sell the day after price closed below the trend line, which it did in late November (not shown), and he received a fill at 32. That was down considerably from the high at 38.19, but he made 60% on his first trade and 41% on the cup-with-handle trade.

For Best Performance

The following list includes tips and observations to help select Adam & Adam double bottoms that perform better after the breakout. Consult the associated table for more information.

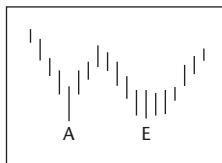
- Review the identification characteristics for correct selection and performance tips—Table 13.1.
- Select patterns in a bull market. They have the largest average rise—Table 13.2.
- Patterns in a bull market have the lowest failure rate—Table 13.3.
- Throwbacks hurt performance, so avoid patterns with overhead resistance—Table 13.4.
- Look for price weakness a month after the breakout—Table 13.5.
- Select tall patterns. Avoid ones that are both short and wide—Table 13.6.

228 Double Bottoms, Adam & Adam

- Pick AADBs with a lower right bottom—Table 13.6.
- Select patterns with a falling volume trend and dome-shaped volume—Table 13.7.
- Patterns with heavy breakout volume do well—Table 13.7.
- Patterns with volume heavier on the left bottom outperform—Table 13.7.

14

Double Bottoms, Adam & Eve



RESULTS SNAPSHOT

Upward Breakouts

Appearance	Double bottom pattern with one narrow and one wide bottom. Breakout is upward.	
Reversal or continuation	Short-term bullish reversal	
	Bull Market	Bear Market
Performance rank	8 out of 23	3 out of 19
Break-even failure rate	5%	4%
Average rise	37%	33%
Change after trend ends	-33%	-35%
Volume trend	Downward	Downward
Throwbacks	59%	54%
Percentage meeting price target	66%	56%
Surprising findings	Patterns near the yearly high perform best. Throwbacks hurt performance. Tall patterns perform better than short ones. Patterns with a falling volume trend do well. Volume heavier on the left bottom suggests better performance.	
See also	Double bottoms, Adam & Adam; Double bottoms, Eve & Adam; Double bottoms, Eve & Eve.	

The Adam and Eve combinations of double bottoms and tops are a relatively new addition to my trading arsenal. I found out about them in 2001 from a Web site. The Adam bottom looks narrow and V-shaped, perhaps with a large downward price spike. The Eve bottom is wide, rounded, and sometimes has many short spikes like weeds sprouting in a lawn.

Performance is similar across the various combinations of Adam and Eve double bottoms (AEDBs). Still, I treat each as a separate pattern just to be sure. The Results Snapshot shows the important performance numbers.

The average rise in a bear market is quite good, almost as good as the 37% rise in a bull market. Throwbacks occur about half the time, but when they happen, performance suffers. Speaking of performance, the following characteristics appear in AEDBs that perform well: tall patterns, patterns with a receding volume trend, and volume heavier on the left bottom. I discuss these findings in the Statistics section.

Tour

In my neighborhood, the local phone company is installing fiber-optic cable. At the corner of many streets, they have punched an oblong hole about 9 inches wide by 2 feet long, and 6 to 10 feet deep. The narrow tunnel reminds me of the Adam bottom. An excavated pit would represent an Eve bottom. Figure 14.1 shows an example of an Adam & Eve double bottom.

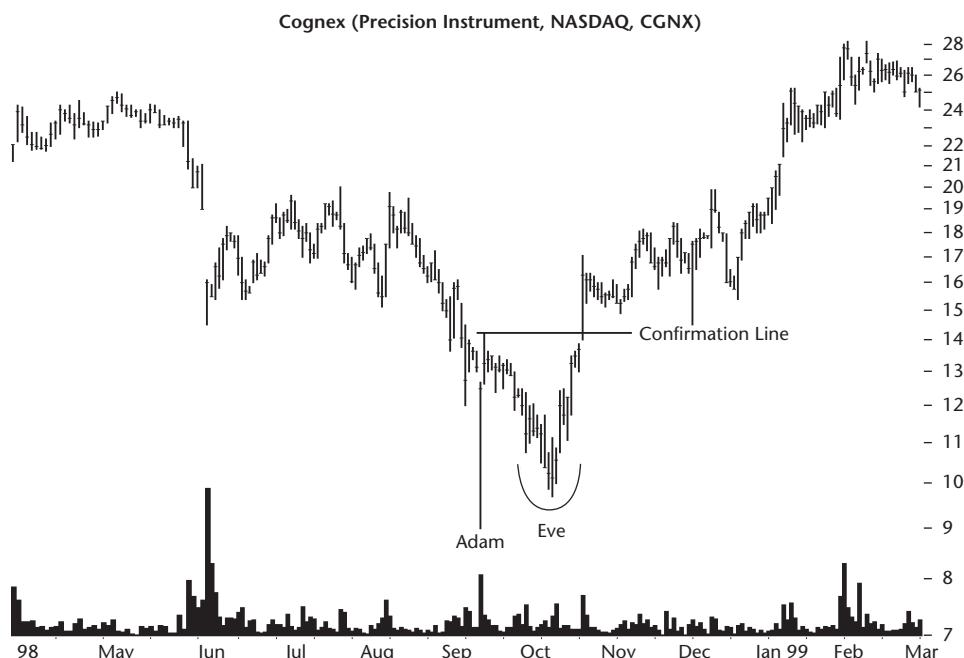


Figure 14.1 A tall one-day downward price spike is the Adam bottom, and the rounded turn marks the Eve bottom.

I checked two data sources to be sure I had good data because the large downward price spike in early September bothered me. The results are correct. The Adam & Eve double bottom appears after a long downward price trend in this example. The Adam bottom is narrow but the Eve bottom is much wider. Not only is the Adam bottom unusually long, but the price bottoms are uneven. More often, the price variation between the two bottoms is slight, which segues into the next section: Identification Guidelines.

Identification Guidelines

How do you identify an Adam & Eve double bottom? First, let us look at a few examples. Figure 14.2 shows an AEDB midway up a price trend that began in March 2003. I show this as an example of an AEDB acting as the corrective phase of a measured move up chart pattern. The AEDB allows prices to regroup before renewing the attack on a new high.

The Adam bottom is a one-day downward price spike. The Eve bottom also has a spike but it is shorter, and the nearby wide price congestion differentiates the Eve bottom from the narrower Adam bottom.

Figure 14.3 shows another example of an AEDB except this one is part of a longer-term downward price trend. Prices reverse after the pattern by moving up for a few months before easing back down. Again, the Adam bottom appears

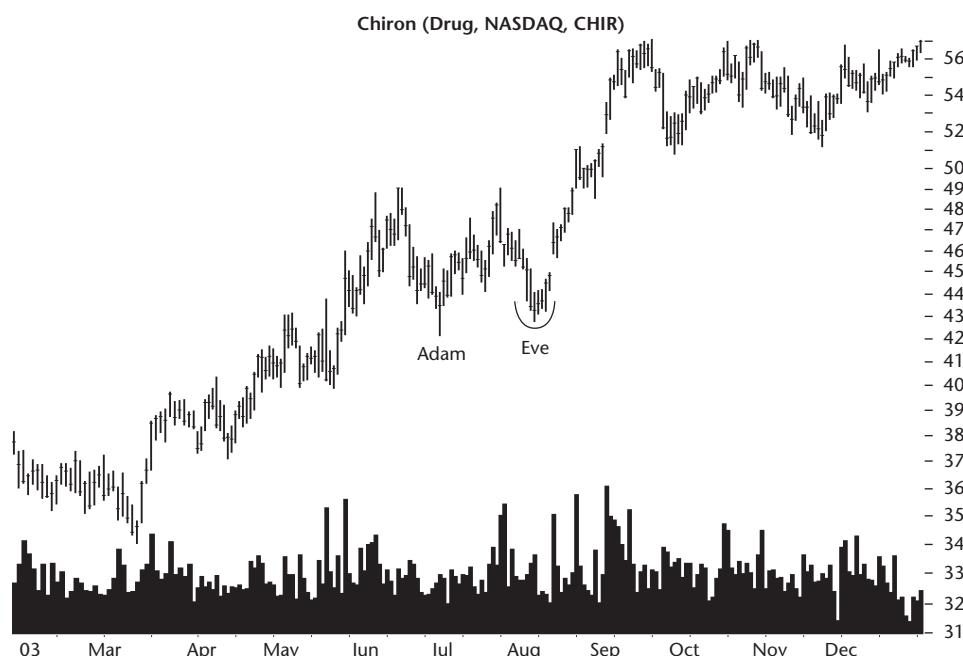


Figure 14.2 This Adam & Eve double bottom appears as the corrective phase of a measured move up chart pattern.



Figure 14.3 This Adam & Eve bottom appears after a downward price trend. The pattern acts as a reversal.

narrow and the Eve bottom is wide. Eve typically has several short price spikes and Adam has few (usually one or two). Table 14.1 shows identification guidelines for selecting AEDBs.

Downward price trend. Since we are dealing with double bottoms and not tops, look for the pattern to appear at the end of a downward price trend. The trend need not be very long as Figure 14.2 shows, but the classic situation is like that shown in Figure 14.3. Price declines for several weeks or months leading to the pattern.

Bottom shape. The two bottoms should not appear similar to each other. The left bottom, Adam, should be narrow, pointed, and V shaped, and perhaps with a one-day downward price spike. The right bottom, Eve, should be wider and rounder, not V shaped. If you compare the two bottoms and they do not appear the same, then you are on the right track. You have either an AEDB or an Eve & Adam double bottom. For AEDBs, the Adam bottom must come first.

Rise between bottoms. I set an arbitrary minimum price rise between the two bottoms of 10%. However, taller patterns perform better than do short ones, so keep that in mind as you search for AEDBs.

Bottom low prices. The two bottoms should be close enough in price that the pattern does not look like stairs. Figure 14.1 pushes the limit as the bottoms differ by 8%. Figure 14.3 is a better example as the bottoms are near the same price.

Table 14.1
Identification Characteristics

Characteristic	Discussion
Downward price trend	Price trends downward and should not drift below the left bottom.
Bottom shape	Narrow, V-shaped, perhaps pointed-looking left bottom (Adam), sometimes composed of a long, one- or two-day spike. The right (Eve) bottom appears rounded and wider.
Rise between bottoms	At least 10% from the lowest valley to the highest peak between the two bottoms. Taller patterns perform better.
Bottom low prices	Bottom to bottom price variation is small. Patterns with a lower right bottom perform better.
Bottom separation	Bottoms should be at least a few weeks apart. Best performance is 2–6 weeks apart. Patterns wider than 8 weeks see performance deteriorate.
Price rise after right bottom	Price must close above the confirmation point without first falling below the right bottom low.
Bottom volume	Usually higher on the left bottom than the right. Bottoms with higher left volume perform better.
Confirmation price	The highest high between the two bottoms. A close above the confirmation point is the breakout and confirms the pattern as a valid double bottom.

Bottom separation. How far apart in time should the bottoms be? I found that the best performance came from bottoms between 2 and 6 weeks apart, and that bottoms wider than 8 weeks performed less well. However, this finding does not mean you must locate an AEDB with bottoms a month apart for best performance. Each stock performs differently.

Price rise after right bottom. You must wait for confirmation (a close above the highest high in the pattern) because price in 64% of the potential double bottoms will continue down. The rise from the right bottom to the confirmation may be brief, but it usually takes just over a month. If price drops below the right bottom low before confirmation, then look elsewhere. In that situation, you do not have a valid double bottom.

Bottom volume. Most AEDBs will show volume heavier on the left bottom than on the right. Do not exclude a pattern if it has volume higher on the right bottom. However, patterns with heavy volume on the left bottom show improved performance after the breakout.

Confirmation price. Confirmation price is the highest high between the two bottoms and is also called the breakout price. When price *closes* above the confirmation price, it validates the patterns as a true double bottom. Only then should you consider buying the stock.

Why do double bottoms form? To answer that question, consider the double bottom shown in Figure 14.4. After reaching a multiyear low in June, prices recover some of their losses by moving upward. After reaching a new low,

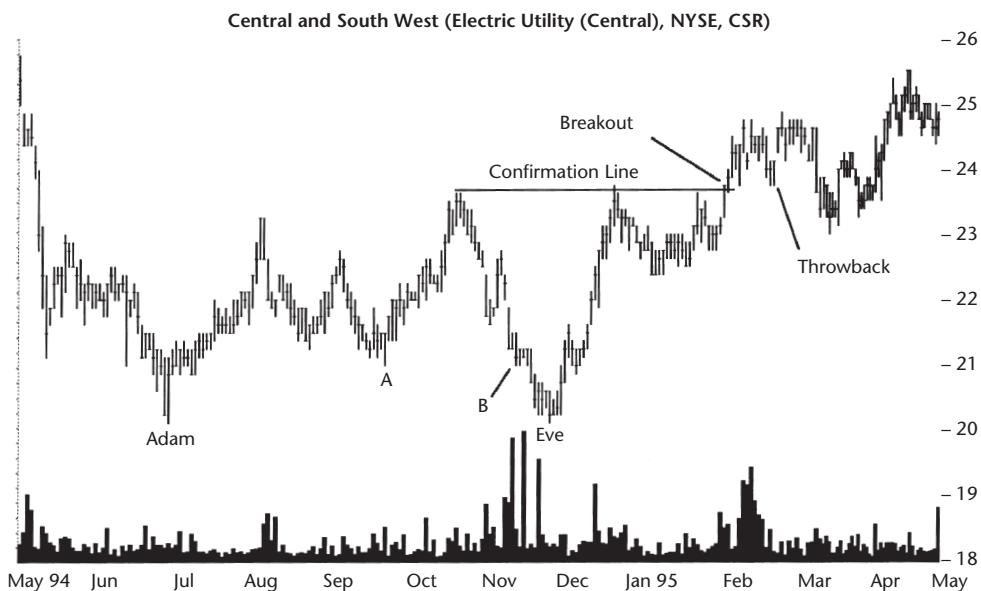


Figure 14.4 Prices confirm the breakout once they close above the confirmation point, here as the horizontal line. The confirmation point is the highest high reached between the two bottoms. Prices often throw back to this level after the breakout.

a rebound is quite common with a retest of the low typically following. A retest is just like it sounds: prices return to the low and test to see if the stock can support itself at that price level. If it cannot, prices continue moving down. Otherwise, the low usually becomes the end of the decline and rising prices result.

Such is the case depicted in Figure 14.4. It seems clear from the volume pattern that many investors believe the low, shown as point B, is a retest of point A. Volume surges on two occasions in the vain hope that the decline has ended. Investors are wrong.

Prices hold at 21 for a week before continuing down. As prices head toward the level of the June low, volume surges again. This surge essentially marks the end of the downward plunge. Prices hesitate at that level for slightly less than 2 weeks before turning around and heading upward.

A double bottom is nothing more than a retest of the low. Investors buy the stock in the hope that the decline has finally ended. Sometimes they are right and sometimes they are not, which leads us into the next section: failures.

Focus on Failures

It is obvious that the formation pictured in Figure 14.5 is a double bottom. The first bottom occurs after a downward price trend, as you would expect. The two bottoms are far enough apart, the rise between them is sufficient to delineate two minor lows, and the price variation between the two bottoms is small. The vol-



Figure 14.5 Example of a 5% failure. This rare occurrence happens when prices plummet after rising less than 5%.

ume pattern is unusual in that the second bottom has a higher, denser volume pattern than the first. However, this is not significant. After the second bottom, prices rise at a steady rate until the confirmation point. Then prices jump up and pierce the prior minor high at about 40.63. When price *closes* above the confirmation line, it signals a valid breakout and confirms the double bottom formation.

In this case, as is common for many double bottoms, prices throw back to the breakout point. However, prices continue moving down. Scrolling Figure 14.5 to the left, you would see prices making a new low in September 1993 at 31.63, below the February low of 34.

Had you purchased this stock on the breakout and held on, you would have lost money. I call this type of failure a 5% failure. Prices do not rise by more than 5% above the breakout before heading lower. Fortunately, 5% failures are also rare; they occur only 15 times in this study. To put that statistic in perspective, it means that on 383 separate occasions prices continue upward by more than 5%.

Statistics

Table 14.2 shows general statistics for this chart pattern.

Number of formations. I found 389 patterns using data from mid-1991 to the start of 2004 in 500 stocks. Thus, most of the patterns came from a bull market.

Reversal or continuation. AEDBs act as reversals. Why? The price trend leading to the pattern is downward and the breakout is upward, which means it is a reversal by definition.

Table 14.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	319	70
Reversal (R), continuation (C)	319 R	70 R
Average rise	37%	33%
Rises over 45%	94 or 29%	19 or 27%
Change after trend ends	-33%	-35%
Busted pattern performance	-28% ^a	-54% ^a
Standard & Poor's 500 change	16%	0%
Days to ultimate high	160	99

Note: Minus sign means decline.

^aFewer than 30 samples.

Average rise. The average rise is higher in a bull market than in a bear market, as expected, but the numbers are close. Both are above the average for all chart pattern types.

Rises over 45%. Over a quarter (29% and 27%) of the AEDBs I looked at soared over 45% after the breakout. That figure is quite respectable for a bullish chart pattern.

Change after trend ends. Once price reaches the ultimate high, what happens? It tumbles between 33% and 35%. Thus, you will give up almost all of your gains, on average, and buying and holding a stock may not be as profitable as a timely sale.

Busted pattern performance. Few samples appeared for busted patterns. In fact, three samples caused the 54% decline in a bear market. If an AEDB busts, consider shorting it but do not expect the kinds of returns shown in Table 14.2.

Standard & Poor's 500 change. As AEDBs were climbing over 30%, what was the general market doing? The S&P climbed 16% in a bull market and was flat in a bear market. Certainly, the large bull market gain helped performance and even the flat market may have helped those in a bear market (it could have sucked prices lower).

Days to ultimate high. How long does it take to reach the maximum rise? In a bull market, it takes about 5 months (160 days) and in a bear market, about 3 months (99 days). Thus, be patient but do not fall asleep at the switch. Not all AEDBs will take that long before starting a massive decline.

Table 14.3 lists failure rates for AEDBs. How do you read the table? Let me give you a few examples. In a bull market, 5% of the double bottoms will fail to rise over 5%. Four percent of the bear market patterns will fail to rise 5%. Half will fail to rise 25% (bear market).

The table shows how quickly the failure rates rise for a given price climb. Notice how the bull market failure rate nearly triples to 14% from 5% and

Table 14.3
Failure Rates

Maximum Price Rise (%)	Bull Market	Bear Market
5 (break-even)	15 or 5%	3 or 4%
10	45 or 14%	12 or 17%
15	85 or 27%	18 or 26%
20	116 or 36%	25 or 36%
25	147 or 46%	35 or 50%
30	169 or 53%	39 or 56%
35	190 or 60%	44 or 63%
50	229 or 72%	53 or 76%
75	273 or 86%	63 or 90%
Over 75	319 or 100%	70 or 100%

then doubles again to 27%. This progression, a triple then a double is common to many chart patterns. Remember that when a pattern fails, it means prices dropped at least 20%. Thus, 36% of the patterns will give back all of their gains or more (that number comes from the 20% “maximum price rise” row).

Table 14.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. How long after price reaches the right bottom low does it take to climb to the breakout? Answer: about a month. It takes 8 days longer in a bull market than in a bear market for some reason.

Table 14.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	42 days	34 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L29%, C49%, H22%	L43%, C33%, H24%
Percentage rise for each 12-month lookback period	L40%, C33%, H43%	L31%, C31% ^a , H38% ^a
Throwbacks	59%	54%
Average time to throwback ends	10 days	9 days
Average rise for patterns with throwback	32%	28%
Average rise for patterns without throwback	43%	38%
Performance with breakout day gap	36%	33% ^a
Performance without breakout day gap	37%	32% ^a
Average gap size	\$0.37	\$0.51

^aFewer than 30 samples.

Yearly position. Where in the yearly trading range does the AEDB breakout reside? Most of the time, the breakout is in the middle of the range in a bull market and near the yearly low in a bear market.

Yearly position, performance. Mapping performance onto the yearly price range shows that the best performance comes from patterns with breakouts near the yearly high. A double bottom with a breakout near the yearly high—sounds like the best performers take place in an upward price trend like that shown in Figure 14.2.

Throwbacks. The next several rows in Table 14.4 concern throwbacks. Just over half the time price throws back to the confirmation price. To complete the throwback, it takes price 9 or 10 days. An interesting finding is that a throwback hurts performance. Thus, look for overhead resistance before trading a stock.

Gaps. Breakout day gaps hurt performance in a bull market but help it in a bear market. However, the numbers are close, so they may be likely to change.

Table 14.5 shows a frequency distribution of time to the ultimate high as measured from the breakout date. For example, 23% of AEDBs in a bear market and 12% in a bull market reach the ultimate high in the first week. In two weeks' time, 27% and 17%, respectively, will have topped out (that is the first two columns with numbers added together).

Notice the increase in bear market patterns topping out just over a month after the breakout. Thus, if you see upward momentum soften then, consider selling. The softness may indicate a trend change.

Table 14.6 shows size statistics.

Height. Tall patterns outperformed short ones in both markets. To use this finding, compute the formation height from the highest high to the lowest low in the pattern and divide by the breakout price (the highest high). Compare the result to the median. Values above the median mean you have a tall pattern.

Width. Narrow patterns did well in a bull market but wide ones outperformed in a bear market. I used the median length as the separator between narrow and wide.

Average formation length. The average distance between the two bottoms was about 2 months.

Height and width combinations. AEDBs that are both tall and narrow outperformed the other combinations in a bull market. In a bear market, short and wide patterns did well, but the sample size is small.

Bottom price variation. I computed the median price difference between the two bottoms and compared the performance of AEDBs with patterns larger and smaller than the median. Those with large price variations outperformed

Table 14.5
Frequency Distribution of Days to Ultimate High

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	23%	4%	4%	3%	9%	6%	4%	4%	3%	1%	39%
Bull market	12%	5%	4%	5%	3%	2%	4%	3%	3%	2%	56%

Table 14.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	37%	34%
Short pattern performance	36%	31%
Median height as a percentage of breakout price	17.28%	22.72%
Narrow pattern performance	40%	30%
Wide pattern performance	33%	35%
Median length	50 days	39 days
Average formation length	66 days	59 days
Short and narrow performance	40%	28% ^a
Short and wide performance	32%	37% ^a
Tall and wide performance	35%	34% ^a
Tall and narrow performance	41%	34% ^a
Small bottom price variation	35%	33%
Large bottom price variation	38%	32%
Median price variation	1.87%	2.23%
Lower left bottom performance	33%	36%
Lower right bottom performance	41%	28% ^a

^aFewer than 30 samples.

those with small variations in bull markets. Patterns in bear markets worked best with small variations.

Lower bottom performance. In a bull market, patterns with a lower right bottom performed better after the breakout than those patterns with a lower left bottom. In a bear market, the results reversed (lower left bottoms performed best), but the sample size was smaller.

Table 14.7 shows volume-related statistics.

Volume trend. For AEDBs, a receding volume trend from bottom to bottom suggests a large rise after the breakout. That is what I found in both bull and bear markets.

Volume shapes. I looked at various volume shapes and the three most prominent are U, dome, and random. Of the three, U-shaped volume occurs most often but patterns with that volume shape perform worst in a bull market. There, a dome-shaped pattern works best. For bear markets, patterns with U-shaped volume do well, but the sample counts for the other shapes are small and may change the results.

Breakout volume. I have read that you should only buy double bottoms if the breakout occurs on heavy volume. Is that true? I found little performance difference between AEDBs with breakout volume heavier or lighter than the 30-day average. In a bull market, patterns with light breakout volume do best. In a bear market, patterns with heavy breakout volume do slightly better.

Table 14.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	33%	31% ^a
Falling volume trend performance	39%	33%
U-shaped volume pattern performance	35%	35%
Dome-shaped volume pattern performance	41%	33% ^a
Neither U-shaped nor dome-shaped volume pattern performance	40%	20% ^a
Heavy breakout volume performance	36%	33%
Light breakout volume performance	38%	32% ^a
Heavy left bottom volume performance	39%	34%
Heavy right bottom volume performance	32%	26% ^a

^aFewer than 30 samples.

Bottom volume. Does heavy volume on the left bottom suggest better performance after the breakout? Yes. In both bull and bear markets, patterns with volume heavier on the left bottom than on the right performed better after the breakout.

Trading Tactics

As a bullish chart pattern, you need only know when to buy to trade AEDBs. Selling is, of course, the tough part. Before you buy, consider the trading tactics shown in Table 14.8.

The Measure rule. The measure rule predicts the minimum price move expected once a double bottom experiences an upward breakout. Consider the chart pictured in Figure 14.6. To calculate the predicted price, first determine the formation height by subtracting the lowest low from the highest high in the formation. In Figure 14.6, the lowest low occurs at the right bottom, with a price of 27.57. The highest high, marked on the figure by point A, is 31.09. Add the difference, 3.52, to the confirmation point, or the highest high between the two bottoms (that is, $31.09 + 3.52$). Again, the highest high is point A. The result, 34.61, is the expected minimum target. You can see in the chart that prices meet the target in late December. A few days after meeting the target, prices momentarily descend before resuming their climb. During mid-April, the stock reaches its ultimate high price of 40.26 before declining.

After you locate a potential double bottom, review the selection guidelines before placing a trade. Figure 14.6 shows a declining price trend leading to the first bottom. The rise between the two bottoms is about 13%, just above the 10% threshold. The two bottoms are at nearly the same price level and several months apart.

Table 14.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the height from the highest high to the lowest low between and including the two bottoms and then add the difference to the highest high. The result is the target price. This works 66% of the time in a bull market and 56% in a bear market.
Wait for breakout	Always wait for confirmation (a close above the highest high).
Trade with market trend	To improve your odds, trade this bullish pattern in a bull market.
Check others in the industry	Are other stocks in the same industry showing bottoming patterns or moving up?
Throwback	Initiate or add to your position once price starts rebounding from a throwback.

Very high volume appears on the left bottom with substantially reduced volume on the right bottom, which is typical. The overall volume trend slopes downward from the left bottom to the right, as expected.

Wait for breakout. Once the second bottom of a double bottom occurs, you can use the measure rule to estimate the minimum price move. If the potential profit is large enough, then wait for the breakout. This instruction cannot be overemphasized.

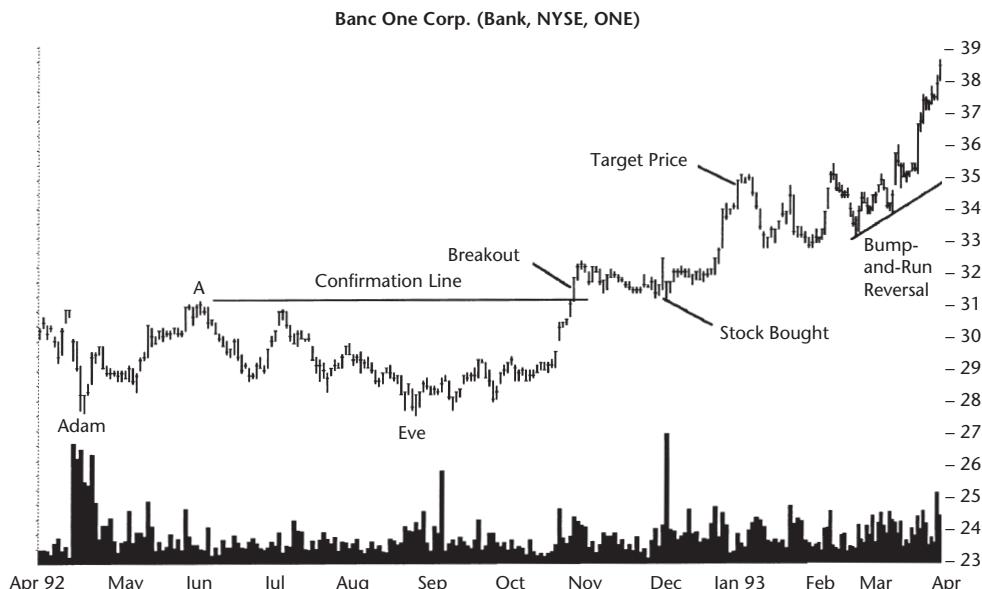


Figure 14.6 Double bottom trading dilemma. How do you trade this double bottom? Do you buy just after the second bottom or wait for prices to rise above the confirmation point? You wait for prices to recover after the throwback, then buy. A rounding bottom appears from point A to the breakout.

A *close* above the confirmation point signals a breakout. The confirmation point is simply a fancy way of saying the highest high reached between the two bottoms. Shown is the confirmation point, marked point A in Figure 14.6, and a line extending to the breakout point.

Trade with market trend. There is a slight performance improvement trading AEDBs in a bull market. In other words, you want to trade with the market trend. Avoid making the mistake of being bullish in a bear market, which is like swimming against the current. You can still get to where you are going if you do not drown first.

Check others in the industry. I find this tactic particularly useful. Before I trade, I check other stocks in the same industry. If they are rebounding or showing bottom reversals, then that gives me confidence that the trade will work as expected. If the other stocks are heading down, that increases the risk of a failed trade. It may be that this stock is a leading (bullish) indicator for the industry, but why take the chance?

Throwback. Throwbacks occur about half the time. They give you the opportunity to initiate a position or add to an existing one. Wait for prices to begin rebounding then buy.

Sample Trade

Lauren is a school teacher. Although she loves teaching kids, she would much prefer raking in the dough by trading stocks over the Internet. Until that time, she shoehorns her investment activities into the few hours of free time she has each week.

When she spotted the double bottom shown in Figure 14.6, she knew it was love at first sight. The rounding bottom pattern (from point A to the breakout) suggested higher highs were in store. However, she resisted the temptation to get in early because she could not guarantee prices would continue moving up. She justified her action by pretending that she was teaching her students how to trade. If she could not do it properly, how could they?

When prices reached the high between the two bottoms, Lauren decided to buy. Just before she placed her order, the broker read off the current quotation. It was well above the confirmation point. So she decided to wait and pray for a throwback.

About 4 weeks after the breakout, prices dipped to the buy point, but would they continue down? She had to wait until she felt confident that prices would rise. To her, this occurred a day later, on November 27. That day prices made a higher low and she felt comfortable buying the stock. It was a gamble, because 2 days of rising prices hardly make a trend. Still, she was getting antsy and did not want to wait too long and watch prices rise above the level that she could have bought a month before. So, she bought the stock and received a fill at 31.38.

The following day, volume spiked to over three million shares and prices jumped over 0.75 points. The spike made her nervous as it reminded her of a one-day reversal, but the stock closed at the high for the day, which is odd for the formation. That is when she remembered to place a stop. She chose a price of 30.88, about 0.25 below the recent minor lows, an area of prior support.

The following day prices moved down but succeeding days saw them rebound. In mid-December, the stock went ballistic and fulfilled the measure rule. She could not make up her mind if it was worth selling at that point. By the time she decided to sell, the stock had returned to the up-sloping trend line (drawn connecting the lows in September through January), so she held on.

The stock moved up. In late March, the stock jumped sharply, climbing almost 1.50 in one day. That was a big move for the stock, and she wondered what was going on. She followed the stock closely and it became obvious the stock had entered the bump phase of a bump-and-run reversal. Periodically, as the stock climbed, she penciled in the sell lines parallel to the original bump-and-run reversal trend line. As she looked at the chart, she saw the narrow peak appear and knew the end was near. When the stock dropped below the nearest sell line, she placed an order to sell her holdings and received a fill at 38.63.

She cleared 22% on the trade, but on an annualized basis, she made 60%. She smiled, knowing that annualized numbers were something her math class needed to learn. Now she had the perfect example.

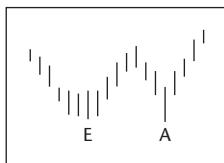
For Best Performance

The following list includes tips and observation to help select AEDBs that perform better after the breakout. Consult the associated table for more information.

- Review the identification characteristics for correct selection—Table 14.1.
- Select bull market patterns—Table 14.2.
- Failure rates are slightly lower for patterns in a bull market—Table 14.3.
- Select patterns with breakouts near the yearly high—Table 14.4.
- Throwbacks hurt performance, so check for nearby overhead resistance—Table 14.4.
- In a bear market, look for upward momentum to weaken after a month (day 35)—Table 14.5.
- Select tall patterns—Table 14.6.
- Select patterns with a falling volume trend from bottom to bottom—Table 14.7.
- Patterns with volume higher on the left bottom tend to outperform—Table 14.7.

15

Double Bottoms, Eve & Adam



RESULTS SNAPSHOT

Upward Breakouts

Appearance

Double bottom pattern with the left bottom wide and rounded, the right bottom narrow and V-shaped. Breakout is upward.

Reversal or continuation

Short-term bullish reversal

Performance rank

Bull Market

Bear Market

11 out of 23

8 out of 19

Break-even failure rate

4%

8%

Average rise

35%

23%

Change after trend ends

-31%

-36%

Volume trend

Downward

Downward

Throwbacks

57%

56%

Percentage meeting price target

66%

47%

Surprising findings

Patterns without breakout day gaps do better. Narrow patterns perform better than wide ones. Double bottoms with a lower left bottom perform better. Patterns with a falling volume trend, light breakout volume, or heavier volume on the left bottom do better.

See also

Double bottoms, Adam & Adam; Double bottoms, Adam & Eve; Double bottoms, Eve & Eve

Of the four combinations of Adam and Eve double bottoms, Eve & Adam is the rarest. I found just 227. It does not perform as well as some of the others, either. Still, the failure rate is small and the average rise posts a good showing in both markets.

Eve & Adam double bottoms (EADBs) have a number of surprises, but in the interest of space, I will save them for the Statistics section.

Tour

What does an Eve & Adam double bottom look like? Figure 15.1 shows a good example of one. Prices continue down in a steady decline to the low in June.

Volume picks up as prices near the low then peg the meter at over 1.1 million shares on June 18, the day prices reach a low of 12.69. From the March high, the stock declines 47% in 3 months. The high volume marks the turning point and the stock moves upward. However, a retest of the low is in store and prices round over and head down again. In late August, prices make another low when the stock drops to 13.06, also on high volume.

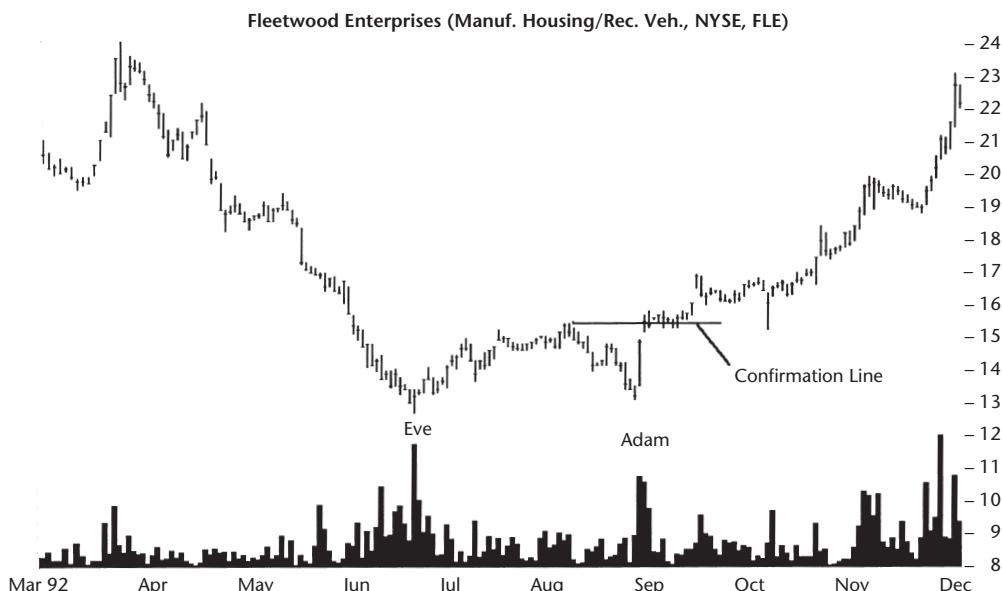


Figure 15.1 A double bottom occurs after a downward price trend. High volume commonly occurs on the left bottom.

The day after the low, on a burst of buying enthusiasm, the stock jumps and reaches the confirmation point in just 2 days. Instead of continuing upward, however, the stock throws back to the breakout point and moves horizontally for just over a week before resuming its move upward. By late January, the stock reaches a high 75% above the breakout price.

Identification Guidelines

How do you identify an EADB? While it is easy to find a double bottom, it can be difficult to distinguish between the combinations of Adam and Eve bottoms. Figure 15.2 shows another example of an EADB. Although the figure does not show the pattern confirming (a close above the highest high between the two bottoms), the pattern *does* confirm (off the chart to the right), meaning that it is a valid double bottom.

Notice the different shape between the two bottoms. The Eve bottom is wider and rounded looking. The Adam bottom is more V shaped, narrower, and usually composed of one or two large downward price spikes. The Eve bottom also has spikes, but they are many and short.

Figure 15.3 shows another example of an EADB. This Eve bottom has longer spikes than those in Figure 15.2. The Adam bottom appears congested

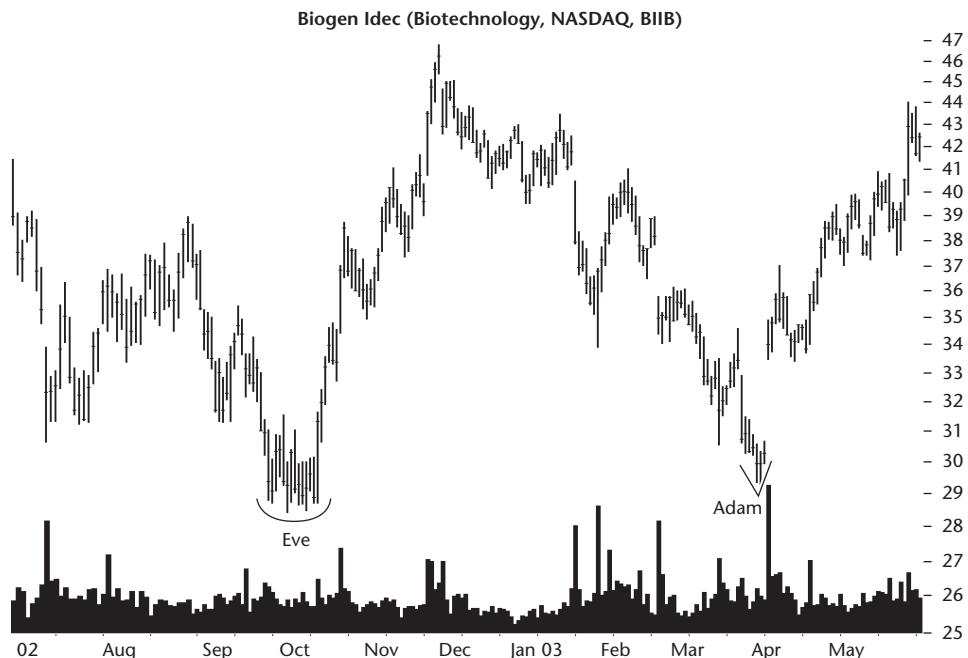


Figure 15.2 The Eve bottom appears rounded and wider than the narrow and V-shaped Adam bottom.

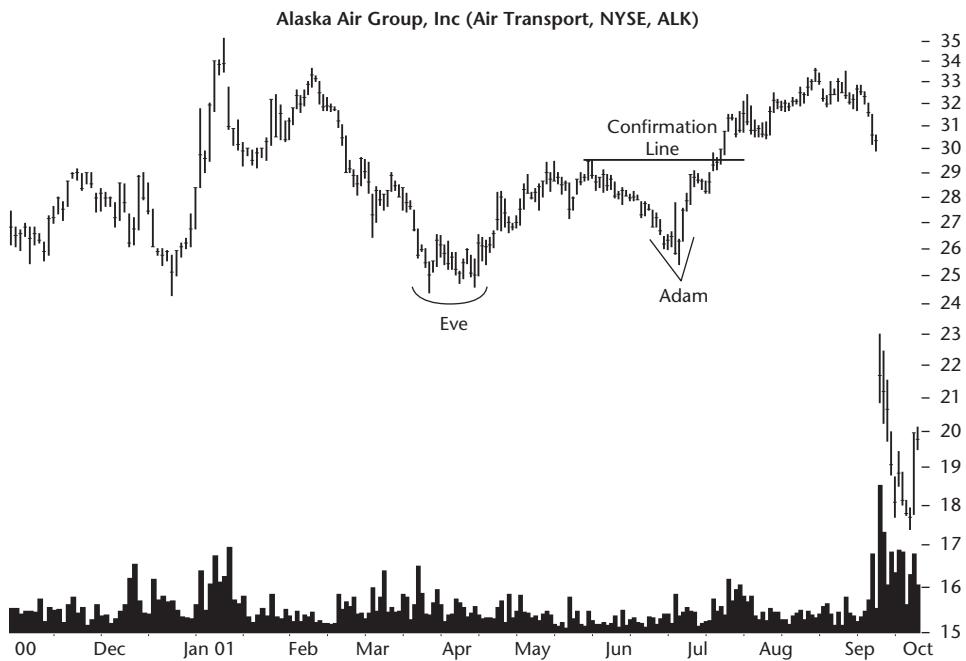


Figure 15.3 The top of the Eve bottom is wider than the Adam bottom. Eve appears rounded and Adam V shaped. The pattern becomes valid once price closes above the confirmation line.

also. Still, the V shape of the Adam bottom is obvious, especially in contrast to the rounded shape of the Eve bottom.

The twin bottom pattern becomes a true EADB when price closes above the confirmation line. That is also called the breakout price and it is the highest high between the two bottoms.

Table 15.1 lists identification guidelines for EADB patterns.

Downward price trend. The pattern does not form in a rising price trend unless it is part of a correction, usually the corrective phase of a measured move up. More often, though, the double bottom marks the end of a downtrend. The trend need not be very long, but averages about 4 months. I excluded any pattern where there was a dip below the left bottom.

Bottom shape. Look at the two bottoms. Do they have the same or different shape? If the bottoms look different, then you are on the right track. The pattern is either an Adam & Eve or Eve & Adam double bottom. The Eve bottom should look rounded and wide (especially near the top of the bottom, if that makes any sense), and if spikes appear, they should be short or bunched together. The Adam bottom should look different from Eve. It should be narrower and V shaped, and usually have a long, one or two day downward spike.

Rise between bottoms. Usually tall patterns perform better than do short ones, so look for the rise between the bottoms to be at least 10%. I set no

Table 15.1
Identification Characteristics

Characteristic	Discussion
Downward price trend	Price trends downward and should not drift below the left bottom.
Bottom shape	The left bottom (Eve) should be wide and rounded. The right bottom (Adam) should be narrow and V shaped, perhaps with one or two downward spikes.
Rise between bottoms	At least 10% from the lowest valley to the highest peak between the two bottoms.
Bottom low prices	Bottom to bottom price variation is small. Best performance is between 0% and 4% variation.
Bottom separation	Bottoms should be at least a few weeks apart. Best performance is 2–7 weeks apart. Wider than 7 weeks and performance deteriorates.
Price rise after right bottom	Price must close above the confirmation point without first falling below the right bottom low.
Bottom volume	Evenly split between right or left bottom showing heavier volume.
Confirmation price	The highest high between the two bottoms. A close above the confirmation point is the breakout and confirms the pattern as a valid double bottom.
Breakout volume	Heavy breakout volume is best.

maximum height restriction, but removed from consideration those EADB_s less than 10% high.

Bottom low prices. Look for bottoms that have almost the same low price. They need not be the same, but patterns with variations between 0% and 4% perform best after the breakout.

Bottom separation. Look for bottoms between 2 to 7 weeks apart for the best results. Bottoms farther apart than that are scarce and perform less well. Since these numbers are averages, your results will vary.

Price rise after right bottom. A twin bottom pattern becomes a valid EADB once price closes above the confirmation price. Until that time, price should not make a third bottom.

Bottom volume. Some patterns have volume higher on the right bottom (more often in a bull market) and some on the left (usually in a bear market).

Confirmation price. Confirmation price is the breakout price, a close above the highest high between the two bottoms. A twin bottom pattern becomes a valid EADB only after price closes above the confirmation price.

Breakout volume. Look for heavy breakout volume but do not discard an EADB just because the breakout occurs on below-average volume.

Is the twin bottom shown in Figure 15.4 a valid EADB? Running through the characteristics shown in Table 15.1, we find that the pattern appears at the

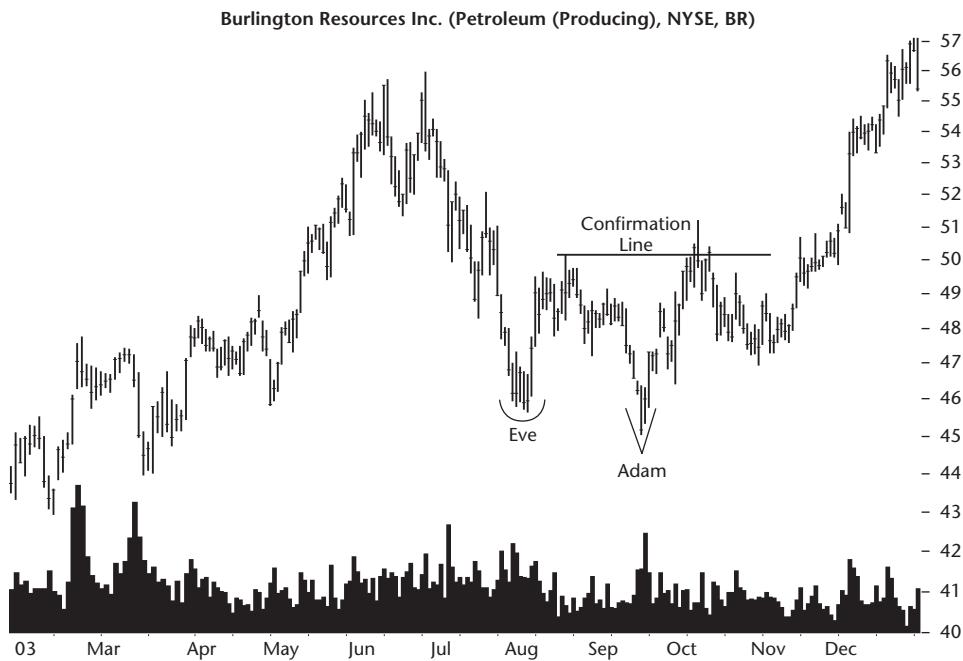


Figure 15.4 An Eve & Adam double bottom with volume higher on the right bottom and tepid breakout volume.

bottom of a downward price trend. The two bottoms look different—the first one is wider than is the second and more rounded looking, too. The second bottom is narrow and V shaped, with a two-day downward price plunge. The difference between the two bottom lows is small (1%). The separation measures 43 days from bottom low to low. No dips appear on either side of the pattern that would turn this into a triple bottom. Volume is heavier on the right bottom than the left and the breakout volume is below average. The pattern is a valid EADB.

Focus on Failures

What can we learn from failures? Figure 15.5 shows what I call a 5% failure—the failure of price to climb more than 5% after the breakout. Those failures are rare. I found only 12 in 227 patterns.

The bottom price variation looks wide, but the difference is only 4%. If you scan through the identification characteristics listed in Table 15.1, you will find that the pattern confirms as a true EADB.

Why does price fail much above the confirmation price? The answer is typical for these types of failures: overhead resistance. If you were to look at the historical price series in Figure 15.5, you would find two tops in

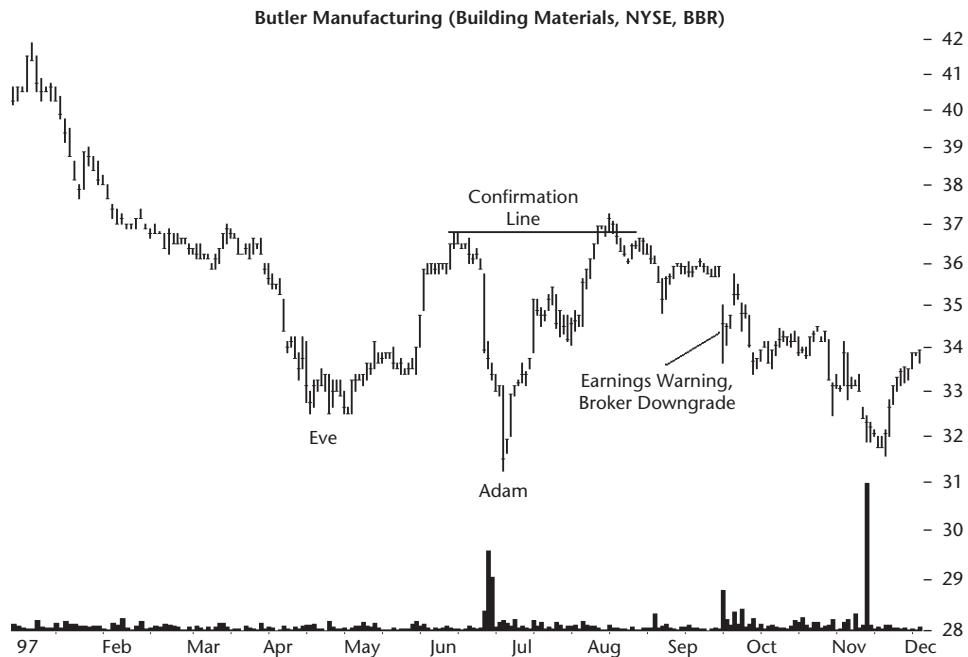


Figure 15.5 This is a 5% failure, where prices fail to climb much above the breakout price.

early to mid-1996, at 37+. Those tops either peak at the EADB confirmation line or show congestion at or above that price. In other words, the peaks highlight a resistance zone right above the breakout. In fact, the overhead resistance is so strong that it turns back prices in mid-1998 (not shown). This EADB gained just 3% before tumbling 47%.

On the fundamental side, the company warned in mid-September that full year earnings would fall about 20%, although the company raised its dividend. A broker downgraded the stock. The stock gapped lower on the news.

Statistics

Table 15.2 shows general statistics for this chart pattern.

Number of formations. EADBs are the rarest pattern of the four double bottom types. I found only 227 in the 500 stocks I looked at covering mid-1991 to mid-1996 and the bear market, 2000 to 2003, with additional patterns between those ranges.

Reversal or continuation. By definition, this bottom pattern acts as a reversal of the price downtrend.

Average rise. The 35% average rise in a bull market is substantially higher than the 23% rise in a bear market. This finding suggests you should stick to trading this pattern in a bull market.

Table 15.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	161	66
Reversal (R), continuation (C)	161 R	66 R
Average rise	35%	23%
Rises over 45%	47 or 29%	10 or 15%
Change after trend ends	-31%	-36%
Busted pattern performance	-31% ^a	-29% ^a
Standard & Poor's 500 change	17%	0%
Days to ultimate high	160	101

Note: Minus sign means decline.

^aFewer than 30 samples.

Rises over 45%. How well does the pattern perform when it performs well? Over a quarter of the patterns (29%) in a bull market climb at least 45%. Just 15% of the bear market patterns rise as far.

Change after trend ends. Once price reaches the ultimate high, it tumbles over 30%. In a bear market, the decline is 36%, well above the 23% rise after a confirmed EADB. Thus, you give back all of your winnings and have to dig into your pockets. The results show the importance of limiting your losses.

Busted pattern performance. Although the samples are few, the numbers mirror the results after the trend changes. Figure 15.5 shows a busted pattern. If the stock fails to climb and heads down with gusto, consider shorting it.

Standard & Poor's 500 change. The S&P 500 index showed an average change of 17% in a bull market but was flat in a bear market. This finding helps explain the performance difference between the average rise numbers in a bull (35% rise) and bear (23% rise) market.

Days to ultimate high. It took 50% longer to reach the ultimate high in a bull market than in a bear market, probably because the rise was 50% higher. The numbers suggest that for a large gain, many times you have to be patient (and lucky).

Table 15.3 shows failure rates for EADBs. Notice how they start small but rise quickly. For example, in a bull market, 5% fail to rise at least 5%. Fifteen percent fail to rise 10% after the breakout; that is triple the 5% rate.

Comparing the bull and bear markets, we find that bull markets have lower failure rates, as one might expect from a bullish chart pattern. The numbers suggest that you trade with the market trend: Trade bullish patterns in a bull market, bearish patterns in a bear market. And if you expect a large rise, say 50% from an EADB, realize that 76% will fail to climb that far (85% in a bear market).

Table 15.3
Failure Rates

Maximum Price Rise (%)	Bull Market	Bear Market
5 (break-even)	7 or 5%	5 or 8%
10	24 or 15%	15 or 23%
15	41 or 25%	24 or 36%
20	53 or 33%	31 or 47%
25	71 or 44%	39 or 59%
30	86 or 53%	45 or 68%
35	97 or 60%	47 or 71%
50	122 or 76%	56 or 85%
75	139 or 86%	61 or 92%
Over 75	161 or 100%	66 or 100%

Table 15.4 shows breakout- and postbreakout-related statistics for EADBs.

Formation end to breakout. It takes 5 to 7 weeks for prices to rise from the right bottom low (which is the end of the pattern for statistical purposes) to the breakout price, on average.

Yearly position. Where do EADBs hide in the yearly price range? In a bull market, you find most in the middle of the yearly trading range. In a bear market, the breakout price is within a third of the yearly high.

Table 15.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	46 days	37 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L31%, C40%, H29%	L35%, C23%, H42%
Percentage rise for each 12-month lookback period	L39%, C38%, H32%	L25% ^a , C25% ^a , H21% ^a
Throwbacks	57%	56%
Average time to throwback ends	10 days	8 days
Average rise for patterns with throwback	33%	28%
Average rise for patterns without throwback	39%	19% ^a
Performance with breakout day gap	32% ^a	22% ^a
Performance without breakout day gap	36%	24%
Average gap size	\$0.25	\$0.50

^aFewer than 30 samples.

Yearly position, performance. Mapping performance over the yearly price range, we find that the best performance comes from patterns with break-outs near the yearly low.

Throwbacks. Throwbacks occur about 56% of the time. When they do occur, it takes between 8 and 10 days, on average, for price to return to the breakout price. In a bull market, performance deteriorates when a throwback occurs. That may also be the case with bear markets (which show throwbacks helping performance), but the sample count is too small to make an accurate assessment. For the record, many other chart pattern types have throwbacks that hurt performance in both bull and bear markets.

Gaps. Gaps hurt performance in both markets, but the sample size is small. Notice how the gap size is twice as large in a bear market than in a bull market. This suggests you place a buy order just below the confirmation line. Hopefully, that will get you in before a gap occurs without unduly increasing your risk of a pattern failure.

Table 15.5 shows a frequency distribution of how long it takes prices after the breakout to reach the ultimate high. In the first week, about 15% of the EADBs reach the ultimate high. Most take over 70 days and they are still searching for the high.

Look at 35 days after the breakout in a bear market. There, 14% of the patterns top out for some reason, as if many are surrendering at the same time. Keep an eye on your trade and look for weakness a month after the breakout. You may need to close out your position then to protect your profits.

Table 15.6 shows EADB size statistics.

Height. Most chart pattern types have tall patterns outperforming short ones, but not EADBs. When the pattern is shorter than the median in a bull market, prices tend to outperform (by 37% to 33%). Bear markets show no performance difference, as if they do not want to take sides.

Width. Narrow patterns perform better than wide ones regardless of market conditions. I used the median length as the separator between narrow and wide.

Average formation length. The average formation length between bottom lows measures about a month (66 to 69 days).

Height and width combinations. Comparing the combinations, we find that short and narrow EADBs do well in a bull market, and tall and narrow ones do well in a bear market. The worst performers are tall and wide patterns, so avoid those.

Table 15.5
Frequency Distribution of Days to Ultimate High

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	15%	6%	5%	2%	14%	2%	2%	5%	5%	2%	45%
Bull market	14%	7%	2%	5%	2%	6%	1%	4%	3%	5%	51%

Table 15.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	33%	23%
Short pattern performance	37%	23%
Median height as a percentage of breakout price	18.03%	21.26%
Narrow pattern performance	39%	31%
Wide pattern performance	32%	16%
Median length	50 days	48 days
Average formation length	69 days	66 days
Short and narrow performance	42%	29% ^a
Short and wide performance	37%	23% ^a
Tall and wide performance	32%	16% ^a
Tall and narrow performance	33%	34% ^a
Small bottom price variation	37%	21%
Large bottom price variation	34%	26%
Median price variation	1.78%	1.89%
Lower left bottom performance	37%	26%
Lower right bottom performance	33%	19% ^a

^aFewer than 30 samples.

Bottom price variation. I computed the price variation from bottom low to bottom low and then measured the performance for those EADB_s with a price variation larger and smaller than the median. EADB_s with small price variations did well in a bull market, but large variations performed better in a bear market.

Lower bottom performance. EADB_s with a left bottom below the price of the right bottom tended to perform better after the breakout.

Table 15.7 shows volume-related statistics for EADB_s.

Volume trend. Those EADB_s with a falling volume trend did better after the breakout than did those with a rising volume trend. The performance numbers appear in the table.

Volume shapes. EADB_s usually come in one of three volume shapes: U, domed, and everything else (random). EADB_s with dome-shaped volume performed better than other volume shapes in both bull and bear markets.

Breakout volume. Does heavy breakout volume suggest better performance? Not for EADB_s. When the breakout volume was less than the prior 30-day average, the stock climbed 43% after the breakout. EADB_s with heavy breakout volume in a bull market climbed just 33%. The same trend was evident in a bear market, but be aware of the small sample size.

Table 15.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	34%	16% ^a
Falling volume trend performance	37%	25%
U-shaped volume pattern performance	35%	18%
Dome-shaped volume pattern performance	39%	33% ^a
Neither U-shaped nor dome-shaped volume pattern performance	30% ^a	27% ^a
Heavy breakout volume performance	33%	21%
Light breakout volume performance	43%	29% ^a
Heavy left bottom volume performance	38%	25%
Heavy right bottom volume performance	33%	20% ^a

^aFewer than 30 samples.

Bottom volume. EADBs with heavy left bottom volume performed better than did those with volume heavier on the right bottom, as Table 15.7 shows.

Trading Tactics

Table 15.8 shows trading tactics for EADBs, and they are the same for most double bottom types.

Measure rule. To determine how far prices may rise, use the measure rule: the height of the EADB added to the breakout price. For example, the EADB shown in Figure 15.6 has a confirmation price of 12.50, and the Adam

Table 15.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the height of the pattern from the highest high between the two bottoms to the lowest bottom low. Add the difference to the highest high. The result is the target price. Price hits the target 66% of the time in a bull market, 47% in a bear market.
Wait for breakout	Since price usually continues down, wait for a close above the confirmation point before taking a position.
Trade with market trend	For best results, buy in a bull market.
Check others in the industry	To avoid 5% failures, check other stocks in the same industry and buy if they are showing bottoming patterns or if their stock is rising.

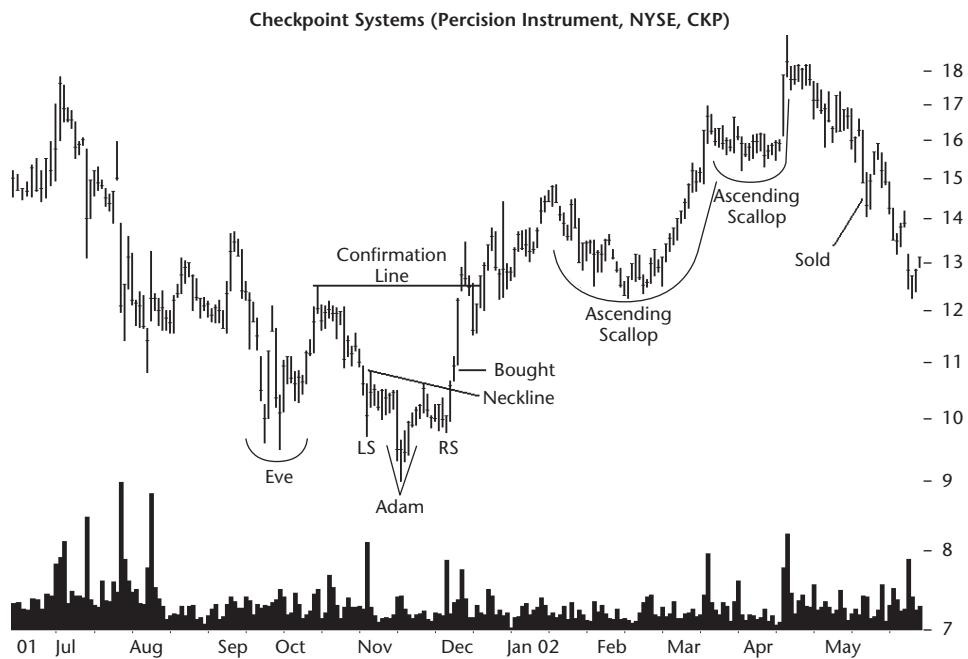


Figure 15.6 As described in the Sample Trade, Willie bought early into this Eve & Adam double bottom. He sold when price dropped below the narrowing, ascending scallop.

bottom is the lowest low at nine. The difference between the two, 3.50, represents the pattern height. Add this value to the breakout price (the confirmation line of 12.50) to get the target of 16. Prices climb to the target in mid-March.

Wait for breakout. I conducted a study and found that 64% of the time, price did not close above confirmation before dropping below the right bottom low. In other words, a double bottom fails 64% of the time if you do not wait for confirmation. Confirmation and a breakout occurs when price closes above the highest high between the two bottoms. Always wait for confirmation unless you have a special reason for entering the trade earlier.

Trade with market trend. Since EADB's in a bull market handily outperform those in a bear market, trade double bottoms in a bull market. Even if you make mistakes, a rising tide lifts all boats and the market is more forgiving.

Check others in the industry. Are other stocks in the same industry climbing? Are they showing bottom reversal patterns (double or triple bottoms, head-and-shoulders bottoms, that sort of thing)? If many companies in the industry are doing well, that should give other investors the courage buy the stock and add to demand. That activity reduces your chance of a small gain.

However, if stocks in the industry look sick, what makes you think this EADB will do well after the breakout? It will be swimming against the current.

Save yourself some money and avoid the stock. Look for a more promising chart pattern in another industry.

Sample Trade

Figure 15.6 shows a trade Willie made in the stock. He ran through Table 15.1 and checked the identification characteristics against the pattern. Briefly, the stock price was trending down to the EADB. The Eve bottom caused him concern as the twin spikes were long but separated by a few days. Was that really an Adam bottom? The Adam bottom had a shorter spike. Was it an Eve bottom? He looked above the spikes and saw that the Eve bottom was several weeks wide but the Adam bottom remained narrow. He concluded that the pattern was an EADB. The rise between bottoms was over 10% and the bottoms looked to be about 6 weeks apart. Volume was higher on the left bottom than the right, spelling good news for performance.

As he watched the pattern develop, he saw what looked like a head-and-shoulders bottom. He drew in the down-sloping neckline and when price closed above it, confirming the head-and-shoulders bottom, he bought and received a fill at 11. After that, it took just 2 days for price to confirm the EADB.

Willie rode the stock higher and the price took on the shape of an ascending scallop—a rounded turn with a right handle. When the second, higher scallop appeared, he grew concerned. Sometimes, consecutive ascending scallops get narrower as they appear higher in the price trend. An unusually narrow one sometimes appears just before prices peak. So he decided to sell the stock as soon as price dropped below the scallop bowl. That occurred in early May, and he received a fill at 14.93, for a net gain of 35%—and that was in a bear market.

For Best Performance

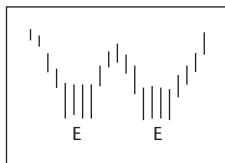
The following list includes tips and observations to help select EADBs that perform better after the breakout. Consult the associated table for more information.

- Review the identification characteristics for correct selection—Table 15.1.
- Select patterns in a bull market—Table 15.2.
- Bull market patterns have lower failure rates—Table 15.3.
- Patterns with breakouts near the yearly low perform best—Table 15.4.

- Throwbacks hurt performance in a bull market—Table 15.4.
- In a bear market, look for price weakness a month after the breakout—Table 15.5.
- Select patterns narrower than the median length—Table 15.6.
- Pick patterns with a lower left bottom—Table 15.6.
- Choose patterns with a falling volume trend—Table 15.7.
- Patterns with a dome-shaped volume trend perform well—Table 15.7.
- EADBs do well after a light volume breakout—Table 15.7.
- Select patterns with heavier volume on the left bottom—Table 15.7.

16

Double Bottoms, Eve & Eve



RESULTS SNAPSHOT

Upward Breakouts

Appearance	Double bottom pattern with wide, rounded bottoms. Breakout is upward.	
Reversal or continuation	Short-term bullish reversal	
	Bull Market	Bear Market
Performance rank	6 out of 23	8 out of 19
Break-even failure rate	4%	7%
Average rise	40%	24%
Change after trend ends	-31%	-34%
Volume trend	Downward	Downward
Throwbacks	55%	46%
Percentage meeting price target	67%	54%
Surprising findings	Performs best when breakout is near the yearly low. Throwbacks hurt performance. Narrow patterns outperform. Patterns with a lower right bottom and volume heavier on the right bottom do well.	
See also	Double bottoms, Adam & Adam; Double bottoms, Adam & Eve; Double bottoms, Eve & Adam.	

The Eve & Eve double bottom is what many refer to as the classic “double bottom.” It sports two rounded bottoms, well separated with a rounding climb between them. That is the ideal pattern, but few look like that in the real world. Of the four varieties of double bottoms, the Eve & Eve double bottom (EEDB) has the highest average rise—40%—in a bull market. Not only that, but it has a low break-even failure rate: 4%. What more could a trader want?

Tour

What does an EEDB look like? Figure 16.1 shows a good example of the twin Eve bottom. This EEDB forms after a broadening bottom chart pattern. The two Eve bottoms are wide, rounded, and distinct lows separated so that they are not part of the same congestion region. The rise between the two bottoms in this example measures an unusually large 40%. In March, price closes above the highest high in the pattern, confirming the twin bottom as a true double bottom.

Why does a double bottom form? All chart patterns show the struggle between buying demand and selling pressure. When the price drops to a point where traders view the stock as a steal, they buy. If enough buy, the stock moves up in price. That is why the bottom usually shows a volume spike or high volume. In an EEDB, selling pressure balances buying demand, making the bottom turn long and gentle.

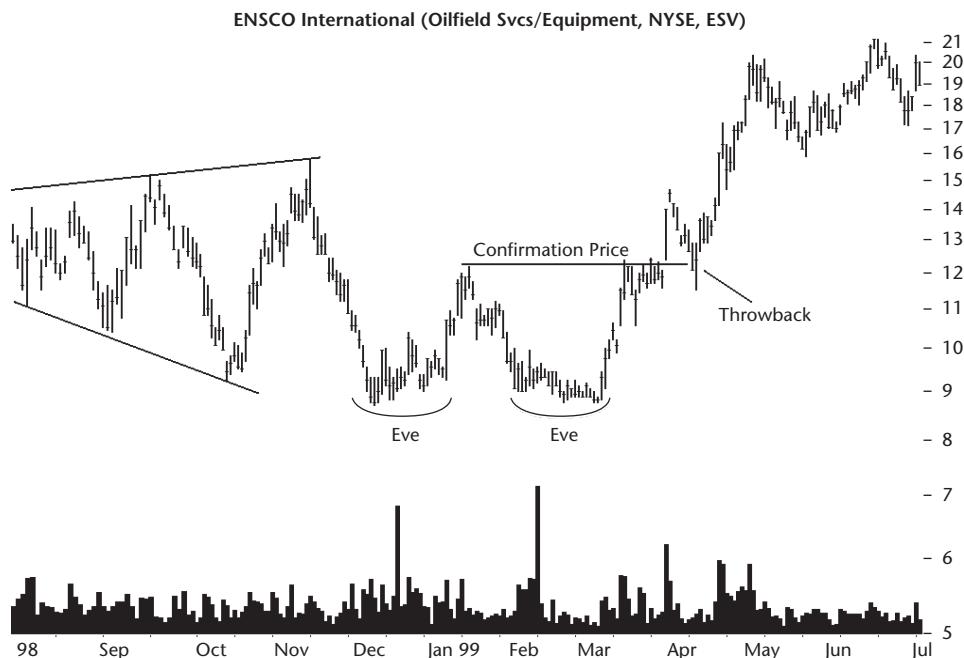


Figure 16.1 A broadening bottom leads to an Eve & Eve double bottom. The two Eve bottoms are wide and rounded appearing. Prices climbed 67% after the breakout.

Prices rise and continue to rise until sellers, viewing the stock as overbought, take profits. This selling pressure eventually stalls the upward move. When other traders see the upward momentum slowing, they dump their shares. This selling forces the stock down again.

When the price drops to a low enough level, the smart money accumulates shares again, sometimes quietly and sometimes not. Others see the slowing downward price trend and predict a turn. They buy, too.

As price pulls out of its dive, more traders buy and the second Eve bottom forms as a gentle turn. Price begins climbing again. When it approaches the high between the two bottoms, it often stalls there as traders take profits. In a valid EEDB, the selling pressure does not send the price down again. Instead, traders sense the intrinsic strength and buy. This buying demand forces the price to tick upward, moving above the high between the two bottoms. That is the breakout signal.

Technical traders watching from the sidelines buy the stock in droves. Volume skyrockets along with the price. Reluctant sellers dump the stock to eager buyers. The price climbs for several days and then things change. About half the time, the price throws back to the breakout price. The throwback is brief before price gathers strength and rises again, soaring to new highs.

Identification Guidelines

I find that identifying EEDBs are easier than identifying birds, but, in both cases, you have to know what to look for. Not just any two bottoms at the same price level will suffice for a double bottom. Listed in Table 16.1 are guidelines that make correct selection easier. While considering the guidelines, look at Figure 16.2.

Downward price trend. The stock begins declining in mid-October 1993 from a price of about 56.50. It bottoms out at about 41.50 in mid-May. Prices never drop below the left low on the way to the bottom. The reason for this guideline is that you should use the two lowest minor lows on the price chart. Do not try to select one low and then a nearby low just to satisfy the guidelines. The two points marked A and B in Figure 16.2 represent an incorrectly selected double bottom because point A has lower lows to the left of it.

Bottom shape. Assign each double bottom pattern into its Adam or Eve category. Adam bottoms are narrow and V shaped, perhaps with a one- or two-day downward price spike. Eve bottoms are wide rounded turns. They may also have price spikes, but they are usually shorter and more plentiful.

Rise between bottoms. The rise between the two bottoms should be at least 10%, as measured from the lowest bottom low to the rise high.

Bottom low prices. The bottom to bottom price variation should be small. The basic rule is that two bottoms should appear to be near one another on the price scale. Figure 16.2 shows a price variation of about 1%.

Table 16.1
Identification Characteristics

Characteristic	Discussion
Downward price trend	Prices trend downward to the pattern and should not drift below the left bottom.
Bottom shape	Eve bottoms are wide, rounded turns, not narrow price spikes, and not V shaped.
Rise between bottoms	At least 10% from the lowest valley to the highest peak between the two bottoms, but allow exceptions.
Bottom low prices	Bottom to bottom price variation is small. Best performance is between 0% and 6% variation.
Bottom separation	Bottoms should be at least a few weeks apart. Best performance is 2–7 weeks apart. Wider than 7 weeks and performance deteriorates.
Price rise after right bottom	Price must close above the confirmation point without first falling below the right bottom low.
Bottom volume	Usually higher on the left bottom than the right.
Confirmation price	Confirmation is a close above the highest high between the two bottoms. It confirms the twin bottom as a valid double bottom. The confirmation price is also the breakout price.

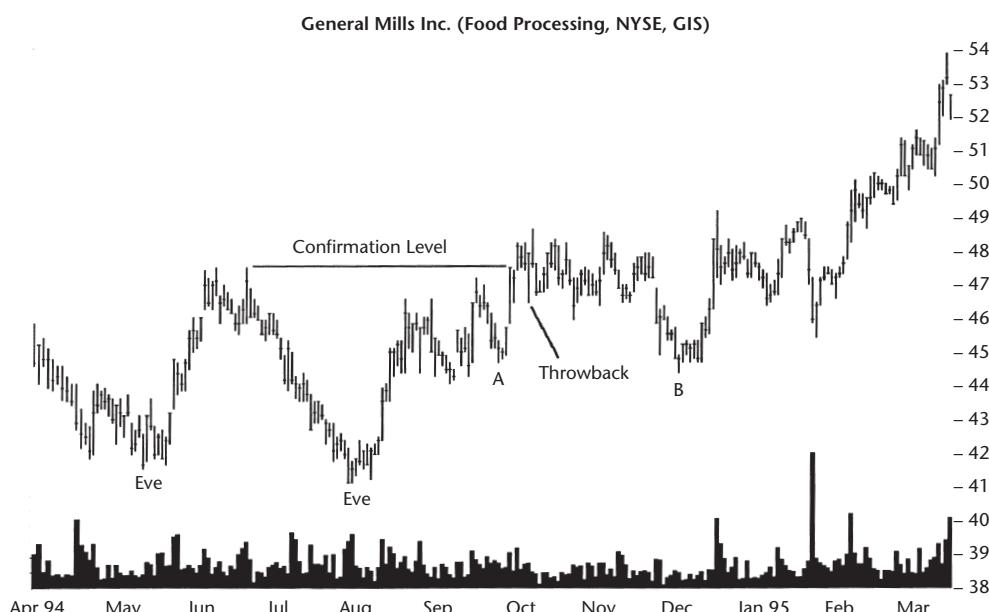


Figure 16.2 Points A and B do not depict a double bottom because there are lower lows to the immediate left of point A.

Bottom separation. The two bottoms should be at least a few weeks apart but are often separated by many months, as shown in Figure 16.2. A month is the minimum separation that many professionals view as leading to powerful rallies. I set a lower standard to help verify that this is true. It turns out that peaks close together perform better than those spaced farther apart.

Price rise after right bottom. Prices should rise up to the confirmation price without first making a third bottom. On average, it takes between 1 and 2 months to complete the rise.

Bottom volume. The volume chart for double bottoms usually shows the highest volume occurring on the left bottom. Diminished volume appears on the right bottom, and the volume trend of the overall formation is downward. None of these are absolute rules. Sometimes volume is highest on the right bottom instead of the left. However, on average most of the formations obey the guidelines.

Confirmation price. The confirmation point is the highest high between the two bottoms, and it is used to calculate the measure rule and to gauge the breakout price (more about that later). Figure 16.2 shows a rise from the right bottom of 15%, above the 10% threshold.

A double bottom is not a true double bottom until prices rise above the confirmation point. In tabulating the statistics, *I only count those double bottom in which prices rise above the confirmation point.* Why? Because of the high failure rate: 64%. In one study, there were 980 formations that looked like double bottoms, but their price trends eventually moved below the second bottom. An additional 525 formations performed as expected by rising to the confirmation point and continuing higher. If you buy a stock just after it touches the second bottom, your chances of having a successful trade are one in three. In other words, wait for prices to rise above the confirmation point.

Now that you know what a double bottom looks like, let us discuss how to separate it into its proper Adam and Eve category. Figure 16.3 shows another example of an EEDB but one harder to identify. Both bottoms have a one-day downward spike. However, as you look up the bottom, prices widen. If you were to shave off that one day's growth, you would have a rounding turn on both bottoms. Adam bottoms are narrower and usually longer.

A good example of an Adam bottom occurs in December when prices plunge downward for three days. The bottom looks narrow and pointed, not wide and rounded. Notice the different appearance between the Adam and Eve bottoms. When trying to determine whether the double bottom has Adam or Eve components, ask yourself if the two bottoms look similar (Adam & Adam or Eve & Eve) or different (Adam & Eve or Eve & Adam). If they look the same, are the bottoms wide or narrow, pointed or rounded?

Let us look at another example, Figure 16.4. The first Eve bottom is narrower than the second one and it looks like a widely spaced horn (it has two minor lows). The right bottom looks wide but it is V shaped. Are these Adam bottoms?

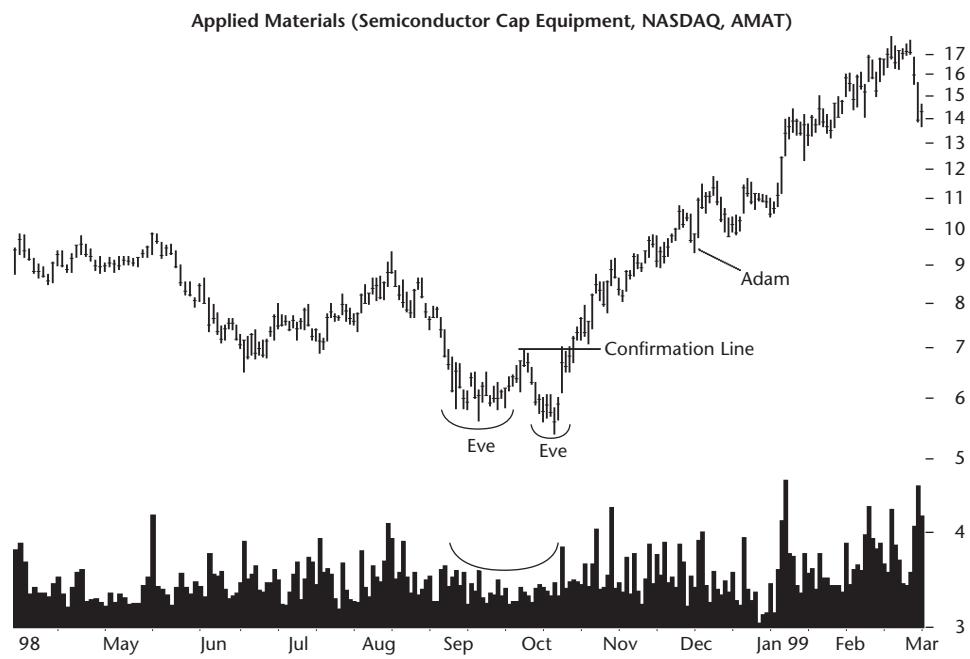


Figure 16.3 These two Eve bottoms are wider and more rounded than the Adam bottom in December, despite having one-day downward price spikes.

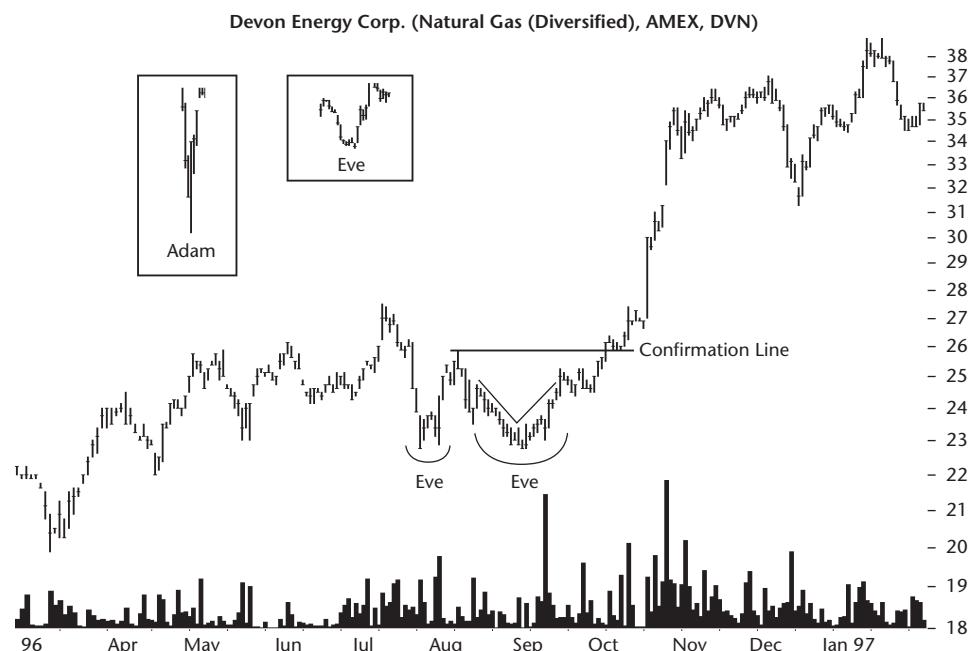


Figure 16.4 Two minor lows compose the left Eve bottom and the right bottom appears V shaped.

Sometimes the answer lies not in the bottoms themselves, but in the surrounding landscape. I searched the stock for examples of Adam and Eve bottoms and they appear in the inset. Clearly, the differences between the two are startling. Compare each inset with the alleged Eve & Eve bottom. Which inset looks like the double bottom? I think the Eve inset matches each Eve bottom.

Focus on Failures

Figure 16.5 is a test. Is this an Eve & Eve bottom or an Eve & Adam? The answer is, of course, who cares? The stock failed to climb after the breakout, and I consider losing money more important than identification.

The left Eve bottom most would argue is a true Eve bottom. It appears wide and rounded, not needle sharp like an Adam bottom. What about the right bottom? No one- or two-day price spike appears. It does look V shaped, if you consider the V as slanting to one side. Does it look like the Eve bottom at point A or the Adam bottom at point B? I consider this double bottom to be an Eve & Eve pattern.

Why did price not climb far after the breakout? I have shown two overhead resistance zones. The top one looks strong enough to turn back most advances. The lower one is a solid block in late June, but it extends back to April.

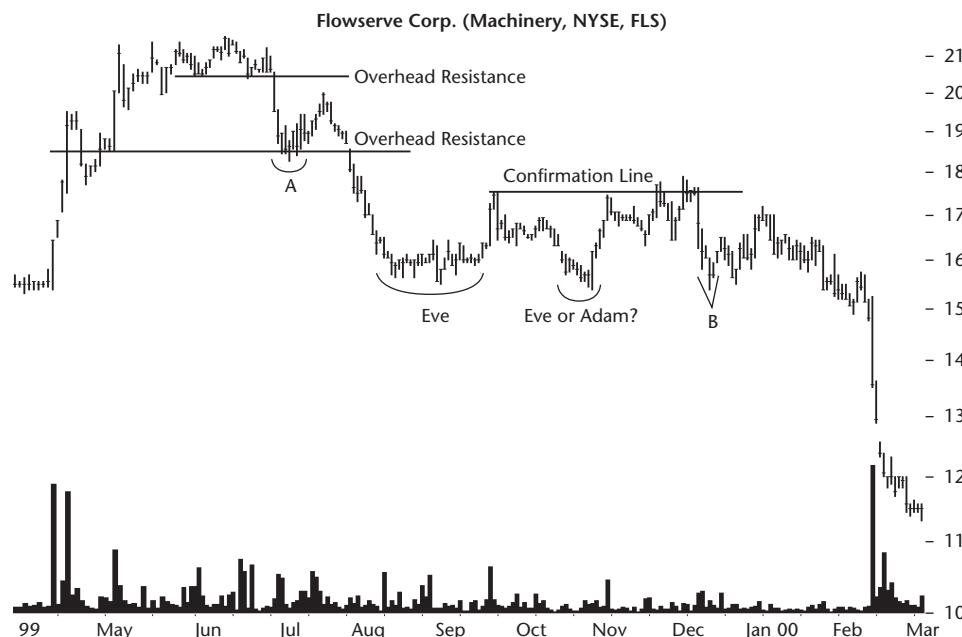


Figure 16.5 Is this an Eve & Eve bottom or an Eve & Adam bottom, and why did price fail to rise far?

Before the April to August price bump, prices were in a long-term decline. There was a block of horizontal price movement at 17.50 that was 3 months long (not shown) if you include some minor lows. Thus, the reason the Eve & Eve pattern failed to rise was overhead resistance coupled with a deteriorating fundamental picture.

I like to know what is going on in the stocks I follow. I keep a database of events and can match an event to the price action. The company released earnings on both sides of the April/August price bump. The first release helped power prices up and the second helped take them down. During creation of the Eve bottom, news appeared that machine tool orders were soft (down 2%) month-to-month and down 30% from the prior year. Coupled with increased foreign competition and insider selling, the fundamentals were going south. That information did not help the technical picture.

The bump in price from April to the August Eve bottom reminds me of what sometimes happens to diamond tops. The price shoots up in a few days, forms a diamond top, and then tumbles back to where it started. From there, the stock flatlines as if it has lost its will to live. I would not consider trading this double bottom because that scenario looks similar to this one.

Statistics

Table 16.2 shows general statistics for EEDBs.

Number of formations. I uncovered a bunch of EEDBs in the stocks I looked at. Most patterns came from a bull market because it was longer than the bear market. I used 500 stocks from mid-1991 to mid-1996 and another 500 surrounding the 2000–2002 bear market.

Reversal or continuation. EEDBs act as reversals of the price trend, by definition (that is, bottoms with upward breakouts).

Table 16.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	412	74
Reversal (R), continuation (C)	412 R	74 R
Average rise	40%	24%
Rises over 45%	153 or 37%	16 or 22%
Change after trend ends	-31%	-34%
Busted pattern performance	-31% ^a	-30% ^a
Standard & Poor's 500 change	16%	-2%
Days to ultimate high	170	77

Note: Minus sign means decline.

^aFewer than 30 samples.

Average rise. The average rise in a bull market is one of the better performances I have seen for chart patterns. In a bear market, however, the 24% rise is on par with other chart pattern types. Trade EEDBs in a bull market.

Rises over 45%. Over a third of the EEDBs (37%) in a bull market rise more than 45% after the breakout. This is quite good. Even the 22% showing in bear markets is promising.

Change after trend ends. When price reaches the ultimate high, what happens? Price tumbles 31% in a bull market and even farther—34%—in a bear market. Thus, if you can determine when prices have climbed as high as they are going to, you should then short the stock. Remember, the numbers are averages so your results will vary.

Busted pattern performance. The busted pattern performance is close to those that reach the end of the trend and reverse, despite different measure rules. Few EEDBs bust, and you have to keep an eye out for a throwback, so you will find it difficult trading a busted EEDB pattern.

Standard & Poor's 500 change. The strong general market upswing (16%) in a bull market helped the average rise (40%) beat the rise in a bear market (24%).

Days to ultimate high. How long does it take price to top out? Answer: nearly 6 months in a bull market and less than half that in a bear market (77 days). If you crunch the numbers that means the rise in a *bear* market is steeper than in a bull market.

Table 16.3 shows failure rates for EEDBs. Let me give you some examples of how you read this table. In a bull market, 4% of the patterns fail to rise at least 5% after the breakout. Seven percent of the patterns in a bear market fail to rise 5%.

You can see that the bull market failure rate nearly quadruples (to 15%) for rises of less than 10%. Half the patterns will stop climbing before reaching 30%. In a bear market, half the patterns will rise less than about 22%.

Table 16.3
Failure Rates

Maximum Price Rise (%)	Bull Market	Bear Market
5 (breakeven)	18 or 4%	5 or 7%
10	63 or 15%	13 or 18%
15	109 or 26%	24 or 32%
20	136 or 33%	30 or 41%
25	167 or 41%	44 or 59%
30	205 or 50%	49 or 66%
35	225 or 55%	56 or 76%
50	280 or 68%	60 or 81%
75	331 or 80%	68 or 92%
Over 75	412 or 100%	74 or 100%

Later I discuss the measure rule, but suppose it predicts a target that is 20% higher than the breakout price. How many EEDBs in a bear market will make that kind of a rise? Answer: 59% (41% will fail to rise at least 20%). If a 41% failure rate sounds too high, then you should move the price target closer to the breakout.

Table 16.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. Measured from the left bottom low to the breakout, it took price between a month (39 days, bull market) and 2 months (57 days, bear market) to travel that distance. It makes sense that in a bear market it would take longer because price struggles to move higher. After the breakout, though, prices in a bear market rise faster (see “Days to ultimate high” in Table 16.2).

Yearly position. Nearly half the time in a bull market, the breakout occurs in the middle of the yearly price range. In a bear market, the results split almost evenly.

Yearly position, performance. Where are the best performing EEDBs located? In both bull and bear markets, EEDBs breaking out within a third of the yearly low perform best. The worst showing is from EEDBs in the middle of the yearly range, and, guess what, that is where many EEDBs reside.

Throwbacks. Throwbacks only occur about half the time. They give investors another opportunity to take a position in a stock or to add to an existing position. When price does throw back, it takes 11 days from the breakout to return to the breakout price. That suggests prices peak in less than a week then take a few more days to retrace their gains. Keep that in mind if you decide to buy at the confirmation price and sell before a throwback begins.

Table 16.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	39 days	57 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L32%, C41%, H27%	L32%, C35%, H32%
Percentage rise for each 12-month lookback period	L45%, C38%, H40%	L30% ^a , C19% ^a , H26% ^a
Throwbacks	55%	46%
Average time to throwback ends	11 days	11 days
Average rise for patterns with throwback	33%	24%
Average rise for patterns without throwback	48%	25%
Performance with breakout day gap	42%	21% ^a
Performance without breakout day gap	40%	26%
Average gap size	\$0.47	\$1.78

^aFewer than 30 samples.

When a throwback occurs, performance suffers. In a bull market, for example, the rise is 33% when a throwback occurs, and 48% without a throwback. This finding suggests you should look for overhead resistance and avoid any situations that might cause price to be repelled.

Gaps. Breakout day gaps marginally help performance in a bull market but hurt it in a bear market. Notice that the gap size in a bear market is almost four times the average size of gaps in a bull market. This finding suggests you place a buy order slightly below the breakout price so that it, hopefully, will get you in before the actual breakout.

Table 16.5 shows a frequency distribution of days to the ultimate high. Few patterns fail (top out) in the first week, but look at the bear market row, columns 35 and 42 days. In those 2 weeks, 20% of the EEDBs in a bear market reach the ultimate high. Thus, you should expect price to peak in just over a month after the breakout. Bull markets show weakness in weeks 3 and 4 (days 21 and 28 in the table). For some reason, this weakness occurs regularly in bear market chart patterns (of all types).

Table 16.6 shows statistics related to size.

Height. The bull market results surprise me because tall patterns usually perform better than short ones. That is still true in a bear market, but the difference is minimal. In a bull market, patterns shorter than the median perform better after the breakout, with gains averaging 41% versus 39%.

To use this result, measure the EEDB height from the highest high between the two bottoms to the lowest low in the pattern and then divide by the highest high (the breakout price). If the result is smaller than the median listed in Table 16.6, then you have a short pattern.

Width. I measured the pattern width from lowest low in the left bottom to the right bottom low. Those patterns narrower than the median performed substantially better than wider ones.

Average formation length. The average formation length from left bottom low to the right was between 2 and 3 months (73 to 80 days).

Height and width combinations. EEDBs that are both short and narrow in a bull market or tall and narrow in a bear market tend to do best. The worst performance comes from patterns that are both short and wide. All of the bear market results use few samples, so the numbers may change.

Bottom price variation. Do EEDBs with small price variations in their bottom lows perform better than do those with large variations? Yes and no.

Table 16.5
Frequency Distribution of Days to Ultimate High

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	8%	12%	9%	3%	12%	8%	3%	3%	5%	0%	36%
Bull market	14%	5%	6%	6%	4%	3%	2%	2%	4%	3%	51%

Table 16.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	39%	25%
Short pattern performance	41%	24%
Median height as a percentage of breakout price	16.40%	22.40%
Narrow pattern performance	44%	26%
Wide pattern performance	37%	23%
Median length	50 days	47 days
Average formation length	73 days	80 days
Short and narrow performance	49%	25% ^a
Short and wide performance	34%	19% ^a
Tall and wide performance	41%	24% ^a
Tall and narrow performance	35%	27% ^a
Small bottom price variation	41%	22%
Large bottom price variation	39%	27%
Median price variation	2.00%	1.71%
Lower left bottom performance	40%	22%
Lower right bottom performance	41%	25%

^aFewer than 30 samples.

EEDBs with small variations work best in bull markets and large variations work best in bear markets.

To get this result, I computed the price difference between the bottoms of each EEDB then found the median. Those with bottom-to-bottom price differences higher than the median were termed large; lower than the median were termed small.

Lower bottom performance. When the right bottom low was below the left bottom, performance improved marginally after the breakout.

Table 16.7 shows volume-related statistics.

Volume trend. A falling volume trend suggests strong postbreakout performance, but only in a bull market. In a bear market, EEDBs with a rising volume trend do better.

Volume shapes. I looked at three volume shapes and those EEDBs with U-shaped volume performed best in a bull market. Figure 16.3 shows an example of U-shaped volume. Those with dome-shaped volume did well in a bear market, but the samples were few. Avoid EEDBs with other (random) volume shapes.

Breakout volume. Many technical analysts will say that heavy breakout volume suggests strong performance and weak breakout volume may spell disaster. In either market, I found little statistical difference in performance.

Table 16.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	38%	26%
Falling volume trend performance	41%	23%
U-shaped volume pattern performance	42%	25%
Dome-shaped volume pattern performance	41%	26% ^a
Neither U-shaped nor dome-shaped volume pattern performance	33%	16% ^a
Heavy breakout volume performance	40%	24%
Light breakout volume performance	39%	27% ^a
Heavy left bottom volume performance	39%	24%
Heavy right bottom volume performance	43%	25%

^aFewer than 30 samples.

EEDBs with heavy breakout volume did well in a bull market, but light breakout volume (and few samples) did better in a bear market.

Bottom volume. Does volume heavier on the right bottom than the left predict better performance? Yes. I did a simple comparison of volume using the 5 days surrounding each bottom. When the right bottom showed heavier volume, price climbed 43% after the breakout in a bull market. Heavy volume on the left bottom accompanied rises of 39%. The bear market showed a similar trend but the results were much closer.

Trading Tactics

Table 16.8 shows trading tactics for EEDBs. They are the same as for other double bottoms.

Measure rule. Use the measure rule to predict a target price. Having a target to aim at may allow you to get out near the peak. If price nears the target, evaluate the situation. Will price continue moving higher or is there a larger likelihood of a drop?

To find the price target, compute the height of the pattern by subtracting the lowest low in the bottom from the highest high between the two bottoms. Add the result to the highest high to get the price target. For example, Figure 16.6 shows an EEDB. The lowest low in the pattern is the left bottom at 14.27. The highest high is 18.39 (the breakout or confirmation price). Add the difference, 4.12, to the highest high to get a target of 22.51. In this example, price rose to only 20 before dropping.

You can use Table 16.3 to check your target. In this example, a move of 4.12 from the launch point of 18.39 means a 22% rise. Since the EEDB occurs

Table 16.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the pattern height from the highest high between the two bottoms to the lowest bottom low. Add the difference to the highest high. The result is the target price. Price hits the target 67% of the time in a bull market, 54% in a bear market.
Wait for breakout	Wait for a close above the confirmation point before buying. If you see a flat shelf on the right bottom, trade it.
Trade with market trend	For best results, buy in a bull market.
Check others in the industry	To avoid 5% failures, check other stocks in the same industry and buy if they are showing bottoming patterns or if their stock is rising.

in a bear market, that means about 47% (interpolated from Table 16.3) will fail to rise at least 22%. This finding suggests the target is too far away.

Wait for breakout. Even in a bull market, trying to anticipate a bottom by buying a stock simply because it seems “cheap” is not a good strategy. Tomorrow, the price will be cheaper. By next week, the company could declare bankruptcy.

With double bottoms, waiting for price to close above the confirmation point is a good way to trade. You can still lose money, but that is the way to bet.

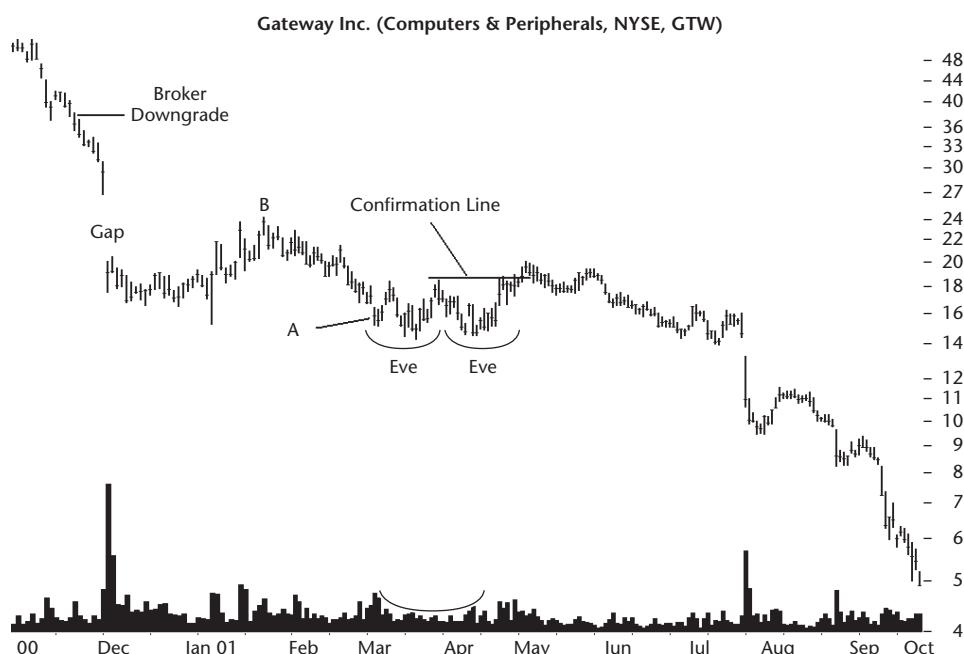


Figure 16.6 Price climbed just 9% after the breakout due to deteriorating fundamentals.

As shown in Table 16.3, EEDBs show small break-even failure rates, providing you wait for confirmation.

The exception to this rule is if you see a flat shelf near the right bottom. The shelf is a price congestion area and sometimes it may take the form of another chart pattern. Figure 15.6 in the prior chapter shows an example of this situation. Buy when price moves above the congestion and put a stop on the far side of the support area (that is, below the shelf).

Trade with market trend. Let the smart money trade against the prevailing trend. You should follow in their footsteps once they have cleared a path through the landmines. In other words, trade with the general market trend. Buy bullish chart patterns (like EEDBs) in a rising stock market. Avoid them in a bear market.

Check others in the industry. If other stocks in the same industry are doing well, then that bolsters the case that your EEDB will break out upward, reversing the downward price trend. If other stocks in the industry are showing bullish bottoming patterns or if their stock prices are rising, then trade the EEDB. If prices in other stocks are breaking down, making lower lows, then look elsewhere for a more promising situation. Double bottoms are plentiful. Keep searching.

Sample Trade

Not all chart pattern trades work as expected, and Figure 16.6 shows an example. To be sure we are dealing with a valid EEDB, let us run through the identification characteristics. Is the price trending downward to the pattern? Yes. Although the figure shows a high in mid-January (B), the stock crested back in mid-November 1999 (not shown).

Do both bottoms resemble an Eve bottom? The shape appears rounded in both bottoms. The left bottom comprises two minor lows, but if you exclude the first minor low (shown as point A), the Eve assessment does not change.

The rise between the bottoms is 29%, and the bottoms are 4% apart in price and 18 days distant (measured from lowest low to lowest low). This is one of the narrower Eve bottoms, but it is still in the 2 to 7-week optimum range. Volume is higher on the right bottom than the left in a bear market. This observation suggests slightly better postbreakout performance, but does not guarantee it. Price rises up to the confirmation price without first dropping below the right bottom low. The pattern is a valid EEDB.

What happened after the breakout? Prices climbed enough to clear the confirmation line then threw back and continued down. The stock reached a low of 4.24, recovered, and then dropped more, bottoming at 2.02 in February 2003. If you bought at the breakout price and sold at the highest high, you would have made 9%, without deducting commissions or other trading costs. Average traders would have lost money, perhaps a lot of it if they rode the stock down.

What went wrong? Is this another case of overhead resistance? No. This is a case where the fundamentals take center stage. See that large gap on the left of the chart? Ten days before the gap, a brokerage downgraded the stock. The stock dropped, sure, but it hardly noticed the downgrade.

On November 29, when the market was closed, the company announced that it would not meet its previous sales projections. When the stock opened the following day, price gapped lower, closing 36% below the prior close. In short, the stock dead-cat bounced; the bounce phase was the rounding turn before the EEDB (point B).

A brokerage firm rated the stock “outperform” on the day it gapped lower. Such positive statements after a large down gap help drive the price higher in the bounce phase. However, the dire situation eventually catches the hype and the stock sinks . . . sometimes dramatically, like that shown here.

Thus, even though we had a valid EEDB, the fundamentals were screaming sell. I do not recommend taking a position in a stock showing a dead-cat bounce for at least 6 months, sometimes even up to a year. Many chart patterns during that time look promising but fail to perform as expected. This is one example.

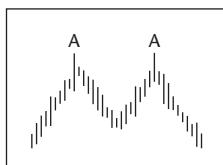
For Best Performance

The following list includes tips and observations to help select EEDBs that perform better after the breakout. Consult the associated table for more information.

- Review the identification characteristics for correct selection—Table 16.1.
- Trade EEDBs in a bull market—Table 16.2.
- EEDBs show lower failure rates in bull markets than in bear ones—Table 16.3.
- Select patterns with breakouts near the yearly low—Table 16.4.
- Throwbacks hurt performance. Avoid EEDBs showing nearby overhead resistance—Table 16.4.
- Watch for the rise to stall 5 to 6 weeks after the breakout in a bear market—Table 16.5.
- Choose narrow patterns—Table 16.6.
- Pick patterns with a lower right bottom—Table 16.6.
- Select patterns with volume heavier on the right bottom than the left—Table 16.7.

17

Double Tops, Adam & Adam



RESULTS SNAPSHOT

Downward Breakouts

Appearance	Two well-defined peaks, narrow, pointed, and separated in time but near the same price. Breakout is downward.	
Reversal or continuation	Short-term bearish reversal	
	Bull Market	Bear Market
Performance rank	4 out of 21	17 out of 21
Break-even failure rate	8%	11%
Average decline	19%	19%
Change after trend ends	54%	47%
Volume trend	Downward	Downward
Pullbacks	61%	48%
Percentage meeting price target	72%	68%
Surprising findings	Patterns in a bull market have lower break-even failure rates than do those in a bear market. Pullbacks hurt performance. Tall and narrow patterns perform better than short and wide ones. Patterns with a lower left top perform better. Heavy breakout volume propels prices farther.	
See also	Double Tops, Adam & Eve; Double Tops, Eve & Adam; Double Tops, Eve & Eve	

This is the first of four chapters covering the various combinations of Adam and Eve double tops. An Adam & Adam double top (AADT) is a twin-peak chart pattern, but not just any two peaks will do. Adam peaks are narrow, inverted V's, and sometimes have a long, one-day upward price spike. Volume is heavier on the left top than the right—usually.

The Results Snapshot shows the performance results. Oddly, for a bearish chart pattern, AADTs perform better in a bull market than in a bear market, judging by the break-even failure rate. The average decline measures 19% regardless of market condition, which is also odd. Pullbacks occur more often in a bull market than a bear market, which makes sense when you think about it.

The “Percentage meeting price target” uses half the pattern height instead of the full height for the measure rule computation. This approach gives better results. In the Trading Tactics section of this chapter, I give an example of how to use the rule.

Surprises are many, but they are self-explanatory, and I discuss them in depth later.

Tour

Figure 17.1 shows an example of an Adam & Adam double top. Notice how the twin peaks look similar both in height and width. Prices shoot up like rockets

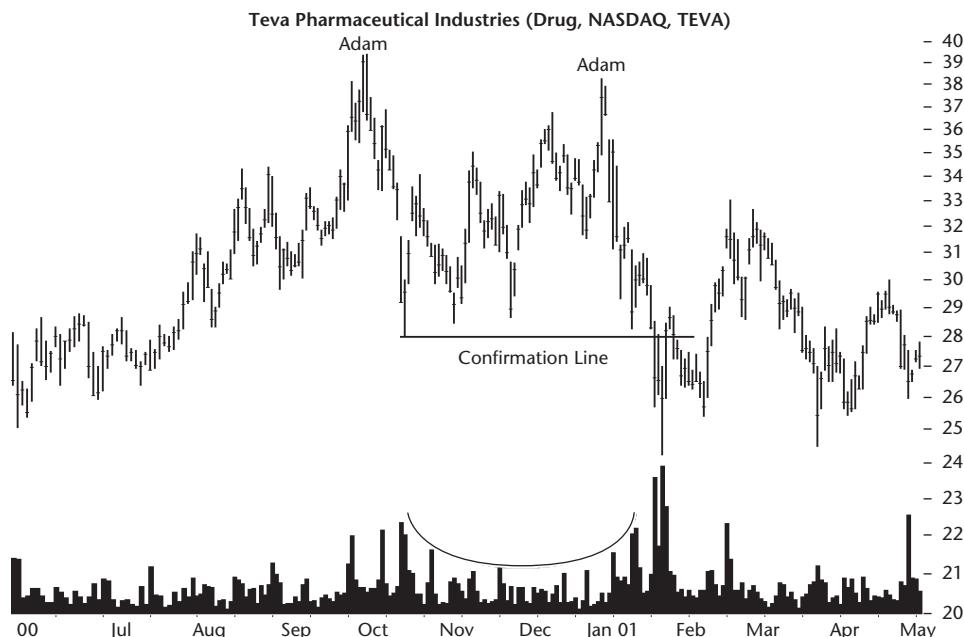


Figure 17.1 An Adam & Adam double top has twin peaks that look similar with narrow spires.

in a one- or two-day spike and then return to the launch pad. The width at the base of the top is comparatively narrow. The top is not rounded looking like you see in Eve tops. In a way, each top looks like a hypodermic needle.

The twin peak pattern becomes a true AADT when price closes below the confirmation line. That qualification is important as an earlier study I did found that price continues rising 65% of the time without confirming the twin-peak pattern. Thus, always wait for confirmation unless you have valid reasons for trading earlier.

In the example shown in Figure 17.1, volume has a U shape, the most common. Volume is usually higher on the left top than on the right. That characteristic appears in the figure if you look carefully. Volume also trends downward between the two peaks most of the time. In a bear market, a downward volume trend occurs twice as often as a rising one, but in a bull market, the ratio is narrower.

Identification Guidelines

Some argue that the hardest part of trading chart patterns is finding them. Double tops make it easy, but there are guidelines to help with the process. I discuss them in a moment, but first, look at Figure 17.2.

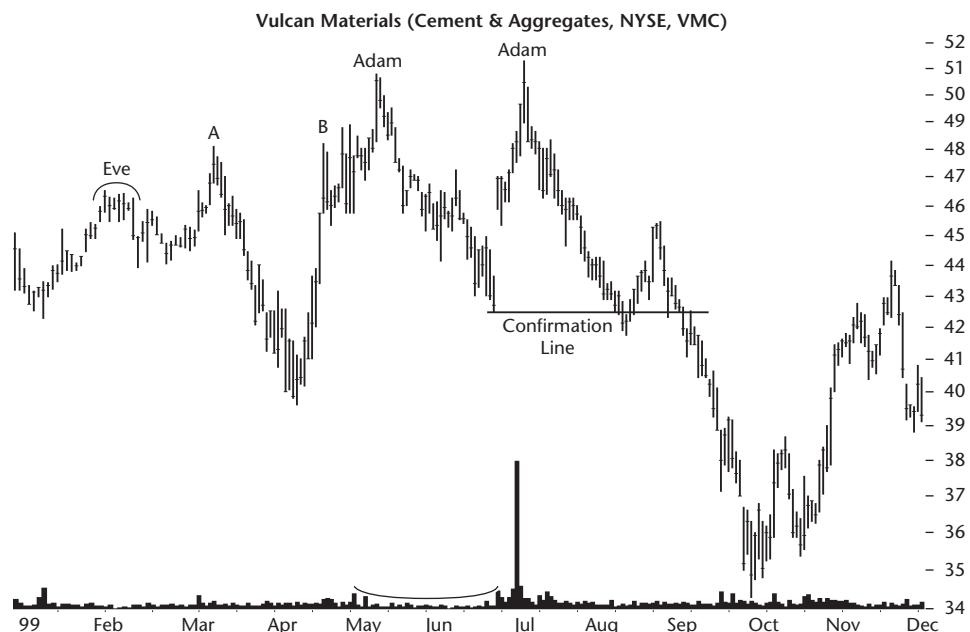


Figure 17.2 An Adam & Adam double top confirms when price closes below the confirmation line. The two peaks look similar and are narrow and pointed. Contrast them to the Eve pattern in February.

The twin Adam peaks look similar and that is key. If they look different, such as one wide and the other narrow, then you have an Eve & Adam or an Adam & Eve top. When they look the same, you have either an AADT or an Eve & Eve double top. The difference between an Adam top and an Eve top is their width and shape. See how the Adam tops are narrow, pointed, looking like an inverted V? Look at the Eve top highlighted in February. See how it appears rounded and wide?

The AADT confirms as a valid double top when price closes below the confirmation line. The confirmation line is the lowest low between the two peaks. Adam & Adam peaks A and B are not part of a double top because price does not confirm the pattern. Instead, prices rise above the higher of the two peaks, invalidating the double top pattern.

Figure 17.3 shows another example of an AADT and an Eve top. The Eve top is wide and composed of several short spikes—minor highs—and the group appears rounded. Adam tops are narrow, inverted V's, usually composed of one- or two-day price spikes. Prices climb into the pattern, form the tops, and drop to the confirmation line, validating the AADT. In this example, volume trends upward and that is unusual. Volume is also heavier on the right top if you bracket the peak with 5 days of average volume (2 days to the left to 2 days to the right). Volume is usually heavier on the left peak.

Table 17. 1 shows identification characteristics for AADTs. Consider Figure 17.4 as we go through the table.

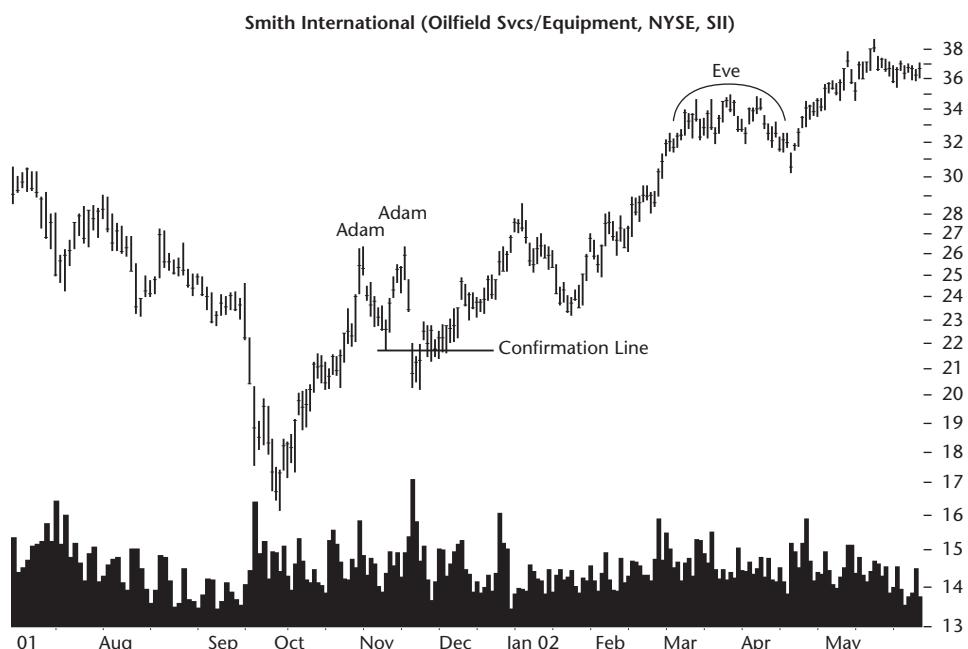


Figure 17.3 Another example of an Adam & Adam double top, but prices do not decline far below the confirmation line.

Table 17.1
Identification Characteristics

Characteristic	Discussion
Upward price trend	Price trends upward leading to the pattern and should not form a third peak, nor should the twin peaks be part of the same consolidation pattern. Look for two distinct minor highs.
Top shape	Adam tops are narrow price spikes, inverted V's. Both should appear similar.
Valley between tops	Patterns with a large dip (a tall pattern) perform better than small (short) ones.
Top high prices	Top to top price variation is small. Best performance is between 0% and 6% difference.
Top separation	Tops should be at least a few weeks apart. Best performance is 5–7 weeks apart. Wider than 8 weeks and performance deteriorates.
Price decline after right top	Price must close below the confirmation point without first rising above the right top high.
Top volume	Usually higher on the left top but volume trends downward from peak to peak.
Confirmation price	Confirmation is a close below the lowest low between the two tops. It confirms the twin top as a valid double top. The confirmation price is also the breakout price.

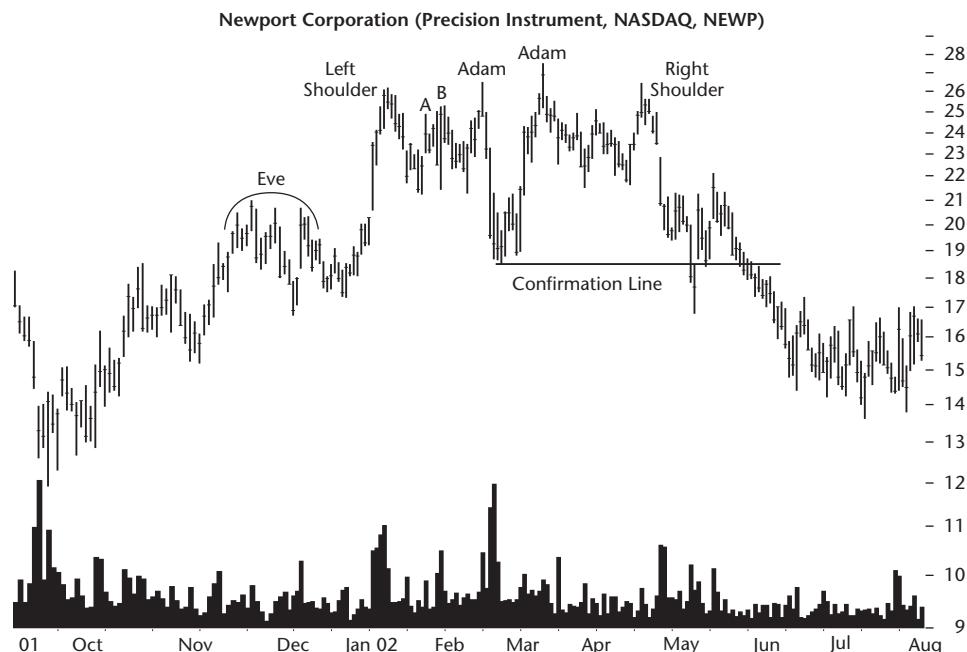


Figure 17.4 An Adam & Adam double top within a complex head-and-shoulders top. The double top acts as a dual head for the complex head-and-shoulders formation.

Upward price trend. Prices must trend upward leading to the pattern to qualify it as a top, not a bottom. The upward price trend can be short, though.

Top shape. The Adam top should appear as an inverted V, narrow, and many times made of a one- or two-day price spike. Eve tops appear wider and more rounded as the November turn shows in Figure 17.4. Eve tops usually have price spikes that are shorter and more congested.

Valley between tops. A dip should separate the two tops, making each top stand out as its own minor high. Do not select patterns that are part of the same congestion pattern. For this reason, the peaks marked A and B in Figure 17.4 are not part of a double top.

Top high prices. The price difference between the two peaks is usually minimal, between 0% and 6%. The key is that they should appear to be at or near the same price. The two tops shown in Figure 17.4, for example, have a 4% price variation.

Top separation. How far apart should the peaks be? Some analysts argue that a month is the minimum, but I put no such limitation on the patterns I selected. However, be sure that the tops are distinct minor highs. The best performing AADTs had tops 5 to 7 weeks apart. Those wider than 8 weeks showed performance that deteriorated, but the sample size is small. Thus, do not let widely spaced peaks sway your opinion.

Price decline after right top. Price must decline to the confirmation price before you consider taking a position, unless the situation warrants a quicker move. Sometimes, instead of confirming, the stock forms another peak, forming a triple top. If that happens, treat the pattern as a triple top.

Top volume. Volume is usually higher on the left peak than on the right. Linear regression on the volume from peak to peak says it trends lower.

Confirmation price. Wait for price to close below the confirmation line before trading a stock showing a double top. The reason for this delay is that 65% of the time, price will not drop to the confirmation line before making a new high. Only after price confirms the pattern does a twin-peak pattern become a true double top.

Focus on Failures

Double tops have two types of failures. The first is one of identification. You must wait for price to close below the confirmation line. Only then does the twin-peak pattern become a true double top. You can try trading the pattern before price drops to the confirmation line, but if you are shorting a stock, you will probably take a loss when the price soars away from you. Do the smart thing and wait for price to close below the low between the two peaks before trading.

The second type of failure is what I call a 5% failure. That means price confirms the pattern and then drops less than 5% below the breakout price before rebounding. It does not happen often (8% in a bull market and 11% in a bear market), but the chance is not zero. Be prepared and use a stop to limit the loss.

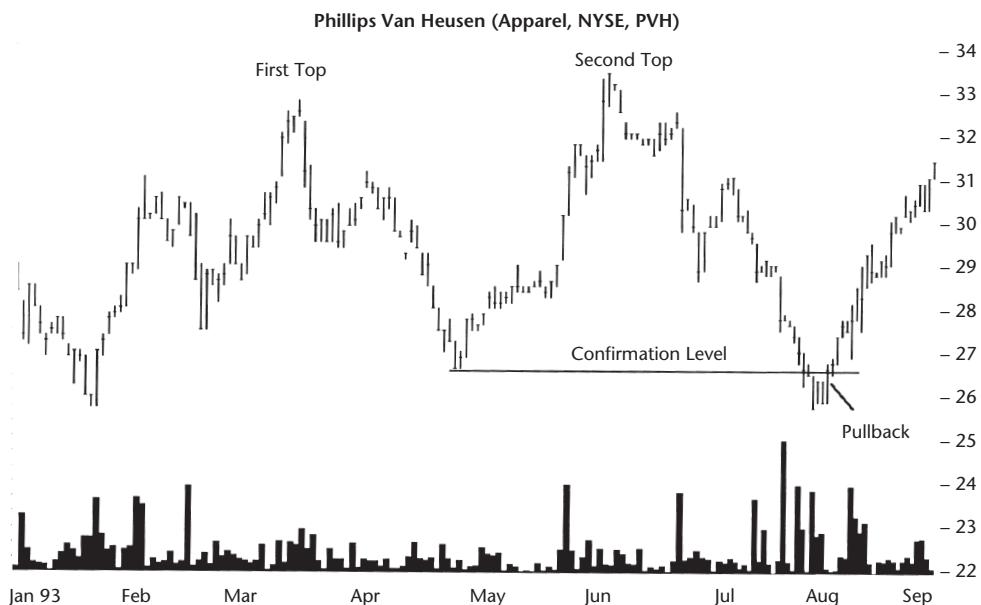


Figure 17.5 A double top formation that suffers a 5% failure. Prices fail to continue moving down by more than 5% before rebounding.

Consider Figure 17.5, a double top that obeys the identification guidelines including closing below the confirmation level. The uphill run starts in May 1992 and culminates in the top during March 1993, representing a rise of over 60%. Prices retreat for a month before gathering steam and trying for a new high. They succeed at the beginning of June, when prices crest the old high by 0.63.

However, the celebration is short and prices tumble. They drop over 20% before meeting support at 26. The new low is below the valley low, the so-called confirmation point, but prices quickly turn around. Prices move up at a smart pace and do not stop until they touch 39. That is a 50% move from the low. If you sold your shares once prices closed below the confirmation point, you would walk away from a chunk of money.

This type of failure is called a 5% failure. Prices break out downward but fail to descend by more than 5% before turning around. Fortunately, 5% failures are relatively rare for double tops.

Statistics

Table 17.2 shows general statistics for AADTs.

Number of formations. I found 296 Adam & Adam double tops with a significant number coming from the nearly 3-year bear market. That surprised me. Still, the pattern is rare. I used 500 stocks from mid-1991 to mid-1996 and another 500 bracketing the bear market.

Table 17.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	188	108
Reversal (R), continuation (C)	188 R	108 R
Average decline	19%	19%
Declines over 45%	9 or 5%	5 or 5%
Change after trend ends	54%	47%
Busted pattern performance	40% ^a	37% ^a
Standard & Poor's 500 change	2%	-11%
Days to ultimate low	51	32

Note: Minus sign means decline.

^aFewer than 30 samples.

Reversal or continuation. Since we are dealing with tops and the breakout is downward, all patterns act as reversals of the upward price trend. The trend need not be long, but it averages 113 days (4 months) in a bull market and 70 days (2.5 months) in a bear market.

Average decline. The average decline measures 19% regardless of the market condition. I consider that odd. I expected the bear market decline to be larger than that shown in a bull market, especially with the general market tugging it lower.

Declines over 45%. Five percent of the patterns decline a large amount —over 45%. That is typical for bearish chart patterns.

Change after trend ends. Once price reaches the ultimate low, it soars by climbing 54% in a bull market and 47% in a bear market. Thus, if you can determine when the price trend changes from down to up, buy.

Busted pattern performance. Just 23 patterns (12 in a bull market and 11 in a bear market) busted. Even so, the numbers give you some indication of what is in store once a busted pattern begins to rebound.

Standard & Poor's 500 change. The S&P climbed 2% in a bull market and dropped 11% in a bear market. As I mentioned, I am surprised that the bear market did not help the average decline beat the 19% posted in a bull market.

Days to ultimate low. It takes 51 days to reach the ultimate low in a bull market and just over a month in a bear market. Since both markets show a 19% decline, the bear market decline must be steeper. That finding suggests you trade this pattern in a bear market because you will have more trades annually.

Table 17.3 shows failure rates for AADTs. The bull market starts out with a lower failure rate (breakeven) but it does not last long. In the important lower price declines, bear markets win, suggesting better performance by trading AADTs in a bear market.

Table 17.3
Failure Rates

Maximum Price Decline (%)	Bull Market	Bear Market
5 (breakeven)	15 or 8%	12 or 11%
10	57 or 30%	26 or 24%
15	100 or 53%	45 or 42%
20	118 or 63%	64 or 59%
25	136 or 72%	80 or 74%
30	152 or 81%	89 or 82%
35	167 or 89%	96 or 89%
50	183 or 97%	106 or 98%
75	188 or 100%	107 or 99%
Over 75	188 or 100%	108 or 100%

How do you read the table? Let me give you some examples. In a bull market, 8% of the AADTs dropped less than 5% after the breakout. In a bear market, the rate was 11%. Just over half (53%) will bottom after dropping less than 15% in a bull market. The halfway mark in a bear market is about 18%.

Notice how the failure rates climb for small changes in the maximum price decline. The bull market failure rates change from 8% to 30% to 53% for declines up to just 15%. That represents a huge increase in failures for small declines.

What does all this mean? If you own a stock and see a support zone below the confirmation price, can you tolerate a loss to that level? If you are shorting a stock, will the down move be profitable enough to risk a trade? Do not bet on a large down move with this pattern.

Table 17.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. It takes about a month for price to break out. I measure this from the highest high in the right top to the breakout point (confirmation line). This is the time it takes prices to drop to the confirmation line.

Yearly position. Where in the yearly trading range does the breakout occur? Most of the time, the breakout occurs in the middle of the range.

Yearly position, performance. Mapping performance onto the yearly price range, we find that the best performing patterns have breakouts that occur near the yearly high in a bull market and near the yearly low in a bear market. The worst performance comes from patterns in the middle of the range—where they occur most often.

Pullbacks. A pullback occurs more often in a bull market (61%) than in a bear market (48%). This occurrence may be due to the upward pull on the stock by the general market. In a bear market, everything is tumbling, making it harder for the stock to swim against the tide during a pullback.

Table 17.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	28 days	29 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L27%, C42%, H31%	L34%, C44%, H21%
Percentage rise/decline for each 12-month lookback period	L19%, C18%, H20%	L21%, C18%, H18% ^a
Pullbacks	61%	48%
Average time to pullback ends	9 days	10 days
Average decline for patterns with pullback	16%	18%
Average decline for patterns without pullback	23%	20%
Performance with breakout day gap	-20%	-25% ^a
Performance without breakout day gap	-19%	-18%
Average gap size	\$1.08	\$1.51

Note: Minus sign means decline.

^aFewer than 30 samples.

It does not take long for price to return to the breakout price—about 10 days on average. When a pullback does occur, it hurts performance, as Table 17.4 shows.

Gaps. In both markets, gaps improve performance when they occur, but the performance difference may not be as wide as that shown in a bear market. There, the sample count is small. Notice that the gap size is larger in a bear market.

Table 17.5 shows a frequency distribution of time to the ultimate low. For example, a third of the AADTs in a bear market will reach bottom in the first week. By week three (21 days), 51% will have bottomed (that is the sum of the first three columns of numbers). Bull markets take longer to reach bottom. By week three, 42% have bottomed.

Notice that 14% of the stocks bottom out in a bear market during the week ending on day 28. I have seen this occurrence with other chart pattern

Table 17.5
Frequency Distribution of Days to Ultimate Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	33%	9%	9%	14%	5%	6%	3%	4%	4%	0%	14%
Bull market	24%	10%	8%	7%	4%	4%	6%	5%	4%	2%	26%

types, and it suggests strength in prices a month after the breakout. Keep that in mind if you short a stock showing an AADT.

Table 17.6 shows AADT size-related statistics. Size is a good predictor of performance after the breakout.

Height. Tall patterns perform better than short ones, by 21% to 18%, in both bull and bear markets. Stick to trading tall patterns.

Width. Narrow patterns perform better than do wide ones in a bull market. A bear market shows no performance difference. I used the median length as the separator between narrow and wide.

Average formation length. The average width varies from 36 days for patterns in a bear market to 43 days in a bull market.

Height and width combinations. Table 17.6 shows the performance results when combining the four traits. Patterns that are both tall and narrow do best by declining the most. The table also shows that you should avoid double tops that are both short and wide—they decline least after the breakout.

Top price variation. Does price variation between tops suggest better performance after the breakout? Not really. In a bear market, a peak-to-peak price difference less than the median difference means an average decline of

Table 17.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	-21%	-21%
Short pattern performance	-18%	-18%
Median height as a percentage of breakout price	17.12%	19.65%
Narrow pattern performance	-21%	-19%
Wide pattern performance	-17%	-19%
Median length	35 days	25 days
Average formation length	43 days	36 days
Short and narrow performance	-19%	-19%
Short and wide performance	-16%	-16% ^a
Tall and wide performance	-18%	-22%
Tall and narrow performance	-25%	-19% ^a
Small top price variation performance	-19%	-20%
Large top price variation performance	-19%	-18%
Median price variation	0.95%	1.31%
Lower left top performance	-20%	-20%
Lower right top performance	-18%	-19%

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 17.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	-18%	-22%
Falling volume trend performance	-20%	-18%
U-shaped volume pattern performance	-19%	-19%
Dome-shaped volume pattern performance	-19%	-20%
Neither U-shaped nor dome-shaped volume pattern performance	-21%	-18% ^a
Heavy breakout volume performance	-20%	-20%
Light breakout volume performance	-18%	-16%
Heavy left top volume performance	-20%	-19%
Heavy right top volume performance	-18%	-19%

Note: Minus sign means decline.

^aFewer than 30 samples.

20%. A larger price difference means an 18% decline. In a bull market, the performance was the same.

Lower top performance. When the high at the left top was below the right top's high price, the AADT outperformed after the breakout in all market conditions. Thus, look for patterns with a lower left top.

Table 17.7 shows volume-related statistics.

Volume trend. In a bull market, double tops with falling volume performed better, but in a bear market, the results swapped—AADTs with a rising volume trend performed better and by a larger spread.

Volume shapes. The volume pattern that occurs most often is U shaped. In a bear market, AADTs with dome-shaped volume do better postbreakout. In a bull market, patterns with a random (neither U- nor dome-shaped) volume shape performed best.

Breakout volume. Many traders will swear that heavy breakout volume adds to the reliability of a pattern. AADTs confirm that by outperforming.

Top volume. I checked the 5-day volume surrounding each peak and found AADTs with heavy left top volume performed better in a bull market. In a bear market, there was no performance difference.

Trading Tactics

Table 17.8 shows trading tactics for AADTs.

Measure rule. Use the measure rule to predict a target price. With most patterns, the rule uses the full pattern height, but not for AADTs. Price hits the

Table 17.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the pattern height from the lowest low between the two tops to the highest peak and then divide in half. Subtract the result from the lowest low. The result is the target price. Price hits the target 72% of the time in a bull market, 68% in a bear market.
Wait for breakout	Wait for a close below the confirmation point before selling—usually.
Trade with market trend	For best results, short in a bear market.
Check others in the industry	To avoid 5% failures, check other stocks in the same industry and trade if they are showing topping patterns or if their stock is falling.

target just 40% of the time in a bull market and 44% in a bear market when using the full pattern height.

For best results, use half the height. Subtract the lowest low between the two highs from the highest high and then divide by 2. For example, in Figure 17.6, the highest high is the left peak at 35. The lowest low is at 24.88. That gives a height of 10.12. Dividing by 2 gives 5.06. Subtract this value from the lowest low to get a target of 19.82. If the result is negative, then ignore it; price cannot decline below zero. Using half the formation height increases the success rate to 72% in a bull market and 68% in a bear market.

Consider changing the predicted decline into a percentage then looking up the failure rate in Table 17.3. In this example, the 5.06 decline from a breakout of 24.88 represents a loss of 20%. Table 17.3 shows that 63% of the patterns in a bull market fail to drop at least 20%. Thus, the target price is probably too far away, and you should choose a more conservative one.

Wait for breakout. Usually, it is best to wait for the breakout (when price closes below the confirmation line) before trading this pattern. If you do not wait, chances are prices will rise 65% of the time (in a bull market) without dropping below the confirmation line. The Sample Trade shows an example of how to ignore this rule and make more money.

Trade with market trend. Even though the average decline is the same in bull and bear markets, the failure rate differs. Trade with the market trend. Since this is a bearish pattern, you will have more success shorting a stock if the general market is also trending down.

Check others in the industry. Other stocks in the same industry can give a vital clue to performance of the stock you want to trade. If they are going down or showing signs of topping out, then a short sale or selling a long holding might be the smart move.

Look for the stock that turns down first followed by the others. For example, Lowes reports earnings, a few days before Home Depot. When Lowes

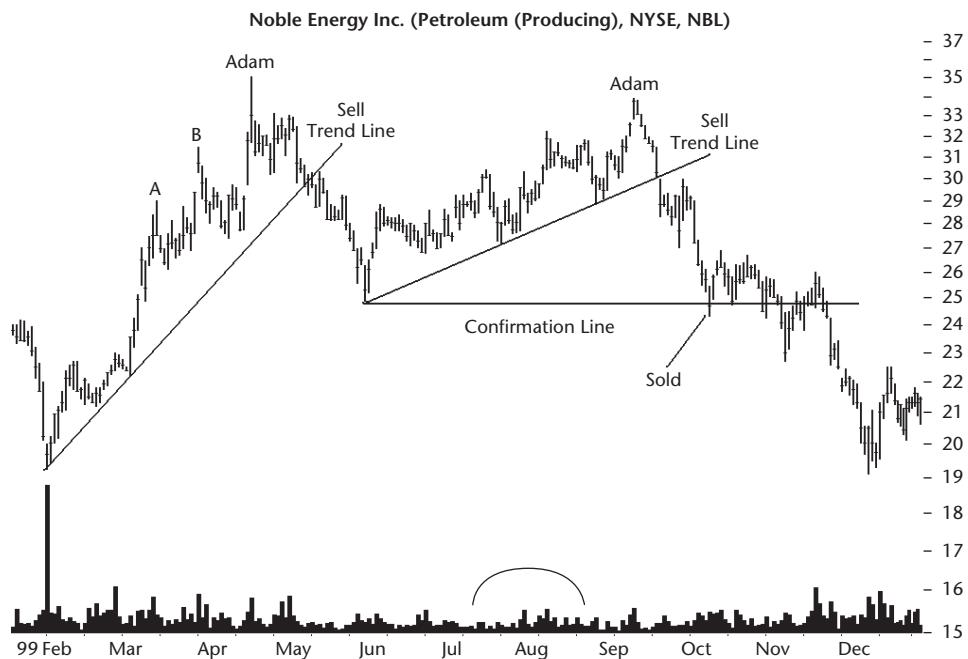


Figure 17.6 The two sell trendlines provide an opportunity to sell the stock at a price higher than the confirmation line.

reported soft earnings, that also hurt Home Depot stock. Home Depot dropped even more when it reported the same problems (soft lumber prices) and weak results. Look for which stock turns down first, and see what happened the last time they all dipped (perhaps during the same month in prior years).

Sample Trade

Since I trade from the long side, let me give you an example of how to use a double top defensively. Say you own the stock in Figure 17.6. How do you trade this one? Do you hold on like an amateur investor or do you dump at the first sign of weakness, like a swing trader?

The answer depends on several factors, such as taxes, industry, and market outlook. Sometimes it may be wise to ride out the decline.

Say you bought the stock at the February low, 19.25. At the first Adam top (35), you made 82%—nearly a double. Watching the stock drop to the confirmation line must have been painful. That drop took price down to 24.88, a decline that reduced your profit to just 29%.

Look what would have happened if you sold the stock the day after price closed below the sell trend line: That would have gotten you out at 29.94 for a profit of 56%.

I recently sold a utility stock because it shot up like the rise to point A in Figure 17.6. Since a quick decline often follows a quick rise, I was willing to sell

my stock for a \$7,000 profit plus over \$1,300 in dividends because I did not want to give back thousands. I will miss the 5.3% yield at a time when money market funds are paying just 0.3%. The price has declined since I sold it.

Points A and B are called spikes or tails. Point A is especially good because the price closes near the daily low. That is important. Look for a long price spike with a close near the daily low. For the first Adam peak, if you sold the day after the spike, you would have made 62%. If you sold at the close the day after points B and A, you would have made 55% and 40%, respectively. Those are good gains regardless of how you slice it.

Most amateur investors would have held onto the stock and rode it back down. As it bottomed at the confirmation line, they may have sold (some did as the slight rise in volume suggests). Others held on, vowing to sell if price reached the old high. When price climbed and approached the old high, their tune changed. Their desire to sell melted into greed. “Why sell if the stock is going up?”

Good point. But you have to sell sometime. Price fluctuations may shake amateurs out or they may turn stubborn and hold on, this time riding the stock down to the confirmation point. That is when the twin peaks turn into a valid double top. That is also the time to sell. Placing a stop-loss order at the confirmation line means your position sells without your having to worry about it.

In this example, a second sell trend line would work well when price closed below it in September. If you sold at the close the following day, you would have made 50%. That is much better than the 29% gain when selling at the confirmation line.

Am I advocating selling before confirmation? No. Every time I have done that in a double top, the stock never confirmed, and I gave up profit because price made new highs. Still, you can increase your profit by taking shortcuts to selling as the example shows (using trend lines, for instance). You can always buy back in if price does not sink to the confirmation point.

The choice is yours. If you are just days away from changing a short-term gain into a long-term one, it may be wise to hold off selling. I did something similar by waiting 3 days to push a trade into a new tax year, shifting income. By delaying, I changed a 40% profit into a 27% one. Oops.

For Best Performance

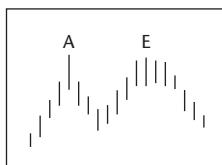
The following list includes tips and observations to help you select better performing AADTs. Refer to the associated table for more information.

- Correctly identify the pattern using the guidelines—Table 17.1.
- Trade AADTs in a bear market. The decline is steeper than in a bull market for the same average decline—Table 17.2.
- Failure rates are generally lower for patterns in a bear market—Table 17.3.

- In bull markets, select patterns with breakouts near the yearly high. In bear markets, use the yearly low—Table 17.4.
- Pullbacks hurt performance, so avoid one by looking for underlying support—Table 17.4.
- A third of the patterns bottom in the first week in a bear market. Half bottom within 3 weeks.—Table 17.5.
- In a bear market, look for prices to rebound a month into the trade—Table 17.5.
- Patterns both tall and narrow in a bull market perform best. Avoid patterns that are both short and wide in either market—Table 17.6.
- Patterns with a lower left top outperform—Table 17.6.
- Heavy breakout volume suggests good performance after the breakout—Table 17.7.

18

Double Tops, Adam & Eve



RESULTS SNAPSHOT

Downward Breakouts

Appearance

Two well-defined peaks, the first narrow and pointed, the second wide and rounded; both separated in time but topping near the same price. Breakout is downward.

Reversal or continuation

Short-term bearish reversal

Performance rank

Bull Market

Bear Market

15 out of 21

Break-even failure rate

15 out of 21

14%

7%

Average decline

18%

22%

Change after trend ends

50%

43%

Volume trend

Downward

Downward

Pullbacks

59%

58%

Percentage meeting price target

69%

69%

Surprising findings

Pullbacks hurt performance. Tall patterns perform better than short ones. Patterns with a lower right top do well. Patterns with U-shaped volume perform better.

See also

Double Tops, Adam & Adam; Double Tops, Eve & Adam; Double Tops, Eve & Eve

Adam & Eve double bottoms (AEDTs) perform about average (bull market) or slightly below (bear market) when compared to the average decline of other bearish chart pattern types. The double-digit break-even failure rate in a bull market is high, too. Thus, trade this one from the short side in a bear market for the best performance. If you own the stock in a bull market and it double tops, you might want to sell or not, depending on the circumstances. Sometimes it may pay to weather a small decline after an AEDT, especially if the general market and others in the industry are soaring.

AEDTs have a few surprises, and I discuss them in the Statistics section.

Tour

Along with the head-and-shoulders formation, double tops are perhaps the most popular. Many novice investors see a dual peak on the stock chart and proclaim it to be a double top. It probably is not. There are a number of characteristics that compose a true double top and I discuss them in a moment, but, first, what does a double top look like?

Consider Figure 18.1, a double top in ElkCorp. The first thing one notices are the twin peaks. They should be near the same price level and widely spaced. The price trend leading to the first peak is upward and prices fall away after the second peak.

The intervening valley is just that: a valley that sees prices decline by 10% to 20%, sometimes more. The valley floor forms the confirmation level or point. A twin peak formation becomes a true double top once price closes below the confirmation point, signaling a breakout.

Sometimes a pullback occurs such as that shown in Figure 18.1. A pullback allows investors another opportunity to exit their position before the decline resumes. For more aggressive traders, the pullback is a chance to make a short sale in the hope that prices will continue falling.

Identification Guidelines

Table 18.1 lists identification characteristics that Adam & Eve double tops share. They are only guidelines—not rules—and exceptions are many.

Upward price trend. Figure 18.2 shows an AEDT that forms after a short-term price rise beginning in November. The average rise leading to AEDTs is 128 days, or about 4 months long.

Top shape. When searching for an Adam & Eve double top, remember that the Adam peak should look different from Eve. Adam looks like an inverted V, usually with a one- or two-day price spike poking out of the top. Eve is rounder and wider. Adam peaks come first; Eve, second. The shape difference is clear in the figures accompanying this chapter.



Figure 18.1 A double top has twin peaks that are usually a few months apart but quite near in price. Only when prices decline below the valley floor is a double top confirmed as a valid formation.

Table 18.1
Identification Characteristics

Characteristic	Discussion
Upward price trend	Price trends upward leading to the pattern and should not form a third peak, nor should the twin peaks be part of the same consolidation pattern. Look for two distinct minor highs.
Top shape	The first peak is an Adam top, usually with a narrow price spike, inverted V shape. The Eve peak (second top) is wider and more rounded, perhaps composed of several short spikes. The two peaks should look different.
Valley between tops	Patterns with a large dip (a tall pattern) perform better than small (short) ones. The valley depth usually measures in the 10% to 20% range, but allow exceptions.
Top high prices	Top to top price variation is small, usually 0% to 3%, but allow higher differences.
Top separation	Tops should be at least a few weeks apart with most falling in the 2–7 week range.
Price decline after right top	Price must close below the confirmation point without first rising above the right top high.
Top volume	Usually higher on the left top.
Confirmation price	Confirmation is a close below the lowest low between the two tops. It confirms the twin top as a valid double top. The confirmation price is also the breakout price.

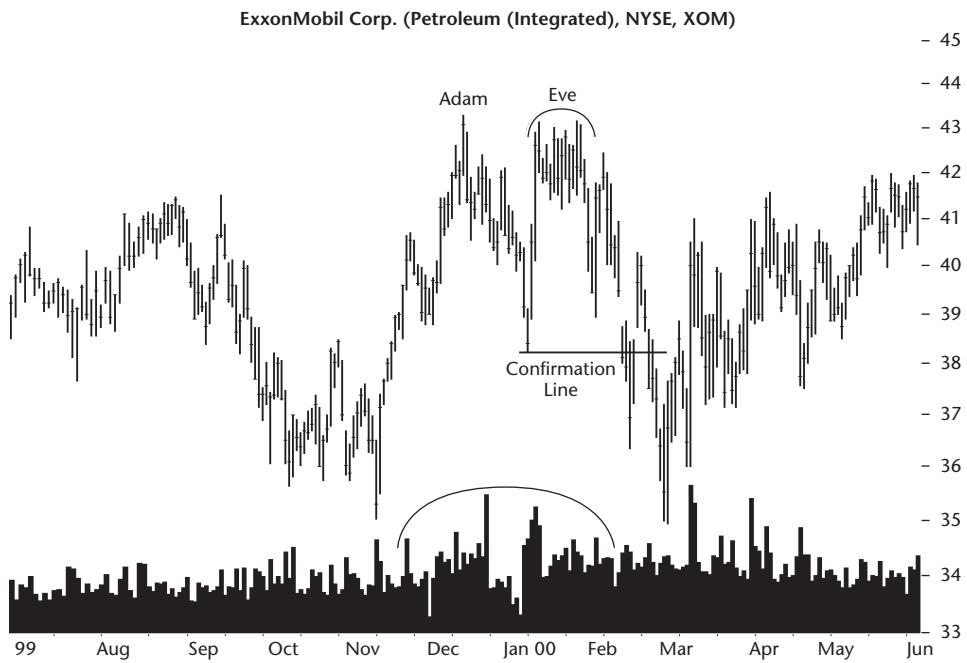


Figure 18.2 An Adam & Eve pattern forms in December and sends prices back to the November low.

Valley between tops. I set no minimum price decline between the two tops, just to see if smaller patterns performed worse than larger ones (they do). Expect the decline to be in the 10% to 20% range, but allow variations. Remember, the larger the decline, the better the performance. Figure 18.2 shows a 12% valley decline.

Top high prices. The price variation between the two tops is usually small, and some limit it to 3%. I place no such limitations on the double tops I selected for testing, but they looked as if they peaked near the same price.

Top separation. Some will tell you that tops must be at least a month apart. Again, I placed no such restriction on the patterns I selected. However, the median distance was about 6 weeks as measured between the highest high on each peak. The AEDT in Figure 18.2 shows peaks 46 days apart.

Price decline after right top. This guideline separates double tops from triple tops. A double top becomes a valid pattern when price closes below the confirmation line—the lowest low between the two peaks. If a third peak forms before confirmation, then ignore the double top and check if it is a triple top. If it is a triple top, then do not trade it as a double top.

Top volume. Volume is usually higher on the left top than the right as measured by the 5 days surrounding the peak (2 days before to 2 days after). If the right peak has higher volume, do not worry. It happens. The AEDT in Figure 18.2 has higher volume on the left peak. The figure also shows dome-shaped volume.

Confirmation price. A twin-peak pattern becomes a true double top when price closes below the confirmation price. When that occurs, it is time to sell a long holding or initiate a short sale. Selling before confirmation may mean price continues rising after the sale (the AEDT does not confirm). That happens 65% of the time in a bull market.

Why do double tops form? Consider Figure 18.3, a well-shaped double top that satisfies all the identification guidelines. The stock began rising in October 1992 at a price of 9.88. At the start, volume was unremarkable but did have its moments. On spurts, like that shown during March and again in April, volume spiked upward and helped propel the stock higher.

Many unfortunate investors bought near the left top hoping prices would continue rising—a momentum play. However, astute technical investors recognized the price pattern for what it really was: a measured move up. The first up-leg occurred in just 3 days, followed by horizontal movement for several weeks, and another swift rise to the first top.

Once the measured move completed, volume dried up and the upward movement stalled. Price moved down and formed a base in early May that saw a low of 15.75. The consolidation lasted almost 2 months on light turnover.

The price decline from peak to trough was not much in dollars, but it represented a 20% decline. Comparatively few investors took advantage of the price lull to add to their position or place new trades. Those investors that bought at the top swore they would sell just as soon as they got their money back. When

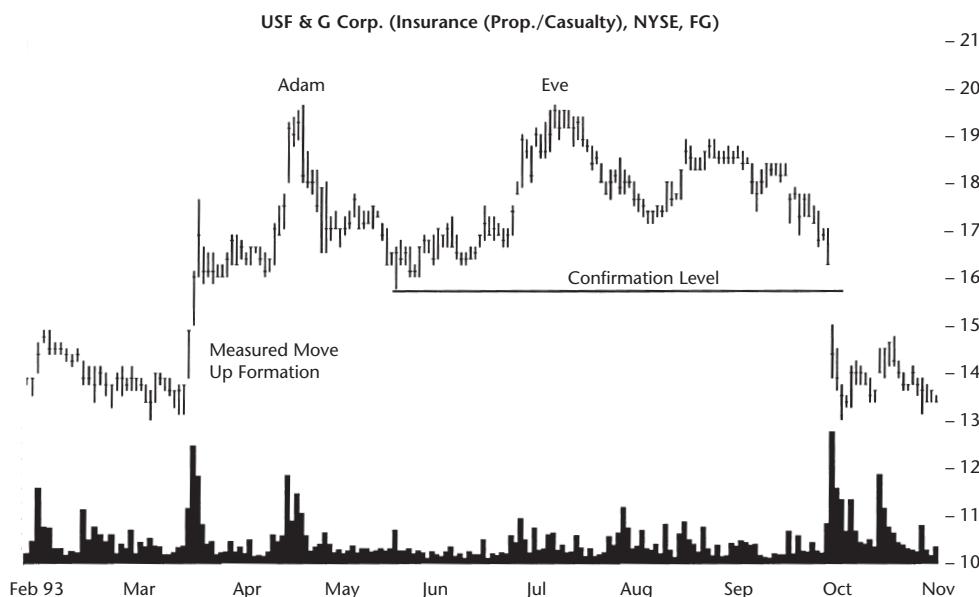


Figure 18.3 Prices do not push above this double top for over 3 years. A measured move up pattern forms the rise to the left top.

price started rising again, many of them pulled the trigger and sold their shares. The volume pattern, which up to this point was flat, bumped up and took on a more rugged appearance (during late June and into July). Other investors, believing that the consolidation was over, bought for the first time.

As prices rounded over and formed the second peak during July some investors correctly assumed that a double top was forming. They sold their shares near the top, content with the profits they locked in. Other intrepid traders sold short and hoped prices would fall. Prices did fall but stopped at the top of the consolidation area formed between the peaks few months earlier.

After a prolonged attempt at creating a third peak in late August and into September, prices gapped below the confirmation point at 15.75. A downward breakout began. The smart money sold their shares immediately and licked their wounds. Others hoped the selling was overdone while still others sold short.

The stock attempted a pullback in mid-October but gave up. For the next several years, price failed to rise above the high established by the double top.

Figure 18.4 shows another example of an AEDT. The Adam peak does not have a long, one-day price spike. Rather, the peak is narrow when compared to the Eve counterpart. Look at the width of each peak near the confirmation line, and you will see what I mean. If the top shape does not make it easy to identify the pattern, look at the base's width—sometimes that helps.

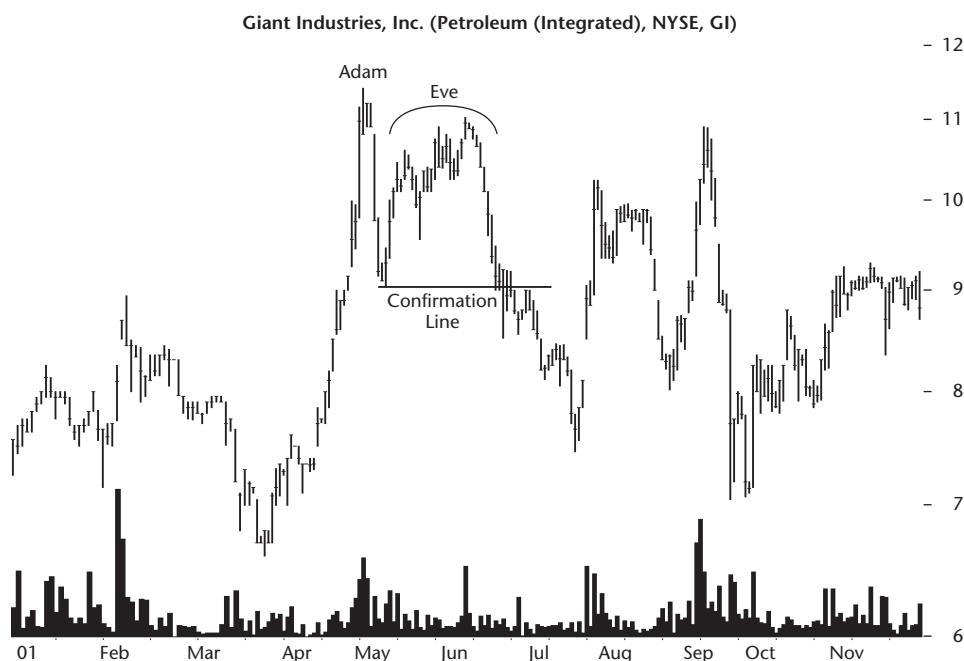


Figure 18.4 This Adam & Eve double top shows the difference between each peak's width.

Focus on Failures

Figure 18.5 shows an AEDT. You might think that this is an Adam & Adam double top because the Eve top has a long price spike leaving the top of the pattern. If you look at the base of the pattern, you will see that the Adam top remains narrow for most of its length. Eve starts slender at the price tail then widens out as prices near the confirmation line. I conclude that it is an AEDT, confirmed when price closed below the confirmation line (the breakout in the figure).

Regardless of whether you consider the double top an AEDT or AADT, the result is the same: price drops but not far. Why? An old saying goes, "Price has to have something to reverse." Here, price moves horizontally from September through January, leaving little upward move to reverse. Yes, the actual decline from the breakout price to the August low measures 13%, but you get my point.

Viewing Figure 18.5 on the weekly scale (not shown), we find massive support at 20, a portion of it appears as the August and October lows. Additional support appears at the triangle apex, about 23.50, right where the trading range centers. Of course, apex support has no effect on the AEDT because support is above the breakout price.

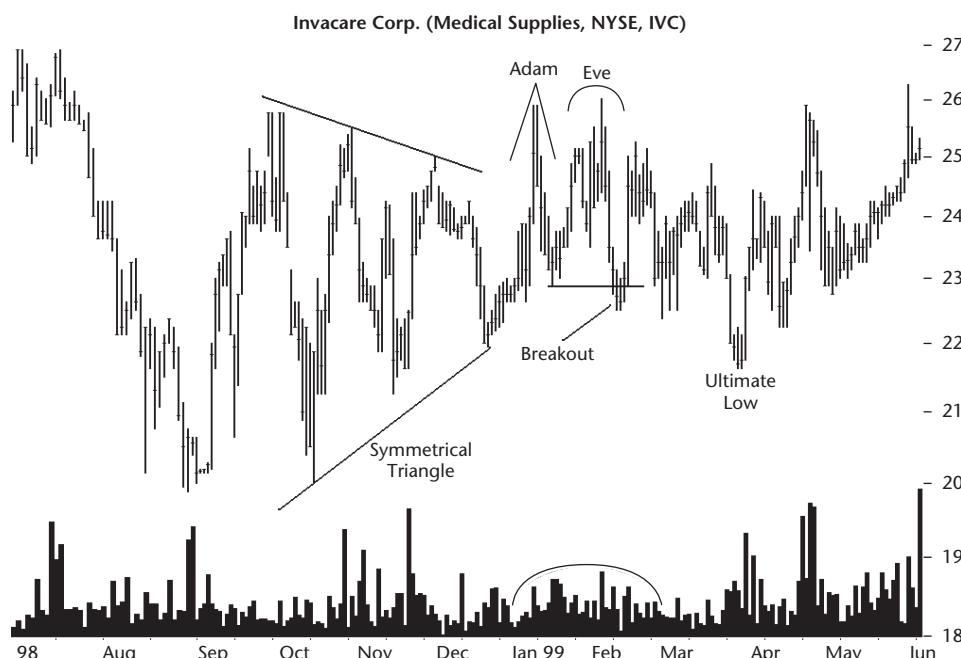


Figure 18.5 An Adam & Eve double top needs something to reverse. Here, the meager rise leading to the chart pattern coupled with underlying support stopped the downward move at the ultimate low.

Would you have taken this trade? Hopefully, the answer is no because of the 20 support zone. Why risk a trade to capture 13%—and you only get that prize if you trade it perfectly?

Statistics

Table 18.2 shows general statistics for AEDTs.

Number of formations. I found 340 AEDTs in the stocks I looked at. The 102 patterns in a bear market put in a good showing because the bear market is much shorter than the bull market. I looked at 500 stocks from 1991 to 1996 and another 500 from 1999 to 2003, bracketing the bear market.

Reversal or continuation. Since we are dealing with double tops and downward breakouts, all patterns act as reversals.

Average decline. The average decline is higher in a bear market than in a bull market, as you would expect. That suggests trading this pattern in a bear market for the best results.

Declines over 45%. Twice as many patterns in a bear market decline over 45% than do those in a bull market. That is not saying much because just 8% of the patterns make such a large drop.

Change after trend ends. Once price reaches the ultimate low, it rebounds strongly in a bull market (soaring 50%) and 43% in a bear market. This is an average, so your results may vary.

Busted pattern performance. Busted patterns are rare and probably not worth searching for. Why? Because you may think a double top is about to bust but it turns into a pullback and prices resume the downward trend after the pull-back completes.

Table 18.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	238	102
Reversal (R), continuation (C)	238 R	102 R
Average decline	18%	22%
Declines over 45%	9 or 4%	8 or 8%
Change after trend ends	50%	43%
Busted pattern performance	43% ^a	35% ^a
Standard & Poor's 500 change	0%	-13%
Days to ultimate low	49	45

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 18.3
Failure Rates

Maximum Price Decline (%)	Bull Market	Bear Market
5 (breakeven)	33 or 14%	7 or 7%
10	78 or 33%	25 or 25%
15	123 or 52%	39 or 38%
20	151 or 63%	53 or 52%
25	180 or 76%	65 or 64%
30	199 or 84%	80 or 78%
35	214 or 90%	85 or 83%
50	232 or 97%	96 or 94%
75	238 or 100%	102 or 100%
Over 75	238 or 100%	102 or 100%

Standard & Poor's 500 change. The index was flat in a bull market and down 13% in a bear market. By comparing the S&P change to the average decline, you can see the effect of market influence.

Days to ultimate low. It takes about 7 weeks from the breakout to reach the ultimate low, on average. A bear market gets there quicker and falls farther, so the decline is steeper. This finding reinforces the belief that you should trade double tops in a bear market, not a bull market.

Table 18.3 lists failure rates for AEDTs in bull and bear markets. The table shows that double tops perform best in a bear market because the failure rates are lower. For example, in a bear market, 7% of the patterns I looked at failed to drop at least 5%. A total of 25% failed to decline at least 10%. That is a significant increase, but patterns in a *bull* market failed 33% of the time. Half the patterns in a bear market will fail to drop more than 20%.

Keep that in mind if you decide to short a stock. The decline may be less than you think. If you own a stock, check Table 18.3 for the likely decline. Is it worth holding onto the stock and weathering the decline? Only you can answer that.

Table 18.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. How long does it take price to drop from the right top high to the confirmation point? Answer: just over a month. This is an average, but it suggests that if you are late spotting a double top, you still have time before it becomes valid (when price closes below the confirmation price).

Yearly position. In both market conditions (bull/bear), the breakout appears most often in the middle of the yearly price range.

Yearly position, performance. The center of the yearly price range also provides the best performance in a bull market. The bear market numbers are

Table 18.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	41 days	34 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L20%, C58%, H22%	L31%, C44%, H25%
Percentage decline for each 12-month lookback period	L18%, C19%, H16%	L22%, C22%, H23% ^a
Pullbacks	59%	58%
Average time to pullback ends	10 days	11 days
Average decline for patterns with pullback	18%	18%
Average decline for patterns without pullback	19%	28%
Performance with breakout day gap	-18%	-31% ^a
Performance without breakout day gap	-18%	-20%
Average gap size	\$0.74	\$2.41

Note: Minus sign means decline.

^aFewer than 30 samples.

suspect because of the low sample count, and the performance difference is insignificant anyway.

Pullbacks. Pullbacks occur over half the time. When they do occur, prices take 10 or 11 days to complete the journey back to the breakout price. However, a pullback hurts performance. For example, in a bear market, those AEDTs with pullbacks declined 18%. Without pullbacks, prices declined 28%. This finding suggests you should search for underlying support before investing. If you are considering shorting the stock and the decline stops in the support zone, would that warrant the risk of a trade?

Gaps. Gaps help performance only in a bear market, but the sample size (19) is small, meaning that the results may change. Look at the gap size. In a bear market, it is triple the size of the bull market number. This finding suggests you short a stock in a bear market before the breakout by placing an order slightly above the confirmation price. Hopefully, that will get you in before the breakout without unduly increasing your risk.

Table 18.5 shows a frequency distribution of time to the ultimate low. A third of the AEDTs in a bear market will hit bottom in the first week.

Bear markets show a definite upward move around 14 to 21 days after the breakout (meaning the decline falters). Bull markets show a slight uptick a month after the breakout (day 28 and again at day 56). The numbers suggest that you should watch your trade carefully as the 1-month holding period nears. If prices begin climbing then cover your short immediately.

Table 18.5
Frequency Distribution of Days to Ultimate Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	33%	8%	10%	9%	9%	5%	3%	2%	1%	2%	19%
Bull market	29%	9%	6%	7%	5%	5%	3%	6%	3%	4%	23%

Table 18.6 shows various size-related statistics for AEDTs.

Height. Tall patterns perform better than short ones after the breakout. The widest difference comes from patterns in a bear market: tall patterns drop 25% and short ones fall 20%.

Width. Width shows mixed performance results. In a bull market, narrow patterns perform better than wide ones. In a bear market, the results reverse, with wide patterns doing better after the breakout. I used the median length to separate narrow from wide patterns.

Average formation length. The time between the highest high in each top averages slightly less than 2 months.

Table 18.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	-20%	-25%
Short pattern performance	-16%	-20%
Median height as a percentage of breakout price	17.02%	21.94%
Narrow pattern performance	-19%	-21%
Wide pattern performance	-17%	-25%
Median length	39 days	42 days
Average formation length	56 days	54 days
Short and narrow performance	-16%	-19%
Short and wide performance	-16%	-23% ^a
Tall and wide performance	-18%	-25%
Tall and narrow performance	-25%	-25% ^a
Small top price variation performance	-18%	-21%
Large top price variation performance	-18%	-24%
Median price variation	1.11%	1.67%
Lower left top performance	-17%	-19%
Lower right top performance	-18%	-25%

Note: Minus sign means decline.

^aFewer than 30 samples.

Height and width combinations. I looked at the combination of height and width to find the best performance. Patterns that are both tall and narrow perform better than most other combinations.

Top price variation. Does the price difference between the highest high in each top indicate better performance after the breakout? Yes, but only in a bear market. AEDTs with a large price variation did better than those with a small one.

Lower top performance. This is one of the more surprising findings: AEDTs with a right top below the left show superior performance. In a bear market, AEDTs with lower right tops decline 25% after the breakout compared to 19% for lower left tops. Thus, select AEDTs with a lower right top.

Table 18.7 shows volume statistics for AEDTs.

Volume trend. For AEDTs, the volume trend is meaningless. In a bear market, the samples are too few to make definite conclusions. In a bull market, there is no performance difference.

Volume shapes. Double tops with U-shaped volume perform better than the other two shapes. The worst performance comes from AEDTs with a random volume trend, but the sample size is small.

Breakout volume. Most traders will tell you that heavy breakout volume results in a more reliable pattern (whatever that means). AEDTs show mixed results, depending on the market condition. In a bull market, patterns with breakout volume below the 30-day average outperformed their heavy breakout volume counterparts. In a bear market, the heavy breakout volume patterns do better, but the sample size is small.

Table 18.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	-18%	-23% ^a
Falling volume trend performance	-18%	-22%
U-shaped volume pattern performance	-19%	-23%
Dome-shaped volume pattern performance	-17%	-22%
Neither U-shaped nor dome-shaped volume pattern performance	-15% ^a	-18% ^a
Heavy breakout volume performance	-17%	-23%
Light breakout volume performance	-21%	-18% ^a
Heavy left top volume performance	-19%	-22%
Heavy right top volume performance	-16%	-24% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Top volume. Again, the results are mixed. Double tops with volume heavier on the left top in a bull market perform better than do those with heavy right top volume. In a bear market, the results flip, but the sample size is small.

Trading Tactics

Table 18.8 shows trading tactics for AEDTs. They are the same as for other double tops. Double tops serve two purposes. One is to get you out of a long holding. The second is to trigger a short sale. Before we get into a sample trade, let us review the basics.

Measure rule. Use the measure rule to help predict how far price will decline. Find half the formation height and project it downward from the breakout price. The result is the target, the minimum price move expected. Unfortunately, this method only works 69% of the time, far short of the 80% I like to see.

For example, look at Figure 18.6. The highest high in the Adam & Eve double top is at 28.72, on the Eve top, and the lowest low (the confirmation line) is at 25.78. Divide the difference (2.94) by 2 (1.47) and subtract the result from the lowest low to get a target of 24.31. Price reached the target at point A.

Wait for breakout. As a trading signal, you will want to wait for the breakout before exiting a long position or opening a short one. The breakout price is the lowest low between the two tops, shown in Figure 18.6 as the confirmation line. If you sell your shares before confirmation, there is a 65% chance that price will not decline to the confirmation line but will instead move higher. Once price closes below the breakout price, sell your shares or consider shorting the stock.

Table 18.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the pattern height from the lowest low between the two tops to the highest peak then divide by 2. Subtract the result from the lowest low. The result is the target price. Price hits the target 69% of the time.
Wait for breakout	Wait for a close below the confirmation point before selling—usually.
Trade with market trend	For best results, short in a bear market.
Check others in the industry	To avoid 5% failures, check other stocks in the same industry and go short if they are showing topping patterns or if their stock is falling.

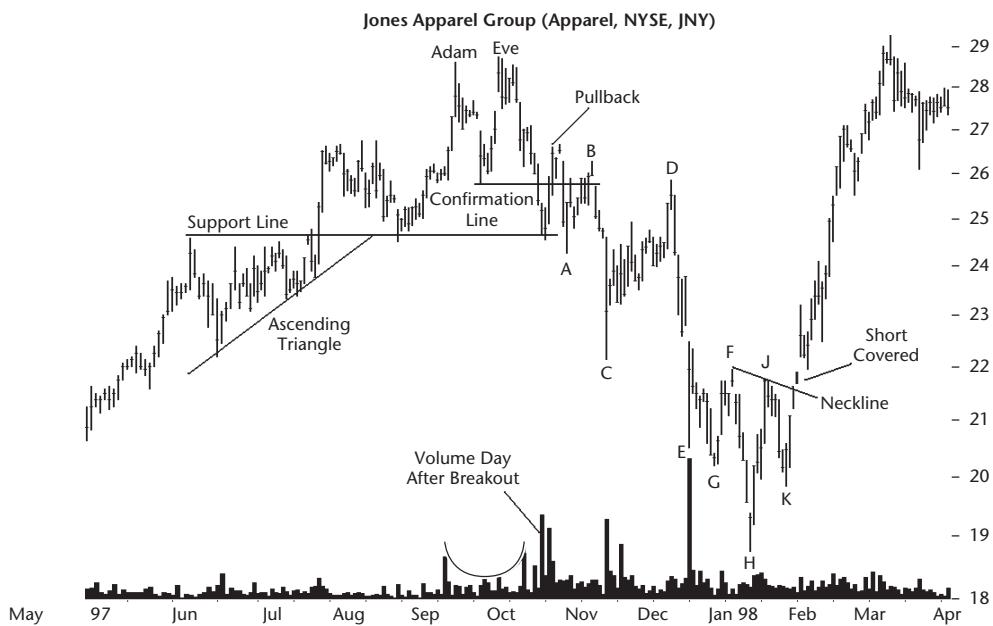


Figure 18.6 To use the measure rule, compute the height of the double top then divide by 2 and subtract the result from the confirmation line. Price hits the target at point A in this example.

Trade with market trend. If you own shares in a bull market, look for underlying support and see if you can tolerate a loss to that level. With the bull market powering price upward, the downturn may be short. In a bear market, that is the time to short a stock showing an AEDT. Trade with the market trend for the best results.

Check others in the industry. If other stocks in the same industry are showing weakness (moving down or forming bearish chart patterns), then consider selling your stock. You might even want to sell before the breakout, but in a bull market, that may leave profits on the table when the price recovers before confirmation. In a bear market, it is a safer bet. Remember, you never go broke taking a profit.

Sample Trade

Figure 18.6 shows a sample trade in an Adam & Eve double top and serves as a tutorial for using progressive stops to protect profits.

The Adam & Eve top is a good example of an AEDT. The Adam top is narrow and composed of a one-day price spike. Eve is wider and more rounded looking. When price closes below the confirmation line, the twin peaks become a valid AEDT. How will this pattern perform?

The first thing to notice is that this double top occurs in a bull market. That suggests a smaller decline than if it were in a bear market. The S&P 500 index had just reached a new high on October 7, but was easing lower on the breakout day (October 16). The five stocks in the apparel industry that I follow all made highs in October 1997 and by the confirmation date, were trending downward. That was a good indication that the stock should be sold.

The Eve peak sets the yearly high, and Table 18.4 says that the worst performance comes from breakouts within a third of the yearly high. That observation sounds a note of caution.

The support line set up by the ascending triangle in June suggested that price would have a difficult time piercing it. Thus, expect a pullback. Table 18.4 shows that a pullback hurts performance, but the difference in a bull market is small.

Is the pattern a tall one? The height as a percentage of the breakout price measures 11.4%. This is less than the median, so the pattern is short, suggesting substantial underperformance.

Is the pattern narrow? Yes. The pattern is 16 days wide (as measured between the highest high in each top). Narrow patterns marginally outperform in a bull market.

Which peak is lower? The Adam peak is lower than Eve, and Table 18.6 says that in a bull market, AEDTs with lower left tops underperform, but the difference is not significant.

What about volume? Figure 18.6 shows U-shaped volume between the peaks and that is good news according to Table 18.7. Patterns with U-shaped volume perform significantly better than those with other shapes. Is the breakout volume heavy or light? I highlight the breakout volume the day *after* the breakout, just so you can find the breakout day easily. The preceding day, the breakout day, volume is light. Table 18.7 loves light breakout volume as patterns with that condition perform substantially better. Finally, which top has heavier volume? According to my spreadsheet, it is the right top. I used 5 days of volume surrounding each peak and compared the two. Table 18.7 says to expect underperformance with the heavy right top volume scenario.

Thus, this analysis showed mixed technical evidence. If you owned the stock, you could sell on the breakout. Waiting for a pullback before selling is dangerous because they occur just 59% of the time, but with underlying support by the ascending triangle, a pullback was a good bet.

If you wanted to short this stock, the timing is the same. Short at the breakout and add to your position when price turns downward after the pullback completes, or just short when price drops again after the pullback.

Say you short the stock at the breakout. Price pulls back then drops to point A. Since that is a new minor low, place the stop a dime or so above the top of the pullback, the closest minor high. Price climbs to B then drops to C. C is lower than A, so it is a new minor low. Lower the stop to B. Price climbs to D then drops to E. Move the stop to D. Since the drop from D to E is far, you

might want to compute the volatility of the stock and move the stop to no closer than 1.5 times the volatility.

What do I mean? Since the breakout happens on October 16, take the difference between the high and low over the prior month and find the average difference. In this case, it is 0.71. That represents the average price swing each day from mid-September to mid-October. Multiply it by 1.5, giving a result of 1.07. Place the stop no closer (lower) than 1.07 above the current close. With the close at E being 21.94, place the stop no closer than 23. If you used this approach on the B to C leg, the stop would have taken you out at 24.14, but that is 6% below the breakout price.

Keep moving the stop lower as prices drop. A new low on the way to H means the stop is lowered to F. That is 17% away from the low at H (measured from high to low), but with this volatile stock, I would tighten the stop using the volatility rule and because the price is going nearly vertical.

How do you sell? If the stock rises, the stop will take you out automatically. Another way is to see the head-and-shoulders bottom forming at GHK. A neckline drawn from F to J and extended to the right marks the breakout price. Cover your short at the open the day after price closes above the neckline.

If you traded this stock, you would have made about 16%. That is close to the average decline of 18% in a bull market (see Table 18.2), but the average uses the ultimate low at H for a 27% drop. Notice that the climb from C (day 27) to D occurs 1 month after the breakout, just as the discussion of Table 18.5 warned.

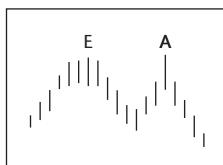
For Best Performance

The following list includes tips and observations to help you select better performing AEDTs. Refer to the associated table for more information.

- Correctly identify the pattern using the guidelines—Table 18.1.
- This pattern performs best in a bear market or when the general market is declining—Table 18.2.
- Patterns in a bear market have lower failure rates—Table 18.3.
- Avoid pullbacks because performance suffers. Look for nearby underlying support before trading—Table 18.4.
- In bull markets, watch for a rise a month after the breakout. In a bear market, look for a rise around days 14 to 21—Table 18.5.
- Tall patterns perform better than short ones—Table 18.6.
- Select patterns that are both tall and narrow—Table 18.6.
- Patterns with a lower right top outperform—Table 18.6.
- Select patterns with U-shaped volume—Table 18.7.

19

Double Tops, Eve & Adam



RESULTS SNAPSHOT

Downward Breakouts

	Bull Market	Bear Market
Appearance	Twin peaks at about the same price. The left peak looks wide and rounded but the right peak is narrow and sharp, an inverted V shape.	
Reversal or continuation	Short-term bearish reversal	
	Bull Market	Bear Market
Performance rank	13 out of 21	7 out of 21
Break-even failure rate	13%	5%
Average decline	15%	24%
Change after trend ends	54%	51%
Volume trend	Upward	Upward
Pullbacks	64%	54%
Percentage meeting price target	72%	79%
Surprising findings	Pullbacks hurt performance. Tall or narrow patterns perform better than short or wide ones. Tops with a large price variation do well. Patterns with light breakout volume do best.	
See also	Double Tops, Adam & Adam; Double Tops, Adam & Eve; Double Tops, Eve & Eve	

The Results Snapshot shows the important statistics for the Eve & Adam double top (EADT). This bearish chart pattern shows a bear market failure rate almost a third of what it is in a bull market. The average decline is weak to average, though, in bull/bear markets, respectively. After price reaches the ultimate low, it goes on to make a large gain—over 50%. Busted patterns do even better, but they are rare.

The volume trend is unusual because most trend upward, unlike other double tops. Pullbacks in a bull market occur more frequently than they do in a bear market, as you might expect (because a rising market will tend to push prices back up).

Surprises are the usual lot, and I explain them in the Statistics section.

Tour

Figure 19.1 shows what an EADT looks like. The Eve top is wide and rounded looking compared to the Adam top, which appears narrow, like an inverted V, usually with a long, one- or two-day price spike. The pattern forms after an upward price trend and does not become a true double top until price closes below the confirmation line. Only then should a trader take a position in the stock or sell an existing holding.

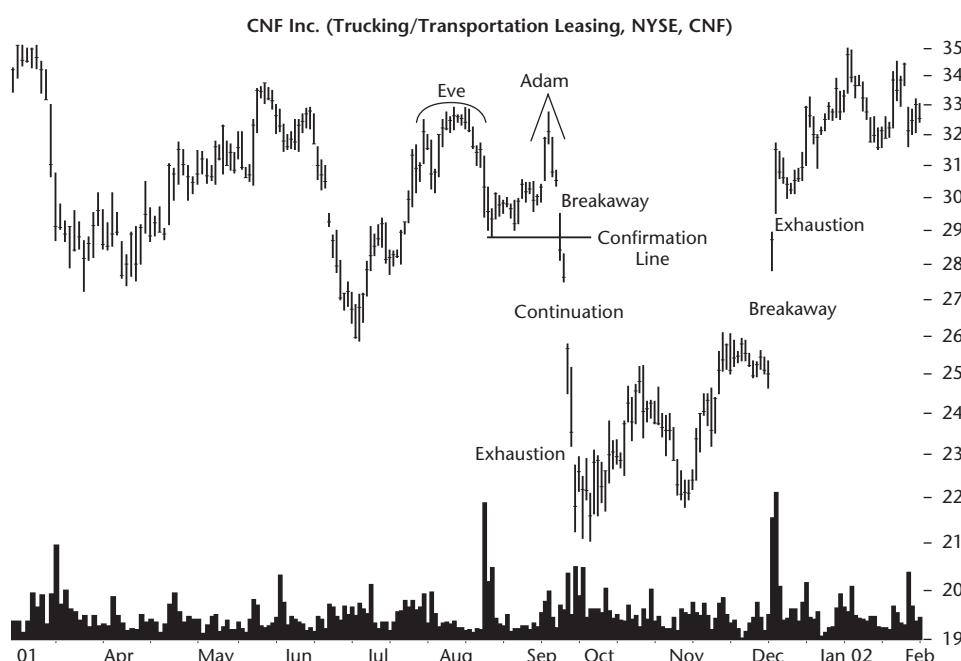


Figure 19.1 This is a good example of an Eve & Adam double top, except for the volume trend. Volume is usually heavier on the right top than the left. Gaps set off an island chart pattern in September and December.

This figure also shows good examples of gaps: breakaway, continuation, and exhaustion. The first trio appears just before confirmation and leads to the ultimate low in September. Another pair begins in December with a breakaway gap overlapping the earlier continuation gap and creating a price island from September to December. An exhaustion gap signals the end of the fast, uphill run. After that, prices still climb, but at a more sedate pace.

Identification Guidelines

How do you identify an EADT from any ordinary twin-peak formation? Look at Figure 19.2 and Table 19.1 for the answer. The figure shows two Eve & Adam double tops with contrasting volume shapes. The February chart pattern has U-shaped volume and the May pattern shows a dome shape. Patterns with dome-shaped volume perform better.

Upward price trend. To create a top, price must be trending upward, even if the trend is short. For reference, the average price trend leading to the double top in the stocks I looked at was 84 days, or about 3 months long.

Top shape. Look for two peaks; the left one, Eve, should be wider and more rounded looking than the right one, Adam. Adam is narrow, usually an inverted V shape, and many times with a one- or two-day price spike. Above all else, the two tops should look different from each other.

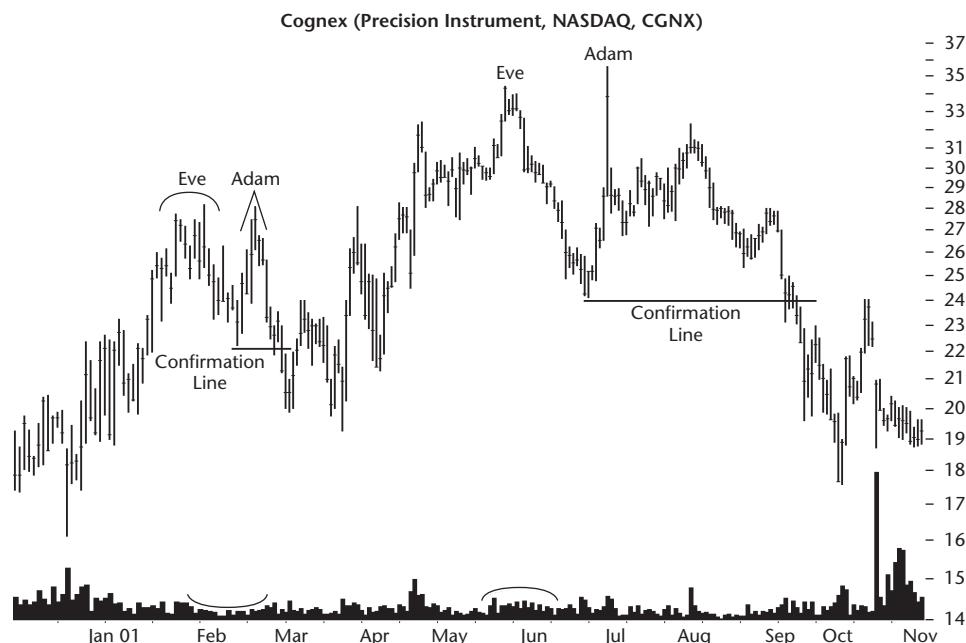


Figure 19.2 Two twin peaks confirm as Eve & Adam double tops when price closes below the confirmation line. The February pattern has U-shaped volume and the other has dome shaped.

Table 19.1
Identification Characteristics

Characteristic	Discussion
Upward price trend	Price trends upward leading to the pattern and should not form a third peak, nor should the twin peaks be part of the same consolidation pattern. Look for two minor highs.
Top shape	The left peak is an Eve top, wider and more rounded than Adam, perhaps composed of several short spikes. The right peak, Adam, usually has a narrow price spike, inverted V shape. The two peaks should look different.
Valley between tops	Patterns with a large dip (a tall pattern) perform better than small (short) ones. The valley depth usually measures in the 10% to 25% range, but allow exceptions.
Top high prices	Top to top price variation is small, usually 0% to 3%, but allow larger differences. A large price variation (above the median in Table 19.6) suggests better performance.
Top separation	Tops should be at least a few weeks apart with most falling in the 2–6 week range. Tops wider than 5 weeks tend to underperform, but exceptions occur.
Price decline after right top	Price must close below the confirmation point without first rising above the right top high.
Top volume	Usually higher on the right top.
Confirmation price	Confirmation is a close below the lowest low between the two tops. It confirms the twin top as a valid double top. Also called the breakout price.

In Figure 19.2, the differences between the two peaks in each case are clear. To help gauge the width, look farther down the top, toward the base of the formation. Adam peaks usually remain narrow but Eve broadens out. For example, the May EADT at a price of 29 shows Adam as a one-day price spike, but Eve looks wider.

Valley between tops. Look for a price dip between the two tops of 10% to 25% or more. The dip separates the two tops so they are not part of the same consolidation region.

Top high prices. The highest high on the left peak should be 0% to 3% or so away from the highest high on the right peak. The tops of the two peaks should look close in price to each other, but allow exceptions. When the peaks differ in price, they tend to perform better after the breakout.

Top separation. The average top separation was 51 to 55 days, measured from the highest high in each peak. What you want to see is two minor highs, well separated and defined. Most will fall 2 to 6 weeks apart, but do not worry if they are a year apart. It still may be a valid EADT. However, performance suffers for widely spaced peaks. The thinking here is that it is easier for traders to see twin peaks a month apart than a year apart. If traders miss the pattern, that means less buying or selling enthusiasm—less pressure driving prices.

Price decline after right top. Price must close below the confirmation price without first forming a third peak. If a third peak appears before confirmation, then trade the pattern as a triple top.

Top volume. Of the four types of Adam and Eve double tops, this is the only one to have volume heavier on the right top. However, do not be surprised if the left shows higher volume. That happens 48% of the time.

Confirmation price. Price must close below the lowest low between the two patterns before the EADT becomes a valid double top. Without confirmation, you just have squiggles on the screen.

Focus on Failures

Why do EADTs fail? There are many reasons including a general market that reverses trend. Since a rising tide lifts all boats, your stock may climb with the bull market or falter in the decline. If other stocks in the industry are doing well, that activity will tend to support the stock. Fundamental factors, such as good retail sales, an exceptionally good quarter, insider buying, a stock buyback program, or positive comments made by management will all help boost the stock price. However, the one key element I find time after time is an impenetrable support zone below the chart pattern. Figure 19.3 shows an example.



Figure 19.3 Support at point B and the many peaks in October through November stop the price decline at A. The support zone also caused congestion at C.

A support zone forms as far back as January 1997 at about 12.50. I show the top of the zone as the support line. Peaks in October through November and congestion at B add to the massive support. The support was enough to turn back price at A and stall it at C. As I write this in February 2004, the stock is still below the support zone, but I would expect price to stall there on the way up, too.

Statistics

Table 19.2 shows general statistics for EADTs.

Number of formations. I found 317 patterns in 500 stocks using about 9 years of daily price data, ending in early 2004.

Reversal or continuation. Since we are looking at topping patterns, ones with downward breakouts, all EADTs act as reversals of the upward price trend, by definition.

Average decline. The average decline varies as shown in the table. The results suggest that you should only trade EADTs in a bear market for the best performance. If you own stock in a bull market and it forms an EADT, then you have a choice to make. Price will go down—take that as a given. Look for underlying support. Is the industry or market trending down too? If so, then it may be wise to sell when the pattern confirms. Otherwise, consider hanging on and riding out the average 15% decline, especially if there is nearby support and the market or industry are wildly bullish.

Declines over 45%. Bearish patterns do not perform well in this category, so the results are in line with expectations.

Change after trend ends. Once price drops to the ultimate low, it soars by over 50%, on average. Thus, if you can tell when the price has hit bottom, then buy and hold on.

Table 19.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	212	105
Reversal (R), continuation (C)	212 R	105 R
Average decline	15%	24%
Declines over 45%	9 or 4%	6 or 6%
Change after trend ends	54%	51%
Busted pattern performance	63% ^a	55% ^a
Standard & Poor's 500 change	1%	-16%
Days to ultimate low	43	40

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 19.3
Failure Rates

Maximum Price Decline (%)	Bull Market	Bear Market
5 (breakeven)	27 or 13%	5 or 5%
10	75 or 35%	21 or 20%
15	118 or 56%	34 or 32%
20	145 or 68%	48 or 46%
25	171 or 81%	60 or 57%
30	190 or 90%	70 or 67%
35	197 or 93%	84 or 80%
50	206 or 97%	102 or 97%
75	211 or 100%	105 or 100%
Over 75	212 or 100%	105 or 100%

Busted pattern performance. An easier way to trade this pattern is to look for busted patterns. Price declines less than 5% after the breakout and then soars. Buy into the stock when the new trend is established.

Standard & Poor's 500 change. In a bull market, the S&P index climbed 1% helping retard the decline after the EADT, but the 16% drop in a bear market helped prices drop.

Days to ultimate low. It takes just over a month for price to reach the ultimate low, but look at this: It takes less time in a bear market to reach the ultimate low and yet prices fall farther. Thus, the decline must be steeper. To maximize the number of trades each year, short this chart pattern in a bear market.

Table 19.3 shows failure rates for EADTs. The bear market rates are substantially lower than the bull market ones, suggesting you stick to short sales to trade this pattern.

How do you read this table? Let me give you a few examples. Suppose your total cost of trading is 5%. How many patterns will fail to drop at least that far? Answer: 13% in a bull market and 5% in a bear market. If you want to make an additional 10% above your cost (a total of 15%), how many EADTs will fail to drop 15%? Answer: over half (56%) in a bull market and 32% in a bear market.

In the Trading Tactics section, we look at the measure rule. Suppose it projects a decline from 10 to 8, or 20%. How many EADTs will decline at least that far in a bull market? Answer: 32% (68% will fail to decline at least 20%). Thus, the target of 8 seems like a dream, so make the target more conservative by picking a target closer to 10.

Table 19.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. It takes time—about a month—for prices to drop from the right peak high to the confirmation price.

Table 19.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	34 days	29 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L26%, C46%, H28%	L33%, C48%, H19%
Percentage decline for each 12-month lookback period	L16%, C15%, H16%	L22%, C22%, H32% ^a
Pullbacks	64%	54%
Average time to pullback ends	11 days	10 days
Average decline for patterns with pullback	14%	23%
Average decline for patterns without pullback	17%	25%
Performance with breakout day gap	-15% ^a	-20% ^a
Performance without breakout day gap	-16%	-25%
Average gap size	\$0.54	\$0.98

Note: Minus sign means decline.

^aFewer than 30 samples.

Yearly position. The pattern breaks out most often in the center of the yearly trading range.

Yearly position, performance. What position in the yearly trading range performs best? The answer is unclear because the numbers are too close or have low sample counts. However, many bearish patterns do best when the breakout is near the yearly low.

Pullbacks. EADTs in a bull market have one of the higher pullback rates. Almost two out of three pull back and take between 10 and 11 days for prices to return to the confirmation line (the breakout). When prices do pull back, the upward retrace breaks downward momentum and performance suffers.

Before trading, look for underlying support. If a support zone is nearby, then bet on a pullback. If you anticipate a pullback and are a swing trader, short the stock on the breakout and close out your position in a few days or a week when prices bottom before the pullback begins. Enter another trade when the pullback completes and prices start dropping again.

Gaps. Gaps hurt performance, as Table 19.4 shows. The largest difference is in a bear market, but that may be due to the low sample count (24 samples).

Table 19.5 shows a frequency distribution of time to the ultimate low. In the first week, over a quarter of the EADTs will reach the ultimate low. Notice that 35 days after the breakout, 10% of the patterns in a bear market hit bottom. After that, price rises, at least for 2 weeks, on average (this information is not gleamed from Table 19.5, but from my spreadsheet). Thus, be ready to close out your short position about a month into the trade. The same trend appears

Table 19.5
Frequency Distribution of Days to Ultimate Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	26%	13%	6%	7%	10%	9%	4%	5%	2%	1%	18%
Bull market	29%	9%	10%	8%	5%	4%	4%	5%	5%	2%	18%

in a bull market, but the rise seems to last for about 3 weeks. In all cases, the sample size is small.

Table 19.6 shows size-related statistics.

Height. Tall patterns perform better than short ones. I measured height from the higher of the two peaks to the confirmation price then divided by the confirmation (breakout) price. Results higher than the median, shown in the table, mean that the pattern was tall.

Width. In a similar manner, I looked at pattern width, measuring between the highest high in each peak and comparing that to the median length. Narrow patterns outperformed wide ones.

Table 19.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	-19%	-25%
Short pattern performance	-13%	-23%
Median height as a percentage of breakout price	15.82%	20.24%
Narrow pattern performance	-16%	-26%
Wide pattern performance	-15%	-22%
Median length	40 days	35 days
Average formation length	55 days	51 days
Short and narrow performance	-15%	-24%
Short and wide performance	-9%	-20% ^a
Tall and wide performance	-19%	-29% ^a
Tall and narrow performance	-19%	-29% ^a
Small top price variation performance	-15%	-22%
Large top price variation performance	-16%	-26%
Median price variation	1.18%	1.43%
Lower left top performance	-15%	-26%
Lower right top performance	-16%	-23%

Note: Minus sign means decline.

^aFewer than 30 samples.

Average formation length. The average time between the highest high in each peak is just over 50 days or slightly less than 2 months apart.

Height and width combinations. Ignoring the low sample count, tall patterns perform best, regardless of whether or not they are paired to wide or narrow patterns. The worst performance comes from EADTs that are both short and wide.

Top price variation. I looked at the price variation between the highest high in each peak. When the difference was larger than the median, EADTs tended to outperform after the breakout. The widest difference occurs in a bear market.

Lower top performance. Do patterns with a lower right peak perform better? Yes and no. In a bull market, lower right tops work best, but in a bear market, patterns with a lower left top do better.

Table 19.7 shows volume-related statistics.

Volume trend. Patterns in a bull market with a falling volume trend performed better. In a bear market, the results flipped. Patterns with a rising volume trend declined an average of 26% versus 22%.

Volume shapes. Does the volume shape give a clue to performance? In a bull market, those patterns with dome-shaped volume performed best, but the results were close to the nonperformers. In a bear market, the sample count was smaller, but a random shape did best (followed by the dome shape).

Breakout volume. EADTs are one of the exceptions to the belief that heavy breakout volume results in better performance. I found that EADTs with breakout volume below the 30-day average perform better than do those with

Table 19.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	-15%	-26%
Falling volume trend performance	-16%	-22%
U-shaped volume pattern performance	-15%	-23%
Dome-shaped volume pattern performance	-16%	-25%
Neither U-shaped nor dome-shaped volume pattern performance	-15%	-27% ^a
Heavy breakout volume performance	-15%	-23%
Light breakout volume performance	-16%	-28% ^a
Heavy left top volume performance	-17%	-22%
Heavy right top volume performance	-14%	-26%

Note: Minus sign means decline.

^aFewer than 30 samples.

heavy breakout volume, but the low sample count and close numbers suggests additional samples may change the results.

Top volume. Patterns with volume heavier on the left top in a bear market performed well; but in a bear market, volume heavier on the right top led to better performance.

Trading Tactics

Table 19.8 shows trading tactics for EADTs. They are the same as for other double tops.

Measure rule. Use the measure rule to help predict a target price to which your stock may descend after the breakout. For example, in Figure 19.4, the Adam peak is the higher of the two, and it tops out at 34.90. The confirmation price is the lowest low between the two peaks, and it is at 31.70. The difference is 3.20. Cut that in half (1.60) and subtract it from the confirmation price. The result, 30.10, is the target. Price reaches that level a day after the breakout.

Although this works in the stock shown in Figure 19.4, it only works between 72% and 79% of the time. That is shy of the 80% I like to see.

Wait for breakout. Most of the time, you will want to wait for price to confirm the pattern by closing below the confirmation price. If you do not wait, there is a 65% chance that price will climb instead of confirming. There are exceptions. If you see an especially dire situation developing in a stock you own, then protect your profits and sell early. If the market or industry is dropping and there was a quick rise leading to the pattern, then consider selling early (a quick decline often follows a quick rise). Other technical indicators may suggest a sale, so check those, too.

Table 19.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the pattern height from the lowest low between the two tops to the highest peak then divide in half. Subtract the result from the lowest low. The result is the target price. Price hits the target 72% of the time in a bull market, 79% in a bear market.
Wait for breakout	Wait for a close below the confirmation point before selling—usually.
Trade with market trend	For best results, short in a bear market.
Check others in the industry	To avoid 5% failures, check other stocks in the same industry and trade if they are showing topping patterns or if their stock price is falling.



Figure 19.4 This Eve & Adam pattern had a quick rise followed by a quick decline. The decline stalled near the trend-line support.

Trade with market trend. Since this pattern performs best in a bear market, avoid shorting a stock in a raging bull market unless the situation warrants. In a bull market, it may make sense to hold onto a stock and weather the downturn. Look for underlying support that would stop a decline. Usually, when the bull market is pushing price upward, it is a mistake to sell when seeing a double top. Chances are that in a few weeks or months the stock's price will be higher. Swing traders, however, will want to sell as soon as the pattern confirms.

Check others in the industry. Look at how the general market and other stocks in the same industry are behaving. That activity is often key to how your stock will perform. If others in the industry are falling or showing signs of topping out, chances are, your stock will decline too. If so, it is best to sell a long holding or consider shorting the stock.

Sample Trade

Figure 19.4 shows a sample trade for EADTs. As you look at the figure, it may strike you that the double top takes place in a downward price trend, beginning

with the high on the left side of the chart and sliding to the low at the right. It reminds me of a measured move down chart pattern.

Does the pattern obey the guidelines listed in Table 19.1? The brief rise shown by line A satisfies the upward price trend leading to the EADT. The twin-peaked pattern shows a rounded Eve top paired with a pointed Adam top. The valley between the tops measures 9%—a bit on the short side. The two tops have prices that vary by just 1% and are 25 days apart. Price drops to the confirmation line without making a third peak. Volume is heavier on the left peak than the right, which is unusual. Thus, the pattern meets the identification guidelines: it is an Eve & Adam double top.

What is so special about this EADT? Two things. First, the U-shaped volume pattern is exquisite. Second, notice the quick rise leading to the pattern, highlighted by line A. Price rockets upward for a week then moves sideways in the pattern. Nearly as steep is the decline out of the pattern, shown by line B. If I were trading this double top, I would place an order to sell shares at the confirmation line. That way, I would get in at a good price as the pattern confirmed.

I would expect a pullback because of the July congestion. Worst case, I would put a stop at the Adam top, just in case things got out of control. For the downward target, the measure rule predicts a decline to 30.10, as I discussed in the “Measure rule” in Table 19.8. Since I know that a quick decline often follows a quick rise, I would set the target lower, at the beginning of the quick rise, or about 27.78. Since that is below the round number 28, I would probably target 28.07 or some oddball number. Everyone is going to try buying at 28, and I want to get my price before the others drive it back up.

In fact, you can see that price stalled at 28 for 3 days before resuming the tumble (point D in Figure 19.4). If, by some magic, I stayed in the trade, I would expect a further decline to the down-sloping trend line. A rising volume trend as price declined is a good sign of a strong down move.

The quick rise after C suggests you need to be on top of this stock, following it closely to time the exit if you do not use a stop order. Delays are costly.

For Best Performance

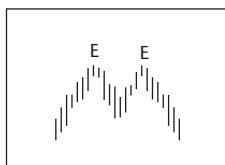
The following list includes tips and observations to help you select better performing EADTs. Refer to the associated table for more information.

- Correctly identify the pattern using the guidelines—Table 19.1.
- Trade this pattern in a bear market—Table 19.2.
- If you can tell when price has reached the ultimate low or if the patterns busts, buy—Table 19.2.

- Failure rates are lowest in bear markets—Table 19.3.
- Pullbacks hurt performance, so select patterns without underlying support—Table 19.4.
- Expect price to rise about a month after the breakout in a bear market—Table 19.5.
- Select tall or narrow patterns—Table 19.6.
- Pick patterns with a large price variation between peaks—Table 19.6.
- Patterns with below average breakout volume outperform—Table 19.7.

20

Double Tops, Eve & Eve



RESULTS SNAPSHOT

Downward Breakouts

Appearance	Two peaks at about the same price level. Both peaks have wide, rounded looking tops.	
Reversal or continuation	Short-term bearish reversal	
	Bull Market	Bear Market
Performance rank	2 out of 21	9 out of 21
Break-even failure rate	11%	2%
Average decline	18%	25%
Change after trend ends	63%	45%
Volume trend	Downward	Downward
Pullbacks	59%	51%
Percentage meeting price target	73%	76%
Surprising findings	The rise in a bull market after reaching the ultimate low is unusually large. Pullbacks hurt performance. Tall or narrow patterns perform better than short or wide ones. Tops with volume heavier on the left peak do well.	
See also	Double Tops, Adam & Adam; Double Tops, Adam & Eve; Double Tops, Eve & Adam.	

When traders say, “double top,” they are referring to an Eve & Eve double top (EEDT). This is *the* classic pattern for a reason: It performs well. In a bear market, the break-even failure rate is just 2% and prices decline 25% after the breakout, on average. That is superb performance. Even in a bull market, the pattern shows its stuff. After reaching the ultimate low, price soars 63%, on average. Busted patterns in a bull market do even better: a 70% rise.

The pattern has many surprises we have heard before plus a new one. When volume is heavier on the left top than on the right, the pattern tends to outperform. I discuss these surprises in the Statistics section.

Tour

Figure 20.1 shows what an Eve & Eve double top looks like. It reminds me of a person with large eyebrows, the confirmation line is the nose, and the mouth is the U-shaped volume trend. The double top forms after an upward price trend and has a rounding turn between the two highs. The rounding turn is not a prerequisite, and I have not studied the performance of double top shapes in that regard.

The twin peaks look similar in that both have wide bases and a gentle price turn at each top. Contrast the two Eve peaks with the two Adam peaks in March

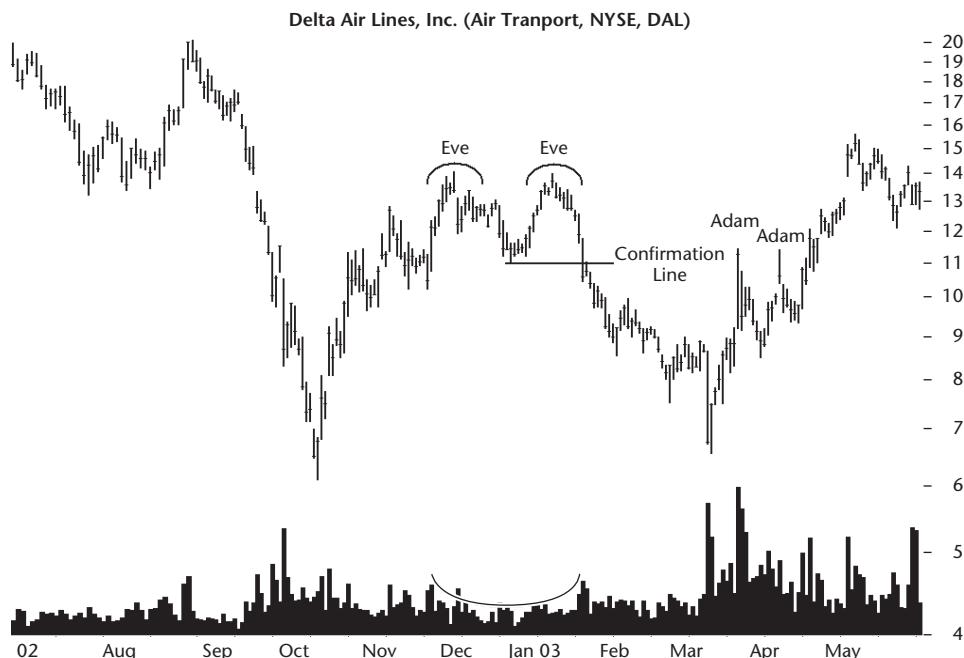


Figure 20.1 The twin-peak Eve tops become a valid Eve & Eve double top when price closes below the confirmation line.

and April. Those peaks are narrow and a one-day price spike soars above the surrounding landscape. The price spikes in many Eve tops are shorter and more numerous (although not in Figure 20.1).

The most common volume is U-shaped, ahead of dome and random shapes, respectively. Volume is usually heavier on the left top than on the right, which the figure shows surrounding the highest high in each top.

What should a trader look for to select reliable (low failure rate and high price performance) EEDTs?

Identification Guidelines

Table 20.1 shows the identification guidelines for EEDTs. Refer to Figure 20.2 for an example.

Upward price trend. Since we are dealing with tops, price must trend upward leading to the pattern and leave trending downward. Although that description may sound simple, a study of twin-peak patterns found that 65% climbed away from the pattern instead of dropping down to the confirmation line. The upward price trend leading to the double top need not be long. Figure 20.2 shows a 48-day uptrend from the late June low.

Table 20.1
Identification Characteristics

Characteristic	Discussion
Upward price trend	Prices trend upward leading to the pattern and should not form a third peak, nor should the twin peaks be part of the same consolidation pattern. Look for two distinct minor highs.
Top shape	Both Eve peaks should appear rounded and wide, not made of a single, narrow price spike. The two peaks should look the same.
Valley between tops	Patterns with a large dip (a tall pattern) perform better than small (short) ones. The valley depth usually measures in the 10% to 20% range, but allow exceptions.
Top high prices	Top to top price variation is small, usually 0% to 3%, but allow higher differences.
Top separation	Tops should be at least a few weeks apart with most falling in the 2–6 week range.
Price decline after right top	Price must close below the confirmation point without first rising above the right top high.
Top volume	Usually heavier on the left top than the right.
Confirmation price	Confirmation is a close below the lowest low between the two tops. It confirms the twin top as a valid double top. The confirmation price is also the breakout price.

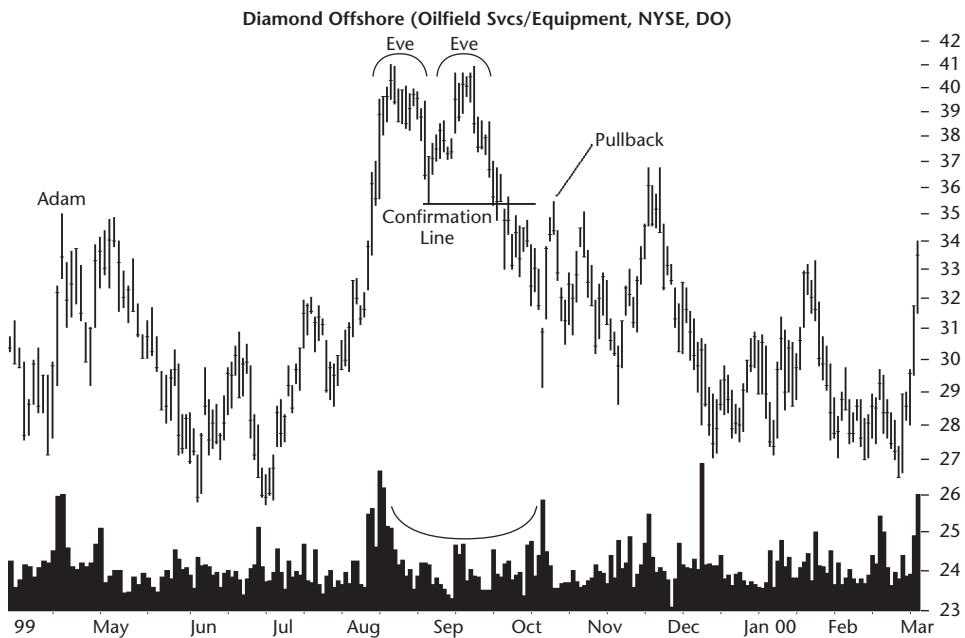


Figure 20.2 Two peaks, similar in appearance, stand atop the price trend and act as a reversal.

Top shape. The two tops should look similar to each other. That is, the wide and rounded September peak should not look like the narrow price spike of the Adam peak in April (see Figure 20.2). Although the August Eve peak has a twin spike, the top is wide enough to mirror the September peak, so I classify it as an Eve top, too. Adam tops look more like the peak that “Pullback” points to in the figure. The width does not widen much as you scan down the pattern. Both Eve peaks are considerably wider than the Adam “Pullback” one.

Valley between tops. The valley between the tops varies in depth but is usually 10% to 20% deep. Figure 20.2 shows a dip of 14%, measured from the highest high to the lowest low in the pattern. This characteristic is just a guideline, not a rule, so allow variations.

Top high prices. The peaks should top out near the same high price. The usual price difference between the two peaks is in the 0% to 3% range. The peaks should not look like stair steps, but like two tops hitting overhead resistance near the same price. Figure 20.2 shows tops with almost no (0.29%) price difference.

Top separation. Look for two well-separated peaks, not twin bumps that are part of the same congestion pattern. The EEDT in Figure 20.2, for example, shows peaks 33 days apart. Most peaks will be 2 to 6 weeks apart, but allow exceptions.

Price decline after right top. Price must close below the confirmation line to validate the EEDT pattern. As I mentioned before, 65% of the twin-peak

patterns I looked at did not dip to the confirmation line but instead climbed above the right peak. Those twin-peak patterns were not EEDTs.

If an EEDT forms a third peak before price closes below the confirmation line, then consider it a triple top and trade it as such.

Top volume. Volume varies but is usually heavier on the left top than on the right about 60% of the time, regardless of market conditions (bull/bear). However, do not exclude a potential EEDT just because volume is heavier on the right peak than the left.

Confirmation price. Price must close below the lowest low between the two peaks. When that occurs, it confirms the pattern as a true EEDT. Investing without waiting for confirmation is usually an amateur's game, one that ends in a loss or missed profits.

Figure 20.3 shows another example of an EEDT. The right peak looks like two Adam tops, but the peak separation is not wide enough. One could argue that this pattern is really a triple top, but I disagree.

Running through the identification guidelines, we see that prices trend upward to the first top. The two tops look rounded and the valley between them separates the peaks into two individual highs. The price variation between the two tops is considered large for statistical purposes, measuring 3%, but the tops look like they stop near the same price. Volume is heavier on the right top than the left (using 2 days before to 2 days after the highest high in each peak),

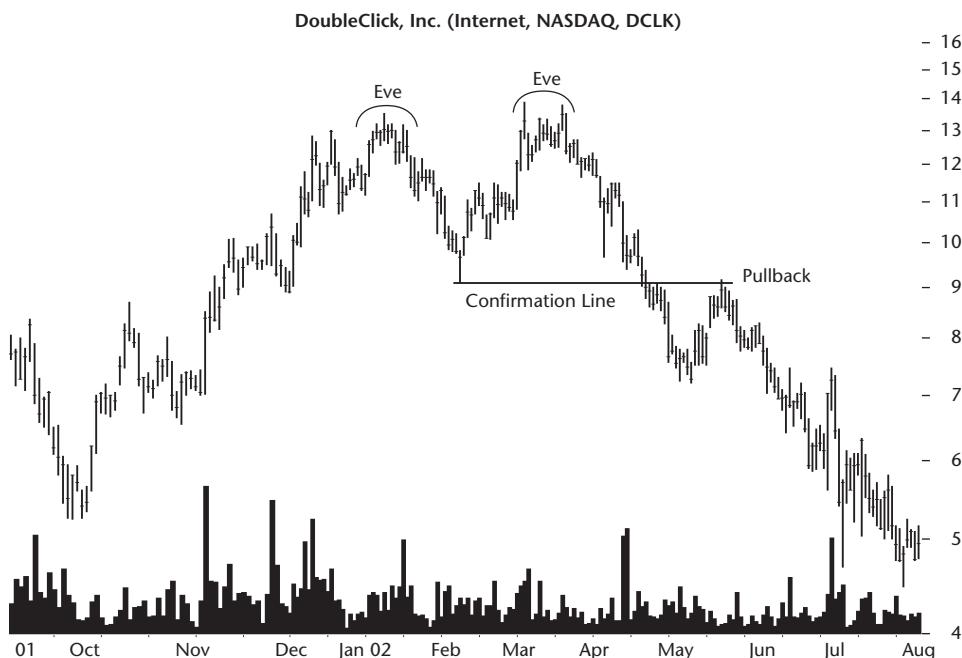


Figure 20.3 An Eve & Eve double top reverses the upward price trend. The pattern confirms as a valid double top when price closes below the confirmation line.

which is unusual. Price confirms the pattern in April when it closes below the confirmation line. Within a month, prices pull back to the confirmation line before resuming the downtrend.

Focus on Failures

What does an Eve & Eve double top failure look like and can anything be learned from it? Consider Figure 20.4, a common failure of a double top. The twin peaks satisfy all the identification guidelines outlined in Table 20.1 with two exceptions. First, the volume pattern is suspect. Volume on formation of the left top is high but lasts only 1 day. The right top volume is dense, high, and remains high for about a week as the top forms. However, in defense of the formation, the volume pattern often varies from the norm and offers little clue to the eventual outcome.

The second guideline violated is the more important of the two: Prices fail to close below the confirmation point. When considering all twin peak chart patterns in this study, two out of three (65%) perform as the one shown in Figure 20.4. In other words, prices move higher.

Expect top reversals (such as the double top) to perform poorly in a bull market, whereas bottom reversals should excel. That appears to be the case with many of the formations covered in this book.

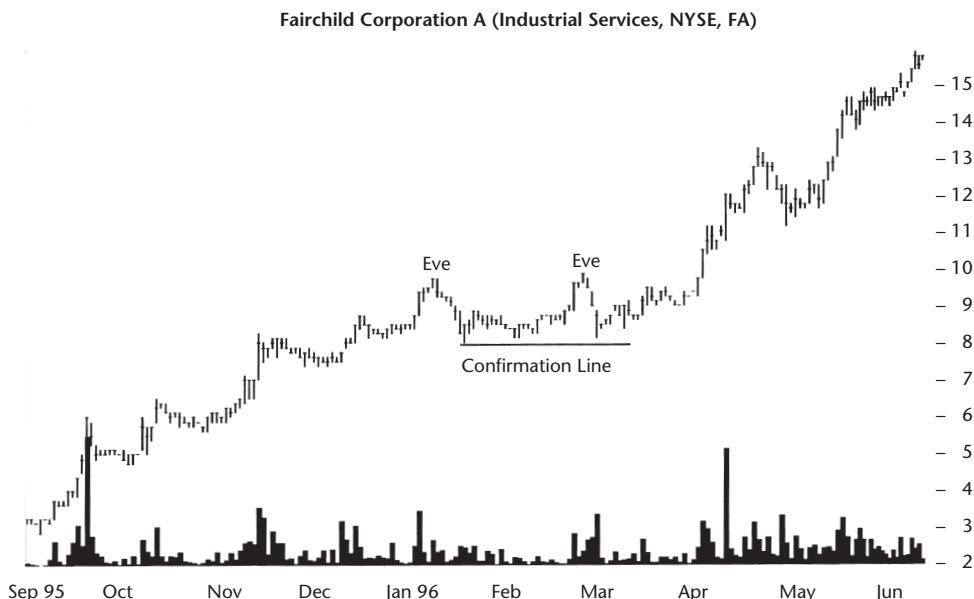


Figure 20.4 A common double top failure. Prices decline after the second peak then rise before reaching the confirmation point.

Statistics

Table 20.2 shows general statistics for EEDTs.

Number of formations. I uncovered 460 EEDTs in the stocks I looked at. That is a high enough sample count to make most of the statistics rock solid.

Reversal or continuation. By definition, double tops act as reversals of the prevailing price trend: Prices rise into the pattern and leave heading back down.

Average decline. In a bear market, the pattern shines as prices decline 25%, on average. That is considerably better than the 18% decline in a bull market and it lends credence to “a rising tide lifts all boats” theory, or, in this case, a receding tide lowers all boats. Shorting an EEDT in a bull market is like swimming against the current. Chances are you will tire before reaching your destination (that is, the decline may not be as large as hoped).

Declines over 45%. EEDTs have few large declines but that is common for bearish chart patterns. Double tops in a bear market do well, with 9% declining more than 45% after the breakout.

Change after trend ends. Once price reaches the ultimate low, it climbs a massive 63% in a bull market. Even if you wait for the 20% trend change (from down to up), that still leaves a mouth-watering rise of 43 percentage points.

Busted pattern performance. Busted patterns do even better with a 70% average rise from 23 busted double tops in a bull market. The 29% rise in a bear market stems from just three samples, so ignore it.

Standard & Poor’s 500 change. The index declined in both markets, which is unusual, although the bear market decline of 15% far outweighs the 2% decline in a bull market. The large bear market decline helped the EEDT average decline.

Days to ultimate low. It took about 6 weeks for prices to reach the ultimate low after the breakout. Since a bear market gets there quicker and the

Table 20.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	264	196
Reversal (R), continuation (C)	264 R	196 R
Average decline	18%	25%
Declines over 45%	6 or 2%	18 or 9%
Change after trend ends	63%	45%
Busted pattern performance	70% ^a	29% ^a
Standard & Poor’s 500 change	-2%	-15%
Days to ultimate low	44	39

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 20.3
Failure Rates

Maximum Price Decline (%)	Bull Market	Bear Market
5 (breakeven)	28 or 11%	3 or 2%
10	81 or 31%	22 or 11%
15	131 or 50%	49 or 25%
20	171 or 67%	87 or 44%
25	203 or 77%	115 or 59%
30	221 or 84%	135 or 69%
35	233 or 88%	153 or 78%
50	258 or 98%	183 or 93%
75	264 or 100%	195 or 99%
Over 75	264 or 100%	196 or 100%

decline is larger, it must mean that the descent is steeper. This finding further emphasizes that you should trade this pattern in a bear market.

Table 20.3 shows failure rates for EEDTs. The bear market numbers are quite good, beginning at 2% and rising to 11% and then 25%. That is half the bull market rate: 50% of the double tops in a bull market will fail to decline at least 15%. The bear market reaches the 50% failure rate around declines of 22%, meaning that half the patterns in a bear market will drop less than 22%.

Table 20.3 shows two lessons: Short in a bear market, and do not even think of shorting with a buy-and-hold mentality. Look for a short, sharp decline and then cover.

Table 20.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. It takes just over a month for prices to drop to the confirmation price (the lowest low between the twin peaks). I measure that from the date of the highest high at the right peak to the date price closes below the confirmation line.

Yearly position. Most of the patterns have breakouts in the middle of the yearly price range.

Yearly position, performance. A bull market shows the only meaningful result here. Patterns with breakouts within a third of the yearly high perform best after the breakout.

Pullbacks. A pullback occurs more often in a bull market than in a bear market, as one might guess (because bull markets tend to support prices and bear markets tend to suck them down the drain). It takes 11 days for prices to return to the breakout price during a pullback. When a pullback happens, performance suffers, as Table 20.4 shows. Look for underlying support and avoid EEDTs with support close enough to cause a pullback.

Table 20.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	35 days	34 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L31%, C42%, H27%	L33%, C46%, H21%
Percentage decline for each 12-month lookback period	L17%, C17%, H19%	L25%, C25%, H25%
Pullbacks	62%	51%
Average time to pullback ends	11 days	11 days
Average decline for patterns with pullback	16%	22%
Average decline for patterns without pullback	22%	28%
Performance with breakout day gap	-18%	-22%
Performance without breakout day gap	-18%	-26%
Average gap size	\$0.55	\$1.85

Note: Minus sign means decline.

Gaps. Gaps are only significant in a bear market because that is where they hurt performance. Notice that the gap size is about triple the bull market size. Try placing an order to short the stock just above the breakout price. That way, you may get in before confirmation but without substantially increasing your risk.

Table 20.5 shows the time to the ultimate low. Many of the chart patterns (25% or 29%) reach the ultimate low in the first week after the breakout. In a bear market, 57% reach bottom in less than a month.

Notice that prices bottom more often around day 35 (bear market) and day 28 (bull market). If you short an EEDT, look for a trend change about a month after the breakout. You may need to close out your position then.

Table 20.6 shows size-related statistics.

Height. EEDTs continue a trend for many chart patterns, with tall patterns performing better than short ones. Measure the height from the highest high to the confirmation line and divide by the breakout price (the value of the confirmation line). If the result is higher than the median shown in Table 20.6,

Table 20.5
Frequency Distribution of Days to Ultimate Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	25%	13%	13%	6%	8%	6%	4%	3%	2%	1%	20%
Bull market	29%	9%	5%	10%	3%	6%	6%	2%	3%	2%	24%

Table 20.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	-19%	-26%
Short pattern performance	-17%	-24%
Median height as a percentage of breakout price	17.13%	22.54%
Narrow pattern performance	-20%	-26%
Wide pattern performance	-16%	-23%
Median length	43 days	42 days
Average formation length	62 days	57 days
Short and narrow performance	-19%	-26%
Short and wide performance	-12%	-19% ^a
Tall and wide performance	-18%	-25%
Tall and narrow performance	-20%	-28%
Small top price variation performance	-26%	-25%
Large top price variation performance	-20%	-25%
Median price variation	1.12%	1.75%
Lower left top performance	-19%	-24%
Lower right top performance	-17%	-25%

Note: Minus sign means decline.

^aFewer than 30 samples.

then you have a tall pattern. Trade only tall patterns for the best average performance.

Width. Narrow patterns perform better than wide ones. The performance is widest in a bull market. Narrow patterns decline 20% after the breakout and wide patterns decline 16%, on average. I used the median length between the highest high in each top as the separator between narrow and wide.

Average formation length. From peak to peak (the highest high in each), the separation averaged about 2 months.

Height and width combinations. I looked at the height and width combinations and found that the best performing patterns were tall and narrow in both markets. The worst performance came from EEDTs that were short and wide. Avoid those by comparing the EEDT you plan to trade with the median length shown in Table 20.6.

Top price variation. Patterns in bull markets show better performance when the price variation between the highest high in each top is small (less than the 1.12% median). Small variations result in declines of 26%, but large variations have postbreakout declines averaging 20%. The results in a bear market show no difference.

Table 20.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	-18%	-24%
Falling volume trend performance	-18%	-26%
U-shaped volume pattern performance	-19%	-26%
Dome-shaped volume pattern performance	-16%	-25%
Neither U-shaped nor dome-shaped volume pattern performance	-19%	-22% ^a
Heavy breakout volume performance	-18%	-25%
Light breakout volume performance	-17%	-25%
Heavy left top volume performance	-18%	-26%
Heavy right top volume performance	-17%	-24%

Note: Minus sign means decline.

^aFewer than 30 samples.

Lower top performance. In a bull market, patterns with a lower left top perform better, but in a bear market, patterns with a lower right top perform slightly better.

Table 20.7 shows volume-related statistics.

Volume trend. A falling volume trend is important to EEDT patterns in a bear market but makes no statistical difference in a bull market.

Volume shapes. Patterns with U-shaped volume win the performance derby. In a bear market, the decline averages 26% when the pattern has U-shaped volume but just 22% when the volume shape is neither U shaped nor domed.

Breakout volume. The performance difference is slight. I looked at the breakout day volume compared to the prior 30 days and found that EEDTs with heavy breakout volume in a bull market resulted in marginally better performance after the breakout. Bear markets showed no performance difference.

Top volume. In both bull and bear markets, EEDTs with heavy volume during formation of the left peak perform better postbreakout than do those with volume heavier on the right top.

Trading Tactics

Table 20.8 shows trading tactics for EEDTs. They are the same as for other double tops.

Measure rule. Use the measure rule to help gauge how far price will decline after the breakout. Take the difference between the highest high in the pattern (the higher of the two peaks) and the valley low (between the two

Table 20.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the pattern height from the lowest low between the two tops to the highest peak then divide in half. Subtract the result from the lowest low. The result is the target price. Prices hit the target 73% of the time in a bull market, 76% in a bear market.
Wait for breakout	Wait for a close below the confirmation point before selling—usually.
Trade with market trend	For best results, short in a bear market.
Check others in the industry	To avoid 5% failures, check other stocks in the same industry and trade if they are showing topping patterns or if their stock is falling.
Wait for trend change	If you can determine when the stock bottoms or if the pattern busts, then buy.

peaks). Divide the result by 2 and subtract it from the confirmation price to get the target.

For example, the EEDT shown in Figure 20.5 has the highest high on the left peak at 32.45. The lowest low is at the breakout, 28. Divide the difference, 4.45, in half (2.23) and subtract the result from the lowest low to find the target of 25.77. Price reaches that target at point B. This method works 73% of the time in a bull market and 76% of the time in a bear market.

Wait for breakout. Since 65% of the twin-peak patterns never confirm (price trends higher), you should wait for the breakout before selling a long holding or shorting a stock. The exception to this rule is if you have a compelling situation that demands a quick exit. For example, if price just completed the turn at the second top and the company issues an earnings warning, sending the stock tumbling, then consider selling immediately. Chances are that the next quarter will also be bad (but this depends on why earnings are soft, some problems are easily fixed while others are not).

Trade with market trend. Eve & Eve double tops are bearish chart patterns, so it makes sense to trade them in a bear market, not a bull market. If you own stock in a bull market and it double tops, can you weather the downturn? If the general market is soft when your stock double tops, maybe it is time to sell.

Check others in the industry. If other stocks in the same industry are tumbling along with yours, then sell your stock or consider shorting. This advice is especially useful if the general market is tumbling, too.

Wait for trend change. With such a large price rise after the ultimate low (or from a busted pattern), consider buying then. The Sample Trade gives an example.

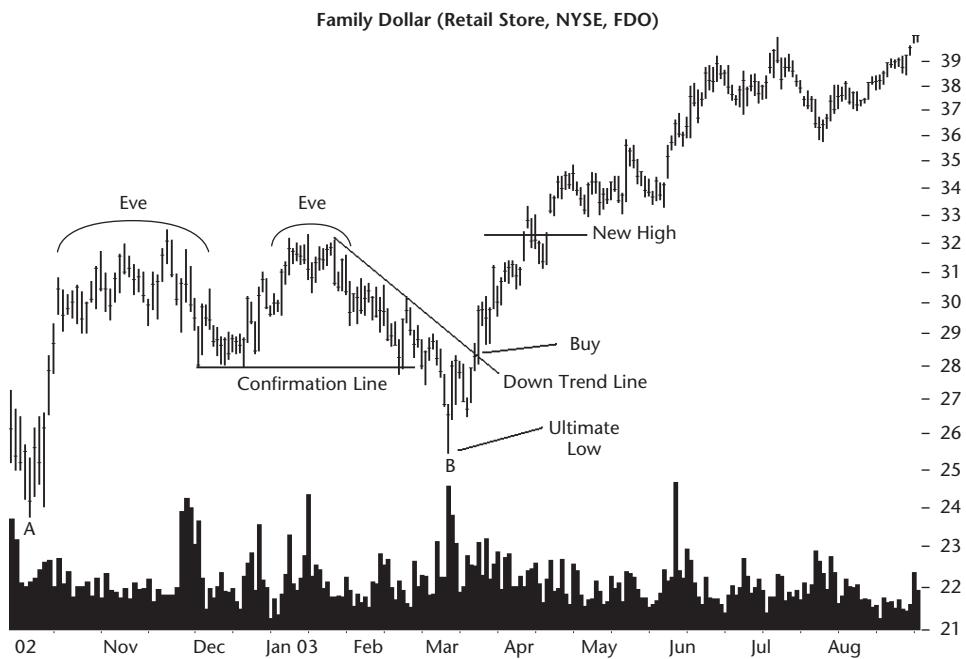


Figure 20.5 Consider buying the stock once the decline completes. Sometimes, the resulting rise can be quite profitable.

Sample Trade

Figure 20.5 shows the sample trade for EEDTs. In a bull market, after a double top, price soars 63% after reaching the ultimate low. Even if you are late calling the turn, you can still make a profit. Consider the Eve & Eve double top shown in the figure.

Before you trade this stock, ask yourself if it is an EEDT. Running through the identification guidelines shown in Table 20.1, we find that the price rise leading to the pattern begins at A (far left, bottom). Both peaks look similar in that they are wide and made of several short spikes—all characteristic of Eve tops. The left peak is more pointed but wider than the right one.

The valley dips 14% and the peaks top out at about the same price. The peak-to-peak separation measures 55 days or almost 2 months. Volume is heavier on the right peak than the left. Finally, the decline to the confirmation line is a straight-line run; price does not form a third peak. In short, this is a valid EEDT when price closes below the confirmation line.

How do you trade it? For this trade, imagine that you do not own the stock nor do you want to sell it short. The S&P 500 index reached a low in October 2002 and bounced, forming a higher low in early March, right when price was bottoming at B. Other stocks in the retail store industry were bottoming at the same time or were completing a bottom retest (a higher low).

What was clear after the March bottom is that everything started moving up in tandem. The industry started recovering, as did the general market (a new bull run). A buy signal occurred when price closed above the down-sloping trend line. The high volume at B (a common bottom phenomenon) also suggested a bottom—panic selling.

Additional evidence of a major turn comes from points A and B. Point A marks a major turning point for the stock; B, being a higher low, is a retest of that low. Since it did not drop below A, it is a bullish signal.

If you missed the trend-line signal and higher low at B, then a close above the double top would be another buy signal. With a 63% average rise, you have plenty of time to buy. If you bought at the B low, you would have made 73%. Buying at the EEDT high would have made a profit of 36%. The stock topped out at 44.13, by the way, before tumbling back to 32, near the double top high.

Not all trades will work out as well as this one. A major bull run began after the October low and the industry responded with large gains. Both helped propel the stock higher. A combination of bullish factors is often what separates a winning trade from a losing one.

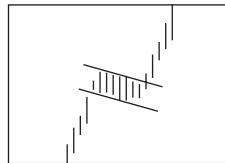
For Best Performance

The following list includes tips and observations to help you select better performing EEDTs. Refer to the associated table for more information.

- Correctly identify the pattern using the guidelines—Table 20.1.
- Select patterns in a bear market for the best average decline—Table 20.2.
- Trade an EEDT after it reaches the ultimate low in a bull market or if it busts—Table 20.2.
- Patterns in a bear market have the lowest failure rates—Table 20.3.
- Pullbacks hurt performance, so check for underlying support—Table 20.4.
- Expect prices to turn a month after the breakout—Table 20.5.
- Tall and narrow patterns perform best—Table 20.6.
- Trade patterns that show heavy volume on the left top—Table 20.7.

21

Flags



RESULTS SNAPSHOT

Upward Breakouts

	Bull Market	Bear Market
Appearance	A short sloping rectangle bounded by two parallel trend lines. Breakout is upward.	
Reversal or continuation	Short-term bullish continuation	
Performance rank	Not applicable	Not applicable
Break-even failure rate	4%	3%
Average rise	23%	17%
Change after trend ends	-22%	-25%
Volume trend	Downward	Downward
Throwbacks	43%	53%
Percentage meeting price target	64%	55%
Surprising findings	Throwbacks hurt performance. Tall and wide flags perform better than short and narrow ones. Patterns with a falling volume trend or light breakout volume perform better.	
See also	Flags, High and Tight; Pennants; Rectangle Bottoms; Rectangle Tops	

Downward Breakouts

Appearance	Same, but breakout is downward.	
Reversal or continuation	Short-term bearish continuation	
	Bull Market	Bear Market
Performance rank	Not applicable	Not applicable
Break-even failure rate	2%	0%
Average decline	16%	25%
Change after trend ends	41%	40%
Volume trend	Downward	Downward
Pullbacks	46%	44%
Percentage meeting price target	47%	54%
Surprising findings	Pullbacks hurt performance. Tall flags perform better than short ones.	
See also	Same as for upward breakouts	

Small flags appear like road kill along the price highway. You find them in a fast moving price trend, one that zips several points in a just a few days. Price pauses at the flag and then continues in the same direction as before encountering the flag. That behavior is not always the case, of course, as price reversals abound, so you should wait for the breakout to be sure.

The Results Snapshot shows the performance statistics. The break-even failure rates are small but grow considerably for larger moves; I explain that in the Statistics section. I expected flags to perform better by hitting their price targets more often. However, they fall well short of the 80% that I like to see. On average, flags act as half-staff patterns (the price/time run after the flag is about as long as the one preceding it). Flags are not ranked for performance because the statistics are not comparable to other chart pattern types.

Tour

Figure 21.1 shows a good example of a flag. It is bounded by two parallel trend lines and usually is less than 3 weeks long (often as short as a few days). You see these formations appearing in strong uptrends or downtrends (such as that shown in Figure 21.1), usually near the halfway point in the move. This particular flag goes against the grain in the sense that prices rise in a downtrend. This is the most common behavior—a retrace in a downtrend—but it is not unusual for flags to appear horizontal (as short rectangles) or slope downward (following the trend). Since flags can also appear in an uptrend, they usually slope downward, but can be horizontal or slope upward too.

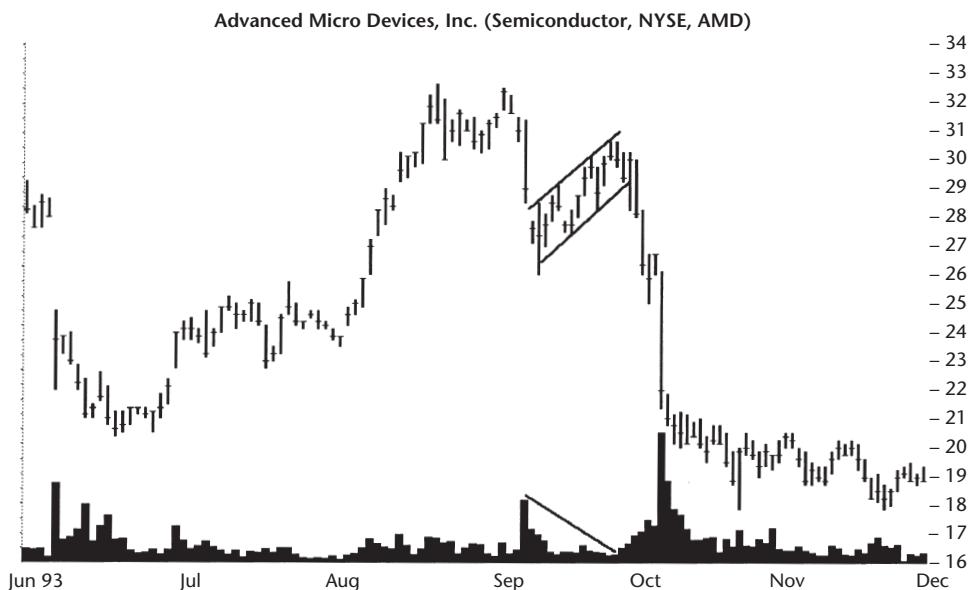


Figure 21.1 A flag bounded by two parallel trend lines usually has a receding volume pattern.

Identification Guidelines

Figure 21.2 shows two flags, the first one in a downward price trend and the second after price turns at the bottom. The quick price move starts at point A and finishes at B. In these two examples, the move after the flag is longer than the one before the flag, but that is not always the case. The move after the flag completes is a key trait of this pattern. By using the length of the trend leading to the pattern, you can gauge how far prices will move after the breakout.

Table 21.1 outlines the identification characteristics for flags.

Prices bounded by two trend lines. Two parallel trend lines bound the price action for flags as shown in Figure 21.3.

Three-week maximum. Flags are short compared with many other chart patterns in this book. In the case of Figure 21.3, the formation is 12 trading days long. Many times when a formation is very short, such as 3 or 4 days, it appears as a horizontal rectangle—a dark blob in the middle of a fast price trend. The formations usually are shorter than 3 weeks but this is an arbitrary limit.

Steep, quick price trend. Reliable flags appear during steep, quick price trends. The trends might be up or down, but prices rise or fall quickly, moving several points in just a few days to a few weeks. In Figure 21.3, for example, the downtrend begins on January 18 and the flag begins on February 1. In that short time, prices tumble from a high of 40.75 to a low of 30.13.



Figure 21.2 Two flags in different price trends help gauge the move from A to B.

In Figure 21.3, the price trend in the flag slopes upward. This behavior is typical for the prevailing price trend (that is, flags typically move against the trend). Flags usually appear near the midpoint of the move. As such, they are often termed half-staff formations.

Downward volume trend. The volume trend nearly always recedes over the course of the formation. However, this is not an inviolate rule, but usually is the case.

When selecting a flag to trade, the most important guideline is the rapid, steep price trend. If prices are meandering up or down and form a flag, then

Table 21.1
Identification Characteristics

Characteristic	Discussion
Prices bounded by two trend lines	Price action bounded by two parallel trend lines. Prices usually go against the prevailing trend: They rise in a down-trend and fall in an uptrend, but exceptions are common.
Three-week maximum	Flags are short, from a few days to 3 weeks. Formations longer than 3 weeks are better classified as symmetrical triangles, rectangles, or wedges (rising or falling).
Steep, quick price trend	These formations usually form near the midpoint of a steep, quick price trend. If you do not have a strong advance or decline leading to the chart pattern, ignore the flag.
Downward volume trend	Volume usually trends downward throughout the formation.

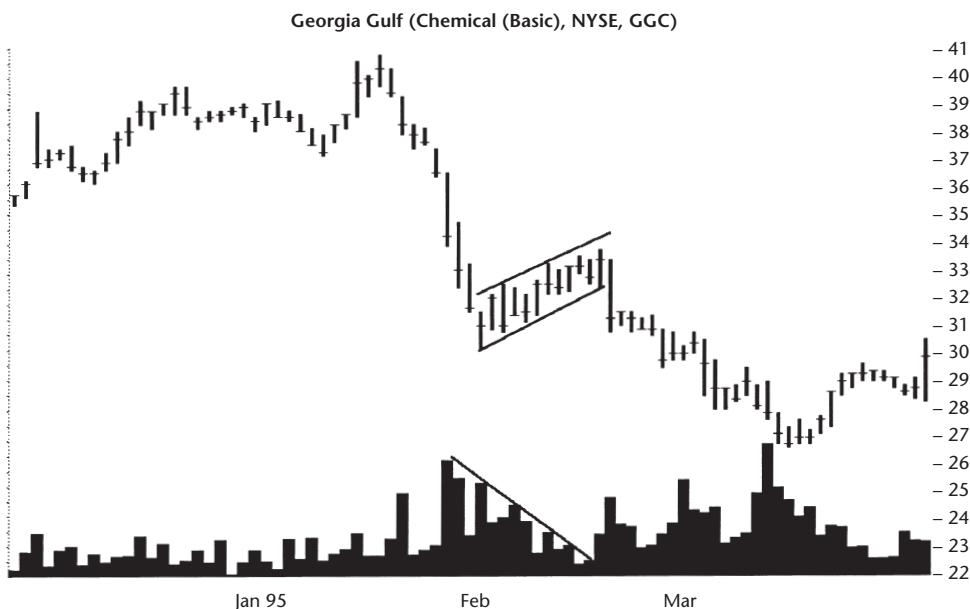


Figure 21.3 This flag appears about midway in a downtrend.

look elsewhere. The flag must be a place where the stock can take a breather from its rapid pace. Prices move against the short-term trend for several days before continuing on.

Focus on Failures

Like all formations, flags are not immune to failure. Figure 21.4 shows a flag failure. The flag, while obeying the confines of the two down-sloping trend lines, has a good volume trend. Prices should continue higher after the flag completes but do not. Why? One explanation is that the formation is just too long at 26 days. Sometimes an excessively long formation suggests an impending failure or a weak price move (after the breakout). Trade flags more than 3 weeks long carefully or pass them up entirely. In this example, the flag is not proportional to the up move preceding it, suggesting the need for caution trading it.

Figure 21.5 shows a more common failure, one of performance. The decline in the February flag begins at A, 43, and ends at B, 38.90, for a run of 4.10. The decline from C to D measures 3.06. If flags were true half-staff patterns, the two runs would be about equal. Since this is but one example, the Results Snapshot shows that more than half the flags hit their price targets.

In this example, the flag has to chew through trend-line support just beneath the flag. The dip is brief, as sometimes happens in trend-line pierces, and price recovers only to surge upward, eventually making a new high. Also, the slide from A to B could be more robust (longer), like the down move to the November flag.

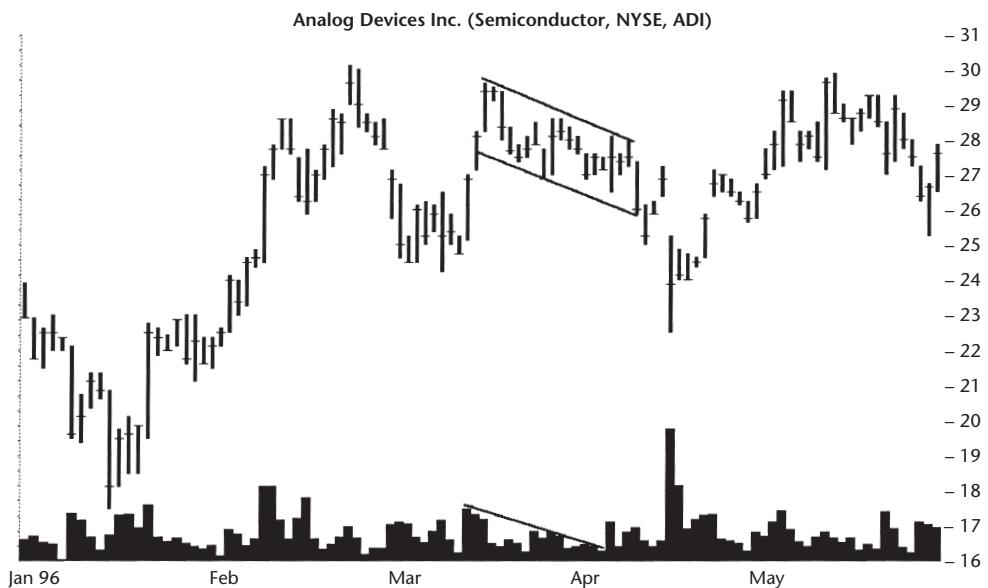


Figure 21.4 The failure of prices to continue rising is probably due to two factors: The price rise leading to the formation is short and the flag is longer than normal.

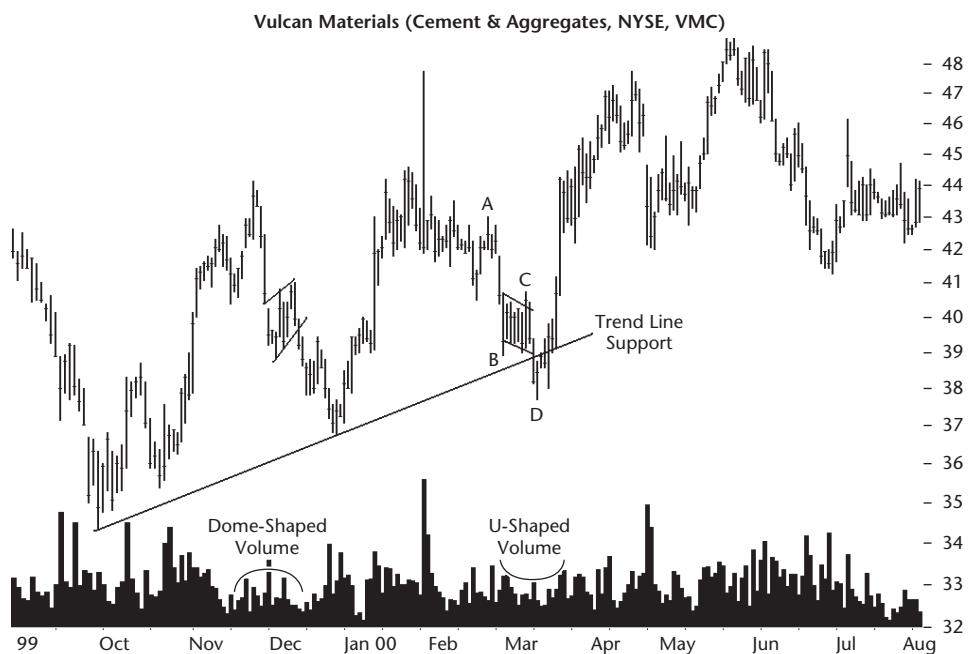


Figure 21.5 The A-B run is longer than C-D, meaning that the measure rule fails in this example. Support beneath the flag stops the decline.

Statistics

Table 21.2 shows the general statistics for flags. The performance statistics do not use the usual ultimate high or low method (waiting for a 20% trend change). Instead, I looked at the beginning and ending of the price trend (usually the nearest minor high or low mirrored across the pattern). Thus, comparing this pattern to any other pattern except pennants (which use the same method) is unfair.

Number of formations. I uncovered 523 flags without making an intensive search. Many were just a few days long and they are a colossal pain to catalog because they are so small and so plentiful.

Reversal or continuation. I only looked at continuations of the prevailing price trend, not reversals. Why? If I were going to buy a stock showing a flag in an uptrend but the flag broke out downward (a reversal), I would look elsewhere for another trade. Reversals are a good reason to wait for the breakout before trading.

Average rise or decline. Performance after a downward breakout in a bear market is quite good. The numbers suggest you trade this pattern with the prevailing market trend: Go long in bull markets (flags in an upward price trend) and short in bear markets (flags in a downward price trend).

Rises or declines over 45%. The results shown in Table 21.2 are unremarkable except that downward breakouts in a bear market have more large declines than do upward breakouts with large rises in a bull market. Usually, upward breakouts do better.

Table 21.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market Up Breakout	Bull Market Down Breakout	Bear Market Down Breakout
Number of formations	149	133	103	138
Reversal (R), continuation (C)	149 C	133 C	103 C	138 C
Average rise or decline	23%	17%	-16%	-25%
Rises or declines over 45%	13 or 9%	4 or 3%	0 or 0%	17 or 12%
Change after trend ends	-22%	-25%	41%	40%
Busted pattern performance	30% ^a	N/A	-7% ^a	-19% ^a
Standard & Poor's 500 change	3%	1%	-2%	-6%
Days to trend high or low	17	17	17	17

Note: Minus sign means decline.

^aFewer than 30 samples.

Change after trend ends. Once price reaches the trend high or low, price reverses course. The decline after the trend ends measures 22% to 25% and the rise measures 40%. The low results are due to the measurement method I used for flags—measuring from the prior minor high/low to the high/low after the flag to capture the trend move, instead of looking for a 20% trend change.

Busted pattern performance. The sample size is fewer than four so the results are suspect. Ignore them.

Standard & Poor's 500 change. Compare the general market rise or decline by the rise or decline after the flag breakout. The largest moves in flags associate with large moves in the S&P. This is evidence that the saying, “Trade with the trend,” is true.

Days to trend high or low. It takes 17 days to reach the trend high or low, on average. I double-checked the spreadsheet to make sure this observation was correct since all four values are the same.

Table 21.3 shows failure rates for flags. They start small, 4% or less, but shoot upward from 10% to 24% for moves of just 10%. What does that mean? For example, 20% of the flags in a bull market with upward breakouts climb less than 10%. In a bear market, 21% fail to climb more than 10%.

The best performing are flags in a bear market with downward breakouts. They show the lowest failure rates in all rows. Second are flags in a bull market with up breakouts. After the first row, they hold up well. The results suggest you do not want to trade against the prevailing trend (as in the case of a bear market, up breakout or bull market, down breakout).

Table 21.4 shows breakout- and postbreakout-related statistics.

Table 21.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	6 or 4%	4 or 3%	2 or 2%	0 or 0%
10	30 or 20%	28 or 21%	25 or 24%	14 or 10%
15	53 or 36%	63 or 47%	50 or 49%	35 or 25%
20	82 or 55%	86 or 65%	74 or 72%	58 or 42%
25	98 or 66%	101 or 76%	81 or 79%	77 or 56%
30	120 or 81%	113 or 85%	91 or 88%	97 or 70%
35	127 or 85%	124 or 93%	96 or 93%	106 or 77%
50	138 or 93%	131 or 98%	103 or 100%	124 or 90%
75	146 or 98%	133 or 100%	103 or 100%	138 or 100%
Over 75	149 or 100%	133 or 100%	103 or 100%	138 or 100%

Table 21.4
Breakout and Post-Breakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	2 days	2 days	2 days	2 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L17%, C22%, H62%	L28%, C45%, H27%	L45%, C39%, H15%	L54%, C29%, H17%
Percentage rise/decline for each 12-month lookback period	L17% ^a , C19%, H26%	L17%, C16%, H17%	L18%, C15%, H13% ^a	L27%, C28%, H15%
Throwbacks/pullbacks	43%	53%	46%	44%
Average time to throwback/ pullback ends	14 days	12 days	15 days	12 days
Average rise/decline for patterns with throwback/pullback	13%	14%	-13%	-19%
Average rise/decline for patterns without throwback/pullback	31%	20%	-18%	-30%
Performance with breakout gap	20% ^a	15% ^a	-13% ^a	-24% ^a
Performance without breakout gap	23%	17%	-16%	-25%
Average gap size	\$0.28	\$0.29	\$0.15	\$0.41

Note: Minus sign means decline.

^aFewer than 30 samples.

Formation end to breakout. It takes just 2 days for price to reach the breakout after the flag ends. A breakout occurs when price closes outside the flag trend line.

Yearly position. Where do flags occur most often? The answer varies across market conditions and breakout directions. For example, flags with downward breakouts have the breakout near the yearly low, but flags in bull markets with up breakouts have breakouts that appear near the yearly high.

Yearly position, performance. Flags show no consistent performance trend as far as position in the yearly price range. For example, flags in a bull market with upward breakouts do best when the breakout is within a third of the yearly high. Downward breakouts do best near the yearly low (bull market) or middle (bear market).

Throwbacks and pullbacks. Throwbacks (up breakouts) and pullbacks (down breakouts) occur less than half the time. During a throwback or pullback, it takes price between 12 and 15 days to return to the breakout price. When a throwback or pullback happens, performance suffers. For example, flags having throwbacks in a bull market rise 13% after the breakout. When a throwback does not happen, the rise averages 31%.

To avoid a throwback or pullback, look for nearby overhead resistance or underlying support. Choose flags with resistance or support farther away or nonexistent.

Gaps. I found only 86 gaps, split evenly between up and down gaps. In all cases, when a gap does not occur, performance improves, but that may be due to the low sample count for those patterns with gaps. Thus, I reserve judgment. The average gap size varies from 15 to 41 cents.

Table 21.5 shows a frequency distribution of time to the trend high or low. As you can see, most patterns reach the end of the trend quickly. In 2 weeks' time, between 56% and 58% will have ended their run. Within a month, between 80% and 88% of the flags will have reached the trend high or low.

Thus, be prepared to take profits quickly. If you enter a flag trade and expect to buy and hold, that might work just fine; just do not depend on the

Table 21.5
Frequency Distribution of Days to Trend High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	32%	24%	14%	12%	9%	2%	2%	2%	2%	0%	2%
Bull market, up breakout	26%	32%	13%	9%	7%	1%	0%	1%	1%	1%	1%
Bear market, down breakout	36%	21%	16%	12%	1%	7%	2%	2%	1%	1%	1%
Bull market, down breakout	32%	25%	12%	16%	5%	4%	4%	2%	1%	0%	0%

flag giving you a large price move. It will not. Flags are for swing traders, ones who want to ride the quick price move and sell when price turns.

Table 21.6 shows size-related statistics for flags.

Height. Across the table, tall patterns perform better than short ones. The difference is widest for flags in a bull market with upward breakouts. Tall patterns rise 35% after the breakout, but short ones climb just 13%.

Width. Wide patterns perform better than narrow ones, except for flags in a bull market with a downward breakout.

Average formation length. The average flag length ranges between 9 and 11 days.

Height and width combinations. Flags that are both tall and wide outperform the other combinations except for bear market, down breakout, which has few samples for tall and narrow.

Trend length and price move. I measured the time from the trend start to the start of the flag and from the flag end to the trend end. You can see that it takes longer to move from the flag end to the trend end than it does to reach the flag from the trend start, on average.

Table 21.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Tall pattern performance	35%	19%	-19%	-33%
Short pattern performance	13%	15%	-14%	-19%
Median height as a percentage of breakout price	6.68%	6.94%	5.38%	8.79%
Narrow pattern performance	21%	16%	-16%	-24%
Wide pattern performance	25%	17%	-15%	-27%
Median length	8 days	7 days	9 days	7 days
Average formation length	10 days	9 days	11 days	10 days
Short and narrow performance	14%	15%	-16%	-17%
Short and wide performance	12% ^a	14% ^a	-11% ^a	-21% ^a
Tall and wide performance	36%	20%	-19%	-31%
Tall and narrow performance	32%	18% ^a	-17% ^a	-35% ^a
Prior trend length	15 days	12 days	16 days	17 days
Post trend length	19 days	19 days	19 days	18 days
Price move before flag	22%	22%	-17%	-26%
Price move after flag	23%	17%	-16%	-25%

Note: Minus sign means decline.

^aFewer than 30 samples.

To gauge the price move, for upward breakouts, I used the trend start low to the flag high (price move before flag) and from the breakout day low price to the trend end high (price move after flag). For downward breakouts, I measured from the trend start high to the flag low (price move before flag) and from the breakout day high to the trend low (price move after flag).

The prior price move is longer than the post price move in all cases except bull market, up breakout. Set price targets conservatively since the price move after the breakout will usually be shorter than the price move leading to the flag.

Table 21.7 shows volume related statistics.

Volume trend. In all cases but bear markets, down breakouts, flags show better performance when volume trends lower over the course of the pattern. For example, flags with a rising volume trend in a bull market with an upward breakout climbed 20%. Those with a falling volume trend climbed 24% after the breakout.

Volume shapes. Most flags had dome-shaped volume. Up breakouts performed well with that shape (if you ignore the 34% rise from the random shape due to a low sample count). Flags with downward breakouts did better with U-shaped volume. Figure 21.5 shows examples of the volume shapes.

Table 21.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Rising volume trend performance	20%	15%	15% ^a	28%
Falling volume trend performance	24%	17%	16%	24%
U-shaped volume pattern performance	19%	16%	17%	28%
Dome-shaped volume pattern performance	23%	17%	16%	24%
Neither U-shaped nor dome-shaped volume pattern performance	34% ^a	15% ^a	16% ^a	26% ^a
Heavy breakout volume performance	19%	16%	16%	26%
Light breakout volume performance	26%	18%	16%	24%

Note: Minus sign means decline.

^aFewer than 30 samples.

Breakout volume. Flags performed better postbreakout when the breakout volume was light—below the 30-day average (the rounded-off 16% tie for bull markets, down breakouts actually gives the performance edge to light volume). Patterns in bear markets with downward breakouts did better with breakout volume heavier than the average.

Trading Tactics

Table 21.8 shows trading tactics for flags. Consult Figure 21.6 as I review the tactics listed in Table 21.8.

Measure rule. The measure rule gauges the minimum price move. First, determine where the trend begins, which is usually the minor high (for down-trends) or low (for uptrends) preceding the formation. Figure 21.6 shows the trend beginning at point A. Subtract the low at the formation start (point B at 42.75) from point A (47.50), giving a difference of 4.75. Subtract the difference from the high at the formation end (point C at 43) to give the target price of 38.25. Prices reach the target 13 trading days after they move below the formation trend line.

When trading flags, you must first be sure you have a valid formation. Use the identification guidelines outlined in Table 21.1 to ensure that you have correctly identified a flag.

Use the measure rule to gauge the amount of profit likely from the trade and weigh the amount of profit against the possible risk of failure. Look for support and resistance levels where price trends were repulsed in the past. Many times prices will pause or turn around at these junctions. These values become the risk points for a trade. You can compare the risk with the reward by computing the current price with the measure rule target and the first or second level of support or resistance.

For the stock shown in Figure 21.6, the potential reward is 4.75 (that is, 43–38.25). The first resistance level is at 44 and there is another at 45 (assuming the trade goes against you and prices rise). The risk is one or two, that is, 44–43 or 45–43. The ratio, at 4.75 to 1, suggests this formation is worth

Table 21.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Calculate the price difference between the start of the trend and the formation. Prices should move at least this amount above (for uptrends) or below (for downtrends) the end of the formation.
Wait for breakout	Once prices move outside the trend-line boundaries, place the trade.

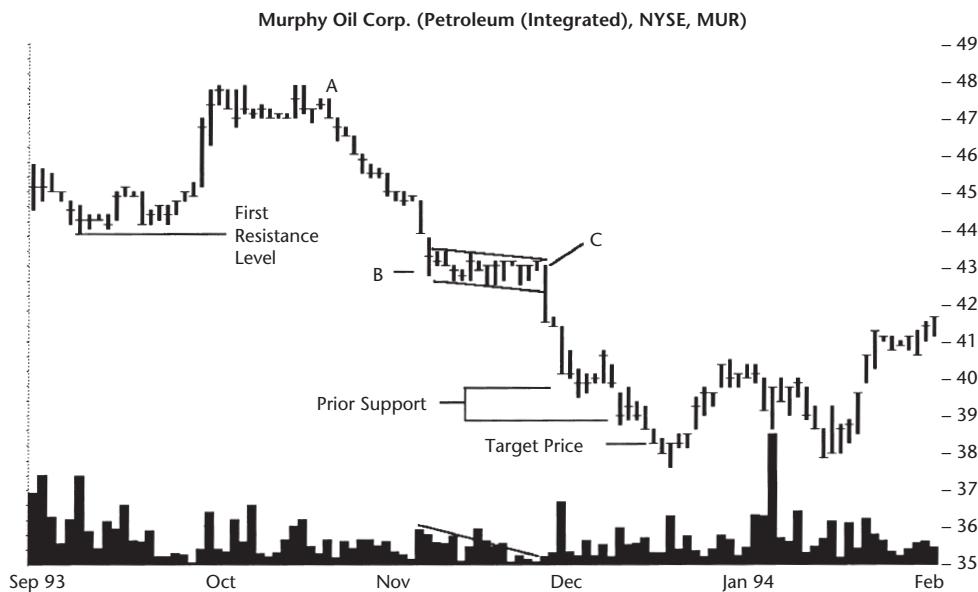


Figure 21.6 Use the measure rule to gauge the decline in this stock. Take the difference between the prior minor high (point A) to the formation low at the start (point B). Subtract the value from the high at the formation end (point C) and the result is the expected minimum price move.

trading, providing you limit your losses. A stop placed at 44.13 or so, slightly above the first resistance level, works well.

Wait for breakout. Take a position in the stock after a breakout, once prices move outside the formation boundary. Once prices near the target price, as predicted by the measure rule, consider closing out the trade. Since the statistics regarding the success of meeting the predicted price target are poor, be ready to close out the trade sooner than expected. If you wait for prices to reach the target, you might turn a profitable trade into a losing one.

Sample Trade

For example, let us say you are considering shorting the stock shown in Figure 21.6. Since the price trend is downward in a bull market, the statistics suggest that 47% of the formations will meet their price targets, on average. That is a poor showing and deserves caution.

As the chart pattern forms, you monitor the price closely by not only charting the end-of-day price but also checking it midday. When you dial into your broker for a lunchtime price quote and discover that prices have moved outside the bottom trend line, you decide to pull the trigger. You sell short and receive a fill at 42, just above the closing price of 41.50.

You follow the stock closely as price declines. Looking back through the prior year's trading history, you discover two support levels at about 40 and 39. You believe that the stock will fall through the first support level but the second one may be more difficult. It is, after all, closer to the 38.25 target price and more robust than the first level.

When the stock moves sideways at the first support level, you check your work and reexamine the fundamentals and technical indicators. Everything seems good so you remain in the trade.

Eventually the stock pierces the first support level and declines to the second one, where it gets stuck. It closes at 39 but the next day moves up. So the following day you decide to close out your position, believing that the risk of a price rise far exceeds the possible gain. Your short sale covers at 39 and you receive almost \$3 a share. That is not a bad profit for a hold time of just 2 weeks. On an annualized basis, the return is . . . wonderful!

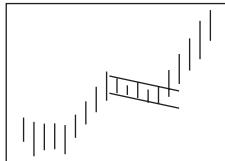
For Best Performance

The following list includes tips and observations to help you select better performing flags. Refer to the associated table for more information.

- Correctly identify the pattern using the guidelines—Table 21.1.
- Trade with the prevailing market trend: up breakouts in bull markets and down breakouts in bear markets—Table 21.2.
- Flags in a bear market with downward breakouts have the lowest failure rates—Table 21.3.
- Flags with upward breakouts do well near the yearly high. Downward breakouts do well near the yearly low—Table 21.4.
- Throwbacks and pullbacks hurt performance. Look for nearby support or resistance—Table 21.4.
- Flags without breakout day gaps perform better—Table 21.4.
- Over half the flags will reach the trend high or low within 2 weeks—Table 21.5.
- Select most flags that are both tall and wide—Table 21.6.
- The postflag move (time) is slightly longer than the pre-flag move. The price move after the flag is slightly shorter than the move before it—Table 21.6.
- Pick most flags with a falling volume trend or light breakout volume—Table 21.7.

22

Flags, High and Tight



RESULTS SNAPSHOT

Upward Breakouts

	Bull Market	Bear Market
Appearance	A consolidation region of several days to several weeks long after a stock doubles in price	
Reversal or continuation	Short-term bullish continuation	
Performance rank	1 out of 23	1 out of 19
Break-even failure rate	0%	0%
Average rise	69%	42%
Change after trend ends	-36%	-35%
Volume trend	Downward	Downward
Throwbacks	54%	65%
Percentage meeting price target	90%	91%
Surprising findings	The pattern sports a huge average rise with small failures. Throwbacks hurt performance. Short or narrow patterns perform better than tall or wide ones. The price trend after the flag is about half as far as the trend leading to the flag. Patterns with a falling volume trend perform well.	
See also	Flags; Pennants	

I am in love. Maybe not with my ex-girlfriend, but with flags—the latest version being high and tight flags (HTFs). You have to love the statistics because they shine like gold coins. The average rise in a bull market is 69% and patterns in both bull and bear markets have 0% break-even failure rates. Yes, they do fail, but just 5 out of 307 failed to climb at least 10%, and none failed to climb at least 5%. That is an excellent start for any chart pattern.

The percentage meeting the price target, called the measure rule, works nearly all the time but is based on half the move from the trend start to the flag, projected upward. The Trading Tactics section discusses this topic further.

Surprises are many but ones we have seen before. HTFs are not half-staff patterns; that is, they usually do not mark the midway point of a move. On the time line, the trend leading to the flag is longer by 6 days. On a percentage basis, the move before the flag is about double the move after the flag. Keep that in mind when setting a price target.

Tour

Figure 22.1 is a classic example of a high, tight flag. The quick rise from the low point at 14 to the flag high at 30.75 takes less than 2 months. The volume trend is downward throughout the formation. After the slight pause, the stock continues rising. In another 2 months, it reaches a peak of 120.

The high, tight flag is a play on momentum. When a stock doubles in a short time, it usually takes a breather and consolidates. When it does, it gives

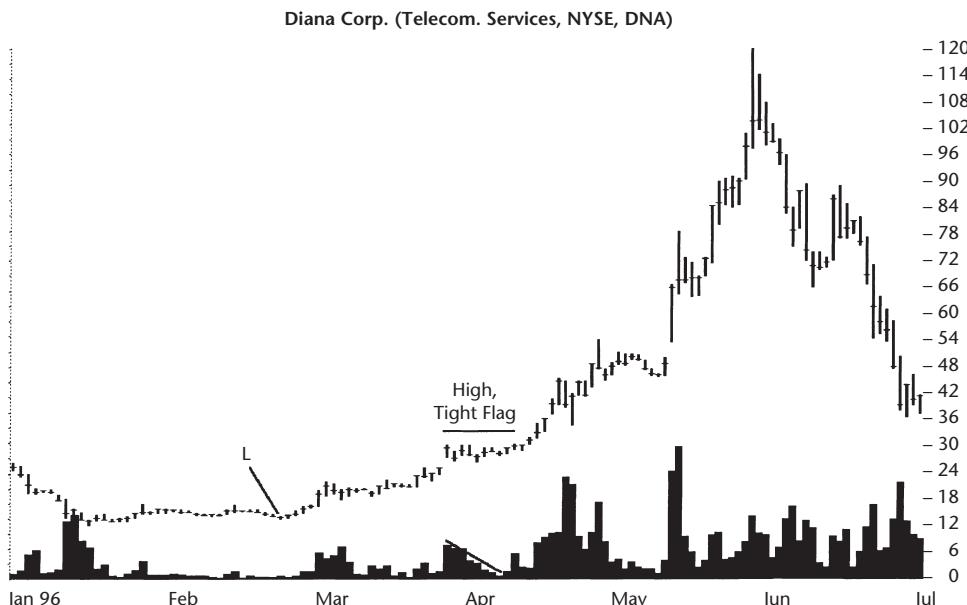


Figure 22.1 A high, tight flag that sees prices rise from about 30 to 120 in 2 months.

the trader the opportunity to buy the stock before the rise resumes. How do you correctly identify a high, tight flag?

Identification Guidelines

The phrase, *high, tight flag*, is a misnomer as the formation usually does not resemble a flag formation at all. Sometimes prices move up slightly as the flag progresses, such as shown in Figure 22.1, but more often prices spike down briefly (a day or two), then return and move downward or horizontally before breaking out and heading up.

The formation was popularized by William J. O’Neil in his book, *How to Make Money in Stocks* (McGraw-Hill, 1988). In his introduction to the formation, he identifies many characteristics that high, tight flags share.

Briefly, O’Neil looked for a doubling of the stock price in less than 2 months, a sideways move of 3 to 5 weeks during creation of the flag with price drifting down no more than 20% in the flag. The guidelines eliminated many patterns so that fewer than 10% qualified. I followed none of them. I programmed my computer to identify all stocks that had a minimum price rise of 100% in 2 months or less. Then I manually went through each stock and looked for a nearby consolidation region. If the region was close to the 100% price gain, then I accepted it as a high, tight flag.

For example, Figure 22.1 passes all the O’Neil guidelines, whereas Figure 22.2 does not (if you apply them strictly). The stock in Figure 22.2 reaches a

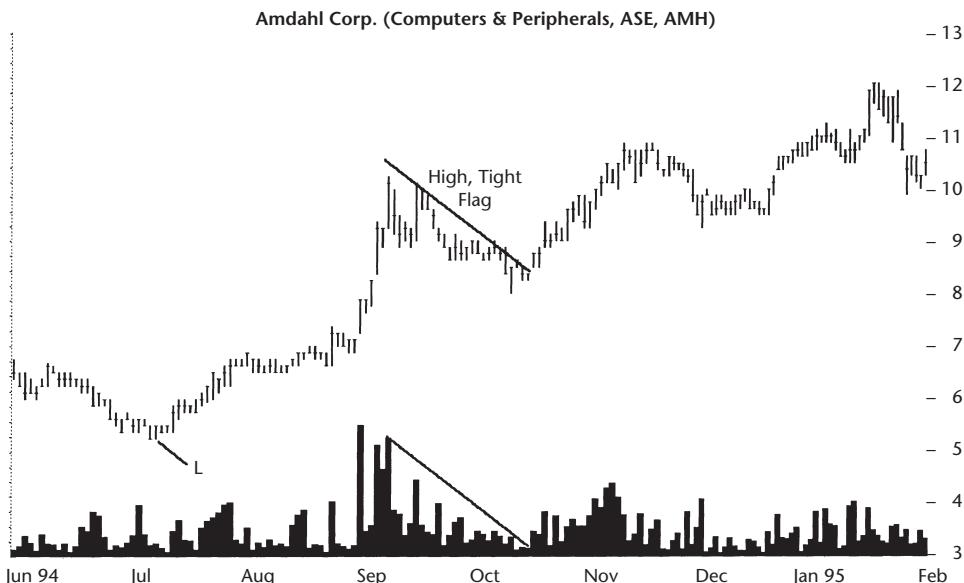


Figure 22.2 If interpreted strictly, this high, tight flag misses all but one of the O’Neil guidelines. It sports a rise of 95% in less than 2 months (measured from the low marked “L”) leading to the flag. The flag descends 22% in 38 days before breaking out and rising 33% above the highest high in early September.

Table 22.1
Identification Characteristics

Characteristic	Discussion
Substantial rise	A rise lasting less than 2 months carries prices upward at least 90% (shoot for a doubling of the stock price).
Find consolidation	Locate a consolidation area, where prices pause in the prevailing uptrend near where price doubles from the trend start.
Receding volume trend	The volume trend in the flag should be receding for best performance.

low of 5.25 in early July then starts moving up. In early September, it reaches a price of 10.25, just shy of doubling. Admittedly, the 95% price gain is less than a strict interpretation of the O’Neil guidelines, but it comes close. The high, tight flag slopes downward for 38 days, 3 more days than the maximum, and declines by 22%, 2% over the threshold. You could argue that the numbers are close enough to the O’Neil guidelines to qualify as a high, tight flag. I accept it as a flag.

Table 22.1 shows the guidelines I used in selecting and evaluating high, tight flags.

Substantial rise. First, there must be a short, quick rise. By that, I mean a rise in which price nearly doubles in 2 months or less. It can move up more than that, and the rise need not take place from a flat base (horizontal price movement). In the HTFs I found, I visually looked for a doubling of the price in 2 months and then let my computer determine when the trend started (see “Trend Start” in Glossary and Methodology for details).

Final consolidation. Once the stocks are selected on a price-rise basis, then look for the nearest consolidation area. In my selections, I did not care how long the stock consolidated nor how far the flag descended before turning upward. All that mattered was that the consolidation area was plainly visible to the casual observer. The consolidation area should be about double the price of the prior 2-month low.

Receding volume trend. The final identification guideline is not really for identification as much as it is for performance. Flags with a receding volume trend outperform those without. However, I would not ignore a high, tight flag simply because volume is rising. Rather, I would recognize that its performance may suffer.

Focus on Failures

Investing in a stock showing a high, tight flag is not without risk. Figure 22.3 shows a flag that suffers from a small rise. Since one would expect a stock to move up substantially after the breakout, I consider this behavior a failure of the stock to perform as expected.

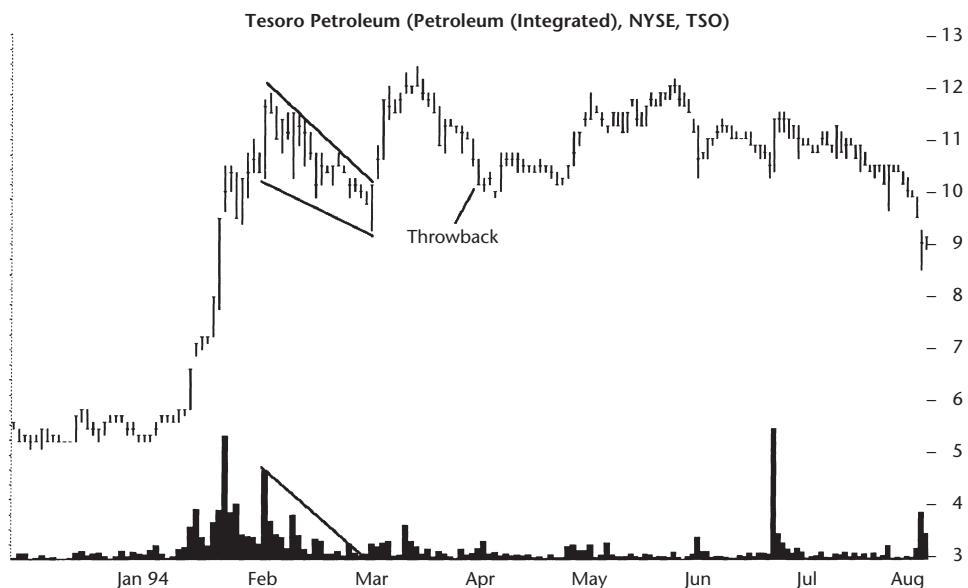


Figure 22.3 A failure of a high, tight flag. Prices fail to continue moving up very far before heading down in failure.

Figure 22.3 shows a quick, nearly vertical rise, leading to formation of the flag. As the rise falters, high volume tapers off. When prices head lower in the flag portion of the formation (marked in this case by two down-sloping trend lines), volume recedes. The flag drifts lower for almost a month before breaking out of the trend and heading up. After rising for just over a week to a new high, the stock curls around and meanders lower. It throws back to near the base of the formation, then moves horizontally for several months before dropping lower again.

Statistics

Table 22.2 shows general statistics for HTFs.

Number of formations. With a bull market powering Internet and other technology stocks higher, I found a substantial number of HTFs. As one might guess, HTFs almost vanished in a bear market.

Reversal or continuation. Since I was looking for an upward breakout (only) after a sharp price rise, each HTF acted as a continuation of the prevailing price trend.

Average rise. The average rise from the breakout point (when price closed outside the trend-line boundary or the formation high, whichever was lower) to the ultimate high measured 69% in a bull market and 42% in a bear market. Both are exceptionally high.

Rises over 45%. Over half the patterns in a bull market showed gains over 45% and even those in a bear market did well.

Table 22.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	253	54
Reversal (R), continuation (C)	253 C	54 C
Average rise	69%	42%
Rises over 45%	148 or 58%	22 or 41%
Change after trend ends	-36%	-35%
Busted pattern performance	N/A	N/A
Standard & Poor's 500 change	5%	0%
Days to ultimate high	39	25

Notes: Minus sign means decline. N/A means no samples available.

Change after trend ends. Once price reached the ultimate high, it tumbled 35%. Thus, if you can tell when the trend ends, short the stock and ride prices down. The results shown in Table 22.2 are averages, so be careful that nearby support does not stop the decline.

Busted pattern performance. I did not find any busted patterns because all moved up by more than 5%.

Standard & Poor's 500 change. The S&P was flat or climbed from the day of the HTF breakout to the ultimate high. Notice that a strong market uptrend tends to push prices higher (the average rise is higher in a bull market than a bear market).

Days to ultimate high. HTFs are rockets, reaching the ultimate high in about a month, more or less. If you see an HTF forming, you might want to put in a stop order to buy the stock as it soars above the formation top or pierces a trend-line boundary. That way, you own the stock before it zooms away from you.

Table 22.3 shows failure rates for HTFs, and I am impressed. Never before have I seen lower failure rates. Just 10% of the patterns in a bull market fail to rise more than 20%. Half the HTFs will rise over 50%.

Bear markets show the first failure after rises of 25%, but this was due to the low sample count (54 total). With additional samples, I am sure the failure rates would mimic those in a bull market (but be slightly worse).

The reason for the low failure rates was that I now use a close above the HTF's trend-line boundary to signal a breakout instead of a close above the pattern high (which was used for the first edition of this book). For example, the HTF shown in Figure 22.3 represents a rise of just 4% above the formation high but a 21% climb above the trend-line pierce.

Table 22.4 shows breakout- and postbreakout-related statistics for HTFs.

Formation end to breakout. It takes 2 days from the end of the pattern before price closes outside the trend-line boundary or climbs above the high-

Table 22.3
Failure Rates

Maximum Price Rise (%)	Bull Market	Bear Market
5 (breakeven)	0 or 0%	0 or 0%
10	5 or 2%	0 or 0%
15	14 or 6%	0 or 0%
20	25 or 10%	0 or 0%
25	42 or 17%	9 or 17%
30	59 or 23%	16 or 30%
35	83 or 33%	23 or 43%
50	117 or 46%	34 or 63%
75	170 or 67%	44 or 81%
Over 75	253 or 100%	54 or 100%

est high in the flag (when the HTF has an irregular shape and trend lines cannot be drawn).

Yearly position. In a bull market, the breakout from an HTF appears most often near the yearly high. In a bear market, the breakout covers the three ranges almost evenly.

Yearly position, performance. Where in the yearly price range do the best performing HTFs reside? The bull market numbers have a good sample count and they show that the best performing HTFs have breakouts in the middle of the yearly trading range. Bear markets do best when the breakout is near the yearly low.

Throwbacks. Throwbacks occur up to 65% of the time and take between 11 and 15 days to return to the breakout price. When a throwback occurs, performance suffers. For example, those HTFs in a bull market with throwbacks show

Table 22.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	2 days	2 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L19%, C19%, H62%	L36%, C30%, H34%
Percentage rise for each 12-month lookback period	L65%, C73%, H71%	L51% ^a , C46% ^a , H36% ^a
Throwbacks	54%	65%
Average time to throwback ends	11 days	15 days
Average rise for patterns with throwback	49%	38%
Average rise for patterns without throwback	100%	53% ^a

^aFewer than 30 samples.

Table 22.5
Frequency Distribution of Days to Ultimate High

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	24%	26%	11%	11%	15%	2%	0%	0%	0%	2%	9%
Bull market	26%	14%	10%	8%	9%	4%	4%	4%	5%	3%	14%

rises averaging 49%. When a throwback is absent, the rise is an astounding 100%. Throwbacks in bear markets show a similar trend, but the results are closer.

Table 22.5 shows a frequency distribution of time to the ultimate high. This table surprises me because I thought it would take longer to reach the ultimate high. Few HTFs take longer than 70 days to top out. Half of those in a bear market reach the ultimate high in fewer than 2 weeks. It takes 3 weeks in a bull market for half the patterns to top out.

The numbers suggest that a quick entry is key to making money with this pattern. For less aggressive investors, a buy stop with a price at the HTF's high will get you in at a good price. For aggressive investors, use the HTF trend-line boundary (if it has one, because the shape is usually irregular) as the buy stop price.

Once you place a trade, monitor it closely because it may not take long for the uphill sprint to tire. Then prices may drop, sometimes precipitously.

Table 22.6 shows statistics related to size.

Table 22.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	68%	40% ^a
Short pattern performance	69%	45% ^a
Median height as a percentage of breakout price	20.91%	19.40%
Narrow pattern performance	71%	46% ^a
Wide pattern performance	65%	38% ^a
Median length	14 days	11 days
Average formation length	17 days	15 days
Short and narrow performance	67%	49% ^a
Short and wide performance	74%	37% ^a
Tall and wide performance	59%	39% ^a
Tall and narrow performance	78%	42% ^a
Prior trend length (days)	47	32
Post trend length (days)	41	26
Price move before flag	124%	98%
Price move after flag	69%	42%

^aFewer than 30 samples.

Height. HTF patterns shorter than the median perform better than tall ones. The results are close and, in the case of a bear market, samples are few, so the numbers might change. In many other chart patterns, tall ones perform better than short ones, but not with HTFs.

Width. In both markets, narrow patterns do better than wide ones. I used the median length as the separator between narrow and wide.

Average formation length. The average HTF length is just over 2 weeks.

Height and width combinations. I looked at the combinations of height and width and found that HTFs that are both tall and narrow perform better than the other combinations in a bull market. In a bear market, short and narrow patterns do well, if you disregard the small sample size.

Trend length and price move. I measured the elapsed time from the trend start to the flag start and from the flag end to the ultimate high. Both the trend start and ultimate high rely on a 20% price change.

The length of the trend leading to the pattern averages between 32 and 47 days. After the breakout, the trend lasts 26 to 41 days, respectively. Thus, the trend after the flag is 6 days shorter than the prior trend.

The price rise after the flag is about half the rise leading to the pattern. For example, in a bear market, the pre-formation rise averages 98%. After the flag, the rise is 42%. To use this, see the measure rules in the following Trading Tactics section.

Table 22.7 shows volume-related statistics for HTFs.

Volume trend. Patterns with a falling volume trend outperform those with a rising volume trend. Unfortunately, the sample size is small for HTFs with rising volume, but that also suggests your HTF is likely to have a falling volume trend. Be happy. That is good news.

Volume shapes. I looked at the volume shape and found that HTFs with a random volume shape in a bull market performed better than the other com-

Table 22.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	52% ^a	41% ^a
Falling volume trend performance	71%	42%
U-shaped volume pattern performance	70%	55% ^a
Dome-shaped volume pattern performance	64%	38% ^a
Neither U-shaped nor dome-shaped volume pattern performance	81% ^a	30% ^a
Heavy breakout volume performance	63%	42%
Light breakout volume performance	79%	42% ^a

^aFewer than 30 samples.

binations. For bear markets, HTFs with U-shaped volume did well, but the sample size is small.

Breakout volume. HTFs with light breakout volume outperformed those with heavy breakout volume in a bull market. In a bear market, there was no performance difference.

Trading Tactics

Table 22.8 shows trading tactics for HTFs.

Measure rule. Use the measure rule to predict a target price. To calculate the price target, find where the trend starts and measure the price change from the low at the start to the HTF high (the highest high in the pattern). Divide the result in half and add it to the HTF's low price. The result is the target that price reaches 90% of the time. Look for price to stall once it nears the target. To find the trend start, see the Glossary and Methodology for details.

Buy after breakout. Since the price rise in the first week is the largest one-week change you are likely to see, place a stop order to buy the stock just above the HTF trend-line boundary. If the HTF has an irregular shape, use the top of the pattern as the buy point and place the buy stop there.

If price closes below the flag pattern, sell your position immediately because price is going down. Reversals do happen, so be on guard for one. Once you have a position in the stock, raise your stop to just below the prior minor low when price makes a new high. Keep raising the stop as prices rise. Eventually, this method will take you out when the trend changes or during a severe retracement.

Sample Trade

When John spotted the high, tight flag shown in Figure 22.4, he wasted no time in taking a position, buying when price pierced the upper trend line at point A. He placed a stop 0.13 below the formation low at 5.63. Two days later, he was stopped out.

Table 22.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Measure the rise leading to the flag and project half of it upward, using the flag low price.
Buy after breakout	If prices break out of the flag portion, buy the stock. If you cannot tell if a breakout has occurred, wait for price to rise above the highest high in the flag.

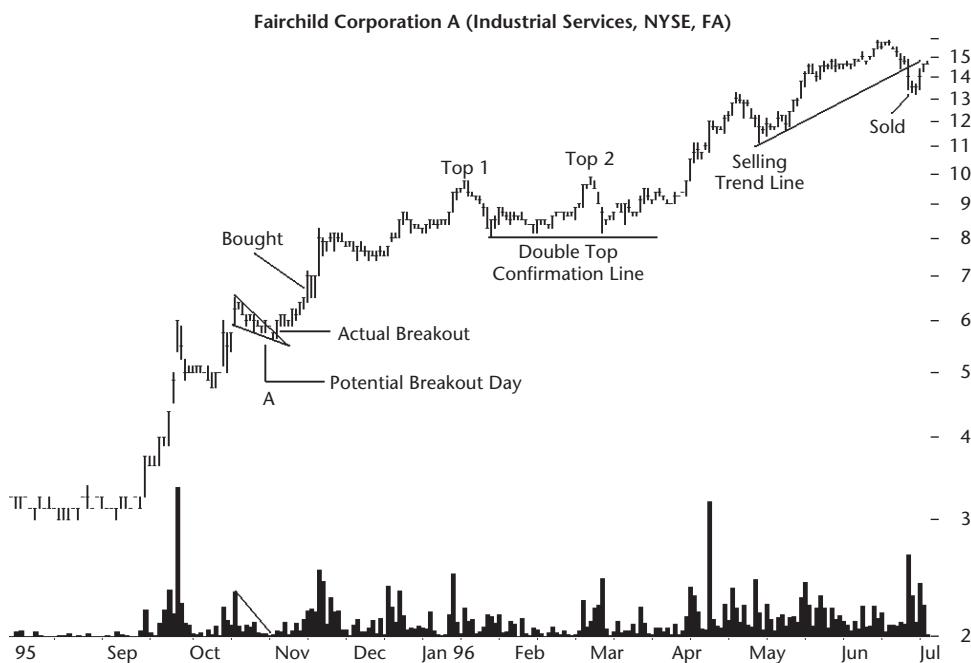


Figure 22.4 A high, tight flag with prices stair-stepping higher. How do you trade this high, tight flag?

"A billion here, a billion there, and pretty soon you're talking real money!" he said.

He backed off for a few days and waited for the stock to climb above the high (6.50). When it did, he bit and piled into the stock again at 6.50. He considered the bottom of the flag a support area, so that is the price he used as his stop loss. This time, however, he used a mental stop, one that is not placed with a broker but kept in his head. There is really no problem with a mental stop providing an investor is willing to pull the trigger when prices hit the stop.

Now and again, John looked at the price chart just to see how the trade was doing. The stock climbed to a support zone at 8 and went horizontal for 3 months. Toward the end of that time, he raised his mental stop to 7.75.

Then, the stock climbed again. It ignored the double top formed by peaks in early January and late February, and so did John. By April the stock posted a new high, quietly disclosing that the double top turned out to be false. As the stock passed 13 in mid-April, John started to pay attention. He saw it reach 13.25 and back off for a bit, sinking to a low of 11.13. Then it spurted up again. John drew a trend line upward following the latest move and when price pierced the line, he called his broker. He sold at 13.63, not close to the high of 15.88, but "close enough for government work." After commissions, he made 108% in slightly less than 8 months.

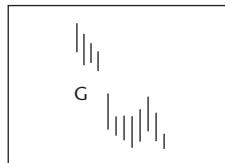
For Best Performance

The following list includes tips and observations to help select HTFs that perform better after the breakout. Consult the associated table for more information.

- Review the identification characteristics for correct selection—Table 22.1.
- Select patterns in a bull market; they show the highest average rise—Table 22.2.
- Patterns in a bear market have lower failure rates for small moves, but the small sample size may be a factor—Table 22.3.
- Bull market HTFs do well when the breakout is in the middle of the yearly price range—Table 22.4.
- Throwbacks hurt performance. Look for overhead resistance before trading—Table 22.4.
- The ultimate high comes quickly so buy in early. Half top out in 2 or 3 weeks—Table 22.5.
- Short or narrow patterns do better than tall or wide ones—Table 22.6.
- The move leading to the flag is longer in time and price than the move after the flag. Look for a move half the rise leading to the pattern—Table 22.6.
- Select patterns with a falling volume trend and U shape—Table 22.7.

23

Gaps



RESULTS SNAPSHOT

Upward Breakouts

Appearance	A price gap appears when the current low is higher than the prior high.	
Reversal or continuation	Short-term bullish continuation	
Performance rank	Not applicable	

Close Within a Week

	Bull Market	Bear Market
Area gap	89%	93%
Breakaway	2%	9%
Continuation	4%	20%
Exhaustion	61%	78%
Surprising findings	The largest gaps occur in bear markets. Bull market gaps do well when they appear near the yearly high. Large gaps perform better than small ones.	

Downward Breakouts

Appearance	A price gap appears when the current high is below the prior low.
Reversal or continuation	Short-term bearish continuation
Performance rank	Not applicable

Close Within a Week	Bull Market	Bear Market
Area gap	92%	89%
Breakaway	1%	1%
Continuation	9%	13%
Exhaustion	64%	63%
Surprising findings	Same as for upward breakouts	

There are five types of gaps, four of which I review in this chapter. The remaining gap, the ex-dividend gap, is not considered because it rarely happens and has no investment significance. The ex-dividend gap usually occurs in utility stocks or stocks with high-paying dividends. On the day of dividend distribution, the price sometimes moves downward leaving a gap in the price chart. Even though the price of the stock after distribution reduces by the dividend amount, the day's trading range often fills the gap so no actual gap appears on the chart.

I define *closing the gap* to be when prices return and span the gap completely. The area gap closes quickest, with nearly 90% of those gaps closing within a week.

Listed in the Results Snapshot table is the average time it takes price to close the gap. Sometimes gaps close quickly (such as exhaustion gaps) because they are found near the ends of trends where price reverses and fills the gap. Other gaps take much longer since they mark the start of a strong trend (breakaway gap). The continuation gap is a combination of the two because it commonly appears in the middle of trends.

Gaps had a few surprises. I found that larger gaps appear in bear markets for some reason. Performance improves for gaps in bull markets when they appear near the yearly high. Finally, large gaps perform better than small ones.

Tour

A gap appears in an uptrend price series when yesterday's daily high is below today's low price. A downtrend gap is similar, being created when yesterday's low is above today's high. In both cases, some type of exuberance is driving the stock to create a gap. It sometimes is nothing more than the stock being worth less simply because of a dividend distribution. At other times, the repercussions are more severe. An earnings surprise, either positive or negative, often causes a gap and the stock to rise by 10% or 15% or to decline by 30% or more, depending on the severity of the news.

Figure 23.1 shows a plethora of different gap types. Area gaps occur in congestion zones, usually when prices are moving sideways. Price gaps up or down and the gaps close quickly. Of all the gap types, area gaps are common, appearing all over the place. Breakaway gaps appear at the start of trends. They, too, are quite numerous and accompany high volume. Usually there is some fundamental event driving the stock, creating a breakaway gap. Continuation

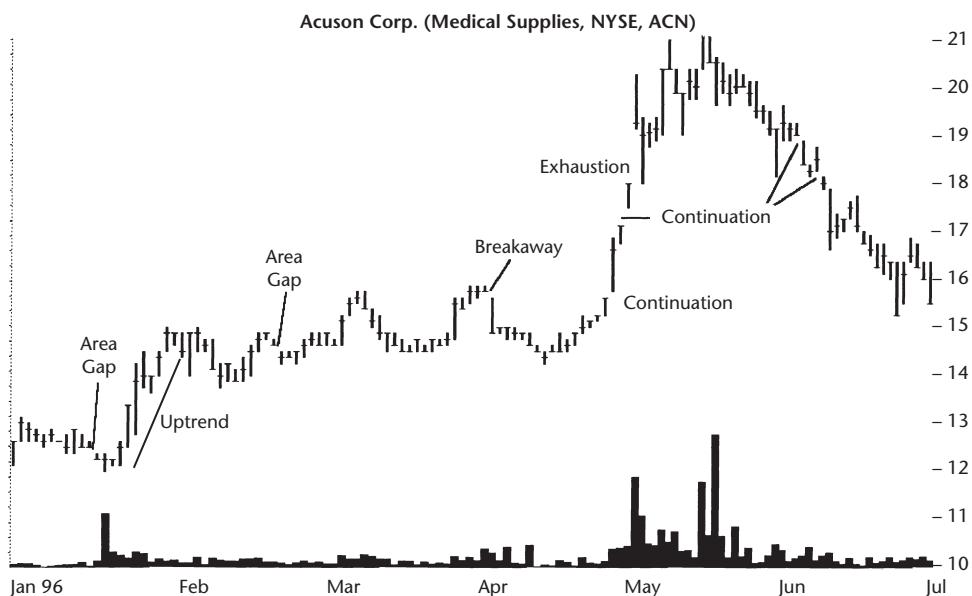


Figure 23.1 Plenty of gaps appear in a daily price chart. The most numerous are the area gaps.

gaps are relatively rare because they appear in the middle of strong trends. Those trends themselves do not occur very often and even less often do they contain a gap. Exhaustion gaps signal the end of trends. They are the last jump up or down before the trend either reverses or moves sideways.

Identification Guidelines

Table 23.1 lists identification guidelines for gaps.

Area gaps. *Area, common, or pattern* gaps are all names for the same type of gap. The gap forms inside or just after a consolidation region. It is easy to spot as prices seem to hook around and close the gap in less than a week (many times in the next trading session). Figure 23.2 shows many examples of this hook feature: For example, you can see in late March that prices gap down and the next day the high closes the area gap. A quick hook such as that is characteristic of area gaps. Usually, few or no new highs (for uptrends) or lows (when price gaps lower) occur immediately after the gap.

Volume may be high on the day price gaps but usually settles down quickly. You can see this behavior in late January. Volume spikes on the gap day then returns to normal the next day.

Breakaway gap. Breakaway gaps highlight the start of a new trend. Volume rises substantially above the prior day and price gaps upward and continues rising (or falling in the case of a descending price gap) forming new highs (or lows).

Consider the breakaway gap in early January shown in Figure 23.2. You can see prices moving up for 3 days, surrounding the gap, accompanied by a

Table 23.1
Identification Characteristics

Gap Type	Discussion
Area, common, or pattern	Occurs in areas of congestion (trendless markets) and closes rapidly. Volume on the day of the gap may be high but returns to normal in a day or two. No new highs (uptrends) or lows (in down-trends) occur after the gap. A distinctive curl as the gap closes is a key indication of this gap type.
Breakaway	Identifies the start of a new trend and usually occurs after break-out from a consolidation region. Is accompanied by high volume on the day of the gap, which continues for several days. The trend continues long enough for several new highs (for uptrends) or new lows (downtrends) to occur after the gap.
Continuation measuring, or runaway	Happens in the midst of a straight-line advance or decline. Prices continue making new highs or lows without filling the gap. Volume is usually high, propelling prices in the direction of the trend.
Ex-dividend	Is triggered by a dividend distribution. Prices move down by the amount of the dividend and a gap appears if the day's trading range does not close it.
Exhaustion	Occurs at the end of a trend on high volume. The gap is not followed by new highs or lows and the gap itself may be unusually wide. After the gap, prices enter a consolidation region or reverse. Commonly occurs after a continuation gap. The gap closes quickly, usually within a week.

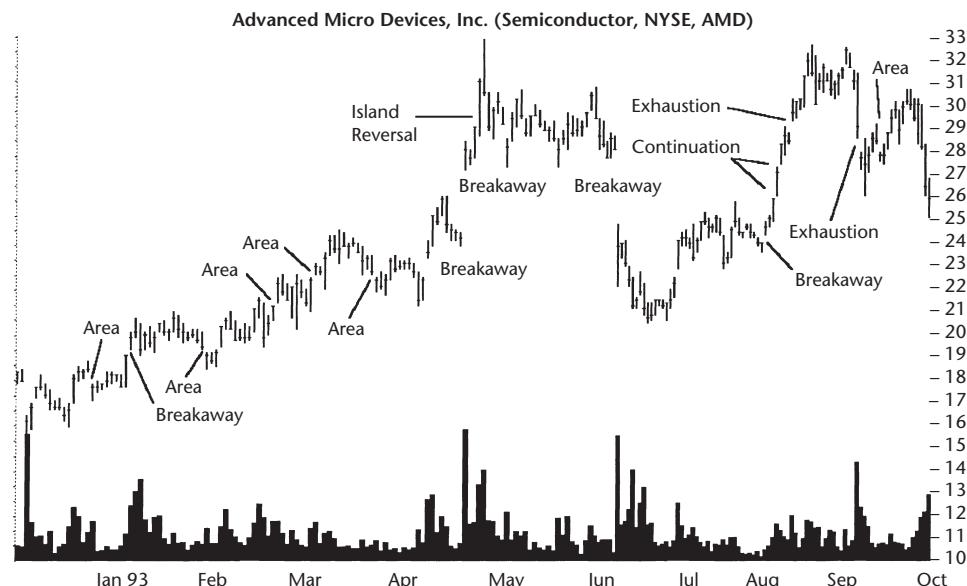


Figure 23.2 Various gap types with area gaps illustrating the hook feature. Volume pattern and position within the trend are the main keys to identify correctly the different gap types.

rising volume trend. Then prices level out and move horizontally for several weeks before gapping down in an area gap. Two days later, another breakaway gap (not labeled on the chart) appears and prices reach new daily highs for 3 days in a row before settling back.

The large breakaway gap in mid-April, accompanied by a high volume spike, is not an exhaustion gap because price continues rising. The June breakaway gap begins after a minor congestion area but the gap could be a continuation (gap) of the downward price move of a week earlier. Volume spikes upward as price makes a large gap. Usually large gaps are associated with exhaustion gaps, but prices continue moving lower after just a few days.

Continuation gaps. Continuation gaps occur in the middle of price trends. They do not happen often since it takes a sharp rise followed by a gap and a continued rise in the stock (the reverse for downtrends, too). In Figure 23.2, you can see two continuation gaps in August when prices zoom from a low of 23.50 to 32.63 in about 2 weeks. The gaps appear in the quick, sharp price rise on high, but not unusually high, volume. The quick rise forms new highs and the gap remains open (compare these continuation gaps with how quickly the area gap closes). Of course, in a downtrend, prices gap downward and form new lows.

Ex-dividend gaps. An ex-dividend gap appears on the price chart when a dividend-paying stock distributes the dividend. Usually, however, the normal trading range will cover the gap.

Exhaustion gaps. Exhaustion gaps commonly follow continuation gaps. The highest gap in the August uptrend is an exhaustion gap. At first I thought it was another continuation gap, but the gap is slightly larger than normal and prices pause for 2 days before making new highs. Those are some key factors associated with exhaustion gaps. Excessively wide gaps are most likely exhaustion gaps when they appear near the end of a trend. Two exhaustion gaps appear on the chart, one in August and one in September. The September gap closes quickly, which is typical for exhaustion gaps.

Most exhaustion gaps occur on high volume; it is like the last gasp before prices end the trend. You can see in Figure 23.2 that both exhaustion gaps have high volume, but the September one takes the cake. Volume spikes upward even as prices descend, then volume recedes but remains high for several days after the gap. The high volume highlights the struggle of investors who want to purchase the stock at a good price with those who are trying to get out of the situation at the best offer.

Statistics: Area Gaps

Table 23.2 shows general statistics for area gaps.

Number of formations. I found 484 area gaps in 97 stocks from mid-1991 to early 2004, but I did not cover all years in between. Since I was looking for the time to close the gap, I found little need for additional samples.

Table 23.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	127	154	127	76
Average time to close the gap	3 days	3 days	3 days	3 days
Closed in 1 week	89%	93%	92%	89%
Closed in 2 weeks	99%	100%	100%	100%
Closed in 3 weeks	100%	100%	100%	100%
Average gap size	\$0.31	\$0.55	\$0.28	\$0.59

Average time to close the gap. On average, it takes just 3 days for price to cover the gap, regardless of market condition or breakout direction.

Percentage closed. The table shows the closure rates. Nearly all of the area gaps close in the first week, and those in a bull market with an upward breakout hold out the longest by closing within 3 weeks.

Average gap size. In all four gap types, the largest average gap size occurs in a bear market. Why this is the case is a mystery to me. The smallest gaps occur in a bull market, usually with an upward breakout, but not with area gaps (which has the smallest average gap associated with downward breakouts).

Statistics: Breakaway Gaps

Table 23.3 shows general statistics for breakaway gaps.

Number of formations. I used 132 stocks to find 737 breakaway gaps. That high number of gaps in a small sample set shows how often these formations occur.

Average time to close the gap. The average time for the gap to close varies from about 2 months (61 days, bear market, up breakout) to nearly 6 months (168 days, bull market, down breakout).

Percentage closed. Breakaway gaps do not close quickly, as Table 23.3 shows. Even after a year, some gaps remain open.

Average gap size. The average gap size varied across market conditions and breakout directions, with bear market gaps being larger than bull market ones, and gaps in a bear market with a downward breakout being the largest of all.

Yearly position. Since breakaway gaps are important to traders, I checked their position over the yearly trading range. Bull markets showed the most gaps within a third of the yearly high. Bear markets had more gaps in the middle of the yearly trading range.

Table 23.3
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	345	92	226	74
Average time to close the gap	136 days	61 days	168 days	111 days
Closed in 1 week	2%	9%	1%	1%
Closed in 2 weeks	9%	22%	6%	15%
Closed in 3 weeks	18%	38%	11%	35%
Closed in 1 month	23%	45%	17%	38%
Closed in 2 months	39%	62%	38%	53%
Closed in 3 months	46%	73%	46%	55%
Closed in 6 months	56%	87%	64%	62%
Closed in 1 year	66%	95%	75%	70%
Average gap size	\$0.43	\$0.85	\$0.68	\$1.38
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L24%, C25%, H51%	L33%, C41%, H26%	L24%, C30%, H46%	L35%, C41%, H24%
Percentage rise/decline for each 12-month lookback period	L38%, C35%, H41%	L36%, C30%, H29% ^a	L19%, C18%, H20%	L29% ^a , C29%, H29% ^a
Small gap size performance	35%	27%	-19%	-25%
Large gap size performance	41%	35%	-19%	-32%
Median gap size	\$0.27	\$0.59	\$0.38	\$0.62

Note: Minus sign means decline.

^aFewer than 30 samples.

Yearly position, performance. Gaps in bull markets performed best when the gap was near the yearly high. Gaps in bear markets did well near the yearly low, but the sample size in a down market obscured the results.

Gap size. Do large gaps perform better than small ones? Yes. I found the median gap size and compared all gaps to the median. Those larger than the median performed as well or better than did those smaller than the median. If you want to trade a breakaway gap, check to see if it is larger or smaller than the median listed in Table 23.3. That may be an indication of performance.

Statistics: Continuation Gaps

Table 23.4 shows general statistics for continuation gaps.

Number of formations. I used 173 stocks to find 495 continuation gaps from mid-1991 to early 2004, but I did not search the entire period. I split the period from 1991 to 1996 and 1999 to 2004, the latter period to encompass a bear market.

Average time to close the gap. Compared to breakaway gaps, continuation gaps close quicker, as one might guess (because breakaway gaps appear near the trend start but continuation gaps appear in the middle). The longest (bull market, up breakout) takes just over 3 months to close, on average.

Percentage closed. Continuation gaps in a bear market with an upward breakout close quickest as do downward breakouts in a bear market.

Average gap size. Gaps in a bear market with downward breakouts show the largest size. If the general market helps the gap size grow, then I would expect gaps in a bull market with an upward breakout to show a large size. That is not the case. Bear market gaps are bigger than bull market ones.

Table 23.4
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	168	83	122	122
Average time to close the gap	98 days	43 days	77 days	91 days
Closed in 1 week	4%	20%	9%	13%
Closed in 2 weeks	20%	39%	23%	27%
Closed in 3 weeks	29%	57%	39%	36%
Closed in 1 month	35%	58%	52%	47%
Closed in 2 months	55%	80%	64%	60%
Closed in 3 months	61%	86%	75%	66%
Closed in 6 months	71%	93%	90%	75%
Closed in 1 year	80%	95%	93%	81%
Average gap size	\$0.47	\$0.86	\$0.48	\$1.24
Position of gap in time trend (trend start to gap start)	50%	55%	69%	72%
Position of gap in price trend (trend start to gap center)	43%	48%	57%	52%

Gap position. The position of the gap in the time trend varies with breakout direction. Those gaps with upward breakouts seem to appear near the middle of the trend (50% or 55% of the way to trend end). Those with downward breakouts happen almost three-quarters of the distance to the end.

On a price basis, gaps appear near the midway point. Those with upward breakouts are slightly short of the midway point (meaning the rise is higher after the gap). Those in a bear market are slightly longer—the decline is shorter after the gap.

Statistics: Exhaustion Gaps

Table 23.5 shows general statistics for exhaustion gaps.

Number of formations. I used 173 stocks to find 471 exhaustion gaps. That finding suggests exhaustion gaps are plentiful.

Average time to close the gap. Exhaustion gaps close quickly, usually between 1 and 2 weeks, on average.

Percentage closed. The table shows how quickly exhaustion gaps close. In one week, about two-thirds of the exhaustion gaps close. In two weeks, almost all of them are closed except for downward breakouts in a bull market, which have 22% still open.

Average gap size. The average gap size varies, with the largest appearing in a bear market with a downward breakout. The 94-cent wide gap is almost twice the size of the bull market, up breakout gap.

Table 23.5
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	120	111	129	111
Average time to close the gap	9 days	7 days	14 days	10 days
Closed in 1 week	61%	78%	64%	63%
Closed in 2 weeks	91%	90%	78%	85%
Closed in 3 weeks	93%	94%	87%	92%
Closed in 1 month	98%	95%	90%	95%
Closed in 2 months	100%	99%	95%	96%
Closed in 3 months	100%	100%	97%	96%
Closed in 6 months	100%	100%	98%	99%
Closed in 1 year	100%	100%	100%	99%
Average gap size	\$0.49	\$0.79	\$0.63	\$0.94

Trading Tactics and Sample Trade

Table 23.6 lists trading tactics for gaps. To successfully trade gaps you have to be quick, making sure to use stops, and you have to be ready to close out a trade at a moment's notice. Still, they can be profitable. Consider what Gina did with the situation shown in Figure 23.3.

As a seasoned investor, Gina knew all about gaps and practiced trading them on paper until she was successful most of the time. The practice honed her skills and pulling the trigger seemed rote. With a focus on limiting her losses, she was growing confident that her trading style was one that would allow her to succeed in the markets, so she took the leap and decided to trade her system for real.

She followed the stock for a long time and was both familiar and comfortable with the fundamentals of the company. When she noticed the breakaway gap occur on May 10, she quickly checked the identification guidelines. Volume was above average (although it may not be clear from the chart) and a new upward price trend seemed to be forming. She called her broker and bought 1,000 shares receiving a fill at 58 that day.

She placed a stop-loss order at 57, 0.13 below the lower gap rim just to be safe. If this turned out to be an area gap, she would probably be stopped out for a small loss. During her paper trading days, she discovered that most gaps provide near-term support or resistance, so she was confident that her stop would hold.

Table 23.6
Trading Tactics

Trading Tactic	Explanation
Area gaps	These gaps are too short-lived to be traded profitably, consistently.
Breakaway gaps	If high volume is present at the start of a trend, then trade with the trend. Verify gap type by reviewing the identification guidelines before trading.
Continuation gaps	Continuation gaps usually mark the halfway point so you can gauge the eventual price move. Measure from the trend start to the gap center and project the difference from the gap center to the predicted high or low.
Exhaustion gaps	If an abnormally wide gap occurs or a gap occurs at the end of a trend, then close out your position when the trend reverses. After a trend reversal, consider trading the new trend (shorting the stock if the prior trend was up). Violent reversals often follow exhaustion gaps. Close out the trade the day after new highs (for uptrends) or new lows (downtrends) fail to occur.
Stop loss	The lower rim (for uptrends) or the higher rim (for downtrends) of a gap is a good place to put a stop (0.15 or so away from the rim). Gaps provide near-term support or resistance, so this strategy works well with those gaps that do not close quickly.

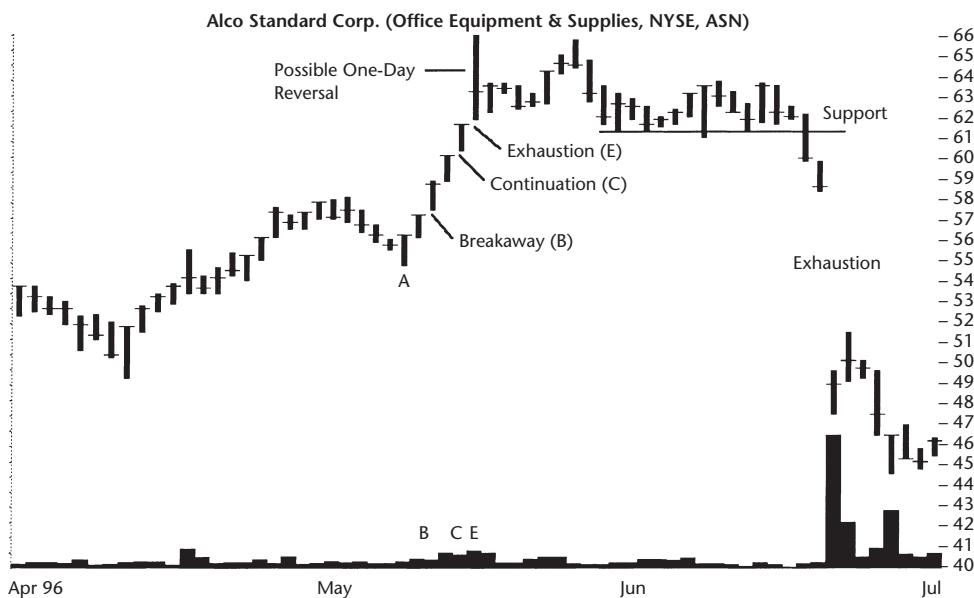


Figure 23.3 Gina bought the stock on the breakaway gap and sold it a few days later for a \$7,500 profit. Then she shorted the stock as the exhaustion gap turned into a dead-cat bounce.

She watched the stock closely. Two days later the stock gapped again. It could either be a continuation gap or an exhaustion gap, she decided. Volume was heavy, about twice the 25-day moving average, so that offered no clue. The following day, when prices gapped again, she knew that the prior pattern was a continuation gap.

Gina checked the price chart and using the center of the continuation gap as a midpoint, she measured from the trend low (point A in the figure) to the center of the gap. The difference was 5.50 (that is, 60.25–54.75). Adding the difference to the middle of the continuation gap predicted that prices would top out at 65.75, so she placed a stop at 65.50 and moments later, the stock was sold. That day, the stock climbed to a high of 66, slightly above the predicted price, and closed the day at 63.25.

Not including commission charges, she made \$7,500 in just 3 days. But she was not done. The large daily price range on high volume when she sold reminded her of a one-day reversal, but she was unsure. She decided to keep her options open and look for an opportunity to sell short. She followed the stock daily and when it closed below the support level at 61 she decided to sell the stock short and received a fill at 59.

The next day she was surprised to discover that a large exhaustion gap had formed, dropping the stock down to 49, a \$10,000 gain overnight. Knowing that the gap was in reality a dead-cat bounce, she changed tactics and did not immediately close out her position. Instead, she watched the stock bounce

upward for a few days then continue lower (as the formation predicts). Instead of getting greedy, she decided to close out her position and received a fill at 45, for an easy \$14,000 profit in less than 2 weeks.

If you think Gina was lucky, netting over \$21,000 in 2 weeks, you are right. But her ability to correctly size up an investment opportunity and act on it quickly while taking steps to minimize losses goes a long way to explaining her luck. Some call it skill.

Gina is a serious investor who leaves nothing to chance. She did not just jump in and start trading gaps after reading about it in some book. Instead she researched the formation, followed the stock closely, and developed a successful trading style that incorporates gaps. It worked for her, but it might not work for you.

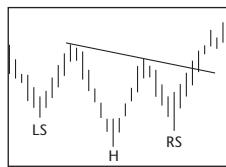
For Best Performance

The following list includes tips and observations to improve your selection of gaps that outperform. Consult the associated table for more information.

- Review the identification guidelines for correct selection—Table 23.1.
- The largest area gaps occur in a bear market with a downward break-out—Table 23.2.
- Select breakaway gaps in a bull market near the yearly high. In a bear market, select gaps near the yearly low—Table 23.3.
- Large breakaway gaps outperform small ones—Table 23.3.
- Continuation gaps appear near the middle of the price trend—Table 23.4.
- Continuation gaps appear near the middle of the time trend in upward breakouts, but about two-thirds of the way to trend end in downward breakouts—Table 23.4.
- Review for specific trading tactics—Table 23.6.

24

Head-and-Shoulders Bottoms



RESULTS SNAPSHOT

Upward Breakouts

	Bull Market	Bear Market
Appearance	Three-valley formation with center valley lower than the others	
Reversal or continuation	Short-term bullish reversal	
	Bull Market	Bear Market
Performance rank	7 out of 23	6 out of 19
Break-even failure rate	3%	4%
Average rise	38%	30%
Change after trend ends	-31%	-33%
Volume trend	Downward	Downward
Throwbacks	45%	51%
Percentage meeting price target	74%	58%
Surprising findings	Breakout day gaps help performance. Tall and narrow patterns perform better than short and wide ones. Patterns with falling volume or U-shaped volume perform well.	
See also	Head-and-Shoulders Bottoms, Complex	

I find it easier to pick out tops than bottoms. Perhaps this is because I spend so much time worrying about when to sell. Placing a trade is easy; getting out is the tough part. In my quest to sell at the appropriate time, I have often overlooked the buy side: bottom reversals. Head-and-shoulders bottoms are just such a formation. They are quite easy to spot and can be very profitable.

The Results Snapshot highlights statistics for this bullish reversal. Like the top version of the formation, the bottom sports an exceedingly low failure rate. Only a few formations climb by less than 5%. Those in a bull market rise by 38% in a bull market and 30% in a bear market.

HSBs have a few surprises in store for traders, including breakout day gaps that help power the stock upward. Tall and narrow patterns perform better than do their short and wide counterparts. HSBs with falling volume trends or U-shaped volume perform better.

Tour

What does the formation look like? Figure 24.1 shows a good example of a head-and-shoulders bottom. The stock peaks during February, where the figure begins. From that point, the stock moves downward and makes a lower low in late March before moving up. The turn marks the left shoulder. The stock declines again and reaches a new low during late April, forming the head. The right shoulder appears as the stock recovers and then continues moving down

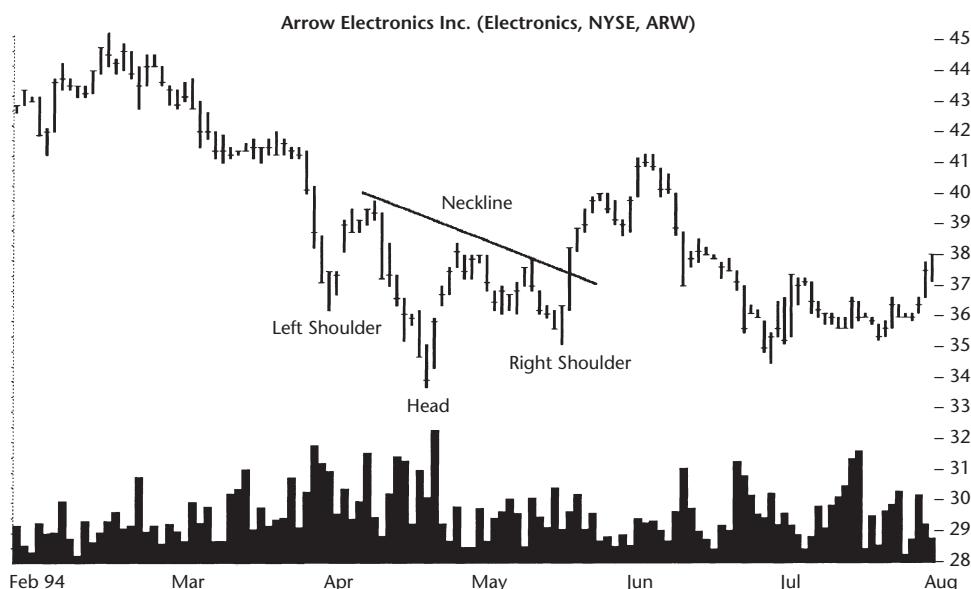


Figure 24.1 A head-and-shoulders bottom. Two shoulder troughs surround a lower head.

along the trend line (shown in Figure 24.1 as the neckline). By mid-August 1995(not shown), the stock is trading just below 60.

According to new statistics, the head-and-shoulders bottom shown in Figure 24.1 has a typical volume pattern. Volume is usually highest on the head, then the left shoulder, and even lower on the right shoulder. The rise from the head to the right shoulder accompanies a rise in volume as does the actual breakout.

In contrast, the formation shows little increase in volume during the rise from the head to the right shoulder. Volume on the breakout is unexciting and that helps explain why the stock stalls. Upward momentum fails to carry price much higher; the stock rounds over and heads back down.

Figure 24.2 shows a head-and-shoulders formation on a weekly time scale. I chose this chart to show you the typical trend of head-and-shoulders bottom reversals. They usually form after an extended downtrend in prices. As a reversal, once they complete, prices rise.

Why do HSBs form? The chart pattern represents a struggle to find the bottom, the lowest price that represents the best value. As the stock descends during February 1994, investors nibble at the stock in increasing numbers. Volume climbs even as the stock descends until it spikes upward for 1 week during formation of the left shoulder. Buying demand puts a crimp on the downward slide and prices move up but only for a week. The following week, prices move lower. Again, volume spikes as the stock makes a new low and this becomes the head. The smart money is accumulating the stock in anticipation

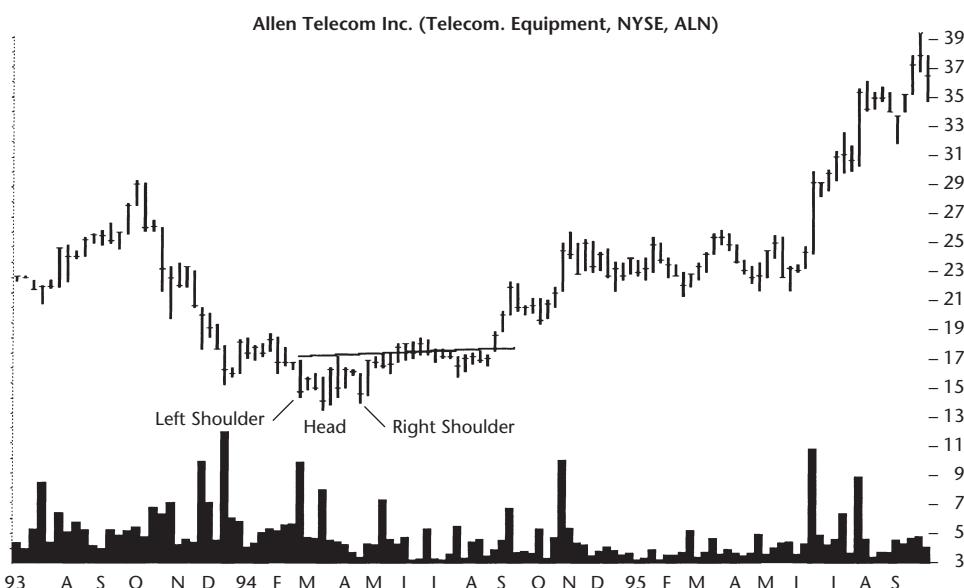


Figure 24.2 Head-and-shoulders bottom formation on a weekly time scale. It takes several months before this head-and-shoulders bottom stages an upward breakout.

of an eventual rise or a change in the fundamentals. The stock moves up on receding volume then retreats and forms the right shoulder.

Volume on the three troughs is diminishing. The left shoulder has very high volume, the head exhibits somewhat less volume, and the right shoulder records the lowest volume up to that point. Only after prices start moving up from the right shoulder does volume spike upward.

Breakout volume, depending on where you determine the breakout occurs, is unconvincing. In late August, prices move decidedly above the neckline and stage a definitive breakout. Even so, it is not until 2 weeks later that volume advances noticeably.

Identification Guidelines

Table 24.1 encapsulates the identification guidelines for HSBs. Consider Figure 24.3, a head-and-shoulders bottom. The formation does not appear at the end of a long-term downtrend but at a short-term one (up to 3 months). The uptrend begins the prior June with another head-and-shoulders bottom. The formation reverses the slight short-term downtrend but continues the long-term uptrend.

Shape. Overall, the formation sports the three telltale troughs: left shoulder, head, and right shoulder. The left shoulder is at about the same price level as the right one and appears to be about the same width. Such symmetry is common in head-and-shoulders formations (tops, bottoms, and the complex variety). If the left shoulder is sharp or pointed, the right shoulder will be too.

The head is below both shoulders by a reasonable amount. By this characteristic I mean the formation is not a triple bottom—three troughs at about the same price level.

Table 24.1
Identification Characteristics

Characteristic	Discussion
Shape	A three-trough formation with the center trough below the other two. It looks like a head-and-shoulders bust flipped upside down. The three troughs and two minor rises should appear well defined.
Symmetry	The left and right shoulders should be opposite one another about the head, somewhat equidistant in both time and price. There are wide variations, but the formation is noticeably symmetrical about the head.
Volume	Usually highest on the left shoulder or head and diminished on the right shoulder.
Neckline	A line that connects the rise between the two shoulders. A neckline pierce signals an upward breakout. For up-sloping necklines, use the highest high in the pattern as the breakout price.
Upward breakout	The breakout is upward, usually on high volume that powers prices upward. A low volume breakout is <i>not</i> an indicator of an impending failure.

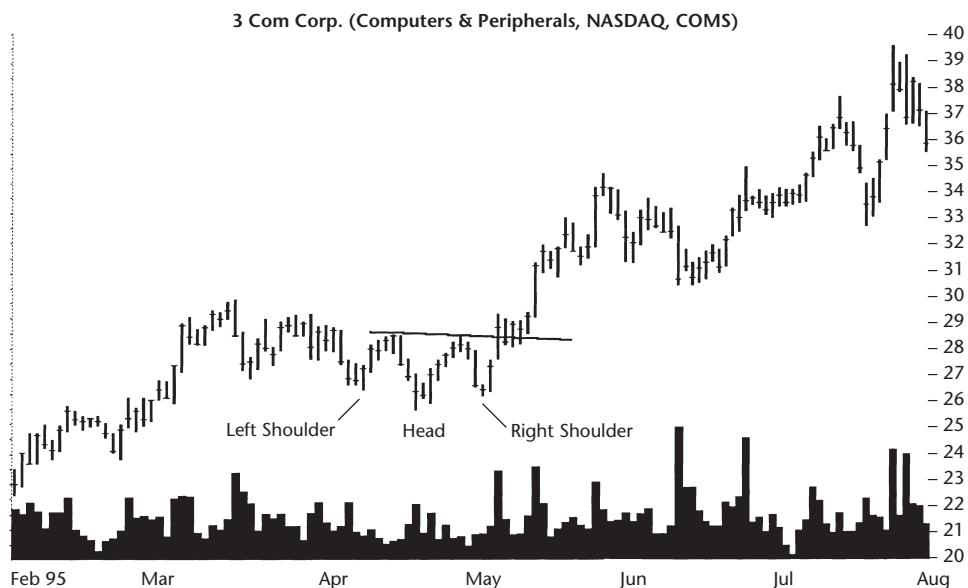


Figure 24.3 A rare head-and-shoulders consolidation of the primary uptrend.

In Figure 24.3, the left shoulder suddenly declines for 3 days, then reverses and climbs to a minor high. Similarly, the rise between the head and right shoulder climbs almost to the height of the rise between the left shoulder and head then descends to the right shoulder. All five features, the three troughs and two minor rises, appear well defined and distinct. The features are important as you scan your charts looking for head-and-shoulders bottoms.

Symmetry. Symmetry is another important key to selecting a valid head-and-shoulders bottom. The right side of the formation usually mimics the left side. The right shoulder declines to about the price level of the left shoulder and the distances of both from the head are similar. Of course, there are many variations, but symmetry should make a head-and-shoulders bottom stand out from a sequence of any three depressions.

Volume. Volume represents another clue to the validity of a bottom. The left shoulder or head has the highest volume, with diminished volume on the right shoulder.

Breakout volume is usually high as it pushes prices above the neckline. However, in a quarter of the formations in a bull market, breakout volume is well below the 30-day average. As a rule, volume will rise on the day of the breakout, but it need not.

Neckline. The neckline is an imaginary line connecting the two rises between the shoulders and the head. It can slope downward or upward. In well-formed formations, the slope of the line is not very steep, but a steep neckline should not be a disqualifier of a head-and-shoulders bottom (see Figure 24.1—it has a rather steep neckline).

Upward breakout. When price closes above a down-sloping trend line or above the highest high in the pattern, that occurrence marks a breakout. Use the formation high as the breakout point instead of an up-sloping neckline because you will get a buy signal sooner. You may never get a signal in an HSB with a steep up-sloping neckline.

Focus on Failures

Like most formations, there are two types of failures. The first type, shown in Figure 24.4, is a failure of the head-and-shoulders bottom to pierce the neckline and move higher. As you would expect, the formation appears after a downtrend in prices. The highest price peak is partly visible in the upper left corner of Figure 24.4. From the high of 38.75, prices fall to the low at the head, 21.25, a decline of 45%. When the bottom forms, it should signal a trend reversal.

An interesting thing about the formation in Figure 24.4 is that the left shoulder is almost the same shape as the right. Only a dollar separates the two shoulder lows and the head is well below both shoulder troughs. The right shoulder is somewhat farther away from the head than the left. This characteristic is typical.

Volume is suspiciously low throughout the formation. The left shoulder and head register about the same level of volume. The right shoulder volume, however, is higher than the other two. Of course, an irregular volume pattern is no reason to discard a formation—but it serves as a warning.

After the right shoulder forms and price begins rising, volume tapers off rapidly, and the attempt to pierce the neckline fails. The rally attempt does not even come close to the neckline.



Figure 24.4 Failure of a head-and-shoulders bottom to stage an upside breakout.

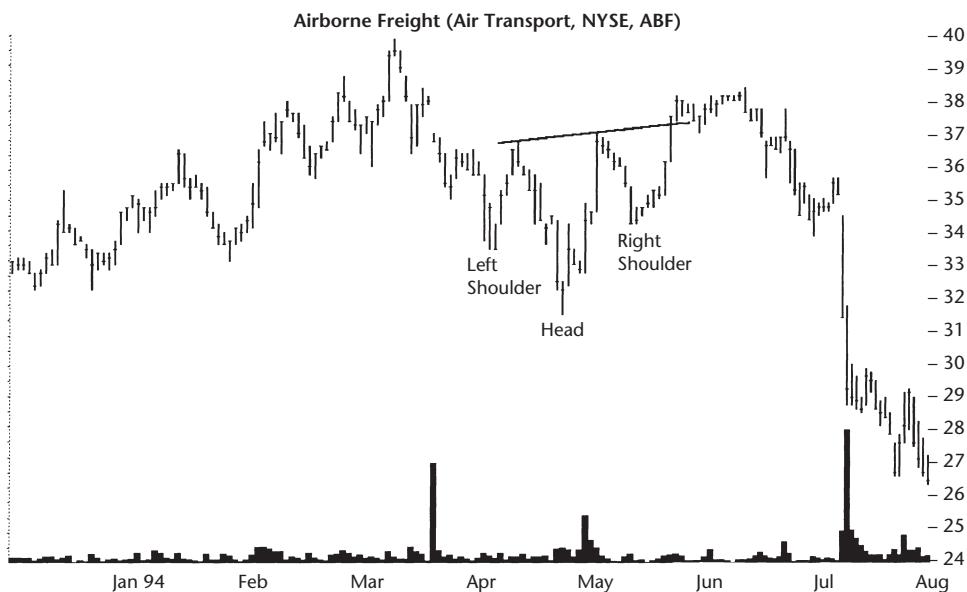


Figure 24.5 A 5% failure in a head-and-shoulders bottom. Prices must rise by at least 5% before the formation is a success. A 5% rise should take prices to 39.38 but it does not happen.

Looking at the overall formation, there is no one item that signals an impending failure. There is some suspicious activity, principally the abnormal volume pattern, but nothing to deter an investor.

Figure 24.5 shows a slightly different type of failure. This is what I call a 5% failure. The two shoulders and head appear well formed and distinct. The left shoulder looks different from the right, but the twin rises between the shoulders are similar. The price level of the two shoulders is not suspiciously out of line.

Volume is unusual. The only heavy volume appears near the head as prices rise away from it toward the right shoulder. The right shoulder volume looks like something you would want to tackle with your shaver: annoying but not high enough to be alarming.

Price advances smartly after the right shoulder forms. Once price rises above the stair-step incline, it zooms upward for 3 days and then stops. The stock moves sideways for 2 weeks before starting back down.

Although this formation does have an upward breakout, price fails to rise by more than 5% above the neckline. Price should reach 39.38 to meet the 5% threshold, but does not. The result is a failure of the 5% rule: Prices must rise by more than 5% after a breakout or the formation is a dud.

Statistics

Table 24.2 shows general statistics for HSBs.

Table 24.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	554	118
Reversal (R), continuation (C)	554 R	118 R
Average rise	38%	30%
Rises over 45%	187 or 34%	28 or 24%
Change after trend ends	-31%	-33%
Busted pattern performance	-27% ^a	-31% ^a
Standard & Poor's 500 change	16%	-1%
Days to ultimate high	176	107

Note: Minus sign means decline.

^aFewer than 30 samples.

Number of formations. I found 672 HSBs, most of them coming from a bull market. I looked at 500 stocks in each market, but HSBs seem to hide in a bear market, and the bear market was substantially shorter, too.

Reversal or continuation. By definition, HSBs act as reversals of the prevailing price trend. Why? Because we are talking about bottom patterns with upward breakouts—they reverse the downward price trend.

Average rise. In a bull market, the average rise is a respectable 38%. In a bear market; the rise averages 30%. This finding suggests that you should trade with the market trend. Go long in a bull market; short in a bear market. Do not short an HSB. Instead, find a *bearish* chart pattern to short.

Rises over 45%. A quarter to a third of the patterns climb more than 45%. That is a good showing.

Change after trend ends. After price reached the ultimate high, it tumbled by over 30%. That behavior is a good reason for selling a buy-and-hold position. If your stock is going to have a 30%-off sale, why not sell now and save your money instead of holding on and riding the stock back down?

Busted pattern performance. Busted patterns might be worth a look, depending on when you trade them. A true busted pattern, one in which prices climb 5% after the breakout, is rare. Trying to differentiate a throwback from a new downtrend makes busted patterns difficult to trade.

Standard & Poor's 500 change. Notice the average rise difference between bull and bear markets and the S&P change between markets. The general market seems to push prices higher in a bull market and holds down performance in a bear market. For the best performance, go long when the market is rising.

Days to ultimate high. Prices climb faster in a bear market. That is an interesting finding if you happen to be in a bear market. Although the average rise will not be as large, you will top out sooner, allowing you to trade more often.

Table 24.3
Failure Rates

Maximum Price Rise (%)	Bull Market	Bear Market
5 (breakeven)	15 or 3%	5 or 4%
10	58 or 10%	19 or 16%
15	119 or 21%	30 or 25%
20	169 or 31%	43 or 36%
25	216 or 38%	54 or 46%
30	264 or 48%	69 or 58%
35	305 or 55%	74 or 63%
50	392 or 71%	93 or 79%
75	464 or 84%	107 or 91%
Over 75	554 or 100%	118 or 100%

Table 24.3 lists failure rates for HSBs. They start out small, 3% or 4%, but climb rapidly. By the time price climbs 35%, well over half will have failed to climb that far.

How do you use the table? Imagine that your cost of trading is 5%. That should include commission, SEC fee, and any other expenses. If you want to have a 10% profit margin (15% total), how many HSBs fail to rise by at least 15%? In a bull market, 21% will fail to climb that far. In a bear market, 25% will fail to make the grade. Thus, if you trade the HSB *perfectly*, you have a good chance of making your 15% margin. You might want to add a bit extra to accommodate “nonperfect” trades. For a minimum 20% rise, about a third of the patterns will fail to rise that far.

Table 24.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. It takes just over 2 weeks for price to climb from the right shoulder low and close above the neckline (down-sloping necklines) or above the formation high (up-sloping necklines).

Yearly position. Where in the yearly trading range does the breakout reside most often? The middle third of the yearly price range shows the most HSBs.

Yearly position, performance. HSBs in bull markets do best when the breakout is near the yearly high—they rise an average of 42%. In a bear market, those near the yearly low do best with rises averaging 43%.

Throwbacks. Throwbacks occur nearly half the time and when they do happen, it takes about 10 or 11 days for price to return to the breakout price. If a throwback occurs in a bull market, performance suffers. In a bear market, there is no performance difference (which is unusual as patterns without throwbacks typically do better).

Gaps. Does a gap on the breakout day indicate better performance? Yes. HSBs with a breakout gap perform better than do those without a gap. This

Table 24.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	16 days	17 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L35%, C43%, H22%	L35%, C47%, H18%
Percentage rise for each 12-month lookback period	L37%, C37%, H42%	L43%, C26%, H27% ^a
Throwbacks	45%	51%
Average time to throwback ends	11 days	10 days
Average rise for patterns with throwback	32%	30%
Average rise for patterns without throwback	43%	30%
Performance with breakout day gap	43%	34%
Performance without breakout day gap	37%	30%
Average gap size	\$0.32	\$0.20

^aFewer than 30 samples.

behavior is most pronounced in a bull market when the rise averages 43% after a gap and 37% without a gap.

Table 24.5 shows a frequency distribution of days to the ultimate high. Few patterns flame out in the first week. Many patterns take longer than 70 days (about 2.5 months) to reach the ultimate high. Between that time, look for the price trend to weaken about a month after the breakout in a bear market. That is when the numbers show a slight rise. Bull markets show blips at days 42 and 56 (6 and 8 weeks after the breakout).

Table 24.6 shows size statistics for the HSB pattern.

Height. Most chart patterns perform best when the pattern is taller than the median, and HSBs are no exception. In a bear market, for example, tall patterns have an average rise of 34%, but short ones rise just 27%. I measured height from the highest high to the lowest low in the pattern then divided by the breakout price so I was comparing apples to apples.

Width. Narrow patterns perform better than wide ones, which may surprise you. Many experienced technical analysts will tell you that “large” patterns perform better than small ones, but I found the results unconvincing.

Table 24.5
Frequency Distribution of Days to Ultimate High

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	14%	9%	4%	8%	8%	6%	4%	3%	3%	1%	39%
Bull market	10%	5%	5%	5%	3%	4%	2%	4%	2%	2%	57%

Table 24.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	41%	34%
Short pattern performance	36%	27%
Median height as a percentage of breakout price	18.81%	24.22%
Narrow pattern performance	39%	33%
Wide pattern performance	37%	27%
Median length	55 days	50 days
Average formation length	70 days	69 days
Short and narrow performance	38%	27%
Short and wide performance	33%	27% ^a
Tall and wide performance	40%	28%
Tall and narrow performance	43%	50% ^a

^aFewer than 30 samples.

Some wide patterns do well and some narrow ones do well. I used the median length to separate narrow from wide HSBs.

Average formation length. HSBs average about 2 months long.

Height and width combinations. I looked at the combinations of height and width, then gauged performance. The best performing HSBs are those that are both tall and narrow, as one might expect from their individual performance. The worst performers are short and wide, so you will want to avoid those.

Table 24.7 shows volume statistics for HSBs.

Table 24.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	36%	23%
Falling volume trend performance	39%	33%
U-shaped volume pattern performance	44%	35% ^a
Dome-shaped volume pattern performance	37%	29%
Neither U-shaped nor dome-shaped volume pattern performance	36%	30% ^a
Heavy breakout volume performance	37%	31%
Light breakout volume performance	41%	29%
Performance when volume highest on left shoulder	38%	33%
Performance when volume highest on head	39%	30%
Performance when volume highest on right shoulder	36%	23% ^a

^aFewer than 30 samples.

Table 24.8
Miscellaneous Statistics

Description	Bull Market	Bear Market
Up-sloping necklines, performance	34%	24%
Horizontal necklines, performance	34%	38% ^a
Down-sloping neckline, performance	42%	35%
Higher left shoulder lows, performance	39%	35%
Higher right shoulder lows, performance	37%	25%
Even shoulder lows, performance	37%	63% ^a

^aFewer than 30 samples.

Volume trend. In both markets, HSBs with a falling volume trend performed better after the breakout than did those with a rising volume trend.

Volume shapes. The most prevalent volume shape was a dome appearance, with volume highest on the head and tapering off toward the shoulders. However, this shape was not the best performing. Patterns with U-shaped volume performed best in both bull and bear markets.

Breakout volume. Does high breakout volume guarantee better performance? No. In a bull market, patterns with light breakout volume performed best. In a bear market, those with heavy breakout volume did slightly better than did those with light volume.

Shoulder volume and performance. I separated HSBs into those with volume highest on the left shoulder, head, and right shoulder. In a bull market, when the head showed the highest volume (5 days surrounding each valley) of the three, prices climbed 39%. In a bear market, HSBs with volume highest on the left shoulder performed best by rising 33%.

Table 24.8 shows miscellaneous statistics for HSBs.

Neckline slope. HSBs with down-sloping necklines in a bull market performed substantially better than the other combinations, 42% versus 34%. In a bear market, necklines that were flat performed well, but that was with a small sample size.

Shoulder lows. “Higher left shoulder lows.” I am comparing the lowest price in each shoulder. When the left shoulder has a higher low price, the average rise after the breakout was 39%, the best of the bull market numbers. For bear markets, the best performance came from shoulders at the same price, but that observation used only two samples.

Trading Tactics

Table 24.9 discusses trading tactics for head-and-shoulders bottoms.

Table 24.9
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the formation height by subtracting the value of the lowest low reached in the head from the neckline, measured vertically. Add the difference to the point where prices pierce the neckline. The result is the target price to which prices will rise, at a minimum. For up-sloping necklines, substitute the rise between the head and right shoulder (that is, the highest price in the rise) for the neckline breakout price.
Wait for confirmation	If you can determine that a head-and-shoulders formation is completing, consider buying the stock. This formation rarely disappoints and the rise is worth betting on. However, you must be sure that a head-and-shoulders bottom is present. Otherwise, wait for price to close above the neckline or highest high.
Stop loss	Place a stop-loss order below the lower of the two shoulders. Often, prices drop to the shoulder lows before meeting support. Raise the stop as prices climb.
Watch for throwback	If you miss the upward breakout, wait. Half the time, the stock will throw back to the neckline. Once it does, buy the stock or add to your position.

Measure rule. Use the measure rule to predict the minimum price move once prices break above the neckline. In Figure 24.6, the head marks the lowest price in the formation. Subtract its price from the value of the neckline at that point. In this example, the head has a daily low price of 13.13 and the neckline, measured vertically, is at 17.50. Add the difference, 4.38, to the price where the stock closes above the neckline. This occurs on March 28. I use its daily low price of 15.50 on that day to get a target price of 19.88. Prices reach the target in mid-July.

Wait for confirmation. If you can determine that a head-and-shoulders bottom is forming, then there is no need to wait for confirmation (that is, for prices to close above the neckline) before placing a trade. With a low failure rate, your guess will get you in at a lower level and yield higher profits. However, this result hinges on the validity of a head-and-shoulders bottom. If you guess wrong, you could see your profits rapidly turn into a loss. If you are unsure whether the price series is indeed a head-and-shoulders bottom, wait for prices to move above the neckline or right neckline high (highest high in the pattern) before investing. That is always the safe play.

The two shoulders are common support areas. Figure 24.6 shows an example of this characteristic. The lower of the two shoulders, in this case the right shoulder, supports the stock in late October.

Stop loss. After placing a trade, consider setting a stop-loss point 0.15 or so below the lower of the two shoulders. Should prices decline, they often turn

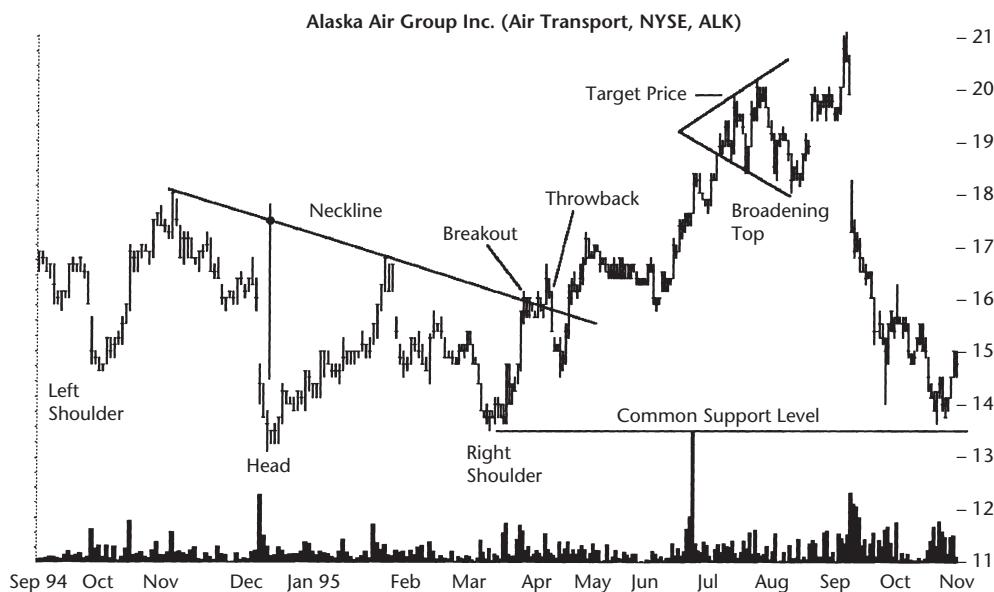


Figure 24.6 A head-and-shoulders bottom. Compute the measure rule by subtracting the lowest low from the neckline vertically to find the formation height. Add the difference to the point where price closes above the neckline. The result is the target price to which the stock will climb, at a minimum. A broadening top appears in July, near the target.

back before declining below the shoulder lows. If this is too far away from the purchase point, place your stop 0.15 below at the closest support zone. Raise your stop as prices climb.

Watch for throwback. Since a throwback occurs about half the time, if you miss the breakout, you may have another chance to invest. Buy once price resumes its upward trend after the throwback.

Sample Trade

Some people might consider Bob unlucky, but he has an adoring wife and two children. Employed as a blue collar worker in a nearby auto plant, he is happy when he is working. Unfortunately, strikes by the union have taken their toll on his savings and he has been looking for ways to supplement his income.

Ever since he was a boy, Wall Street has held his fascination. He has wanted to play the market and when he saw the head-and-shoulders bottom pictured in Figure 24.6, he decided to deploy some of his savings. He bought at 16, the day after prices pushed through the neckline.

For over a week, the stock did fine. Prices slowly moved up and reached a high of 16.63, then reversed. The stock threw back to the neckline and

continued lower. Suddenly, he was losing money. Should he sell and take a loss or hang on because he knew it was going higher?

He decided to tough it out. The stock bottomed at 14.50 and quickly recovered. It reached a higher high, then moved sideways for over a month, drifting slightly lower. Bob was not worried because he was making money. It was not a lot, but with patience, he knew he would do okay.

During the summer, things heated up for the airline and the stock took off. Almost on a daily basis, it flew higher, making new highs. A bearish broadening top appeared but Bob did not know about such things. He felt giddy in the thin atmosphere in which the stock was flying. The stock entered the clouds at 21.38.

When the airline stock hit turbulence in mid-September and headed for the ground, Bob could not believe it. The stock was plummeting and all he could do was watch his profits spin lower like the stock's altimeter. He talked it over with his wife and they decided to hold on. "It'll come back to its old high and when it does, I'll sell it."

The stock continued down. Soon, his profits gone, he was posting losses. He maintained his firm stance that he would not sell until the price climbed back to the old level.

During October, things changed. The stock pulled up just before nosing into the ground, at 13.63, and not only leveled out, but started climbing again. In a month he was at breakeven.

At the start of the new year, a descending broadening wedge took prices lower as it widened but turned out to be a bullish omen. In mid-January, on unremarkable volume, the stock turned the corner. Volume climbed, helping prices reach a higher altitude.

As the stock closed in on his target of 21.38, Bob called his broker and placed an order to sell at that price. In late February, the stock began a straight-line run. It soared through 21.38, hitting his sell order but kept climbing. In just over a month it reached 30.

Bob no longer invests in stocks. Would you have traded it differently? What lessons can you learn from his mistakes?

For Best Performance

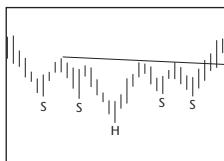
The following list includes tips and observations for selecting HSBs that perform well. Consult the associated table for more information.

- Use the identification guidelines to help select the pattern—Table 24.1.
- Trade this pattern in a bull market for the highest average rise—Table 24.2.

- Patterns in a bull market show the lowest failure rates—Table 24.3.
- In a bull market, buy HSBs near the yearly high. In a bear market, patterns near the yearly low do best—Table 24.4.
- Throwbacks hurt performance in a bull market—Table 24.4.
- Select patterns with breakout day gaps—Table 24.4.
- Expect the price trend to weaken a month after the breakout in a bear market, 6 to 8 weeks in a bull market—Table 24.5.
- Tall or narrow patterns perform better than short or wide ones. Patterns that are both tall and narrow do best—Table 24.6.
- Select HSBs with a falling volume trend—Table 24.7.
- Patterns with U-shaped volume do well—Table 24.7.
- Select patterns with light breakout volume in a bull market and heavy breakout volume in a bear market—Table 24.7.
- Patterns with higher left shoulder lows tend to outperform—Table 24.8.

25

Head-and-Shoulders Bottoms, Complex



RESULTS SNAPSHOT

Upward Breakouts

Appearance	An inverted head-and-shoulders formation with multiple heads, shoulders, or both	
Reversal or continuation	Short-term bullish reversal	
	Bull Market	Bear Market
Performance rank	9 out of 23	4 out of 19
Break-even failure rate	4%	3%
Average rise	39%	31%
Change after trend ends	-29%	-33%
Volume trend	Downward	Downward
Throwbacks	63%	66%
Percentage meeting price target	74%	49%
Surprising findings	The rise in a bear market is steeper than the rise in a bull market. Throwbacks hurt performance but gaps help it. Patterns with a rising volume trend, random volume shape, and heavy breakout volume outperform. Patterns with down-sloping necklines do well.	
See also	Cup with Handle; Double Bottoms (all varieties); Head-and-Shoulders Bottoms; Horn Bottoms; Rounding Bottoms	

I find that a complex head-and-shoulders bottom is more difficult to recognize than a normal head-and-shoulders bottom but not alarmingly so. After all, if you can locate a normal head-and-shoulders bottom, then there is a decent chance that you are also looking at a complex one. If you look to the left and right of the two shoulders, you might see additional shoulders. Multiple shoulders are one indication of a complex formation. But before I delve too far into pattern recognition, let me briefly review the important snapshot statistics.

The complex head-and-shoulders bottom (CHSB) is a strong performer with a low break-even failure rate and a very good average gain after the breakout. The volume trend slopes downward, and about two-thirds throw back to the breakout price. However, when a throwback occurs, performance suffers. Thus, you should look for nearby overhead resistance and avoid patterns showing it.

To improve postbreakout performance, look for patterns with a rising volume trend, random volume shape, or heavy breakout volume, or having a down-sloping neckline. CHSBs with those qualities tend to perform better than do CHSBs without those traits.

Tour

There are two types of complex head-and-shoulders bottoms: those with multiple shoulders and those with multiple heads. Consider the chart in Figure 25.1, a complex head-and-shoulders bottom. The chart pattern has two left

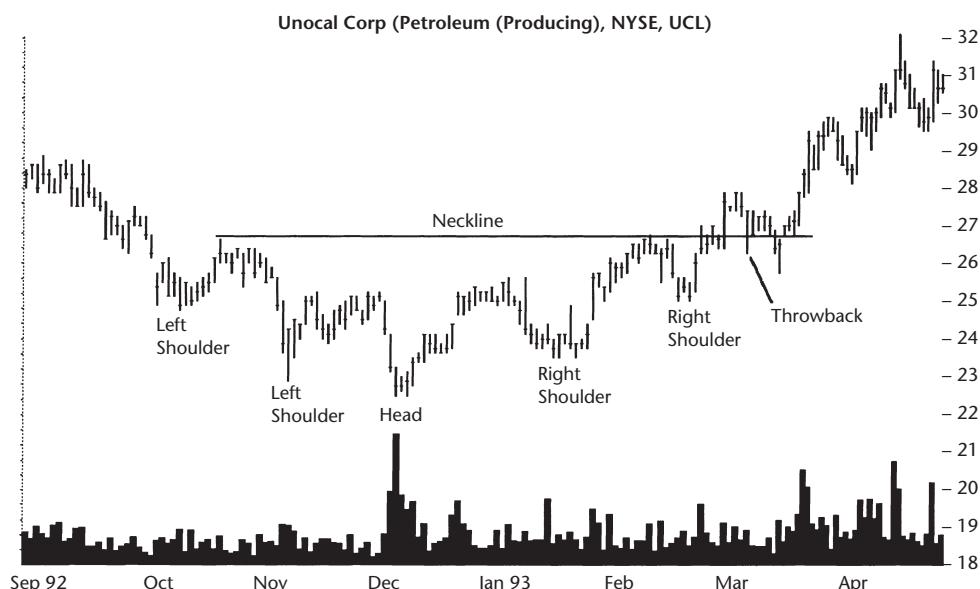


Figure 25.1 A dual-shoulder complex head-and-shoulders bottom. Notice the horizontal neckline and throwback to it. The formation is part of a rounding bottom chart pattern.

shoulders, a single head, and two right shoulders. If you were scanning your charts for normal head-and-shoulders bottoms, this one would probably pop up. The left and right shoulders are well defined and the head is below them. As you widen your view, you see an additional pair of shoulders; the left shoulder is about the same distance from the head as the right one. The two outermost shoulders are near the same price level too.

Looking at all the shoulders and the head together, the chart is a good example of a complex head-and-shoulders bottom. However, the volume pattern is unusual as it is heavier on the right than on the left. Most of the time, the left shoulders show higher volume than the right pair, but the head has the highest volume about half the time.

If you ignore the various labels, you can see a rounding bottom. Although the volume pattern is not a characteristic bowl-shaped pattern, the gentle turn of prices (if you connect the minor lows) supports a bottom formation. However you choose to classify this pattern, the bullish reversal is clear.

Shown in Figure 25.1 is a throwback to the neckline, a common occurrence for the head-and-shoulders family, especially the complex variety. Although it takes a week or two before prices really begin moving up, the stock climbs to a high of 32.63 before retracing its gains.

Compare Figure 25.1 with Figure 25.2, a complex bottom with two heads. Overall, the formation is quite symmetrical. There are two shoulders and two heads. A neckline connects the highs in the formation and projects forward in time until prices close above it. The penetration of the neckline is the breakout point.



Figure 25.2 A dual-head reversal. Volume on the left side of the formation is higher than on the right.

In Figure 25.2, the breakout in mid-November quickly throws back to the neckline and moves lower for a week or two. The stock rises but throws back again before finally breaking away and heading higher. By late March the stock reaches a high of 16.63, well above the head low of 9.19.

Volume on the left side of the formation is heavier than on the right. In this regard, the formation is more typical than that shown in Figure 25.1.

Identification Guidelines

Are there certain characteristics that make head-and-shoulders bottoms easy to identify? Yes, and they are outlined in Table 25.1.

Shape. As discussed before, there are two general types of complex head-and-shoulder bottoms: those with multiple shoulders and those with multiple heads (rarely do you have both). Figure 25.3 shows a complex bottom with multiple shoulders. The head is distinctly below the shoulders, far enough below to distinguish the chart pattern from a triple bottom.

Symmetry. In this case, there is a normal head-and-shoulders bottom flanked by an additional pair of shoulders. The overall formation appears symmetrical. The two left shoulders match the two on the right in distance. Figure 25.3 shows a far right shoulder that is higher than its corresponding left one. However, the basic symmetrical pattern is typical for nearly all complex head-and-shoulders bottoms.

Volume. Figure 25.3 also shows the usual volume pattern: The two left shoulders show higher volume than the two right ones. Overall, the volume trend is a receding one.

Near horizontal neckline. The neckline connects the highest peak on the left with the highest peak on the right. Most of the time the line is nearly horizontal. Although this is subjective, a scan of all the formations indicates that 74% obey this guideline. Many of the formations shown in this chapter have near horizontal necklines.

Upward breakout. For those with up-sloping necklines, use the highest high in the formation as the breakout price. Using a steep up-sloping neckline to gauge the breakout point is risky. Prices may never close above the neckline.

Once price closes above the neckline, a breakout occurs. Quite often, prices throw back to the neckline and perhaps move lower before ultimately continuing higher. Figure 25.2 shows an example of this behavior during late December when prices plunged from a high of 11.50 to 9.44, a decline of almost 20% in just 2 days! When the decline ended, prices recovered quickly.

The formation shown in Figure 25.3 is unusual because it acts as a consolidation of the uptrend. Prices from November through January climb steadily and then resume moving up after the breakout. The formation is a consolidation region, where prices move horizontally for a spell.

Table 25.1
Identification Characteristics

Characteristic	Discussion
Shape	A head-and-shoulders bottom with multiple shoulders, multiple heads, or (rarely) both. The head is lower than the shoulders but generally not by very much.
Symmetry	The tendency for the shoulders to mirror themselves about the head is strong. The price level of the shoulders and time distance from the shoulder to head is about the same on either side of the head. The shoulders also appear to be the same shape: Narrow or wide shoulders on the left mirror the right.
Volume	Usually higher on the left side than the corresponding shoulders on the right. Overall, the volume trend recedes. Many times, volume is highest on the head.
Near horizontal neckline	Connects the highest rise on the left and right of the formation center. Many, but not all, formations have near horizontal necklines.
Upward breakout	A breakout occurs when price closes above the down-sloping neckline. For those cases with an up-sloping neckline, use the highest price between the head and rightmost shoulder as the breakout price.

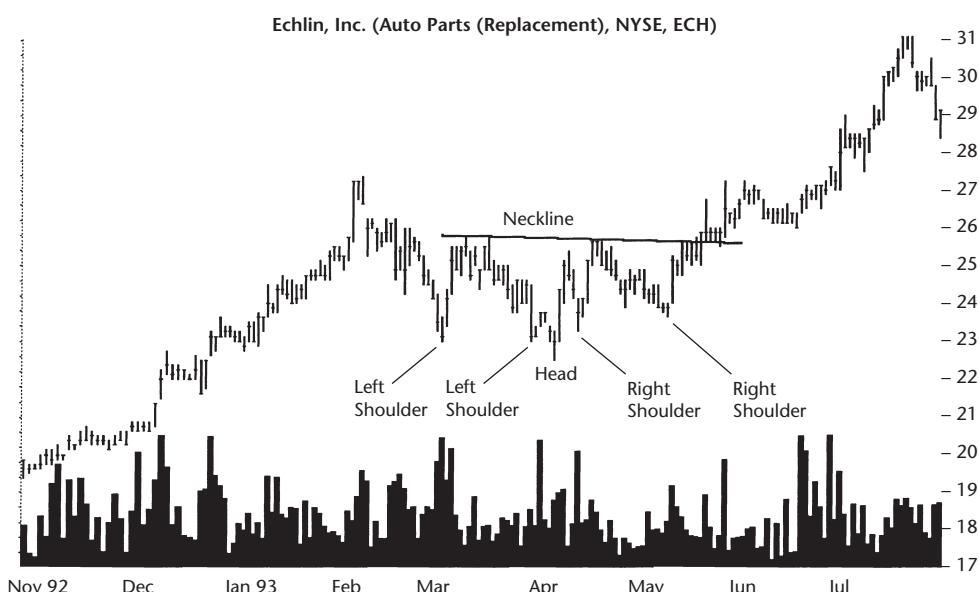


Figure 25.3 A complex head-and-shoulders consolidation. The trend resumes moving up once the formation completes.

Focus on Failures

If making money in the stock market is important to you, it pays to study your failures. The lessons you learn will serve you for many years. When you look at your failures as a group, you may begin to see trends. Such is the case with chart formations.

Figure 25.4 shows a typical failure of a complex formation to reverse the downtrend. After the head-and-shoulders formation completes, prices *do* climb, but only to 57.13. Prices squeeze above the neckline and close there for just a handful of days before sliding below the neckline in early March. Ultimately, the stock reaches 40.63 in August.

The left shoulder shows tremendous volume. Volume diminishes at the dual heads, and the right shoulder shows even less volume. Breakout volume is anemic and may explain why the formation fails.

I count any formation with prices that fail to rise by more than 5% as a failure. Figure 25.4, for example, falls under the 5% rule. The breakout is upward, but prices fail to climb very far before reversing direction. Once prices decline below the head, I know that there is no hope and mark the formation a failure.

I found no reliable clues that indicate an eventual failure of a complex head-and-shoulders bottom. This should not be alarming since failures represent only 4% of the formations, but always use a stop to protect yourself.

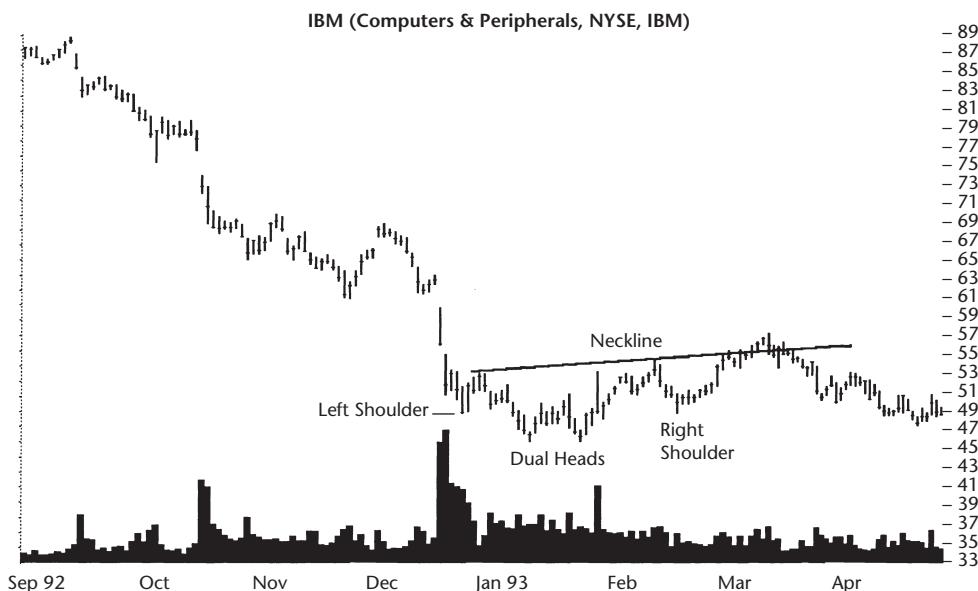


Figure 25.4 A failure of the complex head-and-shoulders formation to climb more than 5% after an upward breakout. Just 4% of the formations fail in this manner.

Statistics

Table 25.2 shows general statistics for CHSBs.

Number of formations. I thought this chart pattern would be easy to find and plentiful. I searched 500 stocks from 1991 to 1996 and another 500 bracketing the bear market and found 366 patterns. Most were from the bull market because it was longer.

Reversal or continuation. Since we are dealing with bottom patterns with price dropping into the pattern and rising out of it, all patterns act as reversals. That is the theory. In practice, the pattern sometimes forms as the corrective phase of a measured move up chart pattern with prices pausing during an upward price trend.

Average rise. The performance of a CHSB is very close to the performance of a simple head-and-shoulders bottom, which surprises me. The average rise in a bull market is 39%, a good showing. In a bear market, when the trade is like swimming against the tide, the rise averages 31%. Both numbers are above the average of all chart pattern types.

Rises over 45%. Over a quarter of the patterns show rises larger than 45%. As expected, more CHSBs in a bull market do better than do those in a bear market. For the best results, trade CHSBs in a bull market.

Change after trend ends. Once price reaches the ultimate high, it tumbles about 30%, giving back nearly all of the gains on the journey up. Thus, selling as close to the top as possible is much better than a buy-and-hold strategy.

Busted pattern performance. Busted patterns perform as you would expect from a bearish price turn. If you decide to trade a busted pattern, limit your selection to those in a bear market.

Standard & Poor's 500 change. The S&P climbed an astounding 20% from the CHSB's date of breakout to the ultimate high in a bull market. In a bear market, the general market declined 2%. With such a strong market, I

Table 25.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	268	98
Reversal (R), continuation (C)	268 R	98 R
Average rise	39%	31%
Rises over 45%	90 or 34%	26 or 27%
Change after trend ends	-29%	-33%
Busted pattern performance	-23% ^a	-30% ^a
Standard & Poor's 500 change	20%	-2%
Days to ultimate high	257	107

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 25.3
Failure Rates

Maximum Price Rise (%)	Bull Market	Bear Market
5 (breakeven)	10 or 4%	3 or 3%
10	32 or 12%	13 or 13%
15	59 or 22%	25 or 26%
20	82 or 31%	32 or 33%
25	101 or 38%	44 or 45%
30	125 or 47%	52 or 53%
35	149 or 56%	62 or 63%
50	190 or 71%	77 or 79%
75	228 or 85%	88 or 90%
Over 75	268 or 100%	98 or 100%

would expect the average rise to be much higher than the one posted (because the “average rise” in a bear market is nearly as good despite the market tide moving against the uptrend).

Days to ultimate high. It took over twice as long to reach the ultimate high in a bull market than in a bear market. That finding means the rise in a bear market was steeper than that in a bull market.

Table 25.3 shows failure rates for the CHSB pattern. As far as failures go, CHSBs hold up well. Between 3% and 4% of the patterns I looked at failed to rise at least 5% (the breakeven rate). Half the patterns fail to rise more than about 30% after the breakout, but that is still a very good showing.

As you scan down the columns, notice how quickly the failure rate climbs as the maximum price rise increases. At the 10% maximum price rise, the failure rate is 12%—triple the prior reading (bull market). For the 15% price rise level, the failure rate almost doubles to 22%. Bear markets show a similar trend of enormous failure rate increases for small price rises.

What does this information mean? Invest wisely and keep track of your trade. Recognize that the higher price climbs, the closer the stock is to completing its journey to the summit.

Table 25.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. It takes about 2 to 3 weeks for prices to rise from the right shoulder low (the end of the pattern for statistical purposes) to the breakout point.

Yearly position. Most CHSBs have breakouts that reside in the middle of the yearly trading range. Since the breakout is at the top of the pattern and since the pattern is usually large, the result makes sense.

Yearly position, performance. The best performing CHSBs have breakouts in the middle of the yearly price range for bull markets and anywhere

Table 25.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	20 days	14 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L24%, C46%, H30%	L33%, C49%, H18%
Percentage rise for each 12-month lookback period	L32%, C46%, H33%	L33%, C29%, H33% ^a
Throwbacks	63%	66%
Average time to throwback ends	11 days	10 days
Average rise for patterns with throwback	37%	28%
Average rise for patterns without throwback	42%	39%
Performance with breakout day gap	46%	34% ^a
Performance without breakout day gap	38%	31%
Average gap size	\$0.32	\$0.38

^aFewer than 30 samples.

except the middle for bear markets. Additional bear market samples might change the result.

Throwbacks. A throwback occurs in about two-thirds of the CHSBs I looked at. When they occur, it takes a bit less than 2 weeks for prices to curl around and return to the breakout price or neckline. When a throwback does occur, performance suffers. That may surprise you, but it is common for chart patterns. My thinking is that a throwback robs upward momentum. The key is to search for overhead resistance before trading, and to avoid it when possible.

Gaps. A gap that occurs during the breakout tends to push price higher in both markets. Gaps in a bear market are slightly larger than are those in a bull market, but samples are few.

Do patterns with large gaps perform better than small ones? I compared the gap size with the median gap size and found that patterns with large gaps in a bull market soared 56%, but patterns with small gaps climbed just 35%. In a bear market, the results flipped with small gaps outperforming large ones, 33% to 24%. In bear markets, the sample count was 19 (49 in a bull market), so do not place too much emphasis on the results.

Table 25.5 shows a frequency distribution of time to the ultimate high. Comparatively few patterns flame out in the first few weeks. After a month, 34% in a bear market and just 16% in a bull market have reached their ultimate highs. Many take well over 2 months before topping out, as the table shows.

The table has no real surprises except at a month after the breakout. A few more patterns tend to peak then. I have seen this result in other chart patterns, so keep that in mind when you trade.

Table 25.6 shows size statistics for CHSBs.

Table 25.5
Frequency Distribution of Days to Ultimate High

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	12%	11%	5%	6%	6%	3%	3%	1%	1%	6%	45%
Bull market	5%	4%	3%	4%	3%	3%	2%	3%	3%	2%	67%

Height. In many other chart pattern types, tall patterns perform better than short ones, but that is only true in bear markets for CHSBs. Tall patterns climb 34% after the breakout, and those shorter than the median climb 28%.

Width. In a bull market, look for wide patterns because they perform better than narrow ones. In a bear market, the results flip: Narrow patterns perform better. I used the median in all width comparisons, not the average.

Average formation length. CHSBs are long patterns, measuring 3 to 3.5 months long.

Height and width combinations. Looking at the various combinations of height and width, we find that in a bull market, CHSBs that are both short and wide perform best after the breakout. Notice how the combined performance (47%) is higher than the individual results for short patterns (39%) and wide patterns (42%). The combination removes poor performers.

For bear markets, the best performers come from tall and narrow patterns. They climb 41% after the breakout, but the sample size is small.

Table 25.7 shows volume statistics for CHSBs.

Volume trend. The best performance separation comes from the bear market, with CHSBs having a rising volume trend climbing 35% after the breakout, compared to a rise of 29% for those with falling volume. In a bull

Table 25.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	39%	34%
Short pattern performance	39%	28%
Median height as a percentage of breakout price	17.70%	27.84%
Narrow pattern performance	35%	32%
Wide pattern performance	42%	30%
Median length	90 days	69 days
Average formation length	101 days	86 days
Short and narrow performance	34%	27%
Short and wide performance	47%	31% ^a
Tall and wide performance	38%	29%
Tall and narrow performance	40%	41% ^a

^aFewer than 30 samples.

Table 25.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	40%	35%
Falling volume trend performance	38%	29%
U-shaped volume pattern performance	41%	30% ^a
Dome-shaped volume pattern performance	37%	31%
Neither U-shaped nor dome-shaped volume pattern performance	41%	35% ^a
Heavy breakout volume performance	40%	34%
Light breakout volume performance	34%	24%
Performance when volume highest on left shoulder	44%	31%
Performance when volume highest on head	36%	31%
Performance when volume highest on right shoulder	36%	31% ^a

^aFewer than 30 samples.

market, the difference is smaller, 40% to 38%, respectively. When selecting patterns to trade, look for a rising volume trend.

Volume shapes. Does the shape of volume from the far left shoulder to the far right one predict performance? Maybe. When the shape is random, that is, neither U nor dome shaped, the rise after the breakout is equal to or better than the other shapes.

Breakout volume. Both bull and bear markets show better performance when the breakout occurs on heavy volume (above the 30-day average).

Shoulder volume and performance. I compared the far left shoulder, lowest head, and far right shoulder for volume (using a 5-day average surrounding each) and found that those CHSBs with volume highest on the far left shoulder performed best by climbing 44% after the breakout in a bull market. CHSBs in a bear market showed no performance difference.

Table 25.8 shows miscellaneous statistics for CHSBs.

Neckline slope. The best performance comes from patterns with down-sloping necklines. A neckline is a line drawn along the highs between the shoulders. When the neckline slopes downward, a close above it signals a breakout and a valid CHSB pattern. It allows you to buy into a CHSB at a lower price than waiting for price to climb above the highest high. When the neckline tilts upward, the buy signal occurs when price closes above the highest high in the pattern. I use this signal to avoid waiting for a buy signal during steep up-sloping necklines (the signal may never occur). Table 25.8 shows the performance results. The 8% rise in a bear market for horizontal necklines is due to one sample, so ignore it.

Shoulder lows. I am sure you noticed the 111% rise in a bear market for the shoulder lows that have the same price. Ignore the result because I found

Table 25.8
Miscellaneous Statistics

Description	Bull Market	Bear Market
Up-sloping necklines, performance	35%	27%
Horizontal necklines, performance	33% ^a	8% ^a
Down-sloping neckline, performance	43%	34%
Higher left shoulder lows, performance	35%	30%
Higher right shoulder lows, performance	40%	32%
Even shoulder lows, performance	47% ^a	111% ^a

^aFewer than 30 samples.

only two samples. I compared the lowest lows in the far left shoulder to the far right shoulder. When the right shoulder low was higher than the left, price climbed farther after the breakout, 40% and 32% for bull and bear markets, respectively. The 24 samples in a bull market for shoulder lows at the same price had postbreakout rises averaging 47%.

Trading Tactics

Trading tactics are outlined in Table 25.9.

Measure rule. The measure rule predicts the expected minimum price move and is best explained by an example. Figure 25.5 shows a complex head-and-shoulders bottom on a weekly time scale with the head reaching a low of 13.50. Directly above that point, the neckline has a value of 18.63. The difference, 5.13, is the formation height. Add the difference to the breakout point (17) to get the minimum price move (22.13).

Table 25.9
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the formation height by subtracting the lowest low reached in the head(s) from the neckline, measured vertically. Add the result to the breakout price where prices pierce the neckline. The value is the minimum target price.
Trade inner head and shoulders	Trade the inner HSB. That approach will allow you to get in at a good price. See Chapter 24 on head-and-shoulders bottoms for specific trading hints.
Stop loss	Stocks sometimes decline to the lowest of the right shoulders then turn around. Look for support areas near the shoulders. Place a stop-loss order 0.15 below the lowest shoulder or head.
Watch for throwback	Buy or add to the position during a throwback. Wait for prices to finish falling before placing the trade as prices sometimes throw back and continue moving down.

The chart in Figure 25.5 shows a complex head-and-shoulders bottom that forms after nearly a 2-year run-up in prices. The formation marks a reversal of the 6-month retracement.

It took just 2 weeks after the breakout to reach the target, but the stock was not done climbing. It moved sideways for almost a year before continuing higher. The stock reached a high of 39.38, nearly triple the head low of 13.50 and more than double the breakout price.

Trade inner head and shoulders. Since a head-and-shoulders chart pattern is part of the larger CHSB, then trade the inner pattern. Buy when price pierces a down-sloping neckline or use the inner right shoulder high as the breakout price. Usually, this approach will get you in sooner and the signal is just as strong.

With dual heads, the pattern is somewhat different. The dual-head formation usually has head lows that are less than a month apart. Two heads that are close together distinguish the formation from a classic double bottom. Shoulder symmetry and a near horizontal neckline should put the finishing touches on formation identification.

Stop loss. Once you take a position in the stock, set your stop-loss point. Many times the various shoulder troughs will act as support levels. If your head-and-shoulders formation is near the yearly low, then there is a very good chance that prices will either turn around at the head or decline slightly below it (by 10% or so) before bottoming out. From that point, prices climb higher.

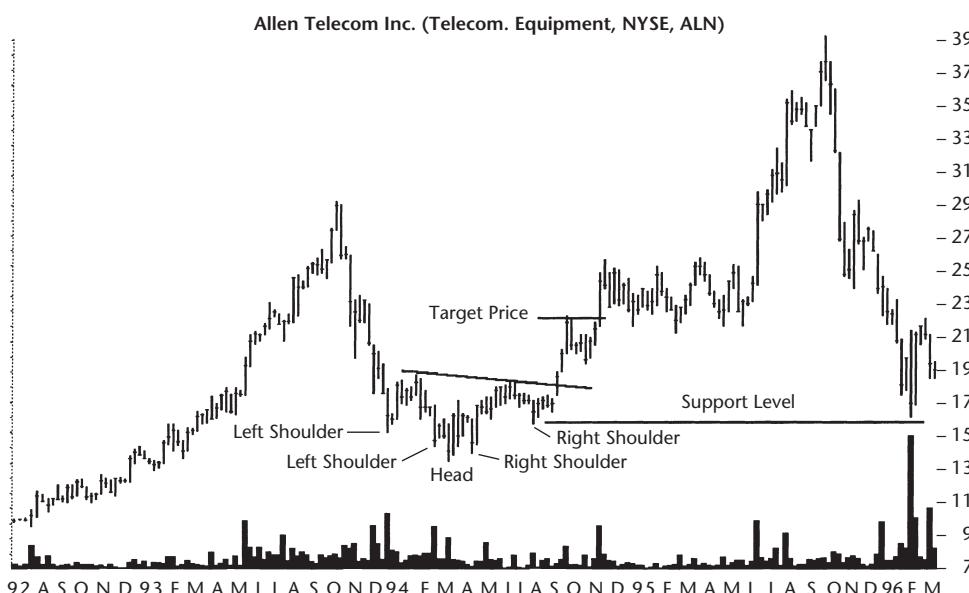


Figure 25.5 Complex head-and-shoulders bottom on a weekly time scale. The figure shows the target price found using the measure rule. Compute the formation height from the head low to the neckline and add the difference to the breakout price. The right shoulders often offer support during future declines.

If your formation is not within the lowest third of the yearly price range, then sell the stock once prices drop below the head. Prices falling below the head signal a formation failure, and it is best to cut your losses instead of praying that they will turn around. They will not.

Watch for throwback. After an upward breakout, over 60% of the time, the stock throws back to the neckline. Consider adding to your position or placing a long trade once prices stop declining. You should wait for prices to rebound on a throwback or else you could find yourself in a situation similar to that shown in Figure 25.2. Prices throw back to the neckline and then continue down for over a week. Depending on when you bought the stock, you could have seen a near 10% price improvement if you had waited a few days.

Sample Trade

When the weather is nice, I like to take my bicycle out for a spin and give the automobile drivers something to aim for. On one of my bike trips I met Melody. After I told her what I did for a living, she confessed that she was a nightclub dancer and made oodles in tips. I was unsure whether I bought her story, but she looked pretty enough (wearing a bike helmet and sun glasses, who can tell?).

Anyway, she told me about a trade she had made in the stock pictured in Figure 25.5. The stock intrigued her because a trend line drawn from the highest high in early October to just after the head marked a turning point. That is where prices moved up enough to pierce the trend line.

Melody knew that prices usually retest the low before beginning an extended move upward, so she followed the stock and watched it loop around and dip to 14. Then she glanced sideways and noticed the other dip at 14.38. That is when she uncovered the (inner) head-and-shoulders bottom.

A neckline connecting the rises between the two shoulders was impossibly steep; there was no way she could apply the traditional measure rule to determine a target price (because price had not closed above the neckline), so she decided to buy into the stock when prices closed above the right shoulder high.

This event occurred in late May and she received a fill at 17.50. Taking a closer look at the graph, she saw two more shoulders, one during early February and the mirror image in mid-May, both at 16. Her simple head-and-shoulders bottom changed into the complex variety.

The realization did not affect her investment plans at all, but it made the situation more interesting. She wondered if another pair of shoulders would appear. Her suspicions were fulfilled during late July when another shoulder developed. This one at 15.75 mirrored the shoulder in mid-December 1993. Soon, prices began moving up. They climbed above the break-even point in mid-August and staged an upward breakout. Now she was able to apply the measure rule for the complex bottom and found the target was 22.13.

Since she did not need the money immediately, she held onto the shares as prices rose. She thought the stock had enough upward momentum to reach the old high at about 29.25, and she set her sights on that. As long as prices did not drop below the purchase price, she would stay in the trade.

She saw the stock building a base between 21 and 26 and wondered what to make of it. A downward breakout was a real possibility, so she raised her stop to 21—the height of the plateau in October—and at a price just below where the base seemed to be building.

In mid-June, just over a year after she placed the trade, prices zoomed up and reached her sell point. The stock sold at 29. The stock continued climbing, but she needed the money for a down payment on a house.

I was so engrossed with her story and the way she told it that I did not realize she had dismounted from her bicycle. She spoke of coming back to her place and making some new chart patterns, then playfully thrust her hips into mine.

I fell off my bicycle.

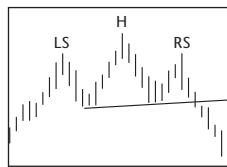
For Best Performance

The following list includes tips and observations for selecting CHSBs that perform well. Consult the associated table for more information.

- Use the identification guidelines to help select the pattern—Table 25.1.
- Choose patterns in a bull market because they rise the farthest—Table 25.2.
- Patterns in a bull market have the lowest failure rates—Table 25.3.
- Throwbacks hurt performance, so look for overhead resistance before trading—Table 25.4.
- Breakout day gaps improve performance—Table 25.4.
- Be patient trading these patterns as it takes a long time to reach the ultimate high. Expect price weakness a month after the breakout—Table 25.5.
- Select bull market patterns that are both shorter and wider than the median. In a bear market, patterns that are tall and narrow do best—Table 25.6.
- Pick patterns with a rising volume trend—Table 25.7.
- Select patterns with a random volume shape (neither U nor dome shaped)—Table 25.7.
- Patterns with heavy breakout volume outperform—Table 25.7.
- Patterns with down-sloping necklines do best—Table 25.8.
- Trade patterns with higher far right shoulder lows—Table 25.8.

26

Head-and-Shoulders Tops



RESULTS SNAPSHOT

Downward Breakouts

	Bull Market	Bear Market
Appearance	Three-peak formation with center peak taller than the others.	
Reversal or continuation	Short-term bearish reversal	
Performance rank	1 out of 21	6 out of 21
Break-even failure rate	4%	1%
Average decline	22%	29%
Change after trend ends	51%	45%
Volume trend	Downward	Downward
Pullbacks	50%	64%
Percentage meeting price target	55%	56%
Surprising findings	Pullbacks hurt performance. Tall or narrow patterns perform better than short or wide ones. Patterns with a rising volume trend, U shape, and heavy breakout volume outperform. When volume is highest on the head, the pattern performs well. Patterns with a horizontal neckline or higher left shoulder tend to outperform.	
See also	Head-and-Shoulders Tops, Complex	

Of all the chart patterns in this book, the head-and-shoulders top (HST) is perhaps the most popular. This stems from its reliability, performance, and easy identification. In a bear market, the performance shines with just 1% of the patterns failing to drop more than 5% after the breakout, and the average decline measures a large 29%. Traders not versed in chart patterns can guess what a head-and-shoulders top looks like and get it right.

Surprises for HSTs are many but all are self-explanatory. If not, I discuss them later in the chapter anyway.

Tour

Figure 26.1 shows a good example of a head-and-shoulders top. The three bumps are clearly visible, with the center bump being the highest of the three. The left shoulder usually appears after an extended uphill run. The entire formation seems to stand alone when viewed in the context of a year's worth of daily price data. This stand-alone characteristic makes the head-and-shoulders top easily identified in a price series.

Figure 26.1 shows the highest volume occurring during the head. More often the left shoulder has the highest volume, followed by the head, with greatly diminished volume during formation of the right shoulder. The identification guidelines are flexible because volume characteristics vary from formation to formation.

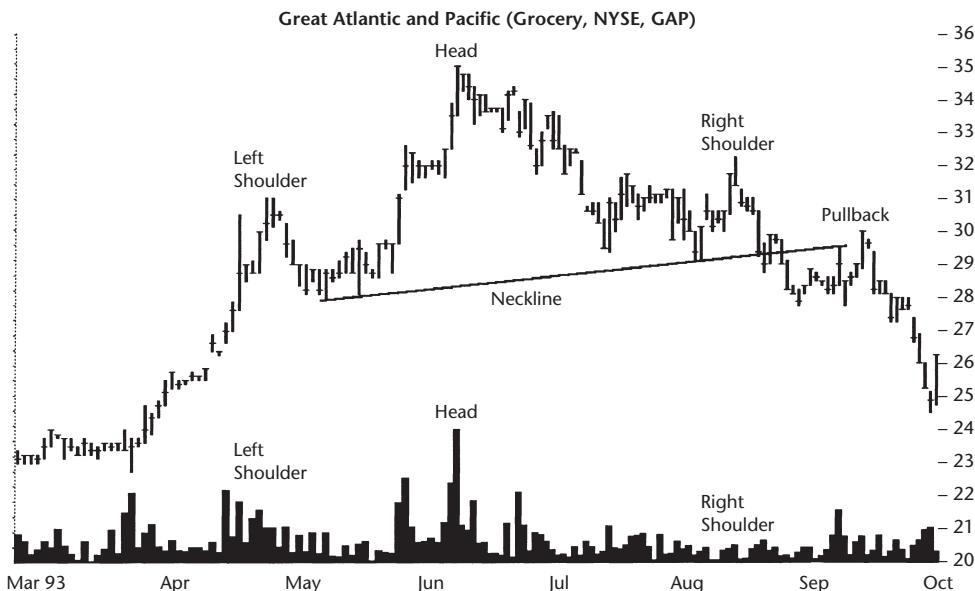


Figure 26.1 A head-and-shoulders top formation where the center peak towers above the other two. A pullback to the neckline occurs frequently.

A trend line drawn along the bottoms of the two troughs between the three peaks forms the neckline. The line may slope in any direction but slopes upward about 52% of the time and downward 45% of the time with the remainder being horizontal. The direction of neckline slope is a predictor of the severity of the price decline.

Why do these chart patterns form? Pretend for a moment that you are a big spender and represent what is commonly called the *smart money*. You are searching for a stock to buy and believe that Toll Brothers (Figure 26.2) represents an intriguing situation. You review the fundamentals and everything looks good, so you start buying the stock in mid-July as prices descend. Your buying turns the situation around: The stock begins rising.

Soon you have acquired all the stock you want and sit back and wait. As you expected, the company issues good news and the stock begins making its move. Other investors jump into the game and buy the stock, sending the price higher. As the stock rises above 10, you decide it is time to sell. After all, you have made 20% in about 2 weeks. Your selling causes the stock to pause then begin a retrace of the prior action.

Sensing weakness in the stock, you stop selling and monitor the situation closely. Other momentum and buy-the-dip players, believing that this is a chance to get in on the ground floor of a further advance, buy the stock on the retrace. The decline halts and the stock begins rising again.

As it rises, additional momentum players make a bid for the stock or buy it outright. Once the stock gets above 10, you begin selling it again, not

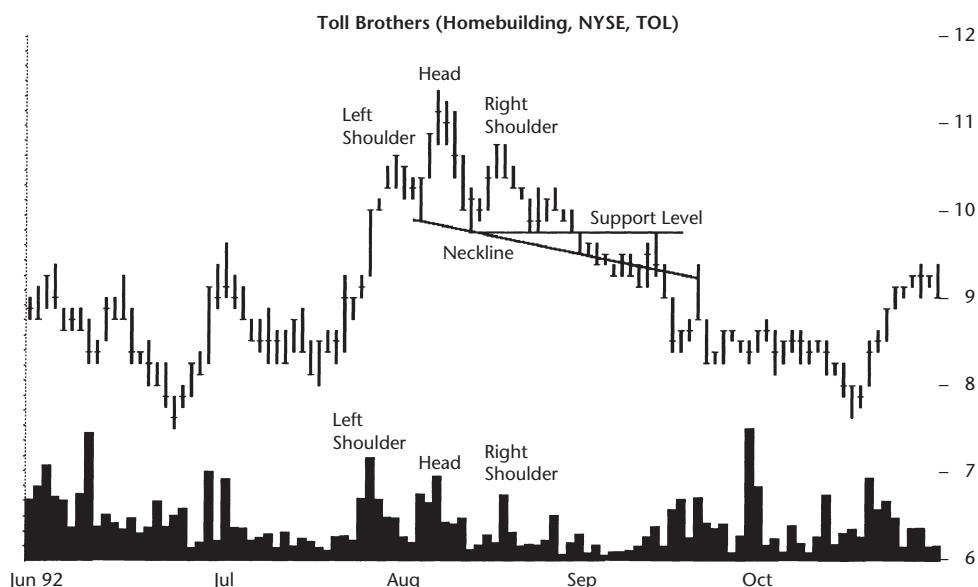


Figure 26.2 Volume pattern of this head-and-shoulders top obeys the general characteristics: highest on formation of the left shoulder and weakest on the right shoulder. The down-sloping neckline suggests an especially weak situation.

heavily at first because you have a large number of shares to dump. Still, the market players notice your selling and the stock climbs just above 11 before heading back down.

You dump your remaining shares as the stock begins tumbling. Volume rises as other players sell their shares to unsuspecting buyers. The stock continues moving down and slides back below 10. Believing the stock oversold, demand picks up and sends the price moving up again for the last time.

You watch the action from the sidelines, content with the profit you have made. The stock climbs to 10.75 on the right shoulder. Lacking support, the rise falters on weak volume and the stock turns down. Investors versed in technical analysis see the head-and-shoulders top for what it is: a reversal. They quietly take their profits and sell the stock. Others initiate short sales by selling high and hoping the price falls.

Prices move down to the support level where prices declined the last time. The stock pauses there for a week and makes a feeble effort to rise again. When the attempt falters, the stock moves down and pierces the neckline. Volume picks up and the stock tumbles. Eventually, prices decline back to where they began, just under 8.

Identification Guidelines

Are there certain guidelines that make identifying a head-and-shoulders top easy? Yes, and Table 26.1 lists them. But remember, the identification guidelines are just that, guidelines.

Table 26.1
Identification Characteristics

Characteristic	Discussion
Shape	After an upward price trend, the formation appears as three bumps, the center one is the tallest, resembling a bust.
Symmetry	The two shoulders appear at about the same price level. Distance from the shoulders to the head is approximately the same. There can be wide variation in the formation's appearance, but symmetry is usually a good clue to the veracity of the formation.
Volume	Highest on the left shoulder, followed by the head. The right shoulder shows the lowest volume of the three peaks.
Neckline	Connects the lows of the two troughs between the three peaks. The line can slope up or down. Often used as a trigger point (to buy or sell) once price pierces the line.
Downward breakout	Once price pierces the neckline, it may pull back briefly, then continue moving down.

Shape. The head-and-shoulders top formation can appear in a wide variety of shapes. Consider Figure 26.3. Shown is a head-and-shoulders top formation, but there are four shoulders and only one head. When a formation appears with more than the standard two shoulders and one head, it is called a complex head-and-shoulders pattern. Complex head-and-shoulders patterns for both tops and bottoms have their own chapters, but many appear in this chapter's statistics. They are, after all, head-and-shoulder tops, too.

The head-and-shoulders top usually appears at the end of a long uptrend. Sometimes, when the prior uptrend is of short duration, the reversal takes prices down to where they started the climb (see Figure 26.2). At other times, the decline is usually short (up to 3 months) or intermediate (3 to 6 months), or can signal a change in the primary bullish trend. The actual length of the decline cannot be predicted.

Symmetry. Even though the formation shown in Figure 26.3 is somewhat odd, it does have a symmetrical appearance. The two left shoulders are at about the same price level as the corresponding two right shoulders. Each of the shoulders is approximately the same distance from the other and from its mirror opposite. In the chart pattern, the head is centrally located. The symmetrical appearance of a head-and-shoulders top is one of its key identification characteristics and helps separate any three bumps from a valid head-and-shoulders chart pattern.

Volume. Volume obeys the following general characteristic: It is higher on the left shoulder than on the head and higher on the head than on the right

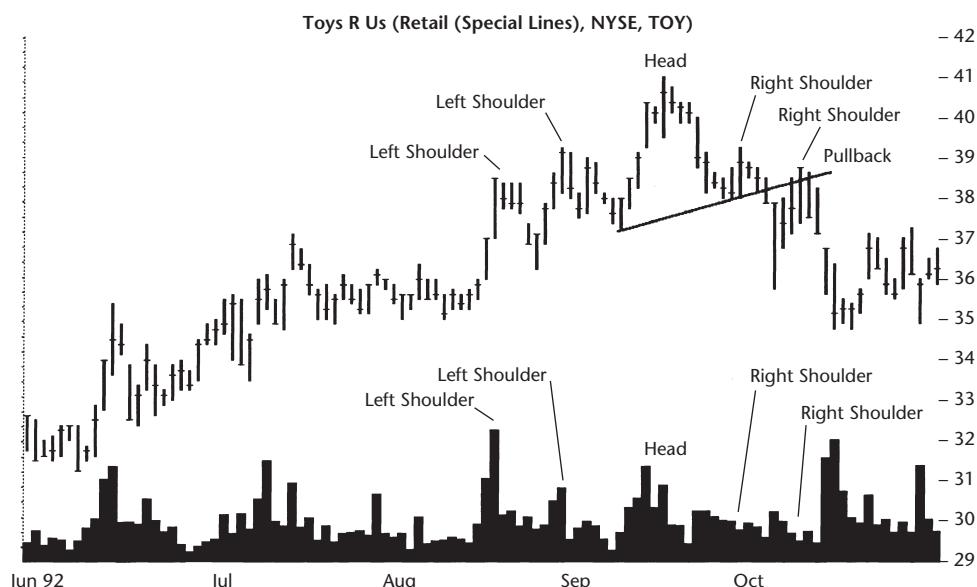


Figure 26.3 A complex head-and-shoulders top pattern. The chart shows the wide variation that a head-and-shoulders formation can take.

shoulder. If you consider just the three inner peaks in Figure 26.3, the volume pattern changes somewhat since the left shoulder has volume diminished from that shown during the head. Even so, the volume on the left shoulder is still above the right shoulder.

Neckline. The neckline, as shown in Figure 26.3, connects the two troughs between the three inner peaks. It slopes upward but need not do so (contrast with Figure 26.2). The neckline serves as a confirmation point. Once prices pierce the neckline, and assuming they do not pull back, prices continue moving down in earnest.

Downward breakout. A pullback to the neckline occurs frequently. It usually takes less than 2 weeks to complete a pullback, but do not be fooled. The trend will resume downward shortly. However, a pullback does allow you one more opportunity to exit a long position or institute a short trade. Take advantage of it.

Focus on Failures

Failures of head-and-shoulders formations are rare, but they do occur. Figure 26.4 shows an example of a failure. The well-formed formation has a head centrally located between two shoulders. The left and right shoulders are at the same price level, 29.13. Volume is highest on the left shoulder and lowest on the right, as expected.

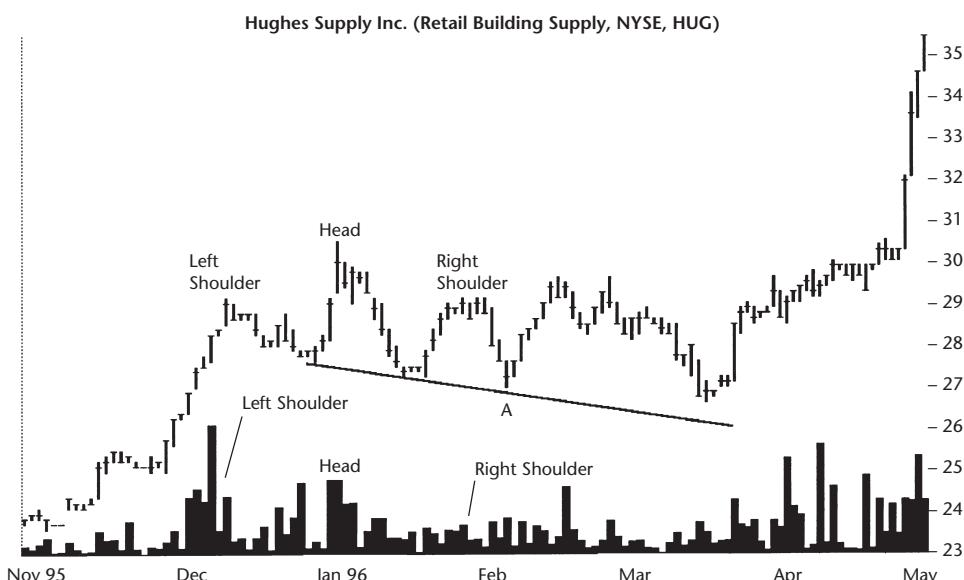


Figure 26.4 A rare head-and-shoulders consolidation. The formation fails to continue down after reaching point A. Symmetry and volume patterns offer no clue to the eventual failure.

Why do prices fail to pierce the neckline at point A and head down? The answer is not clear. The formation is perfect except that it fails to descend. It acts as a consolidation or continuation of the upward trend. Not shown in the figure, the prior two formations were descending triangles. These formations usually break out downward but these did not. Both had upward breakouts and both signaled a bullish uptrend. The two formations were clues to the strength of the rise, but one could also argue that the appearance of a head-and-shoulders formation would probably signal an end to the extended rise. It did not.

Statistics

Table 26.2 shows general statistics for HSTs.

Number of formations. I found so many HSTs in the stocks I looked at that I quit looking for bull market ones and concentrated on the bear market. Together, I found 814 patterns using 500 stocks from 1991 to 1996 and 200 stocks from 1996 to 2004.

Reversal or continuation. A head-and-shoulders top is a reversal, by definition. Price enters the pattern from the bottom and breaks out downward. Thus, price reverses the prevailing trend.

Average decline. In a bear market, this pattern does exceptionally well, with declines averaging 29%, well above the 24% decline for bearish chart patterns of all types.

Declines over 45%. Bearish chart patterns never show large declines on a continual basis. Even so, having 13% drop more than 45% in a bear market is a respectable showing.

Change after trend ends. After price reaches the ultimate low, it soars, climbing 51% in a bull market and 45% in a bear market. If you can determine

Table 26.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	640	174
Reversal (R), continuation (C)	640 R	174 R
Average decline	22%	29%
Declines over 45%	34 or 5%	23 or 13%
Change after trend ends	51%	45%
Busted pattern performance	40% ^a	21% ^a
Standard & Poor's 500 change	1%	-13%
Days to ultimate low	62	41

Note: Minus sign means decline.

^aFewer than 30 samples.

when the trend changes (that is, if you can find the ultimate low), then buy the stock and hold on.

Busted pattern performance. I expected better from busted HSTs. First, few fail to drop less than 5% (the bear market has just one sample) before rebounding, and when they recover, the climb is less than enthusiastic. Other chart pattern types show recoveries of 60%.

Standard & Poor's 500 change. The large decline in the general market (13%) compared to the 1% rise in a bull market helps explain the excellent showing of bear market HSTs. This finding should also serve as a warning to trade with the market trend. Avoid shorting a stock showing an HST in a bull market or when the market is trending strongly upward.

Days to ultimate low. It takes about 2 months for price to reach the ultimate low. Notice that the decline is farther (price) and shorter (time) in a bear market than in a bull market. Thus, the decline must be steeper in a bear market. This fact suggests shorting a stock showing an HST in a bear market for the best performance and to maximize the number of trades annually.

Table 26.3 shows failure rates for HSTs. The best performance is from HSTs in a bear market as they have the lowest failure rates. For example, 1% of the patterns fails to drop more than 5%. Another example: nearly half (49%) fail to drop more than 25% in a bear market. That performance is even worse in a bull market as 68% fail to drop more than 25%.

Notice how the failure rate climbs for small changes in the maximum price decline. The rate triples and then doubles as the decline moves from 5% to 15% (bull markets). The numbers should serve as a warning that as reliable as HSTs are, not all patterns perform equally well. Monitor your trade and use stops to limit your losses. Raise the stop to just above the prior minor high as price makes a new low.

Table 26.3
Failure Rates

Maximum Price Decline (%)	Bull Market	Bear Market
5 (breakeven)	26 or 4%	1 or 1%
10	98 or 15%	9 or 5%
15	226 or 35%	29 or 17%
20	347 or 54%	58 or 33%
25	432 or 68%	85 or 49%
30	501 or 78%	109 or 63%
35	553 or 86%	124 or 71%
50	623 or 97%	161 or 93%
75	639 or 100%	174 or 100%
Over 75	640 or 100%	174 or 100%

Another way to use Table 26.3 is with price prediction. Suppose the measure rule (see Trading Tactics) suggests a decline to 8 from the breakout of 10. That is a 20% decline. How many HSTs in a bull market will fail to drop at least 20%? Answer: 54%. This finding suggests the measure rule prediction is unlikely to be met. Set a price target that is not so far away.

Table 26.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. It takes about 2 weeks for price to drop from the right shoulder peak to the breakout point, on average.

Yearly position. Most HSTs reside in the middle or upper third of the yearly price range. That makes sense as HSTs are tops acting as price reversals. Avoid patterns that do not have anything to reverse, meaning that the price rise leading to the pattern is small.

Yearly position, performance. The best performing HSTs occur when the breakout is in the middle of the yearly trading range.

Pullbacks. Pullbacks occur between half (bull markets) and two-thirds (bear market) of the time. It takes less than 2 weeks after the breakout for prices to make the return trip back to the breakout price or neckline. When a pullback does occur, performance suffers. For example, in a bull market, HSTs with pullbacks drop 20% after the breakout. Without pullbacks, the drop measures 24%.

Gaps. Performance improves with a breakout day gap only in a bear market, but the samples are few. The average gap size is unusually large, 50 cents to \$1.23 wide, depending on the market conditions. Why the gap size is more

Table 26.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	15 days	11 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L13%, C41%, H46%	L18%, C48%, H33%
Percentage decline for each 12-month lookback period	L23%, C24%, H21%	L25%, C30%, H28%
Pullbacks	50%	64%
Average time to pullback ends	12 days	11 days
Average decline for patterns with pullback	20%	27%
Average decline for patterns without pullback	24%	31%
Performance with breakout day gap	-22%	-30% ^a
Performance without breakout day gap	-22%	-28%
Average gap size	\$0.50	\$1.23

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 26.5
Frequency Distribution of Days to Ultimate Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	22%	14%	9%	8%	6%	3%	5%	10%	2%	2%	20%
Bull market	15%	8%	9%	10%	6%	5%	6%	5%	4%	3%	28%

than twice as large in a bear market is a mystery, but gaps are nearly always larger in a bear market.

Table 26.5 shows a frequency distribution of time to the ultimate low. After 1 month, 53% of the bear market patterns and 42% of the bull market patterns will have reached the ultimate low.

Notice the slight uptick ending 28 and 56 days after the breakout (bull and bear markets, respectively). If your trade lasts that long, look for price to bottom out then. It may not, but it always pays to be prepared.

Table 26.6 shows statistics related to pattern size.

Height. Do tall patterns perform better than short ones? Yes. The widest difference is in a bear market where price drops 31% for tall patterns but just 26% for short ones. I measured height from the highest high to the lowest low in the pattern (starting from the left shoulder peak to the right shoulder peak) and then divided by the breakout price.

Width. Width is less of a reliable performance indicator than height. In both markets, performance improves slightly if the pattern is narrower than the median length.

Table 26.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	-24%	-31%
Short pattern performance	-20%	-26%
Median height as a percentage of breakout price	17.27%	20.45%
Narrow pattern performance	-23%	-29%
Wide pattern performance	-21%	-28%
Median length	49 days	42 days
Average formation length	62 days	52 days
Short and narrow performance	-22%	-28%
Short and wide performance	-17%	-23% ^a
Tall and wide performance	-24%	-31%
Tall and narrow performance	-26%	-31% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Average formation length. The average length of an HST appears in the table. Most patterns are about 2 months long as measured between the left and right shoulder peaks.

Height and width combinations. Looking at the combinations of height and width, we find that the best performing patterns are tall and narrow, but tall and wide HSTs also perform well in a bear market. Avoid short and wide patterns.

Table 26.7 shows volume statistics for HSTs.

Volume trend. HSTs with a rising volume trend work well in both markets. For example, HSTs with a rising volume trend in a bull market tumbled 24% after the breakout, on average. Those with a falling volume trend dropped just 21%.

Volume shapes. Of the five volume shapes I looked at, I show the three most popular ones in Table 26.7. The best performing HSTs have U-shaped volume. The random shape in a bear market includes only eight samples, so I discount the 34% decline.

Breakout volume. Many analysts say that heavy breakout volume tends to push prices lower, but I have found mixed results for many chart pattern types. For HSTs, the influence of heavy breakout volume helps in both markets, but only marginally.

Shoulder volume and performance. I looked at the volume for the 5 days surrounding the two shoulders and head. When volume was highest on the head, the chart pattern tended to perform better than when volume was highest on the other two shoulders.

Table 26.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	-24%	-30%
Falling volume trend performance	-21%	-27%
U-shaped volume pattern performance	-24%	-30%
Dome-shaped volume pattern performance	-21%	-27%
Neither U-shaped nor dome-shaped volume pattern performance	-20%	-34% ^a
Heavy breakout volume performance	-22%	-29%
Light breakout volume performance	-21%	-27%
Performance when volume highest on left shoulder	-22%	-27%
Performance when volume highest on head	-23%	-30%
Performance when volume highest on right shoulder	-20%	-29% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 26.8
Miscellaneous Statistics

Description	Bull Market	Bear Market
Up-sloping necklines, performance	-23%	-29%
Horizontal necklines, performance	-24%	-33% ^a
Down-sloping neckline, performance	-21%	-28%
Higher left shoulder highs, performance	-25%	-30%
Higher right shoulder highs, performance	-20%	-27%
Even shoulder highs, performance	-19%	-23% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 26.8 shows miscellaneous statistics for HSTs.

Neckline slope. The best performance comes from HSTs with horizontal necklines, but the 33% decline in a bear market uses only two samples. Second to that was HSTs with up-sloping necklines. Common sense says that a down-sloping neckline would suggest an especially bearish omen because price is already showing weakness. Why HSTs with up-sloping necklines perform better is a mystery.

Shoulder highs. Does a *lower* right shoulder predict a more bearish situation? Yes. HSTs with a *higher* left shoulder peak (and lower right shoulder) drop 25% after the breakout in a bull market and 30% in a bear market. When the right shoulder is higher than the left, the decline is 20% in a bull market and 27% in a bear market. HSTs with even shoulder highs perform worst.

Trading Tactics

Shown in Table 26.9 are trading tactics, and Figure 26.5 shows an example of the measure rule as it applies to a head-and-shoulders top. If you ignore the backward volume pattern, the formation looks fine. Each of the three bumps appears rounded and the overall formation is symmetrical.

Measure rule. The measure rule uses the formation height as a basis for computing the target price. In the head, measure vertically down from the highest daily high until you intersect the neckline. Subtract the value of the neckline from the highest high. The result gives the formation height. In the figure, the stock reaches a high price of 51 on September 13. Directly below that point is the neckline price at about 47.38. The difference of 3.62 is the formation height.

Once price pierces the neckline, subtract the formation height from the daily high at the breakout point. In Figure 26.5, the high at the breakout is 48.50, leaving a target price of 44.88. Prices surpass the target when they

Table 26.9
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the formation height by subtracting the value of the neckline from the highest high reached in the head, measured vertically. Subtract the result from the breakout price where prices pierce the up-sloping neckline, or, if the neckline slopes downward, closes below the right shoulder low. The result is the minimum target price to which prices descend. Alternatively, compute the formation height from the highest high to the daily low price in the higher of the two troughs. Subtract the result from the daily high price in the higher of the two troughs to get the target price. This method boosts the success rate and does not rely on the neckline or breakout point (useful for steep necklines).
Wait for confirmation	Play it safe: Wait for price to confirm the pattern by closing below the neckline or right shoulder low.
Short stop	For short sales, place a stop just above the lower of the two troughs or just above the neckline, whichever is higher.
Watch for pullback	Initiate a short sale or add to your position during a pullback. Wait for prices to begin falling again before placing the trade as prices sometimes pull back and continue moving up.

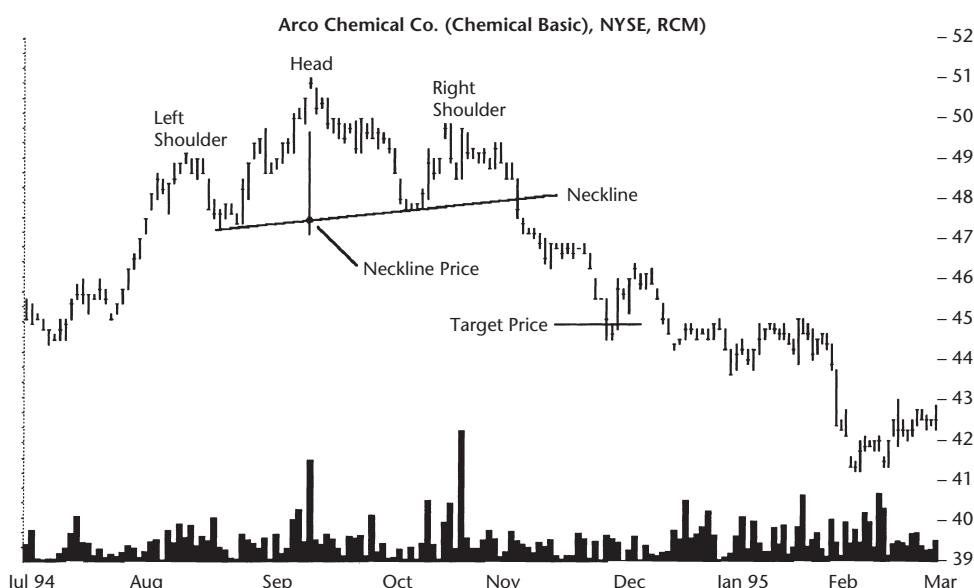


Figure 26.5 The measure rule as it applies to a head-and-shoulders top. Calculate the formation height by subtracting the neckline price from the highest high, measured vertically. Subtract the result from the high at the breakout. The result is the minimum target price to which prices decline.

decline below the value in late November. Since the target serves as a minimum price move, prices often continue moving down, as in Figure 26.5.

The measure rule, as just described, is the conventional way to compute a target price. However, it does have a flaw. Consider Figure 26.6. Prices during the right trough recession decline to 27.75, well below the higher trough at 31.25. A neckline joining the two is too steep. Prices never plunge through the neckline, and it is impossible to compute a target price using the conventional method. Instead, compute the formation height by taking the difference between the highest high in the head and the lowest low in the highest trough (point A on the chart). After finding the formation height, subtract the value from point A to get the target price. In this example, the highest high is at 33.63 and the lowest low at the highest trough is 31.25, giving a height of 2.38. Subtract the result from 31.25 to get a target of 28.87. Figure 26.6 shows this value, and prices reach the target during mid-April.

The alternative method has two advantages. First, it can always be calculated and is somewhat easier to use since it does not rely on the value of the neckline. Second, it is more accurate, achieving a success rate of 62%, meaning that more formations exceed the price target using this alternative method rather than the conventional one.

Wait for confirmation. Returning to Table 26.9, since anything can happen, it is always a good idea to wait for confirmation before selling an exist-

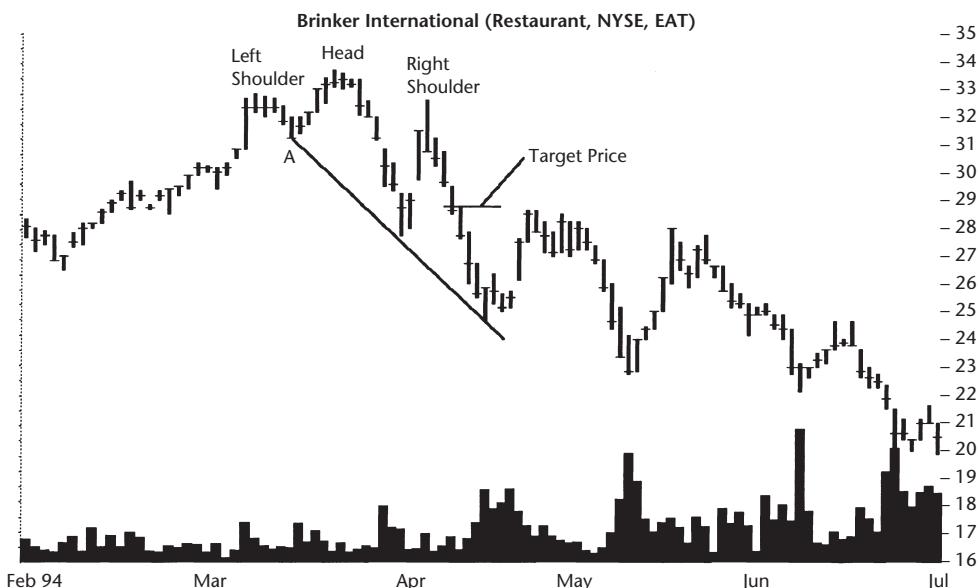


Figure 26.6 Head-and-shoulders top with steep neckline. There is no target price using the conventional measure rule because of the steep neckline. Alternatively, compute the formation height by subtracting the higher trough low (point A) from the highest high. Subtract the result from point A to get the target price.

ing holding or shorting a new position. In a bull market, there is a good chance price will not close below the breakout price before making a new high.

Short stop. If you sell short, place your stop-loss order either just above the neckline or above the lower of the two troughs, whichever is higher. Selecting a nearby resistance point usually works well.

Watch for pullback. If prices pull back to the neckline, consider adding to your short position. However, be sure to wait for prices to begin falling after a pullback. Occasionally, prices will pull back and continue rising.

Sample Trade

Kelly is not just a housewife; she is much more that. When her husband brings home the bacon, she not only fries it but cleans up the mess afterward. She balances the books and keeps tabs on their newborn.

She started investing years ago for fun. Now, it has become part of her daily life. In the spare moments between chores, she is often staring at the computer screen, reviewing the statistics of a prospective acquisition and letting her daughter bang on the keyboard.

Over the years she has been able to parlay their meager savings into a six-figure retirement portfolio. It was not always easy and the mistakes were painful, but she viewed each failure as a learning experience.

The stock pictured in Figure 26.6 posed an interesting situation for her. She was not keen on shorting a stock because her paper trades rarely worked. Still, she kept her eyes open and searched for good investment candidates. This one piqued her interest.

The stock began its uphill run just before May 1993. It followed a gently sloping trend line upward until late January when it stumbled. The stock moved down to 26.50 before recovering, a drop of less than three points, but a sign of weakness. Kelly followed the stock closely and when the head appeared, she made a note on her program that it might turn into a head-and-shoulders top. "It just had that certain feel." She was correct.

The right shoulder plunge took prices lower than she expected but quickly recovered to near the left shoulder high. She drew a neckline below the two valleys and thought the line was too steep to serve as an anchor for the measure rule, so she used the alternate measure rule and computed a target price of just 28.88. This did not seem right either, so she used the right shoulder low to compute another target. This one turned out to be 21.88, or the height from the head to the right shoulder valley projected downward from the valley low. That target would take prices back to the July 1993 level and it seemed reasonable to her.

Still, something bothered her about the stock and she decided not to trade it. When the doorbell rang, she left her daughter alone briefly to answer it. Moments later, the phone rang. It was her broker confirming that the stock

sold short. Kelly ran to the computer to see her daughter standing on the chair, beating on the keyboard with a wide but guilty grin on her face. Kelly hoped it was only gas, but, no, she had indeed sold the stock short at 31.

After spending some anxious moments reviewing the trade, Kelly decided to maintain the position. The number of shorted shares was just 100, an amount she could live with. Prices quickly retreated to the neckline where they found support. The stock bounced and when it moved above the right shoulder low, she got concerned. After a few days, the stock leveled out and moved sideways. In case this turned out to be the beginning of a measured move up, she placed an order to cover her trade at 29. That would leave her with a small profit but still allow her to participate if the stock declined.

Two weeks later, she had an answer. The stock tumbled for 5 days in a row, then just as quickly recovered, only this time it formed a lower high. The volatility was wearing her down so she placed an order with her broker to cover her position when prices reached the old low. She was taken out when prices descended to 22.75 on their way down to 20. After expenses, she made about 25% on the trade. Her daughter got a big kiss for her help.

For Best Performance

The following list includes tips and observations to help select HSTs that perform better after the breakout. Consult the associated table for more information.

- Review the identification guidelines for correct selection—Table 26.1.
- Select patterns in a bear market as they decline farthest—Table 26.2.
- HSTs in a bear market have lower failure rates—Table 26.3.
- Choose patterns with breakouts in the middle of the yearly price range—Table 26.4.
- Pullbacks hurt performance, so avoid trades with nearby underlying support—Table 26.4.
- Look for price to bottom in week 4 (bull market) and week 8 (bear market) after the breakout—Table 26.5.
- Tall or narrow patterns perform better than short or wide ones. Avoid patterns that are both short and wide—Table 26.6.
- Select patterns with a rising volume trend and heavy breakout volume—Table 26.7.
- Patterns with U-shaped volume do best—Table 26.7.
- Pick patterns with volume highest during formation of the head—Table 26.7.
- Choose patterns with horizontal or up-sloping necklines—Table 26.8.
- Patterns with higher left shoulder peaks perform best—Table 26.8.

27

Head-and-Shoulders Tops, Complex



RESULTS SNAPSHOT

Downward Breakouts

Appearance	A head-and-shoulders formation with multiple heads, shoulders, or both	
Reversal or continuation	Short-term bearish reversal	
	Bull Market	Bear Market
Performance rank	3 out of 21	8 out of 21
Break-even failure rate	4%	1%
Average decline	23%	27%
Change after trend ends	48%	42%
Volume trend	Downward	Downward
Pullbacks	67%	60%
Percentage meeting price target	53%	45%
Surprising findings	Pullbacks hurt performance. Tall patterns perform better than short ones. Patterns with a rising volume trend and ones with heavy breakout volume do well.	
See also	Double Tops (all combinations of Adam and Eve); Head-and-Shoulders Tops; Horn Tops; Rounding Tops; Triple Tops	

Except for appearance, there is not much difference between a normal head-and-shoulders top and a complex one. Add a dual head or a few extra shoulders to a regular formation and you have a complex head-and-shoulders top. Both formations have a volume trend that generally slopes downward between the shoulders. The left shoulders often have higher volume than the corresponding right ones.

The complex pattern has a few surprises, beginning with pullbacks. When they occur, performance suffers. This behavior is typical for many chart patterns, but I find it interesting nonetheless. Other surprises include tall patterns performing better than short ones and CHSTs with a rising volume trend and heavy breakout volume showing improved performance. I discuss these later.

Tour

There are two basic varieties of complex head-and-shoulder tops, as illustrated in Figures 27.1 and 27.2. In Figure 27.1, the formation appears after an extended bull run that begins in November 1992 and then melts back by mid-October, forming a base for the head and shoulders. The stock rebounds, creating the left shoulder. It pauses at the 31–32 level by moving sideways, then spikes

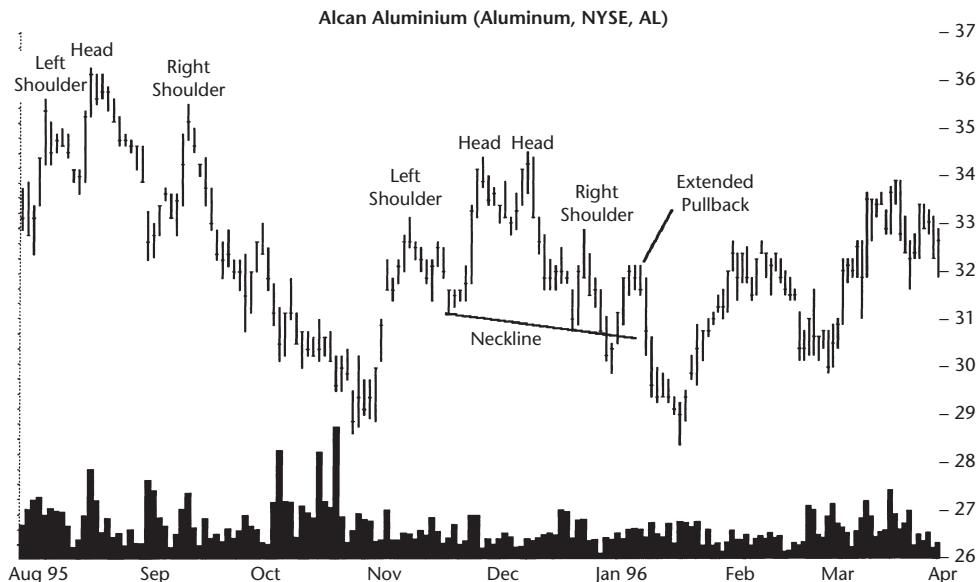


Figure 27.1 Complex head-and-shoulders top with dual heads. The stair-step pattern of a measured move up forms the left shoulder and head. The twin peaks take on the appearance of a horn top, and the resulting move down resembles another measured move, albeit stuttered. A simple head-and-shoulders appears in August.

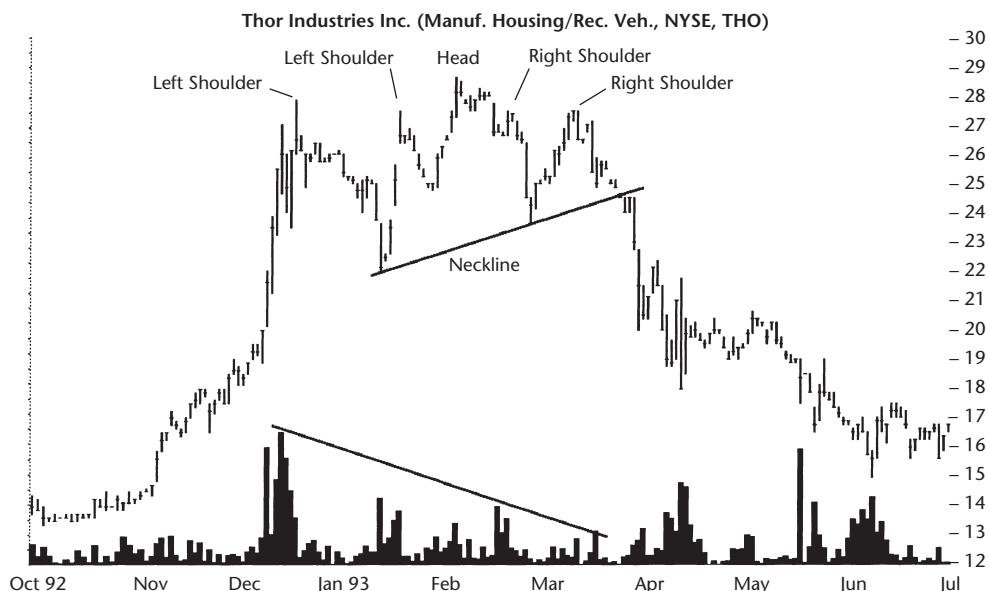


Figure 27.2 Typical complex head-and-shoulders reversal. Multiple shoulders with a single head in a rather flat formation round out the pattern. The volume pattern emphasizes that volume is usually higher on the left side of the formation than the right.

upward again in a sort of measured move thrust. The measured move up finishes shy of its target price by just over a dollar before the stock begins retracing its gain. The peak serves as the first head.

After moving down a bit, the stock pushes upward and tags the old high, then drops. Another head appears. Once prices slip from the head, they find traction at the first shoulder trough and rebound. The right shoulder takes shape. After declining through the neckline, formed by a line joining the two shoulder troughs, prices quickly pull back and move higher. They turn away at the 32 resistance level and continue down in a straight-line run to 28.38.

Computing a line using linear regression of the daily volume over the formation (outermost shoulder to shoulder) indicates volume recedes. Although it is difficult to tell from the chart in Figure 27.1, about two out of every three complex head-and-shoulders tops show a receding volume trend.

Figure 27.2 shows a different type of complex head-and-shoulders top. Multiple shoulders with only one head is the more common of the two varieties. Pictured is the type of technical pattern that rips the heart out of novice investors. Imagine someone buying this stock in October, just before the rise begins. Prices quickly move from a low of about 13 to a high of 27.88, a doubling of the stock price in a little over 3 months. On the way up, our novice investor is thinking that picking stocks is an easy game; his selections are turning to gold.

The first shoulder forms as prices touch 27.88, then retreat to a low of 22. The decline undoubtedly upset our investor pal. He probably told himself that he would sell the stock once it returned to its old high.

In early January, prices zoom upward and make a smaller peak at 27.50. Since the rise is so steep, our intrepid investor thinks, *why sell the stock when it is going to go higher?* He is right. Price retraces a bit then moves higher and forms the head at a price of 28.63. Once the head completes, things start to go wrong for our buddy. He is swayed by glowing predictions on the Internet of the stock moving up to 35 or 40 within a year.

At the top, prices round over and start down. They stop midway between the troughs of the two left shoulders before making one final attempt at a new high. Up to this point, there are several opportunities to sell the stock at a good price. Did our novice investor take them? Probably not. Always optimistic that prices will ultimately break out and reach higher ground, he does not see the budding complex head-and-shoulders formation for what it is: a warning.

When prices drop below the neckline, our novice investor has just 2 days before things really get going. On the third day the stock closes at 23, near the low for the day. Prices quickly unravel and ultimately reach a low of 15, just a few dollars above the purchase price. That is when our investor throws in the towel and sells the stock. Of course, this is near the low and the stock ultimately climbs to 30 a year later.

Identification Guidelines

How can our novice investor recognize the bearish reversal? Table 27.1 outlines some identification tips of a complex head-and-shoulders top.

Shape. Consider Figure 27.3, another example of a multiple shoulder chart pattern. After a decline from a head-and-shoulders formation just off the left side of the chart (only the right shoulder appears in the figure), prices decline until reaching bottom at the start of July. Then they rise up, haltingly, and form a new head-and-shoulders formation: a complex top. If you ignore the labels for a moment, the inner price action looks like a rounding top. This smooth price rollover is common for complex head-and-shoulder formations. Of course, the flat head shape for a multiple shoulder pattern (Figure 27.2) is also typical.

Symmetry. You can divide Figure 27.3 into a pure head-and-shoulders formation by ignoring the outer shoulders. For single-head formations, this is the easiest way to correctly identify a complex head-and-shoulders top. First locate a regular head-and-shoulders pattern and then expand your view to include additional shoulders. In this example, the head rises above the surrounding shoulders. The two shoulders are usually equidistant, or nearly so, from the head. The price level of the left and right shoulders is very nearly the same. Thus, the symmetry of a complex head-and-shoulders top is more pronounced than that of a regular head-and-shoulders formation.

Table 27.1
Identification Characteristics

Characteristic	Discussion
Shape	A head-and-shoulders top with multiple shoulders or, more rarely, two heads. The head is higher than the shoulders but generally not by very much.
Symmetry	The tendency for the shoulders to mirror themselves about the head is strong. The price level of the shoulders and time from the shoulder to head is about the same on either side of the head. The shoulders also appear to be the same shape: Narrow or wide shoulders on the left mirror those on the right.
Volume	Usually higher on the left side than on the right and usually seen when comparing the shoulders on the left with corresponding ones on the right. Overall, the volume trend recedes.
Neckline	Connects the lowest left shoulder trough with the lowest right shoulder trough. When the line extends and intersects prices, that signals a breakout.
Downward breakout	When price closes below the neckline, a breakout occurs. For those cases with a steep, down-sloping neckline, use the lowest trough price as the breakout point.

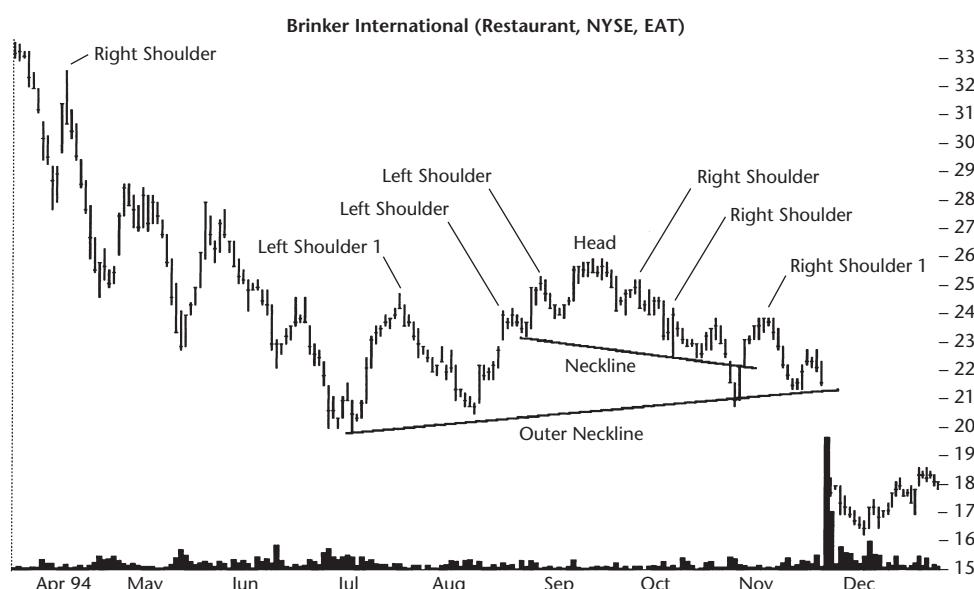


Figure 27.3 A more rounded appearing complex head-and-shoulders top. Left shoulder 1 and right shoulder 1 could be considered part of a large head-and-shoulders top. The inner head-and-shoulders looks like a rounding top formation.

In a regular head-and-shoulders formation, one shoulder may be higher in price than the other or one shoulder will be much further away from the head—a rather extended shoulder. That is usually not the case with the complex variety. Symmetry is paramount and a key identification element.

Moving to the outer shoulders, they also are equidistant from the head and are very nearly at the same price level as well. Continuing the symmetry example, the two peaks labeled left shoulder 1 and right shoulder 1 appear to be shoulders of the same formation, although further away than the inner grouping.

If you consider the inner quad of shoulders as part of the head, then what remains is a large, regular head-and-shoulders formation. This formation is denoted by left shoulder 1, right shoulder 1, and the large, rounded head (composed of five minor highs). Even the outer neckline supports this example as prices touch the line several times before dropping through it in a 1-day decline of about four points.

Volume. If you could zoom in on the volume pattern, you would see it is marginally heavier on the left side of the formation than on the right, at least for the formation bounded by the inner (higher) neckline. High volume on the left side of the formation as compared to the right is typical for complex head-and-shoulders formations and occurs about two-thirds of the time.

Neckline and breakout. The neckline joins the lows of the lowest trough and is interpreted the same way as a normal head-and-shoulders top. Once price pierces the neckline, a downward breakout occurs and prices move lower. Volume typically rises on a breakout and can remain high for several days, depending on the severity of the decline.

Focus on Failures

Complex head-and-shoulders patterns suffer two types of failures. Both are rare. Figure 27.4 shows the first type. I define a downward breakout as a close below the neckline, or in the case of steep necklines, a close below the lowest shoulder trough. Figure 27.4 shows price declining below the neckline only once on May 8 but closing above it. From that point, prices rise and move above the highest head and an upward breakout occurs.

The formation itself is well formed. It has two heads at about the same level and two shoulders also near the same price level. Symmetry throughout the formation looks good, too, as the shoulders are equidistant from the head. Volume appears heavier on the left shoulder than on the right, as you would expect. Only during the decline from the right head to the right shoulder does volume rise. In short, there is no real indication that price will fail to continue moving down, but it does.

Figure 27.5 shows a slightly different situation. The stock suffers a 1-day drop of \$2 at the breakout, but then rises in an ascending broadening wedge

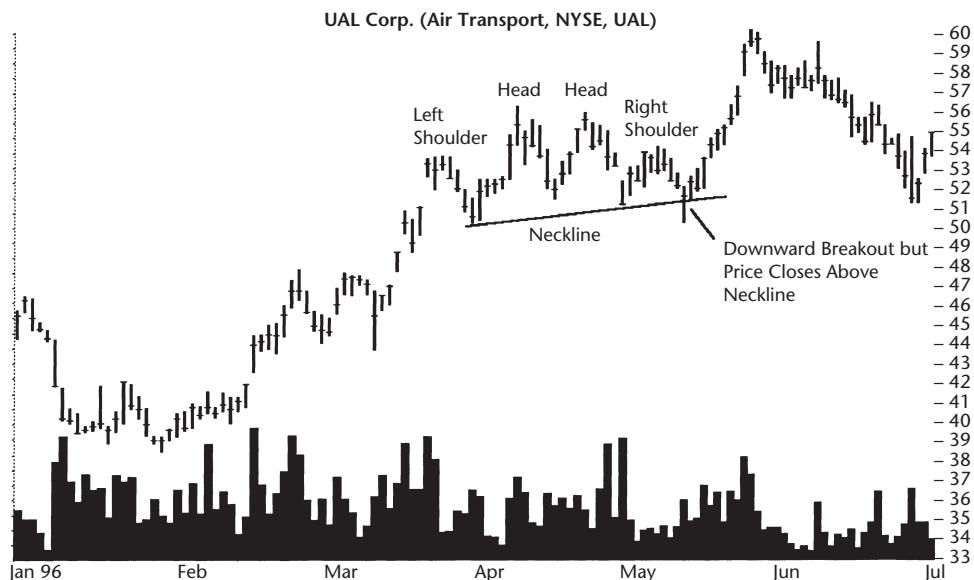


Figure 27.4 A complex head-and-shoulders failure to reverse. Prices fail to close below the neckline before moving above the formation top and staging an upward breakout.

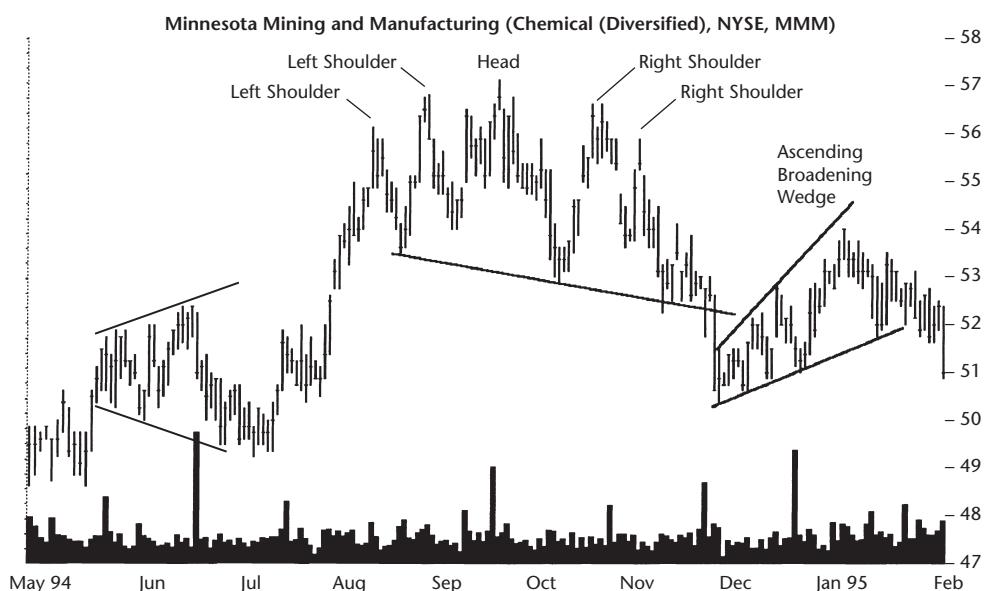


Figure 27.5 Another failure of a complex head-and-shoulders top. This one fails to decline more than 5% below the breakout point. An ascending broadening wedge takes shape in late November and December.

pattern. The wedge is a bearish pattern that breaks out downward, but it too fails to descend very far. Within a few months, the stock is again making new highs.

I regard the formation as a failure because prices fail to move down by more than 5% after the breakout.

Are there any clues to the failure of this formation? The volume pattern is flat. It shows no tendency to diminish over time. A receding volume pattern is not a hard-and-fast rule, so I do not consider this pattern to be that unusual. To answer the question, a closer examination of the fundamentals on the company may provide some clues. Usually in cases like this, underlying support stops a down trend. The May–June broadening top represents a consolidation region that supported prices in December.

Statistics

Table 27.2 shows general statistics for CHSTs.

Number of formations. CHSTs did a remarkable job of hiding. I found only 288 despite searching 500 stocks over a decade of daily price data.

Reversal or continuation. Since these patterns form at the top of an upward price trend with a downward breakout, they act as reversals.

Average decline. The decline from a CHST is quite good when compared to other bearish chart patterns. In a bear market, the decline averages 27%.

Declines over 45%. As with most bearish patterns, CHSTs do not make large declines, those over 45%. Less than 10% actually decline that far.

Change after trend ends. Once price reaches the ultimate low, what happens? It rebounds 48% in a bull market and 42% in a bear market. That may sound like a lot, but other chart patterns rebound in the 50% to 60% range. Still, a 40% return is nothing to sneeze at.

Table 27.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	210	78
Reversal (R), continuation (C)	210 R	78 R
Average decline	23%	27%
Declines over 45%	17 or 8%	8 or 10%
Change after trend ends	48%	42%
Busted pattern performance	60% ^a	35% ^a
Standard & Poor's 500 change	1%	-13%
Days to ultimate low	60	39

Note: Minus sign means decline.

^aFewer than 30 samples.

Busted pattern performance. This measure suffers from few CHSTs declining less than 5%. In short, ignore the results.

Standard & Poor's 500 change. Table 27.2 shows the influence of the general market on the average decline. Notice that in a bear market, the S&P declined 13% and the average decline was 27%. In a bull market, the S&P climbed 1% but CHSTs declined 23% (less than the bear market decline). These observations suggest you should trade with the market trend. If the general market is declining, find a bearish chart pattern. In a rising market, trade only bullish chart patterns for the highest rewards.

Days to ultimate low. It takes about 2 months or less for price to reach the ultimate low. Notice how the 39-day decline in a bear market is less than the 60-day bull market number, yet price drops four percentage points more. The bear market decline must be steeper to drop farther in a shorter time.

Table 27.3 lists failure rates. See the Glossary and Methodology chapter for more information on how they are calculated. CHSTs have low failure rates when compared to other chart patterns. In a bear market, just 1% fail to drop more than 5% after the breakout. Half fail to drop more than 25%.

Bull markets have higher failure rates. Four percent fail to drop at least 5%. Half the patterns fail to drop more than 22%. That failure rate may sound high, but it is quite respectable when you compare it to other chart pattern types.

Since the bear market numbers show lower failure rates, short CHSTs in a bear market, not a bull market.

Table 27.4 shows breakout- and postbreakout-related statistics for CHSTs.

Formation end to breakout. From the right shoulder peak, it takes about 2 weeks for price to descend to the breakout, on average. I used a close below the up-sloping neckline as the breakout price and a close below the lowest right shoulder when the neckline sloped downward. The shoulder is used to avoid steep down-sloping necklines, which may never trigger a trade.

Table 27.3
Failure Rates

Maximum Price Decline (%)	Bull Market	Bear Market
5 (breakeven)	8 or 4%	1 or 1%
10	29 or 14%	6 or 8%
15	65 or 31%	10 or 13%
20	101 or 48%	24 or 31%
25	129 or 61%	38 or 49%
30	156 or 74%	53 or 68%
35	171 or 81%	59 or 76%
50	204 or 97%	72 or 92%
75	210 or 100%	78 or 100%
Over 75	210 or 100%	78 or 100%

Table 27.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	15 days	14 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L9%, C49%, H42%	L22%, C60%, H18%
Percentage decline for each 12-month lookback period	L20% ^a , C24%, H21%	L23% ^a , C27%, H33% ^a
Pullback	67%	60%
Average time to pullback ends	9 days	11 days
Average decline for patterns with pullback	20%	26%
Average decline for patterns without pullback	27%	29%
Performance with breakout day gap	-22%	-30% ^a
Performance without breakout day gap	-23%	-26%
Average gap size	\$0.50	\$1.22

Note: Minus sign means decline.

^aFewer than 30 samples.

Yearly position. Most of the CHSTs have breakouts in the middle of the yearly price range. Since the breakout is at the bottom of the pattern and we are dealing with tops, the results should not be surprising.

Yearly position, performance. The best performing CHSTs have breakouts in the center or high of the yearly price range.

Pullbacks. Pullbacks occur between 60% and 67% of the time, depending on market conditions (bear or bull). It makes sense that the bull market would show more pullbacks because the breakout is dropping against the rising market tide.

It takes less than 2 weeks for price to return to the breakout price. When a pullback occurs, the postbreakout decline is less than when a pullback does not occur. Thus, for the best performance, look for underlying support and avoid trading a stock when support is nearby.

Gaps. In a bull market, CHSTs without a breakout day gap do slightly better than do those with a gap. In a bear market, breakout day gaps help performance. Also, the average gap size is more than double the size of gaps in a bull market. It may be like swimming with the current: You can travel farther with fewer strokes. Thus, a breakout with a gap tends to send prices down farther in a bear market than a bull one.

Table 27.5 shows a frequency distribution of time to the ultimate low. In the first week, nearly a quarter of the patterns bottom out. In the first month, 61% of the bear market patterns will have reached the ultimate low. For bull markets, 46% will have hit bottom and started a recovery. I found these num-

Table 27.5
Frequency Distribution of Days to Ultimate Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	23%	18%	15%	5%	5%	3%	8%	4%	0%	1%	18%
Bull market	20%	7%	9%	10%	3%	4%	2%	5%	5%	4%	30%

bers by summing the individual columns, so you can estimate how likely it is that your trade will hit bottom for a given period.

Notice that 10% in a bull market reach the ultimate low at day 28 and in a bear market 8% bottom during day 49. Thus, look for price strength between a month to 7 weeks after the breakout.

Table 27.6 shows statistics related to pattern size.

Height. Tall patterns perform better than short ones. In a bull market, the decline averages 25% for patterns taller than the median but just 21% for those shorter. In a bear market, the trend is similar with tall patterns outperforming.

Width. Narrow patterns do slightly better in a bull market, but wide patterns do better in a bear market. I used the median length (not the average) to determine width.

Average formation length. The average CHST was between 2 months (bear market) and 3 months (bull market) long.

Height and width combinations. The combination of height and width yields different results. CHSTs that are both tall and narrow perform best in a bull market, with declines averaging 26%. For bear markets, tall and wide patterns perform better than the other combinations.

Table 27.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	-25%	-29%
Short pattern performance	-21%	-25%
Median height as a percentage of breakout price	19.49%	25.18%
Narrow pattern performance	-23%	-26%
Wide pattern performance	-22%	-28%
Median length	73 days	62 days
Average formation length	84 days	71 days
Short and narrow performance	-22%	-26% ^a
Short and wide performance	-18% ^a	-25% ^a
Tall and wide performance	-25%	-29% ^a
Tall and narrow performance	-26% ^a	-28% ^a

Note: Minus sign means decline.

^aFewer Less than 30 samples.

Table 27.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	-23%	-29%
Falling volume trend performance	-22%	-26%
U-shaped volume pattern performance	-26%	-26% ^a
Dome-shaped volume pattern performance	-21%	-27%
Neither U-shaped nor dome-shaped volume pattern performance	-18% ^a	-29% ^a
Heavy breakout volume performance	-23%	-28%
Light breakout volume performance	-22%	-26%
Performance when volume highest on left shoulder	-22%	-26%
Performance when volume highest on head	-24%	-27% ^a
Performance when volume highest on right shoulder	-22%	-30% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 27.7 shows volume statistics for CHSTs.

Volume trend. CHSTs do better after the breakout when volume rose from the far left shoulder to the far right shoulder (peak to peak). The largest difference occurs in a bear market when price declines 29% for those patterns with a rising volume trend but just 26% for those with a falling volume trend.

Volume shapes. Patterns in a bull market with U-shaped volume drop 26%, beating the other volume shapes. A random volume pattern (neither U nor dome shaped) works well in a bear market, but the small sample count means the numbers could be unreliable.

Breakout volume. CHSTs with heavy breakout volume show good performance after the breakout. This behavior goes along with a rising volume trend, and it suggests a more powerful downward move after the breakout.

Shoulder volume and performance. Does shoulder volume suggest a strong down move? Maybe. In a bull market, when volume is highest on the head (the 5 days surrounding the highest high), compared to the far left and far right shoulders, the average postbreakout decline measured 24%. That figure beats the other shoulder volume combinations. In a bear market, high volume on the far right shoulder leads to a 30% average decline, but the sample size is small.

Table 27.8 shows miscellaneous statistics for CHSTs.

Neckline slope. The numbers for horizontal necklines are not robust, meaning that there are eight samples from a bull market and just one from a bear market. If you exclude the horizontals, then the best performance goes to downward sloping necklines. The widest difference is in a bear market, 30% versus 24%.

Table 27.8
Miscellaneous Statistics

Description	Bull Market	Bear Market
Up-sloping necklines, performance	-22%	-24%
Horizontal necklines, performance	-24% ^a	-11% ^a
Down-sloping neckline, performance	-23%	-30%
Higher left shoulder highs, performance	-23%	-24%
Higher right shoulder highs, performance	-21%	-30%
Even shoulder highs, performance	-24% ^a	-21% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Shoulder highs. Again, the sample count is small for even shoulder highs, with 13 samples from a bull market and 1 sample from a bear market. Ignoring them, in a bull market the best performance comes from higher left shoulder highs, but the difference is minimal: 23% versus 21%. In a bear market, those patterns with higher right shoulder highs drop by 30% versus 24% for those with higher left shoulders. Each comparison used the far left or far right shoulder and the highest high price in those shoulders.

Trading Tactics

Table 27.9 presents the trading tactics for complex head-and-shoulders tops.

Table 27.9
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the formation height by subtracting the neckline value from the highest high reached in the head, measured vertically. Subtract the result from the breakout price where price pierces the neckline. The result is the minimum target price. If the formation looks like a mountain suddenly appearing out of a flat base, prices may return to the base. See Figures 27.2 and 27.5.
Wait for confirmation	If a simple head-and-shoulders pattern confirms, consider trading it without waiting for the CHST to confirm. Place a short trade or sell any long commitments. This formation rarely disappoints and the decline is above average.
Short stop	Look for resistance areas about the neckline troughs. Place a stop just above the higher shoulder trough. The shoulder tops and head also represent good locations for stop-loss orders.
Watch for pullback	Place a short sale or add to the position during a pullback. Wait for prices to begin falling again before placing the trade as prices sometimes pull back and continue moving up.

Measure rule. The measure rule predicts the minimum expected decline. Look at Figure 27.6 as an example of the measure rule outlined in Table 27.9. Compute the formation height by subtracting the difference between the highest high (31.63) from the value of the neckline directly below the highest high (27). Subtract the result (4.63) from the breakout price (25.75), which is where declining prices pierce the neckline. Prices drop below the target price of 21.12 in early March.

This is the conventional measuring rule and it is successful between 45% and 53% of the time. That is below the 80% success rate I like to see for measure rules. The conventional method also has a flaw when the neckline slopes steeply. Under such circumstances, prices may never pierce the neckline and yet the stock is tumbling. Fortunately, the neckline rarely slopes steeply in complex formations. However, if you do run across a formation with a plunging neckline, use the lowest of the shoulder troughs as the breakout price. Compute the formation height in the normal manner, but subtract the height from the trough value to get a target price.

A slightly more conservative measure rule computes the formation height from the highest high to the higher of the neckline troughs. Then subtract the result from the higher of the neckline troughs and the result is the target price. This method works between 51% (bear markets) and 62% (bull markets) of the time.

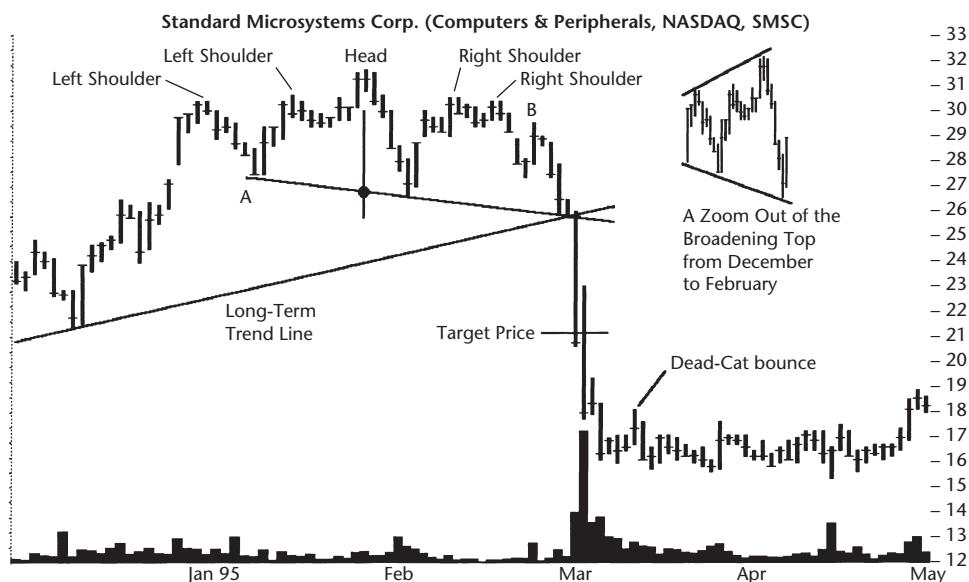


Figure 27.6 A complex head-and-shoulders top formation. For the measure rule, compute the difference between the highest high and the neckline, measured vertically, and subtract the result from the breakout price. A broadening top appears from December through February and a dead-cat bounce follows.

Using the chart pattern shown in Figure 27.6 as an example, the highest high is at 31.63 and the higher of the two neckline troughs is at point A, 27.50 (using the daily low price). This gives a formation height of 4.13 (31.63 – 27.50) and a target price of 23.38 (or 27.50 – 4.12). Prices reach the target during the large 1-day decline on March 2.

If the head-and-shoulders formation does *not* occur after an extended upward trend—the situation shown in Figure 27.1—then prices will probably drop back to the low where the formation began. In Figure 27.1, the low just before prices start rising to the formation is about 28. That is the level to which prices return after the breakout.

At other times, the formation will suddenly shoot up from a base, then just as quickly return to the base. Figures 27.2 and 27.5 show examples of this situation.

Wait for confirmation. Since a simple head-and-shoulders pattern makes up a CHST, trade the inner head-and-shoulders. That strategy may allow you to place a trade sooner than waiting for price to close below the neckline or shoulder low. For conservative investors, wait for the CHST to confirm (when price closes below the neckline or shoulder low). If you own the stock, sell it after confirmation because price is going down. Count on it!

Short stop. For short positions, look for areas of strength—resistance levels—and place a stop-loss order just above that level. Common resistance levels are the shoulder troughs, shoulder tops, and head top. Should the price rise above the highest high in the CHST, cover the short, as price is likely to continue climbing.

Watch for pullback. Sometimes price breaks out downward then regroups and rises above the neckline before plunging down again (see Figure 27.1 and 27.3). These extended pullbacks and regular pullbacks are good places to initiate a short sale or add to a short position.

Sample Trade

Henry runs a small hedge fund. He considered buying into the stock shown in Figure 27.6, but needed more bullish evidence. In August 1994, indicators he uses on a daily basis confirmed a buy signal, so he bought shares for his fund at an average price of about 17.25.

In January 1995, Henry suspected the end was near, so he began taking a closer look at the fundamentals. He was so engrossed with his research on the company that he failed to notice a pattern forming. Over drinks with his fund manager friends, he shared with them what he had dug up about the company. The news was not good.

“So that’s why it’s making a broadening top!” one remarked. Henry furrowed his brow and pictured the price action in his mind and there it was, a broadening top, just like his friend had said.

The next day Henry pulled up the chart and looked at it more closely. He saw higher highs and lower lows (see the zoom out in Figure 27.6), characteristic of a broadening pattern. Coupled with his fundamental research on the company, he knew it was nearing time to sell, but not yet. He wanted to sell at the top, when prices tagged the top trend line.

In early February, when prices attempted to reach the previous high, they fell short, dipped down for a few days, and tried again (the two right shoulders). The second rise was even shorter than the prior one, signaling weakness, so Henry started selling immediately.

The failure to sail across the formation and touch the top of the broadening formation meant it was a partial rise. A partial rise in a broadening top usually means one thing: A downward breakout will follow.

By the time the stock pulled back up to the base of the two right shoulders (point B), Henry had sold his holdings. As he was getting ready to leave his office for home, something on his computer screen caught his eye. The broadening pattern had changed into a complex head-and-shoulders top. There were the two left shoulders balancing the two right ones with a head perched in the center.

Henry discussed the new situation with his mentor and his fund manager buddies, then decided to short the stock. By the time prices reached the long-term up trend line, he had a tidy sum sold short.

Two days later, prices tumbled. They dropped 20% or \$5 a share in 1 day and continued down. In less than a week, they were at 16 before finding some support, a plummet of 36%.

Henry had studied the behavior of dead-cat bounces, and he pulled out his notes and brushed up. He knew the stock would bounce upward, usually within a week, then trend lower.

True to form, prices moved up a bit (to 18.13), but it was not the smooth, rounded bounce he expected. In the coming days, prices moved lower, so Henry quit complaining, but he watched the situation closely.

The stock bottomed out at about 16 and trended horizontally. To him, it looked as if the stock were building a base and preparing for an upward move, so he covered half his short position. In late April, when prices jumped up to 18.50, he immediately covered the remainder of his position.

For Best Performance

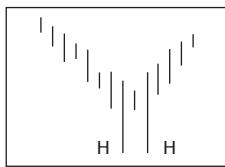
The following list includes tips and observations to help select CHSTs that perform better after the breakout. Consult the associated table for more information.

- Review the identification guidelines for correct selection—Table 27.1.
- Trade this pattern in a bear market—Table 27.2.

- CHSTs fail less often in a bear market—Table 27.3.
- In a bull market, select CHSTs with breakouts near the middle of the yearly trading range. In a bear market, CHSTs near the yearly high work best—Table 27.4.
- Pullbacks hurt performance—Table 27.4.
- A month after the breakout, 61% of the patterns in a bear market and 46% in a bull market will have reached the ultimate low—Table 27.5.
- Select tall patterns—Table 27.6.
- Choose patterns with a rising volume trend—Table 27.7.
- Heavy breakout day volume pushes price down farther—Table 27.7.
- Select patterns with down-sloping颈lines—Table 27.8.

28

Horn Bottoms



RESULTS SNAPSHOT

Upward Breakouts

Appearance	Two downward price spikes separated by a week on the weekly chart	
Reversal or continuation	Short-term bullish reversal	
	Bull Market	Bear Market
Performance rank	14 out of 23	6 out of 19
Break-even failure rate	9%	7%
Average rise	35%	27%
Change after trend ends	-32%	-37%
Volume trend	Downward	Downward
Throwbacks	29%	58%
Percentage meeting price target	76%	61%
Surprising findings	Throwbacks hurt performance. Tall horns perform better than short ones. Horns with heavy breakout volume and ones with a large price difference between lows outperform. Performance improves when the right horn is inside the trading range of the left horn.	
See also	Double Bottoms (all varieties of Adam and Eve); Pipe Bottoms	

I first discovered the horn bottom formation while pondering a result from my study of double bottoms. Double bottom formations with bottoms closer together perform better than those spaced widely apart. What would happen if you considered formations that have bottoms only a week or so apart? I tested the idea and discovered that the formation performs well.

Horns have low break-even failure rates, as the Results Snapshot shows, and the average rise is above that of other bullish chart patterns. You can improve performance by selecting your patterns carefully. The surprising findings describe some of what to look for. For example, if there is overhead resistance to the upward breakout nearby, then the horn pattern is more likely to throw back. When a throwback occurs, performance suffers. I discuss this and other surprises in the coming pages.

Tour

Figure 28.1 shows what a horn bottom looks like. After peaking in late December 1993, prices plummet from a high of 50.75 to the horn low at a base of 30.75. On the left side of the horn, prices have a large weekly price range of about \$7. High volume makes the week appear like a one-week reversal (with the same attributes as a one-day reversal but over the course of a week), signaling a possible trend change.

The following week, prices close lower but nowhere near the left horn low. Then, 1 week later, prices spike lower again but close near the high of the week

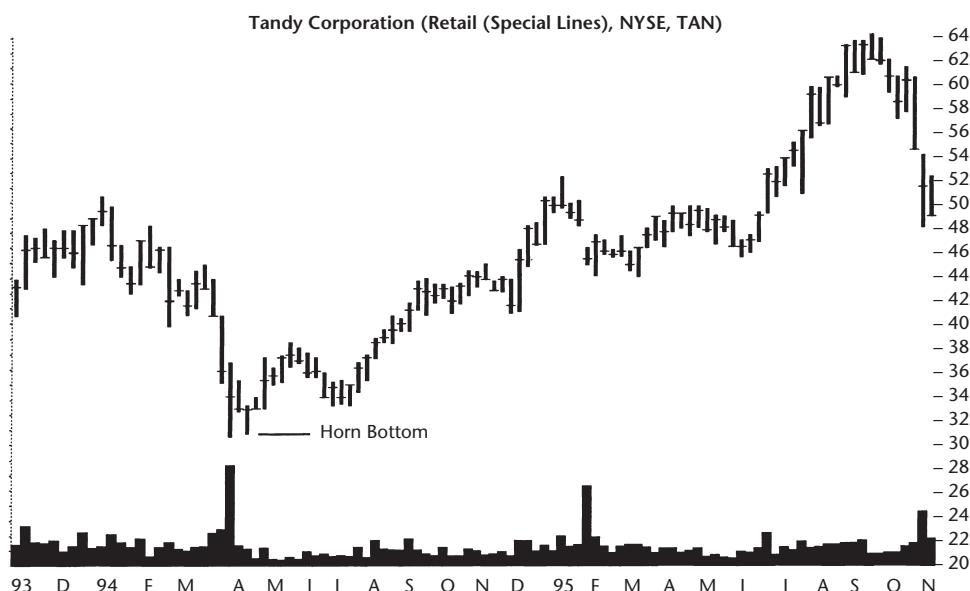


Figure 28.1 A good example of a horn bottom. Two downward price spikes, separated by a week, look like a steer's horn flipped upside down.

and just 0.13 below the prior close. The horn bottom is complete: A double price spike separated by 1 week marks the turning point. From that point, prices move up and more than double from the horn low in about a year and a half.

Identification Guidelines

How do you correctly identify horn bottoms? Table 28.1 shows identification characteristics.

Weekly chart, downward spikes. Horns are visible on weekly charts. Although they appear on daily charts, weekly charts make selection easier. For the formation on the left in Figure 28.2, the chart shows two long, downward price spikes separated by a week. The low of the center week stays well above either of the spike lows, emphasizing the inverted horn shape of the formation.

Looking back over the months, you can see that there are no downward spikes that come near the length of the horn spikes (as measured from the lowest low to the lower of the two adjacent weeks). The twin horns mark an unusual event, one that an investor should pay attention to.

Clear visibility. For the left formation in Figure 28.2, the horn appears after a downward price trend, allowing clear visibility to the left of the formation, as no downward trends or price outliers obscure the view. This visibility is important in that the formation should stand alone and not be part of a congestion region. It should mark the turning point of a downward price trend.

The formation shown on the right of the chart in Figure 28.2 is what a horn bottom looks like in an uptrend. There is a small price retrace, of 3 weeks' duration, just as the horn bottoms out. These few weeks separate the formation from the surrounding price action and allow easy recognition.

The two spikes share the same low price, 14.50, and have good price overlap (as the right spike almost completely overlaps the left one). You can

Table 28.1
Identification Characteristics

Characteristic	Discussion
Weekly chart, downward spikes	Use the weekly chart and locate two downward price spikes separated by a week. The two spikes should be longer than similar spikes over the prior year and be well below the low of the center week. The formation should look like an inverted horn. Abnormally long spikes result in better performance.
Clear visibility	In a downtrend, the horn lows should be well below the surrounding lows, especially to the left of the formation for several weeks (or months). Usually, horns appear near the end of declines but also happen on retraces in uptrends (where visibility is less clear to the left).
Confirmation	The pattern becomes a valid horn bottom when price closes above the highest high in the 3-week pattern.

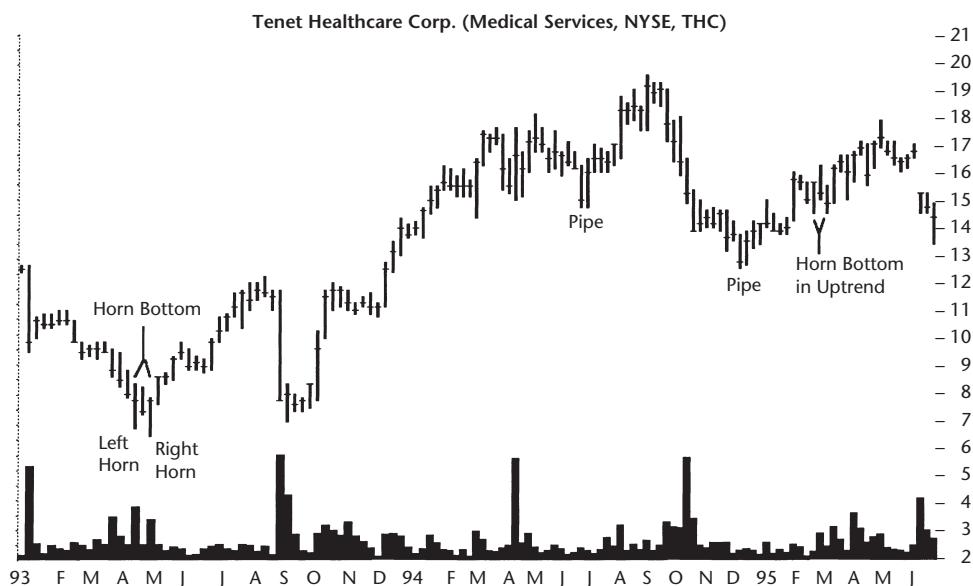


Figure 28.2 Two examples of horns, one in a downward trend and one in an uptrend. Notice that the second pipe formation calls the turn exactly.

argue that the separation of the horn low from the surrounding weeks is not exceptional when compared with the pipe formations in early December and late June. That is certainly true, but most of the prices show remarkably even bottoms, not a jagged coastline.

Confirmation. The twin bottom pattern confirms as a valid horn bottom when price closes above the highest high in the 3-week pattern. Without confirmation, you have no horn.

Focus on Failures

Even though horn bottoms sport a low failure rate, they still fail. Consider Figure 28.3, a 5% failure or a horn bottom. A 5% failure is when prices start out in the correct direction but falter (rising by no more than 5%), turn around, and head back down. The twin, downward price spikes look good in that they are long and with good overlap. They form as part of a retrace from the high, and prices usually return to form a second high (a double top), or perhaps move even higher. If you believe that this stock will form a second top, then this formation is probably not worth betting on as the price appreciation potential is just not exciting.

If you look at this formation differently, you might suspect that it will form a head-and-shoulders top. The left shoulder is already visible in late May 1994 and another shoulder could form as part of a mirror image, probably in April or May of 1995. If that is the case, then you should also pass this one up as the right shoulder might top out at about 16. This theory assumes prices

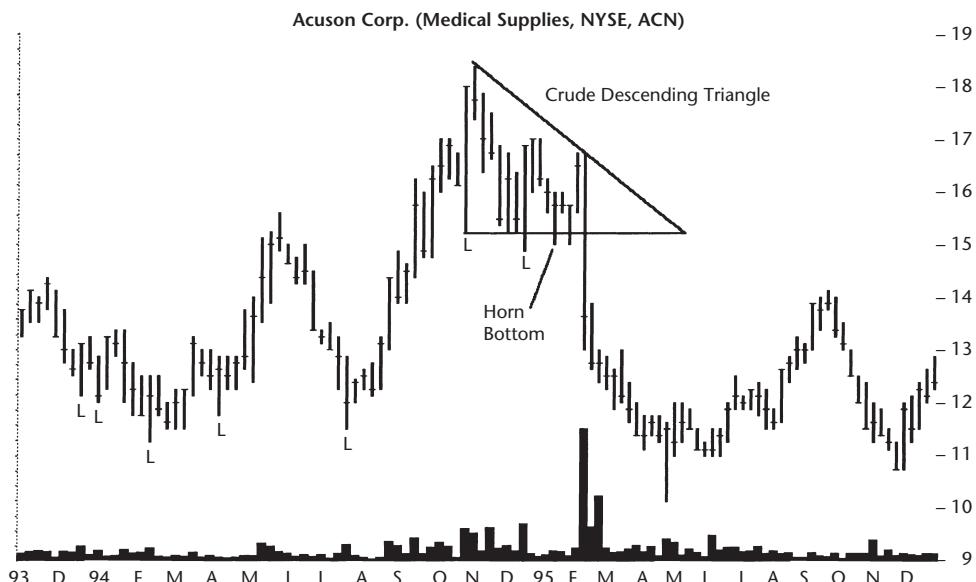


Figure 28.3 A horn bottom failure. Among other clues, similar length price spikes (marked L) suggest this formation might be suspect. The descending triangle suggests lower prices.

continue moving lower and probably stop dropping in the 10 to 12 range (forming the neckline) before moving up to the right shoulder. Since prices should drop, why buy now?

Another clue to this formation failure is the spikes themselves. If you look over the prior prices, you see several downward price spikes that rival the length of the horn. These are warning signs that this horn might not be anything special.

The visibility is poor because earlier prices block the view. Usually, a downtrend has lower lows (like that shown in the February to April 1995 decline). A horn appearing in a sharp decline should have good visibility to the left of the formation. What this obscured view tells us is that prices seem to form a base while their tops are declining. In other words, a descending triangle is forming and the investor should be wary.

Taken together, there seems to be ample evidence that this horn might not work out as expected. But, statistically, how often do horn bottoms fail?

Statistics

Table 28.2 shows general statistics for horns.

Number of formations. I found 404 horns in the 500 stocks I looked at, covering a span of about a decade.

Table 28.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	286	118
Reversal (R), continuation (C)	286 R	118 R
Average rise	35%	27%
Rises over 45%	89 or 31%	23 or 19%
Change after trend ends	-32%	-37%
Busted pattern performance	-23% ^a	-41% ^a
Standard & Poor's 500 change	14%	5%
Days to ultimate high	180	90

Note: Minus sign means decline.

^aFewer than 30 samples.

Reversal or continuation. All of the horns I studied were reversals of the downward price trend. In other words, they were bottoms not tops. Some appeared in a rising price trend with just a week or two drop leading into the horn, but most appeared near the end of a downward trend.

Average rise. The average rise is 35% in a bull market and 27% in a bear market, about average or slightly above when compared to all bullish chart patterns.

Rises over 45%. In a bull market, the pattern shines with almost a third (31%) rising more than 45%. In a bear market, just 19% climb at least 45% after the breakout, but that is still a very good showing.

Change after trend ends. After the breakout, once price reaches the ultimate high it tumbles between 32% and 37%, giving back all of the rise and then some. This behavior suggests that you do not buy and hold the stock. A timely sale will fatten your wallet.

Busted pattern performance. Horns in which price climbs by 5% and then drops, tumble between 23% and 41%, on average. The large drop in a bear market is because only eight samples were involved. Expect worse performance (a smaller negative number).

Standard & Poor's 500 change. The S&P climbed 14% in a bull market and 5% in a bear market, as measured from the day of the horn breakout to the ultimate high. The *rise* in a *bear* market is somewhat unusual.

Days to ultimate high. It took nearly 6 months for price to reach the ultimate high in a bull market, but about 3 months in a bear market. Even though the bear market climbed 27%, on average, the climb is steeper than in a bull market.

Table 28.3 shows failure rates for horn bottoms. Notice that the failure rates start smaller in a bear market, but by a maximum price rise of 15%, the bull market failure rates are lower.

Table 28.3
Failure Rates

Maximum Price Rise (%)	Bull Market	Bear Market
5 (breakeven)	26 or 9%	7 or 7%
10	57 or 20%	20 or 17%
15	90 or 31%	41 or 35%
20	118 or 41%	57 or 48%
25	142 or 50%	67 or 57%
30	158 or 55%	77 or 65%
35	175 or 61%	83 or 70%
50	206 or 72%	98 or 83%
75	237 or 83%	109 or 92%
Over 75	286 or 100%	118 or 100%

How do you read the table? Let me give you some examples. In a bull market, about a third (31%) fail to rise more than 15%. Half do not rise more than 25%. In a bear market, 35% fail to rise at least 15%.

If you want to make a 15% profit above a 5% commission and fees (20% total), 41% of the horns in a bull market and 48% in a bear market will fail to meet your profit objectives.

Table 28.4 shows breakout and postbreakout-related statistics.

Formation end to breakout. It takes price just over 2 weeks to climb from the right horn to the breakout price, which is the highest high in the pattern.

Table 28.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	19 days	16 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L27%, C37%, H36%	L34%, C44%, H22%
Percentage rise for each 12-month lookback period	L33%, C38%, H32%	L32%, 24%, H27% ^a
Throwbacks	29%	58%
Average time to throwback ends	17 days	17 days
Average rise for patterns with throwback	26%	21%
Average rise for patterns without throwback	39%	36%

^aFewer than 30 samples.

Table 28.5
Frequency Distribution of Days to Ultimate High

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	24%	8%	4%	10%	7%	3%	3%	3%	4%	3%	32%
Bull market	17%	6%	3%	3%	3%	3%	2%	2%	3%	1%	56%

Yearly position. Most of the horns have breakouts near the middle of the yearly trading range (37% in a bull market and 44% in a bear market, the highest of the three ranges).

Yearly position, performance. The best performing horns have breakouts in the middle of the yearly trading range in a bull market and within a third of the yearly low in a bear market.

Throwbacks. A throwback on the weekly scale is comparatively rare. The throwback must have occurred within a month (four bars). I excluded any throwback taking longer than that. About a quarter of the horns in a bull market and half the ones in a bear market threw back to the breakout price. It took 17 days, on average, for price to make the journey. When prices did throw back, performance suffered. For example, in a bull market, horns with throwbacks showed rises averaging 26%. When a throwback did not occur, the rise averaged 39%—a substantial difference.

Table 28.5 shows a frequency distribution of time to the ultimate high. In a bear market, 24% of the horns reached the ultimate high in the first week, but just 17% topped out in a bull market. After 70 days, a third (32%) of the bear market patterns and over half (56%) of the bullish ones were still searching for the ultimate high.

Notice the blip in a bear market during day 28 (10%) and 35 (7%). I have seen this weakness in other chart patterns. Expect the price rise to falter a month into the trade and be prepared to close out your position then.

Table 28.6 shows size statistics for the horn pattern.

Height. Tall patterns perform better than short ones, as the table shows. *Tall* means the difference between the highest high and lowest low in the

Table 28.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	45%	30%
Short pattern performance	29%	24%
Median height as a percentage of breakout price	11.33%	17.19%
Above average spike size performance	37%	26%
Below average spike size performance	30%	30%

three-bar pattern (weekly scale), divided by the highest high (the breakout price). Horns taller than the median climbed substantially more than did those shorter than the median.

Spike size. I measured the average size of price spikes over the prior year and compared each horn to the average. The *horn* spike size was the difference between the highest horn low and the three surrounding weekly lows (that is, the week before the pattern, the middle week, and the week after).

When the spike length was above the average for the stock, price tended to move up more in a bull market (37% versus 30%). In a bear market, horns with shorter spikes performed better.

Table 28.7 shows volume statistics for horns.

Volume trend. I used linear regression to find the slope of the volume trend from the left horn to the right. Those horns in a bull market showed marginally better performance when the volume rose in the pattern. In a bear market, a falling volume trend showed better postbreakout performance, but the sample size was small.

Breakout volume. I computed the 1-month average volume and compared it to the breakout for each stock. Patterns with heavy breakout volume performed substantially better than did those with light breakout volume.

Volume and spikes. I looked at the various combinations of spike volume and the resulting postbreakout performance. In a bull market, when the left spike was above the 1-month average volume and the right spike was below the 1-month average, the stock soared 41% after the breakout. In a bear market, light volume on both spikes resulted in the best performance, but the sample size was small (14 samples).

Table 28.8 shows miscellaneous statistics for horns.

Price difference. I computed the difference between the two horn bottoms as a percentage of the breakout price. When the difference was larger

Table 28.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	36%	25% ^a
Falling volume trend performance	34%	28%
Heavy breakout volume performance	41%	32%
Light breakout volume performance	30%	25%
Heavy volume on left spike, light on right, performance	41%	24%
Heavy volume on left spike, high on right, performance	32%	30%
Light volume on left spike, high on right, performance	37%	22% ^a
Light volume on left spike, light on right, performance	27%	40% ^a

^aFewer than 30 samples.

Table 28.8
Miscellaneous Statistics

Description	Bull Market	Bear Market
Large price difference between horns, performance	40%	29%
Small price difference between horns, performance	31%	25%
Median difference as a percentage of breakout price	0.97%	1.44%
Lower left spike, performance	36%	29%
Lower right spike, performance	35%	23%
Equal spike, performance	30%	30% ^a
Right horn inside week, performance	40%	34%
Right horn outside week, performance	27%	21% ^a

^aFewer than 30 samples.

than the median, the horn tended to perform better after the breakout. In other words, look for horns with uneven bottoms for the best performance.

Lower spike. I looked at performance as it relates to the lower of the two spikes. When the left spike was lower than the right, price after the breakout in a bear market climbed 29%. When the right spike was lower, the rise measured 23%. Spikes with equal lows used only four samples, so ignore the result.

Horns in a bull market showed only a minor performance difference.

Inside and outside weeks. An inside week for horns is when the right spike is within the trading range of the left spike (the right has a lower high and a higher low). An outside week is just the reverse with the right spike having a wider trading range, engulfing the left spike. I did not allow price ties, and I ignored the center week of the 3-week pattern.

Horns with the right horn as an inside week performed substantially better than outside weeks. That discovery is the exact opposite of what I found in the first edition of this book. The difference is due to the way the ultimate high is measured, additional samples, and splitting the results into bull and bear markets with a longer study period.

Trading Tactics

Table 28.9 lists trading tactics for horn bottoms.

Measure rule. Compute the formation height by subtracting the lowest low from the highest high. Add the difference to the highest high to get the target price. In a bull market, price exceeds the target 76% of the time, and in a bear market, the method works 61% of the time.

Identify. Perhaps the most important key to horn bottoms is that they should continue to look like horns (see “Clear visibility” in Table 28.1). Prices

Table 28.9
Trading Tactics

Trading Tactic	Explanation
Measure rule	Subtract the highest high from the lowest low in the horn pattern and add it to the highest high. The result is the target price.
Identify	Use the characteristics outlined in Table 28.1 to correctly identify a horn bottom. The week after the right horn is key. Prices should climb smartly and the weekly low should not be anywhere near the horn low (in other words, the horn should still look like a horn and not be encroached on by the succeeding price action).
Uptrends	Some horns appear near the end of uptrends, so watch for the trend to change.
Downtrends	Horns will usually not mark the end of the downtrend, but they will be close. Prices might continue to drift down for \$1 or so (below the lowest horn low) and then head upward.
Stops	If you can afford the loss, place a stop \$1 below the lowest horn to reduce the chance that a retest of the low will stop you out.

should climb after the twin horn spikes. If you need to wait an extra week or two to prove this occurs, then do so.

Uptrends. Separate the price trend leading to the formation into either an uptrend or downtrend. Horns that appear late in uptrends may mark the end of the upward price move. Prices continue moving higher (perhaps by 10% or so), then stop. Of course, if your horn appears at the start of an uptrend, then prices might well be on their way to a large gain.

Downtrends. Horns in downtrends are common. On the one hand, if the downtrend is just a retrace of the prevailing uptrend, then refer to the uptrend guideline. In such a case, if the horn appears after an extensive advance, then the uptrend may be nearly over. Invest cautiously or look elsewhere.

On the other hand, if the stock has been trending downward for a long time (for months anyway), then the end might be in sight. The horn probably will not mark the low exactly, but it should be close. Usually, horns appear a month or so before or after the actual turning point.

If prices are trending down and you see a horn forming, you might wait before buying the stock, just to be sure prices have really turned around. For uptrends, consider buying into the situation immediately since prices will only climb away from you.

Stops. Place a stop loss up to \$1 or so below the lowest low. For low-priced stocks, this may mean taking a significant loss. In such a case, perhaps it is best to skip the trade and look elsewhere. The reason for placing the stop well below the lowest horn low is to allow prices time to turn around. Prices sometimes curl around and retest the low (moving \$1 or so below the horn low) before recovering and trending upward.

Sample Trade

Mary saw the horn bottom forming in the stock pictured in Figure 28.4. To her the chart suggested prices would continue moving up. Prices certainly climbed above the right horn low (at 31) smartly, leaving the horn clearly visible on the weekly chart.

Looking back at the entire price chart, she saw prices begin climbing in early October 1992 at a low of 8.63. From that point, they soared to the current price in several waves. Waves pushing prices higher took between 4 and 5 months, whereas those moving lower took 3 months.

When the horn formed, the 5-month up pattern was in progress; that is what she hoped anyway. She bought the stock the week after the horn completed at 35. She hoped the horn marked an end to the short retrace and prices would resume their upward trend. She was wrong. When prices curled around, she placed a stop at 30.88—0.12 below the lowest horn low. She suspected that this might not be low enough, but a 12% loss was all she was willing to tolerate.

In early December, her worst fears were confirmed. She was stopped out as prices plummeted from 33 to 29. Three weeks later the stock hit bottom at 28.50 and turned around. From high to low, the decline lasted just over 3 months, as she predicted, and measured 19%. Prices moved swiftly upward and topped out at 57, exactly double the low.

Did Mary sell too soon and pass up her chance to nearly double her money, or did she use prudent money management to limit her losses? Those

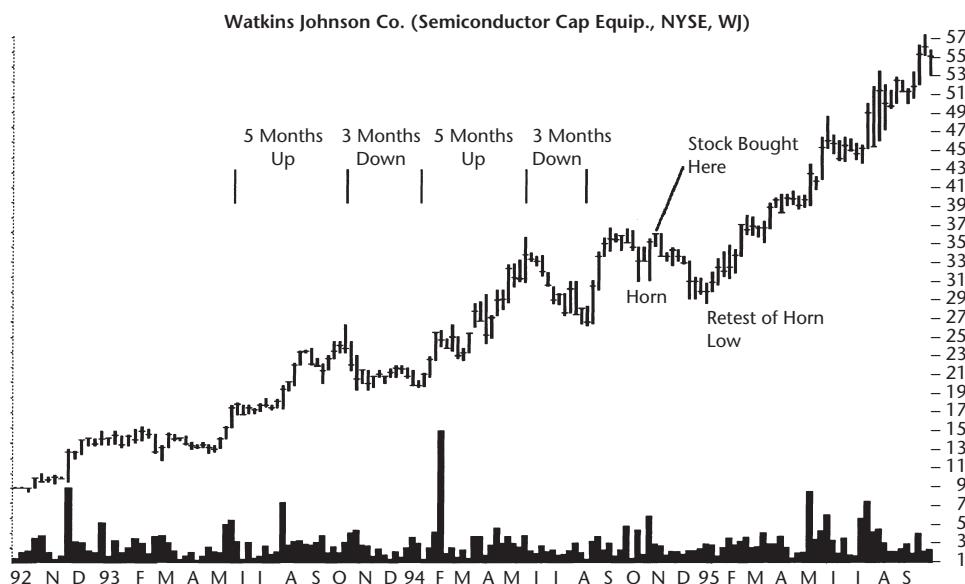


Figure 28.4 Horn bottom on weekly chart. As described in the Sample Trade, Mary was stopped out during the throwback just before prices doubled.

questions are ones we all face as traders and investors. Do you know the answer? In my opinion, Mary traded this situation properly. After all, price could have continued down.

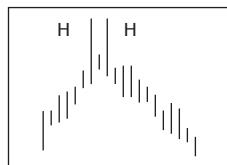
For Best Performance

The following list includes tips and observations to help select horns that perform well. Consult the associated table for more information.

- Use the identification guidelines to help select the pattern—Table 28.1.
- Horns have above average rises with bear markets showing a steeper, shorter climb—Table 28.2.
- For small gains, horns in bear markets have a lower failure rate. For larger gains (over 10%), bull markets outperform—Table 28.3.
- Throwbacks hurt performance. Look for nearby overhead resistance before trading—Table 28.4.
- Expect price weakness a month after the breakout in a bear market—Table 28.5.
- Select tall patterns—Table 28.6.
- Choose patterns with heavy breakout volume—Table 28.7.
- Horns with a large price difference (unequal low prices) or a lower left spike do well—Table 28.8.
- Inside week horns perform best (ignore the center week)—Table 28.8.

29

Horn Tops



RESULTS SNAPSHOT

Downward Breakouts

Appearance	Two upward price spikes separated by a week on the weekly chart	
Reversal or continuation	Short-term bearish reversal	
	Bull Market	Bear Market
Performance rank	4 out of 21	10 out of 21
Break-even failure rate	7%	2%
Average decline	21%	22%
Change after trend ends	51%	47%
Volume trend	Downward	Downward
Pullbacks	33%	44%
Percentage meeting price target	70%	60%
Surprising findings	Pullbacks hurt performance. Tall patterns and patterns with short spikes do best. When the pattern is an outside week, performance improves.	
See also	Double Tops (all varieties of Adam and Eve); Pipe Tops	

Horn tops are a rare pattern, especially in a bear market. I find that discovery surprising for a bearish chart pattern, but that is what the numbers tell me. The

pattern has a low failure rate with a decent decline. After the downward price trend ends, the rebound is unexciting, especially in a bear market—which has a 47% recovery. That figure may sound like a lot, but other chart patterns do much better (like 60%).

Surprises are many of the same that we see in other chart patterns. An unusual one is when the right spike is outside the trading range of the left, the pattern tends to outperform after the breakout. More about these surprises later.

Tour

With many formations, there is usually a mirror image; with double bottoms, for example, there are double tops. So it is with this formation. Chapter 28 discusses horn bottoms and this chapter talks about horn tops. Having discovered the bottoms, I wondered if the tops would work out as well. First, though, what do horn tops look like?

Figure 29.1 shows an example of a timely horn top. If you read Chapter 28 on their bottom siblings, then horn tops should come as no surprise. A horn top is an inverted version of the weekly horn bottom. A horn top sports twin peaks separated by a week and is commonly found near the end of an uptrend. Volume is usually heavy at both peaks but not by a huge margin above

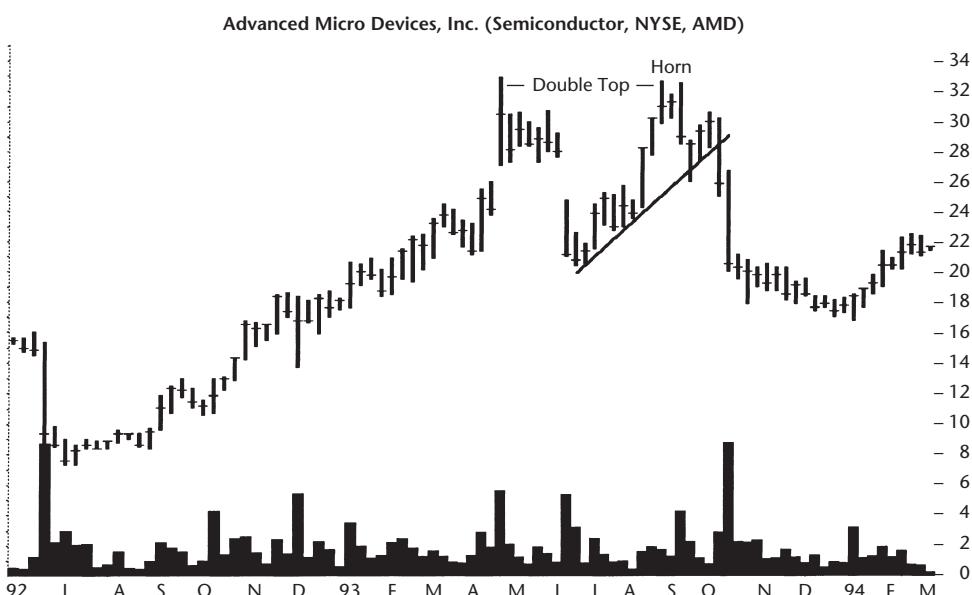


Figure 29.1 Horn top showing twin peaks. The stock drops almost in half after the horn top. Note the weekly time scale. The two peaks in April and August represent a double top.

the 25-day moving average. After the right price spike, prices drop lower and continue moving down, sometimes substantially.

In Figure 29.1 the stock begins its rise to the horn in mid-June 1993 at a price of 20.38. At the peak, prices reach a high of 32.63, a gain of 60% in 2 months. With such a sharp gain in so little time, a consolidation or congestion region is likely. Instead, the horn top marks a change in trend. Combined with the earlier top, the double top is a bearish signal.

After the twin peaks of the horn appear, prices drop to 26, then pull back to the formation base, generally following an up-sloping trend line. Then prices head down again. In the beginning of January, prices reach bottom at 16.75 for a decline of almost 50%.

Identification Guidelines

Table 29.1 shows identification characteristics that make horn tops easy to recognize. Consider the horn shown in Figure 29.2.

Weekly chart, upward spikes. Use the weekly chart to facilitate identification. Look for twin price spikes that are separated by a week.

Clear visibility. The two spikes should be well above the surrounding prices (clear visibility) and a good distance from the high in the center week. If you look back over the price history for the year, the two spikes should stand out and be larger than most other spikes. In Figure 29.2, you can see that the price spike in late September is the only real competition (for the period shown, anyway).

The high-to-high price variation between the two spikes is usually small, but need not be.

Confirmation. Confirmation occurs when price closes below the lowest low in the chart pattern. Only when that happens does the 3-week pattern become a valid horn top. Do not trade a horn top without confirmation as price is likely to continue rising.

Table 29.1
Identification Characteristics

Characteristic	Discussion
Weekly chart, upward spikes	Use the weekly chart and locate two upward price spikes separated by a week. The two spikes should be longer than similar spikes over the prior year and tower above the high of the center week. It should look like a horn.
Clear visibility	The horn highs should be well above the surrounding highs and the best performing reversals appear at the end of a long uptrend.
Confirmation	The pattern becomes a valid horn top when price closes below the lowest low in the pattern. Do not trade without confirmation.

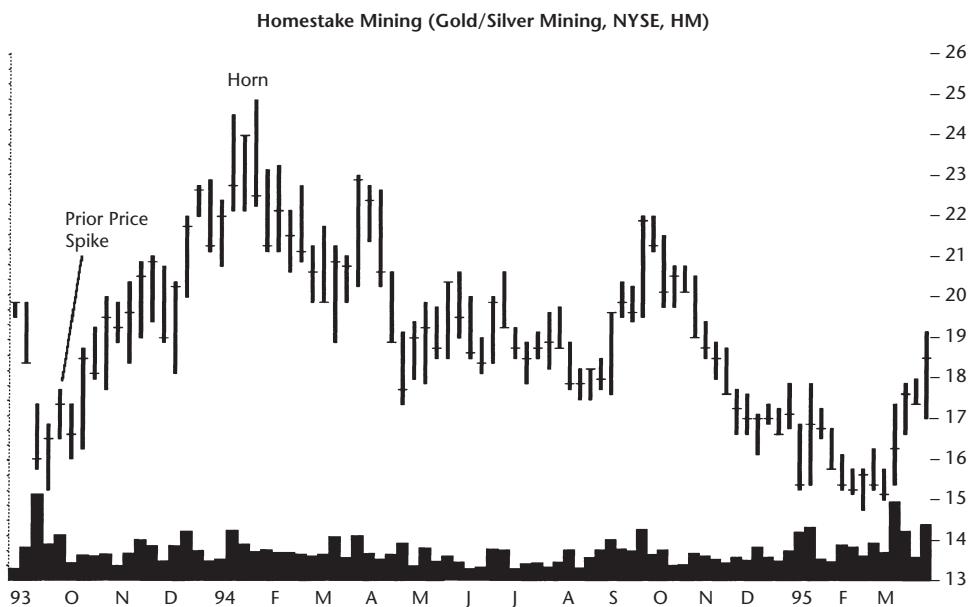


Figure 29.2 Horn tops with unusually tall price spikes. This horn exceeds the clearance of an earlier spike.

Focus on Failures

There are a variety of reasons why a particular formation fails. Some break out upward and never look back, whereas others begin moving down, falter, and then recover and climb significantly. The latter case, the so-called 5% failures, are predominant with horn tops. Prices fail to continue down by more than 5% before recovering and heading higher. However, 5% failures are rare.

What can be learned from examining the failures? Most horns warn about a coming decline by forming less than 2 months ahead of schedule. That finding is worth knowing. If a horn fails to call the turn in a stock you own, be alert to a possible trend change coming soon.

You can improve your investment performance if you consider the overall environment for the stock. Look at the horn top pictured in Figure 29.3. After trending down for a year, the stock pierced the down-sloping trend line, signaling a trend change, and moved higher. Then the horn top formed.

In situations like this, after a long downtrend, a stock usually bounces up, curls around, and retests the low (but not always). So when the horn formed, it probably signaled the price top before the retest. Although not shown in Figure 29.3, the stock did move lower, but it first bobbed up for a few months (to 63.50). Ultimately, the stock dipped to 49.13 before recovering.

Before you invest in this formation, you have to place emphasis on the piercing of the down trend line. It suggests that prices will rise (a piercing is one indicator of a trend change). With a price rise imminent, why would you

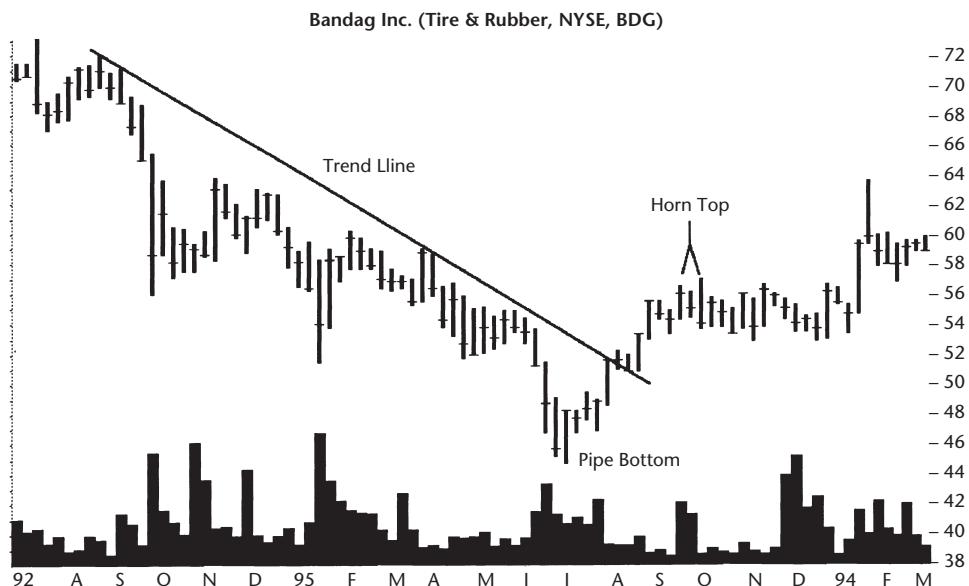


Figure 29.3 Horn top appearing after an extended downtrend. It is probably best to ignore such horn tops. A pipe bottom marks the turning point.

consider shorting the stock? Even though the horn reversal suggests prices will decline (and they do, in the short term, but only by a dollar or so), does it merit a trade?

When there is serious conflict or doubt about a situation, then look elsewhere for a more promising trade. Sure, you might miss making a killing now and again, but you do not want to end up on death row after your trading capital runs out from all the losses you have been taking.

Statistics

Table 29.2 shows general statistics for horn tops.

Number of formations. I found considerably more patterns in a bull market than in a bear market. Yes, the bull market was longer and both used about 500 stocks. Still the bear market seems to be shy of patterns.

Reversal or continuation. As a top, the pattern acts as a reversal of the prevailing price trend, by definition.

Average decline. The average decline is, well, average for bearish chart patterns. Note that the decline is higher in a bear market but not by as much as you might expect.

Declines over 45%. As with most bearish chart patterns, large declines are rare. Still 16% of the horn tops I looked at managed to drop more than 45% in a bear market (after the breakout).

Table 29.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	266	57
Reversal (R), continuation (C)	266 R	57 R
Average decline	21%	22%
Declines over 45%	14 or 5%	9 or 16%
Change after trend ends	51%	47%
Busted pattern performance	35% ^a	N/A
Standard & Poor's 500 change	-1%	-9%
Days to ultimate low	67	64

Note: Minus sign means decline. N/A means no samples available.

^aFewer than 30 samples.

Change after trend ends. Once prices reach the ultimate low, they rebound and climb more than they declined. In a bull market, the rise measures 51%, and in a bear market, the rise is 47%. This finding suggests that if you short a stock and prices hit bottom then start rebounding, cover the short. That may sound obvious, but if you hold onto the position longer than necessary, you could suffer a huge loss. Remember, you never go broke taking a profit.

Busted pattern performance. Only one pattern was available in a bear market and it was too recent to have valid price data. In a bull market, busted patterns rise by 35%, a weak showing.

Standard & Poor's 500 change. Both the bull and bear markets showed losses from the day of the horn breakout to the day of the ultimate low. That is unusual for a bull market, but it happens.

Days to ultimate low. After the breakout, it takes just over 2 months, on average, to reach the ultimate low. Since that is an average, your results will vary, but it suggests you need patience to reach the full potential of this chart pattern.

Table 29.3 shows failure rates for horn tops with the bear market rates being smaller than the bull market ones. That finding should not come as a surprise because horn tops are bearish chart patterns. Notice how the bear market rate jumps from 2% to 25%. I suspect the reason for this jump is the low sample count, but all chart patterns show failures that triple and then double for moves from 5% to 10% and on to 15%.

How do you read the table? Let me give you a few examples. In a bull market, 26% of the patterns fail to drop more than 10%. Just over half (51%) of the horns in a bear market and 54% in a bull market fail to drop more than 20%.

Table 29.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. After the right horn spike, price takes about 3 weeks to close below the formation low and signal a valid horn top and

Table 29.3
Failure Rates

Maximum Price Decline (%)	Bull Market	Bear Market
5 (breakeven)	19 or 7%	1 or 2%
10	68 or 26%	14 or 25%
15	114 or 43%	25 or 44%
20	144 or 54%	29 or 51%
25	177 or 67%	32 or 56%
30	208 or 78%	40 or 70%
35	224 or 84%	42 or 74%
50	258 or 97%	53 or 93%
75	266 or 100%	57 or 100%
Over 75	266 or 100%	57 or 100%

a downward breakout. That period is only three bars on the weekly chart, but it might seem like an eternity for a trader itchy to play the market.

Yearly position. In a bull market, the breakout appears most often within a third of the yearly high. That finding suggests horns appear near a price peak before tumbling. In a bear market, horns have breakouts most often in the middle of the yearly trading range. Thus, you may see them appear in a down-trend, after a brief rise, before the decline resumes.

Yearly position, performance. The best performing horn tops in a bear market are those with breakouts near the yearly low. Additional samples may change the result. In a bull market, the range splits between the yearly high and low. In other words, avoid selecting horn tops in the middle of the yearly price range.

Table 29.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	22 days	21 days
Percentage of breakouts occurring near the 12 month low (L), center (C), or high (H)	L24%, C34%, H42%	L30%, C40%, H30%
Percentage decline for each 12-month lookback period	L23%, C19%, H23%	L26% ^a , C23% ^a , H17% ^a
Pullbacks	33%	44%
Average time to pullback ends	16 days	17 days
Average decline for patterns with pullback	16%	18%
Average decline for patterns without pullback	23%	25%

^aFewer than 30 samples.

Table 29.5
Frequency Distribution of Days to Ultimate Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	26%	7%	9%	14%	2%	4%	4%	2%	2%	0%	32%
Bull market	24%	6%	7%	7%	4%	6%	3%	3%	3%	2%	36%

Pullbacks. Pullbacks are rare for horns. When they do occur, it takes just over 2 weeks for price to return to the breakout price. When pullbacks occur, postbreakout performance suffers. For example, in a bear market when a pullback happens, the postbreakout decline averages 18%. When a pullback is absent, the decline is significantly larger—25%.

Table 29.5 shows a frequency distribution of time to the ultimate low. In a bear market, for example, 26% of the horn tops reach the ultimate low in the first week. In a bull market, 24% bottom during week one. At the other end of the scale, about a third of the horns are still searching for the bottom well over 2 months after the breakout.

Notice how 14% of the bear market patterns bottom after the first month. I have seen this behavior in other chart patterns. Why the 1-month mark is significant is beyond me, but expect strength a month after the breakout.

Table 29.6 shows statistics related to pattern size.

Height. Since horns have a defined 3-week width, only height is important. I compared horns to the median height as a percentage of the breakout price and found that patterns taller than the median performed better after the breakout than short ones. In a bull market, the results were the most striking, with tall patterns showing drops of 26% and short patterns descending 18%.

Spike size. I compared the size of the horn spike (see the Glossary and Methodology for the definition) with the average size over the prior year for each stock. When the spike length was below average, performance improved. For example, in a bull market, horns with a spike length above the average dropped 19% after the breakout. Those with shorter spikes dropped 24%.

Table 29.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	-26%	-23%
Short pattern performance	-18%	-21%
Median height as a percentage of breakout price	10.87%	14.15%
Above average spike size performance	-19%	-20%
Below average spike size performance	-24%	-25% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 29.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	-21%	-19% ^a
Falling volume trend performance	-21%	-25%
Heavy breakout volume performance	-21%	-24%
Light breakout volume performance	-21%	-20% ^a
Heavy volume on left spike, light on right, performance	-22%	-27% ^a
Heavy volume on left spike, high on right, performance	-20%	-19% ^a
Light volume on left spike, high on right, performance	-20%	-19% ^a
Light volume on left spike, light on right, performance	-24%	-24% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 29.7 shows volume statistics for horns.

Volume trend. In a bear market, horns with a falling volume trend outperformed those with a rising trend, but the sample count is low. In a bull market, there was no performance difference.

Breakout volume. Heavy breakout volume seems to assist performance in a bear market only.

Volume and spikes. I mapped performance for horns, sorted by the volume on each spike. Performance improved when volume was lighter than the 30-day average on the right spike. Performance deteriorated when right spike volume was above average.

Table 29.8 shows miscellaneous statistics for horn tops.

Table 29.8
Miscellaneous Statistics

Description	Bull Market	Bear Market
Large price difference between horns, performance	-22%	-21%
Small price difference between horns, performance	-20%	-23%
Median difference as a percentage of breakout price	0.82%	0.90%
Lower left spike, performance	-22%	-21% ^a
Lower right spike, performance	-20%	-23% ^a
Equal spike, performance	-21%	-23% ^a
Right horn inside week, performance	-18%	-19% ^a
Right horn outside week, performance	-22%	-20% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Price difference. I looked at the price difference between the two highs in the horn top and compared it to the median. When there was a large price variation in a bull market, the horn tended to perform better after the breakout, by 22% to 20%. In a bear market, the results flipped, with small price variations showing better postbreakout performance, 23% to 21%.

Lower spike. In a bull market, the best performance came from horns with a lower left spike; that is, the *top* of the left spike is below that of the right. In a bear market, the best performance came from horns with the right spike equal to or below the left spike top, but the sample count was small.

Inside and outside weeks. Horns did well when the right spike showed a wider overlapping trading range than the left spike (an outside week, if you ignore the center week). In other words, the right spike had a higher high and lower low than the left spike. This finding compares to an inside week for the right horn, meaning that the right spike was inside the trading range of the left spike. In a bull market, horns that were outside weeks showed declines averaging 22%. Horns that were inside weeks dropped only 18% after the breakout.

Trading Tactics

Table 29.9 shows trading tactics for horn tops.

Measure rule. Compute the horn height by subtracting the lowest low from the highest high in the pattern. Subtract the result from the lowest low to get the target price. In a bull market, price reaches the target 70% of the time. In a bear market, price hits or exceeds the target 60% of the time.

Table 29.9
Trading Tactics

Trading Tactic	Explanation
Measure rule	Subtract the lowest low from the highest high to get the pattern height. Subtract the height from the lowest low to get the target price.
Threat assessment	Look for an uptrend spanning many months. Such uptrends often show horns near the end of the trend. If the horn top appears near the end of a long <i>downtrend</i> , then it is best to avoid it. Watch out for horns appearing after a downward trend when the trend changes and price starts moving higher. Prices may decline but the decline is usually short-lived (as in the rise between a double bottom).
Low volume	The failure rate declines if below average volume appears on both spikes, in a bull market.
Trend change	A horn top usually signals an approaching trend change, usually in less than 2 months.

Threat assessment. After you have correctly identified the horn, look at the surrounding price pattern. Is the stock trending higher and has it been moving higher for months now? If so, then the horn may signal an approaching top. Sometimes the horn calls the turn exactly while at other times it is off by a few months (usually it precedes the turn but sometimes it lags).

If the horn appears on a downtrend, that is fine. The formation is simply implying that the trend will continue moving down. However, should the horn appear after an extended downtrend, then the possibility of further declines may be in jeopardy. This behavior is especially true if the horn appears after a long downtrend when prices are beginning to move up again (they are retracing some of their losses). Often the retrace signals a trend change. You will be buying into a situation in which you believe prices will fall and retest the low, but prices will dip slightly and then head higher.

Be cautious when selling short after a long downtrend, and be especially cautious if the downtrend has ended and the horn seems to mark the end of an upward retrace. Do not expect prices to fall far. They do occasionally but the majority of the decline has already passed.

Low volume. Spikes with volume below the 1-month average show lower failure rates while improving the average decline in a bull market. That is worth considering before you place a trade.

Trend change. Even if a horn top fails and prices drop by less than 5%, there is a chance that the horn is a premature signal of a bearish trend change. Therefore, whenever you see a horn top, be aware that the end of an uptrend may be just a few months away.

Sample Trade

You might be saying, “Those bromides are all fine and good, but how do I really trade it?” Consider the situation in Figure 29.4 faced by Sandy. She watched the complex head-and-shoulders formation take shape in a stock she owned. Volume on the far left shoulder was higher than during the head, as expected, and volume on the far right shoulder was further diminished. All in all, it was setting up to be a dire situation. When she spotted the horn top forming on the right shoulder, she knew the end was near.

Two weeks after the right horn spike appeared, she sold her holdings in the stock for a tidy profit, but she was not finished. The following week, she shorted the stock at 34.25. Her calculations using the measure rule for the head-and-shoulder formation indicated a decline to 16. This was higher than the 12 predicted by the measure rule because she used her sell point instead of the breakout point (which was not reached yet so she had no idea what it was).

With the stock selling at 34, a drop to 16 seemed too optimistic. Still, she watched with glee as the stock plummeted. In rapid order it fell to about 25 before meeting support. Sandy scanned the weekly chart looking for support

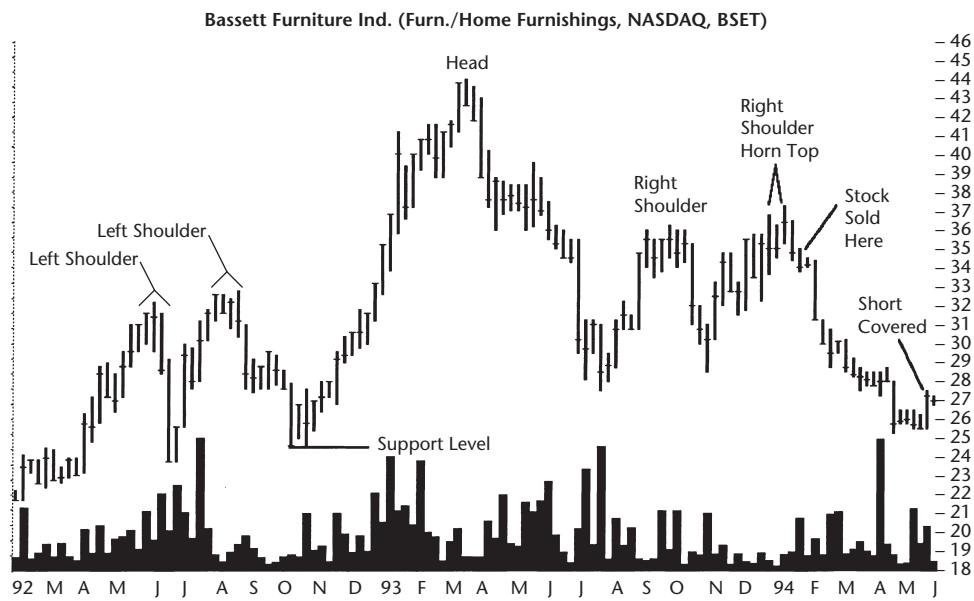


Figure 29.4 A horn top appears as part of the right shoulder of a complex head-and-shoulders formation.

levels and noticed one during October at about 24.50 and one during June at around 23.75. Together, these two levels and the round number of 25 probably spelled a difficult time for the stock to continue lower.

When the stock headed back up in late May, she decided to close out her position at 27. She pocketed about \$7 a share in just over 4 months. When she returned to the chart a year later, she saw that it did descend lower as the head-and-shoulders formation predicted. During early November, it reached a low of 20.13, still well above the calculated 16 target she used and the 12 predicted by the measure rule. The flip side of this story is that after she sold the stock, it climbed to 30.75, just 10% below her sell point.

For Best Performance

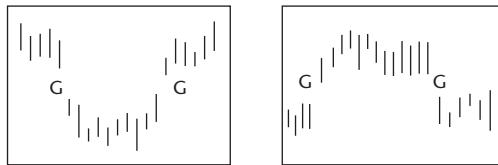
The following list includes tips and observations to help select horns that perform better after the breakout. Consult the associated table for more information.

- Review the identification guidelines for correct selection—Table 29.1.
- This bearish chart pattern is rare in a bear market—Table 29.2.
- Horns in a bear market have lower failure rates—Table 29.3.
- Select patterns near the yearly low—Table 29.4.
- Pullbacks hurt performance—Table 29.4.

- In a bear market, watch for a trend change about a month into the trade—Table 29.5.
- Pick tall patterns—Table 29.6.
- Horns in a bear market with a falling volume trend perform better—Table 29.7.
- Choose horns with volume on the right spike below the 1-month average—Table 29.7.
- Select horns with the right horn outside the trading range of the left one—Table 29.8.

30

Island Reversals



RESULTS SNAPSHOT

Tops (Downward Breakouts)

Appearance	Prices gap up to the formation and then gap down at the same price level, leaving an island. Breakout is downward.	
Reversal or continuation	Short-term bearish reversal	
	Bull Market	Bear Market
Performance rank	21 out of 21	13 out of 21
Break-even failure rate	17%	5%
Average decline	17%	23%
Change after trend ends	45% 46%	
Volume trend	Downward	Downward
Pullbacks	65%	59%
Percentage meeting price target	62%	46%
Surprising findings	Pullbacks hurt performance. Patterns both tall and narrow do best.	
See also	Islands, Long	

Bottoms (Upward Breakouts)

Appearance	Prices gap down to the formation and then gap up at the same price level, leaving an island. Breakout is upward.	
Reversal or continuation	Short-term bullish reversal	
	Bull Market	Bear Market
Performance rank	23 out of 23	11 out of 19
Break-even failure rate	18%	10%
Average rise	23%	21%
Change after trend ends	-28%	-37%
Volume trend	Downward	Downward
Throwbacks	70%	75%
Percentage meeting price target	69%	49%
Surprising findings	Throwbacks hurt performance.	
See also	Islands, Long	

The performance of island reversals is perhaps surprising only for its mediocrity. Failure rates for both tops and bottoms are reasonable, holding below the 20% threshold that I view as the maximum allowable for reliable formations.

The average decline from an island top ranges between 17% and 23%, depending on market conditions. The range is similar to many other bearish chart patterns. However, the average rise from an island bottom is a disappointing 21% to 23%, and that is well below the 35% to 40% I like to see for bullish chart patterns.

With these mediocre performers, trading every island that you see is a way to drown in losses. You can improve performance by selecting patterns with the proper height and width characteristics for the market you are trading, as described later in this chapter.

Pullbacks and throwbacks are prevalent, suggesting that the gap after the island completes closes quickly. Investors can make use of this behavior to delay their investments until the pullback or throwback completes and prices resume their breakout direction.

Tour

Figure 30.1 shows what island reversals look like. The first island, shown on the far left, is a one-day reversal. In the study of islands, I did not tabulate such narrow formations, but the figure shows an example of a small reversal. The

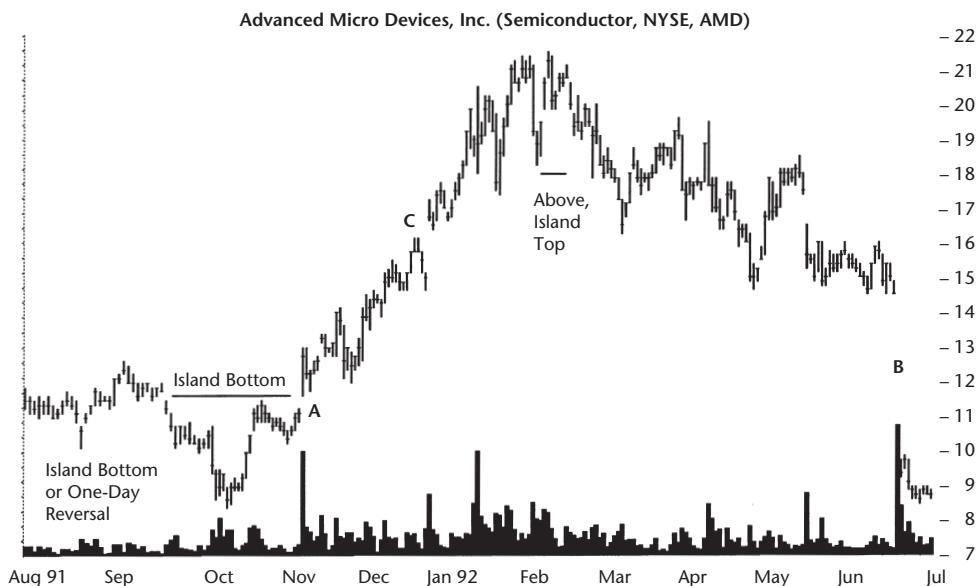


Figure 30.1 A one-day reversal, island bottom, and island top. You can see the price change that results after each reversal.

center formation is an island bottom. Prices gap downward in mid-September, reach a new low in early October, and then gap upward later in the month. The two gaps appear at about the same price level, 11.50. From that point, prices climb quite rapidly and reach a high of 21.50, well above the 11.25 price posted the day before the breakout. Notice that the breakout is on very high volume. The last island highlighted on the chart is near the top. It is an island top and prices move down from about 20 to less than 8. This formation is a traditional island top because of its compact size. I did not count it in my tabulations because the gap on the right is less than the 0.25 point I used to filter such formations. Still it does emphasize a trend reversal with excellent timing. Not highlighted is a very large island top. The island bottom shares the left gap (point A) while the right gap is the large price decline in mid-June (point B). The large island is almost 8 months long.

Identification Guidelines

Island reversals are easy to identify and Table 30.1 shows the identification characteristics.

Shape. Both types of reversals, tops and bottoms, are set off by gaps. The gaps appear at or near the same price level but are typically not the same size. The large gap marked as point B in Figure 30.1 (on the far right) makes this clear. That gap has a size of almost 5 while the one on the left (point A) is only 0.38 wide.

Table 30.1
Identification Characteristics

Characteristic	Discussion
Shape	Gaps set off both island tops and bottoms and share all or part of the same price level. Most times, prices move away from the gaps leaving the island with a clear view of the opposing gap (the left gap usually does not close quickly).
Rising trend	Tops have prices that lead up to the left gap and fall away from the right gap.
Falling trend	Bottoms have prices that lead down to the left gap and rise away from the right gap.
Volume	Volume is usually high on the breakout day (the day prices make a second gap and form the island) but need not be.
Time	The island can be from one day (a one-day reversal) to several months long. Some analysts have suggested that islands are quite short, up to a week or two, with relatively flat price zones, but I placed no such restrictions on them.

As far as identification goes, the gap in mid-December 1991 (point C) should not be paired with the gap in late October (point A) since they are not at the same price level. Even though the price pattern looks like an island because it is set off by gaps, it is not an island reversal by the traditional definition. The gaps must overlap prices or be quite close to one another. In this study, all islands have price gaps within 0.13 of one another and are at least 0.25 or larger. In addition, I did not consider one-day reversals (islands composed of 1 day) as part of this study. I believe that such islands are too difficult on which to base an effective trading policy.

Price trends. Consider Figure 30.2, which shows several island reversals. The first two islands happen as part of a retrace in a downtrend. The small island tops last for about a week before prices resume their downward plunge.

The island bottom forms after an extensive decline that sees prices drop from a high of 36.50 to 12 in less than 5 months. The exhaustion gap occurs on very high volume and prices that day have a very large 3.50 trading range. The gap remains open until prices gap upward in late January. Looking at the bottom formation overall, it looks like a complex head-and-shoulders bottom. Marked on the figure are the dual shoulders and duplicate heads. The volume for the head-and-shoulders pattern is what you would expect: highest on the left shoulder, diminished on the head, and quite low on the right shoulder. Only after price gaps upward does volume spike higher for 2 days before recovering and trending downward.

The island top on the right of the figure is somewhat difficult to spot because of the large gap on the left that matches the small one on the right. It only takes a few days for prices to reach their high before easing down. When prices gap lower at the end of March, volume does not budge.

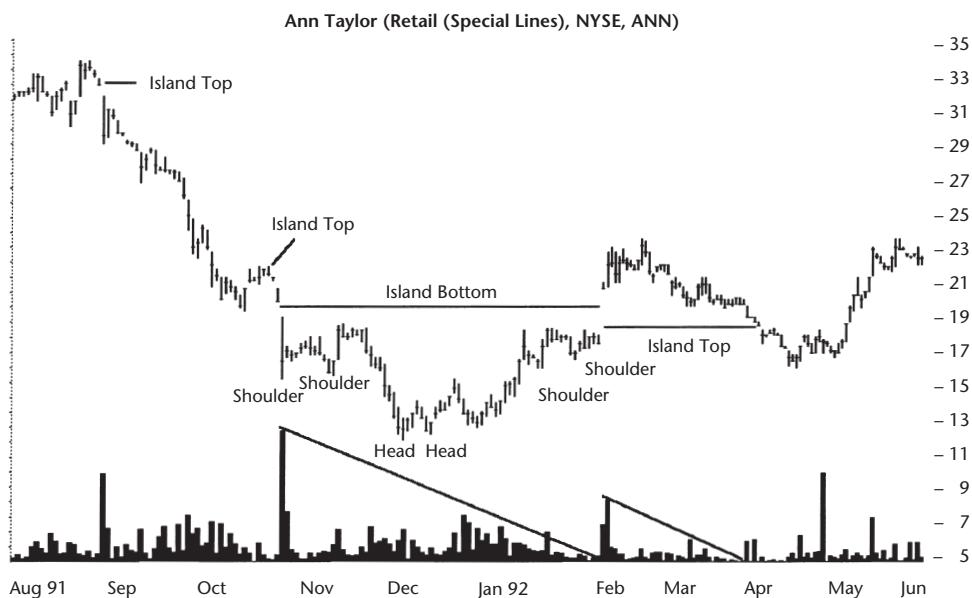


Figure 30.2 Several island reversals, some with short durations and some with longer durations. The island bottom is also a complex head-and-shoulders bottom that retests the neckline in April.

Volume. Volume usually trends downward over the length of the pattern from gap to gap, taking on a dome shape about 57% of the time and a U shape 34% of the time. The remainder is a random shape. Breakout day volume is heavy 79% of the time when compared to the 30-day volume average.

What does all of this mean? Nothing. Volume may be dome shaped and slope downward, obeying the normal characteristics or it may not. Anything goes.

Time. The average length for an island is just over a month, but it can vary from a single day to 6 months or a year. Islands too long may be difficult to spot. If traders do not recognize a pattern, then they will not trade it. Stick with obvious islands, usually of short duration (say, 3 months).

Focus on Failures

Failures come in all manners of depiction. Look at Figure 30.3, a chart of a large island top. This failure is typical of many formations, especially those with small declines. The island is unusual as it forms after a region of consolidation. The first gap is a breakaway gap since it breaks away from the consolidation region on high volume and prices move up. The second gap is an exhaustion gap that closes quickly.

The figure shows a 5% failure. Prices head lower after the second gap on the right, but decline by no more than 5% before recovering and moving sub-

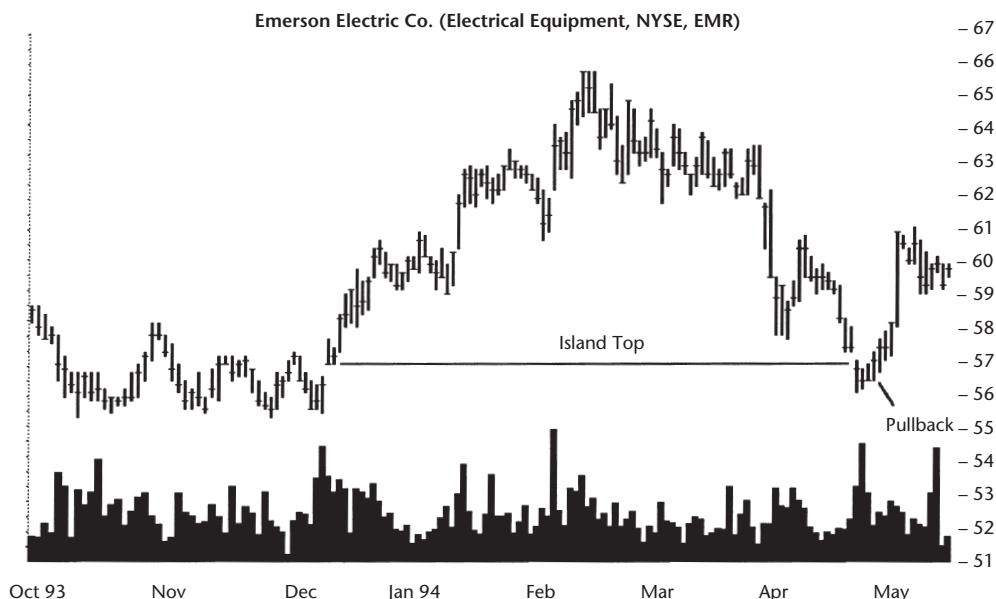


Figure 30.3 Long island top that fails because prices drop by less than 5%. A reversal needs something to reverse.

stantially higher. Why? There is a common law, for lack of a better term, that says a reversal will only travel as far as the prior rise. In other words, a reversal has to have something to reverse. In Figure 30.3, you can see that prices consolidate for 2 months. When the island top appears, what is there to reverse? The rise from December to mid-February, when prices rise from roughly 55 to 65, unwinds. Prices move steadily lower at first, then plunge, and end back at 56. Beyond that, the prior year's worth of support at that level is just too extensive to allow any further decline. *There has to be something to reverse.* Remember that before you take a position in a stock, especially something such as an island reversal that is known to be light on performance.

Figure 30.4 shows another failure. The island bottom is clearly visible on the chart. The two gaps separate the main body of the island from the mainland with plenty of clear ocean. Over the course of the formation, the first gap remains open. The second gap closes about a week after prices throw back to the breakout point. Then prices continue lower.

How could you have known that this island bottom would rise less than 5% before sinking? For island bottoms, throwbacks occur 70–75% of the time, on average. This high rate allows an investor the luxury of waiting before investing. Once the stock throws back to the formation, wait for prices to recover. Assuming they do, jump in and buy the stock.

In the situation shown in Figure 30.4, the stock did not recover; it continued down. Had the investor been paying attention, he would not have gotten himself into this money-losing situation in the first place.

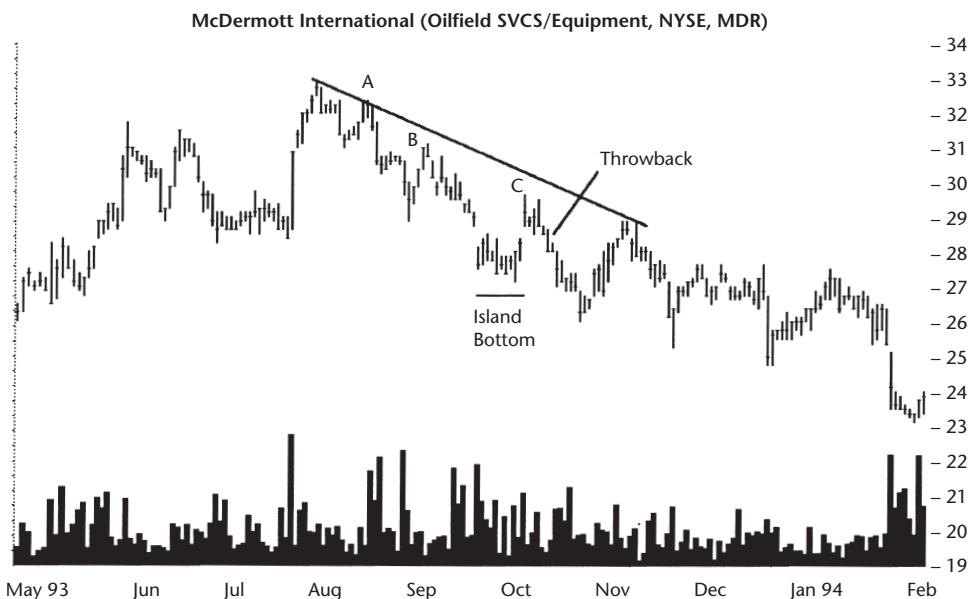


Figure 30.4 An island bottom failure. Wait for price to close above the trend line before investing in this island bottom. Since it does not (at point C), skip this trade.

Is there another reason to suspect this island? Sure, and it is called a trend line. If you draw a down-sloping trend line along the peaks, beginning with the tallest one, you quickly discover that the minor peak after the island bottom (point C) falls well short of the trend line. Trend lines are known for their ability to stop price movement. In this case the trend line acts as resistance to the rising trend. It repels the advance and prices turn lower.

In other words, the investor should have waited for price to close above the trend line before buying the stock. Even if he mistakenly connects points A and B with a trend line and extends it downward through point C, it should give him pause. Although prices pierce the trend line, they fail to close above it. If they cannot close above it, how will prices rise?

Statistics

Table 30.2 is swimming with island statistics.

Number of formations. I found 917 islands without really trying. My selections were limited to gaps at least \$0.25 in size and no more than \$0.13 away from each other in price (gap to gap). I used 500 stocks from mid-1991 to mid-1996 and bracketed another 500 around the 2000–2002 bear market.

Reversal or continuation. By definition, all patterns acted as reversals of the preceding trend. That means tops broke out downward and bottoms broke out upward, changing the trend from up to down (tops) and down to up (bottoms).

Table 30.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	345	118	289	165
Reversal (R), continuation (C)	345 R	118 R	289 R	165 R
Average rise or decline	23%	21%	-17%	-23%
Rises or declines over 45%	72 or 21%	16 or 14%	14 or 5%	15 or 9%
Change after trend ends	-28%	-37%	45%	46%
Busted pattern performance	42%	23% ^a	-24%	-26% ^a
Standard & Poor's 500 change	8%	1%	0%	-10%
Days to ultimate high or low	128	53	53	34

Note: Minus sign means decline.

^aFewer than 30 samples.

Average rise or decline. The best performance came from upward breakouts in a bull market and downward breakouts in a bear market, so trade this pattern with the prevailing market trend. Going against the market is like trying to cross a six-lane highway on foot: It is possible but dangerous.

Since all islands have a gap on the breakout day, I used the intraday low (upward breakouts) or intraday high (downward breakouts) the day after the breakout as the breakout price. This delay assumes you bought at the best price the day after the breakout. Using the formation high (upward breakout) or low (downward breakout) favorably changes the average rise or decline, but only by one or two percentage points.

Rises or declines over 45%. Large rises occur more frequently than large losses for the island pattern. However, that behavior is standard for many other bullish and bearish chart patterns.

Change after trend ends. Once the breakout trend ends, prices drop between 28% and 37% from the ultimate high, or rise between 45% and 46% from the ultimate low. The rise is well below the 50% to 60% performance of other chart pattern types.

Busted pattern performance. The results are disappointing. For upward breakouts, a rise of 50% or 60% is typical. Since the performance numbers for busted patterns are so low, I would look elsewhere for a more promising pattern.

Standard & Poor's 500 change. From the breakout of the island to the ultimate high or low, the S&P ranged from an 8% climb to a 10% drop. Notice how the numbers track the average rise or decline. I mean that the largest rise associates with a large general market gain, and the largest decline (bear market, down breakout) associates with a 10% decline in the S&P. This connection suggests you should trade with the prevailing market trend. Go long in a bull market and short in a bear market.

Days to ultimate high or low. Patterns in a bull market with an upward breakout took more than twice as long as the other combinations to reach the ultimate high or low. Notice that islands in a bear market with a downward breakout took 34 days compared to 128 in a bull market (up breakout). Since both travel the same distance, 23%, the decline must be dramatically steeper than the rise in a bull market. The implication here is that you should be in cash instead of holding stock in a bear market.

Table 30.3 shows failure rates for islands. For example, 18% of islands in a bull market with an upward breakout failed to rise more than 5%. Nearly half, 47%, failed to rise more than 15%. For downward breakouts, read the table the same way. In a bear market, 5% failed to drop more than 5% after the breakout. This is the lowest failure rate of the bunch. Nearly half (47%) failed to drop more than 20%.

Islands in a bear market with downward breakouts do well (have the lowest failure rates) until the decline reaches 30%. After that, bull markets, upward breakouts outperform by having the lowest failure rates.

Notice how the rates progress in each column. For example, in a bear market with an upward breakout, the failure rate triples from 10% to 29% and nearly doubles again to 47% for price moves of 5%, 10%, and 15%. This tripling and doubling is common for chart patterns. It suggests that good performers are hard to find, so you need every break you can get. That is why things like trading with the market trend, using stops, and selling at a profit when the stock, industry, and general market begin showing weakness can spell the difference between a millionaire trader and a homeless investor.

Table 30.4 shows breakout- and postbreakout-related statistics.

Table 30.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	62 or 18%	12 or 10%	49 or 17%	8 or 5%
10	125 or 36%	34 or 29%	119 or 41%	38 or 23%
15	163 or 47%	55 or 47%	160 or 55%	54 or 33%
20	196 or 57%	71 or 60%	199 or 69%	78 or 47%
25	218 or 63%	78 or 66%	218 or 75%	93 or 56%
30	234 or 68%	84 or 71%	239 or 83%	111 or 67%
35	248 or 72%	89 or 75%	255 or 88%	129 or 78%
50	285 or 83%	106 or 90%	281 or 97%	156 or 95%
75	317 or 92%	117 or 99%	289 or 100%	165 or 100%
Over 75	345 or 100%	118 or 100%	289 or 100%	165 or 100%

Table 30.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	1 day	1 day	2 days	2 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L26%, C32%, H42%	L44%, C38%, H19%	L26%, C41%, H33%	L47%, C38%, H15%
Percentage rise/decline for each 12-month lookback period	L24%, C24%, H23%	L23%, C22%, H15% ^a	L20%, C16%, H15%	L21%, C24%, H28% ^a
Throwbacks/pullbacks	70%	75%	65%	59%
Average time to throwback/ pullback ends	9 days	6 days	8 days	8 days
Average rise/decline for patterns with throwback/pullback	18%	19%	-14%	-19%
Average rise/decline for patterns without throwback/pullback	38%	28% ^a	-23%	-30%

Note: Minus sign means decline.

^aFewer than 30 samples.

Formation end to breakout. The breakout occurs the day price makes a second gap. Since this event may occur over a weekend or a holiday, the average time to the breakout from the island end is 1 or 2 days.

Yearly position. These numbers tell me that islands happen anywhere in the yearly price range. For example, islands in bull markets with upward breakouts happen most often when the breakout is near the yearly high. Islands in a bear market with an upward breakout form near the yearly low, and bull market, down breakout patterns appear most often in the middle of the yearly trading range.

Yearly position, performance. Most of the numbers indicate that the best performing islands have breakouts near the yearly low. This finding is true for all market conditions and breakout directions except bear markets, down breakouts. Those do best when the downward breakout is near the yearly high.

Throwbacks and pullbacks. Throwbacks and pullbacks occur often for islands (between 59% and 75% of the time), suggesting that the second island gap closes quickly. The time to complete the return to the breakout price varies from 6 to 9 days, which is unusually fast (11 or 12 days is more typical).

When a throwback or pullback occurs, performance suffers. For example, islands in a bull market with upward breakouts and a throwback climb 18% after the breakout. When a throwback does not occur, the rise measures 38%—a substantial difference.

Before you trade islands, check for underlying support or overhead resistance. If a stock has nearby support or resistance, then consider looking for a more promising situation. After all, once a throwback or pullback occurs, the price may continue moving in the adverse direction, setting you up for a loss.

Table 30.5 shows a frequency distribution of time to the ultimate high or low. As you can see, about a third of the patterns reach the ultimate high or low in the first week. On the other end of the scale, you can see that few islands continue moving in the breakout direction after 2 months. They are the ones still searching for the ultimate high or low.

Table 30.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	32%	7%	8%	7%	4%	5%	2%	3%	3%	3%	25%
Bull market, up breakout	30%	6%	6%	6%	4%	3%	3%	2%	2%	1%	38%
Bear market, down breakout	39%	11%	8%	5%	5%	4%	5%	4%	2%	2%	15%
Bull market, down breakout	33%	7%	6%	5%	6%	4%	3%	4%	1%	3%	27%

Bear markets typically show softness a month to 6 or 7 weeks after the breakout. This characteristic shows in the numbers for upward breakouts (day 42 at 5%) and downward breakouts (day 49). Islands in bull markets with downward breakouts also show a slight rise during day 35 (6% bottom out then).

Table 30.6 shows statistics related to size.

Height. Tall patterns perform as well as or better than short ones most of the time. For example, islands taller than the median in a bull market with a downward breakout show declines of 20%. Short islands lose only 14% after the breakout.

Width. The results for width follow market conditions. Wide islands perform best in bull markets. Narrow islands do well in bear markets. I measured the width from gap to gap, as you might expect, and all comparisons are against the median widths shown in Table 30.6.

Average formation length. The average island is about a month long, except islands in a bear market with downward breakouts: They average 45 days long.

Height and width combinations. Looking at the combinations of height and width, the best performance comes from patterns that are both tall and narrow (except in a bear market with upward breakout). The worst performance comes from islands that are both short and wide.

Table 30.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market Up Breakout	Bull Market Down Breakout	Bear Market Down Breakout
Tall pattern performance	25%	20%	-20%	-23%
Short pattern performance	22%	22%	-14%	-23%
Median height as a percentage of breakout price	8.82%	18.19%	8.96%	15.92%
Narrow pattern performance	23%	22%	-16%	-25%
Wide pattern performance	24%	20%	-17%	-21%
Median length	15 days	23 days	18 days	32 days
Average formation length	32 days	36 days	35 days	45 days
Short and narrow performance	22%	22%	-15%	-24%
Short and wide performance	21%	18% ^a	-12% ^a	-20% ^a
Tall and wide performance	25%	20%	-19%	-22%
Tall and narrow performance	26%	19% ^a	-22% ^a	-30% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 30.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market Up Breakout	Bull Market Down Breakout	Bear Market Down Breakout
Rising volume trend performance	24%	15% ^a	17%	17%
Falling volume trend performance	23%	22%	17%	26%
U-shaped volume pattern performance	27%	19%	16%	25%
Dome-shaped volume pattern performance	22%	22%	17%	24%
Neither U-shaped nor dome-shaped volume pattern performance	23% ^a	11% ^a	22% ^a	17% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 30.7 shows volume-related statistics.

Volume trend. For bull markets, volume trend is not a good predictor of performance, meaning that the results in each column are too close to one another. However, islands in a bear market with a downward volume trend perform substantially better.

Volume shapes. The results are all over the map. Islands with breakouts in the direction of the bull (upward breakout) or bear (downward breakout) market do well with U-shaped volume. The other combinations slip between a random volume shape or dome.

Trading Tactics

Table 30.8 outlines trading tactics.

Measure rule. The first trading tactic is not really a tactic at all; it is the measure rule, which assists investors in gauging whether a trade is worth risking. Consider the island bottom shown in Figure 30.5. The highest high in the formation is 24.63 (which is just below the gap in early February, not the larger gap in mid-February) while the low is 17.50. Add the difference of 7.13 to the highest high to get the predicted price target. In this case, the target is 31.75, a target not reached before the formation fails.

Wait for pullback or throwback. There are two ways to trade islands. To reduce risk, you can buy immediately after the breakout and ride the price move until it begins turning on the way back to the breakout price (during a

Table 30.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the formation height by subtracting the lowest low from the highest high in the formation. Add the difference to the highest high for island bottoms, and subtract the difference from the lowest low for island tops. The result is the target to which prices should rise (for bottoms) or fall (for tops).
Wait for pullback or throwback	Island reversals show a reluctance to continue moving in the direction of the breakout. Prices usually reverse direction and quickly fill the gap before recovering and resuming their original trend. Wait for the pullback (tops) or throwback (bottoms) to complete and prices to resume their original direction before investing.
Watch trend lines	Trend lines, when pierced, often signal a trend change. Should an island reversal appear near a trend line, wait for prices to close beyond the trend line before investing.

throwback or pullback). If prices reverse, it will be quick, usually in the first week or two. Trading in this manner allows you to profit from the large first week move.

To avoid a throwback or pullback and enjoy a larger average move, look for underlying support or overhead resistance. With nearby support or resistance, the stock is more likely to throw back or pull back.

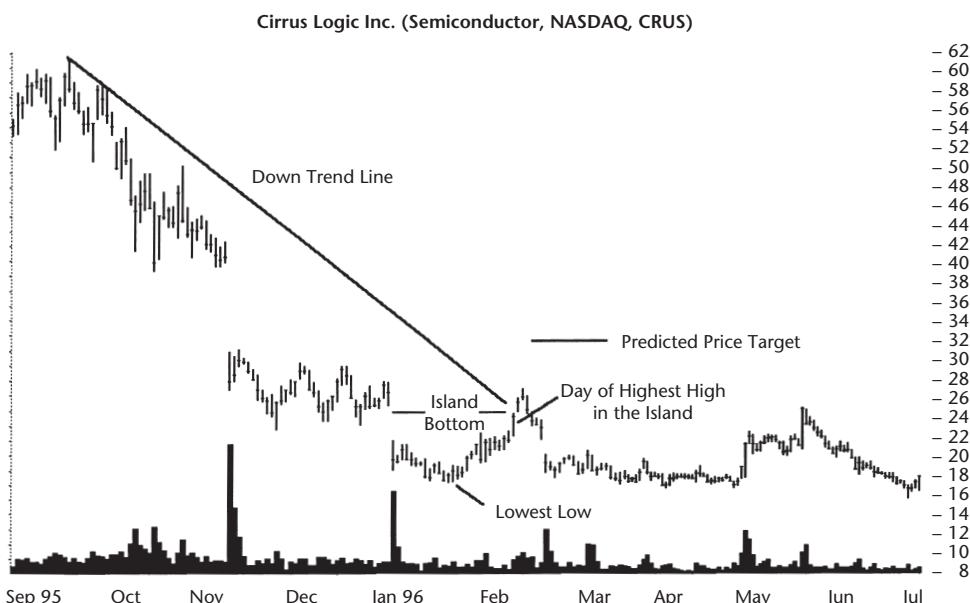


Figure 30.5 A failed island bottom. Sometimes the best trade you can make is none at all.

The second way to trade islands is wait for the pullback or throwback to complete. Since pullbacks and throwbacks occur a majority of the time and since island reversals have a low failure rate but poor performance, it is wise to wait for the retrace. It usually occurs a week or two after the second gap. If a pullback or throwback does not occur quickly (in less than a month), then move on to the next trading situation.

When a pullback or throwback occurs, do not invest immediately. Wait for the retrace to complete and for prices to turn around and resume their original direction. Sometimes prices retrace to the formation, then continue moving in the adverse direction.

Watch trend lines. In the Focus on Failures section of this chapter I discuss the use of the trend line in detail, so there is not much added here. However, both up and down trend lines can show a trend change. Wait for prices to *close* above a down trend line or below an up trend line before pulling the trigger. Many times prices will near the trend line and be repulsed, so you want to make sure that the piercing does, indeed, signal a change in trend.

Sample Trade

Consider the situation faced by Clarence as illustrated in Figure 30.5. He watched the semiconductor company's stock plummet. During November and December, the stock formed a long island consolidation. He knew it was not a reversal because the two gaps did not line up across from each other. Then another island formed in January to early February.

Since prices gapped down to the second formation then gapped up away from it, he knew he was dealing with an island bottom, a better investment choice for performance than an island top. He used the measure rule to gauge the likely price to which the stock would climb. The target represented nearly a 30% rise in price, large enough to risk a trade.

Before he bought the stock, he made a few checks. He saw that the trend was down, as the stock had fallen from a high of 61.13 to the island low of 17.50. Clarence drew the trend line from the highest high downward and saw it go through the right island gap. This was a good sign as prices had moved above the line and closed there. It signaled a possible trend change.

Still, something did not feel right about the stock. It had made a new low and the semiconductor industry as a whole was soft. Did the island bottom really mark a turning point or would the stock simply rise up, spin around, and retest the low? He was unsure, so he decided to wait and see if prices threw back to the formation. If they threw back then continued higher, he would buy the stock. Three days after the upward breakout, the stock threw back and closed the gap. Now, Clarence knew, all the stock had to do was move higher. It did not. The stock continued moving down and in less than a week had

slipped below the trend line again. He decided to look elsewhere for a more promising situation.

Looking back at the stock well over a year later, he saw that it reached a low of 8 and never rose above 27.25, the high just after it pierced the trend line. He realized that sometimes the best trade you can make is none at all.

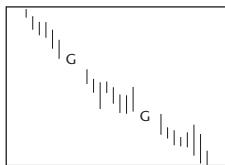
For Best Performance

The following list includes tips and observations to help select islands that perform better after the breakout. Consult the associated table for more information.

- Review the identification guidelines for correct selection—Table 30.1.
- Trade with the general market trend: upward breakouts in a bull market, downward breakouts in a bear market—Table 30.2
- Prices in a bear market move up to four times as fast as in a bull market—Table 30.2.
- Downward breakouts in a bear market have the lowest failure rates—Table 30.3.
- Select patterns with breakouts near the yearly low except for downward breakouts in a bear market—Table 30.4.
- Throwbacks and pullbacks hurt performance. Search for overhead resistance or underlying support before trading—Table 30.4.
- A third of the patterns reach the ultimate high or low in the first week—Table 30.5.
- Select tall or wide patterns in a bull market, narrow ones in a bear market—Table 30.6.
- Choose islands with a falling volume trend in a bear market—Table 30.7.

31

Islands, Long



RESULTS SNAPSHOT

Upward Breakouts

Appearance	A price island set off by gaps, usually at unequal prices. Breakout is upward.	
Reversal or continuation	Short-term bullish continuation	
	Bull Market	Bear Market
Performance rank	15 out of 23	5 out of 19
Break-even failure rate	11%	4%
Average rise	31%	25%
Change after trend ends	-35%	-37%
Volume trend	Downward	Downward
Throwbacks	67%	74%
Percentage meeting price target (using half the formation height)	82%	72%
Surprising findings	Breakouts near the yearly low perform best. Throwbacks hurt performance. Tall or narrow patterns perform better than short or wide ones. Islands get shorter as they near the end of the trend.	
See also	Island Reversals	

Downward Breakouts

	Bull Market	Bear Market
Appearance	Same, but breakout is downward.	
Reversal or continuation	Short-term bearish continuation	
Performance rank	6 out of 21	6 out of 21
Break-even failure rate	5%	2%
Average decline	22%	26%
Change after trend ends	46%	48%
Volume trend	Downward	Downward
Pullbacks	54%	54%
Percentage meeting price target (using half the formation height)	78%	76%
Surprising findings	Pullbacks hurt performance. Islands with large gaps drop farther. Tall patterns perform better than short ones. Islands get shorter as they near the end of the trend.	
See also	Same as for upward breakouts.	

The long island is a new pattern, but one I am sure many of you have seen before. When I first started looking for island reversals years ago, I thought long islands qualified. They do not. The difference between a long island and an island reversal is the gap alignment. With island reversals, the two gaps must share the same price. With long islands, the gap price is usually different.

When I started searching for long islands, I found them everywhere, so I raised the qualifications until I had a workable number. The Identification Guidelines section discusses the qualifications I settled on.

Long islands are average performers. Most of the time, the break-even failure rates are quite low and the average decline is good. The average rise is shy of outstanding as it tops out at just 31% in a bull market.

Surprises are the usual lot and most need no explanation. The exception: Islands tend to get shorter as they approach the end of the trend. That observation can help you avoid an unprofitable trade and help you predict a coming trend change.

Tour

By now, you may be wondering what a long island looks like. Figure 31.1 shows two examples. The first island appears between gaps 1 and 2, and it

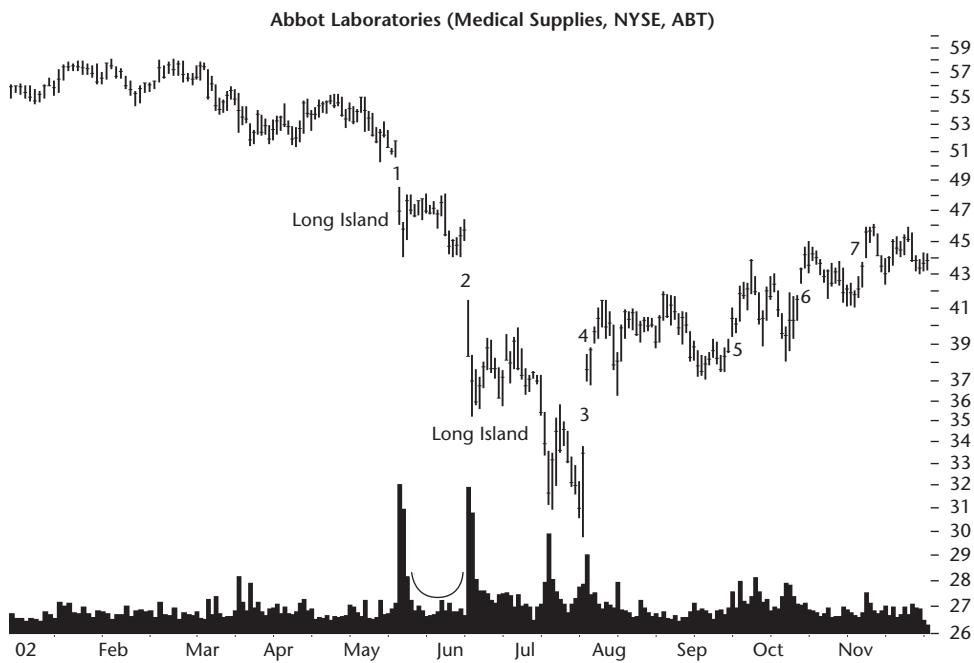


Figure 31.1 A long island appears between gaps 1 and 2 and a second long island appears between gaps 2 and 3.

occurs during late May and into June. In this example, volume has a U shape. Notice how the gaps do not share the same price and the island floats amidst the longer mainland.

The second long island, between gaps 2 and 3, also has gaps that do not align in price. This island is longer, lasting from June into July when it completes with an upward breakout. Again, the island tends to float away from the mainland but the gaps are not this wide in a typical island.

Depending on how you define a long island, others appear between gaps 3 and 4, 4 and 5, 5 and 6, and 6 and 7. For the record, I used only the first two as the others had gaps that were too narrow to qualify.

Identification Guidelines

What are the qualifications for long islands? Before I answer that, let us look at a few more examples. Figure 31.2 shows four more islands. The first appears between gaps 1 and 2. The first gap is about \$2.20 wide and the second is \$1.35. The island is just shy of 3 months long. The two gaps do not align, although I did not exclude an island that had aligned gaps. Gaps that overlap qualify the island as an island reversal. Eighteen percent of the long islands used in this study were also island reversals. Think of island reversals as a special case of long islands.

Although it is not clear from Figure 31.2, the first long island marks a continuation of a long-term uptrend that began in October 2001 at a price of

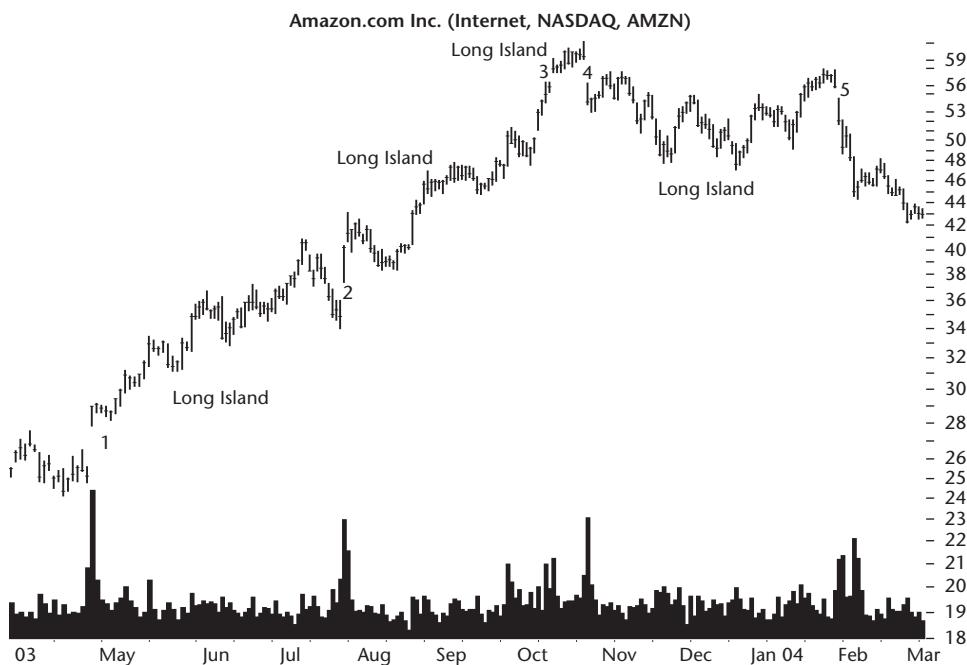


Figure 31.2 Four long islands appear, all with gaps at least \$1 wide and less than 4 months long.

5.51. Gaps 2 and 3 mark the next island, also an uptrend continuation. Gaps 3 and 4 show an island that forms the peak and marks a trend reversal.

Notice how the islands get shorter as they near the end of the trend. The length of each island in the uptrend is, from left to right, 88 days, 77 days, and 12 days.

Table 31.1 shows identification guidelines for long islands. I created a computer program to find these patterns. When I ran it, it found well over 2,000. So, I increased the gap size and shortened the island length. This chapter shows the results of that study and Table 31.1 shows the parameters I used.

Table 31.1
Identification Characteristics

Characteristic	Discussion
Unaligned gaps	The two gaps do not share the same price, usually. Those that do are also island reversals.
Wide gaps	Look for both gaps to be at least \$1 wide. This qualification sets off the island from the surrounding price bars.
Short length	Look for islands shorter than 4 months.
U-shaped volume	Most of the islands will have volume spikes at each gap, forming a U-shaped volume pattern.
Islands in sequence	Islands get shorter as they appear in a trend.
Breakout	The second gap marks the breakout day.

Unaligned gaps. Look for two gaps that do not share the same price. If they do have prices in common, then you are looking at an island reversal. I did not exclude island reversals in my study of islands, but they made up only 18% of the samples. An island reversal is also a long island, but a long island is not necessarily an island reversal.

Wide gaps. Small gaps occur frequently, so I looked for gaps at least \$1 wide. This parameter cut the number of islands dramatically, but I still found almost 1,000 in just over 200 stocks.

Short length. I chose islands that were less than 4 months long. This time frame is longer than a fiscal quarter (3 months) and yet is not too long to be invisible (think of a double bottom with bottoms a year apart . . . how many traders will notice?).

U-shaped volume. When price gaps, volume usually explodes then recedes. This behavior gives the typical long island a U-shaped volume pattern. Do not exclude a long island simply because of the volume pattern, especially since those with dome-shaped volume usually perform better.

Islands in sequence. When multiple islands appear in the same price trend, they tend to get shorter in length. Figure 31.2 shows an example of this behavior. The first island on the far left (gaps 1 and 2) is wider than the following one (gaps 2 and 3) and island 3–4 is the shortest of the lot. The 3–4 island marks the end of the uptrend.

Breakout. A breakout occurs on the second gap.

Using these identification guidelines, long islands are both plentiful and highly visible on the daily chart.

Focus on Failures

Figure 31.3 shows what an island failure looks like. The figure is an example of what happened to airline stocks when the tragic event of September 11, 2001, occurred. The stock market closed for a week and when it reopened, airline stocks gapped downward (gap 1). From then on, price continued lower for several days, then bounced, and made a slightly lower low. Then the stock recovered and formed a symmetrical triangle.

In mid-November, the stock gapped downward (gap 2) and other airline stocks also showed weakness on that day, but I do not know why. I do know that it was less than 2 weeks after the release of quarterly numbers. The downward breakout was short-lived as price recovered the next day and continued moving higher.

This is a good example of the need for a stop-loss order. A stop would have limited losses if a trader shorted the stock after the downward breakout. Without a stop, a trader would have seen the price climb from a low of 14.85 to a high of 35.25 less than 4 months later, a rise of 137%.

The good news is that losses of this nature, where price moves less than 5% in the breakout direction (a busted pattern), are rare except in a bull mar-

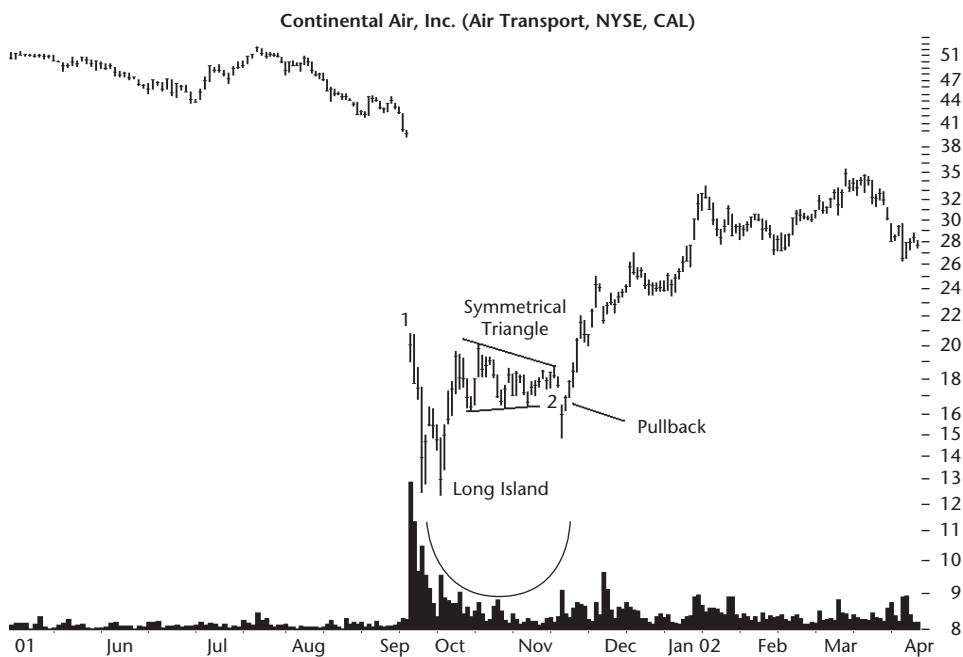


Figure 31.3 Price breaks out downward but recovers, resulting in a pattern failure.

ket with an upward breakout. In that case, the failure rate is 11%. That information conveniently segues into statistics.

Statistics

Table 31.2 shows the general statistics for long islands.

Number of formations. I found the pattern in 220 stocks in two groups from 1996 to 2001 and from 1999 to 2003. I actually used about 500 stocks to locate the 220, with about half the stocks showing no long islands (many were also not of full duration from 1996 to 2001). I located 920 long islands in the stocks I looked at.

Reversal or continuation. The pattern acts as a continuation of the trend more often than as a reversal—54% versus 46% of the time. You can see in Table 31.2 that most of the continuations occur when the breakout direction is in line with the market trend (bull market, up breakout and bear market, down breakout). More reversals occur when trading against the market trend. Reversals outperform continuations in a bear market when long islands have an upward breakout.

Average rise or decline. The bear market performance is quite good, but the bull market performance is below the average of other chart pattern types. The numbers suggest you should trade with the market trend—upward breakouts in a bull market and downward breakouts in a bear market.

Table 31.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market Up Breakout	Bull Market Down Breakout	Bear Market Down Breakout
Number of formations	255	206	193	266
Reversal (R), continuation (C)	110 R, 145 C	114 R, 92 C	99 R, 94 C	103 R, 163 C
R/C performance	31% R, 31% C	27% R, 24% C	22% R, 22% C	26% R, 26% C
Average rise or decline	31%	25%	22%	26%
Rises or declines over 45%	71 or 28%	35 or 17%	10 or 5%	33 or 12%
Change after trend ends	-35%	-37%	46%	48%
Busted pattern performance	58% ^a	37% ^a	-28% ^a	-33% ^a
Standard & Poor's 500 change	8%	1%	-1%	-7%
Days to ultimate high or low	67	33	27	26

Note: Minus sign means decline.

^aFewer than 30 samples.

Rises or declines over 45%. The bull market shows the largest price moves with 28% and 17% of the islands rising more than 45%. Downward breakouts never show such large moves on a consistent basis.

Change after trend ends. Once the trend ends (at the ultimate high or low), prices drop about 36% in a bull market and soar about 47% in a bear market. This finding suggests that trading a stock, as opposed to buying and holding, is the way to larger profits. The numbers also serve as a warning that holding on too long means you may give up all of your gains and more.

Busted pattern performance. Islands with breakouts that move less than 5% before shooting off in the direction opposite the breakout are few but they perform well. The 58% rise in a bull market is especially good. With a rise that far, even if you are late climbing aboard the new trend it can still be profitable.

Standard & Poor's 500 change. Notice how the average rise or decline follows the S&P. For example, islands in a bull market with upward breakouts have the best performance. The S&P climbed the most (8%), too, during that period. Large downward moves in the general market (7% decline during a bear market for islands with downward breakouts) helped the bearish islands perform by declining 26%.

Days to ultimate high or low. The time to the ultimate high or low diminishes from the left column to the right. If you crunch the numbers, you will find that the bear market performance (downward breakouts) is shorter and steeper than the rise in a bull market (up breakouts). Trading the pattern in a bear market (with downward breakouts) allows for more trades annually.

Table 31.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	27 or 11%	9 or 4%	9 or 5%	5 or 2%
10	72 or 28%	48 or 23%	41 or 21%	38 or 14%
15	109 or 43%	81 or 39%	75 or 39%	75 or 28%
20	136 or 53%	106 or 51%	105 or 54%	115 or 43%
25	146 or 57%	129 or 63%	134 or 69%	150 or 56%
30	157 or 62%	145 or 70%	152 or 79%	180 or 68%
35	167 or 65%	153 or 74%	163 or 84%	200 or 75%
50	196 or 77%	177 or 86%	185 or 96%	250 or 94%
75	119 or 86%	196 or 95%	193 or 100%	266 or 100%
Over 75	255 or 100%	206 or 100%	193 or 100%	266 or 100%

Table 31.3 shows failure rates for long islands. Let me explain this table with a few examples. Twenty-seven, or 11%, of the islands in a bull market with upward breakouts fail to rise at least 5%. This figure nearly triples to 28% for rises less than 10%. In a bear market, downward breakouts do best with 2% of the islands failing to decline at least 5%. This statistic zooms to 14% failing to drop at least 10%.

If you know the cost of doing business (however you define this, such as commissions, SEC fees, utilities, or even rent), you can use Table 31.3 to estimate how often this pattern will fail. Suppose your cost of trading is 5% and you want to make an average of 20%. How often will this pattern fail? Look at the 25% row (5% cost plus 20% margin). The best performing islands happen in a bear market with downward breakouts. Over half (56%) fail to drop at least 25%. Since half the patterns will fail, the winners will have to substantially outperform the losers to give you a 25% profit margin.

Table 31.4 shows breakout- and postbreakout-related statistics for long islands.

Formation end to breakout. The average time from the end of the pattern to the breakout is a single day except when it falls on a weekend or holiday. For that reason, the bull market, upward breakout averages 2 days.

Yearly position. Islands with downward breakouts occur most often near the yearly low. Islands with upward breakouts happen frequently near the yearly high (bull market) or middle (bear market) of the yearly price range.

Yearly position, performance. Where do the best performing islands reside? Most of the time, look for islands near the yearly low. The exception is for islands with downward breakouts in a bear market. They do best when the

Table 31.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	2	1	1	1
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L13%, C20%, H67%	L33%, C38%, H29%	L43%, C26%, H31%	L53%, C33%, H13%
Percentage rise/decline for each 12-month lookback period	L34%, C21%, H33%	L27%, C25%, H24%	L27%, C21%, H20%	L25%, C25%, H30%
Throwbacks/pullbacks	67%	74%	54%	54%
Average time to throwback/pullback ends	9 days	8 days	9 days	10 days
Average rise/decline for patterns with throwback/pullback	24%	19%	-18%	-20%
Average rise/decline for patterns without throwback/pullback	54%	44%	-28%	-34%
Large gaps, performance	32%	32%	-27%	-32%
Small gaps, performance	45%	32%	-23%	-30%
Median gap size	\$1.25	\$1.29	\$1.34	\$1.26

Notes: Minus sign means decline. Gaps are measured from the closing price the day before the breakout to the ultimate high or low.

breakout is near the yearly high, but also note that the sample size is small—just 13% of the patterns fall into that category.

Throwbacks and pullbacks. Upward breakouts have throwbacks more often (67% and 74%) than downward breakouts have pullbacks (54% each). The reason for this occurrence is that the downward moves tend to be steeper and move farther, making a pullback less likely. For throwbacks, price can collapse if no one is buying.

It takes between 8 and 10 days for the stock to return to the breakout price. When a throwback or pullback occurs, performance suffers. For example, islands with throwbacks and upward breakouts in a bull market rise 24% after the breakout, on average. Without a throwback, the rise averages 54%.

Gaps. Do large price gaps mean better performance? Yes, but only during a downward breakout. I used the closing price the day before the breakout (so I could include the gaps) and checked performance against the median gap size. When the gap was larger than the median, the island tended to perform better. For the median gap size, I used the smaller of the two island gaps in the computation.

Table 31.5 shows a frequency distribution of time to the ultimate high or low. You can see that well over a third of the islands flame out in the first week. Islands with upward breakouts in bear markets lead the charge with 44% reaching the ultimate low in week 1. At the other end of the spectrum, 24% of the islands in a bull market with upward breakouts have not reached the ultimate high in less than 70 days (over 2 months).

Consider that 65% of the islands in a bear market with downward breakouts bottom within 3 weeks (the sum of the first three columns with numbers). The stock may make a large downward move, but do not depend on it.

Notice that islands with upward breakouts show a minor rise starting 42 days after the breakout. I have seen this behavior with other chart patterns. Price momentum weakens about a month after the breakout and some patterns

Table 31.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	44%	11%	8%	5%	4%	6%	5%	4%	0%	1%	12%
Bull market, up breakout	34%	10%	6%	5%	3%	5%	4%	2%	4%	2%	24%
Bear market, down breakout	43%	12%	10%	9%	5%	4%	3%	2%	2%	1%	8%
Bull market, down breakout	39%	11%	10%	9%	5%	4%	3%	4%	3%	2%	9%

Table 31.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market Up Breakout	Bull Market Down Breakout	Bear Market Down Breakout
Tall pattern performance	37%	29%	-24%	-28%
Short pattern performance	27%	22%	-20%	-24%
Median height as a percentage of breakout price	21.46%	30.21%	27.33%	38.00%
Narrow pattern performance	32%	28%	-24%	-25%
Wide pattern performance	31%	23%	-20%	-27%
Median length	41 days	38 days	43 days	42 days
Average formation length	46 days	44 days	49 days	48 days
Short and narrow performance	30%	25%	-22%	-23%
Short and wide performance	19%	16% ^a	-16%	-25%
Tall and wide performance	40%	26%	-22%	-28%
Tall and narrow performance	34%	36% ^a	-28%	-29%

Note: Minus sign means decline.

^aFewer than 30 samples.

reach the ultimate move near that time. Be especially cautious 5 to 7 weeks after the breakout.

Table 31.6 shows statistics related to size.

Height. Tall patterns perform better than short ones. For example, tall islands in a bull market with upward breakouts have rises after the breakout averaging 37%, but short islands have rises that average only 27%. For the best performance, trade patterns taller than the median.

Width. With the exception of islands in a bear market with downward breakouts, narrow patterns perform better than wide ones. I used the median length as the separator between narrow and wide.

Average formation length. The average time between the two gaps measured about 6 weeks. I limited islands to at least 2 days long (to avoid one-day reversals) but no longer than 4 months.

Height and width combinations. Most of the time, islands that are both tall and narrow outperform the other combinations. The exception is islands in a bull market with upward breakouts. They perform best when the pattern is both tall and wide.

Island sequence. Look back at Figure 31.2. See how the islands get shorter as they near the end of the trend? To find this result, I cataloged each island into its position in a trend (first, second, third, and so on). Then I did a frequency distribution of the results and found the average width for each pat-

Table 31.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market Up Breakout	Bull Market Down Breakout	Bear Market Down Breakout
Rising volume trend performance	27%	26%	-19%	-26%
Falling volume trend performance	32%	25%	-23%	-26%
U-shaped volume pattern performance	29%	25%	-21%	-27%
Dome-shaped volume pattern performance	35%	25%	-23%	-25%
Neither U-shaped nor dome-shaped volume pattern performance	24% ^a	26% ^a	-19% ^a	-28% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

tern in the first position, second position, and so forth. Here are the results, in days: 53, 44, 42, 38, 46, 32, and 28. This analysis says islands tend to get shorter as they near the end of the trend. Thus, before taking a position after an island breakout, ask yourself if the island seems shorter than usual. You might check the length of other islands in the same trend. Unusually short islands may mark (or near) the end of the trend. However, this is not an absolute rule and exceptions are numerous.

Table 31.7 shows statistics related to volume.

Volume trend. Islands in bull markets perform best with a falling volume trend. Bear markets show little or no performance difference.

Volume shapes. Just over half the islands (51%) have U-shaped volume, 42% have a dome shape, and the rest have a random shape (usually horizontal). The best performing islands in a bull market have dome-shaped volume. In a bear market, islands with a random volume shape perform best, but the sample size is small.

Trading Tactics

Table 31.8 shows trading tactics for long islands.

Measure rule. Use the measure rule to help predict how far price will travel after the breakout. Consider the long island shown in Figure 31.4. For the formation height, subtract point 3 (20), the lowest low, from point 4 (29.75), the highest high in the pattern then divide by 2. If the breakout is downward, subtract the result (4.88) from the closing price the day before the breakout (near point 5, at 25.99). This result gives a target of 21.11. If the

Table 31.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the formation height from highest high to lowest low. Divide by 2. Apply the height to the closing price the day before the second gap. The result is the target price.
Avoid short islands	Islands that appear well into the trend and are unusually narrow may signal a coming trend change.
Trade with market and industry	Trade in the direction of the general market and other stocks in the same industry.
Brief trades	Be prepared to take profits quickly except for islands in a bull market with upward breakouts.

breakout is upward, add the height to the closing price for a target of 30.87. The Results Snapshot shows how often this method works for the different market conditions (see “Percentage meeting price target”), but it works between 72% and 82% of the time.

Avoid short islands. When an island appears well into a price trend and the island is unusually short, that may mean the end of the trend is near. Islands at the start of a trend are almost twice as long as are those near or at the end of the trend. Since this observation is an average, your results will vary, but it is worth checking.

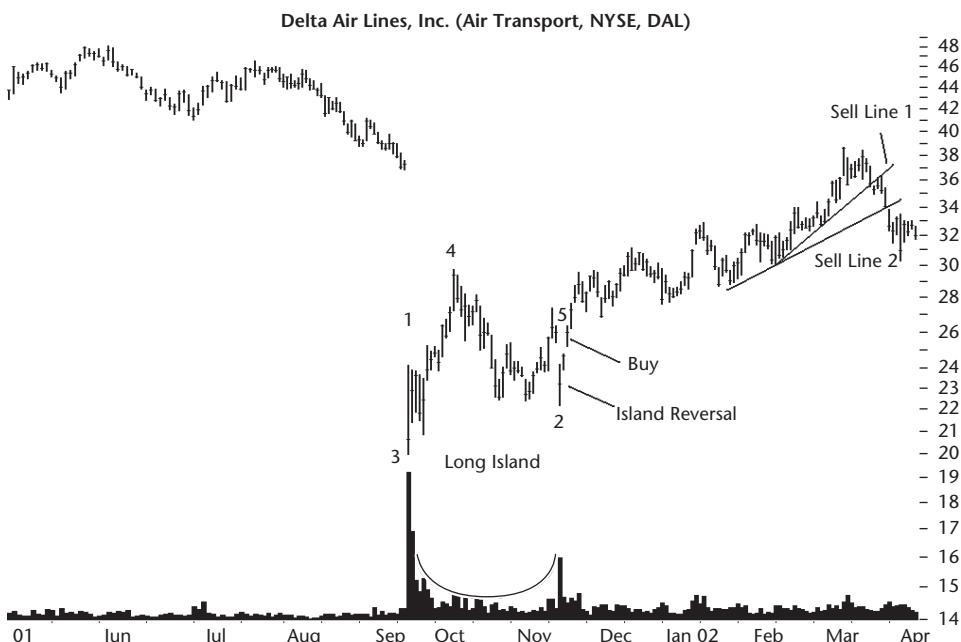


Figure 31.4 A dead cat bounce chart pattern forms a long island (points 1 and 2).

Trade with market and industry. To improve your odds of a successful trade, always trade in the direction of the general market and industry trends. In other words, go long in a bull market and short in a bear market. If other stocks in the same industry as the one you want to buy are having trouble, chances are your stock will suffer, too. If others are doing well, then yours may do well. Which stock is the leader? Which hits turning points first? If your stock is following the leader by a few days or weeks, that may help you trade your stock.

Brief trades. Over half the time, islands reach the ultimate high or low in the first two weeks (from Table 31.5). Thus, be prepared to take profits quickly. Also, since the move in the first week is usually a large one, be sure to get in quickly then protect yourself with stops.

Sample Trade

Figure 31.4 shows the sample trade discussed in this section. I chose Delta because of its similarity to Figure 31.3, Continental, just after September 11, 2001. Both have large, one-day bearish gaps on that day but recovered. The bounce in Figure 31.4 carries prices from point 3 to 4 then slides to 2, completing the dead cat bounce chart pattern. At point 2, the long island forms when price gaps downward.

As a position trader—one that holds stocks for days, months or even years—I would not have shorted this stock. I build my database the day after the market closes. Seeing the downward gap at point 2, I would have asked my broker for a quote and found price moving higher (note the intraday low the day after point 2 is well above the prior close). If the stock is moving up, why risk a short sale?

This long island represents an opportunity to trade after the ultimate low and participate in an average 48% recovery (see Table 31.2, “Change after trend ends,” and note that this is not a busted pattern because prices drop 8%). The stock reached bottom at point 3, bounced, and retested the low at 2. Note that the retest stops above point 3. Comparing Figure 31.4 with Figure 31.3, Continental also makes a higher low and starts recovering. In fact, all nine airline stocks I follow were making higher lows or just flying upward after 9/11.

Two days after the second island gap, price closed the gap by moving above it, forming an island reversal (point 2 and the following day forms a 2-day island reversal). That was the buy signal. Watching the other airline stocks take the lead and move higher, it would be easy to hold onto this stock.

By January, you could draw a trend line (not shown in Figure 31.4) underneath the rising price trend (starting in late November). If price closed below the trend line, that would be a sell signal. In February, weakness set in for several of the other airlines (four out of nine). The other five stocks, like Delta, continued soaring. Since the stock was making higher lows, that suggested

patience, but the other airline stocks warned of turbulence ahead. By the end of February, the other airline stocks rejoined the squadron and resumed the upward move.

A trend line, shown as “Sell Line 2” in Figure 31.4, was the sell signal. That trend line did not last long because prices climbed at a steeper slope. Sell Line 1 connected the lows and was the new sell signal. When price closed below the trend line, it was time to sell. All but one of the other airline stocks peaked in late February or during March.

The general market, using the S&P 500 index as the proxy, also peaked in early March, bumping up against a horizontal trend line set by peaks in December and January. The peaks formed a right-angled, descending broadening wedge. That mouthful means a pattern with a flat top and down-sloping trend line along the bottoms. The index touched the horizontal trend line in early March and again in mid-March, but seemed reluctant or unable to punch through. The second touch was higher but by less than a point. The failure to make a significant new high was another warning signal of a trend change.

Like a bump-and-run reversal top, a chart pattern that shows increasing momentum by steeper sloping trend lines, the party had to end sometime. Price cannot continue moving upward at such a rate. So, selling at one of the two trend lines made sense especially since many of the other airline stocks were making lower highs by April. Using the closing price on the buy and sell days (assuming you sold after Sell Line 1), you would have made over 35%. In late July, the stock reached a low of 13.20, well below the early March high of 38.69.

For Best Performance

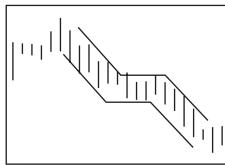
The following list includes tips and observations to improve your selection of long islands for the best performance. Refer to the associated table for more information.

- Review the identification guidelines for correct selection—Table 31.1.
- Trade with the trend: go long in a bull market (islands with an upward breakout) and short a bear market (islands with a downward breakout)—Table 31.2.
- Islands in a bear market with downward breakouts have the lowest failure rates for declines up to 30%. After that, islands in a bull market with upward breakouts have lower failures—Table 31.3.
- Most islands perform best when the breakout is near the yearly low—Table 31.4.
- Avoid throwbacks and pullbacks because performance suffers when they occur—Table 31.4.

- Most islands with large gaps and downward breakouts perform better—Table 31.4.
- Look for price weakness a month to 7 weeks after the upward breakout—Table 31.5.
- Select tall patterns—Table 31.6.
- Patterns narrower than the median usually outperform—Table 31.6.
- Very narrow islands may mark the end of the trend—Table 31.6.
- Islands in a bull market with falling volume outperform—Table 31.7.

32

Measured Move Down



RESULTS SNAPSHOT

Appearance	Prices move down, retrace, and then move down again.	
Reversal or continuation	Intermediate-term bearish reversal	
	Bull Market	Bear Market
Performance rank	Not Applicable	Not applicable
Change after trend ends	46%	49%
Volume trend	Downward	Downward
Average first leg decline	27% in 61 days	36% in 45 days
Average corrective phase retrace	48% in 30 days	44% in 22 days
Average last leg decline	25% in 62 days	36% in 46 days
Percentage meeting price target	35%	39%
Percentage meeting time target	53%	49%
Surprising findings	The larger the corrective phase retrace, the better the chance of meeting the price target. The decline is steeper and farther in a bear market. Patterns with U-shaped volume reach their price targets more often.	
Synonym	Swing measurements; simple ABC correction	
See also	Flags; Pennants	

The measured move down (MMD), or swing measurement as it is sometimes called, is an exciting formation because it vividly tells how far down price is

going. Unlike other chart patterns, I classify MMDs as bearish reversals over the intermediate term. With other patterns, I gauge the term by the time to the ultimate low, but with MMDs, I am using the pattern length instead.

I do not show the average decline or the failure rate. The average decline measures the move from the breakout to the ultimate low, and neither applies to this pattern. The failure rate is a measure of how far price moves after the breakout. That also does not apply.

The Results Snapshot is self-explanatory with a few exceptions. The “Average corrective phase retrace” is how far prices move back up the first leg. In both markets, prices retrace nearly half the first leg move.

The second leg is longer than the first one between 35% and 39% of the time on a dollar, not a percentage, basis. On the time scale, about half (53% in a bull market and 49% in a bear market) of the second legs are longer than the first ones.

What does this information mean? If you measure the first leg price decline and project it downward from the top of the corrective phase, you will hit your target between 35% and 39% of the time. If you take half of the first leg move and project downward, you will hit your target between 83% and 93% of the time. On a percentage basis, however, the first and second leg declines are about equal.

A surprising finding that helps with gauging performance is the retrace amount of the corrective phase. Large retraces, over 62%, are more likely to be followed by a second leg decline that matches or exceeds the first leg decline. Small retraces (less than 38% of the first leg move) show a larger likelihood of the second leg being shorter than the first. Also, the decline is steeper and price travels farther in a bear market than in a bull market. That should not be a surprise because MMDs are a bearish chart pattern. Finally, MMDs with U-shaped volume tend to have second legs that are as long as or longer than the first leg decline.

Tour

Figure 32.1 shows what a typical measured move down looks like. The decline from the high (point A) to the start of the retrace (point C) is called the *first leg*. The retrace is commonly referred to as the *corrective phase* and the remaining decline to the low is called the *second leg*. The first and second legs are nearly the same size, but their behavior is described in more detail later in the Statistics section.

The corrective phase is simply an upward retrace of the downtrend. It is a place for the stock to catch its breath and for novice investors to buy into the situation. They purchase the stock and push it up, believing the decline is at an end. Do not be fooled; the decline is only half over. That is the beauty of this formation. Before you buy a stock after a long decline, consider that it might

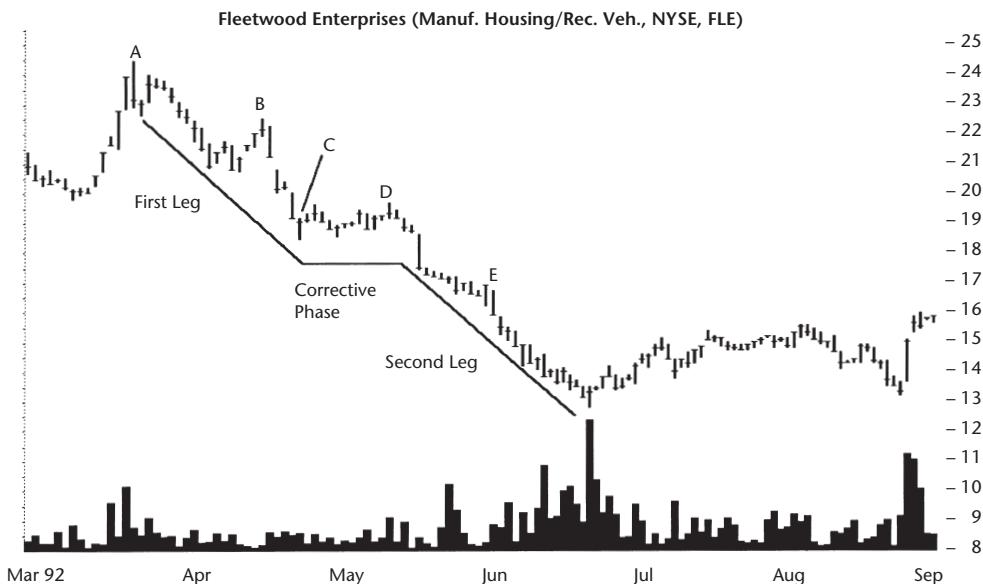


Figure 32.1 A typical measured move down. The slope of the trend line is similar for both legs. Points A, B, and C mark a nested measured move.

be making a measured move down and that the decline is not over. Paying attention might save you some big bucks.

Returning to Figure 32.1, you can see the two legs following a trend line that has nearly the same slope. This is not always the case, but a surprising number of formations obey this dictum. Further, a channel—two parallel lines that follow prices down—can encompass the two legs. Although the example in Figure 32.1 is weak on the first leg, you can see how the second leg follows a top trend line, connecting points D and E and extending down.

Lastly, the three points marked A, B, and C mark another measured move down. This one is more compact and it is not uncommon to find nested formations like this. Sometimes, you get one measured move right after another.

Identification Guidelines

Table 32.1 highlights identification characteristics for the measured move down chart pattern.

First leg. The first leg occurs as prices reach a new high and a trend change begins. Prices decline, leaving a price peak on the chart. From there, prices continue moving lower, usually in a straight-line run. Most times you can draw two parallel lines, one connecting the minor highs and one joining the minor lows, forming a down-sloping trend channel.

Corrective phase. The corrective phase stops the decline. Prices can move horizontally but usually retrace a significant portion of their losses, usually between 38% and 62%.

Table 32.1
Identification Characteristics

Characteristic	Discussion
First leg	Usually begins from a new high. Prices decline rapidly in a straight-line fashion. Avoid declines that curve (they are rounding turns, scallops, or saucers).
Corrective phase	Prices can move horizontally but usually rise and recover from 38% to 62% of the prior decline before resuming the downtrend. If the corrective phase nears or rises above the first leg high, look elsewhere.
Second leg	The <i>slope</i> of the first leg down trend line often carries onto this leg. Both legs usually fit inside their own trend channels.
Avoid	For cascading measured moves, use the first retrace and not later ones as they get progressively closer to the end of the trend. Avoid horizontal, saw-tooth consolidation regions and measured moves that rise from a flat base. Make sure the measure rule does not predict prices will fall below zero.

Second leg. When the second leg begins, the downturn resumes. Prices usually follow the slope set by the first leg but this varies from formation to formation. Of course, the two legs will not share the same trend line since the corrective phase offsets them. Even so, the second leg usually fits inside its own trend channel as prices decline in a straight-line fashion. The second leg decline approximates the price decline set by the first leg and the time it took to accomplish it.

Avoid. There are several guidelines that you should follow when searching for the measured move down. Avoid formations that show a rounded first leg, where prices move lower but curve around in a sort of rounding turn, scallop, or saucer. The trend should be a straight-line decline.

During the corrective phase, prices should not rebound (or come close) to the high set by the first leg. If prices near or rise above the first leg high, then avoid the formation.

Watch for consecutive measured moves in a declining price trend. The downtrend eventually will end, so it is best to trade on the first or second measured move and avoid the rest.

Occasionally, the prevailing price trend will be horizontal. Prices rise up and reach a high then begin down in the first leg. When prices return to the base, they bounce. This bounce, wrongly interpreted as the corrective phase of a measured move down, is really a minor high in a consolidation trend. Prices return to the base and may bounce several more times before beginning a sustained move upward. The overall picture looks like a horizontal saw-tooth formation. Avoid measured moves that spring from a horizontal trend.

The last caveat is to consider the measure rule. I discuss the measure rule in the Trading Tactics section of this chapter, but the measure rule says the

second leg will approximate the price move of the first leg. If the first leg has a large decline, you may find that the predicted price is very close to zero or perhaps even negative. Obviously, the stock is not going to go negative and probably will remain far above zero, so you might look elsewhere for a more promising trade. Examples of these idiosyncrasies follow in the Focus on Failures section.

Figure 32.2 shows two examples of the measured move down formation. The first one, marked by points A, B, C, and D, begins after a long price rise. The stock moves up from 43.13 in late November 1994, to 59.63 in early July. Then, prices decline following a down trend line and stay within the trend channel until mid-August, when they reach a low of 51.50. The corrective phase begins on volume that is high but not unusually so. Prices move up and retrace 68% of the decline before tumbling again. In the second leg, prices move below the low (point B) and continue lower to point D. Then it is over.

The second leg is steeper than the first leg and covers the ground in about half the time (36 days versus 19 days). In addition, the second leg is slightly shorter than the first one (the first leg declines by 8.13, whereas the second one falls 7.25).

Another measured move occurs in mid-November and ends at about the same level as the first formation in late January (see points E, F, G, and H). If you look closely at Figure 32.2, you can see another measured move that forms in the first leg from point E to point F. Points E1 and E2 mark the corrective phase.

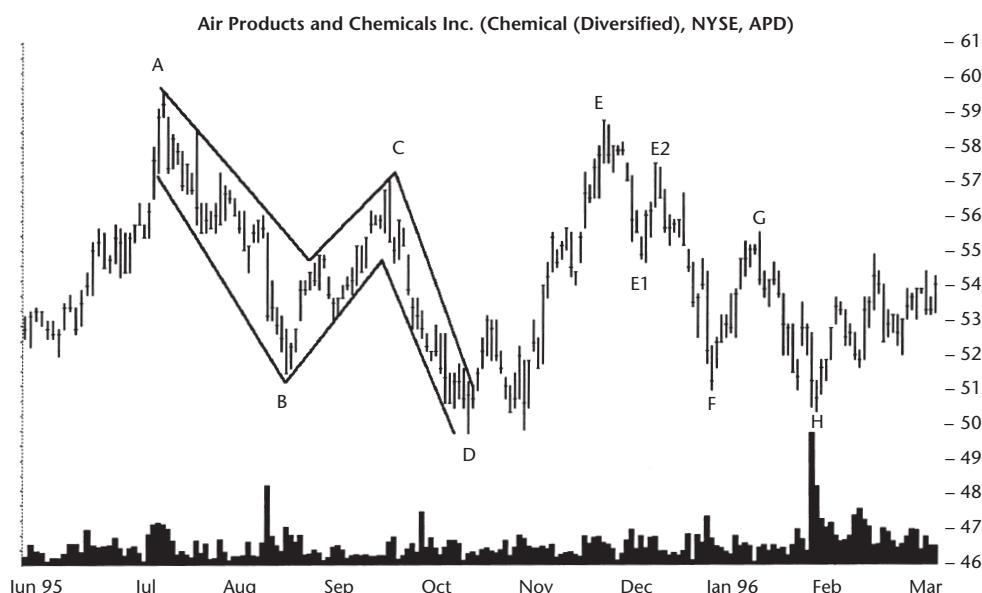


Figure 32.2 Two measured moves. Notice how they fit neatly inside a trend channel. With measured moves, the price decline from C to D nearly matches the decline from A to B.

Focus on Failures

There are a number of identification mistakes that I want to point out. Figure 32.3 shows the first one. The semiconductor maker's stock reaches a high, along with a host of other chip makers' stocks, in the summer and fall of 1995. The stock forms a head-and-shoulders top in August and September before burning out. In a near straight-line run, the stock tumbles from a high of 33.50 to a low of 9.13.

If this decline marks the first leg of a measured move down, how far will prices fall in the second leg? That depends on how far up the corrective phase brings prices. The corrective phase rises to a high of 15.25. I discuss the measure rule later, but it says the second leg approximates the price decline of the first leg. If we run through the computations, we discover that the predicted decline is minus 9.13. Even if the company were to declare bankruptcy, its stock price would never go negative.

Another key to this failure is the size of the corrective phase. Usually, prices recover 38% to 62% of the first leg decline, but this one does not come close (about a 25% retrace). With larger price declines, the corrective phase is proportionally larger too. However, the formation in Figure 32.3 does not show such behavior.

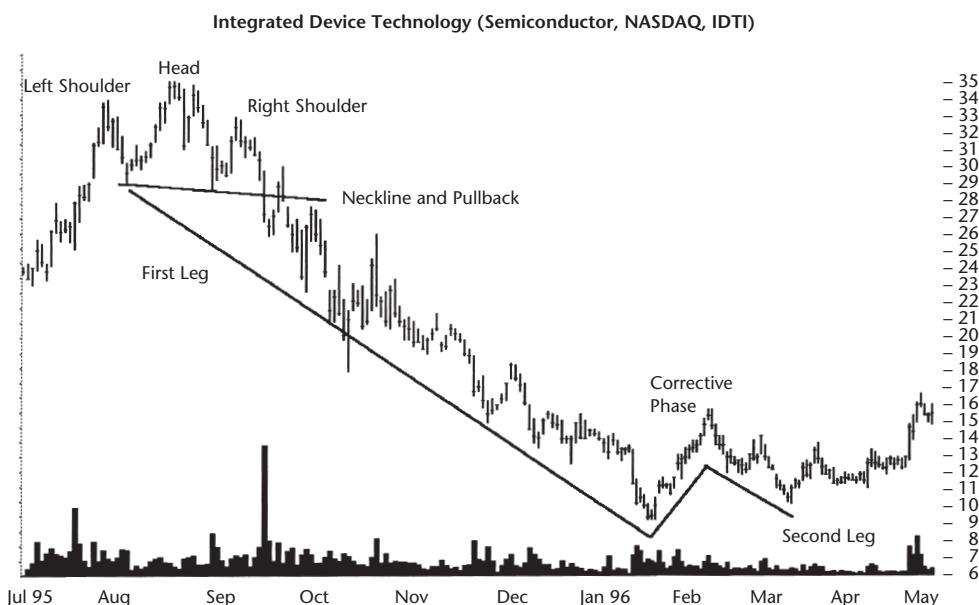


Figure 32.3 A head-and-shoulders top leading to a measured move down. The head-and-shoulders top forms the basis for the large decline. The corrective phase is small in comparison to the large first leg decline. The measure rule for the measured move formation predicts prices will go negative.

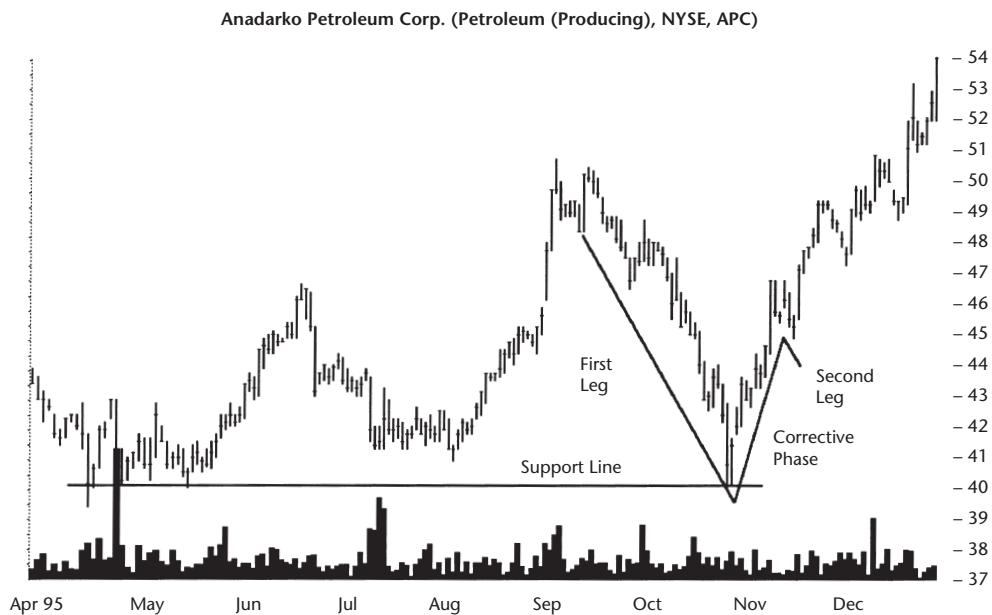


Figure 32.4 A measured move from a horizontal base. These formations rarely work out as anticipated.

Figure 32.4 shows another situation: the flat base problem. Prices are essentially flat from the start of February. By that I mean the minor lows all share the same value—about 40. When prices move up in August and reach a minor high in September, it is nothing unusual. Although the prior minor highs do not ascend to this height, there is no reason to suspect that a measured move will follow.

When prices decline to the base at 40 and bounce, a naive investor might think a measured move down is forming. The corrective phase in late October and early November sees prices rebound far up the first leg before curling over and heading down. If the investor sells short at this point, it will be a costly mistake. Prices quickly skyrocket to 60 by May from the second leg low of 44.88. Why does this formation fail? The strong support level at 40 curtails any meaningful decline below that point. In other words, there is nothing to reverse.

Figure 32.5 shows the last failure, a case of mistaken identity. After a long, extended rise, a retrace can be expected, maybe even a trend change that takes prices drastically lower. When prices turn down in early January, a decline is long overdue. If you connect the minor lows in the uptrend, you discover that prices pierce the up trend line in mid-December. This piercing supports the theory that the trend is changing. It is not conclusive, but it does tilt the scales in that direction. Throughout the month of December prices essentially move horizontally before perking up and making a new high just before prices plummet. The failure to continue moving higher is another clue to a trend change. The final clue is when price drops below the prior minor high

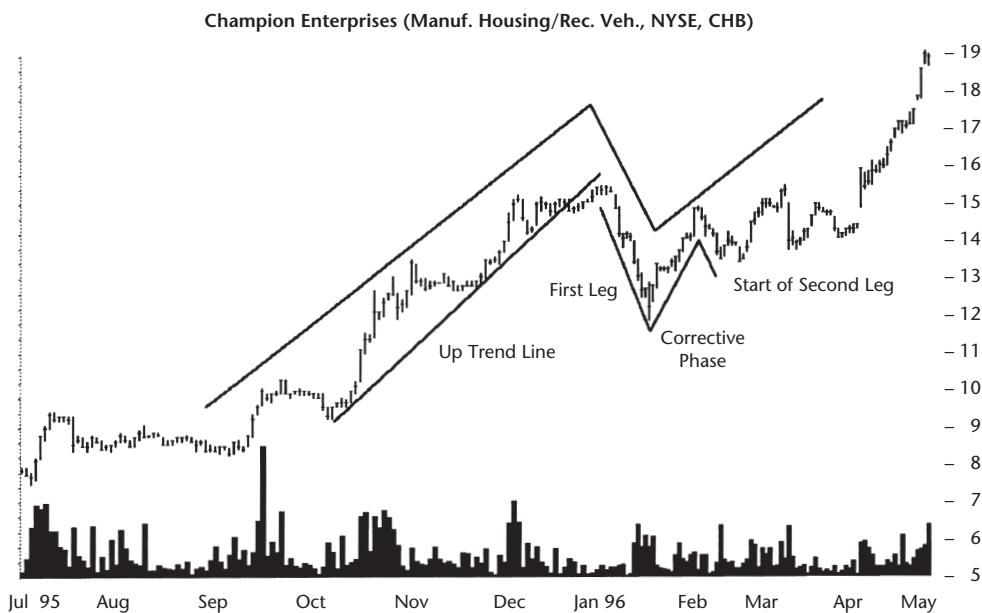


Figure 32.5 This measured move down is really the corrective phase of a measured move up.

reached in late October. The stock even tumbles below the support level at 12.63 before recovering.

The corrective phase of the measured move down sees prices retrace 85%. That is well above normal and should flag a potential problem. With such a large retracement, prices will probably decline to the prior low and stall (because the second leg is slightly smaller than the first one). The stock did not even go that far. Prices declined to the prior minor high at 13.50 and held steady for a week before moving higher.

Why did this formation fail? The choice of a measured move down for this situation is poor because of the extent of the corrective phase. If we look at the larger picture, we discover that the first down leg is nothing more than the corrective phase of a measured move *up!*

Statistics

The tables in this section differ from those given in other chapters because of the uniqueness of this chart pattern. Many of the statistics provided elsewhere do not apply because there is no breakout and no ultimate low. Table 32.2 shows general statistics for MMDs.

Number of formations. I found 911 MMDs using 5 years of daily price data beginning from mid-1991 on 500 stocks. Another 220 or so stocks created additional bull/bear market data, starting from January 2000 to 2003.

Table 32.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	647	264
Reversal (R), continuation (C)	566 R, 81 C	214 R, 50 C
Change after trend ends	46%	49%
Most frequent corrective phase retrace	40% to 60%	40% to 60%
Average MMD length	153 days	113 days
Average first leg price decline	27% in 61 days	36% in 45 days
Average corrective phase retrace	48% in 30 days	44% in 22 days
Average last leg price decline	25% in 62 days	36% in 46 days

Reversal or continuation. About 87% of the time in a bull market and 81% of the time in a bear market, MMDs act as reversals of the price trend. A reversal happens in two ways. First, the MMD can form at the end of a rising price trend or, second, it could start a new trend after the MMD completes. I consider both movements as being valid price reversals.

For continuations, the MMD forms in an established declining price trend. The size of the corrective phase, being proportional to the MMD legs, helps determine the starting and ending points of the pattern. Since price is declining into the pattern and it continues declining after the pattern, the MMD acts as a continuation of the falling price trend.

Change after trend ends. After the end of the second leg, price rises between 46% (bull market) and 49% (bear market), as measured using a 20% price change (as in the search for the ultimate high). These percentages are less than the usual 50% to 60% rise posted by other chart patterns. However, they do suggest a good recovery after the pattern ends. If the stock is in a bull market, consider taking a long position after the MMD completes.

Corrective phase retrace. I did a frequency distribution of the percentage price retrace of the first leg move. In both bull and bear markets, prices retrace most often between 40% and 60% of the first leg move. The larger the retrace, the more likely it is that the second leg will be as long as or longer than the first leg. For example, when the retrace is less than 38%, just 22% of the MMDs have longer second legs. When the retrace is between 38% and 62% (Fibonacci numbers), 31% have longer second legs. When the retrace is above 62%, 58% have longer second legs.

Average length. From the start of the first leg to the end of the second, MMDs in a bull market were about 5 months long (153 days), and in a bear market, 4 months long (113 days).

Average leg price decline. I measured the price move of the three parts of an MMD: the first leg, corrective phase retrace, and second leg. The first leg

nearly equals the decline of the second leg in both time and price. For example, in a bull market, the first leg declines an average of 27% in 61 days. The second leg declines 25% in 62 days. In between the two, the corrective phase retraces 48% of the first leg's decline.

Notice that MMDs in a bear market fall farther (36%) in a shorter period (45 days) than in a bull market, on average. I measured the leg decline as a percentage from the top of the respective leg and the corrective phase retrace as the ratio of the corrective phase length to the first leg length.

On a dollar basis in a bull market, the second leg decline is longer than the first leg 35% of the time. The second leg is 19% shorter than the first. In a bear market, 39% of the second legs are longer than the first. On average, the second leg is 20% shorter than the first.

Table 32.3 shows volume statistics.

Volume trend. I do not show performance statistics in the table, but show instead the proportion of MMDs with a rising or falling volume trend. MMDs usually have a receding volume trend from the top of the first leg to the end of the second leg.

I looked at the volume trend and checked to see if MMDs with the associated trend had second legs equal to or longer than the first leg. The second leg was longer than the first most often in a bear market. Bear market MMDs with a rising volume trend performed particularly well, with 72% having second legs longer than the first. In a bull market, the second leg was shorter than the first most of the time.

Table 32.3
Volume Statistics

Description	Bull Market	Bear Market
Number with rising volume trend	26%	27%
Number with falling volume trend	74%	73%
Rising volume trend, second leg longer than first leg	43%	72%
Falling volume trend, second leg longer than first leg	49%	56%
Number with U-shaped volume	33%	41%
Number with dome-shaped volume	61%	53%
Number with neither U-shaped nor dome-shaped volume	6%	6%
U-shaped volume, number of times second leg longer than first leg	57%	73%
Dome-shaped volume, number of times second leg longer than first leg	43%	51%
Random volume shape, number of times second leg longer than first leg	40%	53%

Table 32.4
After Pattern Ends

Description	Bull Market	Bear Market
Price stops below corrective phase	16%	20%
Price stops within corrective phase	35%	52%
Price stops above corrective phase but below MMD high	31%	20%
Price stops above MMD high	18%	8%

Volume shapes. Again, I do not show performance but show instead the number of patterns with the associated volume shape. Most of the time, a dome-shaped volume pattern prevails.

Volume shape versus leg length. Does volume shape give a clue to performance? Yes. When U-shaped volume prevailed, the second leg was longer than the first 57% of the time in a bull market and 73% of the time in a bear market. Those numbers were larger than the other volume shapes. Thus, when projecting the price trend downward, look at the volume shape. If it looks U-shaped, then there is a better chance that the second leg will be at least as long as the first leg decline.

Table 32.4 shows where price stops climbing after the MMD ends. In Figure 32.2, for example, I am talking about the move from D to E after the ABCD measured move down.

Why is this information important? If you hold onto a security too long, price will retrace its downward move, ending higher. In a bull market, price will stop within the corrective phase about a third of the time, on average. Only 16% of the time will price not make it to the corrective phase.

In a bear market, the corrective phase shows more stopping power. Just over half the time, price stops rising within the corrective phase. Over a quarter of the time (20% + 8%), price climbs higher than the corrective phase.

To put the numbers in perspective, after the MMD ends, price climbs and reaches or exceeds the start of the corrective phase between 80% (bear market) and 84% (bull market) of the time. Those figures should serve as a warning that you need to use stops to protect your short position from adverse moves.

Trading Tactics

Table 32.5 outlines trading tactics for MMDs.

Measure rule. Use the measure rule to help predict how far prices will decline. Refer to Figure 32.6 during the discussion of its computation. In the figure, four points outline the measured move: A through D. First, tabulate the height of the first leg (shown by points A and B) by subtracting the lowest low

Table 32.5
Trading Tactics

Trading Tactic	Explanation
Measure rule	The second leg averages 19% shorter than the first leg, so expect the actual price to fall short of the target. Compute the length of the first leg from the highest high to the lowest low (at the start of the corrective phase). Subtract the result from the highest high reached in the corrective phase to get the target price. For a more conservative target, use half of the first leg height. This shortened height means that prices hit the target 83% (bull market) to 93% (bear market) of the time.
Short during second leg, stop loss	Short the stock as soon as it becomes clear that a measured move is in progress. If prices rise above the corrective phase high, then close out your position. Prices occasionally will rise up to the corrective phase high a second time before ultimately declining, so put your stop about 0.15 above the high.
Close out	Cover your short when the price drops to a support area and meets resistance to a further decline, especially if prices near the measure rule target.
Support/resistance	The corrective phase shows future support or resistance.

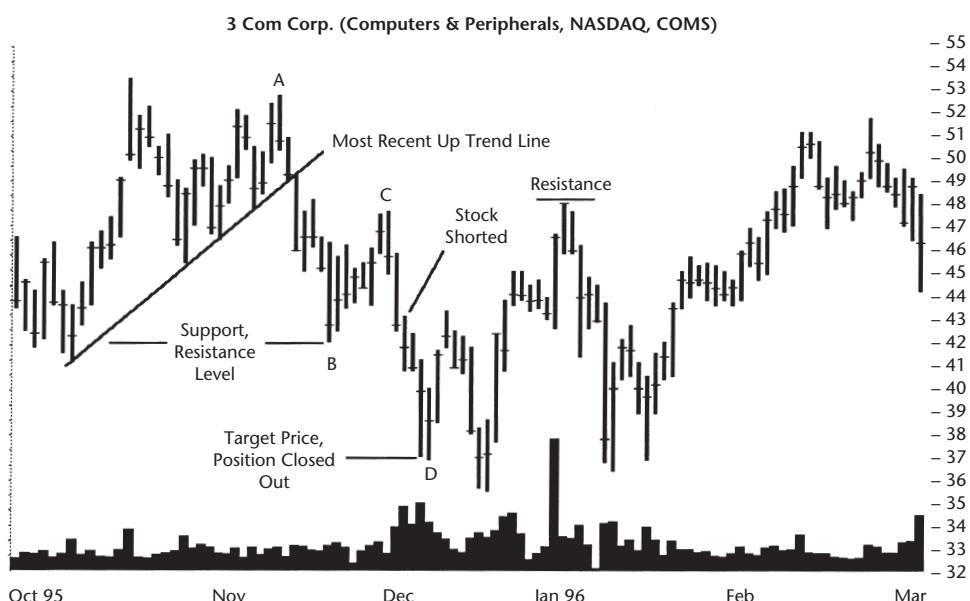


Figure 32.6 Measured move down followed by corrective phase. Eddy made \$5 per share trading this (points A–D) measured move down.

(42) from the highest high (52.88). This computation gives a difference of 10.88. Subtract the difference from the highest high in the corrective phase (point C at 47.75). The result is a target price of 36.87. Prices meet the target on December 7.

Sell short. Once you suspect that a measured move down is forming, probably just after the corrective phase completes and prices start down, short the stock. Use the measure rule to predict the price target, but expect prices to come up short. Place a stop-loss order 0.15 above the corrective phase high (the corrective phase is a source of support and resistance). For a more conservative target, follow the measure rule using one-half of the first leg height. Prices reach the new target 83% of the time. For example, one-half of the first leg height in Figure 32.6 is 5.44. Subtracting this value from the corrective phase high gives a closer target of 42.31.

Close out. Cover your short if prices rebound off a support zone or approach the measure rule target.

Support/resistance. After a measured move down completes, the corrective phase often spells a resistance zone for future moves. Prices pause on the approach to the corrective phase low and at the high. Figure 32.6 has these zones labeled. If you are nimble, you can anticipate this rise and trade long once the measured move down completes. Sell if prices run into trouble during the corrective phase and begin heading lower. In a bull market you can generally expect prices to eventually push through the corrective phase resistance and move up to the old high, but that could take months or years.

Sample Trade

People are nasty; just ask Eddy. He is an airline reservation agent. Between the company monitoring his phone calls to be sure he peddles a car and hotel when appropriate and the people screaming at him from the other end of the phone, it is a tough living. There is nothing he can do about equipment problems or the weather, but people do not seem to care. Even the full moon gets into the act as that is when the crazies call.

What he would really like to do is invest in the stock market. He does it now but to a limited extent because of a cash-flow problem. Fortunately, with a few clicks of his computer mouse he can flip to the Internet and monitor his latest stock pick when he is not busy.

That is how he uncovered the situation shown in Figure 32.6. He watched the stock climb from a low of about 10 in June 1994 to a high of 53.63 in October 1995. Every so often, he would draw trend lines along the bottoms of the minor lows and notice how the upward trend seemed to be accelerating (the trend lines grew steeper over time).

Since he knew this could not last, he was ready for a trend change, which occurred on November 14 when prices pierced the trend line, moving down.

Instead of shorting the stock immediately, he decided to wait for a pullback. Much to his surprise it never came. Prices moved steadily lower until they reached a support level at 42. From that point on, prices rose higher for the next week and a half. Then, they dropped sharply, tumbling \$3 in one session.

When prices fell, they pierced a small up trend line, drawn along the bottoms of the climb from points B to C. Eddy recognized what was happening when he drew the trend line on his chart. The chart pattern was making a measured move down, so he shorted the stock that day and received a fill at 42.

He used the measure rule to compute the predicted price move and placed an order with his broker to cover the short at the predicted price (36.88). Just 3 days after he placed the trade, the short was covered. He made about \$5 a share or 12%.

If you look at Figure 32.6, you can see that prices rose to the level of the corrective phase bottom (point B), then retreated 2 days after Eddy completed his trade. Later on you can see that prices also stopped rising at the top of the corrective phase. The corrective phase is a zone of support and resistance.

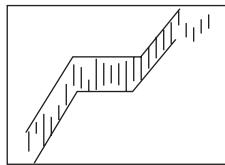
For Best Performance

The following list includes tips and observations to help select MMDs that outperform. Consult the associated table for more information.

- Review the identification guidelines for correct selection—Table 32.1.
- Trade MMDs in a bear market; the decline is shorter but steeper—Table 32.2.
- The second leg is about 20% shorter than the first leg, on a dollar basis—Table 32.3.
- Select patterns with a falling volume trend and U-shaped volume pattern—Table 32.3.
- After the pattern ends, price rises to the corrective phase at least 80% of the time—Table 32.4.

33

Measured Move Up



RESULTS SNAPSHOT

	Bull Market	Bear Market
Appearance	Prices move up, retrace, and then move up again.	
Reversal or continuation	Long-term bullish reversal	
Performance rank	Not Applicable	Not applicable
Change after trend ends	-26%	-27%
Volume trend	Downward	Downward
Average first leg rise	46% in 87 days	39% in 30 days
Average corrective phase retracement	47% in 32 days	50% in 22 days
Average last leg rise	32% in 60 days	35% in 33 days
Percentage meeting price target	45%	56%
Percentage meeting time target	38%	56%
Surprising findings	The first leg price change is a poor tool for target prediction. After the pattern completes, prices drop to the corrective phase between 35% and 40% of the time.	
Synonym	Swing measurement	
See also	Flags; Pennants	

The measured move up (MMU) is the reverse of the measured move down but with worse performance. In a perfect world, the first and last legs would be the same length. With MMUs, the percentage rise in the first leg during a bull

market is often about 50% longer than the second leg (a rise of 46% versus 32%, respectively). Even on a calendar basis, the first leg is about 50% longer (87 days versus 60 days). In a bear market, the numbers are closer and the results are mixed. On a percentage basis, the first leg is slightly longer than the second but on the time scale, the second leg is longer.

Using the first leg height, in dollars, projected upward from the bottom of the corrective phase to get a target price only works 45% to 56% of the time. I like to see values above 80%, so this falls short. Using time as the basis for projection fares even worse with as few as 38% hitting their targets. What all this information means is that when predicting a price target, be conservative. The best approach is to use half the first leg move projected upward.

MMUs have two surprises. The first is the poor price prediction that I mentioned. The second is that once the MMU completes, prices drop and stop within the corrective phase between 35% and 40% of the time. Thus, the zone sometimes acts as a support area.

Tour

Figure 33.1 shows a measured move up formation with the various components labeled. The first leg has a rise in price that follows a trend line. Many times a trend line drawn on either side of the minor highs and lows constructs a channel.

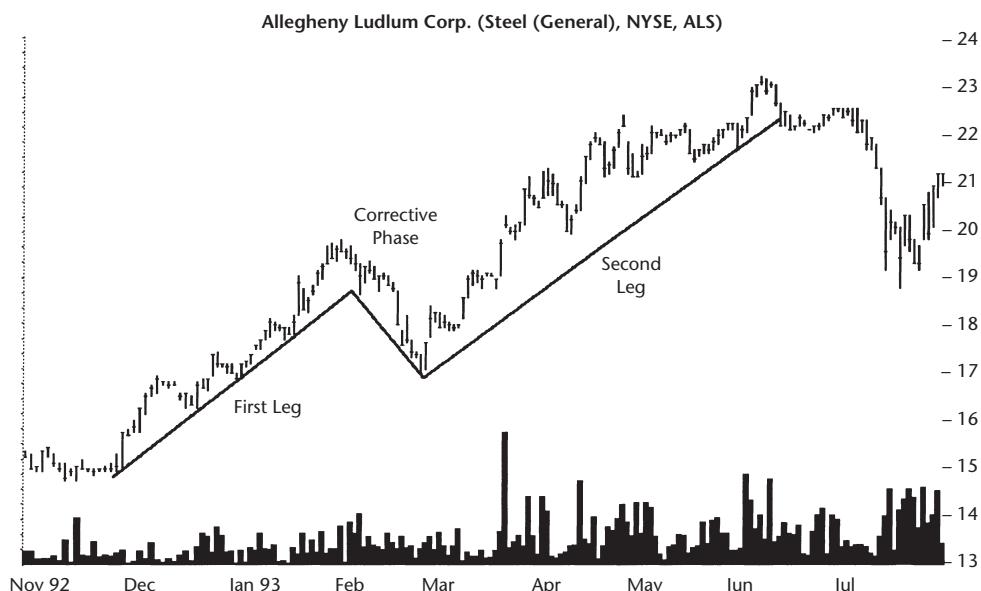


Figure 33.1 A measured move up. The second leg gain nearly matches the gain posted by the first leg.

The corrective phase retraces a substantial portion of the rise, usually 40% to 60%, before prices resume rising. In Figure 33.1, the corrective phase begins in late January and extends through most of February. Prices retrace 55% of the first leg price move. Once the correction completes, prices climb even more rapidly during the second leg. You can see that prices bow upward instead of touching the trend line in a sort of rounding-over maneuver before topping out in June. The rise constitutes what is commonly called the second leg. It is the rise from the corrective phase to the end of the formation.

Once the formation completes, prices sometimes drop back to the level of the corrective phase or lower. In this example, you can see that prices dropped to just below the top of the corrective phase (in July) before recovering.

Identification Guidelines

Table 33.1 lists the identification characteristics for this formation.

Downward trend. The chart pattern usually, but not always, begins when prices bottom out after a downtrend. The declining price trend can range all over the scale. In Figure 33.1, for example, prices reach the November lows after shooting up in a bull run that starts in December 1991 and ends 2 months later. Then prices meander—essentially moving horizontally with a slight downward bend. Six months later, they decline from a high of about 18.25 to a low of 14.75.

Table 33.1
Identification Characteristics

Characteristic	Discussion
Downward trend	A downward price trend that lasts from a few weeks to over a year usually precedes the start of the formation. The formation begins a trend change that usually starts from near the yearly low.
First leg	Most times prices follow a trend channel upward before entering the corrective phase.
Corrective phase	Prices decline, usually between 40% to 60% of the first leg move, before heading upward again. The retrace is usually proportional to the first leg rise: Large retraces follow large rises. Sometimes the corrective phase resembles a saw-tooth pattern (a few sharp rises and declines in a row) before prices break away and zoom upward. This saw-tooth pattern usually associates with a long price climb leading to the formation.
Second leg	Prices rise, loosely following the slope of the trend line set by the first leg. Prices commonly fit inside a channel as they rise, but this behavior is not a prerequisite.
Avoid	Avoid formations where the retrace travels too far down the first leg. Anything beyond an 80% retrace is too far and too risky to invest in.

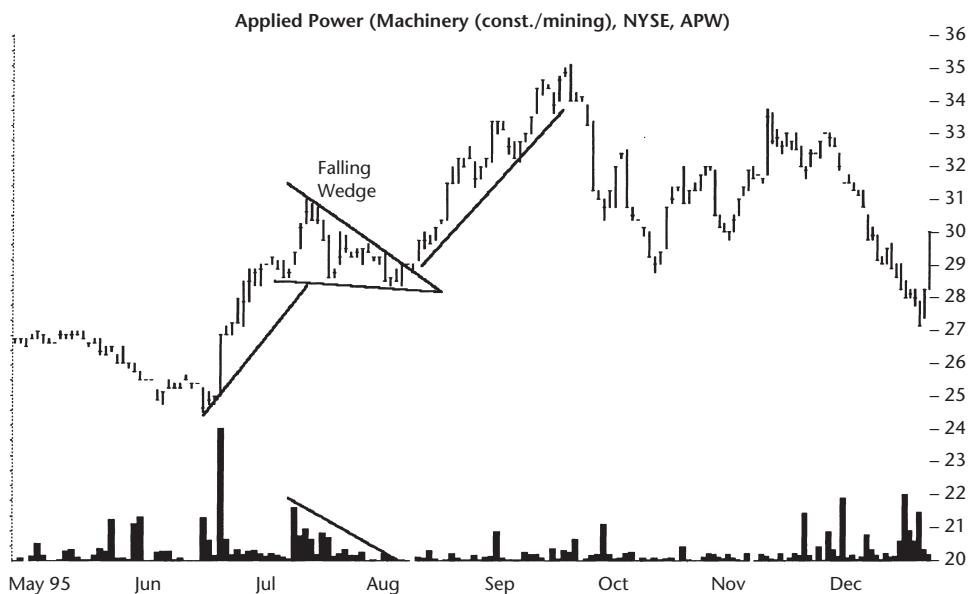


Figure 33.2 A falling wedge marks the corrective phase in this measured move up formation. Note the receding volume trend of the wedge.

First and second leg. Consider Figure 33.2 where the price decline is short—barely a month long. The figure shows that the first leg has a slight bow to it in the early part of the rise. However, you can extend the up trend line and draw a parallel one connecting the minor highs and see that the first leg fits inside a trend channel. The second leg does even better. The bottom trend line touches several places and a parallel top trend line (not shown for clarity) also intersects the minor highs nicely.

Corrective phase. In this case, a falling wedge composes the corrective phase. This formation makes trading the measured move easy since it predicts a price rise. Once prices break out from the wedge, buy into the stock and ride the upward move. If you bought the stock following this procedure, you would make somewhere between 15% and 20%, depending on when you traded the stock. That is not a bad return for a hold time of about 6 weeks. Also note the very distinctive down-sloping volume trend for the falling wedge.

The slope of the two trend lines, along the minor lows of the legs, are nearly the same. It is somewhat surprising how often this observation holds true. However, just because there is a wide variation in the trend slope is no reason to eliminate a formation from consideration.

In this example, the corrective phase sees prices retrace their prior gains by 40%, within the usual 40% to 60% range for MMUs. Sometimes when the rise leading to the start of the formation is extensive, the corrective phase becomes long and choppy, resembling a saw-tooth formation marked by quick rises and sharp declines. In such a case, it might be prudent to wait for prices

to rise above the high established during the first leg before investing. That way you can avoid the most common MMU failure.

Avoid. You want to avoid formations that have corrective phases that descend too near the first leg start. I do not have a set amount for this retrace, but I would probably steer away from formations that retrace more than 80% or so of the prior upward move.

In addition, if the first leg does not follow a straight course upward or if it fails to stay within a well-defined trend channel (as does the first leg in Figure 33.3), you might want to look elsewhere for a more promising situation. Sometimes when a chart formation does not *feel* right or look right, then it is giving you a warning to stay away. Since this is a common chart pattern, you can easily find another opportunity.

Focus on Failures

Figure 33.3 shows the most common type of measured move up failure. The stock forms a double top that kills the second leg rise. The second leg does not near the price move of the first leg as do most well-behaved measured moves. Why does this particular formation fail? The figure shows a choppy, horizontal saw-tooth pattern leading to the first leg rise. The first leg soars above the two tops of the saw-tooth and price moves up smartly. Then prices round over and start correcting. The figure, at this point, reminds me of a mini bump-and-run reversal. However, the bump phase just does not meet the two-to-one

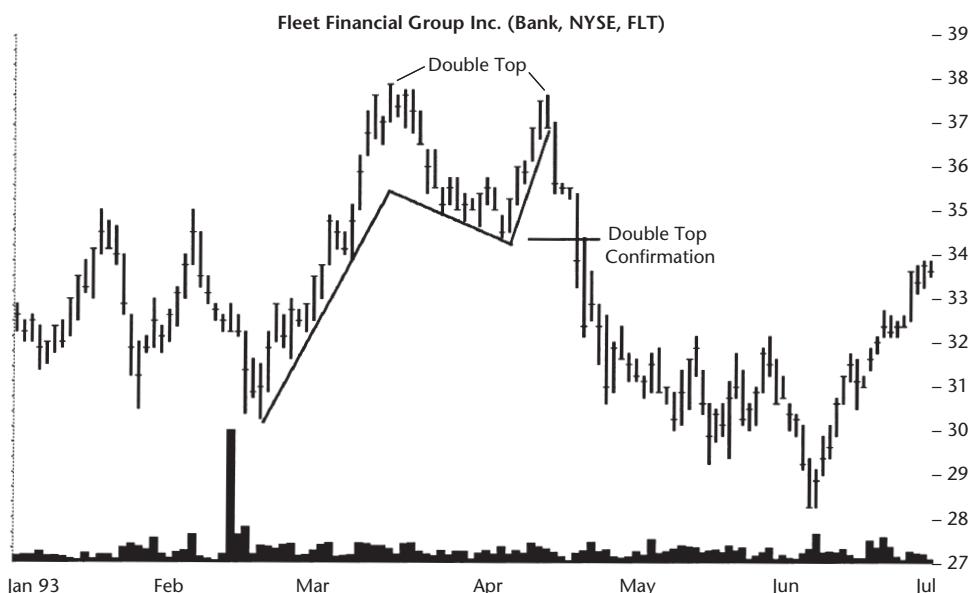


Figure 33.3 A measured move up that fails after turning into a double top.

height ratio of the lead-in phase. Still, it does give you pause about investing in this situation.

The second leg starts rising with no significant change in volume. This is a warning sign. There is a common Street axiom that says rising prices need high volume but falling prices can decline on their own weight. This formation appears to be an example of that axiom. Since there is little upward buying pressure to push prices higher, momentum fades out just below the prior top and then prices tumble. The resulting decline sees prices fall below the start of the first leg.

Before we move on to statistics, I want to alert you to some identification problems. When prices rise steadily for a long time, say over a year or more, then begin a MMU, the corrective phase might be excessively choppy. I mentioned this behavior in the Identification Guidelines section and in Table 33.1, but it is something to keep in mind.

Also, do not be too quick to buy into the situation. Remember that the corrective phase should be proportional to the first leg rise. By that I mean prices should fall anywhere from 40% to 60% of the first leg move before beginning the second leg. If prices only fall 15% before turning up, then it might be a false breakout.

Sometimes prior peaks are a key to how far prices retrace. These minor highs are often places of support. When prices decline to that level, they pause and move horizontally for a time before continuing down or rebounding. Volume is often a key to the level of support you can expect from these types of situations. A prior peak with high turnover will give more support to a stock on its way down. That is not to say that the stock will not burn through the support, just that it might take more of a push to fall off the cliff.

Statistics

The tables in this section differ from those given in other chapters because of the uniqueness of this chart pattern. Many of the statistics provided elsewhere do not apply because there is no breakout and no ultimate low or high. Table 33.2 shows general statistics for MMUs.

Number of formations. I found 810 MMUs in the stocks I looked at. Since the pattern was so plentiful, I did not search all of the stocks in my database. Instead, I used 500 stocks from mid-1991 to mid-1996 and another 200 or so bracketing the bear market from 2000 to 2003.

Reversal or continuation. Most often, the chart pattern acts as a reversal of the price trend. A reversal can happen in two ways: Price may reverse on entry into the pattern or exit. Occasionally (between 23% and 32% of the time), price will resume the prevailing price trend after the MMU, so the chart pattern acts as a continuation of the trend.

Change after trend ends. Once price reaches the highest high in the MMU, it declines an average of 26% to 27%. The decline measures from the

Table 33.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	577	233
Reversal (R), continuation (C)	393 R, 184 C	179 R, 54 C
Change after trend ends	-26%	-27%
Most frequent corrective phase retrace	40% to 60%	40% to 60%
Average MMU length	180 days	85 days
Average first leg price rise	46% in 87 days	39% in 30 days
Average corrective phase retrace	47% in 32 days	50% in 22 days
Average last leg price rise	32% in 60 days	35% in 33 days

Note: Minus sign means decline.

end of the pattern until the trend changes again (using the same method to gauge the ultimate low a —20% price change).

Corrective phase retrace. I did a frequency distribution and found that prices most often retrace between 40% and 60% of the first leg move.

Average length. The average MMU length in a bull market is more than twice as long as in a bear market—180 days versus 85 days. This finding makes sense, as the rise in a bear market (a counter trend move) is often shorter than a bull market move.

Average leg price rise. Table 33.2 shows the size of each leg as a percentage of the low price in each leg. In a bull market, the first leg rises 46% in about 3 months but the second leg has an average rise of 32% in about 2 months. The bear market numbers are closer on both a percentage and time basis.

The corrective phase retrace averages 47% in a bull market and 50% in a bear market.

In a bull market, the second leg move (on a percentage basis, not a dollar basis) is about two-thirds the length of the first leg move. In a bear market, the second leg is shorter than the first, but not by much.

On a dollar basis, the second leg is shorter than the first by 11% in a bull market, but it is longer by 8% in a bear market. By *dollar basis*, I mean that I found the length of each leg, in dollars. After summing the lengths of the first legs for all bullish MMUs, I compared it to the sum of the lengths of the second legs. I made the same measure for the bear market.

Table 33.3 shows volume statistics.

Volume trend. Most of the MMUs have a falling volume trend as measured from the start of the MMU to the end.

I counted the number of times the percentage price change of the second leg was longer than the first when volume was trending upward or downward. In other words, if the first leg climbed 20% and the second leg showed a 25%

Table 33.3
Volume Statistics

Description	Bull Market	Bear Market
Number with rising volume trend	39%	31%
Number with falling volume trend	61%	69%
Rising volume trend, second leg longer than first leg	33%	41%
Falling volume trend, second leg longer than first leg	25%	32%
Number with U-shaped volume	27%	49%
Number with dome-shaped volume	62%	45%
Number with neither U-shaped nor dome-shaped volume	11%	6%
U-shaped volume, number of times second leg longer than first leg	31%	35%
Dome-shaped volume, number of times second leg longer than first leg	26%	35%
Random volume shape, number of times second leg longer than first leg	31%	29%

move in a MMU with rising volume, I counted it. If the sizes were reversed, I excluded it.

In MMUs with a rising volume trend, the second leg is more likely to be longer in both bull and bear markets. When you think about it, this finding makes sense. Analysts often say that a rising volume trend is bullish. Perhaps this is the proof. MMUs with a rising volume trend show price making a longer move.

Volume shapes. In a bull market, volume appears dome shaped most often. In a bear market, the U shape predominates, but the numbers are close.

Volume shape versus leg length. In a bull market, MMUs with dome-shaped volume performed less well than the other shapes—just 26% of the time the second leg was longer than the first. That finding means the second leg is not as long as in MMUs with U or random volume shapes. In a bear market, MMUs with a random volume shape performed worst—just 29% had longer second legs.

In the comparison, I used the percentage price change in each leg, not the size of the dollar move.

Table 33.4 shows where price stops declining after the MMU ends. This information is important when you buy into a stock and it completes an MMU. Should you sell at the top or wait for more gains?

In 19% to 24% of the cases, prices dropped but remained above the top of the corrective phase. Most often (between 35% and 40%, depending on

Table 33.4
After Pattern Ends

Description	Bull Market	Bear Market
Price stops above corrective phase	19%	24%
Price stops within corrective phase	35%	40%
Price stops below corrective phase but above MMU low	31%	19%
Price stops below MMU low	15%	16%

market conditions), prices stop within the corrective phase. Another 19% to 31% of the time, prices continue moving down but stop before the MMU low. The remaining 15% to 16% of the time, prices continue tumbling.

Combining the numbers, between 54% and 64% of the time, price will not drop below the corrective phase. Thus, you could use the bottom of the corrective phase as a stop loss price. That would allow price to resume its climb about half the time. The other half of the time, the stop will protect you from a more massive loss. The bad news is that a decline to the corrective phase may mean a large profit giveback.

If you are a swing trader, you might sell as price nears the target (the second leg high) and buy back after it rebounds in the corrective phase. Holding onto the stock after the MMU completes means you are willing to suffer through the average 26% to 27% price decline (see “Change after trend ends” in Table 33.2).

Trading Tactics

Table 33.5 shows trading tactics for measured move up formations.

Measure rule. The measure rule predicts the level to which prices will rise. To estimate the target price, compute the height of the first leg. I use the measured move up formation shown in Figure 33.4 as an example. Locate the highest high in the first leg. Usually this is somewhere near the beginning of the corrective phase, and point A indicates this in the figure. From this value (21.13), subtract the lowest low (14.13) in the first leg, shown as point B. The difference (7) is the height of the first leg. Add it to point C (18.38)—or the lowest low in the corrective phase—to arrive at the target price. In this case, the target price is 25.38. Prices reach the target just 10 trading days after the corrective phase ends.

Using the full length of first leg projected upward works 45% of the time in a bull market and 56% of the time in a bear market. A better method is to use half the first leg move. That would work 85% of the time in a bull market and 99.6% of the time in a bear market. Do not let the bear market number fool you. Your trade may be the exception.

Table 33.5
Trading Tactics

Trading Tactic	Explanation
Measure rule	Calculate the height of the first leg from highest high to lowest low. Add the difference to the lowest low in the corrective phase. The result is the expected target price. For a more conservative measure, use half the first leg height. Decide if the predicted move is worth the risk of a trade.
Buy	Take a position in the stock sometime after the corrective phase completes and prices rise during the second leg.
Support/resistance	The corrective phase shows future support or resistance.

Once you calculate the target price using the measure rule, ask yourself if the gain is large enough to justify a trade. If the answer is yes, then look at the chart again. Are there areas of resistance on the way to the target price where the stock might get hung up? If so, you might need to lower your target. If you are lucky and significant resistance is above your target, you can move your price upward to just below the resistance zone. In all likelihood the stock will shoot into the resistance zone, so you will have ample opportunity to close out your position.

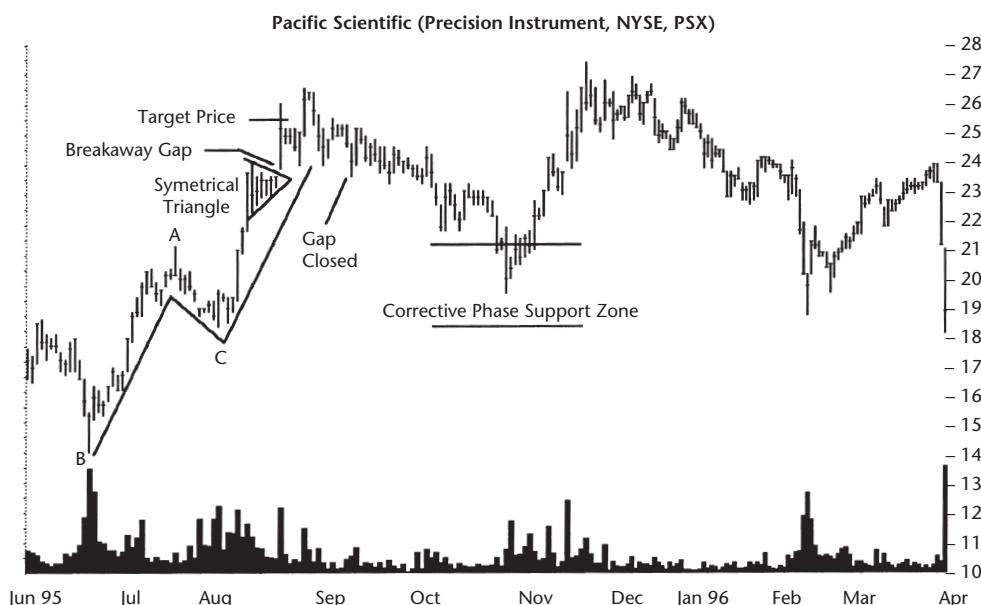


Figure 33.4 Measured move up formation with symmetrical triangle. As described in the Sample Trade discussion, Michelle rode this measured move up in a stock she owned. She sold when the breakaway gap closed. A symmetrical triangle shows a typical volume trend.

Buy. After prices leave the corrective phase, then buy the stock. To gauge the breakout point, draw a down-sloping trend line along the minor highs in the corrective phase. Once price *closes* above the trend line, then buy the stock. As the stock approaches the target price, do not be too quick to sell. If prices are on a roll, go with the flow and wait for prices to start declining. Obviously, if prices pause near but below the target price, then it might be wise to sell.

Support/resistance. Once prices begin moving down, they sometimes return all the way down to the corrective phase before meeting any meaningful support. They may pause at the top of the corrective phase or rebound at the bottom of it. Sometimes, prices just sail right on through. Whatever the case, be aware that if you do not sell near the target price and decide to hold on, you might lose all your gains.

Sample Trade

Michelle is an engineer. Over the years, she has developed a thick skin to take the ribbing from her college colleagues in a male-dominated profession. Even when she ventured into the professional environment after college, the ribbing continued. Make no mistake: She is pretty and they just wanted her attention. I saw this firsthand when I stopped by her office with a question. She was not there at the time, but her desk blotter had the scribblings of love notes from dozens of men. Of course, I added my own, but I digress.

If you were to give a Rubic's cube to Michelle, she would not necessarily solve it. First, she would want to take it apart to see how it is constructed. This inquisitiveness coupled with her ability to solve tough problems in a unique way makes her special even among engineers. She is also an investor with the same qualities.

Michelle had a unique way to take advantage of the situation shown in Figure 33.4. She already owned the stock but believed it was running out of steam. During the prior November to February period (not shown), she saw the stock form a double top. Prices declined from a high of 24.13 to the low of 14.13 at the start of the measured move.

Unfortunately, as a novice investor, she was unable to pull the trigger and sell it after prices confirmed the double top. She rode the decline down to the low and saw 41% of her gains evaporate. When the stock began moving up, she breathed easier. Still, she vowed to do better the next time. As the stock started its climb, she saw the increase in volume. The increase meant that the run would be an extended one, as there seemed to be enough enthusiasm to send prices higher.

All bull runs must pause now and again and this situation was no different. Michelle saw the stock pause and consolidate for nearly a month during July. She looked back at the chart and noticed that the stock had reached a zone of resistance where there were several old highs that stalled prices near the 21

level. Volume picked up and when prices shot upward, she immediately recognized the measured move formation. Did she sell? No. She hung on for the ride. Michelle calculated that the stock would rise to 25.38, a new yearly high. She suspected that the stock might find resistance at the old highs of 24, and that is exactly what happened. A symmetrical triangle formed in the stock. The formation obeyed the rules for symmetrical triangles, lower highs and higher lows with a receding volume pattern, and she was confident that she had correctly identified it.

Since there was no way to tell which direction the stock would break out of the triangle, she sat tight. Then prices gapped out the top. Was the gap a breakaway gap or an exhaustion gap? She reasoned that since the gap appeared just after a region of consolidation, it was most likely a breakaway gap, so prices would continue rising, but how far? She hoped the triangle represented the halfway mark of an up move. She knew that symmetrical triangle formations sometimes act like half-staff formations, so she expected a climb to 28 (see the measure rule for symmetrical triangles). To her it sounded like a long shot, but one worth waiting for. Her calculated price target of 25.38 was met the day prices jumped out of the triangle.

About a week after prices left the triangle, they reached a new high and then fell back. When price closed the gap in the first part of September, she decided to sell her holdings. Fortunately, the next day prices zoomed upward and she was able to sell her shares at 24.50, near the daily high of 25.13. After that, the stock tumbled back to the middle of the corrective phase, right in the center of the support zone. Then, the stock recovered. As the stock climbed and posted a new high, she wondered if she had sold too soon. She felt better after reviewing the chart 6 months later and seeing prices hovering in the \$15 range.

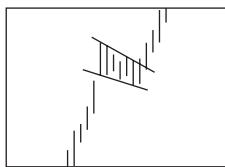
For Best Performance

The following list includes tips and observations to help select MMUs that outperform. Consult the associated table for more information.

- Review the identification guidelines for correct selection—Table 33.1.
- On a *percentage basis*, the second leg is about two-thirds the length of the first leg (bull market). In a bear market, the second leg is marginally shorter (by four percentage points)—Table 33.2.
- In a bull market, the average length of the first leg is 11% shorter than is the second on a *dollar basis*. In a bear market, the second leg is 8% longer—Table 33.2.
- Select patterns with a rising volume trend—Table 33.3.
- After the MMU ends, prices stop declining above or within the corrective phase between 54% to 64% of the time—Table 33.4.

34

Pennants



RESULTS SNAPSHOT

Upward Breakouts

	Bull Market	Bear Market
Appearance	A short triangle bounded by two converging trend lines	
Reversal or continuation	Short-term bullish continuation	
Performance rank	Not applicable	Not applicable
Break-even failure rate	2%	2%
Average rise	25%	21%
Change after trend ends	-25%	-24%
Volume trend	Downward	Downward
Throwbacks	47%	54%
Percentage meeting price target	60%	63%
Surprising findings	The best performing pennants are those with breakouts near the yearly low. Throwbacks hurt performance. Pennants with breakout day gaps perform better. Tall patterns perform well. The move after a pennant takes about a week longer but does not climb as far as the move before the pennant. Pennants with a rising volume trend do better.	
See also	Flags; Flags, High and Tight; Triangles, Symmetrical Bottoms; Triangles, Symmetrical Tops; Wedges, Falling; Wedges, Rising	

Downward Breakouts

	Bull Market	Bear Market
Appearance	Same, but breakout is downward.	
Reversal or continuation	Short-term bearish continuation	
Performance rank	Not applicable	Not applicable
Break-even failure rate	4%	0%
Average decline	19%	25%
Change after trend ends	40%	50%
Volume trend	Downward	Downward
Pullbacks	31%	54%
Percentage meeting price target	51%	50%
Surprising findings	Pullbacks hurt performance but breakout day gaps help. Tall or wide patterns perform best. The duration after the pennant is nearly the same as the one leading to it but the price move is less. Heavy breakout volume propels prices farther.	
See also	Same as for upward breakouts	

Active traders pay attention to flags and pennants in their trading. Like flags, pennants serve as half-staff patterns. The trend leading to the pattern is as large as the trend after it. That is the theory, at any rate, but how well does it work? The percentage meeting the price target (the “measure rule”) in the Results Snapshot shows the answer. Pennants hit the target between 50% and 63% of the time. I like to see averages above 80%, so pennants fall short, but are still useful patterns.

Pennants have a number of surprises and most are self-explanatory. I found that, on average, pennants with upward breakouts take a week longer but do not rise as far as the move leading to the pennant. Downward breakouts take the same time, but the price move is less than the trend leading to the pennant.

Tour

Figure 34.1 shows what a pennant looks like. The only visual difference between a flag and a pennant is the shape of the formation. Two sloping trend lines that eventually meet outline a pennant formation, resembling a small wedge. Sometimes the trend lines slope upward, as in Figure 34.1, and some times they do not. Usually, they slope upward in a downtrend and downward in an uptrend.

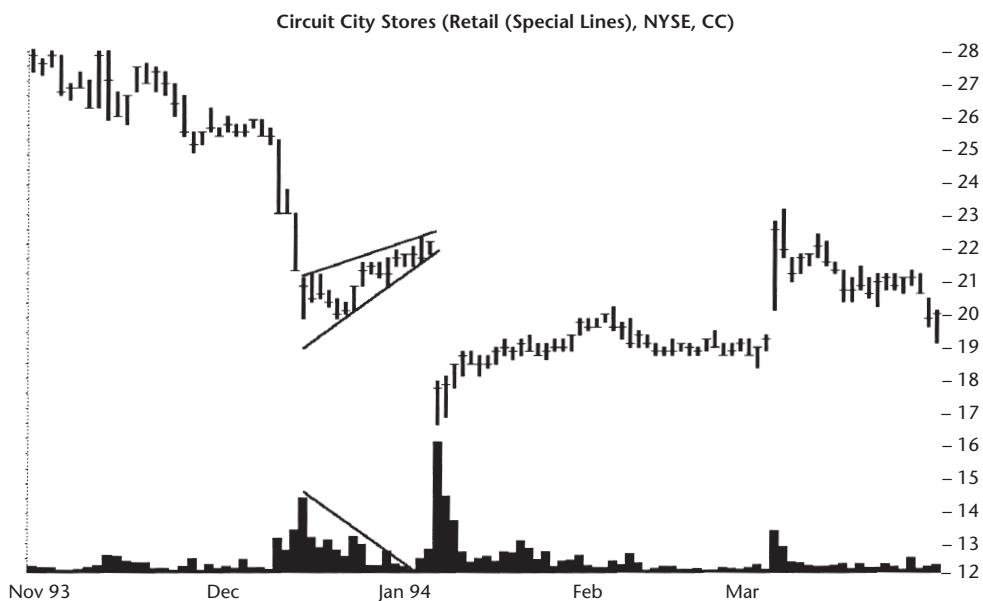


Figure 34.1 A pennant bounded by two converging trend lines looks like a short rising wedge.

Identification Guidelines

Table 34.1 shows identification characteristics for pennants and Figure 34.2 shows an example.

Price bounded by two trend lines. Look for a price trend that converges, forming a pennant shape. The pennant may slope upward, downward, or look horizontal, but it usually slopes against the prevailing price trend. For example, the pennant in Figure 34.1 slopes upward, and the one in Figure 34.2 slopes downward. Both slope against the prior price trend but need not.

Table 34.1
Identification Characteristics

Characteristic	Discussion
Price bounded by two trend lines	Two trend lines surrounding the price action converge, forming a small pennant shape. Price usually goes against the trend: It rises in a downtrend and falls in an uptrend.
Three-week maximum	Pennants are short patterns lasting from a few days to 3 weeks. Patterns longer than 3 weeks are symmetrical triangles or wedges.
Steep, quick price trend	Look for a quick (steep) price move (up or down) leading to the pattern.
Downward volume trend	Volume usually trends downward throughout the pattern.

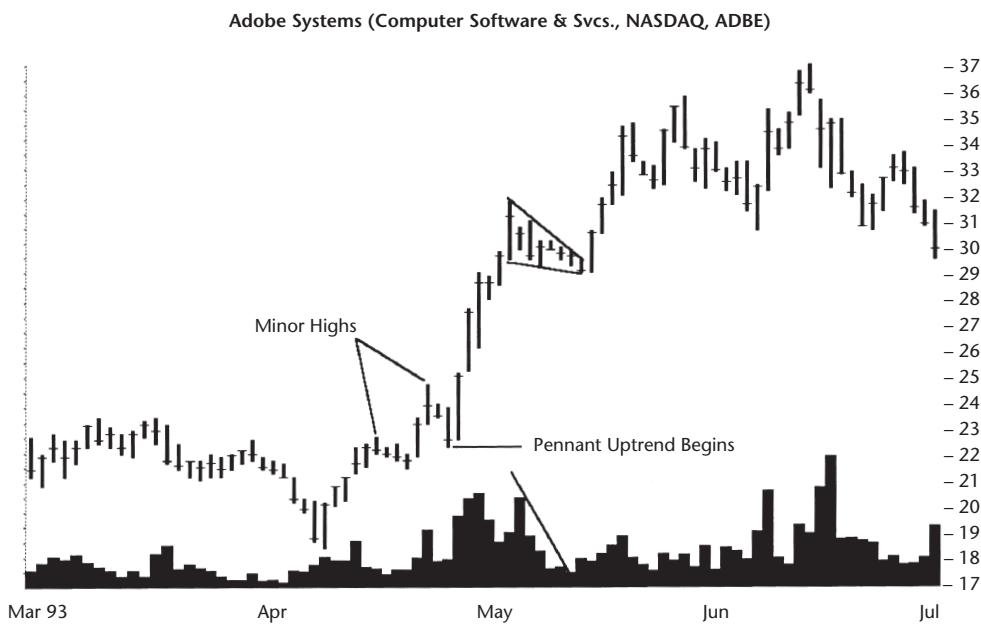


Figure 34.2 A short pennant forms after a quick price rise. The pennant slopes downward and prices move upward after leaving the formation.

Three-week maximum. The 3-week maximum is an arbitrary limit. Pennants can range in length from 2 days to 3 weeks. A pattern longer than 3 weeks is better classified as a symmetrical triangle, rising or falling wedge. The pennants I looked at averaged between 9 and 11 days long.

Steep, quick price trend. Look for a steep, quick price move leading to the pattern. This feature is important, and it has the side benefit of making pennant spotting easier. The straight-line run can be up or down and should be several points in a few days.

Downward volume trend. Most of the time, pennants will have a downward volume trend, but do not exclude a pattern because volume slopes upward.

Figure 34.3 shows a small pennant carried along in a downward price trend. Price overshoots the pattern at the start but the pennant still acts as a continuation of the downward price trend. Notice how the pennant slopes against the 2-day upward rise. After the pattern completes, price gaps downward.

Reviewing the identification guidelines, the pennant pattern is clear in Figure 34.3, with price action narrowing over time. Notice the steep price decline leading to the pattern and the slope of the price trend after the pattern—the two are nearly identical. In that regard, pennants function like measured move chart patterns. Volume recedes between the pennant ends. Thus, the pattern confirms as a valid pennant.

I used the trend start and end as the performance measure: I did not look for the ultimate low/high and a 20% price change, but stopped when the price trend ended, at a minor low/high. I wanted to see if pennants acted as half-staff

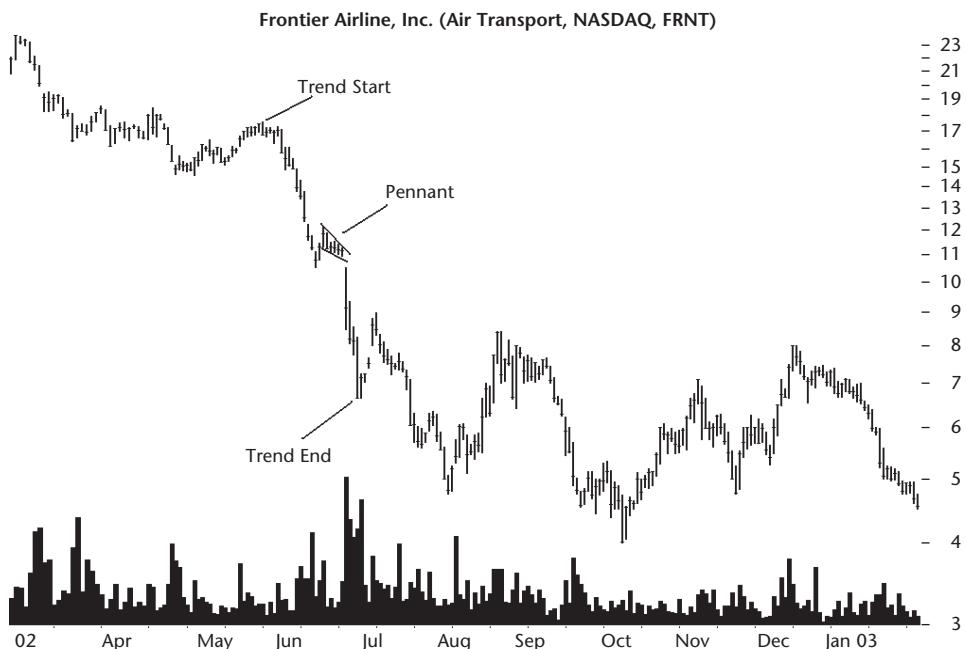


Figure 34.3 The downward price tend overshoots the small pennant on entry. The pattern appears midway between the trend start and end.

patterns (they do). Notice how this pennant is in the middle of the downward price trend located by the labels Trend Start and Trend End.

Focus on Failures

Figure 34.4 shows a failure of a pennant in a downtrend. The formation probably reminds you of a short symmetrical triangle—one that acts as a reversal (which is unusual for a symmetrical triangle). The volume trend is receding, as you would expect. The formation price trend, bounded by the two sloping trend lines, looks good too. The price trend leading down to the formation represents an 18% decline. Prices should continue moving lower after this formation completes but they do not. Why?

You can see in Figure 34.4 that prices loop around the formation end then head lower (a throwback). If you held onto your short position, you would eventually make money. However, I still classify this formation as a failure. Prices should continue down immediately after piercing the trend-line boundary. The reason prices ascend immediately is not clear.

I did not include reversals, like the one shown in Figure 34.4, in the study of pennants. The reason for this exclusion is simple. If a trader were looking to short the stock in Figure 34.4, the trader would not take a short position because of the upward breakout.

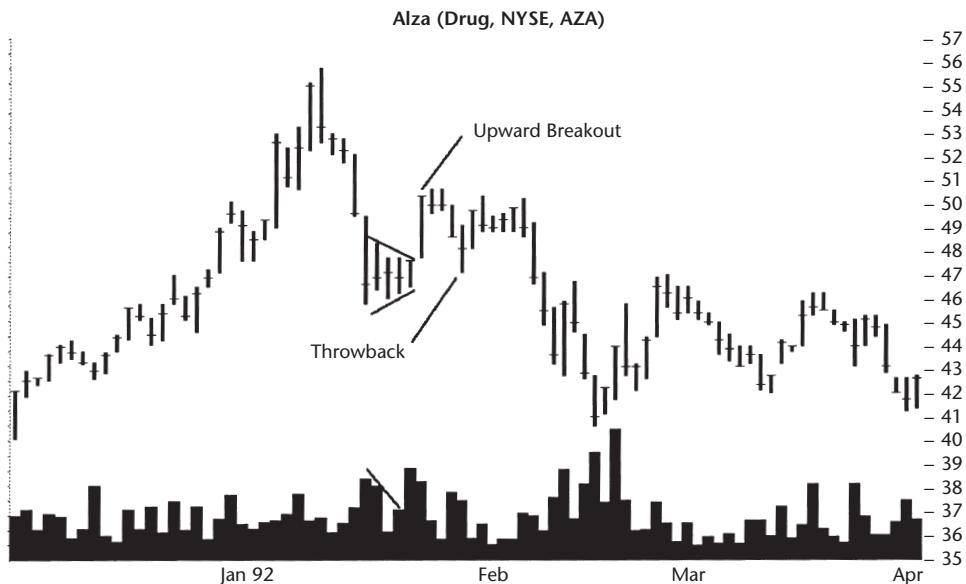


Figure 34.4 This pennant looks like a small symmetrical triangle. Prices break out upward, throw back to the formation, and head lower.

Statistics

Table 34.2 shows general statistics for pennants. The performance statistics in the following tables show the performance from the trend start to the end, not to the ultimate high or low.

Number of formations. Since these patterns can be as little as 2 days wide, they can be difficult to spot, yet plentiful if you take your time for a thorough search. I found 462 patterns before I called it quits.

Reversal or continuation. I did not include reversals in this study because most traders use pennants as half-staff patterns. The ones I found continue the existing price trend after the breakout.

Average rise or decline. The postbreakout move measures the distance from the breakout to the trend end, not the ultimate high or low. Thus, comparisons with other patterns (except flags) should not be made.

Rises or declines over 45%. Sometimes the price trend after the breakout can be quite long. For pennants in a bull market with upward breakouts, 16% climbed more than 45%. Again, the computation measures from the breakout to the trend end, not to the ultimate high or low.

Change after trend ends. Once price reaches the end of the trend, what happens? After an upward breakout, price drops between 24% and 25%. After a downward breakout, price climbs between 40% and 50%, on average. The decline or rise after the trend end looks for a 20% trend change (a new ultimate low or high).

Table 34.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	173	107	84	98
Reversal (R), continuation (C)	173 C	107 C	84 C	98 C
Average rise or decline	25%	21%	-19%	-25%
Rises or declines over 45%	27 or 16%	11 or 10%	6 or 7%	9 or 9%
Change after trend ends	-25%	-24%	40%	50%
Busted pattern performance	27%	N/A	-12%	-24%
Standard & Poor's 500 change	4%	2%	-3%	-6%
Days to trend high or low	22	18	16	16

Note: Minus sign means decline. N/A means no sample available.

Busted pattern performance. This measure also uses a 20% trend change (a new ultimate low or high). Since busted patterns, by definition, have breakout moves of less than 5%, none of the bear market, upward breakout patterns qualified (because they all had moves larger than 5%).

The performance results are low when compared to other chart patterns. If you are looking to trade a busted pattern, look elsewhere.

Standard & Poor's 500 change. An interesting observation is the S&P trend, from up 4% to down 6%. This trend corresponds to a rise of 25% and a decline of 25%, respectively, and it shows the influence of the general market trend on performance after the breakout. Thus, go long in a bull market and go short in a bear market. Resist the temptation to swim against the current—shorting in a bull market or buying long in a bear market. You can still do that, but the results are not as good. You will find that trading in the direction of the prevailing market trend will help you trade more profitably.

Days to trend high or low. This measure shows the average time it took to reach the trend high or low after the breakout. Upward breakouts took longer to reach the trend end than downward breakouts. The down move in a bear market is steeper than the up move in a bull market, on average.

Table 34.3 shows failure rates for pennants. Notice that the bear market, down breakout has a 0% break-even failure rate. This finding does not mean that price will never decline by less than 5% before turning around. It simply means that I did not find any pennants performing that poorly.

Pennants in a bear market with downward breakouts had the lowest failure rate, followed closely by pennants in a bull market with upward breakouts. These two are the patterns to trade with the prevailing market trend.

Table 34.4 shows breakout- and postbreakout-related statistics.

Table 34.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	3 or 2%	2 or 2%	3 or 4%	0 or 0%
10	21 or 12%	10 or 9%	12 or 14%	9 or 9%
15	54 or 31%	25 or 23%	31 or 37%	22 or 22%
20	81 or 47%	50 or 47%	44 or 52%	43 or 44%
25	103 or 60%	70 or 65%	56 or 67%	56 or 57%
30	125 or 72%	82 or 77%	71 or 85%	69 or 70%
35	135 or 78%	88 or 82%	74 or 88%	82 or 84%
50	155 or 90%	101 or 94%	79 or 94%	91 or 93%
75	165 or 95%	106 or 99%	84 or 100%	98 or 100%
Over 75	173 or 100%	107 or 100%	84 or 100%	98 or 100%

Table 34.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	2 days	2 days	2 days	2 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L21%, C26%, H53%	L31%, C31%, H38%	L52%, C36%, H12%	L55%, C32%, H13%
Percentage rise/decline for each 12-month lookback period	L29%, C25%, H25%	L24%, C19%, H21%	L24%, C14% ^a , H16% ^a	L26%, C24%, H28% ^a
Throwbacks/pullbacks	47%	54%	31%	54%
Average time to throwback/pullback ends	15 days	14 days	12 days	14 days
Average rise/decline for patterns with throwback/pullback	24%	20%	-16% ^a	-23%
Average rise/decline for patterns without throwback/pullback	26%	23%	-20%	-28%
Performance with breakout gap	30%	24% ^a	-20% ^a	-32% ^a
Performance without breakout gap	24%	21%	-19%	-24%
Average gap size	\$0.35	\$0.48	\$0.23	\$0.65

Note: Minus sign means decline.

^aFewer than 30 samples.

Formation end to breakout. It takes 2 days from the end of the pennant until price closes outside the trend-line boundary, staging a breakout and confirming the validity of the pattern.

Yearly position. Where in the yearly price range do pennants reside? Those with upward breakouts appear most often near the yearly high. Those with downward breakouts appear near the yearly low.

Yearly position, performance. Where do the best performing pennants reside? Almost all pennants do best when the breakout is near the yearly low. The one exception is for those with downward breakouts in a bear market; they do well near the yearly high, but the sample size is small (13).

Throwbacks and pullbacks. Throwbacks and pullbacks occur between a third and half of the time. Pennants in a bear market tend to throw back or pull back more often than do those in a bull market.

It takes between 12 and 15 days for price to return to the breakout price. This time frame is a few days longer than many other chart patterns, so the result is unusual. When a throwback or pullback occurs, performance suffers as the numbers show.

Gaps. The sample size is small for many of the pennants, but gaps that occur on the breakout day seem to power the stock upward. The widest difference comes from pennants in a bear market with downward breakouts. They drop 32% when a gap occurs and 24% when there is no price gap. The gap is also the largest.

Table 34.5 shows a frequency distribution of time to the trend high or low. This measure is different from the ultimate high or low. Pennants are short-term patterns with short-term influence. Over half reach the trend end within 2 weeks. Few pennants have trends that last more than a month.

This table suggests that a buy-and-hold strategy is not a good play for pennants. Setting a profit target or using the measure rule to set a price target is a better strategy. Trade the stock, but as soon as momentum drops and price turns, close out the trade.

Table 34.6 shows size statistics for pennants.

Table 34.5
Frequency Distribution of Days to Trend High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	36%	22%	16%	11%	0%	4%	4%	3%	1%	0%	3%
Bull market, up breakout	25%	25%	14%	10%	8%	6%	3%	1%	1%	1%	5%
Bear market, down breakout		38%	21%	12%	12%	4%	5%	1%	2%	2%	0%
Bull market, down breakout		30%	25%	13%	17%	8%	2%	5%	0%	0%	0%

Table 34.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Tall pattern performance	39%	25%	-24%	-34%
Short pattern performance	16%	18%	-15%	-18%
Median height as a percentage of breakout price	6.86%	7.38%	6.72%	8.64%
Narrow pattern performance	23%	22%	-17%	-23%
Wide pattern performance	27%	21%	-21%	-28%
Median length	8 days	8 days	9 days	7 days
Average formation length	10 days	9 days	11 days	10 days
Short and narrow performance	16%	19%	-16%	-18%
Short and wide performance	15%	17% ^a	-13% ^a	-19% ^a
Tall and wide performance	38%	25% ^a	-25% ^a	-35% ^a
Tall and narrow performance	41%	25% ^a	-23% ^a	-32% ^a
Prior trend length	14 days	13 days	18 days	16 days
Post trend length	23 days	20 days	18 days	18 days
Price move before pennant	27%	26%	-20%	-27%
Price move after pennant	25%	21%	-19%	-25%

Note: Minus sign means decline.

^aFewer than 30 samples.

Height. Tall patterns perform substantially better than short ones. The largest difference occurs for pennants in a bull market with an upward breakout. Tall patterns climb 39% after the breakout, but short ones climb just 16%.

Width. Wide pennants perform better than narrow ones most of the time. For example, pennants in a bull market with an upward breakout and a length narrower than the median climb 23% after the breakout. Wide pennants climb 27%. The reason for this difference is one of proportion. Rarely does a small (or short) pennant occur in a long up or down price trend. The pennant should look proportional to the size of the surrounding move. I used the median length, not the average, as the separation between wide and narrow.

Average formation length. Pennants are small, averaging between 9 and 11 days long.

Height and width combinations. Looking at the combinations of height and width, we find that pennants with upward breakouts do well when the patterns are both tall and narrow. Downward breakouts do best with tall and wide pennants. In many cases, though, the sample size is small.

Trend length, price move. I measured the time from the trend start to the start of the pennant and from the pennant end to the trend end. You can

see that it takes longer to move from the pennant end to the trend end than it does to reach the pennant from the trend start, on average. Upward breakouts are about a week shorter, but downward breakouts have a postbreakout trend that mirrors the pre-formation trend length.

To gauge the price move, for upward breakouts, I used the trend start low to the pennant high (price move before the pennant) and from the breakout day low price to the trend end high (price move after the pennant). For downward breakouts, I measured from the trend start high price to the pennant low (price move before the pennant) and from the breakout day high price to the trend low (price move after the pennant).

The prior price move is longer than the post price move in all cases. Thus, set price targets conservatively because the price move after the breakout will usually be shorter than the price move leading to the pennant.

Table 34.7 shows volume-related statistics.

Volume trend. A rising volume trend over the length of the pennant suggests better performance after an upward breakout. A falling volume trend may do better during downward breakouts.

Volume shapes. I looked at three volume shapes: U, dome, and random. A dome shape occurs most often. However, those pennants with U-shaped volume tend to perform better after the breakout in a bull market.

Table 34.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Rising volume trend performance	27% ^a	25% ^a	-19% ^a	-23% ^a
Falling volume trend performance	24%	21%	-19%	-25%
U-shaped volume pattern performance	31%	21%	-22% ^a	-24% ^a
Dome-shaped volume pattern performance	22%	21%	-17%	-26%
Neither U-shaped nor dome-shaped volume pattern performance	15% ^a	34% ^a	-12% ^a	-21% ^a
Heavy breakout volume performance	30%	21%	-19%	-26%
Light breakout volume performance	20%	21%	-18%	-24%

Note: Minus sign means decline.

^aFewer than 30 samples.

Breakout volume. Pennants with heavy breakout volume perform equal to or better than do those with light breakout volume.

Trading Tactics

Table 34.8 shows trading tactics for pennants. Pennants are for short-term (swing) traders, not for buy-and-hold investors.

Measure rule. Use the measure rule to help predict a price target. Figure 34.5 shows an example. The trend starts at point A and climbs to the pennant. Take the difference between the top (intraday high) of the pennant at its start (B at 10.69) and the trend start low (point A, at 7.50) to get the trend height of 3.19. Add this value to the intraday low at the pennant end (point C at 11.44, the day before the breakout) to get the price target (14.63). Price climbs to the target 3 days after the breakout.

Warning: This method works between half (bear markets) and two-thirds of the time (bull markets), so be conservative in your estimate.

Wait for breakout. Since pennants do reverse on occasion, it is best to wait for the breakout. A breakout occurs when price closes outside the pennant boundary. Only then should you take a position in the stock. Do not procrastinate, as delays will be costly.

Close out the trade. Price should move in the direction of the prevailing price trend, usually following a slope similar to that before the pennant. When price falters (pauses), sell.

Sample Trade

Consider the situation shown in Figure 34.5. The pennant obeys the identification guidelines shown in Table 34.1. The pennant looks odd because price trends upward in the pennant instead of declining. In that regard, the pennant is unusual, but it is still a pennant.

Table 34.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Calculate the price difference between the start of the trend and the pennant. Prices should move at slightly less than this amount above (for uptrends) or below (for downtrends) the end of the pennant.
Wait for breakout	Take a position in the stock once price closes outside the pennant boundary.
Close out trade	Close out the trade when price stalls, usually as it approaches the measure rule target or a support/resistance zone.



Figure 34.5 Use the measure rule to predict a price target. Take the difference from the low at point A (the trend start) to the high at B (the pennant start) and project it upward from the low at C (before the breakout).

A key to this trade is the flat base. It started in early 1999 and a portion of it appears in the figure. Many technical traders look for this type of situation—a heavy volume breakout after a long horizontal move. They say that the longer the base, the more powerful the move up. Based on this example alone, I would have to agree.

You can see how price punched through the base's ceiling on high volume then coasted higher, forming the pennant. Once price shot out the top (a close outside the pennant trend line), the stage was set for a trade.

Many technical traders would have entered this trade on the breakout from the base (when price closed above the base's top), allowing them to profit on the ride up. Using the pennant as a measure rule sell signal would be a bonus.

Suppose you saw the pennant form and watched price break out. The next day, you would buy at the market open, filled at 12.53, which was also the intraday low.

Price rises toward the measure rule target of 14.63. Stay in the trade as price makes higher highs. You can place an order to sell near the target so the market will take you out automatically. That order usually results in selling near a minor high and gives you a higher profit than trying to time it yourself.

In this case, since price was trending up, stay in the trade. When price closed lower and made a lower high, that was the sell signal. Sell at the market

open, 14.69, which just happened to be the intraday low. That strategy would give you a profit of 17% in just 4 days for this trade.

After completing the throwback, the stock continued higher, reaching a high of 44.56 in mid-September 2000, for a rise of over 400% above the base top.

Clearly, not all trades work out as well as this one. The key is getting into the trade at a low price and exiting in a timely manner (near the top). A delay of just a few days and you would be selling into the downdraft as prices tumbled back toward the pennant.

Remember, that half to two-thirds of the pennants meet their price target, so half to one-third miss. Look for overhead resistance and place a sell order just below that resistance or watch the stock on an intraday basis and sell as appropriate.

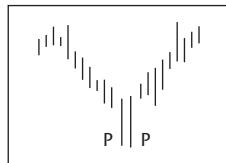
For Best Performance

The following list includes tips and observations to help you select better performing pennants. Refer to the associated table for more information.

- Correctly identify the pattern using the guidelines—Table 34.1.
- Trade with the market trend: upward breakouts in a bull market, downward breakouts in a bear market—Table 34.2.
- Downward breakouts in a bear market make steeper moves than do upward breakouts in a bull market—Table 34.2.
- Pennants in a bear market with downward breakouts have the lowest failure rates—Table 34.3.
- Trade pennants with breakouts near the yearly low—Table 34.4.
- Throwbacks and pullbacks hurt performance, so search for overhead resistance or underlying support before trading—Table 34.4.
- Breakout day gaps power prices higher—Table 34.4.
- Trade for the short term. Over half the pennants will reach trend end in less than 2 weeks—Table 34.5.
- Select tall pennants—Table 34.6.
- Pennants with upward breakouts take a week longer and fall short of the predicted move. Downward breakouts take the same time but also fall short on a price basis—Table 34.6.
- Trade pennants with a rising volume trend and upward breakout. Downward breakouts do best with a falling volume trend—Table 34.7.
- Pick bull market pennants with U-shaped volume—Table 34.7.

35

Pipe Bottoms



RESULTS SNAPSHOT

Upward Breakouts

Appearance	Two adjacent, downward price spikes on the weekly chart	
Reversal or continuation	Short-term bullish reversal	
	Bull Market	Bear Market
Performance rank	2 out of 23	3 out of 19
Break-even failure rate	5%	4%
Average rise	45%	32%
Change after trend ends	-33%	-36%
Volume trend	Downward	Downward
Throwbacks	44%	52%
Percentage meeting price target	83%	72%
Surprising findings	Throwbacks hurt performance. Tall pipes perform better than short ones. A falling volume trend or heavy breakout volume propels the stock higher. Pipes outperform when volume is above average on the left spike and below average on the right one. Inside weeks perform better than outside ones.	
See also	Horn Bottoms	

After researching the performance of horn tops and bottoms, the natural thing to consider is removing the intervening week and testing the pattern again. That is where the pipe formation comes from. Pipe bottoms are an exciting discovery with a low failure rate (5%) and a high average rise (45%) in a bull market.

I conducted an in-depth study of pipe bottoms on *daily* price charts and came up disappointed. The statistics show that daily pipes have a failure rate of 18% with an average gain of 33%. Almost half the formations (45%) have gains less than 20%. However, there are a number of large gains; almost a quarter of the formations (23%) have gains over 50%.

I began to believe that an investor trading daily pipes would either pick a formation that fails or one that has such a small gain as to be unprofitable, so I discarded the research and looked at the *weekly* chart. As you can see from the preceding numbers, the performance is quite good. Not only is this formation worth exploring further, it just might be an outstanding performer worth adding to your technical toolbox.

The only surprise that needs explaining is inside and outside weeks. An inside week is one in which the right spike's trading range is inside the trading range of the prior week. An outside week is the reverse, with a higher high and lower low than the prior week. Pipes that are inside weeks perform better than outside weeks.

Tour

Figure 35.1 shows a pipe formation and the price appreciation that results. The chart is on the weekly scale and you can see that prices begin dropping in mid-October, 1993, down to the pipe pattern. Volume picks up during the left pipe spike and is even higher the following week. The two downward price spikes, of almost equal length and overlapping, mark a turning point, a signal that the decline is over.

From the low, prices move up smartly and reach a new high in early November, a climb of almost 120% in just 9 months. For this formation, such large gains are not unusual. Almost 20% of the pipes in a bull market have gains over 90%.

Identification Guidelines

How do you correctly identify pipe bottoms? Table 35.1 outlines the identification characteristics. Although there are a number of guidelines to consider, they are really quite obvious. Consider the pipe shown in Figure 35.2.

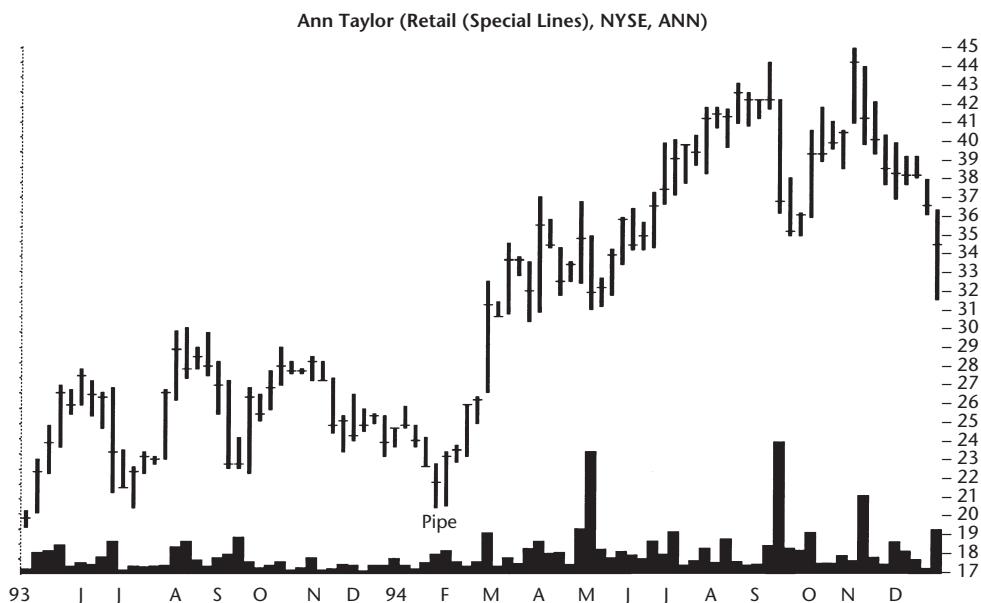


Figure 35.1 A pipe bottom on the weekly chart. Pipes commonly form after a retrace in an uptrend or at the bottom of a prolonged downtrend.

Table 35.1
Identification Characteristics

Characteristic	Discussion
Weekly chart	Pipe bottoms on the daily price chart exist, but pipes on the weekly charts perform better. Use the weekly chart.
Two downward adjacent spikes	Locate two downward price spikes that are next to each other.
Large spikes	Prices should spike down unusually far during the 2 weeks, more than most downward spikes during the year. The pipe stands alone as the prior week and the following week have low prices that are near the pipe highs.
Large overlap	The 2 weeks composing the pipe should have a large price overlap between them.
High volume	Not a prerequisite, but most pipes show above average volume on at least one or both spikes.
Obvious pipe	The pipe should be obvious on the chart. If it does not stick out like a sore thumb, then you should look elsewhere. The best performing pipes appear at the end of downtrends.
Wait for confirmation	The pattern confirms as a pipe bottom when price closes above the highest high in the pattern.



Figure 35.2 Another example of a pipe bottom on the weekly chart. Point A is another pipe bottom with less spectacular results.

Weekly chart. The first guideline suggests that you use weekly charts. Although pipes appear on daily charts, they do not perform as well as pipes on weekly charts.

Two downward adjacent spikes. Two adjacent downward price spikes compose the pipe bottom, and it looks like two parallel lines on the chart.

Large spikes. The pipe spikes should appear as a large price drop and wide price range for 2 weeks in a row. The week before and after the pipe should have low prices near the top of the pipe. This characteristic makes the pipe stand out on the price chart as an easily recognizable formation. For example, the pipe shown in Figure 35.2 has a prior week low of 11.63, somewhat near the left pipe high of 12.56 (certainly well above the low of 10.31). The right side does even better. It sports a low of 12.25, near the right pipe high of 12.50.

The spike decline should be unusual. The length should be well above the average downward spike length over the past year. It must appear as a large decline on the price chart, not just another 2-week blip in a sea of long downward price spikes.

Large overlap. The pipe has a large price overlap. This is clear in Figure 35.2 as the left side of the pipe is just slightly taller than the right side. As a selection guideline, what you do not want to see is a large left side and a short right side.

High volume. Volume for each pipe spike is usually above average but need not be. Pipes with above average left volume and below average right

volume perform better than all other combinations. However, I would not exclude a pipe simply because it does not obey the volume characteristics.

Obvious pipe. The pipe must be unusual enough to jump out of the price chart. Typically, pipes form at the end of a decline and mark the turning point, such as that shown in Figures 35.1 and 35.2. Less frequently, pipes act as a consolidation of the upward trend. They spike downward for 2 weeks, then prices continue rising.

If you look closely at Figure 35.2, you should be able to see another pipe. I have made it easy for you by marking it as point A. The pipe is not quite as well defined as the other pipe and the price appreciation is certainly not as spectacular. Prices rise from the right pipe low of 15.38 to a high of 18.13 before prices resume their downward trend.

Wait for confirmation. The twin bottom pattern confirms as a pipe bottom only when price closes above the highest high in the pattern. Do not invest in a pipe without confirmation.

Focus on Failures

With pipe bottoms, there is only the 5% failure. A 5% failure is when prices do not move higher by more than 5% before reversing the trend. Figure 35.3

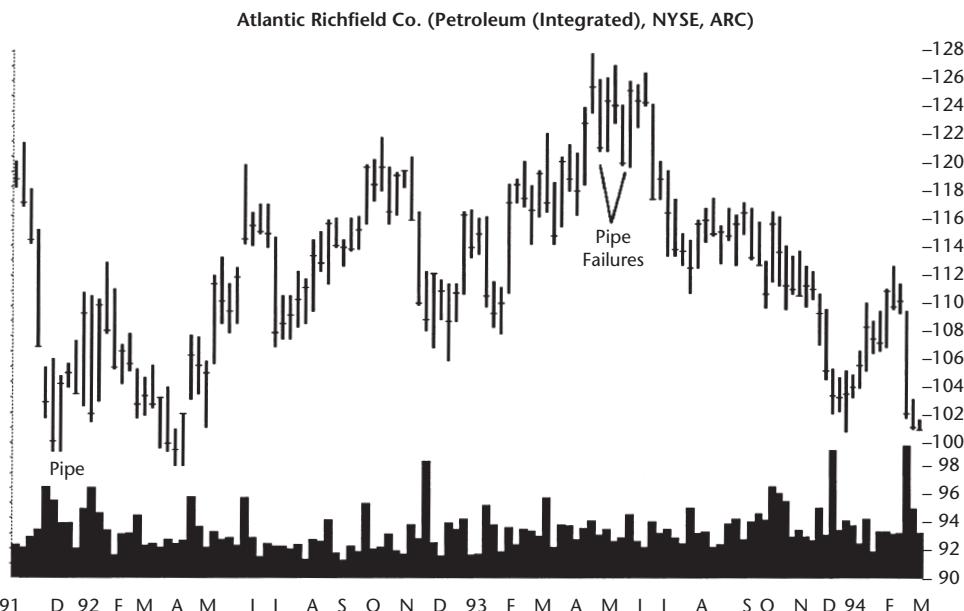


Figure 35.3 Pipe bottom failures. Clues to these two pipe failures are in the spike lengths and volume trend. The best performing pipes form when prices are trending down. The pipe failures are not pipes at all because price does not close above the highest high in each pattern.

shows two such failures. The two pipes in April and May show good definition. They look like pipes, but they do not act like pipes. After the pipes complete, prices should move up smartly, but they head lower instead. Why? Volume on the left spike of both pipes is below the monthly average. However, the right side shows higher than average volume in both formations. Still, the volume pattern is unconvincing, as it usually appears most brisk at pipe bottoms. As a contrast, look at the pipe on the far left side of the chart. Both spikes show volume that is well above average.

Another clue to the failures lies buried in the guidelines outlined in Table 35.1. Prices should drop unusually far during the 2 weeks, *more than most downward price thrusts during the year*. As you look at the chart, you can see several downward, 1-week spikes (December and February, for example) that nearly equal the length of the two pipe formations. The entire chart seems filled with ragged price spikes of varying lengths. For this reason, you should be skeptical of investing in these two pipes.

The pipe failures shown in Figure 35.3 are not pipes at all because price does not close above the highest high in the pattern. Thus, a trader would not trade these patterns.

Incidentally, before we leave Figure 35.3, it is a good time to illustrate a somewhat common feature of pipes. Since pipes often appear at the end of a downward price trend, prices sometimes rise up, loop around, and retest the low. The pipe in early December 1991 is an example. Prices bounce upward, round over, and fall back on themselves, forming a new low at 98.13. The retest of the original low completes in late March.

Pipe bottoms exhibit support at their lows. Rarely do prices drop more than a half a point or so below the pipe low before recovering and beginning an extended upward trend. The half point is not an absolute rule as it depends on the price of the stock (the one shown in the chart is a \$100 stock and it drops \$1 below the prior low).

So even though you may buy into a stock above the top of the pipe and watch prices fall, hold on.

Statistics

Table 35.2 shows general statistics for pipes.

Number of formations. Pipes are everywhere. I needed only 200 stocks in a bull market (mid-1991 to mid-1996) to find almost 1,000 patterns. For the bear market, I used about 220 stocks bracketing the bear market from 2000 to 2003.

Reversal or continuation. Pipes bottoms are, by definition, reversals of the downward price trend because price breaks out upward after the pattern.

Average rise. The average rise in a bull market is a huge 45%! In a bear market, the pattern performs less well, rising an average of 32%. Trade this pattern in a bull market for the best results.

Table 35.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	926	226
Reversal (R), continuation (C)	926 R	226 R
Average rise	45%	32%
Rises over 45%	361 or 39%	67 or 30%
Change after trend ends	-33%	-36%
Busted pattern performance	-28%	-30%
Standard & Poor's 500 change	15%	1%
Days to ultimate high	194	133

Note: Minus sign means decline.

Rises over 45%. Pipes show excellent performance with 39% of the patterns in a bull market climbing over 45%. In a bear market, over a quarter (30%) of the patterns exceed the 45% benchmark.

Change after trend ends. Once price reaches the ultimate high, it tumbles between 33% and 36%, depending on market conditions. As you might expect, price falls farther in a bear market than in a bull market. That observation suggests you go short in a bear market, not in a bull one.

Busted pattern performance. Busted patterns show similar performance numbers to the prior row. While the change after the trend ends shows what happens to all pipes, busted patterns include only those with upward moves less than 5% before they tumble. Before trading a busted pattern, wait for price to *close* below the low in the pipe. That way, you can expect price to continue tumbling.

Standard & Poor's 500 change. In both bull and bear markets, the index climbed. A rise can occur because the results depend on what happens to the index from the date of the pipe breakout to the ultimate high.

Days to ultimate high. It takes a long time (4 to 6 months) to climb 32% to 45% (the average rise for pipes in bear and bull markets, respectively). The numbers show that the rise in a bear market is slightly steeper than the rise in a bull market.

Table 35.3 shows failure rates for pipes. The bear market starts with the lowest failure rate, but the bull market beats it for rises above 5%.

How do you read the table? For example, 22% of the bull market pipes fail to rise at least 15%. In a bear market, 26% fail to climb at least 15%. Half the patterns in a bull market climb less than 35% and half in a bear market climb less than 30%.

Use Table 35.3 to estimate how likely it will be to meet your cost of doing business and any profit margin you want to maintain. For example, say your cost is 10% and you want to make 10% on each trade, for a 20% total.

Table 35.3
Failure Rates

Maximum Price Rise (%)	Bull Market	Bear Market
5 (break-even)	42 or 5%	8 or 4%
10	130 or 14%	36 or 16%
15	200 or 22%	59 or 26%
20	281 or 30%	79 or 35%
25	343 or 37%	97 or 43%
30	406 or 44%	117 or 52%
35	462 or 50%	136 or 60%
50	602 or 65%	169 or 75%
75	730 or 79%	199 or 88%
Over 75	926 or 100%	226 or 100%

How many patterns fail to rise at least 20%? In a bull market, 30% will fail and in a bear market, the results are worse, with 35% not reaching a 20% rise after the breakout.

Table 35.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. On average, it takes about 2 to 3 weeks for price to close above the formation high, staging a breakout. With the bear market depressing rising price trends, it makes sense that it would take price longer to reach the breakout, on average.

Yearly position. Most often, pipes occur near the yearly low, as you might expect (pipes are *bottom* patterns, after all).

Yearly position, performance. Where in the yearly price range do the best performing pipes occur? In a bull market, pipes with breakouts within a third of the yearly high perform best. With the emphasis on momentum, this finding makes sense. Traders buy stocks near the yearly high, forcing price even higher. That factor is one reason why you should not short a stock making new highs.

In a bear market, pipes near the yearly low do well. Investors may buy them because they see the price as a bargain, reasoning that price will rebound farther if they buy near the yearly low. Buying stocks near the yearly low is dangerous because price often continues falling.

Throwbacks. A throwback occurs about half the time, with the rate slightly lower in a bull market. It takes about 2 weeks for price to complete a return to the breakout price. The throwback takes longer than the usual 9 to 12 days because of the weekly scale.

One of the surprising results is that pipes with throwbacks perform less well than those without. In a bull market, for example, pipes with throwbacks climb 38% after the breakout. Without throwbacks, the rise averages 51%. To

Table 35.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	17 days	19 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L38%, C30%, H32%	L38%, C36%, H26%
Percentage rise for each 12-month lookback period	L44%, C42%, H49%	L43%, C28%, H26%
Throwbacks	44%	52%
Average time to throwback ends	15 days	14 days
Average rise for patterns with throwback	38%	24%
Average rise for patterns without throwback	51%	42%

avoid a throwback, look for nearby overhead resistance. If you find some, then look elsewhere for a more promising trade or wait for price to pierce it (moving up) before taking a position in the stock.

Table 35.5 shows a frequency distribution of time to the ultimate high. What you may first notice is the high number of patterns that are still looking for the ultimate high after 70 days (2.5 months). At the other end of the scale is a somewhat high rate of patterns reaching the ultimate high in the first week—14% to 15%.

Notice a slight blip 28 to 35 days after the breakout in a bear market. This occurrence means price weakness about a month into the trade. Thus, be prepared to close out your position then if you see price beginning to falter (losing momentum).

Table 35.6 shows size statistics for the pipe pattern.

Height. Tall patterns perform better than short ones, continuing a trend shown by many other chart patterns. In a bull market, for example, tall patterns have postbreakout rises that average 52%. Short patterns rise 40%. Only trade patterns taller than the median.

Spike size. I looked at the average spike size over the prior year and compared it to the pipe's spike size for each stock. In a bull market, those with spikes longer than their average tended to outperform. In a bear market, the results flip, but the outcome may change with additional samples. My belief is that pipes with long spikes outperform.

Table 35.5
Frequency Distribution of Days to Ultimate High

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	15%	6%	4%	6%	7%	2%	2%	3%	4%	3%	48%
Bull market	14%	5%	4%	4%	4%	3%	4%	3%	2%	2%	57%

Table 35.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	52%	34%
Short pattern performance	40%	30%
Median height as a percentage of breakout price	11.64%	15.96%
Above average spike size, performance	46%	31%
Below average spike size, performance	35%	36% ^a

^aFewer than 30 samples.

Table 35.7 shows volume statistics for pipes.

Volume trend. Pipes do best when the volume trend is downward, meaning that the left spike shows higher volume than the right one.

Breakout volume. Pipes with breakout volume above the 1-month average tend to outperform. Thus, look for high breakout volume. Remember that the breakout occurs when price closes above the highest high in the 2-week pipe pattern.

Volume and spikes. I looked at the performance of pipes using the various combinations of volume. As I mentioned under “Volume trend” (which uses linear regression), the best performance comes from pipes with volume heavier than the monthly average on the left spike and light volume on the right spike. Oddly, the worst performance comes from pipes with above average volume on both spikes.

Table 35.8 shows miscellaneous statistics for pipes.

Price difference. I looked at the price difference between the pipe bottoms and found conflicting results. In a bull market, pipes with price differences greater than the median tended to perform better after the breakout. In a bear market, pipes with small price differences did better.

Table 35.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	42%	30%
Falling volume trend performance	48%	33%
Heavy breakout volume performance	47%	36%
Light breakout volume performance	43%	29%
Heavy volume on left spike, light on right, performance	50%	37%
Heavy volume on left spike, high on right, performance	42%	29%
Light volume on left spike, high on right, performance	43%	34%
Light volume on left spike, light on right, performance	47%	29% ^a

^aFewer than 30 samples.

Table 35.8
Miscellaneous Statistics

Description	Bull Market	Bear Market
Large price difference between pipes, performance	50%	29%
Small price difference between pipes, performance	41%	35%
Median difference as a percentage of breakout price	0.83%	1.31%
Lower left spike, performance	47%	32%
Lower right spike, performance	44%	30%
Equal spike, performance	42%	33% ^a
Right pipe inside week, performance	47%	35%
Right pipe outside week, performance	43%	24% ^a

^aFewer than 30 samples.

Lower spike. I looked at the low price of each spike in the pipe and mapped performance accordingly. When the left spike had a price lower than the right spike, the pipe tended to perform better in both bull and bear markets. In a bear market, the sample size is small (15 patterns out of 226) when the spike had equal lows, so I ignored the result. Pipes with equal prices may outperform, but they happen infrequently, so look for a lower left spike instead.

Inside/outside week. In both bull and bear markets, pipes that are inside weeks performed better than do those that were outside weeks. An inside week is when the right spike is inside (lower high and higher low) the trading range of the prior week, with no price ties allowed. An outside week is when the right spike is outside (higher highs and lower lows) the trading range of the prior week. Again, I allowed no price ties.

Pipes as outside weeks hurt performance and inside weeks improve it.

Trading Tactics

Table 35.9 lists pipe trading tactics. Perhaps the most critical feature of a pipe bottom is what happens in the third week. While you can easily spot two adjacent downward price spikes, toss the formation aside if prices do not rise the third week. The third week, the week following the second pipe spike, should leave a well-defined dual spike visible on the price chart. The 4-week pair (which includes the weeks before and after the pipe) is V shaped and is even more clear when combined with a downward price trend.

Downward trend. As mentioned in Table 35.9, a downward price trend is usually where you will see these formations, at least the best performing ones. Prices move down, reach the pipe bottom, then turn around and start climbing. Figures 35.1 and 35.2 are good examples of this behavior.

Table 35.9
Trading Tactics

Trading Tactic	Explanation
Downward trend	Many of the best performing pipes show a downward price trend leading to the formation. Pipes often occur at the bottom of a retrace in an upward price rise or mark the end of an extended price decline.
Buy	After a pipe bottom passes the identification characteristics shown in Table 35.1, buy the stock.
Stop loss	Pipes act as support zones but prices sometimes dip up to half a point below the pipe low, so use that as your stop-loss point. Raise your stop as prices climb.
Wait for confirmation	Wait for price to close above the highest high in the pattern.

Buy. Once you have identified a confirmed pipe bottom on the weekly scale, buy the stock. Since a stock will often retest the most recent low before starting on a sustained journey upward, be prepared for it.

Stop loss. Place a stop-loss order half a point (to allow room for the retest to drift below the pipe low) below the lowest pipe. If hit, then prices are probably going to continue down. In such a case, close out your position and send a letter home asking for more money!

Wait for confirmation. The pipe confirms as a valid pattern when price closes above the highest high in the pipe, which usually takes 2 to 3 weeks to occur. That interval gives enough time for the pattern to show good visibility on either side of the pipe, meaning that it should look like a well-defined pipe with price rising after the pipe bottom, not making new lows.

Even if you miss the breakout, consider trading this pattern. You have 4 to 6 months before prices typically peak, and with a rise averaging 45%, you should still have plenty of profit opportunity.

Sample Trade

One way to learn how to trade pipe bottoms is to review what Peter did. Peter is one of the more intelligent software engineers I know. Not only is he smart, but he is personable as well. He is very helpful and friendly unless management turns the screws and demands that work actually be done on time. Then the pressure seeps in and tempers flare. When the pressure gets too intense and Peter feels the need to take a break, he does not take a walk as most other people might do. Instead, he invests in the stock market. Since he has an Internet connection in his office, he is online in just seconds. The situation shown in Figure 35.4 intrigued him. Prices had been moving horizontally since April

1992, forming an extended base on which an upward breakout of significant proportions would evolve, he hoped.

Over the shorter term, prices began trending down in mid-January 1994. They reached a low the week of April 4, 1994, accompanied by above average volume. Had this downward price spike been alone, it might have signaled a one-day reversal (one-week reversal really, since we are on the weekly scale). However, another downward spike appeared the following week. Prices did not drop to the low of the prior week (38.38) but they came close at 38.63. The dual spikes were long enough to set them apart from the surrounding price action, certainly longer than the brief, 1-week, dip in mid-March. The following week prices moved up smartly, leaving a clear pipe bottom visible on the chart. When price confirmed the pipe, Peter bought the stock and received a fill at 42. He set a stop loss at 37.88, 0.12 below a whole number. Peter placed the stop there because he knew that whole numbers are sometimes support areas. Placing the stop just below 38 would give the stock every opportunity to turn around and move higher.

As Peter watched the stock, he was pleased that it was working out so well. The real test, he knew, would be when the stock approached the top of its trading range. Over the prior 2 years, it had reached a high of 55.50 and a low of 40.50. If you exclude 3 months when prices shot higher then fell back down, the range was tighter, with a high about 49. Peter knew that 49 and 55.50 were

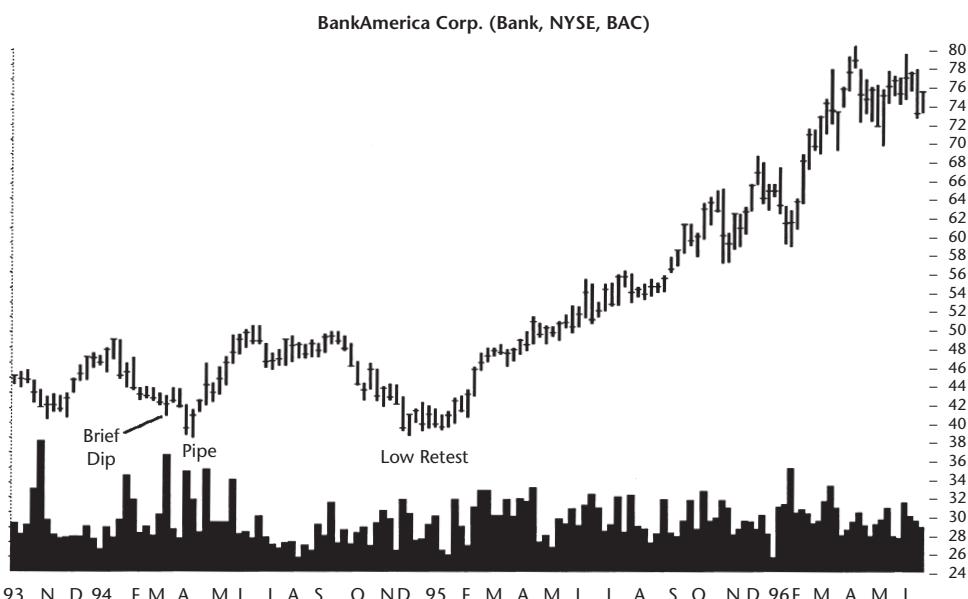


Figure 35.4 Pipe bottom with preceding brief price dip and following low retest. As described in the Sample Trade, Peter bought this stock the week after the pipe completed and sold it for a 71% gain 2 years later.

the keys. If prices pierced those levels, then they would probably continue moving higher.

Peter watched the stock and when it reached a high of 50.25 and fell back, he knew this run was not the one that would send the stock higher. He saw prices crumble again and hoped that it was only a retest of the low and not the start of a new downward breakout.

During late November, prices reached a low of 38.63, tying one of the pipe lows. Then prices moved modestly higher. Peter decided to double his position and bought more stock. In early February, prices broke out of their congestion zone and zoomed higher. From that point on, there was no looking back.

Prices continued rising in an almost straight-line bead until April 1996. Then, after setting a new high (80.38), prices backtracked. Expecting a retracement in an uptrend, Peter held onto his shares. He watched the shares sink and when they reached 72, he gave up and sold. Prices dipped to 69.95 before beginning upward again. Peter sold too soon (as it continued moving substantially higher). Still, he made \$30 a share or 71% in about 2 years.

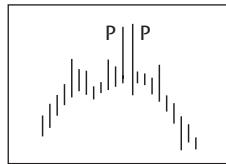
For Best Performance

The following list includes tips and observations for selecting pipes that perform well. Consult the associated table for more information.

- Use the identification guidelines to help select the pattern—Table 35.1.
- Select pipes in a bull market—Table 35.2.
- Pipes in a bull market have lower failure rates—Table 35.3.
- Choose pipes near the yearly high in a bull market; near the yearly low in a bear market—Table 35.4.
- Look for overhead resistance to avoid a throwback, which hurts performance—Table 35.4.
- Be patient with the trade. Pipes take a long time to reach the ultimate high—Table 35.5.
- In a bear market, expect weakness in performance after 1 month—Table 35.5.
- Select tall patterns—Table 35.6.
- Pick pipes with a falling volume trend and high breakout volume—Table 35.7.
- Select pipes with above average volume on the left spike and below average on the right—Table 35.7.
- Choose pipes with a lower left spike or when the right spike is inside the trading range of the left (an inside week)—Table 35.8.

36

Pipe Tops



RESULTS SNAPSHOT

Downward Breakouts

	Bull Market	Bear Market
Appearance	Two adjacent upward price spikes on the weekly chart	
Reversal or continuation	Short-term bearish reversal	
Performance rank	4 out of 21	3 out of 21
Break-even failure rate	11%	2%
Average decline	20%	27%
Change after trend ends	56%	50%
Volume trend	Downward	Downward
Pullbacks	41%	37%
Percentage meeting price target	70%	68%
Surprising findings	The best performing pipes have breakouts near the yearly low. Pullbacks hurt performance. Tall patterns perform better than short ones. Pipes with a large price difference or lower left spike outperform.	
See also	Horn Tops	

From the statistics given in the Results Snapshot, pipe tops perform better in a bear market with a large average decline and tiny failure rate. That finding makes sense because pipes are bearish chart patterns usually found near the end of an uptrend or in the midst of a downtrend. Once the downtrend ends, the rebound is spectacular: 50% in a bear market and 56% in a bull market.

Surprising findings for pipes are many but most are self-explanatory with the exception of pipes with a large price difference, that is, the difference between the highest high in each pipe. When the difference is larger than the median, the pipe tends to do well after the breakout.

Tour

Figure 36.1 shows what pipes look like and how they perform. There are three pipes shown in the figure, all of them tops, all warning of an impending trend change. The pipe on the left occurs while prices are still rising and acts as part of the consolidation of the trend. However, the pipe is not a pipe at all because the pattern does not confirm—price does not close below the pattern low before making a new high.

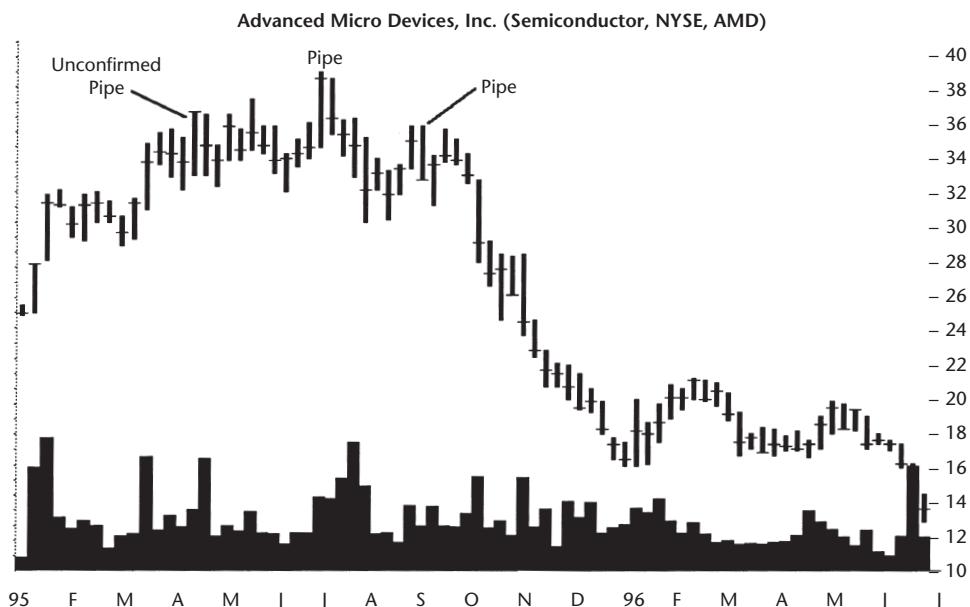


Figure 36.1 The pipe on the left is not a pipe at all because price does not close below the formation low before rising above the top.

The center pipe really marks the turning point. It towers above the surrounding hillside, and prices on either side of it fall away. The resulting formation looks like an upside down V.

The pipe on the right is the last one before prices really begin tumbling. It flags the last chance to exit your holdings or place a short at a good price. From the high at 39.25, prices tumble to below 13 by the end of this study—a 67% loss.

Identification Guidelines

Table 36.1 outlines the guidelines for correctly identifying pipe tops.

Weekly chart, upward spikes. First, use weekly charts as they make pipes easy to spot. You should see two adjacent upward price spikes. The twin spikes should be unusual in that they should be well above the surrounding prices and taller than most other price spikes throughout the year.

Large overlap. The two spikes should show a large overlap between them; one spike should not be significantly shorter than the other, and they should have many prices in common.

Small price variation. The peak-to-peak spike price difference is small, with the median being \$0.35 and the average, \$0.64.

Upward retrace in a downtrend. If you look at enough pipe tops, you will discover that many form as part of an upward retrace during a downtrend such as that shown in Figure 36.2.

The twin highs of the pipe are just \$0.13 apart and are well above the surrounding high prices. Except for the spike in mid-March, the price spikes are unusually tall when compared with other spikes throughout the prior year. Since the pipe spikes both share the same low price, the two spikes exhibit a large price overlap.

Table 36.1
Identification Characteristics

Characteristic	Discussion
Weekly chart, upward spikes	Use the weekly chart and locate two adjacent upward price spikes. The two spikes should be longer than similar spikes over the prior year and tower above the surrounding prices.
Large overlap	The two spikes should have a large price overlap between them. Do not pair a tall spike with a short one.
Small price variation	The price difference between the two highs is small, usually 0.35 or less, but can vary up to \$1 or more for higher-priced stocks.
Upward retrace in a downtrend	The best performing formations appear at the top of a retrace in a prolonged downtrend.
Confirmation	Price must close below the lowest low in the pipe before the twin peaks become a true pipe top.

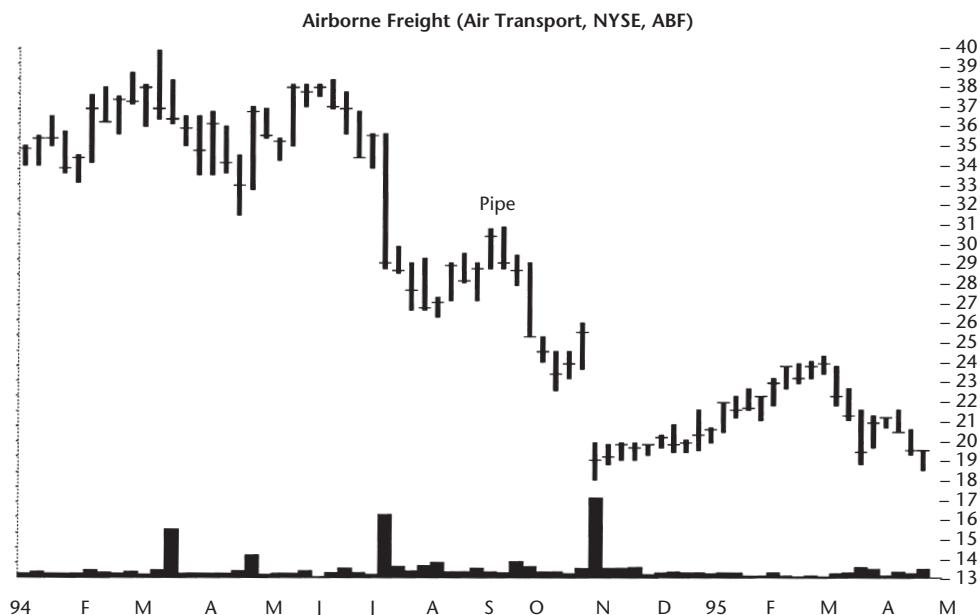


Figure 36.2 This pipe top appears during a retracement in a long-term downtrend, as do some of the best performing pipes.

The pipe signals a resumption of the downtrend. In less than 2 months, prices drop to a low of 18 before recovering slightly.

Confirmation. Always wait for price to confirm the pattern; that is, price must *close* below the lowest low in the pipe before the pattern becomes a true pipe. Never trade an unconfirmed pipe.

Focus on Failures

The vast majority of failures occur when prices decline by less than 5% before resuming their upward trend. These 5% failures do not happen that often, but their occurrence is significant enough to warrant a review of the situation.

Many failures occur when prices are trending up. The uptrend ranges from several months to over a year, and the pipes seem to signal a coming trend change. Sometimes they do and prices drop, but by less than 5%. At other times, the drop is more severe, but it is in the future, from 2 to 5 or more months ahead. In between the pipe and the drop, there are higher prices.

Sprinkled among the uptrend failures are those related to downtrends. Pipes usually appear at the end of a long downtrend or shortly after the trend changes and begins moving up. Instead of an upward retracement in a downtrend, the pipe marks the turning point for higher prices.

Consider Figure 36.3, a pipe top in a stock that has been moving sideways for about a year. Upward breakouts from these long, flat consolidation areas

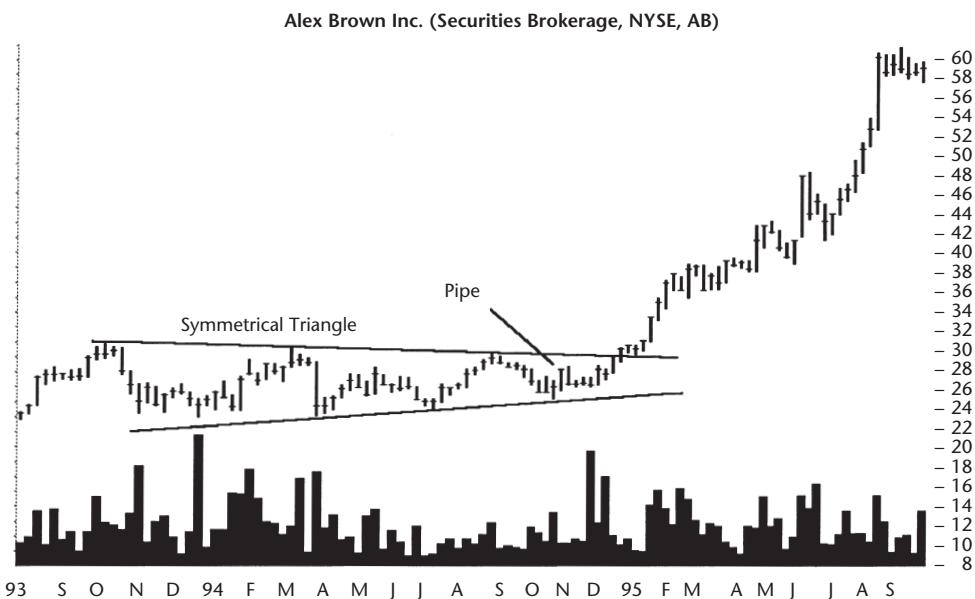


Figure 36.3 This pipe top forms near the end of a long symmetrical triangle. An investor should wait for a downward breakout before trading this pipe. The pipe never confirmed as a valid pattern.

typically mark the beginning of a long rise, as in this case. For many chart formations, even those that have a measure rule to predict what the eventual price will be, there is still one overriding rule: There must be something to reverse.

You can see that the consolidation region narrows over time, reminiscent of a long, symmetrical triangle. Even the volume pattern supports the formation by receding most of the way along the chart pattern. Since the boundaries of a symmetrical triangle mark lines of support and resistance, the possible decline from the pipe base to the triangle boundary is just 5%, not a very compelling investment. In essence, there just is not much of a climb to reverse.

However, in all fairness, if the pipe correctly predicted a downward breakout from the triangle, I would be telling you a different story. Since it is difficult or impossible to predict the breakout direction from a symmetrical triangle, it is best to wait for the actual breakout. If investors waited for prices to close below the pipe, they could have saved themselves from a loss. As it is, the pipe shown in Figure 36.3 is a failure of prices to decline. Prices reached a high of 60.75 in September, more than double the price where the pipe forms.

Statistics

Table 36.2 lists general Statistics for pipe tops.

Number of formations. I searched 200 stocks from mid-1991 to mid-1996 and about 220 stocks from 2000 to 2003, bracketing the bear market. I found a few more patterns in a bear market because of the extra stocks.

Table 36.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	412	418
Reversal (R), continuation (C)	412 R	418 R
Average decline	20%	27%
Declines over 45%	26 or 6%	41 or 10%
Change after trend ends	56%	50%
Busted pattern performance	38% ^a	35% ^a
Standard & Poor's 500 change	1%	-11%
Days to ultimate low	75	54

Note: Minus sign means decline.

^aFewer than 30 samples.

Reversal or continuation. Technically, a pipe top acts as reversal of the prevailing price trend when price enters the pattern from the bottom and leaves by a downward breakout. In reality, however, price will trend downward leading to the pipe and continue moving down after the pipe. Thus, you will often find that it acts as a continuation of the downward price trend.

Confused? How about this: The pattern acts as a minor 4-week reversal in the midst of a longer-term trend. If the price trend is down, expect it to continue moving down. To add fuel to the confusion, I often see pipes at the summit of uptrends.

Average decline. Pipes in bull and bear markets show declines that are above average for bearish chart patterns of all types. For best performance, trade pipes by shorting a stock in a bear market.

Declines over 45%. Bearish chart patterns do not show large declines, those over 45%, and pipes are no exception. Less than 10% decline over 45% after the breakout.

Change after trend ends. Once price reaches the ultimate low, it climbs between 50% and 56%. Notice that the largest rise is in a bull market, as you would expect.

Busted pattern performance. Busted patterns perform poorly (the numbers should be closer to 50%), but the sample counts are small.

Standard & Poor's 500 change. In a bull market, the S&P gained 1% and declined 11% in a bear market. The strong showing in a bear market explains why pipes in a bear market outperformed those in a bull market.

Days to ultimate low. The average decline in a bear market is 27% and takes 54 days. In a bull market, the decline is 20% and takes 75 days. Thus, the bear market decline after a pipe breakout must be steeper and travel farther than the rise in a bull market. This observation suggests that investors not using stops can expect to lose a lot of money in a short time during a bear market.

Table 36.3 shows failure rates for pipes. Notice that the failure rates in a bear market are lower than are those in a bull market. This finding supports

Table 36.3
Failure Rates

Maximum Price Decline (%)	Bull Market	Bear Market
5 (breakeven)	44 or 11%	9 or 2%
10	102 or 25%	56 or 13%
15	181 or 44%	121 or 29%
20	243 or 59%	178 or 43%
25	296 or 72%	225 or 54%
30	335 or 81%	274 or 66%
35	355 or 86%	325 or 78%
50	399 or 97%	387 or 93%
75	412 or 100%	417 or 100%
Over 75	412 or 100%	418 or 100%

the belief that pipe tops are better suited for bear markets. For example, in a bull market, 25% of the patterns fail to drop at least 10%. In a bear market, just 13% fail. Half the bull market patterns fail to drop more than about 17%, while half of the pipes in a bear market will fail to decline at least 22%.

Notice how the failure rates climb for declines of 5%, 10%, and 15%. The rapid increase in failures for small price changes is typical for chart patterns. It emphasizes the risky nature of chart pattern trading.

Table 36.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. It takes about 3 weeks for price to close below the lowest low, signaling a downward breakout. If price closes above the top of the pipe (the highest high in the pattern) before closing below the low, toss the pipe onto the scrap heap. It is not a valid pipe top.

Table 36.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	21 days	19 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L25%, C28%, H48%	L25%, C40%, H35%
Percentage decline for each 12-month lookback period	L22%, C19%, H19%	L28%, C27%, H26%
Pullbacks	41%	37%
Average time to pullback ends	16 days	16 days
Average decline for patterns with pullback	16%	20%
Average decline for patterns without pullback	22%	30%

Table 36.5
Frequency Distribution of Days to Ultimate Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	24%	11%	8%	8%	7%	6%	3%	3%	2%	3%	25%
Bull market	21%	7%	7%	6%	4%	4%	4%	4%	3%	4%	36%

Yearly position. In a bull market, pipe tops appear most often near the yearly high, suggesting a price peak. In a bear market, most appear in the middle of the trading range, suggesting that they appear as part of a downward price slide.

Yearly position, performance. The best performing pipes have their breakouts near the yearly low, but the difference between the three ranges is small.

Pullbacks. I looked at how often price breaks out downward and returns to the pipe low within a month. Just over a third of the patterns make such a move, and it usually takes about 2 weeks to complete the journey. When a pullback does occur, performance suffers as the results show.

To avoid pipes that may pull back, look for underlying support before trading.

Table 36.5 shows a frequency distribution of the time to the ultimate low. In a bear market, 35% (24%+11%) of the pipes reach the ultimate low within two weeks. In a bull market, just 28% do. Between 25% and 36% are still looking for the ultimate low after 70 days (about 2.5 months).

If you short a stock showing a pipe top, watch it carefully and be prepared to close out your position quickly. You may consider closing it out before a pullback begins, usually in the first week when price bottoms.

Table 36.6 shows statistics related to pipe size.

Height. Tall pipes perform better than short ones. To use this finding, measure your pipe from the highest high to the lowest low in the pattern and

Table 36.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	-23%	-29%
Short pattern performance	-17%	-24%
Median height as a percentage of breakout price	10.23%	14.69%
Above average spike size performance	-20%	-27%
Below average spike size performance	-14% ^a	-26% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

then divide by the breakout price (the lowest low). If the result is higher than the median shown in the table, you have a tall pipe. Otherwise, it is a short one.

Spike size. I measured the size of the spike and compared it to the size over the prior year. By spike size, I mean the difference from the lower of the two price peaks in the pipe to the higher of the week before and after the pipe. In essence, the spike size is the minimum distance above the surrounding price terrain.

In both bull and bear markets, pipes with above average spike size performed best. Notice that small spikes have fewer than 30 samples. I tried to select pipes with large spikes, but most come packaged that way anyway.

Table 36.7 shows volume statistics for pipes.

Volume trend. The volume trend is not a good predictor of performance because the performance difference is not substantial.

Breakout volume. Breakout volume does not seem to influence performance. Usually, heavy breakout volume propels prices farther, but not with pipes. In a bull market, pipes with light breakout volume do marginally better.

Volume and spikes. I looked at the various combinations of pipe volume and performance. In a bull market, spike volume did not make much difference to performance. In a bear market, trade pipes with volume lighter than the 1-month average. Avoid those with heavy volume.

Table 36.8 shows miscellaneous statistics for pipe tops.

Pipe price difference. I measured the price difference between the two price peaks in the pipes and found that when the difference was above the median, performance improved after the breakout.

Lower spike. Does postbreakout performance change when one spike is lower than the other? Yes. By *lower spike*, I mean the top of the pipe, not the bottom. When the left spike high is below the right, the pattern outperforms.

Inside and outside weeks. In a bull market, pipes as outside weeks perform better than pipes as inside weeks. An outside week is when the right spike

Table 36.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	-19%	-27%
Falling volume trend performance	-20%	-26%
Heavy breakout volume performance	-19%	-27%
Light breakout volume performance	-20%	-27%
Heavy volume on left spike, light on right, performance	-19%	-28%
Heavy volume on left spike, high on right, performance	-20%	-24%
Light volume on left spike, high on right, performance	-20%	-27%
Light volume on left spike, light on right, performance	-19%	-30%

Note: Minus sign means decline.

Table 36.8
Miscellaneous Statistics

Description	Bull Market	Bear Market
Large price difference between pipes, performance	-21%	-29%
Small price difference between pipes, performance	-19%	-25%
Median difference as a percentage of breakout price	0.64%	1.33%
Lower left spike, performance	-21%	-29%
Lower right spike, performance	-18%	-26%
Equal spike, performance	-20%	-21% ^a
Right pipe inside week, performance	-19%	-27%
Right pipe outside week, performance	-21%	-27%

Note: Minus sign means decline.

^aFewer than 30 samples.

has a trading range outside the prior week. In other words, the right spike has a higher high and lower low. An inside week is when the trading range is inside the prior week (lower highs and higher lows). I allowed no ties. Bear markets showed no performance difference.

Trading Tactics

Table 36.9 shows trading tactics for pipe tops.

Measure rule. Use the measure rule for pipes to find a price target. Compute the formation height by subtracting the lowest low from the highest high in the pipe. Subtract the result from the breakout price (the lowest low) to get a target. In a bull market, this method works 70% of the time and in a bear market, it works 68% of the time.

Downtrends. The performance of pipes depends on the prevailing trend. For larger percentage losses, look for pipes that appear in downtrends. Pipes will usually appear in an upward retrace of a long-term decline. Try to find pipes where the decline is evident but just starting.

Watch for trend end. What you do not want to do is invest near the end of a downtrend. Of course, trying to determine when a trend will end is something of an art. However, if the stock has been trending down for many months (such as a year or more), then you should probably look elsewhere.

Long-term uptrends. In long-term uptrends, the pipe might signal the end of a trend. Sometimes it is premature by a few months, so do not be in too much of a rush to sell the stock short. At other times, a review of the surrounding price patterns might be rewarding. Double or triple tops sometimes show pipes on one of the tops, calling the turn exactly.

Table 36.9
Trading Tactics

Trading Tactic	Explanation
Measure rule	Measure the height of the pipe and subtract it from the breakout price.
Downtrends	The best performing pipes occur during downtrends. Prices bounce upward, form a pipe, and then resume their downward trend.
Watch for trend end	Do not invest if the pipe appears after a long downtrend. The pipe may signal the end of the trend.
Long-term uptrends	Look at long-term uptrends. If a pipe appears in an uptrend of a year or more, then the pipe might signal a trend reversal. Be careful as the pipes sometimes are premature by 2 to 5 months.
Uptrend retrace	Pipes often appear in uptrends. They mark short-term weakness where the trend reverses and moves down. These can be profitable short-term moves.

Uptrend retrace. For many uptrends, pipes represent periods of short-term weakness. Prices will move down for a month or two (sometimes more) before resuming the uptrend. The decline might be 10% to 20% but seldom represents a significant percentage change. Still, pipes can be profitable if you are careful (and lucky).

Sample Trade

Johnny is a civil servant working in a state office, and he handles the paperwork for companies just getting started. Most are sole proprietorships that go bust in less than a year, but there are exceptions. Discussions with customers have helped him spot profitable trends in the stock market and have helped him avoid costly mistakes.

His interest turned to the steel industry when he learned that the federal government was thinking of punishing foreign producers for dumping steel in the United States. He learned about the trend from comments made about how prices for steel products were dropping rapidly. Companies using the cheap steel thought the decline was great but the steel companies did not agree. That is why they started jumping up and down on their favorite politicians.

When Johnny saw the situation depicted in Figure 36.4, he formed a unique plan to profit from the pipe top. He measured the percentage gain from the base (point A in the figure) to point B, the first minor high. The rise was 34%. Then he calculated the amount of the retracement from points B to C, which turned out to be 14%.

As he watched the price climb from point C to the pipe, he whipped out his calculator and discovered that the percentage change was 36%, quite near the 34% gain of the first push. He suspected and hoped that the pipe top

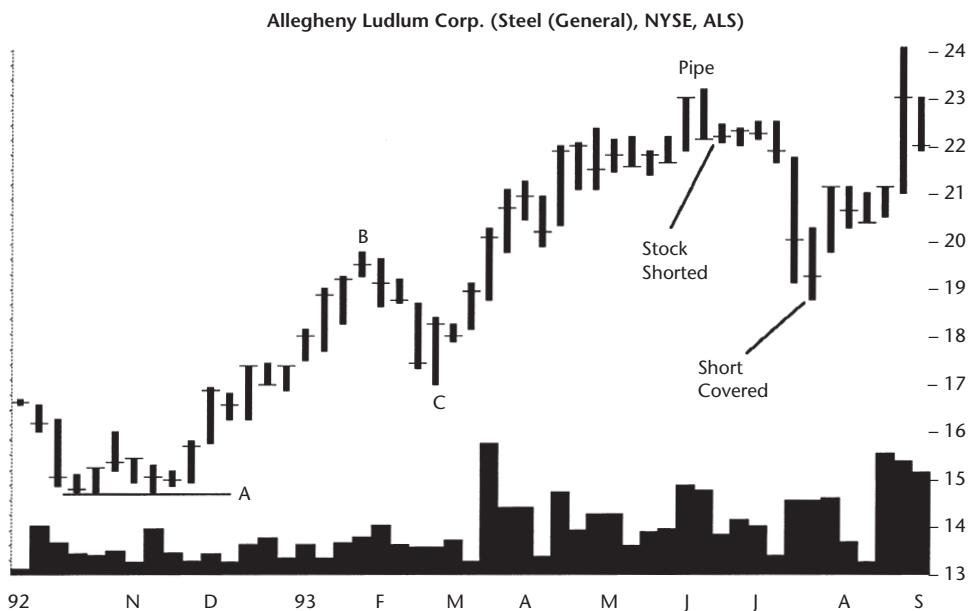


Figure 36.4 This pipe top appeared at the end of a rise-retrace pattern that saw prices climb by 35% and fall by 15%.

marked the start of a downward retrace that would take prices lower, probably around 15% lower equaling the B to C retracement. So, he sold the stock short and received a fill at 22.25. He put an order to close out his position should the stock decline by 15% to 19. On the other side, he placed a mental stop-loss order at 23.25, slightly above the right pipe high at 23.19.

The stock moved horizontally for several weeks and then tumbled. When it reached 19, his short was covered and he made about \$3 a share in 5 weeks. Meanwhile, the stock bottomed out at 18.75, just below his target and an amount similar in size to the earlier retracement.

Lest you get too excited about this rise-retrace type of trade, let me caution you. Although I have used this maneuver profitably, many times things do not turn out quite so neatly. Be careful and make use of stop-loss orders, especially if you are shorting a stock. Search for support zones to help gauge the ultimate decline.

For Best Performance

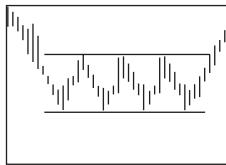
The following list includes tips and observations to help select pipes that perform better after the breakout. Consult the associated table for more information.

- Review the identification guidelines for correct selection—Table 36.1.
- Trade pipe tops in a bear market—Table 36.2.

- The bear market decline after a pipe top is steeper, yet travels farther—Table 36.2.
- Pipes in a bear market have very low failure rates—Table 36.3.
- Select pipes with breakouts near the yearly low—Table 36.4.
- Pullbacks hurt performance. Avoid trades with underlying support—Table 36.4.
- If a pipe looks like it may pull back, close out your short—Table 36.5.
- Choose tall pipes with above average spike sizes—Table 36.6.
- In a bear market, pick pipes with volume lighter than the 1-month average—Table 36.7.
- Select pipes with a large price difference between highs—Table 36.8.
- Pick pipes with a lower left spike—Table 36.8.

37

Rectangle Bottoms



RESULTS SNAPSHOT

Upward Breakouts

	Bull Market	Bear Market
Appearance	Prices trend down to the formation and then oscillate between two horizontal trend lines before breaking out upward.	
Reversal or continuation	Short-term bullish reversals	
Performance rank	11 out of 23	11 out of 19
Break-even failure rate	10%	11%
Average rise	46%	24%
Change after trend ends	-28%	-35%
Volume trend	Downward	Downward
Throwbacks	53%	60%
Percentage meeting price target	85%	64%
Surprising findings	Throwbacks hurt performance. Tall patterns perform better than short ones. Patterns with a rising volume trend or random volume shape do well. Partial declines correctly predict the upward breakout. Rectangles without a pre-formation rise do best.	
See also	Flags; Measured Move Down; Rectangle Tops	

Downward Breakouts

Appearance	Same, but breakout is downward.	
Reversal or continuation	Short-term bearish continuation	
	Bull Market	Bear Market
Performance rank	12 out of 21	8 out of 21
Break-even failure rate	16%	4%
Average decline	14%	25%
Change after trend ends	62%	48%
Volume trend	Downward	Downward
Pullbacks	69%	53%
Percentage meeting price target	50%	66%
Surprising findings	Pullbacks hurt performance. Tall and wide patterns perform better than short and narrow ones. Heavy breakout volume improves performance. Partial rises correctly predict the downward direction. Rectangles without a pre-formation rise do best.	
See also	Same as for upward breakouts	

Like other formations without a classic definition of a top or bottom, I decided to give rectangles a definition by separating them based on the price trend approaching the chart pattern. If the trend is downward, then the formation is a bottom. If the trend is up, then the formation classifies as a top. The distinction is perhaps arbitrary, but it does help with searching for reasons to a given breakout direction.

This chapter concerns itself with rectangle bottoms. Bottoms have two breakout directions: up and down (no surprise, right?). The Results Snapshot lists the more important statistics.

Rectangle bottoms (RBs) are midrange performers. The best performance happens when trading with the trend: upward breakouts in a bull market and downward breakouts in a bear market. RBs in a bull market with an upward breakout have one of the best percentages meeting the price target (the measure rule, at 85%). I consider values above 80% to be reliable.

Surprises are the same as we have seen for other chart patterns with the exception of a pre-formation rise. A pre-formation rise is a quick bump up in price just before the rectangle begins. Those rectangles with prices sliding into the rectangle instead of bumping up tend to perform better after the breakout.

Tour

Figure 37.1 shows an example of a rectangle bottom. The short-term price trend is upward (for 3 days anyway) leading to the formation, but I discard it. I look at the intermediate-term trend, which is down, and view the decline a few days before the formation start as an overshoot. This overshoot commonly happens just before prices oscillate between the support and resistance zones.

The chart pattern forms after prices loop around during the October 1994 to January 1995 period and retrace some of their gains. Prices drop quickly from the support zone at 57 to 52.50, and then they bump up against the top of the rectangle resistance zone at 56 and slink back to find support at 54.

Prices bounce off the two zones like a Ping-Pong ball ricocheting off players' paddles. Up and down, up and down prices boomerang on rising volume. Soon, one player sneezes and the ball shoots past him. Prices move up, pausing only a day before moving higher on heavy volume. Prices quickly climb and enter another congestion zone; this time it is a descending triangle with an upward breakout.

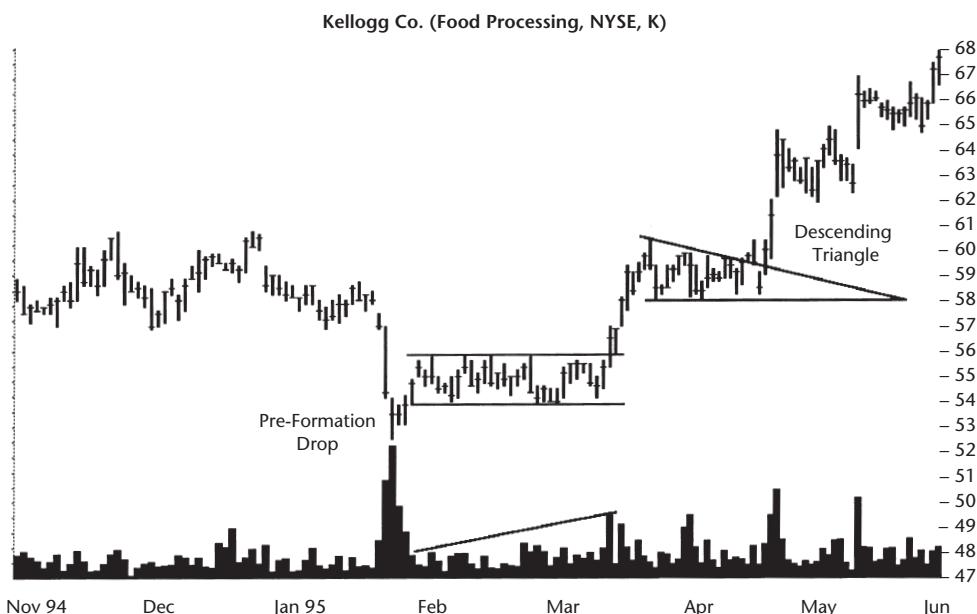


Figure 37.1 A rectangle bottom shows an intermediate-term downtrend leading to the formation with an upward breakout. After the breakout, prices move into a descending triangle and burst upward out of this formation as well.

Identification Guidelines

Table 37.1 shows identification guidelines for rectangle bottoms. While reviewing the guidelines, consider how they apply to the rectangle shown in Figure 37.2.

Downward price trend. The price trend leading to the rectangle bottom is downward, which is what separates rectangle bottoms from their top brothers. As shown in Figure 37.1, I ignore the few days just before the formation starts for those patterns with overshoot, choosing to use the prevailing longer trend instead.

Horizontal trend lines. Prices bounce between two levels, setting up a support zone at the bottom and a line of resistance at the top. If you connect the minor highs with a trend line, it should be horizontal or nearly so. A similar line drawn below the bottoms forms a parallel trend line. The two trend lines bound the price action. Occasionally, one of the lines will not be exactly horizontal or will break near the end, which is fine as long as the slope is not too steep to disturb the overall picture.

Touches. At least two touches of each trend line are required for a valid rectangle. Figure 37.2 shows three alternating touches. Touches need not alternate, but you should have at least two clearly defined minor highs and two minor lows coming close to or touching the trend lines. Except for the brief punch through the top in early December, prices stay within the two boundary lines until breaking out downward on light volume in mid-January.

Volume. In 69% (upward breakouts) and 73% (downward breakouts) of the rectangles I looked at, volume trended downward. This is a change from the first edition of the *Encyclopedia* in which I said that volume tracked the breakout direction. With more samples, that observation turns out to have been inaccurate. Instead, volume recedes regardless of the breakout direction. However, do not discard a rectangle because volume slopes upward. Rectangles with rising volume tend to outperform those with a falling trend.

Table 37.1
Identification Characteristics

Characteristic	Discussion
Downward price trend	The prevailing price trend leading to the formation is down.
Horizontal trend lines	Two horizontal, or nearly so, trend lines bound prices along the top and bottom of the formation.
Touches	There should be at least two touches of each trend line (at least four touches total).
Volume	Volume usually trends downward.

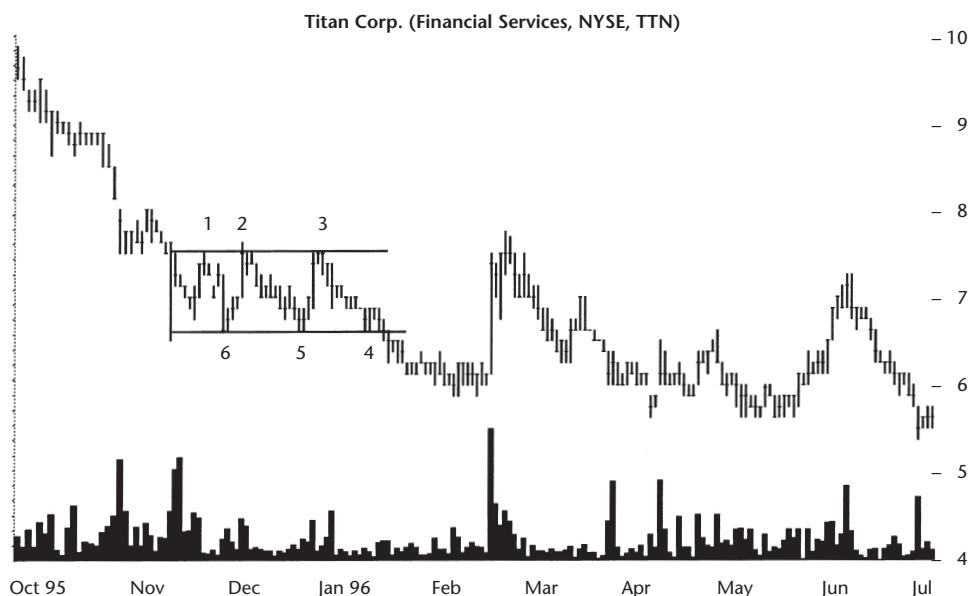


Figure 37.2 A rectangle bottom appears in a downtrend. Prices fall out the bottom and then retrace to the rectangle top before moving lower.

Focus on Failures

Figure 37.3 shows a rectangle bottom in a downtrend. Since most rectangle bottoms (55%) act as consolidations of the prevailing trend, the breakout is expected downward. Prices drop away from the support line at 54.75 and 2 days later pull back to the formation. Prices move horizontally for several days before ultimately climbing above the top of the rectangle. When prices pierce the top rectangle trend line and close above it, I consider the downtrend over.

Since the initial decline moves just 3% down, the formation is a failure. Formations that do not move in the breakout direction by more than 5% are what I call 5% failures. Although this formation ultimately moves lower, it does so only after closing above the formation top. If you sold this formation short expecting a price decline, you might have been stopped out for a loss. Certainly, your worry would have climbed along with prices.

What stops a price decline after a rectangle breakout is what stops it for other chart patterns. When buying demand exceeds selling pressure, the price will rise. If this continues over time, a trend change occurs and price rebounds. What causes buying demand to surge is manifold: improving fundamentals, underlying support, bottom fishing among novice traders, insider buying—that sort of thing.

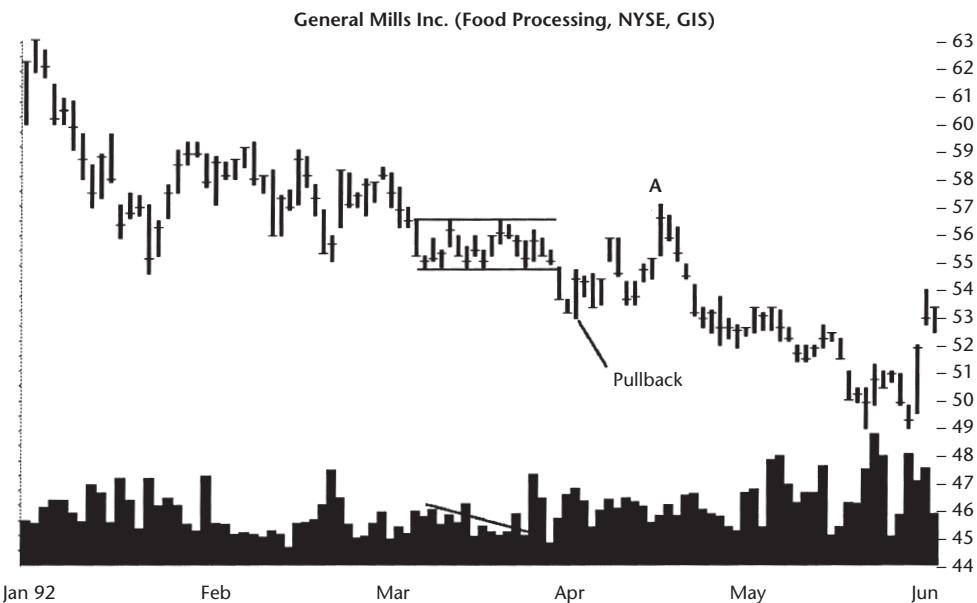


Figure 37.3 Rectangle bottom in a downtrend. This is one of a handful of rectangle failures. Prices break out downward and move less than 5% before closing above the formation top.

Statistics

Table 37.2 shows general statistics for RBs.

Number of formations. I searched through 500 stocks from mid-1991 to mid-1996 and another 500 from 2000 to 2003 to capture the bear market. I found fewer RBs than I hoped, 374, split between market conditions and breakout directions.

Reversal or continuation. Since rectangle bottoms must have price entering the pattern from the top, an upward breakout represents a reversal of the price trend, and a downward breakout is a continuation. If you do the math using the numbers in Table 37.2, you will find that RBs act as consolidations of the price trend 55% of the time.

Average rise or decline. The best performance from RBs comes in a bull market with an upward breakout. In fact, when the breakout is in the same direction as the general market, the pattern performs better. For example, RBs in a bear market with downward breakouts show declines averaging 25%, but those in a bull market decline an average of just 14%. This behavior shows the market's influence, and it reinforces the belief that you should trade with the general market trend.

Rises or declines over 45%. Bullish chart patterns always do better than bearish ones for large moves. This is true, in part, because of the math. A stock can double or triple, but a stock cannot lose more than 100% of its value. Over

Table 37.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	115	55	98	106
Reversal (R), continuation (C)	115 R	55 R	98 C	106 C
Average rise or decline	46%	24%	-14%	-25%
Rises or declines over 45%	48 or 42%	10 or 18%	3 or 3%	14 or 13%
Change after trend ends	-28%	-35%	62%	48%
Busted pattern performance	31% ^a	49% ^a	-21% ^a	-35% ^a
Standard & Poor's 500 change	14%	-2%	1%	-15%
Days to ultimate high or low	177	81	41	33

Note: Minus sign means decline.

^aFewer than 30 samples.

a third (42%) of the RBs in a bull market with upward breakouts show rises over 45%. The worst performance comes from RBs in a bull market with downward breakouts. Just 3% show declines over 45%.

Change after trend ends. Table 37.2 shows what happens when price reaches the ultimate high or low after the breakout. The best recovery occurs in a bull market with a downward breakout. After reaching bottom, prices recover by an average of 62%. The worst performance comes after an upward breakout from a rectangle in a bull market. Once price tops out, it declines 28%.

Busted pattern performance. Busted pattern performance is unremarkable. When you consider that you will not buy in at the top of the move or sell at the exact bottom, the performance is even worse. Plus, busted patterns are rare.

Standard & Poor's 500 change. Compare the size of the market move with the average rise or decline. When the general market and the breakout directions were synchronized, the move was larger (bull market, upward breakout and bear market, downward breakout). Countertrend moves were smaller. This bears repeating: Trade with the market trend.

Days to ultimate high or low. It takes price 33 days to drop 25% (bear market, down breakout), but it takes 177 days to rise 46% (bull market, up breakout). Both flow with the general market current, and yet the bull market takes five times as long to move less than twice as far. The decline must be steeper in a bear market than is the rise in a bull market, a scenario we have seen with other chart patterns.

Table 37.3 shows failure rates for RBs. For small moves, RBs in a bear market (downward breakout) do best, with just 4% failing to drop at least 5%. By the time the drop reaches 15%, RBs in a bull market with upward breakouts will have the lower failure rates.

Table 37.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	11 or 10%	6 or 11%	16 or 16%	4 or 4%
10	18 or 16%	14 or 25%	40 or 41%	17 or 16%
15	27 or 23%	25 or 45%	59 or 60%	32 or 30%
20	36 or 31%	34 or 62%	71 or 72%	42 or 40%
25	41 or 36%	35 or 64%	76 or 78%	61 or 58%
30	56 or 49%	37 or 67%	86 or 88%	74 or 70%
35	60 or 52%	39 or 71%	91 or 93%	78 or 74%
50	72 or 63%	47 or 85%	97 or 99%	97 or 92%
75	91 or 79%	51 or 93%	98 or 100%	106 or 100%
Over 75	115 or 100%	55 or 100%	98 or 100%	106 or 100%

Notice how quickly the failure rates climb. For example, 16% of the rectangles in a bull market with downward breakouts fail to drop more than 5%. This statistic skyrockets to 41% failing to drop more than 10%, and 60% drop less than 15%!

Also, notice that the lowest failure rates accompany breakout directions that are in line with the general market—bull market, upward breakouts and bear market, downward breakouts. The countertrend rectangles (bear/up, bull/down) have higher failure rates.

Here is another way to use the table. Suppose you have a rectangle with a breakout price of 10 and it is 2.50 tall. The measure rule (discussed later in the chapter) suggests a rise to 12.50 after an upward breakout. That is a 25% move. How likely is that in a bear market? Answer: 64% will fail to rise that far.

Table 37.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. The move from the rectangle end to the breakout is a quick one, averaging between 3 and 4 days.

Yearly position. Rectangles with upward breakouts occur most often in the middle of the yearly trading range. Downward breakouts occur most often within a third of the yearly low. Think about that information before you buy a rectangle in a stock making new lows. The breakout may be downward, emphasizing that bottom fishing (buying stocks making new lows because you think they are poised to recover) is a difficult skill to master.

Yearly position, performance. Mapping performance over the yearly price range gives mixed results because of the low sample counts. Rectangles with upward breakouts have the best performance when the breakout is in the middle of the yearly trading range. Downward breakouts do well when the breakout is near the yearly low.

Table 37.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	3 days	3 days	3 days	4 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L24%, C42%, H34%	L27%, C53%, H20%	L56%, C35%, H9%	L59%, C34%, H7%
Percentage rise/decline for each 12-month lookback period	L42% ^a , C51%, H41%	L20% ^a , C27% ^a , H24% ^a	L18%, C12%, H7% ^a	L28%, C21%, H29% ^a
Throwbacks/pullbacks	53%	60%	69%	53%
Average time to throwback/pullback ends	9 days	9 days	9 days	9 days
Average rise/decline for patterns with throwback/pullback	45%	23%	-13%	-21%
Average rise/decline for patterns without throwback/pullback	47%	26% ^a	-18%	-29%
Performance with breakout gap	70% ^a	25% ^a	-13% ^a	-25% ^a
Performance without breakout gap	40%	24%	-14%	-25%
Average gap size	\$0.51	\$0.32	\$0.36	\$0.56

Note: Minus sign means decline.

^aFewer than 30 samples.

Throwbacks and pullbacks. When you trade against the prevailing market trend, a throwback or pullback is more likely to occur. With the market trend, throwbacks or pullbacks occur 53% of the time.

The average time to complete a throwback or pullback is 9 days. When a throwback or pullback occurs, performance suffers.

Gaps. Rectangles have few breakout day gaps. For rectangles with upward breakouts, gaps helped performance (but the sample size was small). For downward breakouts, gaps did not change performance much.

Table 37.5 shows a frequency distribution of time to the ultimate high or low. Notice how many RBs reach their targets in the first 2 or 3 weeks. For example, 54% (the sum of the first 3 weeks) of RBs with downward breakouts in a bull market reach the ultimate low in less than 3 weeks. Just 20% of RBs with upward breakouts in a bull market hit their targets in 3 weeks. They take considerably longer to reach the ultimate high (63% are still searching after 2.5 months).

Table 37.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	18%	13%	0%	5%	4%	4%	5%	7%	5%	5%	33%
Bull market, up breakout	12%	6%	2%	2%	2%	1%	2%	3%	3%	3%	63%
Bear market, down breakout	24%	18%	13%	8%	5%	5%	4%	7%	1%	2%	14%
Bull market, down breakout	32%	10%	12%	7%	9%	3%	2%	2%	3%	1%	18%

As Table 37.2 predicted (see “Days to ultimate high or low”), RBs in a bear market with a downward breakout show the quickest decline, with 55% reaching the ultimate low in less than 3 weeks. At the other end of the scale, 14% are still searching for the ultimate low after 70 days.

What do the numbers mean? Table 37.5 shows how likely your rectangle will top/bottom out over time. Rectangles with upward breakouts will take longer to reach the ultimate high than those with downward breakouts. In a bear market, RBs show strength at day 56, so if you short a stock, you may need to close out your position in weeks 7 to 9.

Table 37.6 shows statistics related to size.

Height. Tall patterns perform better than short ones. For example, tall rectangles in bull markets with upward breakouts rise 66% after the breakout. Rectangles shorter than the median show postbreakout rises of just 34%.

Width. Usually, wide patterns perform better than narrow ones, but the difference is slight. The exception is for rectangles in bear markets with upward breakouts. Narrow rectangles show rises of 25% and wide ones rise 24% after the breakout. I used the median width as the separator between narrow and wide.

Average formation length. The average rectangle length was about 78 days except for those in a bear market with a downward breakout. They averaged 58 days long. I set a minimum length of about 2 weeks because short rectangles are better classified as flags.

Height and width combinations. Looking at the combination of height and width, you would expect patterns both tall and wide to perform best because those traits do well individually. Table 37.6 shows that is indeed the case if you overlook the low sample count results (the 85% rise for rectangles in bull markets, upward breakouts used 18 samples, and the 41% rise in bear markets, upward breakouts had 9 samples).

Table 37.7 shows volume-related statistics.

Table 37.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Tall pattern performance	66%	35% ^a	-14%	-26%
Short pattern performance	34%	19% ^a	-14%	-25%
Median height as a percentage of breakout price	10.89%	11.76%	11.53%	13.88%
Narrow pattern performance	41%	25% ^a	-14%	-25%
Wide pattern performance	51%	24% ^a	-15%	-26%
Median length	65 days	60 days	64 days	43 days
Average formation length	75 days	77 days	79 days	58 days
Short and narrow performance	30%	21% ^a	-14%	-25%
Short and wide performance	42% ^a	16% ^a	-14% ^a	-25% ^a
Tall and wide performance	58%	33% ^a	-15%	-27%
Tall and narrow performance	85% ^a	41% ^a	-12% ^a	-24% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 37.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Rising volume trend performance	64%	38% ^a	-19% ^a	-23% ^a
Falling volume trend performance	38%	21%	-12%	-26%
U-shaped volume pattern performance	43%	28% ^a	-13%	-29%
Dome-shaped volume pattern performance	48%	21% ^a	-13%	-18%
Neither U-shaped nor dome- shaped volume pattern performance	52% ^a	28% ^a	-24% ^a	-20% ^a
Heavy breakout volume performance	49%	23%	-14%	-26%
Light breakout volume performance	36% ^a	27% ^a	-13% ^a	-23% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Volume trend. Most of the time, rectangles with a rising volume trend perform better than do those with a falling volume trend. The only exception comes from rectangles in a bear market with a downward breakout.

Volume shapes. Rectangles with a random—neither U nor dome—volume shape performed best most of the time. The sample counts are very low so it might be best to ignore the results. If you do that, then the best performance comes from patterns having U-shaped volume. The exception is rectangles in bull markets with upward breakouts: They do best with dome-shaped volume.

Breakout volume. Heavy breakout volume works best when the breakout is in the direction of the prevailing price trend—bull market, upward breakouts and bear market, downward breakouts. They perform better or substantially better than rectangles with breakout volume below the 30-day average. Countertrend RBs showed mixed results.

Table 37.8 shows miscellaneous statistics for RBs.

Partial rise or decline. If you are not familiar with a partial rise or decline, consult the figures and associated text in the Glossary and Methodology chapter. Partial rises and declines are reliable predictors of breakout direction. For example, an upward breakout follows a partial decline 81% of the

Table 37.8
Miscellaneous Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Partial decline correctly predicts upward breakout	56/69 or 81%	N/A	N/A	N/A
Partial rise correctly predicts downward breakout	N/A	N/A	59/71 or 83%	
Partial decline, performance	51%	21% ^a	N/A	N/A
No partial decline, performance	44%	27%	N/A	N/A
Partial rise, performance	N/A	N/A	-16% ^a	-25%
No partial rise, performance	N/A	N/A	-14%	-25%
Pre-formation rise, performance	35% ^a	15% ^a	-14%	-24%
No pre-formation rise, performance	50%	30%	-15%	-26%
Pre-formation drop, performance	62%	20% ^a	-16% ^a	-30% ^a
No pre-formation drop, performance	38%	25%	-14%	-24%

Note: Minus sign means decline. N/A means not applicable.

^aFewer than 30 samples.

time. A downward breakout follows a partial rise 83% of the time. I did not split the numbers into bull or bear markets.

When a partial decline occurs, does performance suffer? Yes and no. Using the top of the rectangle as the breakout price, the average rise in a bull market from rectangles showing partial declines is 51% compared to 44% for rectangles without partial declines. The results flip for rectangles in a bear market, perhaps due to the low sample count.

Partial rises had the same effect on rectangles with downward breakouts, but the results were not as dramatic.

Pre-formation rise or drop. Figure 37.4 shows a pre-formation rise, a brief spike or overshoot before the start of the rectangle. In all market conditions and breakout directions, rectangles performed better when a pre-formation rise was absent.

Figure 37.1 shows a pre-formation drop, a brief dip before the rectangle. In most cases, rectangles with a pre-formation drop tended to perform better than did those without a pre-formation drop. The only exception was for rectangles in a bear market with an upward breakout.

Do I think these results are meaningful? No. I cannot see the connection between a brief spike or decline before a rectangle begins to the postbreakout performance. While the results in Table 37.8 are interesting, they may have little trading application.

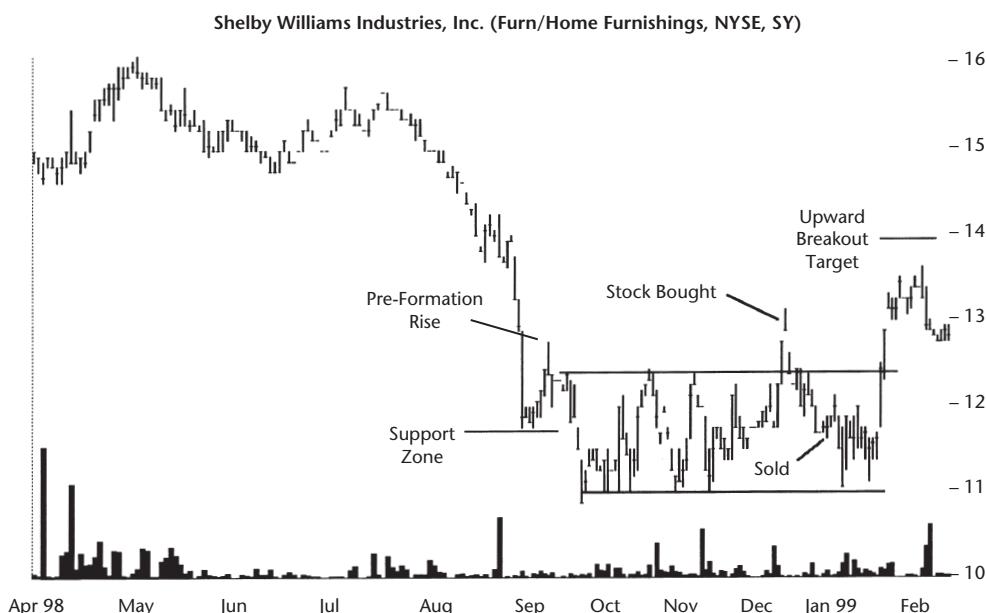


Figure 37.4 Rectangle bottom followed by upward breakout. The measure rule applied to this rectangle bottom computes the formation height as the difference between the trend lines. Adding the difference to the value of the top trend line gives an upward breakout target of 13.88.

Trading Tactics

Table 37.9 lists trading tactics for rectangle bottoms.

Measure rule. The first tactic is to determine the predicted price target using the measure rule. The rule first finds the height of the formation by subtracting the lowest low from the highest high. In essence, just subtract the value of the two trend lines from each other. Figure 37.4 shows an example of this. The top trend line is at 12.44 and the bottom one is at 11. The difference, 1.44, is the formation height. Add the height to the value of the top trend line to get the upward breakout target (13.88) and subtract it from the value of the lower trend line to get the downward breakout target (9.56). Some analysts suggest measuring the length (not the height) of the rectangle, flipping it vertically, and adding or subtracting it from the top or bottom trend line to get the maximum price move (for upward and downward breakouts, respectively). This approach sounds a bit far-fetched, but it is a handy guideline. Use it with caution as I have not verified how well it works.

The measure rule (vertical measure) works between 50% and 66% of the time for downward breakouts and between 64% and 85% of the time for upward breakouts.

Table 37.9
Trading Tactics

Trading Tactic	Explanation
Measure rule	Measure the height of the rectangle by subtracting the value of the trend lines from each other. For upward breakouts, add the height to the top trend line; for downward breakouts, subtract the value from the bottom trend line. The result is the expected minimum price move. For a maximum price target, measure the <i>length</i> of the rectangle and extend it vertically above the top trend line (for upward breakouts) or below the bottom one (downward breakouts). The price then becomes the maximum expected move.
Wait for breakout	Since you cannot be sure in which direction a rectangle will break out, wait for price to <i>close</i> outside the trend line before trading in the direction of the breakout.
Tall rectangle scalp	If the rectangle is tall enough, sell or sell short near the top trend line and buy or cover near the bottom trend line.
Throwbacks, pullbacks	If you have a downward breakout, watch for a pullback and short the stock or add to your short position once prices begin descending again. Use the same technique for an upward breakout: Wait for the throwback then initiate or add to your position when prices rise.
Other	Watch for rectangles forming as the corrective phase of a measured move formation and adjust the target price accordingly. Rectangle reversals sometimes appear as flat bottom formations.

Wait for breakout. Since you cannot predict the breakout direction with complete accuracy, wait for the breakout before investing. Place the trade after price *closes* outside the rectangle trendline, and then trade with the trend.

Tall rectangle scalp. If the formation is tall enough, consider placing an intraformation trade near the two trend lines. Short at the top when prices begin descending, and cover when they rebound off the bottom trend line (do not cover too soon as prices may continue moving down). Go long at the bottom and sell at the top trend line when prices begin falling. Again, wait for a direction change as prices may stage an upward breakout.

Throwbacks, pullbacks. Throwbacks and pullbacks allow investors another opportunity to place a trade, add to their position, or get out with a smaller loss. Take advantage of it but wait for prices to complete their throwback or pullback before placing a trade or adding to a position. The reason for waiting is that prices may continue in the adverse direction instead of returning to the trend line and rebounding.

Other. Sometimes, rectangle bottoms form as the corrective phase of a measured move formation. See the Measured Move Down chapter for information on how to take advantage of the situation. Occasionally a rectangle will mark the end of a substantial decline and appear like a flat bottom before prices rise.

Sample Trade

Figure 37.4 shows a paper trade I made. The rectangle bottom appeared after prices dropped from a high of 20.63 in October 1997. The drop was a painful one but it did not occur all at once. Prices dropped quite rapidly to 15 where they moved horizontally for 8 months. Then the second half of the decline took over and prices reached a low of about 11.

Prices bounced off the low several times, like a boy taking his first steps on a trampoline. They were tentative, shaky, with not much enthusiasm. Then in mid-October 1998, prices touched the bottom trend line and moved quickly across the formation to tie the September high at 12.38. A few more oscillations and the two trend-line boundaries became apparent.

If you look at the overall picture, you might think that prices would continue down—a downward breakout (following the downward trend). I could not tell which direction prices would go, so I decided to wait for the breakout. If the formation acted as a consolidation, then the breakout would be downward. However, with a two-step downtrend from the high at 20.63, this reminded me of a measured move down with a long corrective phase. I thought it might break out upward. If the rectangle were taller, I would try an intraformation trade (buy at 11.13, sell at 12.38, and then reverse).

In early December, prices pierced the top trend line and closed above it; staging an upward breakout. I noticed the breakout the day after it happened and bought the stock 13, midrange for the day.

I estimated that a support zone had formed at 11.75, so I placed a stop at 11.63. Prices had stopped at this level just before the chart pattern formed and again just before the December breakout. A better stop would have been just below the lower rectangle trend line because both trend lines act as support or resistance zones. However, I did not want to take such a large loss (15%+).

Even paper trades go wrong and that is what happened here. A day after buying the stock, prices returned to the rectangle formation to do more work. Prices slowly, agonizingly, moved lower until hitting my stop in late December. I took a paper loss of 11%. After a second upward breakout, price continued rounding over, then dropped, and finally hit bottom at 8.88 in March 1999 before recovering to 16 and change.

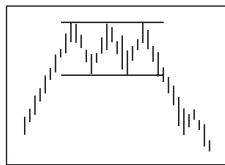
For Best Performance

The following list includes tips and observations to help select RBs that perform better after the breakout. Consult the associated table for more information.

- Review the identification guidelines for correct selection—Table 37.1.
- Trade with the prevailing market trend: go long in a bull market and short a bear market. Avoid countertrend trades—Table 37.2.
- Rectangles in bear markets with downward breakouts have the lowest failure rates for declines up to 10%. After that, rectangles in bull markets with upward breakouts do better—Table 37.3.
- Select rectangles with upward breakouts in the middle of the yearly trading range; downward breakouts near the yearly low—Table 37.4.
- Throwbacks and pullbacks hurt performance, so look for overhead resistance or underlying support before trading—Table 37.4.
- About half the rectangles with downward breakouts reach the ultimate low within 3 weeks. Watch your short trade carefully. Upward breakouts take longer to top out, so be patient—Table 37.5.
- Select tall and wide patterns—Table 37.6.
- Choose most rectangles with a rising volume trend and heavy breakout volume—Table 37.7.
- Use a partial rise or decline to predict the breakout direction—Table 37.8.

38

Rectangle Tops



RESULTS SNAPSHOT

Upward Breakouts

	Bull Market	Bear Market
Appearance	Prices trend up to the formation and then oscillate between two horizontal trend lines before breaking out upward.	
Reversal or continuation	Short-term bullish continuation	
Performance rank	12 out of 23	19 out of 19
Break-even failure rate	9%	16%
Average rise	39%	20%
Change after trend ends	-30%	-38%
Volume trend	Downward	Downward
Throwbacks	64%	71%
Percentage meeting price target	80%	60%
Surprising findings	Throwbacks and gaps hurt performance. Tall or wide patterns perform better than short or narrow ones. Patterns with a falling volume trend do well, and heavy breakout volume propels prices farther. A partial decline predicts the upward breakout direction but performance suffers.	
See also	Flags; Measured Move Up; Rectangle Bottoms	

Downward Breakouts

Appearance	Same, but breakout is downward.	
Reversal or continuation	Short-term bearish reversal	
	Bull Market	Bear Market
Performance rank	6 out of 21	16 out of 21
Break-even failure rate	11%	9%
Average decline	17%	21%
Change after trend ends	57%	45%
Volume trend	Downward	Downward
Pullbacks	58%	65%
Percentage meeting price target	63%	63%
Surprising findings	Pullbacks hurt performance. Tall patterns perform better than short ones. Performance improves after a partial rise. Rectangles with a pre-formation drop outperform.	
See also	Same as for upward breakouts	

If you think of a rectangle as a horizontal consolidation region or a flat base from which prices make a large move, then rectangles are easier to identify and the statistics more meaningful. Rectangle tops (RTs) are solid performers in bull markets as the Results Snapshot shows. The failure rates are lowest and performance is best when prices move in the direction of the prevailing market trend: upward in a bull market and downward in a bear market. Countertrend moves suffer.

The surprising findings are not surprising at all, as other chart pattern types share many of the same ones. However, rectangles have features unique to few other patterns: pre-formation rises and declines, and partial rises and declines. A pre-formation rise or decline is when price bumps up or down just before the rectangle starts. A partial rise or decline comes at the end of the rectangle and it reliably signals the breakout direction. More about these features in the Statistics section of this chapter.

Tour

Figure 38.1 shows an example of a rectangle top. Prices begin their upward trek in June 1992 at 14 and reach the rectangle in May of the following year. Then prices consolidate for over a month, bouncing between overhead resistance at 24.63 and support at 23.63. A trend line drawn across the minor highs

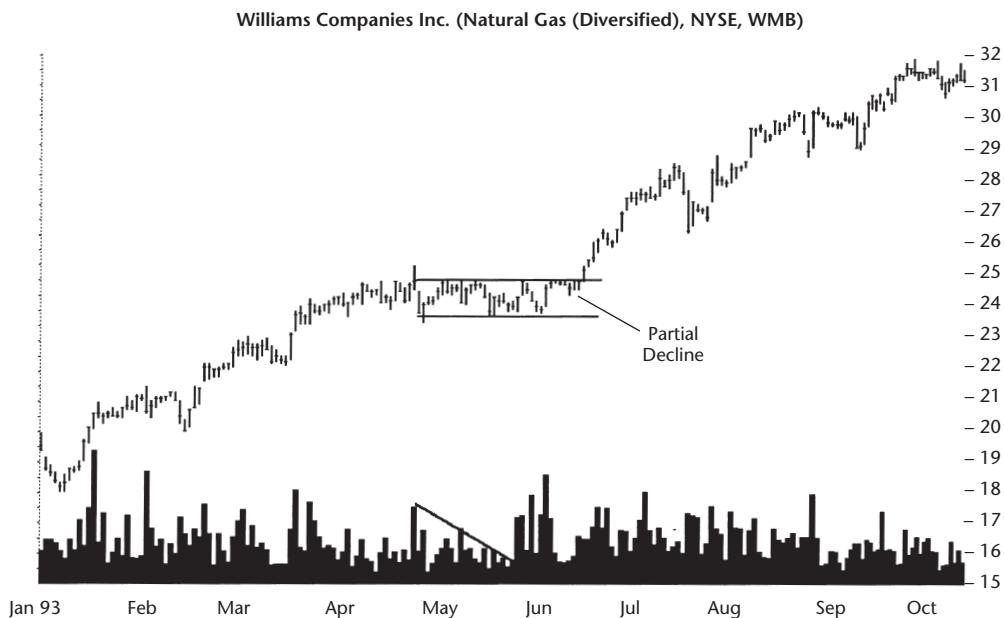


Figure 38.1 Rectangle top with an upward breakout performs well in this uptrend.

is horizontal as is the one connecting the minor lows. There are a number of touches of both trend lines suggesting a reliable formation. At the start, prices overshoot both up and down by peeking outside the two trend lines. This movement is not a problem because it occurs too early in the chart pattern before it can be recognized as a rectangle.

The volume pattern begins in the typical manner—receding. However, about two-thirds of the way to the breakout, the pattern changes. Volume gets heavier as if building pressure for the upcoming release. Then, mysteriously, volume subsides as prices move horizontally just below the top trend line for over a week. When prices pierce the top trend line, volume picks up but not remarkably so. Volume just builds on the expanding trend that is developing since prices began sliding along the trend line top.

Prices climb away cleanly. There is a slight, 3-day dip in late June when it looks as if prices are trying to throw back to the formation top, but the buying pressure is just too strong. The retrace stops and prices turn around and continue moving up.

Why do rectangles form? A rectangle chart pattern is a struggle between the haves and the have-nots. Those that own the stock but want to sell have identified a price at which they are willing to part with their shares. When the price reaches that level, they sell, forcing the price down. When prices fall, they quit dumping the stock. On the other side is another group of investors who want to acquire the stock. They place buy orders at what they perceive to be the fair value. When price falls to their target, the buy orders overwhelm

supply and the price rises. If this up–down struggle goes on long enough, price bounces between one extreme and the other. Over time, you can draw a horizontal trend line along the peaks and another along the valleys as a rectangle formation takes shape. Eventually, one of the sides runs out of ammunition. If the people selling their shares run out first, buying demand overwhelms supply and the price pierces the top trend line. If the buyers spend all their money and back away from the table, prices drop through the bottom of the rectangle. In either case, the shares continue in the breakout direction because of growing demand (the price moves upward) or increasing supply (the price tumbles).

Identification Guidelines

Table 38.1 shows identification guidelines for rectangle tops.

Rising price trend. Over the short to intermediate term, the price trend should be leading up to the formation. This upward trend is what distinguishes the formation from rectangle bottoms. The distinction is arbitrary; I wanted to see if there is any difference in the way the two perform.

Horizontal trend lines. As a rectangle forms, prices rise to a resistance level and fall back to a support area for another try. If this pattern continues, the minor highs can be joined with a trend line drawn along the top of the formation, and another trend line can be drawn below the minor lows. The two trend lines are horizontal or nearly so. If there is a slight tilt to the trend line, do not worry as long as it does not disturb the overall appearance of a congestion region.

Touches. To qualify as a rectangle, prices must touch each trend line at least twice. The touches need not alternate from one trend line to the other, but the minor highs and lows must be distinct. You do not want to see two touches along the top as part of the same minor high. Instead, look for two distinct hills and two valleys at a minimum.

Volume. The volume trend varies from formation to formation but usually recedes. Many of the charts accompanying this chapter show such a trend.

Table 38.1
Identification Characteristics

Characteristic	Discussion
Rising price trend	The short- to intermediate-term price trend leading to the formation should be up.
Horizontal trend lines	Two horizontal (or nearly so) trend lines outline the price action, one above the minor highs and one below the minor lows.
Touches	There should be at least two touches of each trend line (at least four touches total).
Volume	Volume usually recedes until the breakout.

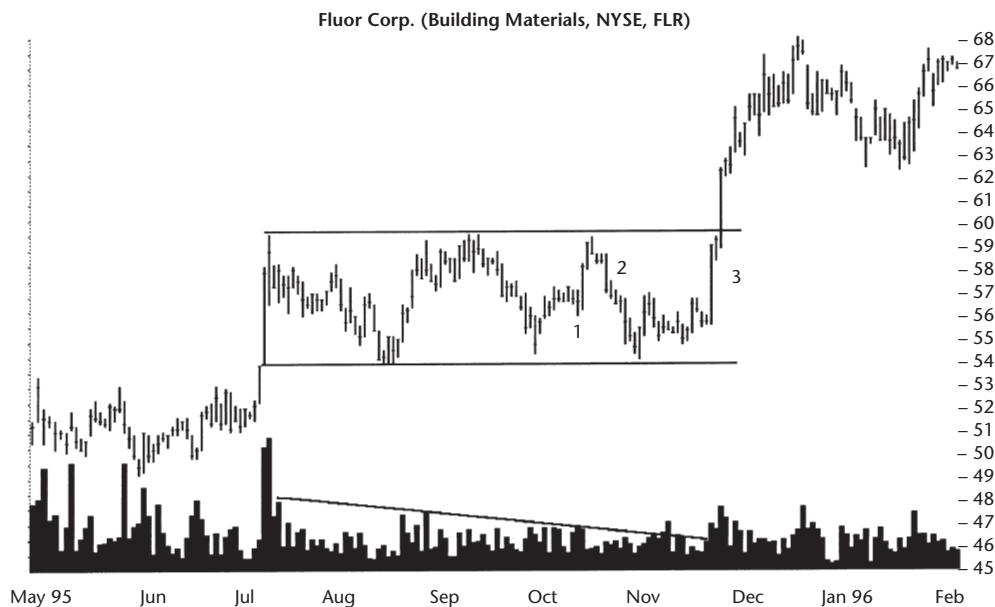


Figure 38.2 A rectangle top with receding volume trend. Although most rectangles exhibit receding volume, do not automatically exclude those with rising volume. Three profitable trading opportunities are marked where prices cross from one side to the other.

Figure 38.2 shows what a rectangle top looks like. Prices are trending up leading to the rectangle. Then they bounce between support at 54 and overhead resistance at 59.50. The wide, tall rectangle has plenty of trend-line touches. If you are lucky, you might be able to get three or four trades from this formation (as marked by the numbers on the figure). Each side-to-side pass represents a price change of about \$5, plenty of profit opportunity to be of interest to swing traders.

The volume pattern trends downward over the formation. Near the end, the volume spurs upward propelling prices higher until they break out and zoom to new highs. Statistics suggest that the majority of rectangles have receding volume trends. I would not exclude a rectangle formation simply because the volume trend is rising.

Focus on Failures

Of the nearly 700 rectangles I reviewed, about 11% fail. Figure 38.3 shows an example of a failure. Prices break out of the formation at 35.63 and move upward to a new high of 37. However, they stall in mid-April before turning around and throwing back to the formation. Once prices choose a new direction, they head down at a good clip. The brief climb represents a 4% price

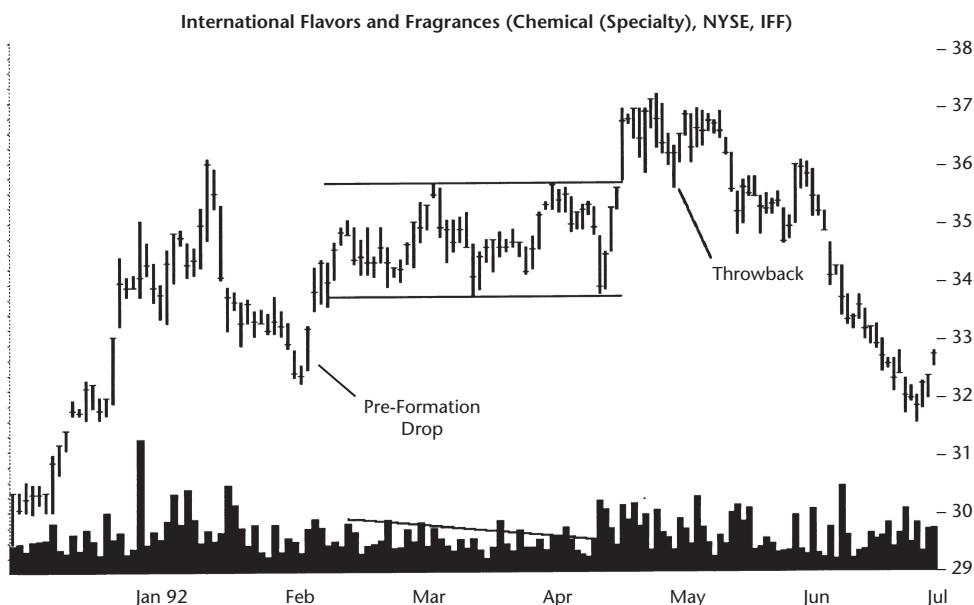


Figure 38.3 A 5% failure of a rectangle top. Prices follow the existing trend upward but only for a little gain before heading back into the rectangle and shooting out the other side.

change. I consider anything less than a 5% move in the breakout direction to be a failure. The failure confirms when prices close beyond the side opposite the breakout.

I flag 5% failures because I want a method to catalog poorly performing chart patterns. Look at this another way: Had you bought this stock when it left the rectangle top, you would be upset when it throws back to the formation and continues lower. You might even take a loss if you are not quick on the trigger.

Statistics

Table 38.2 shows general statistics for RTs.

Number of formations. I pounded on the keyboard and maneuvered the mouse until I found more than three times the number of rectangles than I had for the first edition of this book. Nearly half came from a bull market with upward breakouts. The 676 patterns I found were from mid-1991 to mid-1996 and from 2000 to 2003, in about 500 stocks. Several stocks did not cover the entire 2000 to 2003 range.

Reversal or continuation. Since we are dealing with tops, an upward breakout from a rectangle acts as a continuation of the trend, while a downward breakout is a reversal, by definition.

Average rise or decline. The average rise or decline tracks the market trend. When the market is moving upward strongly, as in a bull market for rec-

Table 38.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	331	129	136	80
Reversal (R), continuation (C)	331 C	129 C	136 R	80 R
Average rise or decline	39%	20%	-17%	-21%
Rises or declines over 45%	112 or 34%	14 or 11%	3 or 2%	3 or 4%
Change after trend ends	-30%	-33%	57%	45%
Busted pattern performance	43% ^a	34% ^a	-20% ^a	-29% ^a
Standard & Poor's 500 change	14%	-3%	0%	-12%
Days to ultimate high or low	170	75	56	40

Note: Minus sign means decline.

^aFewer than 30 samples.

tangles with upward breakouts, the average rise is large: 39%. The same applies to downward breakouts and falling markets. Rectangles in a bear market have postbreakout losses averaging 21%.

Rises or declines over 45%. A third of the rectangles with upward breakouts in a bull market rise over 45% after the breakout. No other combination of breakouts and market conditions comes close. The worst performers are RTs with downward breakouts: Less than 4% show declines over 45% after the breakout.

Change after trend ends. Once price changes trend after reaching the ultimate high or low, the move can be severe, as Table 38.2 shows. For example, after price reaches the ultimate low (a downward breakout), the rise in a bull market from a rectangle averages 57%. Consequently, if you maintain a short position too long, you may lose a significant amount of money. The results are a warning about the buy-and-hold strategy. If you are willing to part with half your winnings, then ignore the stock movement over time. Otherwise, use stop-loss orders to protect profits.

Busted pattern performance. Busted RTs are poor performers, as Table 38.2 shows. The numbers are even worse if you wait for a confirmed breakout (a close outside the trend line) in the direction opposite the original breakout.

Standard & Poor's 500 change. You can see the influence of the general bullish or bearish market on the average rise or decline. When the market trend agreed with the breakout direction, performance improved. Countertrend breakouts suffered.

Days to ultimate high or low. It takes nearly 6 months in a bull market for price to climb 39%, but in a bear market a decline of 21% takes only 40

days when it should take 88 (if the slope were the same as in a bull market). Thus, the bear market has declines that are steeper than the rise in a bull market. If you are like me and do not like to short, that means staying out of a bear market. Cash is king.

Table 38.3 shows failure rates for RTs as a frequency distribution of gains or losses. For example, 9% of RTs with upward breakouts in a bull market climb less than 5%. A third will fail to rise more than 20%. Half will top out after rising less than 35%. Bear market, downward breakout patterns show a similar trend.

Those two scenarios show the lowest failure rates because they follow the market trend. Countertrend moves, bear market, up breakout and bull market, down breakout, have worse failure rates.

Notice how the failure rates start comparatively small and then climb rapidly. The worst offender comes from RTs with downward breakouts in a bull market. The rate climbs from 11% to 24% to 44% for declines of 5%, 10%, and 15%, respectively. You do not want to trade one of those, so stay away from rectangles with breakouts that go against the prevailing market trend.

Table 38.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. It does not take long for price to close above the rectangle top or below the rectangle bottom, signaling a breakout. The average is between 2 and 4 days.

Yearly position. Most RTs with upward breakouts appear within a third of the yearly high. Rectangles with downward breakouts congregate in the middle of the yearly trading range. I measured both from the breakout price (the upper trend line for upward breakouts and lower trend line for downward breakouts).

Table 38.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	30 or 9%	21 or 16%	15 or 11%	7 or 9%
10	62 or 19%	40 or 31%	33 or 24%	15 or 19%
15	85 or 25%	61 or 47%	60 or 44%	29 or 36%
20	111 or 34%	80 or 62%	91 or 67%	43 or 54%
25	132 or 40%	88 or 68%	106 or 78%	55 or 69%
30	154 or 47%	101 or 78%	114 or 84%	61 or 76%
35	176 or 53%	109 or 84%	124 or 91%	66 or 83%
50	225 or 68%	117 or 91%	133 or 98%	77 or 96%
75	270 or 82%	123 or 95%	136 or 100%	80 or 100%
Over 75	331 or 100%	129 or 100%	136 or 100%	80 or 100%

Table 38.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	3 days	3 days	4 days	4 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L4%, C19%, H77%	L6%, C20%, H73%	L24%, C43%, H33%	L23%, C46%, H31%
Percentage rise/decline for each 12-month lookback period	L51% ^a , C38%, H40%	L34% ^a , C21% ^a , H19%	L20%, C15%, H17%	L22% ^a , C18%, H25% ^a
Throwbacks/pullbacks	64%	71%	58%	65%
Average time to throwback/pullback ends	9 days	9 days	8 days	9 days
Average rise/decline for patterns with throwback/pullback	37%	18%	15%	20%
Average rise/decline for patterns without throwback/pullback	44%	24%	19%	23% ^a
Performance with breakout gap	38%	16% ^a	17% ^a	19% ^a
Performance without breakout gap	40%	21%	17%	22%
Average gap size	\$0.35	\$0.23	\$0.59	\$1.75

^aFewer than 30 samples.

Yearly position, performance. Where do the best performing RTs reside? Most do best when the breakout is near the yearly low.

Throwbacks and pullbacks. Throws and pulls occur between 58% and 71% of the time, and it takes price about 9 days, on average, to return to the breakout price. When a throwback or pullback occurs, performance suffers. For example, rectangles with upward breakouts in a bull market show gains of 37% when a throwback occurs but rise 44% when one is absent. Think of this behavior as a study in momentum. A throwback or pullback interferes with breakout momentum and the resulting performance suffers.

Gaps. As Table 38.4 shows, most of the time performance improves without a gap. The sample counts are small, so results could change with additional samples.

Table 38.5 shows a frequency distribution of time to the ultimate high or low for RTs. Many of the rectangles reach the ultimate high or low in the first 2 weeks. For example, 46% (the sum of the first 2 weeks) of the rectangles in a bear market with a downward breakout bottom during that time. Just 15% have not found the ultimate low after 2.5 months.

Table 38.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	22%	11%	7%	5%	5%	3%	4%	2%	6%	5%	31%
Bull market, up breakout	11%	7%	5%	4%	5%	5%	2%	4%	2%	1%	56%
Bear market, down breakout	31%	15%	8%	9%	5%	4%	1%	9%	1%	3%	15%
Bull market, down breakout	23%	9%	6%	9%	6%	7%	6%	1%	4%	1%	29%

RTs in a bull market with upward breakouts take the longest to reach the ultimate high, but that news is old; we learned it from Table 38.2. Think of this table (38.5) as a finer representation of the earlier table. Table 38.5 shows the likelihood that your rectangle will top or bottom out in week 1, 2, 3, and so on.

Notice the slight uptick in week 4 for downward breakouts. Other moves in day 56 (bear market) and 42 (bull market) show RTs bottoming out during that time. Thus, if you still have an open short position during that time, be prepared for price to start rising. The numbers are small, but it pays to be prepared.

Table 38.6 shows statistics related to pattern size.

Height. Tall rectangles perform better than short ones. That is a significant finding when you think of a rectangle as a support or resistance zone. When you have a tall mass of prices winding up and down and the breakout from that congestion occurs, the resulting run might be worth betting on. Think of a rectangle as a tightened spring waiting to explode.

Width. Pattern width is a less reliable indicator of performance than height. Wide patterns perform better than narrow ones (using the median as the delimiter between short and long), except for rectangles in a bear market with a downward breakout. Narrow RTs perform better in that case, but the difference is slight.

Average formation length. The average rectangle length is quite stable across breakout directions and market conditions, ranging from 71 to 82 days.

Height and width combinations. Pop quiz: If tall RTs perform best, and wide RTs perform best, will rectangles that are both tall and wide perform best? No. It never ceases to surprise me when the obvious fails to occur. RTs that are both tall and *narrow* perform best except those in a bear market with an upward breakout.

Table 38.7 shows volume-related statistics for rectangle tops.

Volume trend. In most cases, rectangle tops show better performance after the breakout when volume was trending down within the rectangle. The exception is for rectangles with downward breakouts in a bull market. They do better with rising volume, but the results are close: 18% to 17%.

Table 38.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Tall pattern performance	46%	20%	18%	23%
Short pattern performance	35%	19%	16%	20%
Median height as a percentage of breakout price	10.59%	9.68%	10.09%	11.50%
Narrow pattern performance	38%	18%	16%	22%
Wide pattern performance	41%	22%	17%	21%
Median length	65 days	60 days	62 days	53 days
Average formation length	82 days	71 days	80 days	77 days
Short and narrow performance	35%	19%	15%	21%
Short and wide performance	36%	21% ^a	18% ^a	17% ^a
Tall and wide performance	44%	22%	17%	22%
Tall and narrow performance	49%	15% ^a	21% ^a	29% ^a

^aFewer than 30 samples.

Table 38.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Rising volume trend performance	38%	19%	18%	20% ^a
Falling volume trend performance	40%	20%	17%	22%
U-shaped volume pattern performance	40%	20%	17%	24%
Dome-shaped volume pattern performance	36%	20%	18%	19%
Neither U-shaped nor dome-shaped volume pattern performance	49%	14% ^a	8% ^a	11% ^a
Heavy breakout volume performance	40%	20%	17%	20%
Light breakout volume performance	36%	17% ^a	17%	23% ^a

^aFewer than 30 samples.

Volume shapes. Most rectangles have U-shaped volume and in two cases, bull market, up breakout and bear market, down breakout, performance improves over dome-shaped volume. A random shape, which is neither U nor dome, performs exceedingly well in rectangles in a bull market with an upward breakout (49% rise). However, the sample count is not robust—35—compared to over a hundred each for the other shapes. Thus, do not depend on a rectangle with a random volume shape delivering outstanding performance.

Breakout volume. There always has to be a party pooper and rectangles with downward breakouts are it. They perform equal to or better on light volume, if you can trust the low sample count result. Upward breakouts do best when the breakout day volume is above the 30-day average.

Table 38.8 shows miscellaneous RT statistics.

Partial rise or decline. Figure 38.1 shows an example of what a partial decline looks like, in case you are unfamiliar with them. Consult the Glossary and Methodology chapter for more information and other examples of partial rises and declines.

A partial decline is more reliable in predicting the breakout direction than is a partial rise (89% versus 61% correct). In many cases, it may be difficult to determine when a partial rise or decline is happening because of the way prices

Table 38.8
Miscellaneous Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Partial decline correctly predicts upward breakout	151/170 or 89%	N/A	N/A	N/A
Partial rise correctly predicts downward breakout	N/A	N/A	87/143 or 61%	
Partial decline, performance	38%	15%	N/A	N/A
No partial decline, performance	40%	21%	N/A	N/A
Partial rise, performance	N/A	N/A	17%	23%
No partial rise, performance	N/A	N/A	16%	20%
Pre-formation rise, performance	38% ^a	21% ^a	16% ^a	27% ^a
No pre-formation rise, performance	40%	20%	17%	20%
Pre-formation drop, performance	45%	20%	19%	26%
No pre-formation drop, performance	34%	20%	15%	18%

Note: N/A means not applicable.

^aFewer than 30 samples.

fluctuate, but if you can identify them, they allow entry into a trade before the breakout. On average, your profits should be larger with lower risk providing you use stops to limit adverse moves. If price touches the horizontal rectangle trend line and reverses instead of breaking out, close out the trade immediately. Chances are prices are going to cross the rectangle to the other side.

When a partial *decline* occurs, performance suffers. That finding makes sense because the move is lower and it weakens upward momentum. However, when a partial *rise* occurs, performance improves, but not by much. I did not separate partial rise and decline performance into bull and bear markets.

Pre-formation rises or drops. A pre-formation rise (PR) or drop (PD) is what I call a quick up or down move before the rectangle starts. Figure 38.1 shows both; Figure 38.3 shows a PD.

Pre-formation rises have low sample counts and the results are all over the map. Sometimes a PR helps performance (in bear markets) and sometimes not (bull markets).

With pre-formation drops, the news is all good. When a PD occurs, performance either stays the same or, usually, improves, sometimes substantially. Why this is the case is a mystery to me, but if it changes a 34% rise into a 45% one, then it is worth paying attention to.

Trading Tactics

Table 38.9 explains trading tactics for rectangle tops.

Measure rule. The measure rule predicts the minimum target price. First, compute the height of the rectangle by subtracting the value of the lower trend line from the upper one. Add the difference to the top trend line for upward breakouts and subtract it from the bottom trend line for downward breakouts. The result is the target price.

For an example of the measure rule and how it applies to rectangles, consider the rectangle top pictured in Figure 38.4. The top trend line has a value of 38.75, whereas the bottom one perches at 33.75. The difference of 5 is the height of the rectangle. If this rectangle were to break out downward, then the target price would be 28.75, or the lower trend line value minus the formation height. Since the breakout is upward, add the height to the top trend line, giving a target price of 43.75. Prices reach the target about a month after the breakout.

I have read that to compute the *maximum* price move, one physically measures the *length* of the rectangle and applies it to the top trend line for upward breakouts or subtracts it from the bottom trend line for downward breakouts. When using my computer, the technique comes close to the ultimate high. On paper, the results are less accurate. I have not tested this method extensively and cannot vouch for its accuracy. However, one has to wonder how measuring a formation (in inches) can accurately translate into a price move; but, who knows, the system might work or at least prove helpful.

Table 38.9
Trading Tactics

Trading Tactic	Explanation
Measure rule	Measure the height of the rectangle from trend line to trend line. For upward breakouts, add the height to the top trend line; for downward breakouts, subtract it from the bottom trend line. The result is the minimum expected move. For a maximum price target, measure the <i>length</i> of the rectangle and extend it vertically above the top trend line (for upward breakouts) or below the bottom one (downward breakouts). The price becomes the maximum expected move.
Consolidation	More than two out of three rectangles act as consolidations of the prevailing trend. Expect the breakout to continue the trend.
Wait for breakout	Since you cannot be sure in which direction a rectangle will break out, wait for prices to close outside the trend line before trading in the direction of the breakout.
Tall rectangle scalp	If the rectangle is tall enough, sell or sell short near the top trend line and buy or cover near the bottom one.
Other	Watch for rectangles forming as the corrective phase of a measured move up formation and adjust the target price accordingly. Rectangle reversals sometimes appear as flat top formations.

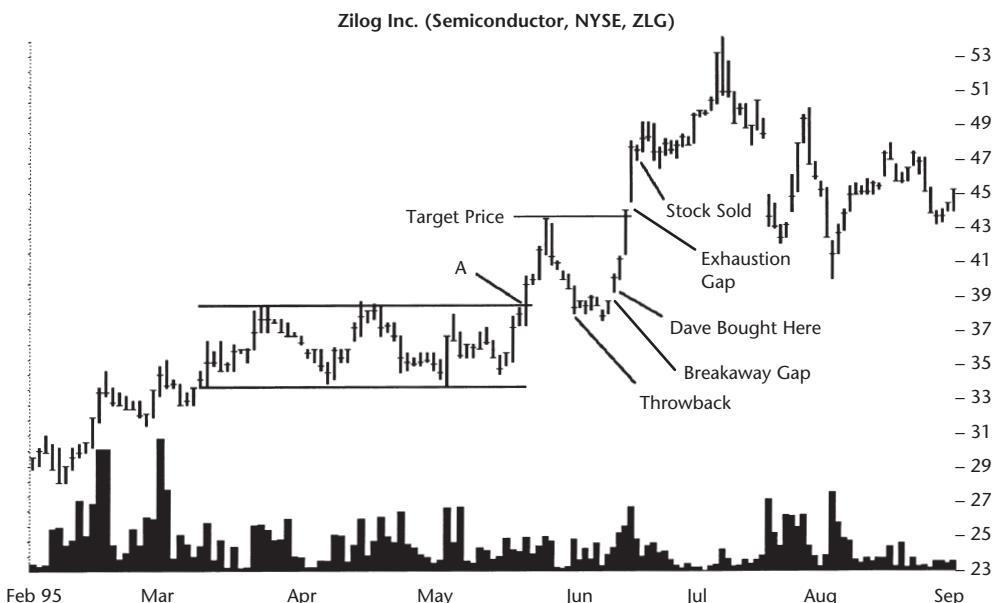


Figure 38.4 Rectangle top with breakaway gap and exhaustion gap. Dave traded this formation after buying it once the throwback completed.

Consolidation, breakout. Returning to Table 38.9, the breakout direction is usually in the direction of the prior trend. For Figure 38.4 the direction is upward and that is the direction in which the breakout occurs. Once price closes outside a formation, then a breakout (or premature breakout) occurs. If the breakout is upward, go long or cover your short. If the breakout is downward, then short the stock or sell your position.

Tall rectangle scalp. If the rectangle is tall enough and providing you discover it quickly enough, you can trade the formation as it swings from trend line to trend line. Short or sell at the top trend line and cover or buy at the bottom trend line. Keep an eye on the price trend leading to the formation in case a breakout occurs. If the stock moves outside the rectangle trend line and you are losing money, close out your position. You might also want to get on the bandwagon and trade in the direction of the new trend.

If the breakout turns into a premature breakout when prices return to the rectangle proper, do not panic. There is still a chance that prices will resume their original breakout direction. Again, if the trade goes against you by shooting out the other side of the rectangle, then close out your position and do it quickly. If you hesitate, you may have another opportunity to add to your position or close it out if the formation pulls back or throws back. Take advantage of it especially if you are losing money. Often, prices will return to the formation boundary and then turn away. If you do not get out during the pullback or throwback, then it is likely your losses will grow. Do not pass up the second chance and do not hope that prices will continue recovering. They will not!

Other. Before placing a trade in a rectangle formation, see if the chart pattern is part of a larger pattern. Sometimes, the rectangle is the horizontal part, called the corrective phase, of a measured move up formation. Knowing that a rectangle is a subpart of a measured move allows you to get a better gauge on the expected price move. When the rectangle top is a reversal of the prevailing price trend, the resulting formation resembles a flat top. Suspect that a reversal might be under way if the price trend leading up to the rectangle is unusually steep.

Sample Trade

Dave is an artist. It is tough making a living and he wants to move to the computer world and become a graphics artist. He has been playing around with some hardware and software that duplicate the feel of a brush on various textures but wants to get the latest versions.

Recognizing chart patterns comes easily to him. With his keen eye, he has been on the prowl for a lucrative stock play. That is one reason he stumbled across the rectangle shown in Figure 38.4, but he did not spot the rectangle in a timely fashion. The only reason he noticed it is because of the throwback. Throwbacks and pullbacks are peculiar enough with their hooking retrace that they are easy to spot. One has only to look back and identify the associated formation.

Dave computed the formation height and applied it to the top of the rectangle to get the expected minimum price move. Did he pull the trigger when prices threw back to the formation? No, he waited. He followed the stock closely and when it gapped up (a breakaway gap), he bought and received a fill at 40. Each day the stock moved higher and in 3 days it had reached the target price of 43.75. The day after that the stock gapped again (exhaustion gap) signaling an impending end to the rise. The day after that, prices faltered, and that is when he sold and closed out his position at 47.50. He netted over \$7 a share or 18% in less than a week.

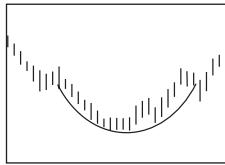
For Best Performance

The following list includes tips and observations to help you select better performing RTs. Refer to the associated table for more information.

- Correctly identify the pattern using the guidelines—Table 38.1.
- Trade rectangles with the prevailing market trend: upward breakouts in a bull market, downward breakouts in a bear market—Table 38.2.
- Select rectangles with breakouts in line with the market trend (upward breakouts in bull markets or downward breakouts in bear markets) as they have the lowest failure rates—Table 38.3.
- Choose rectangles with breakouts near the yearly low—Table 38.4.
- Avoid throwbacks and pullbacks as they hurt performance—Table 38.4.
- Avoid rectangles with breakout day gaps—Table 38.4.
- In bear markets, be prepared take profits quickly, but let profits collect in a bull market. For downward breakouts, look for price strength in weeks 4, 6, and 8—Table 38.5.
- Select tall or wide rectangles—Table 38.6.
- Pick rectangles with upward breakouts and a falling volume trend—Table 38.7.
- Choose rectangles with heavy breakout volume (upward breakouts)—Table 38.7.
- Partial declines correctly predict the breakout direction but performance suffers—Table 38.8.
- Partial rises help predict the breakout direction and performance improves, too—Table 38.8.
- Select rectangles with a pre-formation drop—Table 38.8.

39

Rounding Bottoms



RESULTS SNAPSHOT

Upward Breakouts

	Bull Market	Bear Market
Appearance	A saucerlike concave price turn	
Reversal or continuation	Short-term bullish consolidation	
Performance rank	5 out of 23	6 out of 19
Break-even failure rate	5%	5%
Average rise	43%	31%
Change after trend ends	-31%	-33%
Volume trend	Upward	Upward
Throwbacks	40%	43%
Percentage meeting price target	57%	53%
Surprising findings	This “bottom” pattern acts as a continuation of the prevailing trend. Throwbacks hurt performance. Tall or wide patterns perform better. Patterns with a rising volume trend or U shape do well.	
Synonyms	Rounding turns, saucers	
See also	Bump-and-Run Reversal Bottoms; Cup with Handle; Head-and-Shoulders Bottoms, Complex; Scallops (ascending and descending)	

Rounding bottoms, rounding turns, and saucers are synonyms for the same formation. Rounding bottoms (RdBs) have a low break-even failure rate with a large average rise, so they perform well. Because the pattern can be tall—like a bowl with high sides instead of a shallow saucer—the measure rule price target (“Percentage meeting price target” in the Results Snapshot) may be hard to reach. Just over half of the RdBs hit their targets.

Surprises for RdBs are plentiful, and the one that continues to amaze me is that these so-called bottom patterns are not bottoms at all. If they were bottoms, they would act as reversals. Occasionally, price does reverse course and the RdB acts as a true bottom. More likely, however, is that RdBs appear in a rising price trend, a rounding turn in which traders catch their breath before the climb resumes.

Tour

Figure 39.1 shows an example of a rounding bottom on a daily scale. I would not call it a good example because the bottom is too irregular. In mid-May there is an out-of-pattern downward price decline that ends with price quickly rebounding. In late June price jumps up then fades back down. The June rise is not uncommon so do not get too excited when it happens in a stock you own. Price should return to near the base of the rounding bottom before continuing the rise. The volume trend takes on the appearance of being rounded if you ignore the annoying spikes in the center.

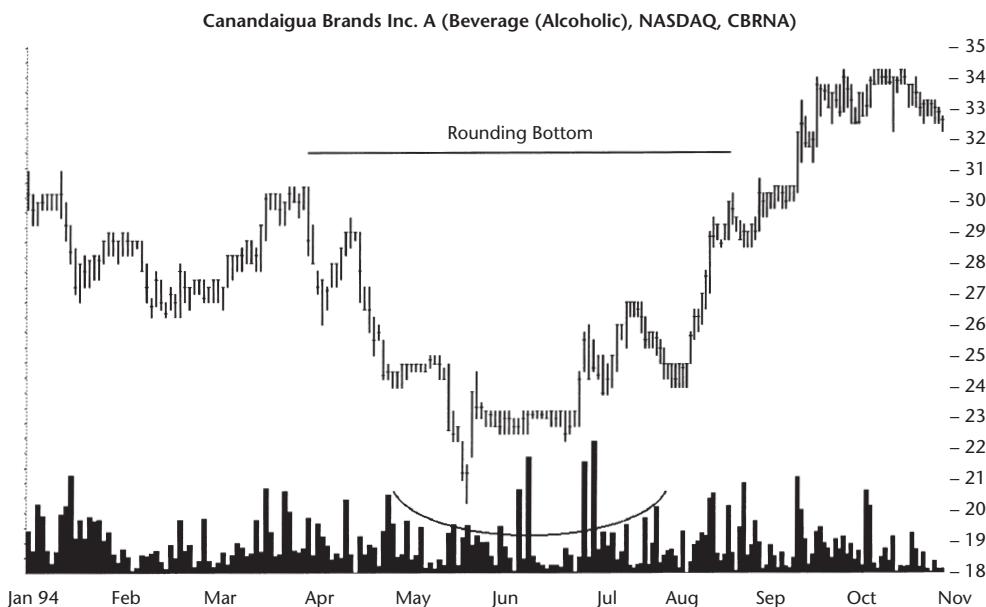


Figure 39.1 A rounding bottom on a daily scale. The bottom takes a brief dip in mid-May and a quick rise in late June.

A rounding bottom marks a struggle between buying demand and selling pressure that is nearly equal. Through the first part of the formation, the sellers have the upper hand as they drive prices lower. Eventually, the forces come into balance and the stock bottoms out and moves horizontally. Later still, buying demand picks up and the stock inches upward. The climb is not always a smooth one. Sometimes, a large upward demand spike occurs sending the price skyrocketing, but in a month or so prices head back down and plane out slightly above where they left off. Then they resume their climb. When the stock reaches the old high, selling pressure usually drives prices lower, forming a handle. Prices recover and break through the old high and push higher still.

Identification Guidelines

As chart patterns go, rounding bottoms are easy to identify. Table 39.1 lists guidelines for their identification.

Weekly scale, rounded bowl shape. Since rounding bottoms are often quite long (in this study, the longest is over 2½ years), I usually use the weekly scale to make identification easy. I search for a price pattern that looks like a bowl or saucer. Once I discover the pattern, a quick glance backward usually finds prices trending upward. The rounding bottom is often a gentle retracement of some of the gains.

Consider Figure 39.2. The most recent up leg of the climb to the formation begins in late December 1991 on very high volume. Prices climb 235% in about 3 months, and then the stock eases over. The decline is not a quick straight-down affair. Rather, the stock moves lower on its way to 4.25 by curving around and flattening out.

Once prices reach the low, they move hesitantly higher by traveling horizontally for several weeks before beginning an accelerated climb. Prices reach the level of the left saucer lip and do not pause. They keep climbing until they reach 13 and then 16 before backing down to 11.

Table 39.1
Identification Characteristics

Characteristic	Discussion
Weekly scale	Use the weekly scale to identify these behemoths, although the daily scale also works well.
Rounded bowl shape	The price trend curves gently, usually over many months and usually after an upward price trend. Connect the weekly low prices to visually construct a saucer or bowl shape in your mind.
Curving volume trend	The volume trend sometimes mimics the price trend by appearing as a bowl but more often is dome shaped.

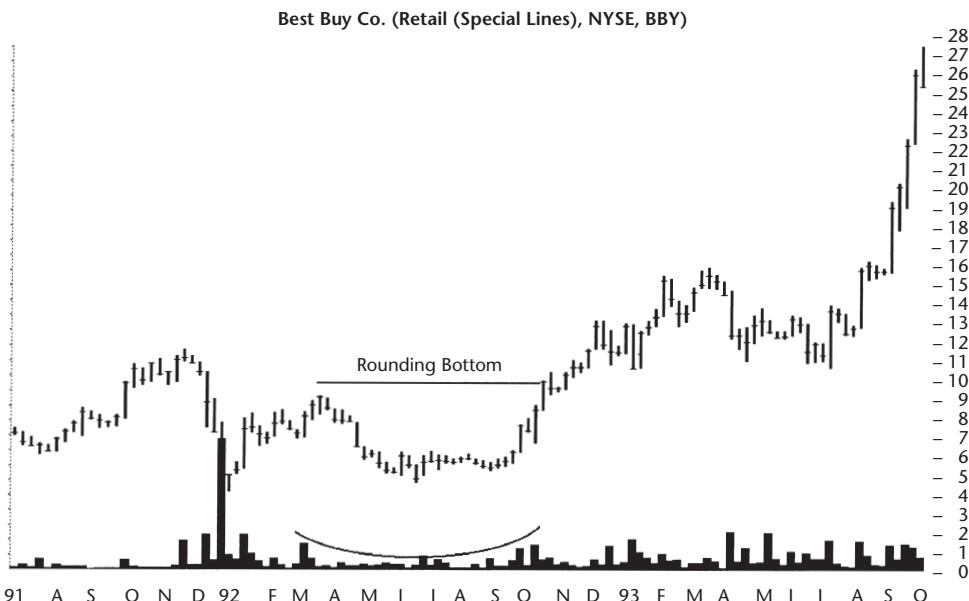


Figure 39.2 This chart is a good example of a rounding bottom on the weekly scale. Notice the bowl-shaped volume trend.

A rounding bottom does not require a handle, which is a price consolidation area that commonly forms immediately after the right saucer lip, but most times you will see one. A handle is typical behavior when prices reach an old high. The rise falters as tepid demand or excessive selling push prices lower; then, the two highs act as a resistance zone. Sometimes, prices make several attempts before pushing through the resistance and moving higher; sometimes, prices just give up and roll back downhill.

Curving volume trend. The volume trend occasionally echoes the price trend by rounding downward too. You can see this in Figure 39.2 although it is not as pronounced as it some times is. However, a dome shape predominates 54% of the time; a saucer or U shape, 46% of the time.

Focus on Failures

Although RdBs have a low failure rate, they occasionally fail, and Figure 39.3 shows an example of a failure. This rounding bottom (points A and B) occurs in a downward price trend, but the bottom is not as smooth as I like to see. The start of the pattern, A, is not well defined as the pause lasts just a few days. The corresponding end, B, marks the beginning of a small handle attached to the rounding bottom.

Prices climb high enough to surpass B and close above it, staging a break-out, but the rise soon falters. The price peaks and valleys over the prior 7 or 8

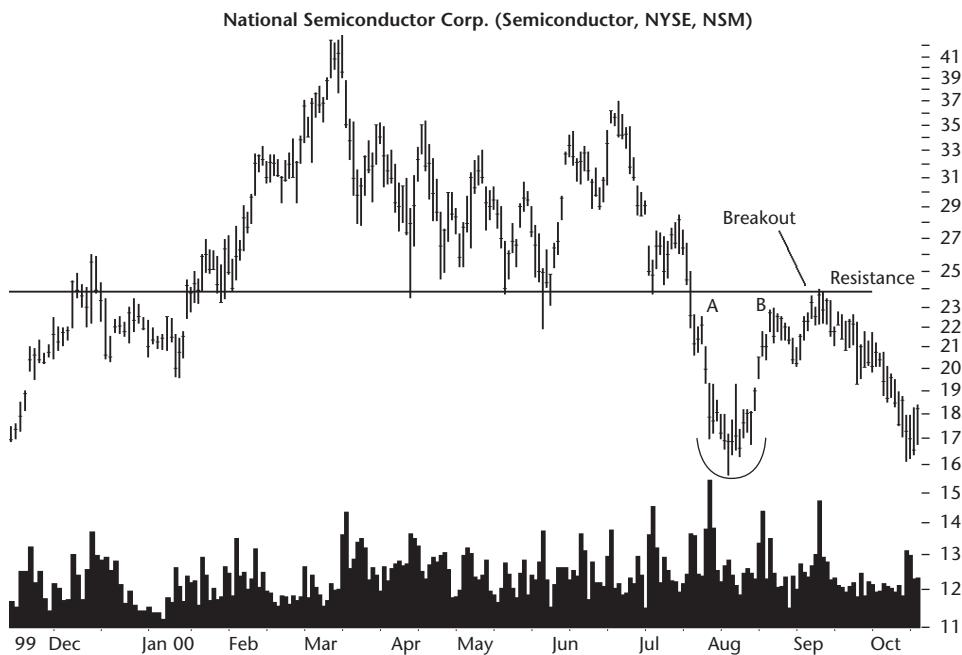


Figure 39.3 Rounding bottom that acts as a short-term reversal of the trend.

months presented just too much overhead resistance. The stock tried to pierce it but failed and dropped, eventually reaching a low of 8.56.

These types of situations are easy to diagnose. Before trading, always look for overhead resistance and underlying support. Knowing when price is likely to stop will give you valuable information. It may be that the trade will not be profitable enough if it hits a wall of resistance. The loss as prices tumble to the support zone may be too large to risk a trade. If the trade does not look right or if the risk versus reward is not low enough, then look for a more promising trade. Good trades (and patterns) are worth waiting for.

Statistics

Table 39.2 shows general statistics for rounding bottoms.

Number of formations. I found 453 RdBs in 500 stocks from mid-1991 to mid-1996 and from 2000 to 2003. Those periods covered the bull and bear market. However, not all of the stocks in the bear market covered the 3-year range (think mergers and buyouts).

Reversal or continuation. Unlike other patterns that are true bottoms, a rounding bottom acts as a consolidation or continuation of the prevailing price trend slightly more often than as a reversal. Continuations substantially outperform in a bull market, but reversals do marginally better in a bear market.

Table 39.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	261	192
Reversal (R), continuation (C)	122 R, 139 C	91 R, 101 C
R/C performance	38% R, 47% C	31% R, 30% C
Average rise	43%	31%
Rises over 45%	108 or 41%	48 or 25%
Change after trend ends	-31%	-33%
Busted pattern performance	-33% ^a	-37%
Standard & Poor's 500 change	18%	-6%
Days to ultimate high	189	105

Note: Minus sign means decline.

^aFewer than 30 samples.

Average rise. In a bull market, the average rise is quite good, but the bear market rise pales by comparison, 43% to 31%, respectively. The numbers show the effect of a rising market tide lifting all stocks. I used the right saucer lip as the breakout price in all computations.

Rises over 45%. An astounding 41% of the RdBs in a bull market rise more than 45%. Even RdBs in a bear market do well with 25% climbing more than 45%. This pattern is a strong performer.

Change after trend ends. Once price reaches the ultimate high, it tumbles. In a bear market, the decline retraces its gains and more—declining 33%—on average. In a bull market, the decline is still severe, 31%. This finding shows the need to get out near the top and not buy and hold or get greedy.

Busted pattern performance. If a stock moves up less than 5% above the right rim and then starts heading lower (but being mindful the decline may be a throwback), consider shorting it. The decline averages 33% to 37%. If you guess wrong, be sure a stop is ready to close out the trade.

Standard & Poor's 500 change. The high numbers for the change in the general market shows the influence it has on performance. The 18% market rise helped power the bull market RdBs to a 43% rise. In a bear market, the market downdraft froze the rise at 31%.

Days to ultimate high. Notice how it takes almost twice as long to reach the ultimate high in a bull market than in a bear one. If you do the math, you will find that the rise in a bear market is steeper than in a bull market.

Table 39.3 shows failure rates for RdBs. They start small but quickly climb with the bull market showing better results (lower failures). That observation is no surprise as an upward breakout in a bear market is a countertrend move, which is like swimming against the current.

Half the patterns in a bull market rise less than 35%. That is a good showing compared to other chart pattern types. For bear markets, half the pat-

Table 39.3
Failure Rates

Maximum Price Rise (%)	Bull Market	Bear Market
5 (break-even)	14 or 5%	9 or 5%
10	31 or 12%	32 or 17%
15	54 or 21%	51 or 27%
20	74 or 28%	70 or 36%
25	102 or 39%	92 or 48%
30	117 or 45%	114 or 59%
35	130 or 50%	125 or 65%
50	167 or 64%	149 or 78%
75	211 or 81%	176 or 92%
Over 75	261 or 100%	192 or 100%

terns rise less than about 26%. Notice how the failure rate climbs for small changes in the maximum price rise. For example, in a bear market, the failure rate triples to 17% from 5% for moves of 5% to 10%. The 15% failure rate is five times as high (27%) as it is at 5%.

The numbers give you a clue as to how well your RdB may perform. If you are looking for price to double, stick to RDBs in a bull market. The larger the maximum price rise, the higher the probability is that your stock will fail to reach it.

Table 39.4 shows breakout- and postbreakout-related statistics.

Table 39.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	52 days	27 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L7%, C11%, H82%	L13%, C32%, H55%
Percentage rise for each 12-month lookback period	L20% ^a , C34% ^a , H46%	L21% ^a , C32%, H32%
Throwbacks	40%	43%
Average time to throwback ends	12 days	9 days
Average rise for patterns with throwback	33%	28%
Average rise for patterns without throwback	50%	33%
Performance with breakout day gap	43%	26%
Performance without breakout day gap	43%	32%
Average gap size	\$0.31	\$0.39

^aFewer than 30 samples.

Formation end to breakout. It takes nearly twice as long in a bull market than a bear market to break out after the pattern ends. In essence, this activity represents the handle length (after the right lip). The implication here is that you have plenty of time to trade this pattern, even if you do not recognize it during development. Trade RdBs only after price closes above the right lip.

Yearly position. Most RdBs have their breakout within a third of the yearly high. Since the chart pattern is a long one and the breakout is near the top of the pattern, the numbers are not surprising.

Yearly position, performance. Mapping performance onto the yearly price range, we find that the best performing RdBs are those with breakouts near the yearly high. The results may change with additional samples, especially in a bull market.

Throwbacks. Throwbacks occur less often in RdBs than in many other chart patterns, but I do not know why. Prices take the usual amount of time to return to the breakout price (9 to 12 days). When throwbacks do occur, the postbreakout rise averages 33% in a bull market and 28% in a bear market. When a throwback is absent, performance improves: 50% and 33%, respectively. Thus, throwbacks retard upward momentum and performance suffers. Before trading, look for overhead resistance and trade patterns without it.

Gaps. Breakout day gaps hurt performance but only in a bear market—32% rise without a gap versus 26% with.

Table 39.5 shows the time it takes prices to reach the ultimate high. Few patterns flame out in the first week. Most take over 2.5 months (70 days) to top out. Such a long time gives price the opportunity to make an extended move (on average, it takes longer to rise farther).

Notice that a month into the trade, 9% of the patterns in a bear market reach the ultimate high (a slight blip). That event may be a warning sign of weakness. I have seen this behavior in other patterns, so if price stalls a month into the trade, consider selling. Bull markets peak a week earlier.

Table 39.6 shows size statistics for the rounding bottom pattern.

Height. Tall patterns perform better than short ones, especially in a bull market (52% versus 38%). I used the median pattern height—from highest high to lowest low—divided by the breakout price as the benchmark. Tall patterns had results above the median, so trade those. Avoid short patterns.

Width. Wide patterns performed better than narrow ones in both bull and bear markets, with the best performance coming from RdBs in a bull mar-

Table 39.5
Frequency Distribution of Days to Ultimate High

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	12%	7%	6%	4%	9%	5%	4%	4%	4%	1%	45%
Bull market	9%	6%	4%	6%	2%	1%	2%	2%	2%	3%	62%

Table 39.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	52%	32%
Short pattern performance	38%	30%
Median height as a percentage of breakout price	31.58%	24.20%
Narrow pattern performance	38%	28%
Wide pattern performance	48%	34%
Median length	196 days	71 days
Average formation length	241 days	83 days
Short and narrow performance	32%	30%
Short and wide performance	46%	29% ^a
Tall and wide performance	51%	36%
Tall and narrow performance	53%	20% ^a

^aFewer than 30 samples.

ket (48% average rise versus 38%). I used the median length as the separator between wide and narrow.

Average formation length. It appears that rounding turns in a bull market are wider (three times as wide) than those in a bear market, perhaps suggesting that the bear market had more violent swings that cut a rounding turn short.

Height and width combinations. Tall and narrow RdBs in a bull market performed better than the other combinations. That finding is odd because tall and wide patterns that do well individually should have outperformed. In a bear market, RdBs that were both tall and wide did well.

Table 39.7 shows volume statistics for rounding bottoms.

Table 39.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	43%	32%
Falling volume trend performance	42%	29%
U-shaped volume pattern performance	43%	33%
Dome-shaped volume pattern performance	42%	30%
Neither U-shaped nor dome-shaped volume pattern performance	54% ^a	22% ^a
Heavy breakout volume performance	44%	30%
Light breakout volume performance	39%	31%

^aFewer than 30 samples.

Table 39.8
Miscellaneous Statistics

Description	Bull Market	Bear Market
Higher left rim, performance	48%	30%
Higher right rim performance	39%	31%
Equal rims, performance	45% ^a	30% ^a

^aFewer than 30 samples.

Volume trend. RdBs with a rising volume trend performed marginally better than those with a falling volume trend. However, since the numbers are so close, do not place much emphasis on them.

Volume shapes. I expected more RdBs to show U-shaped volume. Instead, the dome shape prevails, but only 51% of the time. As to performance, RdBs with U-shaped volume perform slightly better than dome shaped. The random shapes have too few samples to take seriously (10 in bull markets and 18 in bear markets).

Breakout volume. When breakout volume was above the 30-day average in a bull market, RdBs tended to outperform. In a bear market, a slight performance edge went to RdBs with light breakout volume.

Table 39.8 shows miscellaneous statistics.

Rims and performance. Just for fun, I looked at the performance of RdBs with a higher left rim, higher right rim, or rims at the same price. Those RdBs with a higher left rim performed substantially better than did those with a higher right rim in a bull market. In a bear market, the performance results were nearly the same.

Trading Tactics

If you are thinking about trading this pattern, here is one key trick for improving your performance with it: Wait for price to close above the right saucer lip before investing. Table 39.9 outlines other trading tactics.

Measure rule. The measure rule helps estimate the potential profit. To apply the measure rule and help you visualize its use, consider the chart shown in Figure 39.4. Subtract the lowest low in the saucer from the right saucer lip. In Figure 39.4, the low is 25 and the right saucer lip is (arguably) 31.44,(point B), giving a formation height of 6.44. Add the height to the value of the right saucer lip to get the target price. In this case, the target is 37.88 and prices reach that level in late January.

Wait for breakout, watch for handle. I consider rounding bottoms to be one of the more treacherous formations. Take another look at Figure 39.4. In judging when the breakout occurs, you can use either saucer lip. Use

Table 39.9
Trading Tactics

Trading Tactic	Explanation
Measure rule	Subtract the lowest low from the right saucer lip. Add the difference to the value of the right saucer lip to get the target price. This is the minimum price move to expect. The measure rule only works about half of the time, so be conservative and lower your target.
Wait for breakout	Wait for prices to rise (close) above the left or right saucer lip before buying, whichever is at a lower price.
Watch for handle	Many times prices will reach the level of the left saucer lip then dip to form a handle. Buy when prices rise above the right saucer lip (or pierce a handle trend line moving up).

whichever one gets you in soonest. Unfortunately, this rounding turn has no left lip. How do you gauge a breakout? That is the situation I faced. I learned that in such circumstances I needed to wait for the handle to form and prices to climb above the handle high (or right cup lip). When it did (point A), or so I thought, I paper traded the stock and bought in, just as it crested (point B). That turned out to be a minor high. Prices dropped the next day and then slowly recovered making another handle. A good place to sell is when prices pierce the up trend line in early December.

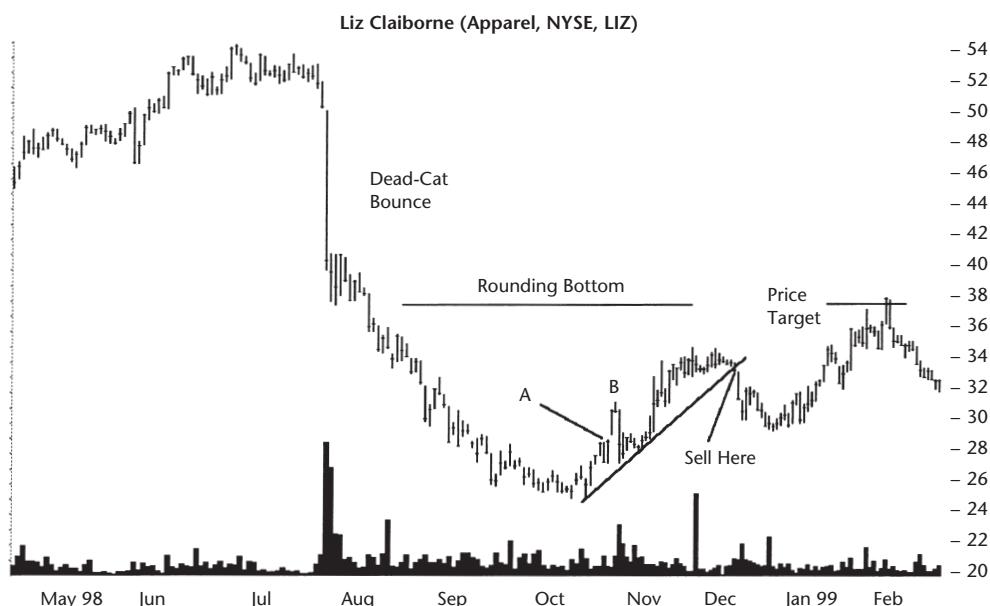


Figure 39.4 A treacherous example of a rounding bottom that has no left saucer lip. The rounding turn forms after disappointing earnings send the stock into a dead-cat bounce.

Sample Trade

How do you use the trading tactics to improve your investment performance? Consider what Glen did with the situation shown in Figure 39.5. His dream was to become a day trader, but he had neither the trading capital nor the necessary skills for the job. He decided to get there one trade at a time, taking a longer time to trade and working down to interday trading.

In December, as he was flipping through his charts, he came across what appeared to be a mild double bottom. On the daily chart the two bottoms in August and November were barely discernible. Was it a valid formation and should he buy the stock now? Glen decided that the retracement between the two bottoms was not high enough and the two bottoms not clear enough to be worth considering. He justified his action by thinking that if he was having a hard time spotting the formation, then others would have the same trouble. If no one spots the formation, then prices will not rise.

When he flipped to the weekly chart, it changed the characterization of what he was seeing. On his screen was an obvious rounding bottom. The volume pattern supported the conclusion: receding as prices declined and rounding up as prices rose. So, he decided to wait for the rounding bottom to stop near the prior saucer lip at about 21.38. When it paused for 2 weeks in February, he knew the formation was primed. The question then became, what was it going to do next? The only way to find that out was to wait.

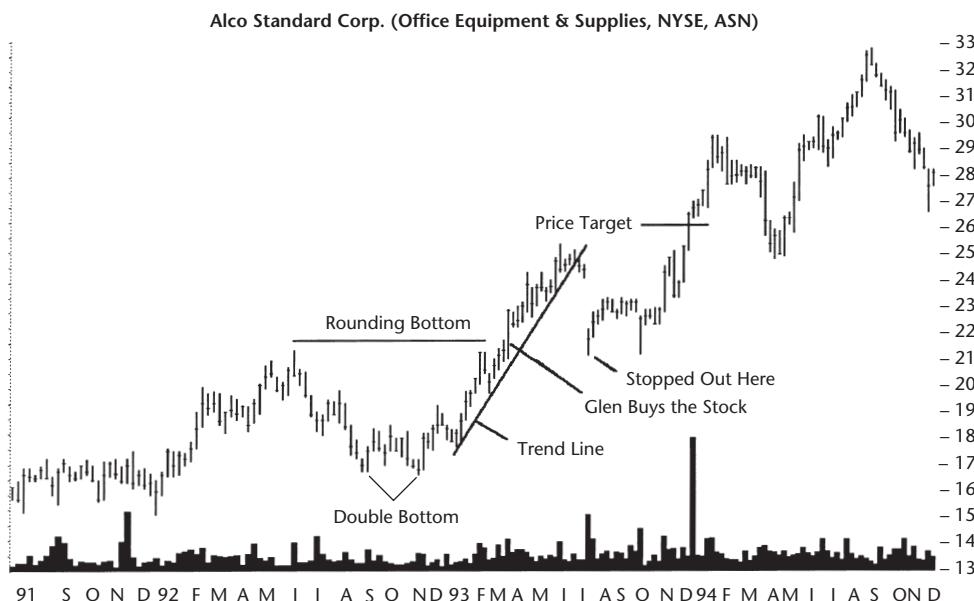


Figure 39.5 The double bottom formation is barely discernible within the rounding bottom on the weekly scale.

The following week prices dropped. He waited until prices closed above the right saucer lip and headed higher. He knew that to buy earlier risked a downturn in the stock from which it might not recover for a long time. If the stock ventured above the right saucer lip, then the probabilities suggested a continuing push higher.

When prices hit 22, he bought. He looked back at his chart and decided to put a stop-loss order .15 below the saucer lip, just below a support level. He decided that if the stock hit his stop, in all likelihood it was going down. Content with his investment decision and trading plan, he was confident that his career change to day trading was a simple step away. He was even more confident as the stock climbed. He began looking through brochures from several companies that offered seminars on day trading. Then the stock declined and closed below the up trend line. It was a warning sign that anyone could have missed. Glen certainly did.

The following week when he received a call from his broker saying prices had hit his stop-loss order, he was shocked. Glen booked a loss of about a buck a share. As he watched the stock, he became even more upset. It turns out the stock sold at the low for the week.

Three years later, after day trading was over for the day, Glen happened to review this trade. He decided to pull up the chart and gasped at what he found. The stock peaked at 66, exactly triple his purchase price.

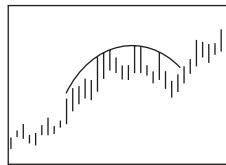
For Best Performance

The following list includes tips and observations for selecting rounding bottoms that perform well. Consult the associated table for more information.

- Use the identification guidelines to help select the pattern—Table 39.1.
- Trade rounding bottoms in a bull market—Table 39.2.
- Continuations in a bull market perform substantially better than reversals—Table 39.2.
- Patterns in a bull market have lower failure rates—Table 39.3.
- Select patterns with breakouts near the yearly high—Table 39.4.
- Avoid throwbacks—Table 39.4.
- Expect to take profits 4 to 5 weeks into the trade—Table 39.5.
- Select tall patterns or wide patterns—Table 39.6.
- Choose patterns with a rising volume trend and U-shape—Table 39.7.
- Trade patterns with heavy breakout volume in a bull market—Table 39.7.
- Pick rounding bottoms with the left rim higher than the right in a bull market—Table 39.8.

40

Rounding Tops



RESULTS SNAPSHOT

Upward Breakouts

	Bull Market	Bear Market
Appearance	As prices move up, they curve around and then breakout upward.	
Reversal or continuation	Short-term bullish continuation	
Performance rank	13 out of 23	16 out of 19
Break-even failure rate	9%	16%
Average rise	37%	19%
Change after trend ends	-31%	-35%
Volume trend	Downward	Downward
Throwbacks	53%	52%
Percentage meeting price target	61%	35%
Surprising findings	Busted patterns perform well. The best performance comes from breakouts near the yearly low; breakouts with gaps; tall, narrow, and tall and narrow patterns; and patterns with a falling volume trend.	
Synonyms	Domes, rounding turn	
See also	Bump-and-Run Reversal Tops; Head-and-Shoulders Tops, Complex; Scallops, Ascending and Inverted; Scallops, Descending and Inverted	

Downward Breakouts

Appearance	Same, but breakout is downward.	
Reversal or continuation	Short-term bearish reversal	
	Bull Market	Bear Market
Performance rank	5 out of 21	10 out of 21
Break-even failure rate	12%	9%
Average decline	19%	23%
Change after trend ends	57%	53%
Volume trend	Downward	Downward
Pullbacks	48%	57%
Percentage meeting price target	24%	15%
Surprising findings	Continuations do better than reversals. Busted patterns perform well. The best performance comes from breakouts near the yearly low. Pullbacks hurt performance, but breakout day gaps improve it. Tall patterns, patterns with U-shaped volume, heavy breakout volume, or higher right rim tend to outperform.	
Synonyms	Same as for upward breakouts	
See also	Same as for upward breakouts	

When is a top not a top? When it is a rounding top and prices break out upward 53% of the time. I like to refer to this pattern not as a rounding top, but as a rounding turn (RdT).

The Results Snapshot shows the performance results. For upward break-outs, RdTs in a bull market perform better (higher average rise with a lower failure rate) than do those in a bear market. As one might expect, the results flip for downward breakouts. RdTs in a bear market outperform those in a bull market.

Surprises for RdTs are self-explanatory with the exception of rims. Think of the letter U flipped upside down. The left and right rims are the ends of the U. Patterns with a higher right rim tend to outperform.

Tour

Figure 40.1 shows an example of a rounding turn on the daily scale. Notice how the starting (A) and ending (B) points are at nearly the same price. This characteristic differentiates the pattern from an inverted scallop, either ascending or descending. A single bump also separates it from a complex head-and-shoulders

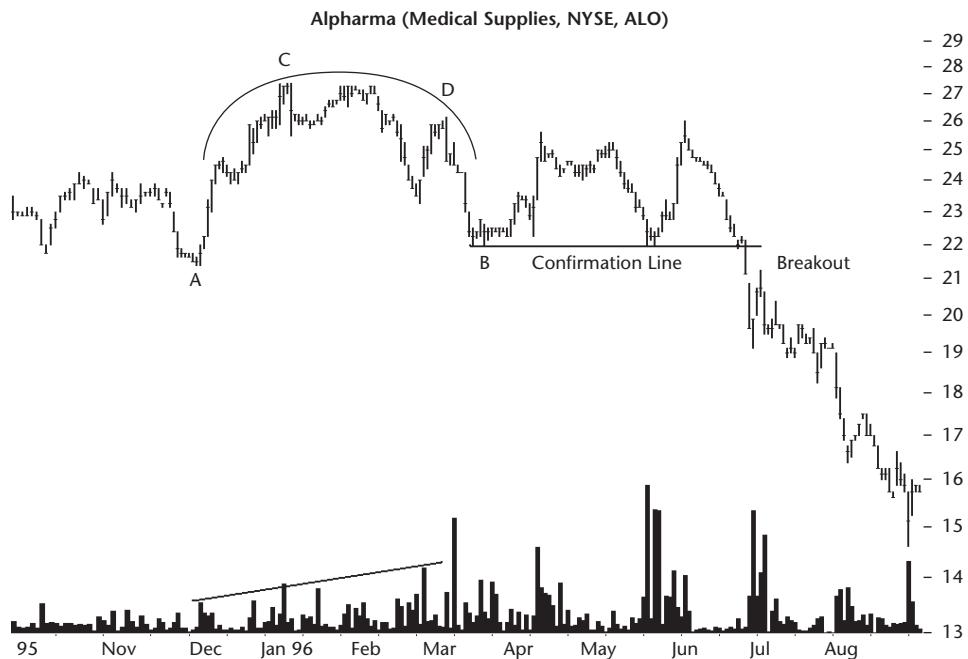


Figure 40.1 A rounding turn begins at point A and rounds over to end near where it begins (B). Points C and D make the curve look irregular but they occur often in rounding turns. Volume usually trends downward, unlike this example.

top, although I did not remove any RdTs that were part of a head-and-shoulders formation. In this example, the turn is a gentle one but still has irregular price moves poking through (points C and D). Volume trends upward in this example, but that is unusual for rounding turns.

The reason a rounding turn occurs is not difficult to explain. Prices move up on bullish enthusiasm confirmed by high volume at the start. Knowing that prices are climbing, sellers hold onto their shares a bit longer, forcing demand to climb along with the share price. However, as prices rise, buying demand tapers off and eventually catches up to supply. Prices round over at the top. Since the shares are fetching a premium to intrinsic value, more sellers appear. The smart money starts selling, too, and the price drops.

Once investors discover the upward price momentum has turned, selling pressure increases, forcing the price down. Volume may pick up as more traders try to dump their shares as prices decline. Eventually, the decline ends when nervous novices toss in the towel and sell their holdings. When all those who considered selling their shares have sold, the smart money jumps in and buys the stock, or sell it short, eventually pushing the stock to new highs (upward breakout) or new lows (downward breakout).

Identification Guidelines

Table 40.1 outlines the characteristics that rounding tops possess.

Daily or weekly scale. Using either the daily or weekly time scale, prices start moving up from the base of the dome formation. As they move up, they bend over and round off at the top, then continue their rounding turn until they head down and retrace much of the prior rise. Buying demand often cuts the decline short before prices return to where they started.

Even end prices. Look for the ends of the RdT to be near the same price, say, within 5% (but allow variations). In the 776 patterns I looked at, the bottom-to-bottom price variation averaged 3%, with the end usually slightly higher than the start 52% of the time. What you do not want to select are inverted scallops. Those have starting or ending prices well away from the other rim.

Rounded half-moon shape. The price climb from start to end should appear smooth, as a gentle rounding turn like a half-moon or inverted U. Allow prices to pierce the top occasionally, creating an irregular appearance, and for narrow but tall patterns to look like an inverted V instead of a U.

Curving volume trend. Volume is often lowest at the center of the formation and higher at either end. This observation is just a guideline, not an inviolable rule. Many times you will see an irregular volume trend over the life of the formation. Pay it no heed; it is still a rounding top. What is important is that prices round over and a bowl-shaped volume trend just adds evidence to the veracity of the chart pattern.

Breakout. The breakout can be in either direction. An upward breakout occurs when price closes above the pattern high, and that happens 53% of the

Table 40.1
Identification Characteristics

Characteristic	Discussion
Daily or weekly scale	These formations are often long enough to appear on the weekly charts as well as the dailies.
Even end prices	The price at the start of the pattern is close to the end of the pattern. The average difference is 3%, with the end higher than the start 52% of the time.
Rounded half-moon shape	The price trend curves beginning from the lower left upward to the top of the dome then rounds over and moves down again.
Curving volume trend	Volume is occasionally higher on either end and shallow in the center.
Breakout	A close above the highest high in the pattern signals an upward breakout; a close below the pattern end (right rim) signals a downward breakout.

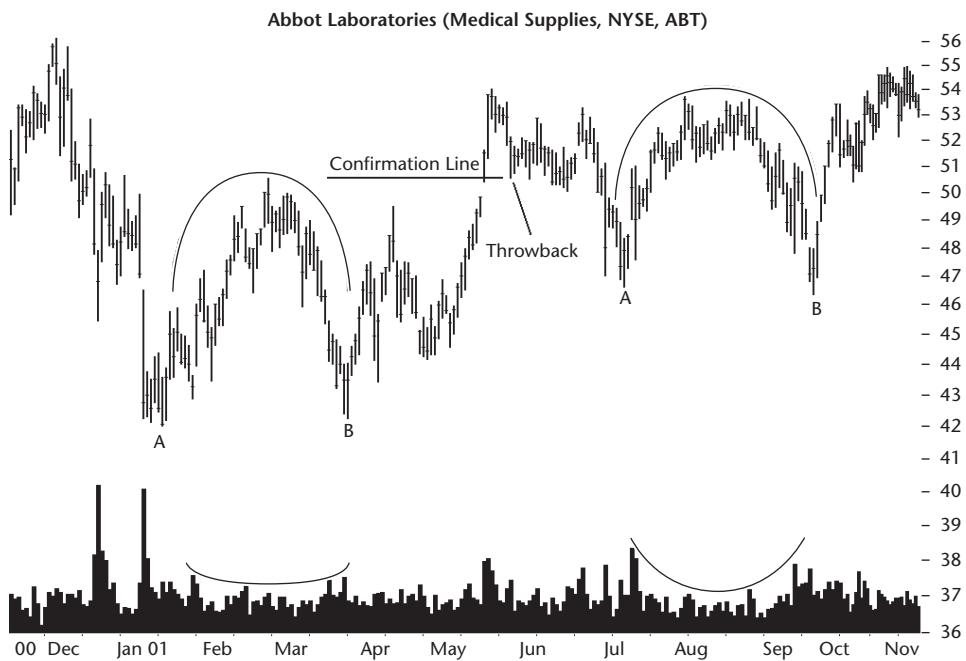


Figure 40.2 Two rounding turns with the ends nearly at the same price. Both have U-shaped volume and upward breakouts.

time in the stocks I looked at. A downward breakout happens when price closes below the right rim (the pattern's end).

Figure 40.2 shows two examples of rounding turns on the daily scale. Notice the gentle curve with the August pattern appearing more rounded. The February pattern looks like someone squeezed it in a vice—an inverted V shape.

The start and end of each pattern is at nearly the same price. That characteristic is important because it differentiates RdTs from scallops. The rounding turn may be part of a complex head-and-shoulders pattern, so check for that, and if so, trade it as a complex head-and-shoulders pattern.

Volume in these examples appears U-shaped and that is the predominate shape for rounding turns. Do not eliminate an RdT because the volume shape is domed. In a bear market with an upward breakout, performance improves in RdTs with dome-shaped volume (the other combinations of market conditions and breakout directions for RdTs do best with U-shaped volume).

Both RdTs break out upward when price closes above the highest high in the pattern. For downward breakouts, price must close below point B.

Focus on Failures

Figure 40.3 shows a typical example of a failure. The chart pattern obeys the identification guidelines as the turn appears rounded with prices A and B (the

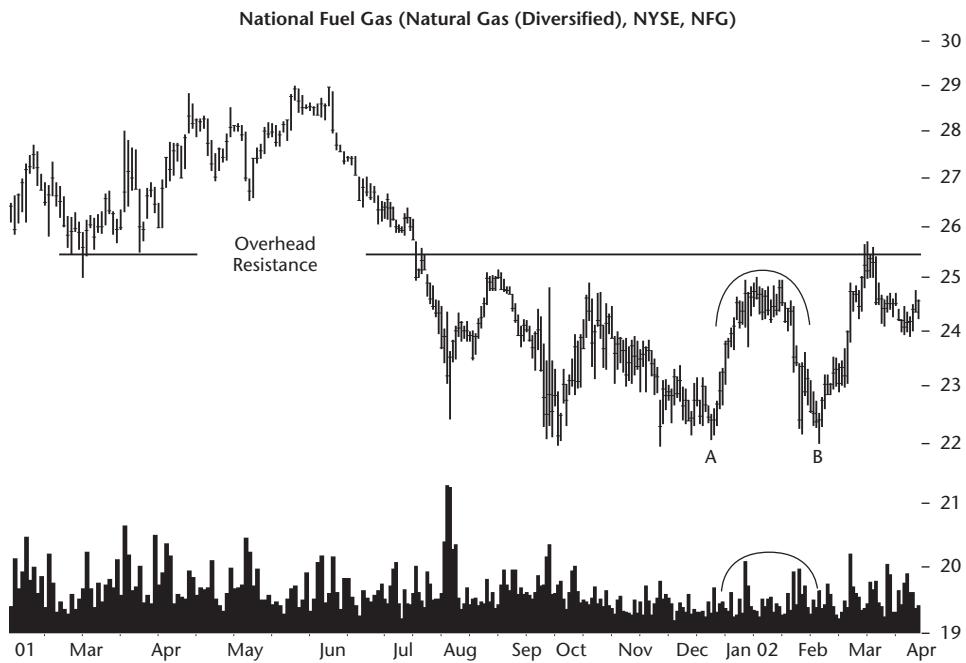


Figure 40.3 Overhead resistance blocks this rounding turn's upward breakout.

pattern's start and end) nearly the same. Volume is dome shaped, but that is typical for rounding turns—it happens 43% of the time.

Buying demand and selling pressure determines stock price movement. Fundamentals drive those forces. If news comes out that a company is considering bankruptcy, you can be sure the stock price is going down. Most news influences price less.

For example, beginning in late January 2002, natural gas prices started rising and broke out upward from a symmetrical triangle in March, just as the stock made a new minor high. Gas prices peaked in May and started a long slide that ended in August. By contrast, the stock peaked in March 2002 and continued lower. Thus, even as natural gas was making new highs, the stock was tumbling—“diverging” as we call it. However, both the stock and natural gas bottomed within a few weeks of each other, with the stock leading the way higher.

Technical factors also influence price movement and contribute to a pattern failure. For example, if you know that Joe Trader is buying and his record is the envy of the industry, you may want to buy, too. This herd instinct is what momentum is all about. Another example: Mutual funds spread their trades over several brokers and try to keep their elephant-like movements secret. Their large trades can cause price swings, so they spread their orders over time to lessen the impact. If you see a broker that handles trades for a mutual fund selling a large block of shares, you may want to dump your holdings too (or short the stock). This selling pressure contributes to downward momentum.

In Figure 40.3, the stock stages an upward breakout but bumps against overhead resistance. I only show the end of the resistance zone that dates back to December 1997, about 5 years before the pattern appeared. You can see how prices tried in August, September, and again in October to push through the ceiling. In early March 2002, it succeeded in making a new high but the rise soon faltered, predicting a tumble in natural gas prices. Not shown, but in late July, the stock dropped to 15.61, a multiyear low.

Many times the reason price changes trend is not as clear as in this example (overhead resistance and diverging gas prices). However, by digging into the fundamentals and with knowledge of the technicals—spiced with experience—you will be surprised at how often you can call the turns.

Statistics

Table 40.2 shows general statistics for rounding tops.

Number of formations. After finding few patterns for the first edition of the *Encyclopedia*, I searched the 5 years starting in mid-1991 and another 5 years starting from early 1999. Using 500 stocks, I found 776 patterns, split between market conditions and breakout directions.

Reversal or continuation. Just over half the time (55%), the pattern acts as a continuation of the price trend, due in large part by the results of RdTs in a bull market with upward breakouts. Continuations perform as well or beat reversals, on average, so trade with the price trend (shown before the pattern).

Table 40.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	238	173	157	208
Reversal (R), continuation (C)	84 R, 154 C	90 R, 83 C	89 R, 68 C	90 R, 118 C
R/C performance	36% R, 38% C	19% R, 19% C	-19% R, -20% C	-21% R, -25% C
Average rise or decline	37%	19%	-19%	-23%
Rises or declines over 45%	82 or 34%	26 or 15%	7 or 4%	14 or 7%
Change after trend ends	-31%	-35%	57%	53%
Busted pattern performance	53% ^a	64% ^a	-28% ^a	-38% ^a
Standard & Poor's 500 change	18%	-4%	6%	-13%
Days to ultimate high or low	161	77	45	25

Note: Minus sign means decline.

^aFewer than 30 samples.

Average rise or decline. The rise in a bull market is just above average for all other chart pattern types, but the decline in a bear market is inferior. The numbers suggest you want to trade this pattern with the market trend: upward in a bull market and downward in a bear market. Countertrend moves show weaker results.

Rises or declines over 45%. Over a third of the patterns with upward breakouts in a bull market rise over 45%. That is a good showing. The other combinations of market conditions and breakout directions do not perform as well.

Change after trend ends. As you might guess, the best performance comes after price reaches the ultimate low from a downward breakout in a bull market. Price climbs an average of 57%. However, the rise in a bear market is not too shabby either: 53%. The key is finding the ultimate low. Even if you wait for a 20% rise, which signals a trend change, you still have over 30 percentage points left in which to participate (on average). Use a stop-loss order to protect your position.

Busted pattern performance. The pattern really performs when it busts. By that, I mean price moves less than 5% beyond the breakout before reversing and heading off in the new direction. The downside is that few patterns bust (fewer than 30 in each column), so trading opportunities are limited. Even worse, it will be difficult to tell a busted pattern from a common retracement unless you wait for prices to move to the opposite end of the pattern. That waiting sacrifices a majority of the move.

Standard & Poor's 500 change. Notice how the strength of the average rise or decline follows the market trend. The largest rise comes from RdTs in a bull market with upward breakouts. The best decline comes from RdTs in a bear market with downward breakouts. Trades counter to the market trend suffer. Therefore, always trade with the market (and industry) trend.

Days to ultimate high or low. The rise in a bull market (37% in 161 days) takes longer to reach the ultimate high than the decline in a bear market (23% in 25 days) takes to reach the ultimate low. The decline must be steeper than the rise. This finding implies that you can make more trades in a bear market than in a bull one, but the profit will average considerably less.

Table 40.3 shows failure rates for RdTs. The lowest failure rates associate with the market trend: trading long in a bull market and short in a bear market. Countertrend trades have more risk. For example, 20% of the RdTs in bull markets with upward breakouts fail to rise more than 10%, but in a bear market, 36% fail to rise as far. Half the patterns (51%) in a bear market fail to drop more than 20%, but 57% in a bull market fail to drop 20%.

You can see how the failure rates start low and quickly climb for small changes in the maximum price rise or decline. For example, RdTs in a bear market with downward breakouts show failures of 9%, 22%, and 39% for declines of 5%, 10%, and 15%, respectively. A triple and then a double is common for many chart pattern types.

Table 40.4 shows breakout- and postbreakout-related statistics.

Table 40.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	22 or 9%	28 or 16%	19 or 12%	18 or 9%
10	47 or 20%	62 or 36%	42 or 27%	46 or 22%
15	63 or 26%	95 or 55%	62 or 39%	82 or 39%
20	82 or 34%	111 or 64%	90 or 57%	107 or 51%
25	101 or 42%	123 or 71%	109 or 69%	129 or 62%
30	112 or 47%	133 or 77%	124 or 79%	150 or 72%
35	127 or 53%	141 or 82%	131 or 83%	166 or 80%
50	170 or 71%	155 or 90%	154 or 98%	200 or 96%
75	204 or 86%	166 or 96%	157 or 100%	207 or 100%
Over 75	238 or 100%	173 or 100%	157 or 100%	208 or 100%

Table 40.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	112 days	71 days	58 days	79 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L3%, C18%, H79%	L9%, C23%, H68%	L70%, C27%, H3%	L78%, C21%, H1%
Percentage rise/decline for each 12-month lookback period	L45% ^a , C44%, H36%	L31% ^a , C21%, H18%	L20%, C18%, H12% ^a	L24%, C19%, H9% ^a
Throwbacks/pullbacks	53%	52%	48%	57%
Average time to throwback/pullback ends	9 days	9 days	9 days	9 days
Average rise/decline for patterns with throwback/pullback	36%	20%	-17%	-20%
Average rise/decline for patterns without throwback/pullback	39%	19%	-22%	-27%
Performance with breakout gap	42%	20%	-25%	-24%
Performance without breakout gap	36%	19%	-18%	-22%
Average gap size	\$0.83	\$0.59	\$1.20	\$1.97

Note: Minus sign means decline.

^aFewer than 30 samples.

Formation end to breakout. Once prices drop to the right rim, they take between 2 and 4 months, on average, to climb above the pattern's high. For downward breakouts, the delay is shorter but still quite long, about 2 months (58 to 79 days).

I expected the shortest time to the breakout to follow the market trend. If a rising tide lifts all boats, then that would help the stock climb faster. That explanation sounds good but the numbers suggest otherwise for both bull and bear markets. Another explanation is that stocks in a bear market struggling to rise against the outgoing (falling) tide must have a very good reason to climb. The enthusiasm powers the stocks upward much faster than stocks coasting upward in a rising market.

The key to successful trading is finding stocks in a bull market that have a need to shoot higher or finding those in a bear market that not only want to crash and burn, but also dig a hole so deep as to reach the earth's core.

Yearly position. As you might guess, upward breakouts appear near the yearly high and downward breakouts occur often near the yearly low.

Yearly position, performance. With most of the patterns hovering near the yearly high or digging near the yearly low, the sample counts are few for the other extremes. Keeping that finding in mind, RdTs perform best when the breakout is near the yearly low.

Throwbacks and pullbacks. A throwback or pullback occurs about half the time. It takes, on average, 9 days for price to return to the breakout price. When a throwback or pullback occurs, performance usually suffers. The lone exception is for RdTs with upward breakouts in a bear market. Those with throwbacks rise 20%. Without throwbacks, the rise averages 19%.

Gaps. I am not sure how important the gap performance numbers are because with a breakout up to 4 months after the end of the pattern, who is going to notice a breakout day gap? However, in all cases, gaps helped performance, sometimes substantially. Notice how large gaps are during a downward breakout.

Table 40.5 shows a frequency distribution of time to the ultimate high or low. Notice how many RdTs have a trend change in the first week or two. The worst case is for downward breakouts in a bear market. Almost 60% hit bottom in the first 2 weeks. That finding seems odd because the breakout direction is in the direction of the market trend. Thus, the down move must be violent and suggests that you should short the stock *before* the breakout. Otherwise you may miss a potentially large move (think breakaway gap on the breakout day). Look for the general market (S&P 500 index) and industry to be trending downward, an absence of underlying support, and a price downtrend before the RdT. If those conditions exist, consider shorting the stock. The stock will bottom at the right rim and then bounce up for a month or two. When it peaks during the bounce and starts moving down again, short the stock. That move should get you on the correct side of the trade before the breakout. Use a progressive stop (lower it as price drops) in case you are wrong.

Table 40.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	25%	6%	6%	6%	8%	4%	2%	3%	2%	1%	37%
Bull market, up breakout	15%	3%	5%	5%	4%	4%	3%	4%	2%	2%	55%
Bear market, down breakout	46%	13%	9%	8%	6%	2%	3%	1%	0%	2%	9%
Bull market, down breakout	25%	8%	10%	10%	6%	4%	7%	6%	2%	2%	21%

The other combinations of breakout direction and market conditions take longer to reach the ultimate high or low, sometimes much longer. For example, 55% of RdTs in a bull market with upward breakouts take longer than 70 days to reach the ultimate high. While bear markets show the need to take a position quickly, bull markets seem more relaxed. You have plenty of time to buy in, but you have to be patient to get a good return.

Table 40.6 shows statistics related to pattern size.

Height. Tall patterns perform better than short ones in all market conditions and breakout directions. For example, RdTs taller than the median in a bull market have gains averaging 41%, but short ones rise only 34%.

Width. RdTs narrower than the median perform well when the breakout is upward. I used the median length as the separator between narrow and wide.

Average formation length. The average pattern length varies from 83 to 138 days. Notice how the average is larger than the median, suggesting that large outliers pull the average upward.

Height and width combinations. Which combination of height and width works best? RdTs that are both tall and narrow perform best. The worst performance comes from short and narrow or short and wide patterns.

Table 40.7 shows volume-related statistics for rounding tops.

Volume trend. Patterns with a falling volume trend outperform those with a rising volume trend in all cases but one (bull market, down breakout). For example, in a bull market, up breakout, RdTs with a rising volume trend had postbreakout gains averaging 33%, but those with a falling volume trend gained 41%.

Volume shapes. Most of the time, RdTs with U-shaped volume perform better than the other shapes. The one exception is for RdTs in a bear market with an upward breakout. When volume has a dome shape, RdTs perform better (21% versus 19%).

Table 40.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Tall pattern performance	41%	22%	-21%	-27%
Short pattern performance	34%	16%	-18%	-19%
Median height as a percentage of breakout price	23.90%	23.14%	31.02%	42.41%
Narrow pattern performance	39%	20%	-19%	-22%
Wide pattern performance	35%	19%	-19%	-24%
Median length	123 days	72 days	118 days	83 days
Average formation length	138 days	83 days	134 days	111 days
Short and narrow performance	33%	17%	-19%	-19%
Short and wide performance	36%	14% ^a	-17% ^a	-19%
Tall and wide performance	35%	21%	-21%	-27%
Tall and narrow performance	52%	25% ^a	-21% ^a	-28%

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 40.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Rising volume trend performance	33%	16%	-19%	-22%
Falling volume trend performance	41%	22%	-19%	-23%
U-shaped volume pattern performance	42%	19%	-21%	-24%
Dome-shaped volume pattern performance	34%	21%	-18%	-20%
Neither U-shaped nor dome-shaped volume pattern performance	30% ^a	13% ^a	-15% ^a	-21% ^a
Heavy breakout volume performance	39%	19%	-20%	-24%
Light breakout volume performance	30%	19%	-16%	-19%

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 40.8
Miscellaneous Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Higher left rim, performance	35%	19%	-17%	-22%
Higher right rim performance	39%	19%	-21%	-24%
Equal rims, performance	33% ^a	30% ^a	-22% ^a	-15% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Breakout volume. RdTs with breakout volume that exceeds the 30-day average show performance equal to or better than those with light breakout volume.

Table 40.8 shows miscellaneous rounding top statistics.

Rims and performance. Patterns with a higher right rim outperform those with a higher left rim most of the time. By rim, I mean the start or end of the rounding turn. For example, in Figure 40.1, the rims are points A and B, with B, the right rim, higher than the left. In Figure 40.2, the August rounding turn shows a higher left rim (A). Few RdTs showed equal prices, so I consider the performance results anomalous.

Trading Tactics

Table 40.9 shows trading tactics for rounding tops.

Table 40.9
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the formation height by subtracting the right rim low from the formation high. Add the difference to the high for upward breakouts or subtract the difference from the right rim low for downward breakouts to get the target price.
Buy or short on breakout	Buy when prices close above the dome high, or below the right rim low.
Buy above 30% retrace	For a more risky but profitable trade, buy when prices rise above the right dome low by at least 30% of the formation height.
Right low support	The right rim low shows support. If prices throw back to this level and continue down, sell or sell short.

Measure rule. The measure rule estimates the minimum expected price target. The rule works reasonably well, 61% of the time, for RdTs in bull markets with upward breakouts. When using the rule, be sure to look for resistance areas. They are the areas where the price rise is likely to stall, forcing the measure rule to underperform. To use the measure rule, subtract the lowest low at the right rim from the highest high in the formation, which gives the formation height. In Figure 40.4, point A shows the lowest low at the end, 45.63, whereas point B depicts the highest high at 49.88. Add the difference, 4.25 (the formation height), to the highest high (point B) to get the target price. In this case, the target is 54.13, met in early July.

Buy or short on breakout. There are several ways to profit from rounding tops. The suggested method is to trade in the direction of the breakout.

Buy above 30% retracement. For upward breakouts, that means buying when price closes above the dome high. For downward breakouts, that means shorting below the right rim low. If you like to take more risk, buy at a lower price (one-third of the formation height, above the right dome low). I use the 30% retracement amount since a rise of that magnitude usually breaks a down-sloping trend line that sometimes forms as prices decline during the rounding turn. A breakthrough of a trend line or even a 30% retracement is usually strong enough to command attention from other investors (they jump on the uptrend) and minimizes the chance of a downward breakout.

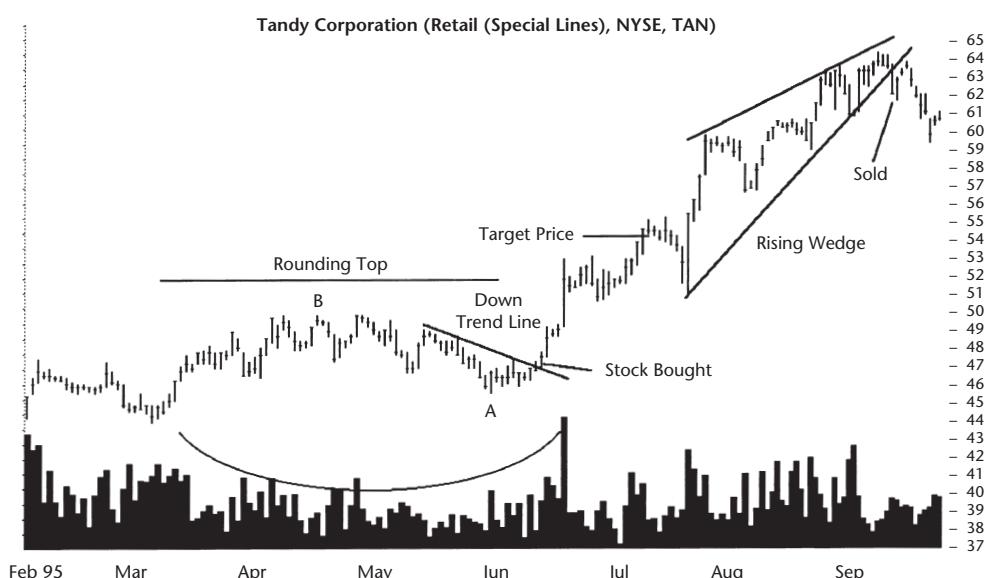


Figure 40.4 A rounding top with a rising wedge. As described in the Sample Trade, this formation turned into a profitable opportunity for Sharon. She bought into the situation and sold after the rising wedge breakout.

Right low support. If you purchase a stock after a rounding turn completes and see prices rise for a month or so, curl around, and fall below the right dome low, sell the stock. Most likely it is going to continue down. Watch for a bounce at the right rim low as that area sometimes acts as a support zone. As always, look for other areas of support to gauge how far the decline may go.

Sample Trade

Sharon is a high-energy player. She is the one you see careening out of control when skiing down the expert slope. She is the one you see night after night relaxing in a bar after work, surrounded by men. In other words, she is fun to be with, the life of the party.

Her investment style mirrors her lifestyle. When she spotted the rounding top pictured in Figure 40.4, she waited for just the right moment to buy. At first she thought it might be a head-and-shoulders top, but the two shoulders and head were at about the same price level and the volume pattern was all wrong.

In mid-June, when prices began heading up and pierced the down-sloping trend line, she bought the stock and received a fill at 47. Then she held on and watched the stock daily. As prices rose, she noticed that the oscillations from minor high to minor low seemed to be narrowing. To her, these oscillations indicated that a rising wedge was forming, but the volume pattern was abnormal. With a rising wedge, the volume pattern tends to recede over time.

In early September, Sharon grew alarmed because the volume trend began to decline drastically. Her studies showed a tendency for a severe dropoff in volume just before a rising wedge breakout, so the day after prices pierced the lower wedge trend line, she sold the stock at 62.

Her analysis was perfect. After she sold the stock, prices pulled back to the lower wedge trend line and hung on for 2 more days before tumbling. At the start of the new year, the stock reached a low of 34.13.

For Best Performance

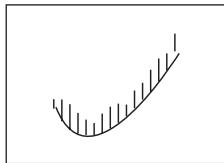
The following list includes tips and observations to help you select better performing RdTs. Refer to the associated table for more information.

- Correctly identify the pattern using the guidelines—Table 40.1.
- Trade with the market trend: Go long in a bull market, short a bear market—Table 40.2.
- Continuations perform better than reversals—Table 40.2.
- Countertrend trades have larger failure rates, so trade in the direction of the market trend—Table 40.3.

- Select patterns with downward breakouts near the yearly low—Table 40.4.
- Throwbacks and pullbacks usually hurt performance. Avoid overhead resistance or underlying support—Table 40.4.
- Choose patterns with breakout day gaps—Table 40.4.
- In a market and industry downtrend, no underlying support beneath the RdT, and a price downtrend leading to the rounding turn, short the stock. After price reaches the right rim low, bounces higher, and then starts moving down, place the trade and use progressive stops—Table 40.5.
- Select patterns that are tall or both tall and narrow—Table 40.6.
- Pick rounding turns with a falling volume trend, U-shaped volume, and heavy breakout volume—Table 40.7.
- Select patterns with a higher right rim—Table 40.8.

41

Scallops, Ascending



RESULTS SNAPSHOT

Upward Breakouts

Appearance	Price peaks, retraces, curves around, and then forms a higher peak. The price pattern looks like the letter J with an upward breakout.	
Reversal or continuation	Short-term bullish continuation	
	Bull Market	Bear Market
Performance rank	16 out of 23	18 out of 19
Break-even failure rate	10%	16%
Average rise	31%	19%
Change after trend ends	-32%	-34%
Volume trend	Upward	Upward
Throwbacks	58%	42%
Percentage meeting price target	58%	39%
Surprising findings	Reversals perform better than continuations. The best performers are those with breakouts near the yearly low. Gaps help performance. Tall patterns perform better than short ones. Scallops in a rising price trend tend to get shorter and narrower. Narrow scallops take less time to reach the ultimate high than wide ones. Patterns with a rising volume trend and U-shaped volume outperform.	
See also	Cup with Handle; Head-and-Shoulders Bottoms, Complex; Rounding Bottoms	

Downward Breakouts

Appearance	Same, but breakout is downward.	
Reversal or continuation	Short-term bearish reversal	
	Bull Market	Bear Market
Performance rank	20 out of 21	19 out of 21
Break-even failure rate	27%	14%
Average decline	14%	19%
Change after trend ends	54%	46%
Volume trend	Upward	Upward
Pullbacks	56%	57%
Percentage meeting price target	25%	30%
Surprising findings	The best performers are those with breakouts near the yearly low. Gaps help performance. Tall patterns perform better than short ones. Scallops in a rising price trend tend to get shorter and narrower. Patterns with a rising volume trend, dome-shaped volume, and heavy breakout volume outperform.	
See also	Same as for upward breakouts	

What impresses me most about ascending scallops is how poorly they perform. I consider well-behaved patterns as those with break-even failure rates below 20%. In a bull market with a downward breakout, 27% fail to decline at least 5%. Upward breakouts perform better, but the 10% or 16% failure rate does not inspire confidence. The average rise or decline is also below par for both breakout directions.

Perhaps the only redeeming quality of ascending scallops is their ability to predict the end of the trend. Scallops get narrower and shorter, on average, when compared with prior scallops in a series. For example, in a line of three ascending scallops, the first one will be wider and taller than the last one. Also, a downward breakout from a scallop perched at the summit (the end of an upward price trend) is bearish and usually means a trend change.

Tour

Figure 41.1 shows three ascending scallops, with the first one being an especially large one. It looks like a rounding bottom except that the minor high, where the formation ends on the right (in mid-April), is well above the minor high on the left (during early December). This is typical for ascending scallops — the right

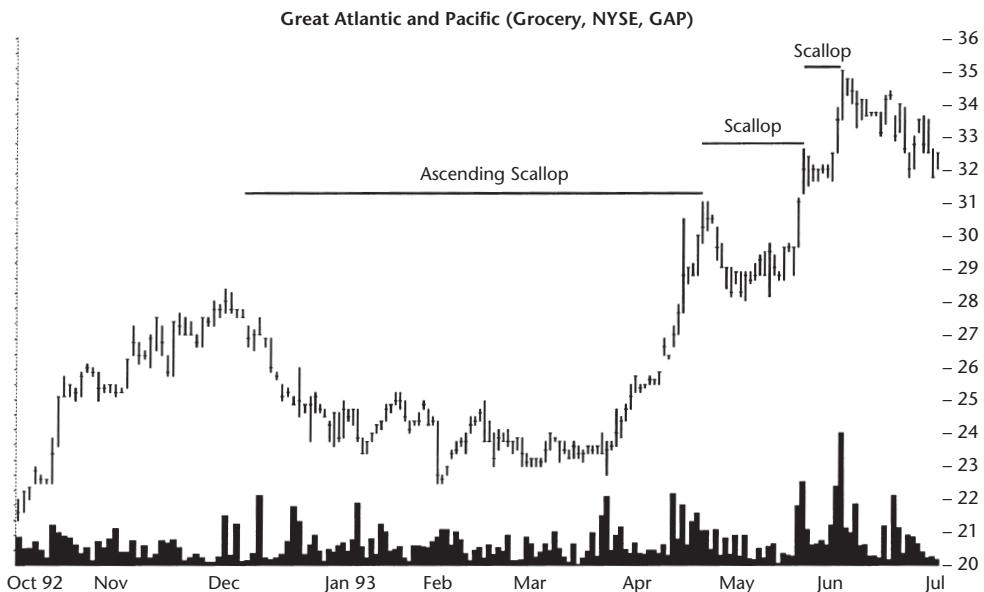


Figure 41.1 Three ascending scallops. The formation resembles the letter J.

side should be above the left. However, it is fine if the two peaks are close to each other in price. This feature often signals an end to the series of scallops and the rising price trend.

The J-shaped pattern appears on the smallest scallop in Figure 41.1. I highlight this formation with some consternation. When hunting for scallops, one should look at the price lows, not the highs. If you connect the minor lows of the first two formations, you see that prices have a bowl shape. The bowl shape is not clear in the smallest formation unless you trace along the highs.

The smallest formation in Figure 41.1 also has the best volume pattern—a U-shaped trend. This is common for ascending scallops but should not be viewed as a requirement. The first scallop does not have an easily recognizable bowl-shaped volume trend but it is there. The volume spikes are higher near the formation ends than in the center.

Identification Guidelines

Table 41.1 shows identification guidelines for ascending scallops.

Price trend. As one might guess from the pattern's name, ascending scallops appear in a rising price trend. Rarely do they occur in a declining trend. More often, the scallop will signal a trend change (from down to up) when it appears after a long downtrend.

Table 41.1
Identification Characteristics

Characteristic	Discussion
Price trend	Price should be rising leading to ascending scallops.
J shape	Look for two price peaks with a rounded recession in between and a higher right peak. Ascending scallops look like the letter J.
Volume	Ascending scallops often show a U-shaped volume trend.
Width	Scallops tend to be wider near the start of a trend than near the end, but allow variations.
Uneven ends	Scallops with price nearly the same at the end as at the beginning suggest the trend is near the end.

J shape. The pattern resembles the letter J. The peak on the left side is below the right side with a rounded recession in between. The two peaks should not be near each other in price (otherwise, you have a cup with handle, rounding turn, or even a double top chart pattern).

Volume. Volume usually resembles the price pattern: higher at the ends than in the middle. However, do not exclude a scallop with domed or other shaped volume.

Width. Wide scallops usually mark the start of a rising price trend and narrow ones appear near the end of the trend. I base this observation on the average scallop width, so sometimes you see just the opposite: a wide scallop at the end of a trend and narrower ones near the start.

Uneven ends. In a series of scallops, many times the highest scallop in the series will look like a rounding turn or double top with the start and end of the scallop sharing almost the same price. A downward breakout may follow immediately or a trend change will occur soon after. A check of the database shows that scallops with starting and ending prices near each other perform less well than do those priced farther apart.

Figure 41.2 shows two examples of ascending scallops, the first with an upward breakout and the second with a downward one. An upward breakout occurs when price closes above the highest high in the pattern (point A); a downward breakout happens when price closes below the lowest low (point B). Both patterns have dome-shaped volume, which is unusual for scallops.

The J shape of each scallop is well defined with the end far above the price at the start. Between the beginning and end is a rounded-looking recession forming the bottom of the pattern. Sometimes the turn looks irregular with a few price bars getting in the way of a curved line drawn along the valley lows, but that is fine. Use the figures in this chapter as examples of ascending scallops.

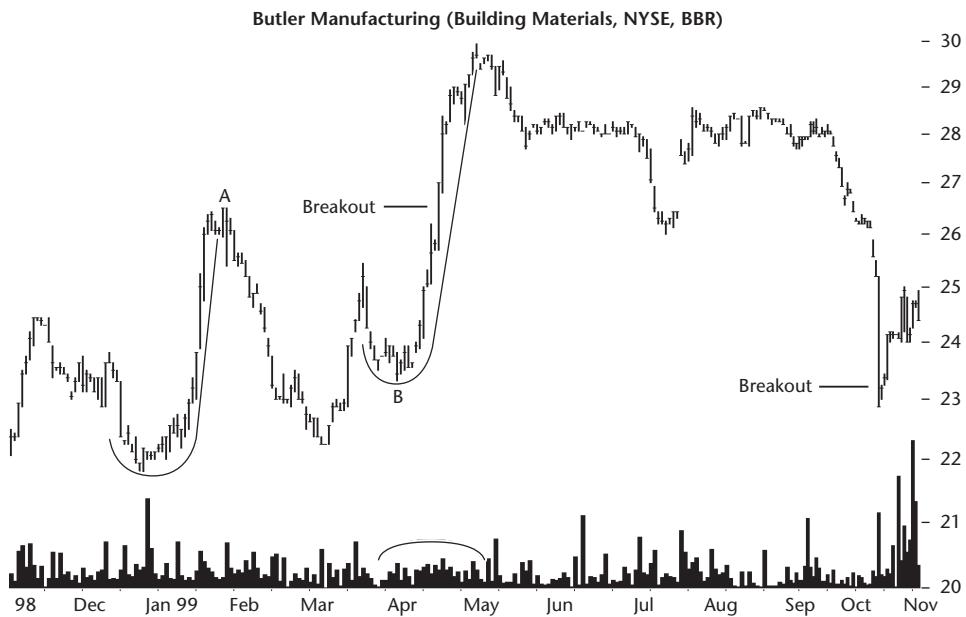


Figure 41.2 Two ascending scallops, the first with an upward breakout and the second with a downward one. Price must close above or below the scallop to stage a breakout.

Focus on Failures

Scallops suffer from what I call 5% failures. A 5% failure is when price breaks out in the intended direction but fails to continue moving in the same direction by more than 5%. Price doubles back and heads in the opposite direction, sometimes causing an investor to lose money. Figure 41.3 shows an example of failure.

There is nothing wrong with the ascending scallop in Figure 41.3 in the April–May period. Prices round up nicely and continue higher while the volume pattern is bowl-shaped if you disregard the twin spikes in early May. However, the late June formation marks the high for the stock. Again, there is really nothing wrong with the pattern. The J shape is pronounced and smooth. The volume pattern is somewhat rugged but higher on either end than in the center. The narrowness of the formation is a clue to its failure. It is about 2 weeks wide, which is quite narrow for scallops (the average width is over a month long). From the high at 19, the stock heads down in a choppy manner until the end of the study (mid-July 1996) where it is at 13.50.

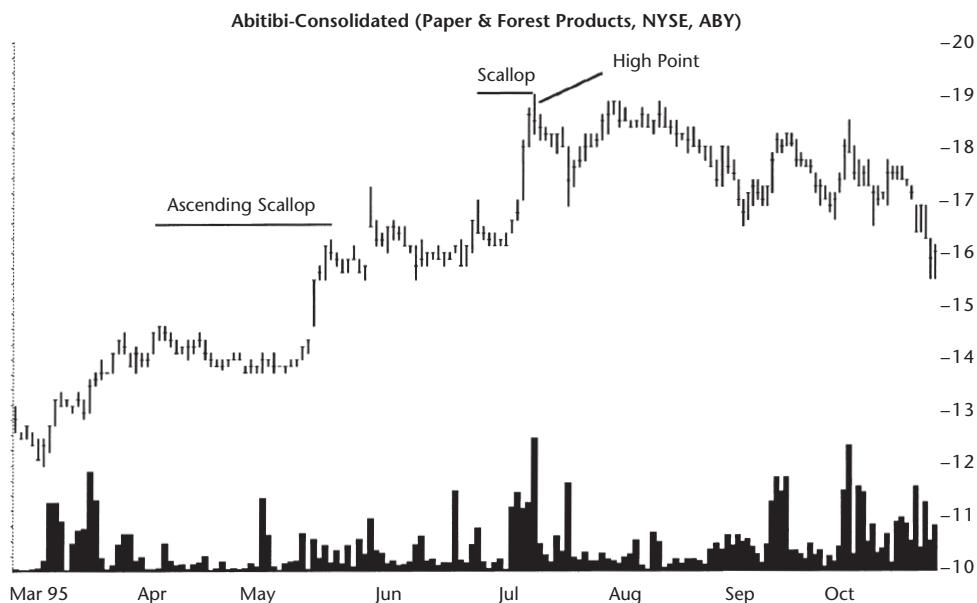


Figure 41.3 An ascending scallop failure in late June. Most scallops act as consolidations of the trend, but the narrow ascending scallop in late June marks the high for the stock.

Statistics

Table 41.2 shows general statistics for ascending scallops.

Number of formations. These patterns are plentiful. I searched data from mid-1991 to 1996 in 500 stocks, 300 stocks from 1999 to 2003, and about 100 stocks from 2000 to 2003. With 1,380 scallops located, I quit looking. Even so, I found comparatively few with downward breakouts, as you might expect.

Reversal or continuation. Scallops with upward breakouts function as continuations of the prevailing (upward) price trend. Downward breakouts act as reversals of the uptrend with a few sprinkled into a declining price trend (those act as continuations). Reversals perform better than continuations in all cases except downward breakouts in a bear market.

Average rise or decline. The average rise for both bull and bear markets is less than I hoped to see and below the usual performance for all chart pattern types. Even the downward breakout performance is below par.

Rises or declines over 45%. One bright light is that 27% of scallops climb more than 45% in a bull market. This finding suggests you should trade ascending scallops in a bull market with upward breakouts, or trade with the market trend: up in a bull market and down in a bear market.

Table 41.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	736	365	161	118
Reversal (R), continuation (C)	84 R, 652 C	53 R, 312 C	147 R, 14 C	94 R, 24 C
R/C performance	33% R, 31% C	23% R, 19% C	-14% R, -11% C	-17% R, -24% C
Average rise or decline	31%	19%	-14%	-19%
Rises or declines over 45%	198 or 27%	47 or 13%	1 or 1%	6 or 5%
Change after trend ends	-32%	-34%	54%	46%
Busted pattern performance	53% ^a	39% ^a	-27%	-33%
Standard & Poor's 500 change	12%	-4%	1%	-17%
Days to ultimate high or low	162	68	44	35

Note: Minus sign means decline.

^aFewer than 30 samples.

Change after trend ends. Once price reaches the ultimate high or low, the rebound is not spectacular, especially for scallops with a downward breakout.

Busted pattern performance. The numbers suggest that if a scallop breaks out in one direction and then reverses, trade the new direction. For example, if the stock breaks out downward, drops a bit, and then recovers to close above the left scallop high (the lower of the two scallop peaks), buy the stock. Use stops to protect your profits and limit losses. Many times a small move (5% or less) in the breakout direction precedes a large rebound in the direction opposite the breakout. That, of course, is the definition of a busted pattern.

Standard & Poor's 500 change. Notice how the large up move in the S&P (12% rise) helped scallops with an upward breakout in a bull market perform (31% rise). A bear market (4% decline) held down the scallop's post-breakout price rise (19%). Downward breakouts show the same trend: A rising market (1% rise) hurt downward breakouts (14% decline) and a falling market (-17%) swept along downward breakouts (19% decline). The numbers reinforce the belief that you should trade in the direction of the prevailing market trend and avoid countertrend trades.

Days to ultimate high or low. Compare the 162 days it took scallops in a bull market to climb 31% with the 35 days in a bear market to decline 19%. Prorated, the bear market decline should have taken 99 days if it followed the same slope as in a bull market. Thus, the decline in a bear market must be steeper than the rise in a bull market. This finding is not unique to ascending scallops. It suggests that to maximize the number of trades, make full use of

Table 41.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	76 or 10%	60 or 16%	44 or 27%	17 or 14%
10	151 or 21%	122 or 33%	74 or 46%	34 or 29%
15	218 or 30%	168 or 46%	100 or 62%	52 or 44%
20	294 or 40%	209 or 57%	118 or 73%	73 or 62%
25	367 or 50%	245 or 67%	134 or 83%	83 or 70%
30	431 or 59%	267 or 73%	146 or 91%	96 or 81%
35	471 or 64%	288 or 79%	154 or 96%	104 or 88%
50	562 or 76%	327 or 90%	160 or 99%	113 or 96%
75	640 or 87%	346 or 95%	161 or 100%	118 or 100%
Over 75	736 or 100%	365 or 100%	161 or 100%	118 or 100%

short sales in a bear market. The trades will be quicker but not as profitable, and only seasoned traders should attempt them.

Table 41.3 shows failure rates for ascending scallops. The rates are higher than those for many other chart patterns. Consider that 27% of the scallops in a bull market with downward breakouts decline less than 5% after the breakout. Nearly half (46%) drop less than 10%. Clearly, you want to avoid trading against the market trend.

Notice how the failure rates climb. They double for moves from 5% to 10% in most cases. They climb by half for moves from 10% to 15%. Let me give you an example. Scallops in a bull market with upward breakouts have 10% failing to rise more than 5%. The failures double to 21% for rises of just 10% and the failure rate climbs to 30% for moves under 15%. That failure rate (30%) is triple the break-even rate of 10%.

The best performance comes from scallops that trade with the market trend: upward breakouts in a bull market and downward breakouts in a bear market. They have the lowest failure rates. Scallops in a bear market with upward breakouts do better for larger moves than those with downward breakouts. That is, after a 15% move, the failure rates for upward breakouts are lower than are those for downward breakouts.

Table 41.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. Prices take over a month to close above the scallop's high and 2 months to drop below the scallop's low, on average. For upward breakouts, this is the time price forms a handle on the J pattern, so it resembles a kitchen ladle, one that a chef hooks onto a wire for easy access. In some cases, the retrace may take prices well below the scallop's top but remain above the bottom of the scallop (otherwise, it would breakout downward).

Table 41.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	42 days	34 days	61 days	63 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L4%, C14%, H82%	L6%, C24%, H70%	L23%, C50%, H27%	L48%, C43%, H8%
Percentage rise/decline for each 12-month lookback period	L40% ^a , C30%, H32%	L22% ^a , C21%, H19%	L15%, C13%, H15%	L22%, C17%, H13% ^a
Throwbacks/pullbacks	58%	42%	56%	57%
Average time to throwback/pullback ends	9 days	8 days	10 days	9 days
Average rise/decline for patterns with throwback/pullback	30%	20%	14%	18%
Average rise/decline for patterns without throwback/pullback	33%	19%	14%	20%
Performance with breakout gap	34%	21%	15%	20% ^a
Performance without breakout gap	31%	19%	14%	18%
Average gap size	\$0.43	\$0.34	\$0.24	\$1.20

^aFewer than 30 samples.

Yearly position. Scallops with upward breakouts usually form near the yearly high (as measured by the breakout). For downward breakouts, the pattern occurs most often in the middle of the yearly price range or, in the case of bear markets, near the yearly low.

Yearly position, performance. The best performance comes from scallops near the yearly low, if you trust the low sample count results.

Throwbacks and pullbacks. Throwbacks and pullbacks happen about half the time. When they do occur, it takes between 8 and 10 days for price to return to the breakout price. Sometimes, a throwback hurts performance when the breakout is in line with the market trend. Look for nearby underlying support or overhead resistance before selecting scallops to trade. The risk with a throwback or pullback is that price will continue moving in the direction opposite the breakout and you will suffer a loss. Avoid throwbacks and pullbacks by checking for support and resistance before trading.

Gaps. Performance improves for scallops showing a gap on the breakout day. In all cases, the performance difference is small.

Table 41.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	23%	8%	7%	7%	5%	5%	3%	4%	2%	2%	33%
Bull market, up breakout	15%	6%	3%	4%	2%	4%	3%	4%	3%	3%	52%
Bear market, down breakout	35%	15%	6%	7%	6%	3%	4%	2%	2%	3%	18%
Bull market, down breakout	35%	9%	7%	6%	8%	5%	6%	2%	1%	0%	20%

Table 41.5 shows a frequency distribution of time to the ultimate high or low. Notice how quickly many scallops reach the ultimate high or low. For example, half of the scallops in a bear market with downward breakouts reach the ultimate low in 2 weeks or less. This statistic compares to just 21% topping out in a bull market. At the other end of the scale, half of the bull market patterns are still searching for the ultimate high after more than 2 months.

The table gives you some idea of how long your trade may take, given the varying market conditions and breakout directions. It suggests patience in a bull market (upward breakout) and hair triggers for downward breakouts (35% reach the ultimate low in week 1).

Notice the slight rise (to 8%) for scallops with downward breakouts in a bull market at day 35. I have seen other chart patterns flame out a month after the trade, so be prepared to close out your position then if weakness appears.

Table 41.6 shows statistics related to size.

Height. Tall patterns outperform short ones in all market conditions and breakout directions. Size is an important tool to gauge likely postbreakout performance. Measure the height from the highest high to the lowest low in the scallop and then divide by the breakout price (which is either the highest high or lowest low in the scallop). If the result is higher than the median, then you have a tall scallop.

Width. Performance tracks the market trend: Wide patterns do better when the trade follows the market direction (upward in a bull market and downward in a bear market). Narrow scallops do better when the breakout direction is against the market tide. I used the median length as the separator between wide and narrow.

Average formation length. The average scallop length is near 40 days with scallops in a bull market with upward breakouts showing a substantially longer average (53 days).

Table 41.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Tall pattern performance	34%	23%	16%	20%
Short pattern performance	29%	17%	12%	18%
Median height as a percentage of breakout price	19.77%	22.67%	21.47%	25.47%
Narrow pattern performance	30%	20%	16%	18%
Wide pattern performance	33%	18%	12%	19%
Median length	39 days	35 days	34 days	31 days
Average formation length	53 days	40 days	42 days	40 days
Short and narrow performance	29%	18%	13%	15%
Short and wide performance	30%	15%	11%	20% ^a
Tall and wide performance	35%	21%	13%	18%
Tall and narrow performance	33%	24%	21%	23% ^a
Average width (days) of first through third scallop in a series	54, 56, 49	41, 37, 37	47, 35, 43	40, 42, 31
Average height of first through third scallop in series as percentage of breakout price	22%, 20%, 19%	23%, 23%, 22%	19%, 17%, 19%	25%, 21%, 17%
Narrow scallops: days to ultimate high or low	147	66	48	31
Wide scallops: days to ultimate high or low	176	70	40	40

^aFewer than 30 samples.

Height and width combinations. The combination of height and width usually follows the individual results except for scallops in a bear market with downward breakouts. Those do best when the scallop is both tall and narrow. Avoid trading short scallops.

Series width and height. I looked at consecutive scallops in a rising price trend and found that they tended to get narrower and shorter the higher up the price trend they appeared. Figures 41.1 and 41.3 show this feature. I have seen scallops get wider as they climb, so the findings vary from stock to stock. If you see a scallop appear after a long uptrend and it seems *unusually wide or narrow*, the end of the trend may be near. Consider looking elsewhere for a more promising trade. What does *unusually wide or narrow* mean? Use the average and

median lengths in Table 41.6 and the figures in this chapter as guides. Since scallops are plentiful, search for them in the stock you intend to trade and in other stocks in the same industry to get a better feel for scallop width.

Scallop width and time. I used the median width as the separator between narrow and wide and then mapped the time to the ultimate high. I found that narrow scallops took less time (usually) to reach the ultimate move than wide scallops. The exception is for scallops in a bull market with downward breakouts. Narrow scallops took 8 days longer to reach the ultimate low.

Table 41.7 shows volume-related statistics.

Volume trend. Scallops perform better in a rising volume trend. In most cases, the performance difference is small, so do not let the volume trend overrule a promising trade. Still, if you find two scallops of equal worth, trade the one with a rising volume trend.

Volume shapes. Scallops with upward breakouts and U-shaped volume perform best. Scallops with downward breakouts perform better when volume is dome shaped.

Breakout volume. Heavy breakout volume usually propels a stock farther than a breakout on weak volume, according to the performance numbers in Table 41.7. I used the 30-day average (leading to, but not including the breakout) as the separator between heavy and light.

Table 41.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Rising volume trend performance	32%	20%	14%	19%
Falling volume trend performance	30%	16%	13%	17%
U-shaped volume pattern performance	32%	20%	12%	18%
Dome-shaped volume pattern performance	30%	19%	17%	20%
Neither U-shaped nor dome-shaped volume pattern performance	29%	14% ^a	4% ^a	12% ^a
Heavy breakout volume performance	33%	19%	15%	19%
Light breakout volume performance	28%	19%	12%	18% ^a

^aFewer than 30 samples.

Trading Tactics

Table 41.8 shows trading tactics for ascending scallops.

Measure rule. The first trading tactic is to determine how far prices are likely to move once the formation completes. This gauge is called the measure rule because it involves measuring the formation height and applying it to the breakout point.

Subtract the lowest low reached in the bowl from the high reached on the right side of the formation. Once you have the height, add the value to the highest high on the right side (upward breakouts) or subtract it from the lowest low (downward breakouts). The result is the minimum expected price target. An example makes the calculation clear. Consider the ascending scallop that forms during late September as shown in Figure 41.4. Apply the measure rule to this formation by subtracting the formation base from the right side high. Point B shows the base low at 12.50 and the right side high, point A, is 16. The difference of 3.50 is the formation height. Add the difference to the right-side high (point A) to get the target price of 19.50. Prices meet the target in late April (not shown on the chart). If the scallop breaks out downward, then subtract the difference from the formation low (point B) to get the target price. In such a case, the target would be 9 (12.50–3.50).

Handle. Once a scallop completes, prices decline. They retrace all or a part of their gains (that is, from the right-edge high to the bowl low) before heading higher (upward breakouts) or continuing down (downward breakouts). In Figure 41.4, you can see that the retrace after the first scallop brings prices down to the height of the left scallop lip at 14.25. The retrace after the November scallop sees prices return to near the bowl low.

Buy point. Once prices crest on the right side and begin declining, wait for the decline to end. In some cases, another scallop will form and it will be relatively easy to buy during formation of the bowl.

Stops. Stop-loss points should be \$0.15 beyond the support or resistance level. In Figure 41.4 place a stop-loss order at 12.35, or 0.15 below the formation

Table 41.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the height of the scallop by taking the difference between the right-edge high to the lowest low in the formation. For upward breakouts, add the difference to the highest right-edge high. For downward breakouts, subtract the difference from the lowest low. The result is the minimum expected price target.
Handle	Once prices crest the right lip high, they fall. If they drop below the bottom of the formation, then the breakout is downward.
Buy point	Take a position in the stock once prices drift below the right-edge high and bottom out.
Stops	\$0.15 below the lowest low.

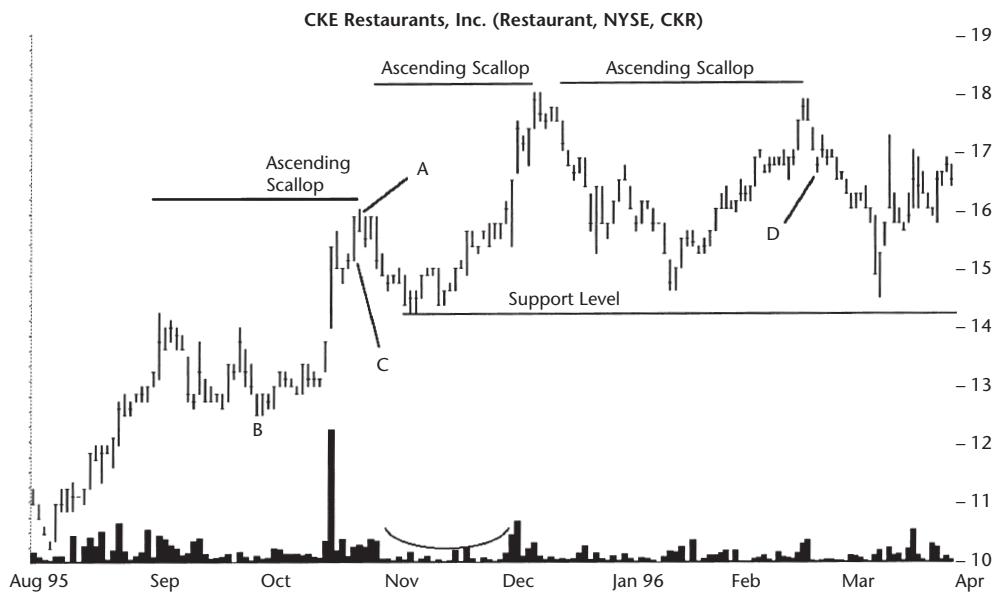


Figure 41.4 Three consecutive ascending scallop formations. As described in the Sample Trade, Kristy bought the stock at point C once prices rose above the top of the ascending scallop. The last scallop has a V-shaped bowl and a right rim that almost makes it to the high of the left side. She sold at point D.

low (point B) for the first scallop. If the loss from the purchase point is too large, consider moving the stop to just below the left peak. As you can see in Figure 41.4, the left peak is an area of support, but support varies from formation to formation.

Sample Trade

Kristy was intrigued by the scallop formation shown on the left in Figure 41.4. The V-shaped look to the bowl concerned her as did the falling volume trend. But she liked the prospects for the restaurant company and her fundamental analysis was thorough and tasty.

Before she bought the stock at point C, she computed the estimated gain and compared it to the risk of a loss. The targeted rise was to 18.75 (she calculated using the right-side peak 3 days earlier). The risk point was 14, the high of the left side and a massive support area reached in early 1994. At her purchase point of 15.25, the risk was 1.25 (15.25–14) and the potential reward was 3.50 (18.75–15.25). The nearly three-to-one ratio was high enough to risk a trade.

She felt gratified when prices closed at the high for the day, suggesting prices the following day would move higher still. When she looked at the stock the next day, prices did reach a new high but closed lower. As she posted her daily quotes for the stock, the declining price trend over the next week or two worried her, but not unduly so. Kristy recognized the rounding turn of another scallop forming and saw that her stop held.

Day by day she followed the stock and did not like the third scallop in the series (the rightmost one). The bowl shape was irregular with an unconvincing volume pattern. When prices stopped at the old high before collapsing, she knew the rise was at an end. She pulled the plug on the operation at 16.75, shown as point D in the figure, when price pierced an up trend line from the bowl low (not shown).

In the short term, Kristy was right in that prices headed lower. They moved down until reaching the low of the bowl but then rebounded. By mid-June, they had nearly doubled, reaching a high of 28.75, 10 points above the target price of 18.75. Still, on her 1,000 shares, she cleared almost \$1,500 on the trade.

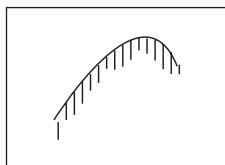
For Best Performance

The following list includes tips and observations to help select ascending scallops that perform better after the breakout. Consult the associated table for more information.

- Review the identification guidelines for correct selection. Avoid unusually wide or narrow scallops and scallops with peaks near the same price—Table 41.1.
- Trade in the direction of the market: upward in bull markets, downward in bear ones—Table 41.2.
- Trade reversals except in a bear market with a downward breakout—Table 41.2.
- The lowest failure rates accompany scallops with upward breakouts in a bull market—Table 41.3.
- Select scallops with breakouts within a third of the yearly low—Table 41.4.
- Breakout day gaps help performance—Table 41.4.
- Be prepared to take profits quickly after a downward breakout—Table 41.5.
- Choose tall patterns—Table 41.6.
- Consecutive scallops get narrower and shorter as the trend end approaches—Table 41.6.
- Narrow scallops usually take less time to reach the ultimate high—Table 41.6.
- Pick scallops with a rising volume trend—Table 41.7.
- Choose scallops with U-shaped volume (upward breakouts) or dome-shaped volume (downward breakouts)—Table 41.7.
- Select scallops with above average breakout volume—Table 41.7.

42

Scallops, Ascending and Inverted



RESULTS SNAPSHOT

Upward Breakouts

Appearance	Looks like a backward and upside-down J, or the right half of an umbrella.	
Reversal or continuation	Short-term bullish continuation	
	Bull Market	Bear Market
Performance rank	3 out of 23	7 out of 19
Break-even failure rate	4%	7%
Average rise	43%	26%
Change after trend ends	-32%	-33%
Volume trend	Downward	Downward
Throwbacks	61%	65%
Percentage meeting price target	61%	55%
Surprising findings	Reversals perform better than continuations. Patterns with breakouts near the yearly low perform best. Throwbacks hurt performance. Tall patterns perform better than short ones. Scallop width and height decreases in a series of ascending scallops. Wide scallops take longer to reach the ultimate high after the breakout.	

The ascending and inverted scallop is a pattern I discovered a few years ago. I then wondered whether ascending and descending scallops had inverted counterparts and what they might look like. It did not take long before I discovered the inverted and ascending variety. I thought it showed great promise and studied it briefly before setting it aside. This chapter takes a closer look at the pattern's performance and explores its many surprises.

The formation looks like a backward and upside-down J or the right half of an open umbrella. The breakeven failure rate is low, 4% in bull markets, and 7% in bear markets, but climbs quickly. The average postbreakout rise is 43% in bull markets and 26% in bear markets, both numbers are very good.

As noted in the Results Snapshot, a number of surprises occur with this pattern. I will discuss them in detail later in the chapter.

Tour

What does an ascending and inverted scallop look like? Figure 42.1 shows two examples. Notice that the long-term price trend is upward, starting in the fall of 1996 and climbing in a stair-step pattern until February, and then declining leading to the scallop.



Figure 42.1 After a long-term uptrend, prices retrace and then form the first scallop starting at point A and ending at point B. The second scallop begins at B and ends at C. Note that the horizontal distance from A to B is wider than B to C. This difference is typical for multiple scallops in a single uptrend.

The first scallop begins at point A and ends at B, both minor lows that mark changes in the short-term price trend. The volume trend is unremarkable, except for a slight downward tilt. The second scallop starts at B and ends at C. The volume trend of this scallop is dome shaped as shown.

Both scallops start with an uphill price run that is usually straight but rounds over at the top. I like to see a rounded top, but a nubbin or two sticking out is fine. Sometimes the rounded shape appears not as a line connecting the high prices, but the low prices. The key is that it looks like the right half of an umbrella or an upside down and backward J, tilted to one side.

Identification Guidelines

After manually searching through hundreds of inverted scallops, I developed identification guidelines, which appear in Table 42.1.

Daily chart. I used the daily chart to find the pattern, but I am sure they come out like worms after a heavy rain on most any time scale. The longer ones appear on the weekly chart, but I did not check the intraday chart to see what they looked like or how they perform.

Upward price trend. I selected scallops from a rising price trend. You do not see them appear in a downtrend (because they do not confirm) except at bullish turning points. The turning point may be the start of a new upward trend, but, more likely, it is the corrective phase of a measured move down. In other words, prices decline and then stop where the inverted scallop forms.

Table 42.1
Identification Characteristics

Characteristic	Discussion
Daily chart	Use the daily chart to find the pattern, although the larger ones also appear on the weekly charts.
Upward price trend	Select patterns that appear in an upward price trend or at the bullish turning point of a downward price trend.
Inverted and backward J shape	Prices trend up then round over at the top, forming an inverted and backward J. It also looks like the right half of an umbrella.
Smooth top	Look for daily high prices that, when connected, form a smooth turn. Larger patterns may not be as smooth because you are connecting minor highs.
Retrace	The rounded top portion of the pattern usually retraces about 50% of the prior up move. Prices must not drop below the pattern start.
Confirmation price	Price must close above the highest high in the pattern. Only then is the pattern valid.

The pattern confirms and prices move somewhat higher before resuming the second down leg. Figure 42.4 shows an example of this movement.

For best performance in a bull market, select those scallops in an established upward price trend. For bear markets, whether you select a scallop that acts as a reversal or continuation of the price trend does not matter because both perform just as bad.

Inverted and backward J shape. Look at Figure 42.2 for an example. Prices move up smartly at the pattern's start in late October and then round over at the top of the pattern. The pattern looks like the letter J flipped upside down and to the side.

Smooth top. I ignored those patterns with a sharp or pointed top. They reminded me of a single tree on a hilltop. As long as the hilltop looks smooth, then your selection is fine. Sometimes, the daily low price and not the daily high appears smoother. You can see this situation in Figure 42.2. Two short trees peak out the hilltop and the pattern would appear better if a logger came along and harvested them. If you connect the low prices, the turn is smoother than if you connect the high prices.

Retrace. The pattern begins at point A, tops out at B, and retraces to end at C. The average retrace from B to C when compared to the AB length is 50%. This retrace amount varies widely but in no case must the low at C drop below A. If it does, then look for another scallop.

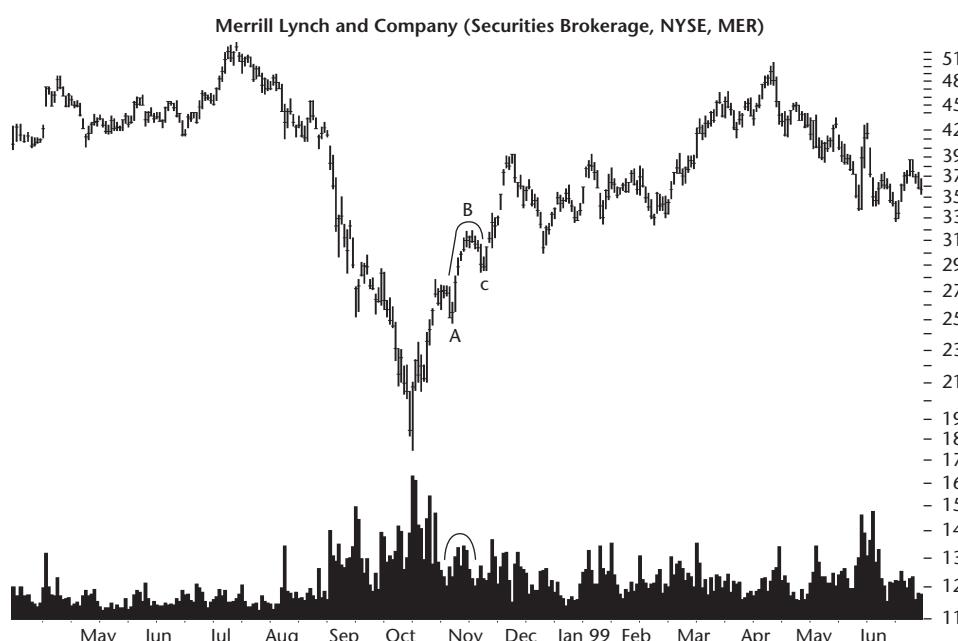


Figure 42.2 This scallop appears rounder if you connect the low prices instead of the high prices. Scallops with domed-shaped volume give good performance.

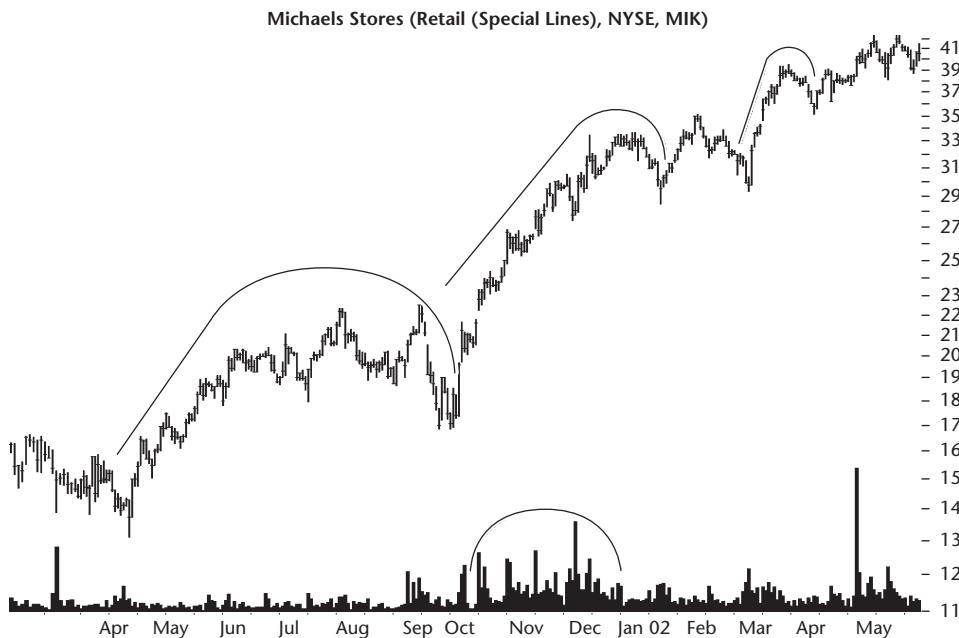


Figure 42.3 For many volume shapes, the volume pattern does not align perfectly with the scallop's start and end. This dome-shaped volume ends before the pattern completes.

Confirmation price. Always wait for confirmation, that is, for price to *close* above the pattern high. Only then does the pattern become a valid scallop.

Figure 42.3 shows an example of domed-shaped volume from October to December that starts when the middle scallop begins, but finishes before the scallop ends. This action is typical and should not influence pattern identification.

I included this picture because the width of the three inverted and ascending scallops narrows as prices climb. Such narrowing gives a trader a clue to the trend end. If you see a narrow scallop forming, consider whether the upward trend is due to reverse and trade accordingly. This stock climbed to 46 in mid-June 2002 before tumbling to almost 30 in July (not shown).

Focus on Failures

What goes wrong with the pattern? Most of the problems deal with selecting patterns incorrectly. Identification is never easy until you become acquainted with the pattern, so here are two scenarios to look for. The first, shown in Figure 42.4, is selecting a pattern in a downtrend.

If you are lucky, your pattern will confirm and prices will rise in a long-term bull trend. More likely, though, is to get a lemon like that shown in the figure. Prices are falling going into the pattern, then reverse and the scallop builds. Price confirms the validity of the scallop when it closes above the highest high

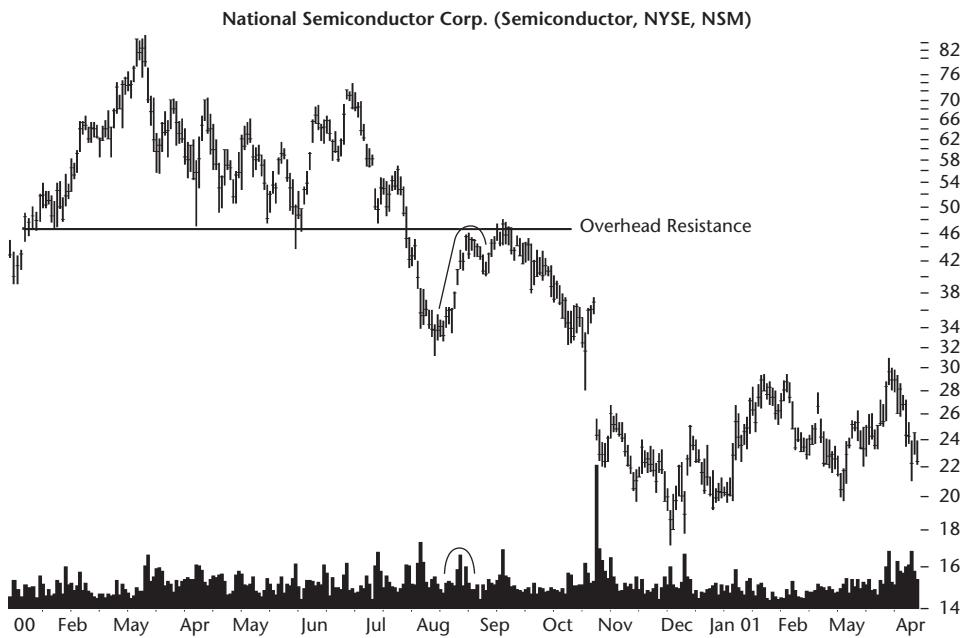


Figure 42.4 This is a valid pattern because it confirms, but the bearish trend should give a trader pause. Coupled with overhead resistance, this trade was a nonstarter.

in the pattern. Unfortunately, the market downdraft sucks prices lower, and with overhead resistance, this trade is doomed from the start.

The lessons from this chart are two: First, watch the prevailing price trend. Select patterns in a rising price trend and avoid those in a downtrend. Second, always search for support and resistance zones before investing. Those chart patterns are the most important as they help you gauge the expected price move in either direction. My book, *Trading Classic Chart Patterns* (Wiley 2002) gives a good tutorial on support and resistance and includes performance statistics.

Figure 42.5 shows the second type of failure. Two of the three patterns are valid ascending and inverted scallops. Which one is the dud? You might guess the first one, and I admit the top looks more like a flat rectangle than a rounded scallop. The variation in patterns is so wide that you have to be flexible; you can always ignore the questionable ones and trade the sure things.

The middle pattern has a top that looks like a symmetrical triangle. The last and highest scallop has no rounded turn to speak of. If you ignore the up-sloping top, the highest pattern is the dud because it does not confirm. Prices drop below the lowest low in the pattern before closing above the pattern's high. If price does not *close* above the highest high before dropping below the pattern's start, then it is not an inverted scallop. The other two patterns are strange looking but fine as inverted scallops.

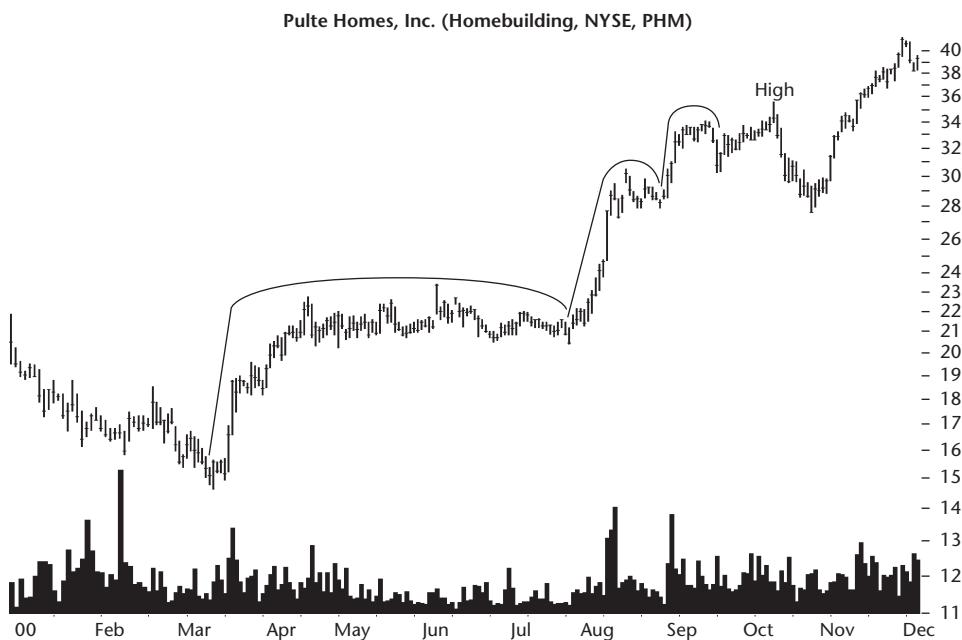


Figure 42.5 What is wrong with the highest scallop? The pattern never confirms before prices drop below the pattern low.

Statistics

Table 42.2 shows general statistics for the ascending and inverted scallop.

Number of formations. Since I found 535 chart patterns in over 200 stocks from both bull and bear markets, I felt no need to search for more. The first pattern I found appeared in late 1994 and the last in mid-2003, but most were from mid-1996 onward. Splitting the samples into bull and bear markets gives the numbers shown in the table.

Reversal or continuation. Most scallops behaved as continuations of the prevailing price trend. About a quarter (27% in a bull market and 25% in a bear market) acted as reversals. Scallops acting as reversals performed better than did those acting as continuations, especially in a bull market.

Average rise. The ascending and inverted scallop is a bullish pattern. Perhaps the average rise supports the “rising tide lifts all boats” theory. In a bull market, the average rise was 43%. In a bear market, the rise was 26%. Both are above the averages for bullish chart patterns of other types.

Rises over 45%. Measuring the rises over 45% is a statement of how well the pattern can perform. In bull markets, over a third (39%) of the inverted scallops climbed more than 45% after the breakout. Just 21% of the scallops in a bear market climbed as far.

Table 42.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	357	178
Reversal (R), continuation (C)	104 R, 253 C	49 R, 129 C
R/C performance	47% R, 41% C	27% R, 26% C
Average rise	43%	26%
Rises over 45%	141 or 39%	38 or 21%
Change after trend ends	-32%	-33%
Busted pattern performance	-29% ^a	-28% ^a
Standard & Poor's 500 change	18%	-2%
Days to ultimate high	137	104

Note: Minus sign means decline.

^aFewer than 30 samples.

Change after trend ends. After prices reach the ultimate high, they tumble, but how far? In both bull and bear markets, the decline measures about 33%. The decline chews through any profit made from trading the pattern in a bear market and then some.

Busted pattern performance. Scallops that rise less than 5% follow by declining nearly 30%. If you are a seasoned trader, you can trade busted patterns by shorting them once the new direction confirms. I suggest waiting for a close below the right valley floor. Waiting will cut into the average decline, but the pattern is more likely to begin a sustained downhill run.

Standard & Poor's 500 change. In a bull market, the S&P 500 index climbed an average of 18%. This figure compares to an average rise of 43% for inverted scallops over the same period. The strongly bullish market may be responsible for the large average rise for scallops. In a bear market, the index declined 2% compared with a rise of 26% for inverted scallops.

Days to ultimate high. How long did it take prices to reach the ultimate high? In a bull market, the climb was 4.5 months long (137 days). In a bear market, the climb averaged 3.5 months (104 days). If you crunch the numbers, the rise in a bear market is at a lower slope (less steep) than in a bull market, as one might expect.

Table 42.3 shows failure rates for ascending and inverted scallops displayed as a frequency distribution of gains. For example, if your cost of trading is 5%, what I call the break-even failure rate, how many scallops fail to rise at least that far? Answer: 4%, in a bull market and 7% in a bear market. How many failed to rise over 50%? Two out of three patterns (65%) in a bull market failed to rise that far, and a massive 83% were cut from the team in a bear market. Since the pattern fails less often in a bull market, avoid trading it in a bear market.

Like other chart patterns, notice how the failure rate starts small and rises quickly. In a bear market, it doubles from 7% to 15% and doubles again, to

Table 42.3
Failure Rates

Maximum Price Rise (%)	Bull Market	Bear Market
5 (breakeven)	13 or 4%	12 or 7%
10	58 or 16%	27 or 15%
15	92 or 26%	56 or 31%
20	112 or 31%	69 or 39%
25	133 or 37%	98 or 55%
30	157 or 44%	112 or 63%
35	179 or 50%	124 or 70%
50	231 or 65%	147 or 83%
75	284 or 80%	165 or 93%
Over 75	357 or 100%	178 or 100%

31%, for price rises of 5%, 10%, and 15%. This dramatic increase is typical for chart patterns. The key is to find a chart pattern with a low break-even failure rate and high average rise. That way, you stand a better chance of making a profit at lower risk.

Table 42.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. It takes about 3 weeks for prices to climb above the top of the scallop and stage a breakout. In Figure 42.2, that is the average time it takes price to climb from C to the level of B after the pattern ends.

Table 42.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	26 days	21 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L7% ^a , C21%, H72%	L3%, C22%, H75%
Percentage rise/decline for each 12-month lookback period	L47% ^a , C39%, H43%	L29% ^a , C29%, H25%
Throwbacks	61%	65%
Average time to throwback ends	10 days	9 days
Average rise for patterns with throwback	39%	23%
Average rise for patterns without throwback	49%	33%
Performance with breakout gap	45%	24%
Performance without breakout gap	42%	27%
Average gap size	\$0.36	\$0.47

^aFewer than 30 samples.

Yearly position. Separating the breakout price into the yearly price range gave some interesting results. Most of the patterns break out within a third of the yearly high. Few show breakouts near the yearly low.

Yearly position, performance. The best performance comes from scallops breaking out near the yearly low in both bull and bear markets. However, with just 32 patterns out of 535 qualifying, the chance of finding one buried down there is rare.

Throwbacks. Throwbacks occur in nearly two-thirds of the trades. When they do occur, it takes a stock between 9 and 10 days, on average, to return to the breakout price. When a scallop throws back, performance suffers. For example, when a throwback occurs after the breakout from a scallop in a bull market, the average postbreakout rise is 39%. Without a throwback, the rise averages 49%.

Gaps. Breakout day gaps improve performance in a bull market, but hurt it in a bear market. The average gap size is small, ranging from 36 to 47 cents. For some reason, gaps in a bear market are usually larger.

Table 42.5 shows a frequency distribution of time to the ultimate high. Notice the number of scallops topping out over 2.5 months after the breakout (70 days).

The numbers suggest that if your trade survives the first week, then be patient. It may take several months for price to reach its highest high. Notice the bump 28 days and 49 days after the breakout in a bear market. Your pattern may top out then, so watch the trade carefully.

Table 42.6 shows size-related statistics for ascending and inverted scallops.

Height. For most chart patterns, including this one, pattern height is the single best clue to performance. The taller the pattern, the better the post-breakout performance.

Width. Narrow patterns perform significantly better in a bull market, but marginally underperform in a bear market. I used the median length to determine whether a scallop was narrow or wide.

Average formation length. The average scallop length was about 6 to 7 weeks long.

Height and width combinations. The best performance comes from inverted scallops that are both tall and narrow in a bull market and both tall and wide in a bear market. These results follow the individual characteristics of height and width.

Table 42.5
Frequency Distribution of Days to Ultimate High

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	14%	5%	3%	6%	4%	3%	6%	3%	3%	2%	49%
Bull market	10%	7%	4%	4%	3%	5%	4%	1%	5%	5%	52%

Table 42.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	46%	29%
Short pattern performance	41%	24%
Median height as a percentage of breakout price	22.51%	21.14%
Narrow pattern performance	47%	26%
Wide pattern performance	38%	27%
Median length	34 days	29 days
Average formation length	49 days	43 days
Short and narrow performance	44%	27%
Short and wide performance	35%	19%
Tall and wide performance	40%	31%
Tall and narrow performance	56%	23%
Average width (days) of first through third scallop in a series	51, 47, 46	47, 31, 33
Average height of first through third scallop in series as percentage of breakout price	25%, 24%, 24%	25%, 21%, 19%
Narrow scallops: days to ultimate high	130	85
Wide scallops: days to ultimate high	144	124

Series width. Figures 42.3 and 42.5 show examples of how scallops get narrower as they appear in a rising price trend. This narrowing is not true of all inverted scallops in a single uptrend, but beware of investing in a narrow scallop as it may signal a coming trend change.

In a bull market, the average width from formation start to end shrinks from 51 days for the lowest scallop in the chain to 46 days for the highest. Bear markets show a similar trend, but the third scallop, at 33 days wide, is based on just nine patterns.

Series height. Does scallop height change as it appears in a rising price trend? Yes, it gets shorter. I measured the height from the highest high to the lowest low in the pattern and divided the result by the breakout price (the highest high in the pattern). The bear market shows the best results. The average height of the lowest scallop was 25%. The second scallop height measured 21% and the highest one in the price chain measured 19%.

Scallop width and time. I compared each scallop to determine whether it was narrower or wider than the median and then computed the average days to the ultimate high. Table 42.6 shows that narrow scallops take less time to reach the ultimate high than do wide ones.

Table 42.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	48%	25%
Falling volume trend performance	40%	27%
U-shaped volume pattern performance	43%	26%
Dome-shaped volume pattern performance	43%	27%
Neither U-shaped nor dome-shaped volume pattern performance	43% ^a	19% ^a
Heavy breakout volume performance	44%	26%
Light breakout volume performance	38%	27%

^aFewer than 30 samples.

Table 42.7 shows statistics related to volume.

Volume trend. In a bull market, scallops with a rising volume trend outperform, but in a bear market, the performance is better for those scallops with a falling volume trend.

Volume shapes. Figure 42.5 (the widest scallop) shows an example of U-shaped volume and Figures 42.2, 42.3, 42.4, and 42.5 (the August scallop only) show a domed shape. A random pattern appears in the April to June pattern in Figure 42.1 and the April to September 2001 pattern in Figure 42.3.

For scallops in a bull market, there is no performance difference between the pattern shapes, as Table 42.7 shows. Bear market scallops do best with dome-shaped volume.

Breakout volume. In a bull market, heavy breakout volume tends to push prices farther. In a bear market, the breakout volume has little effect.

Trading Tactics

Table 42.8 shows trading tactics for ascending and inverted scallops.

Search for nearby support and resistance. Underlying support protects your position in case the trade goes wrong. If prices close below the right pattern low, sell (below point B in Figure 42.6). The Sample Trade discusses trend-line support, but you should also look for other types of support.

Overhead resistance is one of the main reasons I avoid a trade. If there is a solid block of prices forming a ceiling on the trade, I will look for another situation with better prospects.

Identification. Are you sure you have a valid ascending and inverted scallop? Review Table 42.1 for identification tips. Select scallops in an established, rising price trend and do not try to catch a reversal (those at the end of a down-trend). In a bear market, the reversal is likely to turn into the corrective phase of a measured move down, with prices tumbling after you buy.

Table 42.8
Trading Tactics

Trading Tactic	Explanation
Search for nearby support and resistance	Trend lines, chart pattern boundaries, minor highs and minor lows, round numbers, and horizontal consolidation regions all contribute to support and resistance zones.
Identification	Do you have a valid pattern? See Table 42.1 for identification tips.
Measure rule	Used to predict a target price. Take the difference between the scallop's high and low. Add this difference to the scallop's high. The result is the target price.
Wait for confirmation	Buy only after price closes above the formation high.

Measure rule. Use the measure rule to predict how far prices might climb. Figure 42.6 shows an example. Compute the formation height by subtracting the scallop low (point A) from its high (E). Add the difference to the high (E) to get the target price. In this example, the pattern low is at 3.27, and the high is at 4.61. The difference between the high and low gives the pattern height, or 1.34. Add this result to the high to get the target: 5.95. Prices climb to that point in mid-March.

Let me warn you that the measure rule works only 61% of the time in bull markets and 55% of the time in bear markets. I like to see values of 80% or

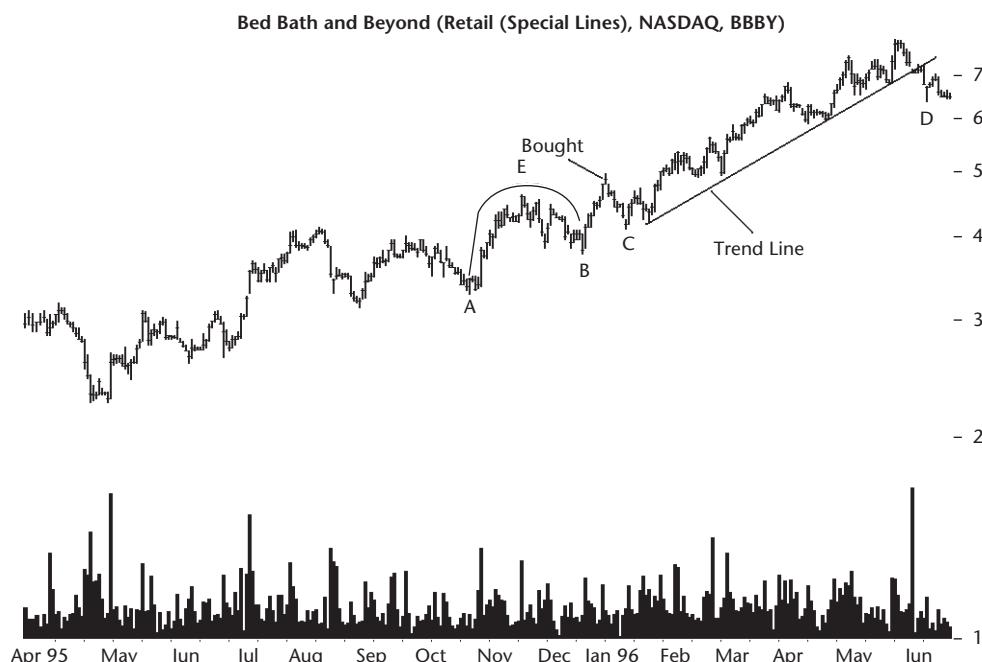


Figure 42.6 As described in the Sample Trade, Robert bought the day after the pattern confirmed and sold at point D when prices pierced the trend line.

higher, so this pattern comes up short. A better gauge is to use overhead resistance and assume that prices will turn back at that point. They may not, but that is the way to estimate your reward (overhead resistance) and risk (underlying support).

Wait for confirmation. Always wait for the pattern to become valid. That happens when price closes above the pattern high, and that is also the buy signal. Investing in a pattern before confirmation is best left to amateurs.

Sample Trade

Robert looked at the chart shown as Figure 42.6 and liked the stock's rising price trend starting in April. He watched the first scallop form in September and October. The retrace of this pattern, ending at point A, was 83%—more than he liked, so he ignored the potential trade. Such a large retracement may mean an especially weak technical picture, and scallops with large retraces tend to underperform.

When the second scallop formed during late October through early December, he saw that the retrace was a more palatable 64%.

He ran through the identification guidelines in Table 42.1 and found the following: On the daily chart, the pattern was in a price uptrend, it looked like an inverted and backward J, the top was reasonably smooth, and prices did not drop below point A, the scallop's start. Meeting those guidelines qualified the pattern as an ascending and inverted scallop.

The day after price closed above the scallop's high, he bought. That timing turned out to be wrong as prices immediately tumbled. Robert is an experienced trader and knows all about throwbacks, so he was not worried. Prices threw back to point C, above his stop (which was placed a nickel below point B), before rebounding.

Robert likes using trend lines as sell signals. He drew a trend line from point A to point B and extended it upward (not shown). He knew that steep trends tended to be short lived, but the upward climb was not steep enough to worry him. He redrew the trend line (shown) as prices climbed.

For fun, he computed the price target and it turned out to be 5.95. Prices climbed through the target, pausing around 5, a round number and a common support and resistance zone, but eventually pushed their way through.

Since prices kept bumping against the trend line without piercing it, he was not worried . . . until early June. That is when prices tumbled through the trend line with meaning. Coupled with excessively high volume a few days earlier, it seemed time to sell. That is what he did the following day (point D).

Robert bought at 4.90 and sold at 6.50, for a gain of 33% in about 5 months. From that point, it took over a year for prices to make a new high.

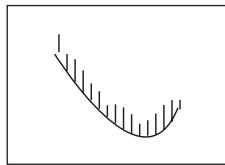
For Best Performance

The following list includes tips and observations that may improve your trade. Consult the associated table for more information.

- Review the identification guidelines for correct selection—Table 42.1.
- Trade scallops in a bull market; the average rise is better—Table 42.2.
- Scallops in a bull market have lower failure rates—Table 42.3.
- Scallops with breakouts near the yearly low perform best—Table 42.4.
- Avoid throwbacks as they hurt performance—Table 42.4.
- Be patient as it may take months for prices to reach the ultimate high—Table 42.5.
- Select tall patterns or scallops both tall and narrow (bull market) or both tall and wide (bear market)—Table 42.6.
- In a series of scallops in a rising price trend, the scallops tend to get narrower and shorter the higher in the price chain they appear. Thus, a narrow or short scallop may suggest the trend end is near. Likewise, a wide scallop at the start of the trend may suggest a longer-term rise—Table 42.6.
- Wide scallops take longer to reach the ultimate high than narrow ones—Table 42.6.
- Heavy breakout volume pushes price farther in a bull market—Table 42.7.

43

Scallops, Descending



RESULTS SNAPSHOT

Upward Breakouts

Appearance	The price pattern looks like the letter J reversed. The breakout is upward.		
Reversal or continuation	Short-term bullish reversal		
		Bull Market	Bear Market
Performance rank	22 out of 23	16 out of 19	
Break-even failure rate	22%	20%	
Average rise	22%	20%	
Change after trend ends	-32%	-36%	
Volume trend	Downward	Downward	
Throwbacks	62%	58%	
Percentage meeting price target	35%	33%	
Surprising findings	Reversals perform better than continuations. The best performing have breakouts near the yearly low. Performance improves after a throwback and a gap. Tall or wide patterns do well. Does best when volume is trending upward and has a dome shape.		
See also	Head-and-Shoulders Bottoms, Complex; Rounding Bottoms		

Downward Breakouts

Appearance	Same, but breakout is downward.	
Reversal or continuation	Short-term bearish continuation	
	Bull Market	Bear Market
Performance rank	16 out of 21	11 out of 21
Break-even failure rate	15%	8%
Average decline	17%	23%
Change after trend ends	51%	51%
Volume trend	Downward	Downward
Pullbacks	55%	52%
Percentage meeting price target	30%	32%
Surprising findings	Pullbacks hurt performance. Scallops with breakout day gaps have better performance. Gaps improve performance. Heavy breakout volume propels prices farther.	
See also	Same as for upward breakouts.	

The classic definition of scallops refers to the ascending variety only, where you sometimes find repeated saucer-shaped formations in a rising price trend. If there is an ascending variety, there is probably a descending variety. I decided to find out and searched for them.

Scallops may make a tasty meal, but as a chart pattern, they leave me hungry. The failure rate for upward breakouts is too high, and the average rise is too low. Downward breakouts perform better, but only scallops in a bear market show decent results, and even they perform below the average for all chart pattern types. Descending scallops are bearish chart patterns and that is the way to trade them. Avoid trading them in other market conditions and breakout directions unless you find a compelling situation.

Tour

Figure 43.1 shows three examples of descending scallops. A downward price trend leads to the first scallop in September, the widest of the three. It begins with the minor high in August (point A), drops to find support at C, and rounds upward. On the right, the first minor high on the upward retrace marks the end of the pattern (B).

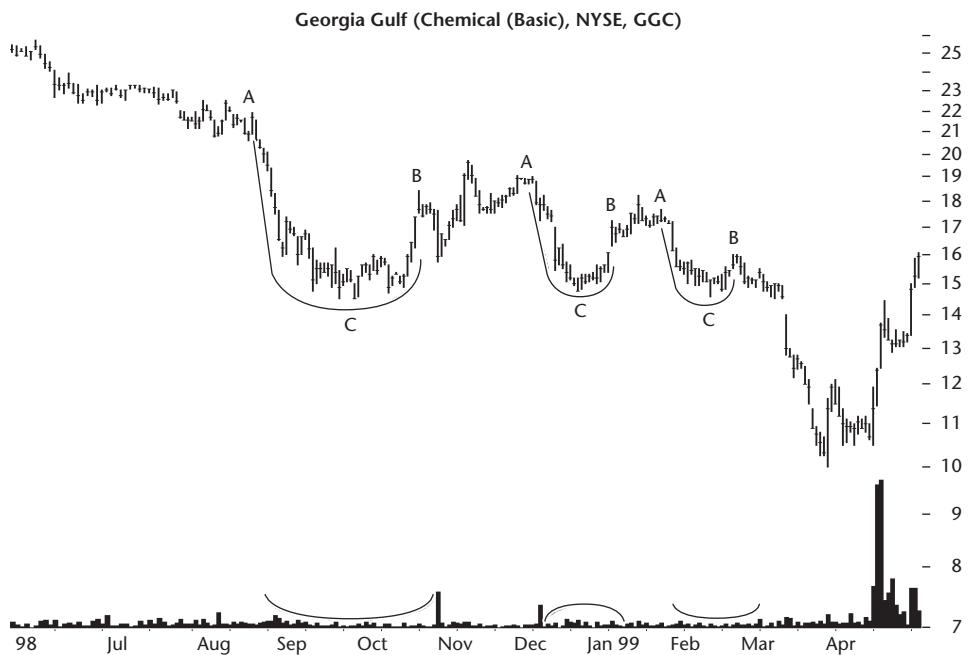


Figure 43.1 Three descending scallops appear in a declining price trend. Notice how they get narrower and shorter along the trend.

Descending scallops resemble the letter J reversed, with the end (B) approximately halfway up the distance to the start (A). For upward moves, a close above point B represents a breakout. For downward moves, a close below C, the lowest low in the pattern, is the breakout price. The September and December scallops have upward breakouts, but the February scallop breaks out downward. Since the overall price trend is downward, notice how the upward breakouts stall as prices bump against an imaginary trend line (not shown) following the price peaks starting from the far left. The trend line acts as overhead resistance in Figure 43.1.

Notice how all three scallops rest on a pier of support at C. The scallop bottom is a common resistance zone. I say resistance because, for downward breakouts, price will push through the support zone, but a pullback attempt will often stall there, so underlying support turns into overhead resistance. In future up moves, price often stalls near the base of a scallop, so keep that in mind even if you do not trade these patterns.

Finally, notice how this threesome tends to get narrower and shorter as the decline proceeds. With descending scallops, this feature is not nearly as pronounced as it is for ascending scallops.

Identification Guidelines

Table 43.1 shows identification characteristics of descending scallops.

Price trend. The descending scallops I looked at appeared in a downward price trend 64% of the time, or about two of every three scallops. Since descending scallops work best as bearish patterns, avoid trading those in an upward price trend. Sometimes you will see a descending scallop form at the top of a long, upward price trend. It acts as a reversal when price breaks out downward. It may be worth trading; the Sample Trade explores one such trade.

Shape. Look for a reverse J shape, with the left side of the scallop higher than the right. The bowl at the bottom of the pattern should appear smooth and rounded, not excessively rough or V shaped. Allow variations: Tall but narrow scallops may look more V shaped than wider scallops and often a price spike will poke out downward.

Ends. The start and end of the pattern (point A and B in Figure 43.1) should be far apart in price. The usual retrace, C to B, of the A to C distance is 60%. In other words, price climbs 60% of the way to A from the bowl low. Since this figure is an average, allow variations, but the key is to avoid scallops that look like rounding turns—two ends at nearly the same price.

Volume. Most of the time, 70%, volume will be dome shaped. I never exclude a scallop because of the volume shape, but scallops with upward breakouts perform better with dome-shaped volume, and scallops with downward breakouts do best with U-shaped volume.

Figure 43.2 shows four descending scallops. You can see that the overall price trend is downward. It starts on the left at about 20 and saucers down to about 15. The descending scallops appear like reverse J patterns. The minor high on the right is below the left minor high and between the two peaks is a rounded recession. You can see that the last scallop has minor highs that are nearly equal. This feature often suggests the declining price trend is nearing an end. In this case, prices reach the ultimate low in less than 2 months at 13.63, quite close to the last bowl low of 14.75.

Table 43.1
Identification Characteristics

Characteristic	Discussion
Price trend	Look for a downward price trend leading to the scallop. They do occur in price uptrends, but that is rare.
Shape	A reverse J shape with prices much higher on the left side than on the right. The bowl should be a rounded turn.
Ends	The start and end of the pattern should not be near one another in price. The end (right peak) usually retraces 60% of the way up the left side.
Volume	Volume appears dome shaped 70% of the time.



Figure 43.2 Four consecutive descending scallops.

The volume trend is irregular. I have noticed a tendency for a volume spike to appear near the center of the formation as prices switch from moving downward to upward. In Figure 43.2 you can see the spikes in late March and mid-June.

Focus on Failures

Descending scallops fail most often because of two other chart patterns: support and resistance. Figure 43.3 shows the first example. The July scallop begins at A and ends at B. The bowl has a downward price spike, making the turn less smooth than I like to see. Volume is dome shaped, which is typical for descending scallops. After B, prices move down and it looks like they will drop below the bowl low and complete a breakout. Since price is declining leading to the scallop, down is the expected breakout direction. However, price comes close to breaking out downward, but the close remains above the bowl low. When it closes above B at C, the pattern surprises with an upward breakout.

Prices rise to the height of A and throw back to the price at B. Overhead resistance is the culprit. Numerous valleys touch the resistance line and a solid block of horizontal price movement adds strength to the zone in January to March.

As in most throwbacks, prices recover and attempt a new high that succeeds, but not by much. Overhead resistance is there to swat it down and prices drop below the pattern low. The rise from B to the resistance zone where price stalls measures 5%.

Figure 43.4 shows the second example of a failure, this time with a downward breakout. Prices do not decline far before rebounding and eventually making a new yearly high at 113 (not shown).

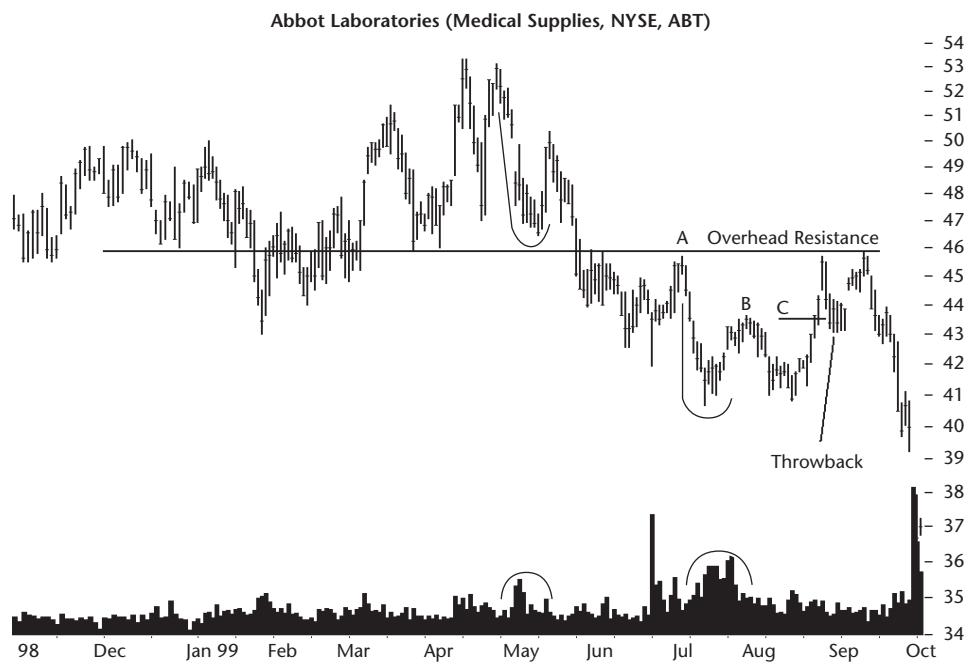


Figure 43.3 Overhead resistance causes the July scallop to stall and eventually prices turn down. The rise measures just 5%.

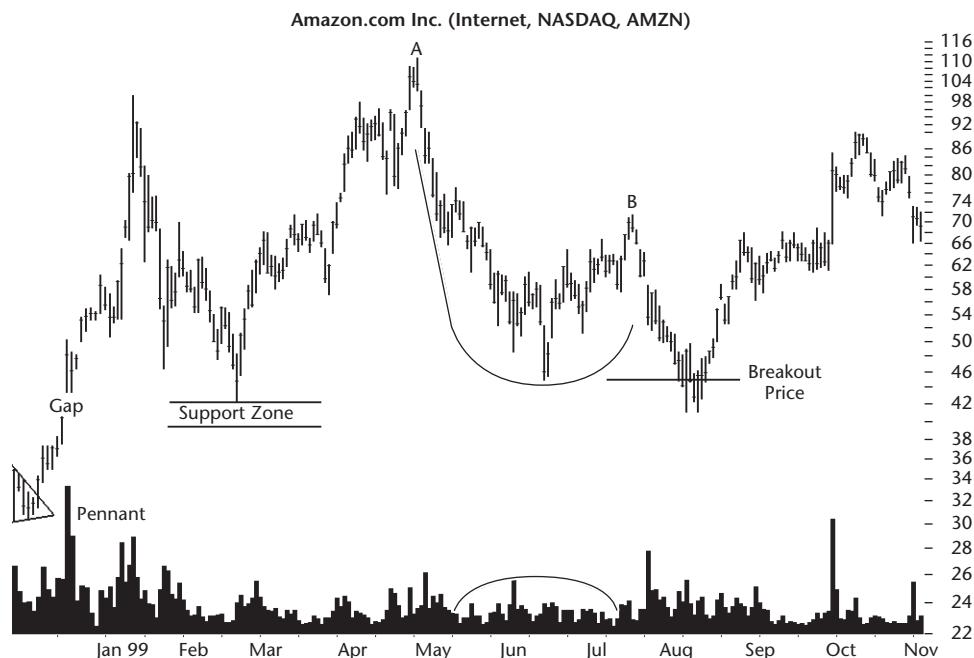


Figure 43.4 This scallop fails to descend far after a downward breakout. Notice the large price range.

Why did this descending scallop fail? The only explanation I can offer is hard to justify. There is meager support announced by the February low and the gap in December 1998. Below that, a small pennant also provides support.

If I were trading this stock and saw the downward breakout, I would believe that prices would continue dropping. Perhaps the fundamentals explain the robust support that stopped the decline, but my records do not go back that far. Whatever the reason, proper use of stops would have saved a bundle as prices climbed from a low of 41 in August to 113 in less than 5 months.

Statistics

Table 43.2 shows general statistics for descending scallops.

Number of formations. My fishing found 1,104 scallops, quite a haul considering I checked only 500 stocks from mid-1991 to 1996 and another 200 from 1999 to 2003.

Reversal or continuation. As the table shows, most scallops (54% versus 46%) act as continuations of the price trend. So if price is trending down, expect the breakout to be downward, too. Reversals occur at the top of upward trends and during declines, whether at the bottom of the downtrend or in the middle as the corrective phase of a measured move down.

Reversals perform better than continuations under all market types and breakout directions except in a bear market after a downward breakout.

Table 43.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	232	142	457	273
Reversal (R), continuation (C)	200 R, 32 C	83 R, 59 C	120 R, 337 C	106 R, 167 C
R/C performance	23% R, 17% C	20% R, 19% C	-19% R, -16% C	-22% R, -23% C
Average rise or decline	22%	20%	-17%	-23%
Rises or declines over 45%	40 or 17%	18 or 13%	7 or 2%	22 or 8%
Change after trend ends	-32%	-36%	51%	51%
Busted pattern performance	45%	46% ^a	-27%	-37% ^a
Standard & Poor's 500 change	8%	-4%	-1%	-14%
Days to ultimate high or low	106	70	47	30

Note: Minus sign means decline.

^aFewer than 30 samples.

Average rise or decline. Descending scallops are poor performers except in a bear market when they have downward breakouts. The decline measures 23%, just shy of the 24% average decline for all bearish chart pattern types.

Rises or declines over 45%. Usually, a well-performing chart pattern would have a large number of patterns rising over 45%, but not descending scallops. Just 17% make the grade, well below the 30% to 40% I like to see. The low number emphasizes how poorly this pattern performs. However, expect low numbers for downward breakouts.

Change after trend ends. Once price reaches the ultimate high or low, price rebounds, but even so, the numbers are not exceptional. The best performance comes after a downward breakout, where the rise measures 51%. That number sounds good, and I will take any trade that comes anywhere close to that, but I have seen other patterns with rebounds of 60% or more.

Busted pattern performance. When price moves less than 5% and then breaks out in the opposite direction, you can make money trading the new direction. Table 43.2 shows the average results but they overstate what you can make (measured from the ultimate high to the new ultimate low or the reverse).

Standard & Poor's 500 change. The weak bull market rise of 8% for the index may explain the mediocre average rise for descending scallops. Other chart patterns show the S&P rising 15% or higher, helping individual stocks rise also. It seems that descending scallops are not as fortunate.

In a bear market, the market decline measures 14%, a very good showing that helps bearish scallops drop. Think of the saying, “a rising tide lifts all boats,” and apply it to falling markets and you will understand the importance of the general market action on individual stock performance. Trade with the market trend for the best results.

Days to ultimate high or low. Compare the 106 days it takes scallops in a bull market to rise 22% with the 30 days it takes scallops in a bear market to drop 23%. Without doing the math, you can guess that the bear market decline must be steeper than the rise in a bull market. This finding suggests you should short this pattern in a bear market. The rise in a bull market takes three times as long.

Table 43.3 shows failure rates for descending scallops. Of course, your eyes will search for the lowest rate in the table and you will find it in the right-most column: bear market, down breakout. Just 8% fail to drop more than 5%. This figure nearly triples to 22% and almost doubles again to 37% for declines measuring 10% and 15%, respectively. Half (48%) of all bearish patterns fail to drop more than 20%. Notice that for larger moves, over 25%, scallops with upward breakouts (in both bull and bear markets) perform better (they have lower failure rates).

What do the numbers mean? Trade this pattern in a bear market by shorting a stock. Table 43.3 gives you a feel for how often a scallop will fail to cover your expenses and profit margin. For example, if your trading expenses are 5% and you want to make 10% on each trade (15% total), then over a third

Table 43.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	52 or 22%	28 or 20%	69 or 15%	22 or 8%
10	88 or 38%	49 or 35%	150 or 33%	59 or 22%
15	113 or 49%	64 or 45%	230 or 50%	101 or 37%
20	129 or 56%	78 or 55%	302 or 66%	132 or 48%
25	146 or 63%	90 or 63%	365 or 80%	172 or 63%
30	155 or 67%	102 or 72%	397 or 87%	200 or 73%
35	173 or 75%	108 or 76%	419 or 92%	222 or 81%
50	197 or 85%	129 or 91%	453 or 99%	257 or 94%
75	215 or 93%	136 or 96%	457 or 100%	273 or 100%
Over 75	232 or 100%	142 or 100%	457 or 100%	273 or 100%

(37%) of the scallops in a bear market will fail to decline at least 15%. Optimistically, about two of every three trades will work, on average, but that outcome depends on your trading skills and luck. If the loss measures 10%, to offset the losing trade, your winners will have to make an average of 27%. As Table 43.3 shows, 73% of the scallops fail to drop 30% after a downward breakout in a bear market. That statistic suggests you will have a very difficult time making your profit margin consistently.

Table 43.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. It takes price about 3 weeks to move from the scallop's right side peak to the breakout. Bull markets with upward breakouts take an additional 2 weeks (35 days total) for some reason.

Yearly position. Descending scallops, particularly scallops with downward breakouts, appear most often near the yearly low.

Yearly position, performance. The best performing descending scallops have breakouts near the yearly low for upward breakouts, and in the middle or high of the yearly trading range for downward breakouts.

Throwbacks and pullbacks. Throwbacks and pullbacks occur about half the time, and it takes between 8 and 11 days to return to the breakout price. Upward breakouts take slightly less time than downward breakouts.

When a *throwback* occurs (upward breakouts), performance improves. This is an unusual result. Other chart patterns show results similar to scallops with downward breakouts: performance improves if a pullback does *not* occur.

Gaps. Gaps help postbreakout performance under all market conditions and breakout directions. Notice how the gap size is much larger for downward breakouts than for upward ones. This feature may be the result of adverse fun-

Table 43.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	35 days	22 days	24 days	21 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L44%, C39%, H17%	L41%, C39%, H20%	L69%, C28%, H3%	L64%, C32%, H5%
Percentage rise/decline for each 12-month lookback period	L30%, C22%, H15%	L25%, C17%, H15% ^a	L16%, C18%, H24% ^a	L22%, C24%, H17% ^a
Throwback/pullback	62%	58%	55%	52%
Average time to throwback/pullback ends	8 days	9 days	11 days	11 days
Average rise/decline for patterns with throwback/pullback	25%	20%	14%	21%
Average rise/decline for patterns without throwback/pullback	18%	19%	19%	24%
Performance with breakout gap	23%	23% ^a	22%	26%
Performance without breakout gap	22%	19%	16%	22%
Average gap size	\$0.27	\$0.39	\$0.80	\$1.79

^aFewer than 30 samples.

damental news (bad earnings, bad same store sales results, and so forth). The large gap size may also explain why performance improves after a gap. I have seen strong momentum pull a stock down far enough that it cannot complete a pullback. The downward momentum powers prices lower.

Table 43.5 shows time to the ultimate high or low. Notice how many scallops reach their ultimate move in the first 2 weeks. For example, 47% of the scallops with downward breakouts in a bear market reach bottom by the end of week 2. By week three, 62% have hit bottom. Upward breakouts seem to take longer as the rightmost column suggests. A third of the scallops with upward breakouts in a bull market are still looking for the ultimate high after 70 days (about 2.5 months).

The numbers suggest patience for upward breakouts and a finger on the trigger for downward breakouts. Be prepared to cover a short quickly (in a week or two) after a downward breakout.

Also, notice the increase in scallops hitting the ceiling (upward breakout) in a bear market after 49 days. If your trade lasts that long, watch for a trend change 6 to 8 weeks after the breakout.

Table 43.6 shows statistics related to size.

Table 43.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	24%	10%	8%	3%	6%	2%	7%	1%	7%	1%	30%
Bull market, up breakout	28%	11%	7%	3%	3%	3%	3%	2%	5%	2%	33%
Bear market, down breakout	31%	16%	15%	7%	6%	4%	5%	3%	0%	3%	11%
Bull market, down breakout	30%	13%	6%	6%	6%	5%	4%	4%	3%	1%	22%

Table 43.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Tall pattern performance	28%	20%	-17%	-26%
Short pattern performance	18%	19%	-17%	-20%
Median height as a percentage of breakout price	24.00%	26.97%	22.27%	29.25%
Narrow pattern performance	21%	19%	-17%	-22%
Wide pattern performance	23%	20%	-16%	-23%
Median length	42 days	33 days	34 days	30 days
Average formation length	49 days	40 days	41 days	38 days
Short and narrow performance	18%	19%	-17%	-20%
Short and wide performance	17%	20% ^a	-16%	-21%
Tall and wide performance	29%	19%	-17%	-25%
Tall and narrow performance	27%	20% ^a	-18%	-26%
Average width (days) of first through third scallop in a series	49, 50, 50 ^a	40, 43 ^a , 37 ^a	41, 40, 46	38, 35, 39 ^a
Average height of first through third scallop in series as percentage of breakout price	24%, 24%, 22% ^a	30%, 32% ^a , 34% ^a	26%, 21%, 25%	30%, 37%, 74% ^a
Narrow scallops: days to ultimate high or low	103	68	47	30
Wide scallops: days to ultimate high or low	109	72	46	29

Note: Minus sign means decline.

^aFewer than 30 samples.

Height. Tall patterns perform equal to or better than short ones; so select patterns taller than the median.

Width. Wide patterns perform better than narrow ones in three out of the four categories. Scallops with downward breakouts in a bull market perform marginally better when they are narrower than the median (which I used to determine width).

Average formation length. The average scallop is over a month long (6 to 7 weeks is typical).

Height and width combinations. Which combination of height and width works best? Scallops both tall and wide do well after an upward breakout in a bull market. Tall and narrow outperforms after a downward breakout in a bear market. The other combinations show marginal performance differences.

Series width and height. I show the average width and height for scallops in a series. For example, the three scallops shown in Figure 43.1 tend to get narrower and shorter the farther down the price trend they appear.

Scallops in bear markets tend to get taller, but beyond that, the results show no consistent trend.

Scallop width and time. Wide scallops with upward breakouts take marginally longer to reach the ultimate high. Narrow scallops with downward breakouts take slightly longer to bottom out. Since the results are so close, I do not attach any significance to them.

Table 43.7 shows volume-related statistics.

Volume trend. Scallops with upward breakouts tend to do better when volume is rising. Downward breakouts show the reverse, but the differences

Table 43.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Rising volume trend performance	24%	23%	17%	22%
Falling volume trend performance	21%	17%	17%	23%
U-shaped volume pattern performance	20%	19% ^a	18%	25%
Dome-shaped volume pattern performance	23%	20%	16%	22%
Neither U-shaped nor dome-shaped volume pattern performance	14% ^a	14% ^a	19% ^a	19% ^a
Heavy breakout volume performance	23%	20%	18%	23%
Light breakout volume performance	21%	20%	16%	21%

^aFewer than 30 samples.

are negligible. If you have a compelling reason to trade a scallop with an upward breakout, check to see if volume is higher at the end of the pattern than at the start. If so, you *may* have a better performing pattern (but no guarantee).

Volume shapes. Upward breakouts do best when volume is dome shaped. Downward breakouts are a mixed bag as sometimes scallops with a random shape outperform and sometimes patterns with U-shaped volume do better.

Breakout volume. The results across the board do not show significant improvement, but they do suggest that scallops with heavy breakout volume tend to outperform.

Trading Tactics

Table 43.8 shows trading tactics for descending scallops.

Measure rule. I wish I had good news for the measure rule, but it seldom works. The Results Snapshot (“Percentage meeting price target”) shows the numbers, but only a third of the scallops will hit their predicted targets.

Let me give you an example of how to use the measure rule. Figure 43.5 shows a descending scallop at the top of an upward price trend. It acts as a reversal. How far will prices decline? Compute the formation height by subtracting the low near B (21.11) from the high at A (23.75), giving a height of 2.64. Since the breakout is downward, subtract the result from the low (B) to get a target of 18.47. Price reaches the target in late July.

If the breakout were upward, then you would add the height (2.64) to C, the right lip high (at 22.71) for a target of 25.35.

Breakout. Upward breakouts use a close above the high on the right side of the scallop (point C in Figure 43.5). Downward breakouts use a close below the lowest low in the pattern (B). Since the breakout direction is unknown, do

Table 43.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the scallop height by taking the difference between the highest high and lowest low in the pattern. Add the result to the right scallop peak for upward breakouts or subtract it from the lowest low for downward breakouts to get the target price. This tactic works only about 33% of the time.
Breakout	A close above the right lip high marks an upward breakout and a close below the lowest low is a downward breakout.
Stops	For upward breakouts, place the stop below the lowest low in the pattern. For downward breakouts, place the stop slightly above the right lip high. Move the stop as prices advance.
Trends	Trade with the market trend, especially downward breakouts in a bear market.

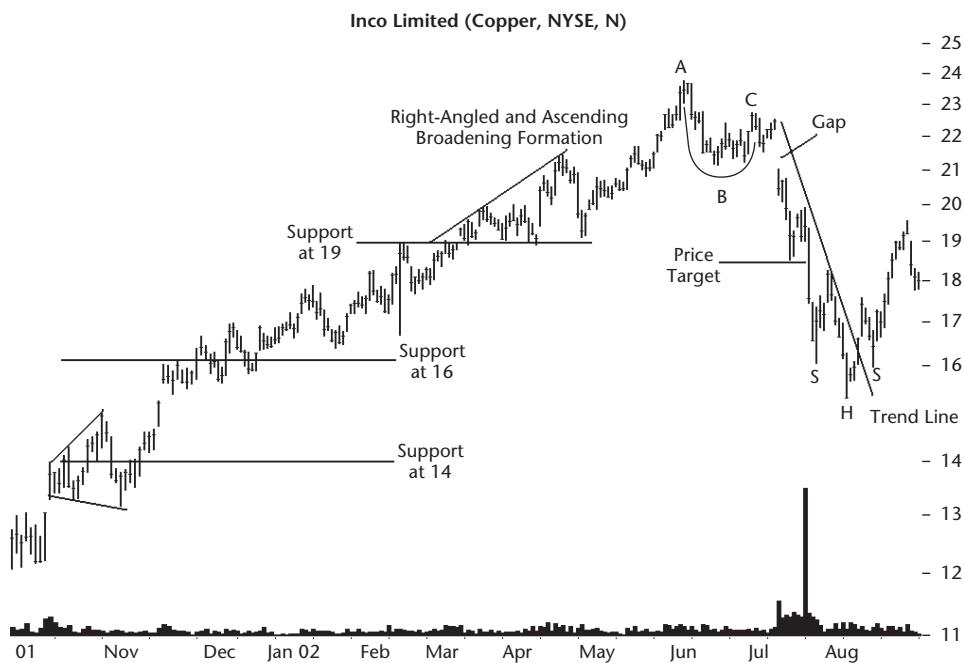


Figure 43.5 This descending scallop acts as a reversal of the upward price trend.

not trade a scallop until the breakout occurs unless you have a compelling reason for doing so. Remember that the breakout direction usually follows the price trend leading to the pattern. For example, if price is trending down, expect a downward breakout. In a strong bear market, an upward breakout may falter.

Stops. Since scallops perform so poorly, use a stop to protect any profits you may have and to limit losses. A good starting point for downward breakouts is to use point C (see Figure 43.5) as the stop point. For upward breakouts, use the formation low (B) as the stop-loss point.

Place the stop a few cents below the low (for long trades), preferably on an oddball number (20.93 instead of 21, for example). Every novice investor is going to use a round number, so position your stop below them. They will be stopped out, and you stand a better chance of having your trade left intact. Sometimes though, this strategy will cause a larger loss because of stop running. That is when a stop causes price to decline, which trips additional stops, forcing prices even lower. To avoid this pitfall, place your stop above the others, as in 21.07 instead of 21. That position also narrows your loss (for long trades). Move the stop to just above the prior minor high (downward breakouts) or below the prior minor low (upward breakouts) as price advances. Since stop running seldom occurs, I place my stop below the round number.

Trends. Since descending scallops work best in a declining price trend, short the stock only in a bear market. If you own the stock, ask yourself if you want to suffer through a 20% decline. Most of the time, it may be wise to sell the stock and look for a more promising situation instead of riding out a decline.

Sample Trade

Figure 43.5 shows the sample trade for descending scallops. How would you trade the June scallop? The first thing you may notice is that it appears at the end of a long upward price trend. Thus, this scallop acts as a reversal. This fact does not become clear until price closes below point B, the lowest low in the pattern. When that happens, it signals a downward breakout and a trend change. That movement means shorting the stock (or selling shares you own), a risky maneuver that should be left to serious traders and investors.

Before taking a position in the stock, use the measure rule to determine how far prices will decline. I already discussed this in Trading Tactics, so refer to the measure rule discussion there for more information.

Look for support and resistance zones. Overhead resistance will probably occur at the old high (in early June at 23.75), perhaps forming a double top.

Support appears at 19, as shown in Figure 43.5, set up by the base of a right-angled and ascending broadening formation. If price pierces 19, then I would consider it likely to stall at 16. Although not shown in the figure, 16 is the price at which the decline stalled during the summer and fall of 2001. Additional support appears as a broadening top, centered near 14 and extending as far back as 1999.

Since the measure rule target (18.47) and support (at 19) are nearly the same price, that is where I would expect price to stop. If the market were also trending down during the trade, an additional decline to the next support zone (16) might be possible or even likely. Below that might be a dream unless company fundamentals are in serious trouble.

With a breakout price of 21.11 and a target of 19, is a 5% decline worth trading, especially a risky short sale? I do not think so. Suppose price declines to 16, for a 24% loss. Now we are talking!

If fundamental analysis shows the market flooded with nickel, copper, cobalt, or precious metals, all of which Inco produces, then the oversupply should translate into lower stock prices. News such as that would give me confidence to short the stock.

According to Table 43.4, a gap in a bear market suggests a larger decline than without a gap. Suppose you shorted the stock at the close the day after the gap. That would be at 20.45, well below the formation low of 21.11.

In the coming days, price drops. For short-term traders, consider covering the short once price nears support at 19 or the predicted target of 18.47. Many times, the decline will fall short of the target and it may be prudent to take your profits or tighten (lower) your stop. A lower stop allows you to capture more of your profit but still give the stock room to drop farther.

If you put an order to cover the short at 18.47, you would have missed it because price declined to 18.52 before rebounding for a week. Patience would be rewarded, though, when prices dropped through support and continued down, triggering the order.

The stock hit 16.05, pulled back to the price target, and then resumed the decline, making a lower low. Drawing a down trend line connecting the minor highs would give a timely cover signal. If you missed that signal, a retest of the low at 16 in early August was another one. Since the minor low did not make a lower low, that suggested a trend change. The price pattern takes the shape of a head-and-shoulders bottom (the S-H-S pattern in July and August), suggesting higher prices ahead, and time to cover the short. If the order was covered at say, 17, that would give a return of nearly 17% in about a month.

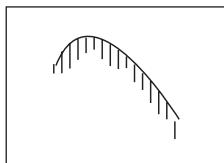
For Best Performance

The following list includes tips and observations to help select descending scallops that perform better after the breakout. Consult the associated table for more information.

- Review the identification guidelines for correct selection—Table 43.1.
- Trade scallops with downward breakouts in a bear market—Table 43.2.
- Reversals perform marginally better than continuations—Table 43.2.
- Bear market scallops with downward breakouts have the lowest failure rates up to declines of 25%, then scallops with upward breakouts have lower failure rates—Table 43.3.
- Select scallops with upward breakouts near the yearly low—Table 43.4.
- Throwbacks help performance but pullbacks hurt it—Table 43.4.
- Trade scallops with breakout day gaps—Table 43.4.
- Let profits run in a bull market but be prepared to cover shorts quickly in a bear market. Expect price weakness 6 to 8 weeks after the upward breakout from a scallop in a bear market—Table 43.5.
- Select tall patterns—Table 43.6.
- Pick wide patterns except those with downward breakouts in a bull market—Table 43.6.
- A rising volume trend works well for upward breakouts —Table 43.7.
- Select scallops with upward breakouts and dome-shaped volume—Table 43.7.
- Trade scallops with heavy breakout volume—Table 43.7.

44

Scallops, Descending and Inverted



RESULTS SNAPSHOT

Downward Breakouts

	Bull Market	Bear Market
Appearance	Looks like an upside-down J.	
Reversal or continuation	Short-term bearish continuation	
Performance rank	6 out of 21	5 out of 21
Break-even failure rate	10%	5%
Average decline	18%	23%
Change after trend ends	55%	55%
Volume trend	Upward	Upward
Pullbacks	58%	50%
Percentage meeting price target	38%	27%
Surprising findings	Pullbacks hurt performance. Tall patterns perform better than short ones. A series of scallops in a downward price trend (bull market) tend to get narrower and shorter as price descends. Scallops with a falling volume trend or U shape perform better in a bear market.	

This chapter completes the four scallop variations: ascending, descending, and their inverted counterparts. The descending and inverted scallop looks like an upside down J, and prices reach the ultimate low in less than 3 months. It is a bearish pattern, meaning that prices break out downward and continue lower.

As if this pattern wore glasses, the pattern has trouble reaching the price target, with less than a third finding the bull's-eye. I like to see values above 80%, but that is rare (for any chart pattern). The low success rate suggests price may not decline nearly as far as you hope.

Like its siblings, there are plenty of surprises with this pattern, most of which are self-explanatory. However, when several scallops appear in the same downward price trend in a bull market, the scallops tend to get narrower and shorter as they appear over time. Thus, if you are considering trading a narrow or short scallop that appears after prices have been trending down, do so with caution. The scallop may signal an approaching trend change.

Tour

What does a descending and inverted scallop look like? Figure 44.1 shows a typical example. Prices leading to the pattern trend downward and then bump up (from A to B) and round over, forming an inverted bowl. After that, prices drop, usually in a sharp, straight-line decline like that shown from B to C.

At the end of the pattern (point C), prices retrace upward forming a sort of hook (point D; think of a soup ladle upside down). The breakout occurs

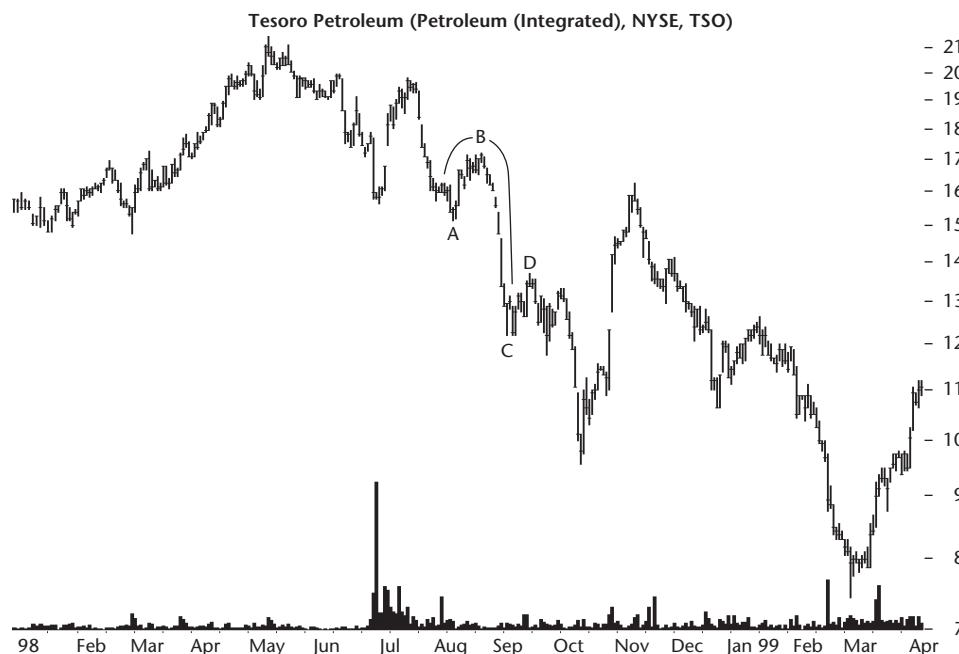


Figure 44.1 A descending and inverted scallop appears as an upside-down J.

when price closes below the lowest low in the pattern. After the breakout, price continues down.

Scallop identification is not difficult. The guidelines in the next section describe characteristics to look for.

Identification Guidelines

Table 44.1 shows identification guidelines for descending and inverted scallops.

Daily chart. I used the daily chart but have not checked the performance on weekly or intraday charts. I can find a gazillion of them on the daily chart without need to resort to other periods. You may want to explore this pattern on different time scales to see how it behaves, and in securities other than stocks.

Downward price trend. Look for a downward price trend leading to the scallop. Occasionally, but rarely, you will find scallops at the end of a rising price trend.

Inverted J shape. The pattern resembles an inverted J with the pattern start (point A in Figure 44.1) higher in price than the end (point C).

Smooth top. The top of the pattern should appear smooth, although sometimes you have to use your imagination. I did not include inverted V-shaped scallops where the turn was not a turn at all but the joining of two almost straight trend lines.

Table 44.1
Identification Characteristics

Characteristic	Discussion
Daily chart	Use the daily chart to find the pattern.
Downward price trend	Most scallops appear in a downward price trend or at bearish turning points.
Inverted J shape	Price moves up and then rounds over at the top and tumbles, forming an inverted J shape.
Smooth top	Look for daily high prices that, when connected, form a smooth turn. Larger patterns may not be as smooth because you are connecting minor highs. Allow variations.
Bowl height	The rounded, inverted bowl portion of the pattern from the scallop start to its high is usually about half the length (55%) of the following down move.
End points	Look for the scallop's end to be below the start. Both the start and end should form at turning points.
Proportion	The width of the scallop should be proportional to the following decline. Avoid selecting scallops with narrow turns followed by large declines, or the reverse.
Confirmation price	Price must close below the lowest low in the pattern without first rising higher than the pattern's high. Only then is the pattern valid.

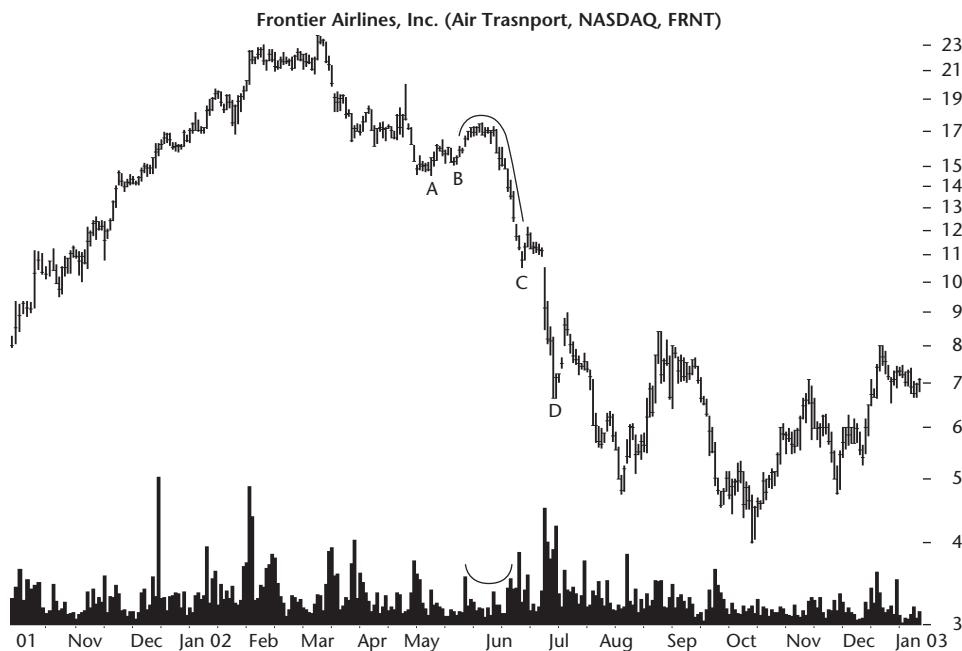


Figure 44.2 B and C mark the beginning and end of the scallop, not A or D.

Bowl height. The rounded top I call the bowl, although it is an inverted bowl. In Figure 44.1, the bowl height is the distance from A to B. Typically, the bowl height is half (54% in a bull market and 58% in a bear market) the move from B to C, but expect variations.

You want to avoid patterns with point C higher than point A—that is, the end higher than the start. In short, look for lower lows.

End points. You are going to have a problem with end points. I did. Look at Figure 44.2. Where does the scallop start: at minor low A or B? Where does it end, at C or D? I chose the inner points, B and C as the ends for my study of scallops. In a few cases, I used the outer points, A and D, when I wanted to hook a large scallop. In such a case, the BC scallop was not as well defined as the one shown in the figure. I used the nearest price turning point to mark the ends.

Proportion. The pattern should look proportional, meaning that the inverted bowl at the top should be sized to the following decline. Do not pair a wide bowl with a meager decline. Use the figures in this chapter as guides.

Confirmation price. Price must close below the lowest low in the pattern. If prices first climb higher than the highest pattern high, then it is not a scallop.

Focus on Failures

Why do scallops fail to perform as expected? Most problems occur with identification. Figure 44.3 shows an identification failure. The ends should

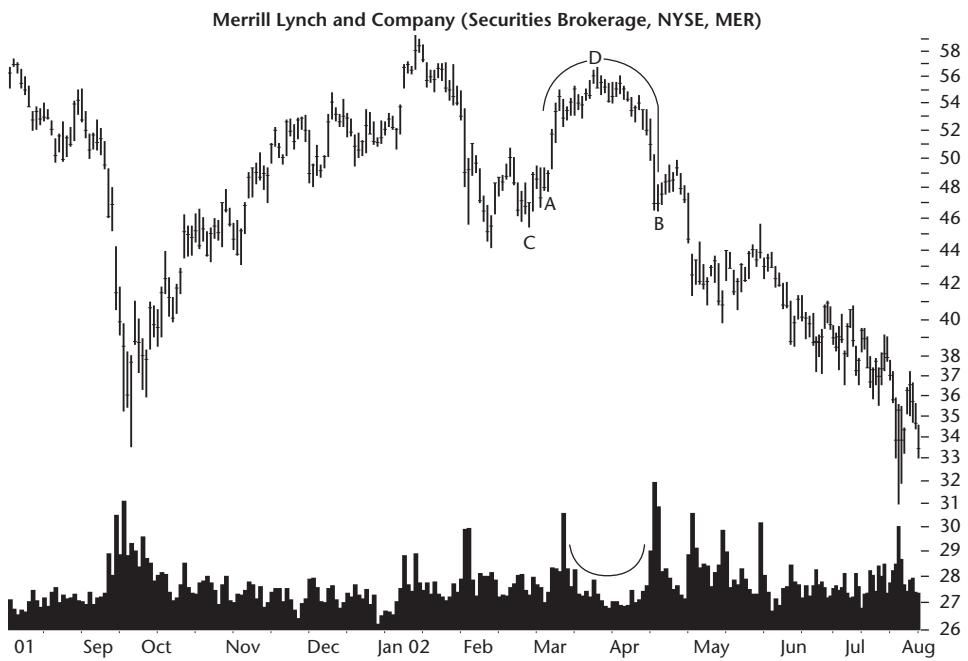


Figure 44.3 A pattern failure: Prices at A should be well above B.

make the pattern look like an inverted J. Does the scallop shown in the figure portray this feature? Point A is too close to the price of B, making it look like an inverted U, not a J.

This illustration also brings up the question of where the pattern starts. If you chose C as the starting point, then the pattern is clearly wrong, as C is below B. Choosing A as the first price turning point puts the start slightly above B, but still not far enough.

Suppose that A and B are fine. Look at the width compared to the height. The decline from D to B is not proportional to the width. In other words, a pattern this wide would probably have a longer decline. In the patterns I looked at, the usual decline from D to B was almost twice the distance from D to A. That is an average, but it is a guideline to keep in mind.

Statistics

Table 44.2 shows general of statistics for descending and inverted scallops.

Number of formations. I used two databases for this pattern. The first includes 500 stocks from mid-1991 to mid-1996. The second uses about 200 stocks from 1996 to mid-2003. During that time, I found 733 patterns split into bull and bear markets.

Reversal or continuation. I found few reversals: Only 15% of the patterns acted as reversals of the upward trend in a bull market and even fewer (11%) in a bear market. The vast majority acted as continuations of the pre-

Table 44.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	556	177
Reversal (R), continuation (C)	81 R, 475 C	19 R, 158 C
R/C performance	19% R, 18% C	25% R, 23% C
Average decline	18%	23%
Declines over 45%	15 or 3%	20 or 11%
Change after trend ends	55%	55%
Busted pattern performance	45%	39% ^a
Standard & Poor's 500 change	-1%	-13%
Days to ultimate low	61	28

Note: Minus sign means decline.

^aFewer than 30 samples.

vailing downward price trend. I did find several patterns that looked like scallops at the end of a declining price trend, but since they did not confirm, they were not included in the study. However, the reversals performed marginally better than did those acting as continuations.

Average decline. The average decline after a scallop was 18% and 23% in bull and bear markets, respectively. This finding suggests that you should trade with the market trend. Trading a bearish pattern in a bull market may set you up for a meager profit or even a loss.

Declines over 45%. Like most bearish chart patterns, few scallops show declines over 45%. As you might expect, more bear market scallops drop over 45% than do bull market ones.

Change after trend ends. Once price reaches the ultimate low, what happens? It rebounds 55%. Even if you wait for a 20% climb, signaling a trend change and then buy, there is still plenty of upside. The bad news is that the 55% gain is an average, so expect less.

Busted pattern performance. The rise after a busted pattern I consider weak. Other chart patterns rebound more strongly, so it may be better to look elsewhere.

Standard & Poor's 500 change. The 13% market drop helped bear market scallops decline.

Days to ultimate low. How long did it take to reach the ultimate low? About 2 months in a bull market but less than a month in a bear market. Thus, trade this pattern in a bear market. You stand to make more money in a shorter time, on average. Note that the slope of the decline in a bear market must be steeper than the rise in a bull market, a condition we see with other chart patterns, too.

Table 44.3
Failure Rates

Maximum Price Decline (%)	Bull Market	Bear Market
5 (breakeven)	53 or 10%	9 or 5%
10	143 or 26%	36 or 20%
15	260 or 47%	67 or 38%
20	352 or 63%	90 or 51%
25	419 or 75%	107 or 60%
30	475 or 85%	125 or 71%
35	509 or 92%	135 or 76%
50	547 or 98%	165 or 93%
75	556 or 100%	177 or 100%
Over 75	556 or 100%	177 or 100%

Table 44.3 shows failure rates for descending and inverted scallops. The failure rate in a bear market, at 5%, is quite good and is half the bull market rate. The bear market rate quadruples to 20% and nearly doubles again, to 38%, for moves of 10% and 15%, respectively. Half the patterns (51%) will fail to drop more than 20% in a bear market. Those numbers are not encouraging. Bull markets do even worse. Three out of four scallops will fail to drop more than 25%.

What do all the numbers mean? If you trade a scallop and hope for a large decline, say 50%, just 2% of scallops in bull markets and 7% in bear markets actually decline that far. Thus, you are either being too optimistic or trading on inside information. Hope has never filled my bank account, and the authorities frown on insider trading.

Table 44.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. Investors trading this pattern sometimes have to wait more than a month for the breakout. The bear market decline at a steeper slope explains the breakout happening a week sooner than in a bull market.

Yearly position. Most of the scallops have breakouts within a third of the yearly low. Few occur near the yearly high. That fact should not be a complete surprise because the breakout is at the bottom of the pattern, placing it away from the high.

Yearly position, performance. Mapping the performance according to where the breakout occurred in the yearly price range showed that the best performers in a bull market tumbled from the middle of the range. In bear markets, those with breakouts near the yearly low performed best.

Pullbacks. A pullback occurs about half the time and takes 9 to 10 days, on average, to return to the breakout price. When a pullback occurs, perfor-

Table 44.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	31 days	23 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L65%, C31%, H4%	L70%, C29%, H1%
Percentage decline for each 12-month lookback period	L17%, C19%, H16% ^a	L24%, C22%, H21% ^a
Pullbacks	58%	50%
Average time to pullback ends	10 days	9 days
Average decline for patterns with pullback	17%	19%
Average decline for patterns without pullback	19%	27%
Performance with breakout gap	-20%	-23% ^a
Performance without breakout gap	-18%	-23%
Average gap size	\$0.43	\$1.14

Note: Minus sign means decline.

^aFewer than 30 samples.

mance suffers. For example, in a bear market, scallops having a pullback dropped 19% after the breakout. Those without a pullback had declines averaging 27%.

To prevent a pullback, avoid scallops with nearby underlying support.

Gaps. Scallops show mixed results as far as breakout day gaps are concerned. In a bull market, scallops with gaps perform better. In a bear market, there is no performance difference. Notice how the average gap size in a bear market is nearly triple the bull market size (\$1.14 versus 43 cents). I have seen this characteristic in other chart patterns. In some cases, bad news powers a stock lower more easily than good news pushes it higher.

Table 44.5 shows a frequency distribution of time to the ultimate low. Almost half the inverted scallops in a bear market reach the ultimate low in the first 2 weeks. That is wonderful news for traders because they can maximize the number of annual trades by going short.

Table 44.5
Frequency Distribution of Days to Ultimate Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	38%	11%	9%	12%	3%	5%	3%	5%	3%	2%	8%
Bull market	22%	9%	8%	7%	5%	3%	4%	4%	4%	3%	30%

At the other end of the table, we find that 30% of the scallops in a bull market are still searching for the ultimate low like a spelunker whose flashlight has died.

Notice the slight rise in patterns bottoming out a month into the trade (day 28 in a bear market). If you short a stock showing a descending and inverted scallop, be prepared to close out your position a month after the breakout.

Table 44.6 shows size statistics for scallops.

Height. Tall scallops perform better than short ones in both markets. Height is one of the most reliable predictors of performance, so measure the pattern height (and divide it by the breakout price) and compare it to the median. Those taller than the median stand a better chance of outperforming, especially in a bear market.

Width. Performance improves for wide scallops in a bear market, but the difference is slim, 24% versus 22%. In a bull market, scallop width shows no performance difference. I used the median length, not the average, to determine scallop width.

Average formation length. Scallops are about a month long, but since this figure is an average, your results may vary.

Table 44.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	-19%	-26%
Short pattern performance	-17%	-21%
Median height as a percentage of breakout price	20.46%	31.63%
Narrow pattern performance	-18%	-22%
Wide pattern performance	-18%	-24%
Median length	25 days	26 days
Average formation length	30 days	31 days
Short and narrow performance	-19%	-23%
Short and wide performance	-14%	-19%
Tall and wide performance	-20%	-27%
Tall and narrow performance	-17%	-22%
Average width (days) of first through third scallop in a series	31, 29, 30 ^a	31, 28, 41 ^a
Average height of first through third scallop in series as percentage of breakout price	22%, 20%, 19% ^a	34%, 45%, 73% ^a
Narrow scallops: days to ultimate low	66	30
Wide scallops: days to ultimate low	56	26

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 44.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	-17%	-23%
Falling volume trend performance	-19%	-24%
U-shaped volume pattern performance	-18%	-25%
Dome-shaped volume pattern performance	-18%	-22%
Neither U-shaped nor dome-shaped volume pattern performance	-18%	-20% ^a
Heavy breakout volume performance	-18%	-24%
Light breakout volume performance	-18%	-22%

Note: Minus sign means decline.

^aFewer than 30 samples.

Height and width combinations. In both bull and bear markets, scallops that are both tall and wide outperform. In a bear market, the difference is substantial, 27% versus 19% for the worst performer.

Series width and height. I show the average width and height of up to three scallops in a single downward price trend. In a bull market, scallops tend to get narrower and shorter as they appear lower in the price trend. In a bear market, scallops get wider and taller. In all cases, the sample counts are low, so the results may change.

Scallop width and time. Narrow scallops take longer to reach the ultimate low than wider ones, for some reason. I used the median length (shown a few rows above in the table) as the benchmark for width.

What can we learn about scallops by observing volume? Table 44.7 shows some answers.

Volume trend. Scallops with a falling volume trend performed better than did those with a rising volume trend, but the results were close.

Volume shapes. Volume shape influences performance only in a bear market. Those with U-shaped volume dropped 25% after the breakout. Those with dome-shaped volume dropped 22%. Select scallops with U-shaped volume for the best average performance.

Breakout volume. Breakout day volume heavier than the prior 30-day average helped bear market scallops outperform, but the results were close: 24% to 22%.

Trading Tactics

Table 44.8 shows trading tactics for descending and inverted scallops.

Table 44.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Used to predict a target price. Compute the difference between the formation's high and low. Subtract the difference from the breakout price (the lowest low). The result is the target price.
Buy signal	Occurs when price closes below the lowest low in the pattern without first rising above the high. That is the time to open a short position or sell a long holding.
Sell signal	If price rises to the price level of the start of the pattern, consider closing out your short position. If it rises above the pattern high, get out of the trade. Now!
Search for nearby support and resistance	Avoid nearby underlying support. Look for minor highs and lows, solid blocks of horizontal price movement, round numbers, trend lines, and chart pattern support and resistance.
Wait for confirmation	Wait for price to close below the formation low.

Measure rule. Use the measure rule as a guide to finding a price target after the breakout. To use it, compute the scallop height and project it downward from the breakout price. For example, the height of the scallop shown in Figure 44.4 is the price difference between B and C. The high is at 11.55 and the low is at 8.21, giving a difference of 3.34. Subtract this difference from the low, 8.21, giving a target of 4.87. Price reaches the target less than a month after the breakout.

Warning: This method works between 27% (bear markets) and 38% (bull markets) of the time. I consider values over 80% to be reliable, so this method falls well short. Be conservative in your estimates. Is a support zone near the target? If so, price is more likely to stop there.

Another check of the target is to turn it into a percentage decline. In this example, the predicted decline measures 41% (or $3.34/8.21$). Since the scallop pattern in Figure 44.4 is in a bear market, Table 44.3 shows that fewer than 76% decline by at least 35% (the closest decline to 41%). That suggests the target is too far away and price is unlikely to decline that far.

Buy signal. Sell short when price closes below the formation low. In Figure 44.4, that is a *close* below point B. If you own a stock, consider selling, as prices are likely to continue dropping.

Sell signal. Consider covering your short if price retraces to the price level of point A in Figure 44.4, the start of the pattern. Always close out your short position if price rises to C, the highest high in the pattern. If that happens, the stock is saying you have made a mistake. Get out.

Search for nearby support and resistance. This step is important. If you know where support and resistance are, you can gauge how far prices will fall or rise, respectively. Trade or not trade accordingly.

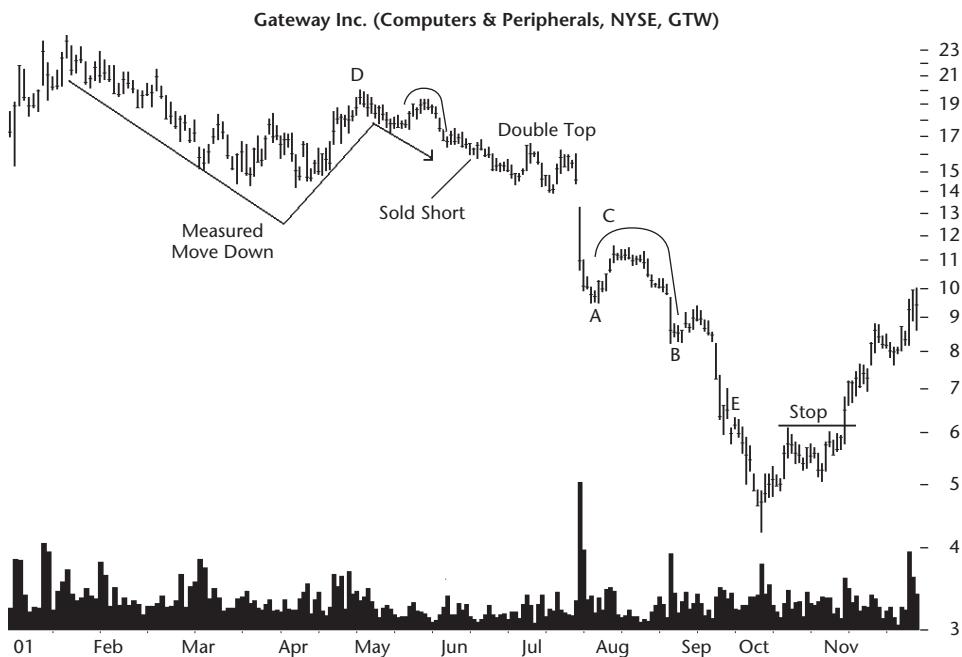


Figure 44.4 As described in the Sample Trade, Rich shorted this stock and a stop closed out his position.

When the stock hits nearby underlying support, that often causes a pull-back. From Table 44.4, we know that when a pullback occurs, it interrupts downward momentum and hurts performance, so avoid trades with underlying support unless you have a compelling situation.

Wait for confirmation. Before you short a stock, do your homework and make sure it is worth shorting. Do not short a descending and inverted scallop until it confirms, meaning that price must close below the formation low. Only after confirmation does a scallop become a valid chart pattern.

Sample Trade

Figure 44.4 shows this chapter's sample trade. I base this one on a fictional trade because this is a new pattern and because shorting scares the dickens out of me. If you do not know what you are doing, stick to the long side. Here is how Rich used the pattern.

Rich is an experienced trader that dares to short a stock when the fundamentals warrant. In the bear market of 2001, when the tech stocks were being slaughtered wholesale, he started looking for stocks to short and found a candidate in Gateway. He did his fundamental research by checking out the company and others in the same industry. When he was comfortable with his choice, he waited for the right opportunity and found it when the descending and inverted scallop appeared in May.

He reviewed the identification characteristics and some of what he saw worried him. The overall price trend from January was downward except for the recent run-up in April (D). The May scallop looked good, like an inverted J with a smooth top. The bowl height as a percentage of the formation height turned out to be 65%, close to the 61.8% Fibonacci number. The ends of the formation were clean (meaning a sharp, visible turn) and the pattern looked proportional. Most knowledgeable traders would have no trouble spotting this scallop. Combined with the April peak (D), it also looked like a double top.

The day after price closed below the lowest low in the pattern, he shorted it and received a fill at 16. Immediately, he placed a stop just above the pattern high at 20.05, figuring that it was just above a round number (a common resistance zone) and just above two minor highs (the scallop top and the earlier peak in April).

Prices slid in a straight-line run, following the slope of the earlier downturn (January to March), a measured move down pattern that predicted a low of about 10. That decline gave him confidence to ride out the small double top in June.

Then earnings came out and the stock gapped downward in mid-July, forming another scallop in August. He calculated the price target for this lower scallop and saw that it was 4.87. He did not think prices would drop that far, but he monitored it closely, lowering his stop price along the way to capture his profits, just in case.

Price reached a low of 4.24 in early October then started rebounding. His stop was at 6.35, a few pennies above the minor high in September (E) and just above the early October peak. When price touched his stop, his broker closed out the position.

From the buy price of 16 to the stop price of 6.35, he made 60% in about 5 months of worrying.

For Best Performance

The following list includes tips and observations to help select descending scallops that perform better after the break out. Refer to the associated table for more information.

- Review the identification guidelines for correct selection—Table 44.1.
- Select scallops in a bear market. The average decline is better and it occurs in half the time—Table 44.2.
- Scallops in bear markets have lower failure rates—Table 44.3.
- Avoid pullbacks as they hurt performance—Table 44.4.
- Gaps help performance in a bull market—Table 44.4.

- Half the bear market scallops reach the ultimate low in the first 2 weeks—Table 44.5.
- Stocks in a bear market tend to bottom a month into the trade—Table 44.5.
- Select scallops both tall and wide—Table 44.6.
- Bull market scallops get narrower and shorter the lower they appear in a price trend. Bear market scallops get wider and taller—Table 44.6.
- Trade wide scallops. They reach the ultimate low quicker—Table 44.6.
- Select scallops with a falling volume trend—Table 44.7.
- In a bear market, pick scallops with U-shaped volume—Table 44.7.
- Trade bear market scallops with above average breakout volume—Table 44.7.

45

Three Falling Peaks



RESULTS SNAPSHOT

Downward Breakouts

	Bull Market	Bear Market
Appearance	Three peaks, each with a price lower than the previous and proportional to one another	
Reversal or continuation	Short-term bearish reversal	
Performance rank	8 out of 21	6 out of 21
Break-even failure rate	12%	4%
Average decline	17%	24%
Change after trend ends	56%	52%
Volume trend	Downward	Downward
Pullbacks	59%	62%
Percentage meeting price target	33%	32%
Surprising findings	Pullbacks hurt performance. Narrow patterns perform better than wide ones. Patterns with U-shaped volume do well.	
See also	Triple Tops	

I first learned about this chart pattern when Robert Fischer asked me to endorse his book, coauthored with Jens Fischer, *Candlesticks, Fibonacci, and Chart Pattern Trading Tools* (Wiley, 2003). He wrote that the three falling peaks chart pattern is a reliable performer. I agree, but it is especially effective in a bear market. There, the breakeven failure rate is 4% and the stock tumbles

24%, on average. That 24% measures from the lowest low in the pattern. If you were to measure from the top of the pattern, the decline would average 34% in a bull market and 44% in a bear market. Those losses are as frightening as riding a toboggan down a tree-studded hill.

If I own shares in a stock showing a three falling peaks chart pattern, I pay attention. If the pattern confirms, the stock is going down. The chart pattern reliably signals a trend change by acting as a reversal of the prior uptrend.

One disappointment with this chart pattern is how infrequently the measure rule works. About a third of the time, price reaches the target (which is the pattern height subtracted from the lowest low price).

Tour

What does a three falling peaks (3FP) chart pattern look like? I am sure you can conjure up an image of one, but Figure 45.1 shows two examples. The pattern consists of three peaks of equal size and shape, with each peak lower than the last.

Many times, you will find this pattern at the end of an uptrend (peak A1 marks the end), so it acts as a reversal. At other times, it will continue the downtrend like the B1 to B3 peaks show. Notice the U-shaped volume in the A1–A3 pattern. The U shape is rarer than the dome shape, but three falling peaks with U-shaped volume outperform their dome-shaped siblings.

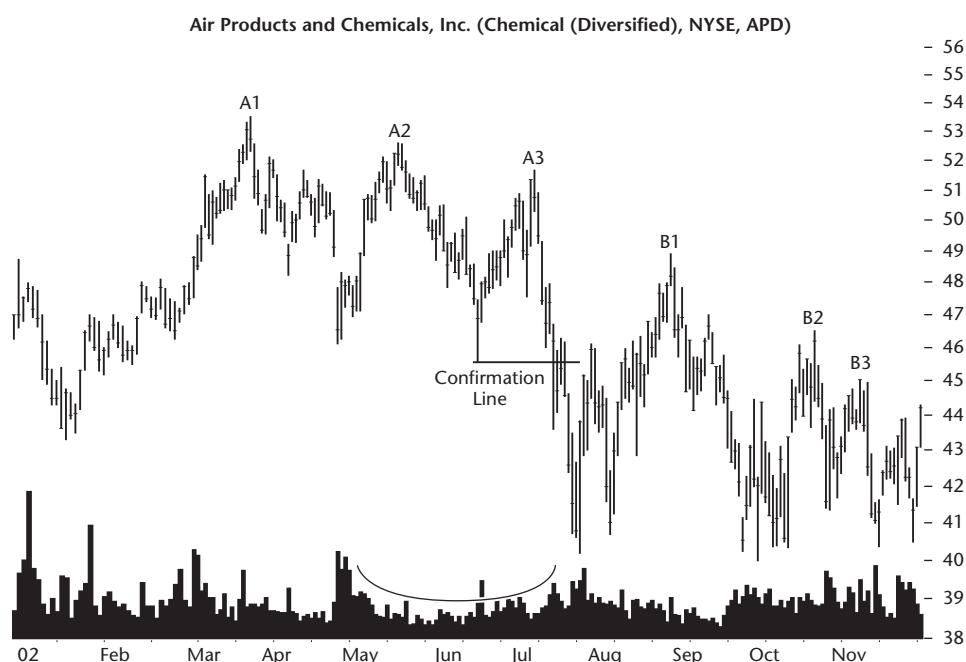


Figure 45.1 The three falling peaks chart pattern begins with the highest peak in the trend and continues with two successively lower peaks.

Is that all there is to know about identifying three falling peaks? Actually, it is a bit more complicated.

Identification Guidelines

Table 45.1 shows identification characteristics for 3FP patterns.

Upward price trend. Since we are looking for three peaks, you are going to have to do some counting. Begin counting with the highest high on the chart where an upward price trend ends and a stair-step decline begins.

Three falling peaks. The highest high in each peak must be lower than the prior peak. Allow no ties because we are not searching for double or triple tops. The three peaks need not follow a straight down-sloping trend line.

Proportion. The three peaks should appear similar in size and shape. Do not mix a wide and tall peak with a short, one-day spike. Consider Figure 45.2. Peaks A1, A2, and A3 appear similar in magnitude. They are all minor highs and each peak has a lower top than the one before. Notice that the B peaks are much smaller in size and shape but distinguishable as three independent peaks, not three peaks born from the same congestion region. Both A1 to A3 and B1 to B3 are valid three falling peaks patterns.

The reason for the rule about proportion is to avoid confusion about peak selection. Consider peaks C and D. To me, these look like something I missed with my lawnmower. They are minor highs, as are the other A peaks, but they are not in the same league. They are 1- or 2-day spikes that appear out of place with the rounded appearing A1 peak. They are not of the same magnitude or proportion. When selecting the three peaks, I ignored C and D and went with A1, A2, and A3.

Why not select peak E? This peak is robust enough to join the party, so you could call it the third peak. When A3 comes along, you might question the validity of the A1, A2, E pattern because A3 forms a higher high. The way I looked at the pattern, I liked the idea that you could draw a trend line along the A1, A2, and A3 peaks. Having E as the last peak seems out of place. Also, a

Table 45.1
Identification Characteristics

Characteristic	Discussion
Upward price trend	Start at the end of an upward price trend and look for three descending peaks.
Three falling peaks	Each peak must be below the prior peak.
Proportion	Each peak should look similar to its preceding peak. If you begin with wide peaks, select only wide ones.
Confirmation price	The pattern becomes valid only when price closes below the lowest low.

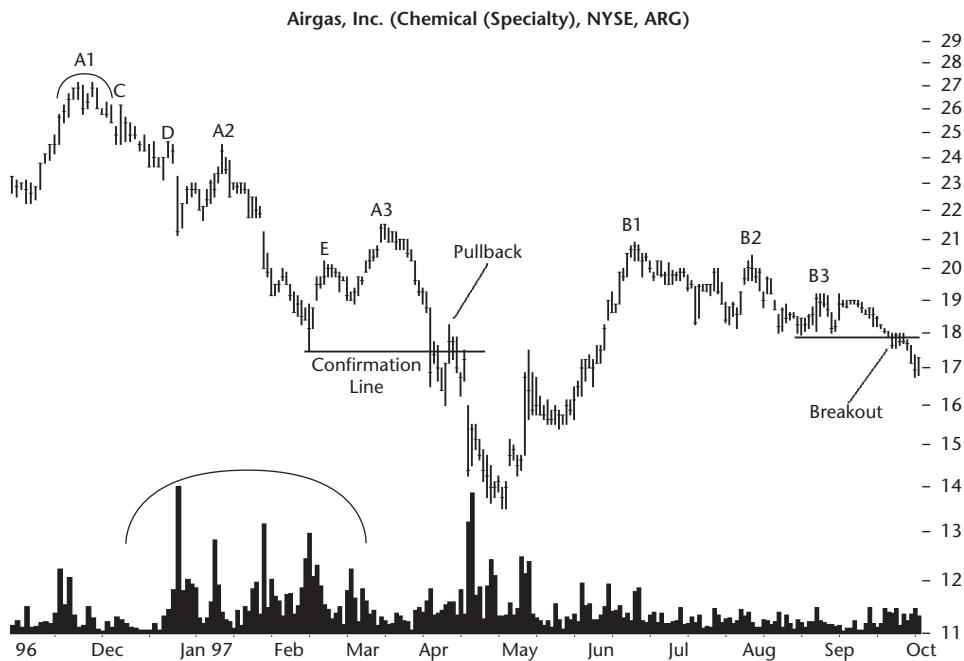


Figure 45.2 Peaks A1, A2, and A3 form three falling peaks, as do B1, B2, and B3. Peaks C and D are too small and narrow to be part of the A1–A3 pattern. Peak E is fine but the higher A3 peak suggests that A3 is a better selection as the last peak in the series.

higher peak (such as A3 when E was the third peak) before confirmation might invalidate the pattern. However, I disallowed patterns when price closed above the highest high (A1), not a close above the lowest high (E). You might consider a close above the lowest high as invalidating the pattern. I have not tested this possibility, but it might lead to better performance.

Confirmation price. Figure 45.2 shows the confirmation price as a horizontal line, even with the lowest low. The pattern confirms as a valid pattern when price closes below the line, usually the valley between the second and last peak. If the valley between peaks 1 and 2 marks the lowest low, then use the last valley as the confirmation price. That will get you in (to short) or out (of a long holding) sooner than if you wait for price to close below the lowest low.

Focus on Failures

Figure 45.3 is the basis of a quiz. Which of the three patterns (A, B, or C) are valid 3FP patterns? Let me work right to left, beginning with the C series. Is C1 to C3 a valid pattern? We are looking for three falling peaks and these three are rising. Thus, the C series is not a three falling peaks pattern.



Figure 45.3 Which of these patterns is a valid three falling peaks chart pattern?

What about B1, B2, and B3? Here we have three peaks, each one below the prior one. B2 and B3 are narrow and B1 seems wide. You might exclude it on that basis alone (I would not because they look fine to me), but there is a much bigger problem. What is it? Confirmation. The pattern does not confirm because price never closes below the lowest low before climbing above the highest high. The B series of peaks is not a valid three falling peaks pattern.

What about A1, A2, and A3? The three peaks appear similar and the pattern confirms when price closes below the valley between A2 and A3. Guess what? It is also an invalid pattern. Why?

Look at peak A2. See that spike to the left of A2? It is part of A2 and it is taller than A1 by 2 cents. Thus, the second peak is higher than the first, so it is not a valid three falling peaks pattern. In my statistics, I did not include it as a valid pattern, but since it worked out well, you might research similar patterns (with a peak slightly above the prior peak) and see how they perform.

Figure 45.4 shows a common failure of the three falling peaks chart pattern. The stock drops after the breakout but only by a small amount before encountering support. In the figure, the A pattern forms at the top of a long uptrend that began in November 1999 (not shown). Since the B pattern is farther down the price chain, it must be closer to the ultimate low. It is, and price breaks out downward at E, falling just 2% below D, and then begins climbing. The climb to F measures a whopping 58%.

If you were to look back in time, you would see a large zone of support extending back as far as 1995. That support is not as clear as it could be, but the

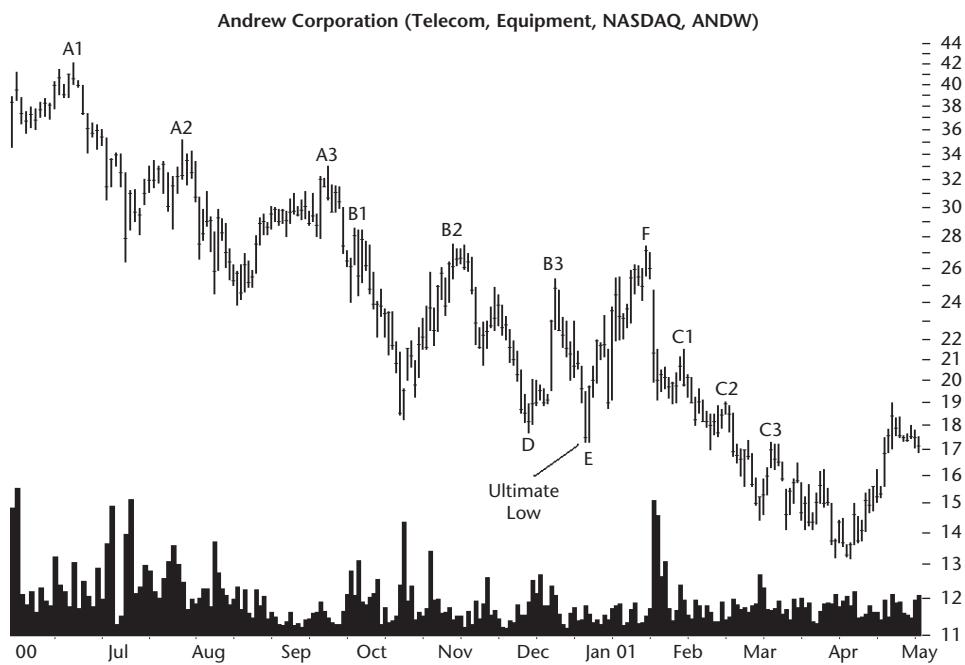


Figure 45.4 After declining just 2% below point D, the stock rallies 58% from E to F, signaling a trend change.

nearness in price of the October bottom and point D suggests an effective support zone. The stock tried to pierce the zone for the third time and failed.

The lesson from Figure 45.4 is twofold. First, the best trades often come after trend changes. The lower down the trend the three falling peaks pattern appears, the closer to the ultimate low price is. That is not always the case because of how I determine a trend change (a 20% rise off the ultimate low). The ultimate low, as in this case, can appear in the middle of a downtrend, not at the very end. Still the guideline is a good one.

Second, always search for underlying support before you trade, especially if you intend to short a stock. Once you place a trade, use a stop-loss order to protect your money.

Statistics

Table 45.2 shows general statistics for the 3FP pattern.

Number of formations. This pattern is plentiful and easy to find, so I did not have to scour many stocks. I found 527 patterns in about 200 stocks from late 1995 to late 2003.

Reversal or continuation. Most of the patterns appear at the end of an uptrend. They act as reversals. The others are part of a downtrend in progress, sometimes as the second or third 3FP chart pattern in a row. In a bull market,

Table 45.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	321	206
Reversal (R), continuation (C)	235 R, 86 C	146 R, 60 C
R/C performance	-17% R, -18% C	-24% R, -23% C
Average decline	17%	24%
Declines over 45%	11 or 3%	12 or 6%
Change after trend ends	56%	52%
Busted pattern performance	58%	53%
Standard & Poor's 500 change	-2%	-15%
Days to ultimate low	36	34

Note: Minus sign means decline.

continuations marginally perform better than reversals, but in a bear market, the results flip with reversals outperforming slightly.

Average decline. As one might expect, the 24% decline in a bear market handily beats the 17% drop in a bull market. This finding suggests that the pattern is more at home in a bear market than a bull one. It is a bearish pattern, after all.

Declines over 45%. Few 3FP chart patterns show unusually large declines—just 6% drop more than 45%. The small numbers are typical for bearish chart patterns.

Change after trend ends. Once the downward price trend ends at the ultimate low, prices rebound an average of 52% (bear market) and 56% (bull market). Those recovery rates are typical, but if you can tell when the trend changes, you can make a bunch of money.

Busted pattern performance. If prices drop by less than 5% after the breakout, buy. The rise in such situations averages well over 50%. Even if you are late to the trade, the profit may be exceptional.

Standard & Poor's 500 change. In both bull and bear markets, the S&P 500 index declined. This occurrence is unusual and it reflects the way I measured the decline. See the Glossary and Methodology chapter for more information on the measurement technique.

Notice how the large S&P decline—15%—helped the bear market performance (average decline of 24%). The lesson here is to always trade with the market trend. Before placing a trade, ask yourself if the market is going to rise or fall. Go long or short accordingly.

Days to ultimate low. It took about a month for prices to reach the ultimate low after the breakout. Since prices declined 24% in a bear market and 17% in a bull market but took about the same time, the bear market decline must have been steeper. That feature means more trades per year in a bear market.

Table 45.3
Failure Rates

Maximum Price Decline (%)	Bull Market	Bear Market
5 (breakeven)	38 or 12%	8 or 4%
10	101 or 31%	30 or 15%
15	154 or 48%	67 or 33%
20	210 or 65%	94 or 46%
25	246 or 77%	123 or 60%
30	279 or 87%	149 or 72%
35	290 or 90%	169 or 82%
50	311 or 97%	196 or 95%
75	321 or 100%	205 or 100%
Over 75	321 or 100%	206 or 100%

Table 45.3 shows failure rates for this chart pattern. Notice that the bear market rates are lower than the bull market ones. For best performance, trade this pattern in a bear market. Also, notice how the failure rate climbs for small changes in the maximum price decline. For example, in a bear market, 4% of the 3FP patterns fail to drop more than 5% after the breakout. This percentage climbs to 15% failing to drop more than 10% and doubles to 33% failing to decline more than 15%. Thus, the rate quadruples and then doubles, but that rate of increase is typical for many chart pattern types.

What the numbers show is that the decline may not be substantial before a rebound occurs, because much of the decline has already taken place. By that, I mean the decline from the first to the third peak is not included in the table, only the decline after the breakout.

Table 45.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. Bear markets take almost twice as long to break out than do bull markets. I consider this finding unusual. In a bull market, the stock is declining but the general market is rising; that is like swimming against the current. Which takes longer to reach a boat anchored offshore, when you swim with the current (bear market, down breakout) or against it (bull market, down breakout)? Maybe the situation is so dire that in a bull market the stock plunges. However, if that were the case, the time to the ultimate low would be less than in a bear market, but it is not (36 days versus 34). I cannot explain the result.

Yearly position. Most of the time, the breakout appears in the lowest third of the yearly price range. Since this is a bearish chart pattern with the breakout at the pattern's low, the results make sense.

Yearly position, performance. In a bull market, the best performance comes from patterns in the middle of the yearly price range. In a bear market, the *worst* performers appear in the middle of the range.

Table 45.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	17 days	27 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L45%, C41%, H14%	L59%, C33%, H8%
Percentage decline for each 12-month lookback period	L16%, C18%, H17%	L24%, C22%, H30% ^a
Pullbacks	59%	62%
Average time to pullback ends	9 days	10 days
Average decline for patterns with pullback	15%	23%
Average decline for patterns without pullback	20%	26%
Performance with breakout gap	-18%	-23% ^a
Performance without breakout gap	-17%	-24%
Average gap size	\$0.44	\$1.23

Note: Minus sign means decline.

^aFewer than 30 samples.

Pullbacks. A pullback occurs just over half the time and takes between 9 and 10 days, on average, to complete the journey back to the breakout price. When a pullback occurs, performance suffers. For example, in a bull market, patterns with a pullback drop 15% after the breakout. Without a pullback, the decline averages 20%.

Gaps. Breakout day gaps are rare but when they occur in a bull market, postbreakout performance improves slightly. In a bear market, performance suffers but the results are close and they have few samples.

The gap size in a bear market is almost triple the size in a bull market. If I had to explain this anomaly, I would say that a downward breakout in a bear market would tend to be more violent than a downward breakout in a bull market, simply because of the market trend helping or retarding the breakout day gap.

Table 45.5 shows a frequency distribution of time to the ultimate low. Both market conditions act similarly, but notice that about 40% of the patterns reach the ultimate low in less than 2 weeks. In 3 weeks time, half or more of the patterns have bottomed. This finding suggests a high tendency for price to

Table 45.5
Frequency Distribution of Days to Ultimate Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	27%	16%	13%	7%	6%	5%	4%	3%	1%	3%	14%
Bull market	26%	14%	10%	7%	7%	7%	2%	2%	3%	3%	17%

drop far and fast. It may not, but that is the way to trade it. Get in quickly and pay attention because you may need to exit just as fast.

If you hold a stock and it shows a 3FP, then collect your courage and sell the stock. You do not want to be caught in the downdraft as prices tumble.

Table 45.6 shows size statistics.

Height. The numbers are close enough as to be statistically the same.

Width. Wide patterns perform better than narrow ones in both bull and bear markets. I used the median length as the separator between narrow and wide. For example, in a bear market, narrow patterns declined 25% after the breakout, but wide ones dropped 23%.

Average formation length. Bear market patterns are longer (by 10 days) than bull market ones.

Height and width combinations. Since short and narrow patterns perform best individually, you would expect the combination to perform better. They do not. Consider the combination of height and width to be just another individual performance, like measuring the performance of the 3FP pattern in the third dimension (adding depth).

The best performers are short and narrow in a bull market, and tall and narrow in a bear market. However, the performance differences are slight, suggesting the order may change with additional samples.

Table 45.7 shows volume-related statistics for the 3FP chart pattern.

Volume trend. There is no performance difference between patterns with a rising volume trend and a falling one.

Volume shapes. Performance improves when the 3FP has U-shaped volume. In a bull market, for example, the average decline is 20%. For patterns

Table 45.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	-17%	-24%
Short pattern performance	-18%	-24%
Median height as a percentage of breakout price	23.50%	30.92%
Narrow pattern performance	-18%	-25%
Wide pattern performance	-17%	-23%
Median length	38 days	46 days
Average formation length	47 days	57 days
Short and narrow performance	-18%	-24%
Short and wide performance	-17%	-23%
Tall and wide performance	-17%	-23%
Tall and narrow performance	-17%	-25%

Note: Minus sign means decline.

Table 45.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	-17%	-24%
Falling volume trend performance	-17%	-24%
U-shaped volume pattern performance	-20%	-25%
Dome-shaped volume pattern performance	-16%	-23%
Neither U-shaped nor dome-shaped volume pattern performance	-17%	-23% ^a
Heavy breakout volume performance	-17%	-24%
Light breakout volume performance	-19%	-23%

Note: Minus sign means decline.

^aFewer than 30 samples.

with dome-shaped volume, the decline averages 16%. For the best average performance, select patterns with U-shaped volume.

Breakout volume. Light breakout volume improves performance in a bull market and hurts it in a bear market. I consider trends that agree across market conditions to be more significant than those, like this one, that contradict. Also, the performance difference is slight. Thus, do not bet the farm that you will have an extended decline based solely on breakout volume.

Trading Tactics

Table 45.8 shows 3FP trading tactics.

Measure rule. Use the formation height applied to the downward breakout to determine how far prices will decline. Unfortunately, this method works only a third of the time. As an example, consider Figure 45.5. The highest high is at point 1 (49) and the lowest low, point A (33), gives a height of 16. Subtracting the height from the lowest low gives a target of 17. The figure does not show it, but price met the target and continued much lower.

Underlying support. Before trading a 3FP, check for underlying support. Underlying support will tell you how far prices are likely to decline. If the measure rule predicts a target price near a support zone, then that gives more confidence that prices will stop near the target. If underlying support is too close to the breakout or too robust, then search for another trade. Prices usually have enough power to push through nearby support (those less than 5% away).

Overhead resistance will tell you how much you stand to lose when things go wrong. Look for a nearby minor high at which to place a stop; just above the lowest peak is a good place. If the stop is too far away from the breakout, then look elsewhere for a more promising trade or close the stop distance (move it closer to the breakout).

Table 45.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Works about a third of the time to predict a target price. Compute the formation height from the highest high to lowest low in the pattern and then subtract the result from the lowest low.
Underlying support	Before trading, check for support zones and avoid trading a stock with nearby support.
Early entry	If the first valley is below the second, use the second one as the confirmation price instead of the lowest low in the pattern.
Trend line break	Draw a trend line connecting the two valleys. If it slopes upward, then a close below the line signals a breakout and confirms the pattern.
Wait for confirmation	Wait for price to close below the breakout (the lowest low or trend-line break) before shorting the stock.

Early entry. If the second valley is higher than the first, use the second (the higher of the two) as the confirmation or breakout price. A close below the higher of the two valleys will get you in earlier than waiting for a close below the lowest low. Figure 45.5 shows an example. Point A is the lowest low in the three falling peaks pattern, but an order to short the stock at point B will get you in at a more favorable price.

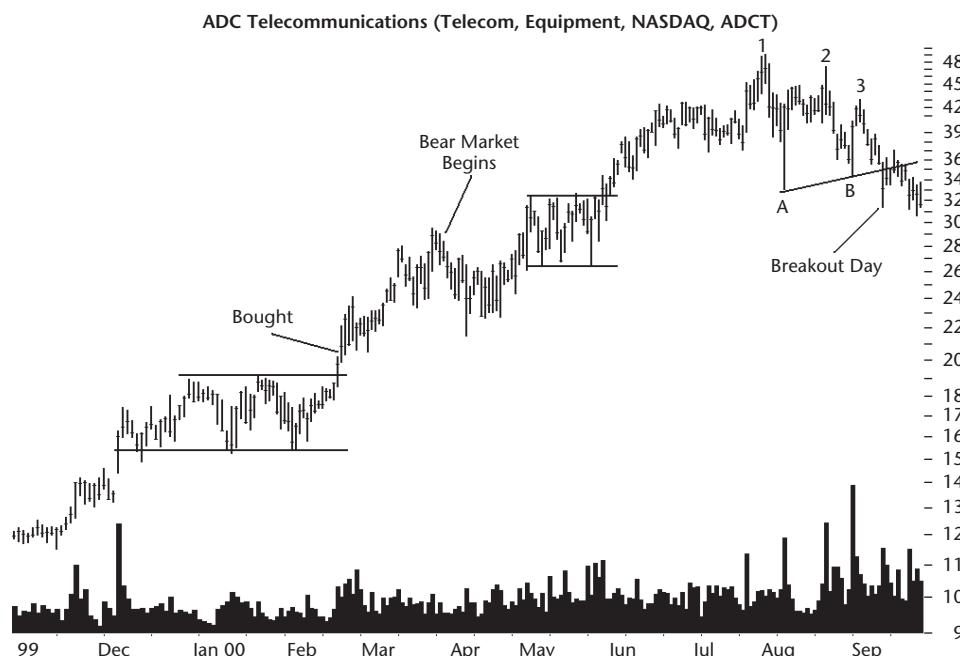


Figure 45.5 When price pierced the trend line, AB, it confirmed the three falling peaks chart pattern, and that event was the sell signal.

Trend-line break. Using this method is similar to early entry trading. When the lowest low appears between the first two peaks, draw a trend line connecting the two valley lows. A close below the trend line means a downward breakout and time to sell a long position or open a short one. The AB line in Figure 45.5 represents the trend line. It must slope upward, like that shown, in order to be effective. Disregard down-sloping trend lines and use the lowest low in the pattern as the breakout price.

Wait for confirmation. Wait for a close below the lowest low in the pattern before trading the 3FP chart pattern. However, ignore this guideline if using the early entry or trend line break as the trading signal. Only when price closes below the lowest low does the pattern become valid. In too many cases that I have seen, the pattern does not confirm and prices shoot upward. A short sale on such a pattern quickly turns into a loss. Always wait for confirmation unless you have a good reason for trading early.

Sample Trade

Consider how Melody traded the stock shown in Figure 45.5. The day after the stock staged an upward breakout from the December–February trading range, she bought, receiving a fill at 20. She did not know that a bear market (in the S&P 500 index) would begin in March 2000, a month after she bought.

Nothing along the way worried her about the stock's performance. She viewed the retrace in an uptrend (March and April) when the bear market began as part of the normal stair-step climb that stocks make. Prices pierced another trading range in May, suggesting continued strength in the stock.

When price peaked at point 1 and dropped to A on high volume, she took notice. Her study of the markets suggested that large price swings on high volume often mean a trend change. When price made a third lower peak (3), she drew a trend line connecting the two valleys (A and B), forming an up-sloping trend line. The day after price closed below the line, she sold her holdings and received a fill at 34.27. She made 71% on the trade.

The stock continued dropping, reaching a low of 1.02 in early September 2002, for a decline of 97% below where she sold the stock.

For Best Performance

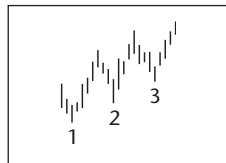
The following list includes tips and observations to help select three falling peaks that perform better after the break out. Refer to the associated table for more information.

- Review the identification guidelines for correct selection—Table 45.1.
- Trade this pattern in a bear market for the largest average decline—Table 45.2.

- Trade busted patterns—Table 45.2.
- The pattern in a bear market shows the lowest failure rates—Table 45.3.
- Select patterns with breakouts in the middle of the yearly trading range (bull market) or near the yearly high (bear market)—Table 45.4.
- Pullbacks hurt performance, so avoid trades with nearby underlying support—Table 45.4.
- Prices bottom quickly in many cases, so if you decide to short, get in early—Table 45.5.
- Select narrow patterns—Table 45.6.
- Pick patterns with U-shaped volume—Table 45.7.

46

Three Rising Valleys



RESULTS SNAPSHOT

Upward Breakouts

Appearance	Three minor lows, each higher than the prior one	
Reversal or continuation	Short-term bullish reversal	
	Bull Market	Bear Market
Performance rank	4 out of 23	13 out of 19
Break-even failure rate	5%	9%
Average rise	41%	22%
Change after trend ends	-33%	-33%
Volume trend	Downward	Downward
Throwbacks	60%	65%
Percentage meeting price target	58%	42%
Surprising findings	Patterns with breakouts near the yearly high perform best. Tall patterns perform better than short ones. Patterns with a rising volume trend and U-shape volume do well.	
See also	Triple Bottoms	

Like the three falling peaks chart pattern, Robert Fischer and Jens Fischer in their book, *Candlesticks, Fibonacci, and Chart Pattern Trading Tools* (Wiley, 2003) introduced me to the three rising valleys chart pattern.

The performance from this chart pattern is quite good in a bull market, with a low failure rate and high average rise. In a bear market, the performance is about what you would expect from a countertrend breakout. Throwbacks occur in nearly two out of three trades. That rate is high enough that you should expect one when you trade.

Tour

What does a three rising valleys (3RV) chart pattern look like? Figure 46.1 shows a good example of one. Most often, the pattern will appear in a rising price trend. The one shown comes after a short-term downtrend (starting with the July peak) but before that, prices climbed for almost a year.

The three valleys in the figure are pronounced, and their lows almost follow a trend line upward. Three valleys tracing a straight line is not a requirement for this pattern but most often, that is what you will see. Your eye tends to line up the valleys so you will pick minor lows that seem similar to one another.

Volume in the figure shows a dome shape in the middle of the pattern and that shape predominates 60% of the time, but U-shaped volume suggests better performance.

The following section further discusses identification guidelines.

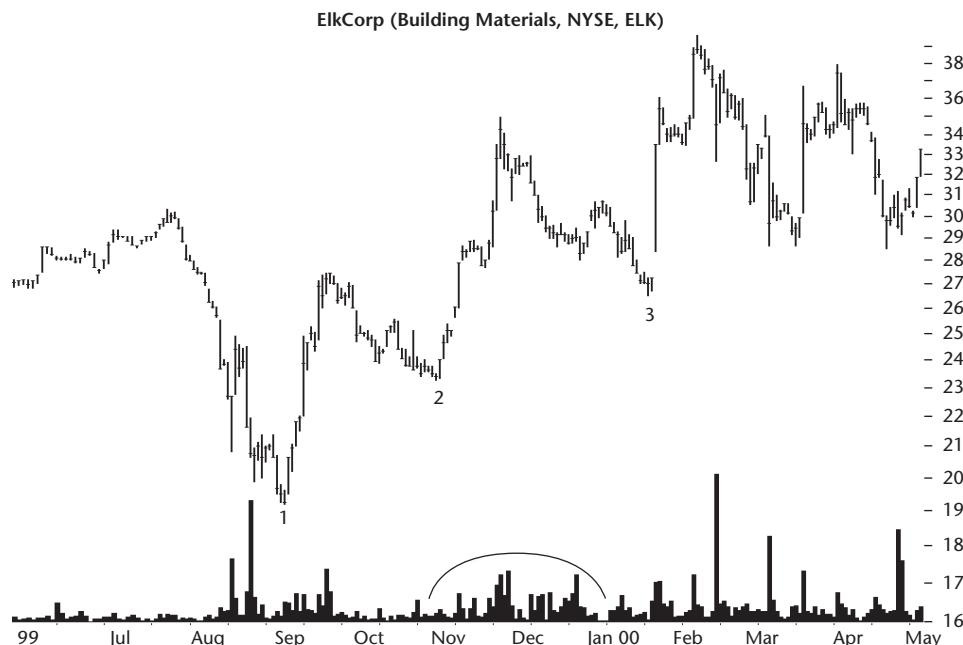


Figure 46.1 The three rising valleys chart pattern.

Identification Guidelines

Figure 46.2 shows an example of the 3RV chart pattern. This one occurs well into the upward price trend, and there are others not shown in the figure that occurred earlier. Points 1, 2, and 3 mark the minor lows. Each valley is above the prior one. Their shape is also similar—wide in this example, not narrow like the cluster in June (point A and to the right).

The pattern confirms when price closes above the highest high in the pattern. In this example, prices throw back a few days after the breakout and then continue climbing until peaking in September. That peak marks the ultimate high for a rise of 34% in a bear market. Volume is dome shaped in this example, which is also the most common shape.

Figure 46.3 shows what a 3RV pattern looks like in a downtrend. The pattern is part of a measured move down but the valleys act as a continuation (consolidation) of the downtrend, not a reversal.

Table 46.1 shows identification characteristics for 3RV pattern.

Upward price trend. Look for the pattern in an upward price trend. That is where they appear most often. However, those appearing in downturns actually perform better (a 45% rise for downturns in a bull market compared with a 36% rise for uptrends) because they act as reversals. If you can find one that reverses the downtrend, buy into the stock and ride the new uptrend. Be sure to use stops to protect your position in case the market decides to teach you a lesson.

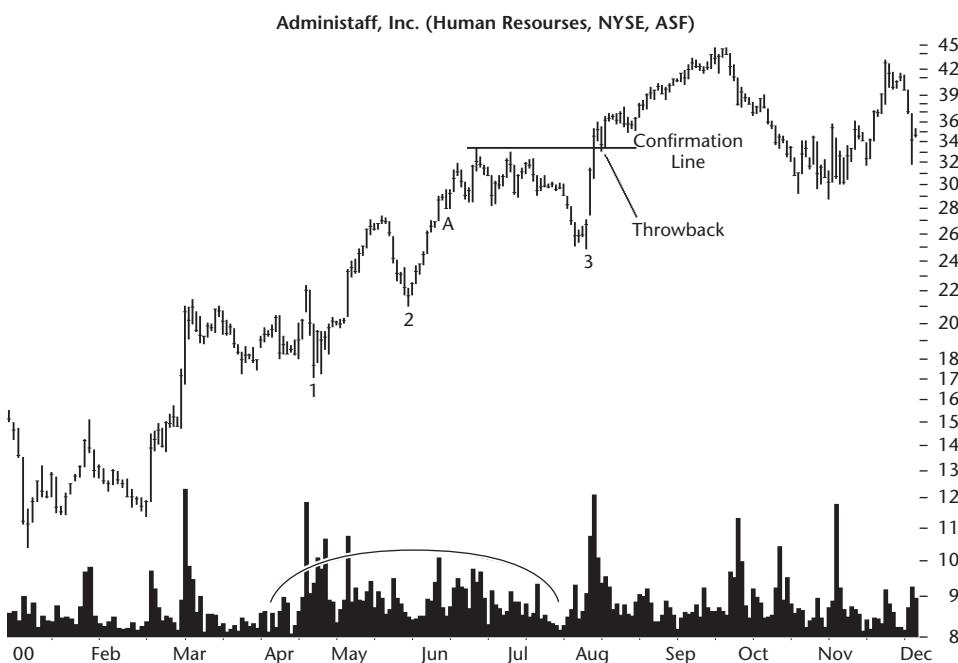


Figure 46.2 Often, the three rising valleys chart pattern will appear in an upward price trend.

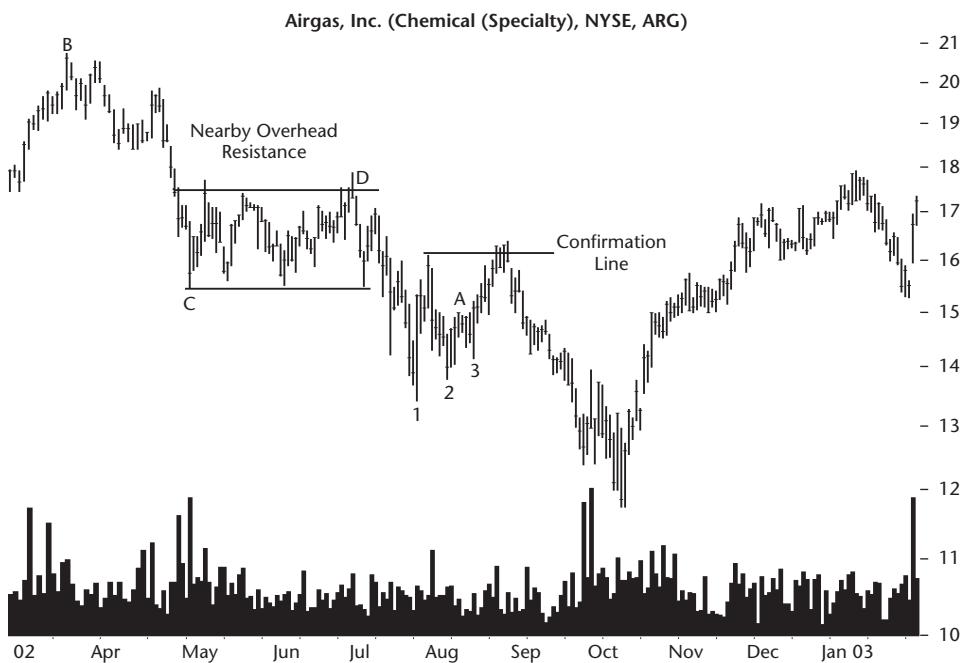


Figure 46.3 Three rising valleys appear in a downward price trend. Price confirms the pattern when it closes above the highest high.

Three rising valleys. Each valley bottom should be above the prior valley, signaling a continued price rise. As Figure 46.3 shows, however, the post-breakout rise may be meager, especially in a bear market.

Proportion. Each valley should look similar to the prior one. In Figure 46.3, the three minor lows are 3 days wide. In Figure 46.2, the turns are more graceful and wider, and the minor lows are more significant. Avoid mixing a wide minor low with a narrow one. The statistics shown in this chapter assume each valley appears like the other two. It may be that mixing bottom shapes like points 1, 2, and A in Figure 46.2 will succeed, but the figure gives one example of the decline you would suffer as prices drop to valley 3 (a 16% decline from the high at A).

Table 46.1
Identification Characteristics

Characteristic	Discussion
Upward price trend	Look for three minor lows in a row, usually found in an uptrend.
Three rising valleys	Each valley must be above the prior one.
Proportion	Each valley should look similar to the last one. If you begin with wide, rounded valleys, select only similar looking ones.
Confirmation price	The pattern becomes valid only when price closes above the highest high.

Confirmation price. Always wait for confirmation. That is when price closes above the highest high in the pattern. It confirms the three valleys as a valid chart pattern worth trading. Entering the trade sooner increases your risk, especially if price was trending down leading to the chart pattern.

There are exceptions, of course, and the Trading Tactics section discusses them. Figure 46.3 shows an example of when getting in sooner reduces your risk and increases profits. When the peak between valleys 2 and 3 is below the highest high, then the last peak (point A) serves as the new confirmation price. In the example shown in Figure 46.3, that would change a 2%, rise into a 12% gain. That is not much, but you can make a million bucks by first saving the pennies.

Focus on Failures

The three rising valleys chart pattern has a small break-even failure rate, but it still fails. Figure 46.3 shows one example. The minor lows marked 1, 2, and 3 show rising valleys, each low above the prior one. The minor lows look similar in shape, narrow spikes in this case. The pattern confirms when price closes above the highest high.

Why did this rising valley fail? I find it valuable to take the big picture and zoom in. Since the pattern begins at point 1, I would notice the measured move down pattern marked by turns B and C (the first leg); the corrective phase, C to D; and the second down leg, D to 1. After a measured move down, the most common retrace is a climb back into the corrective phase, C to D. After that, a resumption of the original trend (downward in this example) is a good bet.

Since the corrective phase is a solid block of horizontal price movement, it presents a formidable challenge to any price mountaineer willing to attempt the climb. I would not invest in this pattern because of nearby overhead resistance and the likelihood of price dropping, resuming the downtrend.

Note point A, the early confirmation price. A close above this peak confirms the pattern and leads to a gain of 12%, well above the 2% gain measured from the confirmation line shown in Figure 46.3.

Statistics

Table 46.2 shows general statistics for the 3RV pattern.

Number of formations. Much to my surprise, the number of patterns splits evenly between bull and bear markets. I used fewer than 100 stocks from 1999 to 2003 to find 496 patterns.

Reversal or continuation. As Table 46.2 shows, most of the time the pattern acts as a reversal of the prevailing (downward) price trend. Reversals

Table 46.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	248	248
Reversal (R), continuation (C)	165 R, 83 C	181 R, 67 C
R/C performance	46% R, 33% C	22% R, 24% C
Average rise	41%	22%
Rises over 45%	83 or 33%	41 or 17%
Change after trend ends	-33%	-33%
Busted pattern performance	-34% ^a	-30% ^a
Standard & Poor's 500 change	15%	1%
Days to ultimate high	125	94

Note: Minus sign means decline.

^aFewer than 30 samples.

are also easiest to spot. In a bull market, reversals perform better than continuations, but the situation flips in a bear market: reversals perform worse.

Average rise. The average rise is 41% in a bull market and 22% in a bear market. The bull market result is above the average shown for other bullish chart patterns, but the bear market result is a bit low. The numbers suggest that you trade this pattern in a bull market and only invest in a bear market if the situation is compelling.

Rises over 45%. Over a third of the bull market patterns show rises over 45%. This is a strong showing. The bear market has half the number making outstanding climbs. That finding is another reason to avoid this pattern in a bear market.

Change after trend ends. Once price reaches the ultimate high, it drops an average of 33%, regardless of market conditions. The numbers suggest that if you have a failed pattern, short the stock, and pray for a lower price. Figure 46.3 show how effective this strategy could be.

Busted pattern performance. Those patterns that climb less than 5% and then reverse go down by 30% to 34%. Since a busted pattern is easy to recognize, consider trading one when you see it. If prices line up like bottoms 1, 2, and 3 in Figure 46.3, connect the bottoms with a trend line and short the stock when price closes below the trend line.

Standard & Poor's 500 change. The general market helped push price higher in both bull and bear markets. The rise in a bear market is due to chance—the dates from the breakout to the ultimate high just happened to be up days for the index.

Days to ultimate high. It takes considerably longer in a bull market to reach the ultimate high than in a bear market (about 4 months versus 3 months). If the climb in a bear market followed the same slope as in a bull market, the

22% rise would have taken 67 days, not 94. Thus, the bear market climb is at a lower slope. Active traders, who want to maximize the number of trades each year, should concentrate on trading this pattern in a bull market.

Table 46.3 shows failure rates for the 3RV pattern. The bull market numbers are lower than the bear market ones. For example, 5% of bull market patterns fail to rise at least 5% after the breakout. This figure triples to 15% failing to rise at least 10%. In a bear market, over half the patterns fail to rise at least 20%.

Despite what appears to be an alarming increase in failures for small price moves, the numbers are quite reasonable when compared to other chart patterns. Other formations start out with low failure rates, triple, and then double for moves from 5% to 15%. With 3RV, the increase is not as steep.

What do the numbers mean? If your cost of trading is 5% and you want to make 15% (20% total), how often does the 3RV pattern fail? Answer: 34% in a bull market and 52% in a bear market. The result says two things: Avoid trading this pattern in a bear market and two out of three patterns, on average, will reach your target if you trade them perfectly.

Of course, you will not trade each one perfectly and your losers will pull down your average gains, so you will have to allow for that. Trade the pattern on paper and see if you can consistently make money. If you cannot show profits on paper, then either you are doing it wrong or you should marry someone with lots of money.

Table 46.4 shows breakout- and postbreakout-related statistics for the 3RV pattern.

Formation end to breakout. It takes just over 2 weeks, on average, for price to climb from the last valley low to the highest high in the pattern.

Yearly position. With the breakout at the top of the pattern, most rising valleys appear within a third of the yearly high.

Table 46.3
Failure Rates

Maximum Price Rise (%)	Bull Market	Bear Market
5 (breakeven)	12 or 5%	22 or 9%
10	38 or 15%	60 or 24%
15	58 or 23%	95 or 38%
20	85 or 34%	130 or 52%
25	106 or 43%	151 or 61%
30	118 or 48%	169 or 68%
35	136 or 55%	188 or 76%
50	173 or 70%	218 or 88%
75	203 or 82%	235 or 95%
Over 75	248 or 100%	248 or 100%

Table 46.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	20 days	15 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L8%, C30%, H62%	L13%, C34%, H52%
Percentage rise for each 12-month lookback period	L34% ^a , C34%, H43%	L21%, C22%, H23%
Throwback	60%	65%
Average time to throwback ends	10 days	9 days
Average rise for patterns with throwback	36%	23%
Average rise for patterns without throwback	50%	22%
Performance with breakout gap	37%	26%
Performance without breakout gap	42%	22%
Average gap size	\$0.44	\$0.32

^aFewer than 30 samples.

Yearly position, performance. The best performing patterns have breakouts near the yearly high. This is wonderful news if you are a momentum player: Buy high and sell higher.

Throwbacks. Throwbacks occur often, over 60% of the time, and it takes 9 or 10 days, on average, for prices to return to the breakout price. When a throwback occurs, performance suffers in a bull market. For example, 3RVs with throwbacks climbed an average of 36% after the breakout. Those without throwbacks climbed 50%. In a bear market, the results reverse but the performance difference is small.

Gaps. In a bull market, a breakout day gap hurts performance. In a bear market, it helps performance. However, with additional samples, the bear market result might change (it uses 36).

Table 46.5 shows a frequency distribution of time to the ultimate high. Both bull and bear markets perform similarly with few reaching the ultimate high in the first week, leaving over 40% to top out after 70 days into the trade.

Look at the slight uptick 35 days after the breakout. Both bull and bear markets show a few more patterns reaching the ultimate high during that time. Thus,

Table 46.5
Frequency Distribution of Days to Ultimate High

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	16%	7%	3%	7%	8%	4%	4%	4%	4%	3%	40%
Bull market	13%	5%	4%	4%	7%	4%	6%	2%	4%	6%	44%

if the stock looks like it is rolling over a month after you buy, consider selling. This phenomenon is not unique to this pattern, but why it occurs is a mystery.

Table 46.6 shows statistics related to size.

Height. Tall patterns perform better than short ones. In a bull market, the performance difference is widest, 45% versus 37%, respectively. For the best performance, trade tall patterns.

Width. Narrow patterns perform better in a bull market and wide ones do marginally better in a bear market. I used the median length, not the average, as the separator between narrow and wide.

Average formation length. The average 3RV chart pattern is about the same length in both bull and bear markets: just short of 2 months long.

Height and width combinations. In a bull market, 3RVs that are both tall and narrow have postbreakout rises of 53%. In a bear market, tall and wide patterns perform slightly better with rises averaging 23%. Avoid trading 3RVs that are short and wide in a bull market (34% rise).

Table 46.7 shows volume-related statistics.

Volume trend. Patterns with a rising volume trend perform better than do those with a falling volume trend. The largest difference is in a bull market, 45% versus 38%.

Volume shapes. Patterns with U-shaped volume outperform the other combinations in both bull and bear markets. In a bull market, the postbreakout rise averages an astounding 52%! That is well above the 41% average rise for all bullish 3RVs.

Breakout volume. Light breakout volume helps push prices higher. For example, in a bull market, patterns with light volume soar 53%. Those with heavy breakout volume climb just 38%. To many traders the results may sound

Table 46.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	45%	23%
Short pattern performance	37%	22%
Median height as a percentage of breakout price	23.80%	24.11%
Narrow pattern performance	44%	22%
Wide pattern performance	39%	23%
Median length	43 days	42 days
Average formation length	54 days	53 days
Short and narrow performance	39%	22%
Short and wide performance	34%	22%
Tall and wide performance	42%	23%
Tall and narrow performance	53%	22%

Table 46.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	45%	26%
Falling volume trend performance	38%	21%
U-shaped volume pattern performance	52%	24%
Dome-shaped volume pattern performance	38%	22%
Neither U-shaped nor dome-shaped volume pattern performance	33%	18% ^a
Heavy breakout volume performance	38%	22%
Light breakout volume performance	53%	24%

^aFewer than 30 samples.

odd, but I have noticed that heavy breakout volume (upward breakouts only) tends to cause a throwback. If everyone buys at the breakout price, who is left to buy in following days? Without buying demand, selling pressure forces price back down, completing the throwback. The throwback hurts upward momentum and postbreakout performance suffers.

Trading Tactics

Table 46.8 shows 3RV trading tactics.

Measure rule. Compute the formation height and add the result to the breakout price. For example, the three rising valleys marked 1, 2, and 3 in Figure 46.4 use the price difference between points 7 (\$9.52) and 1 (\$7.38) for a height of 2.14. Add the height to the breakout price (the highest high) to get a

Table 46.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the formation height (highest high minus lowest low) and add it to the breakout price. The result is the target price.
Trade reversals	If you can tell that the end of a downtrend has arrived, buy the stock.
Early entry	If the pattern has the highest high between the first two valleys, use the last peak in the chart pattern as the breakout price.
Trend-line break	A close above a down-sloping trend line joining the highs between the valleys can serve as the breakout price.
Wait for confirmation	Wait for price to confirm the pattern. Usually this event is a close above the highest high.

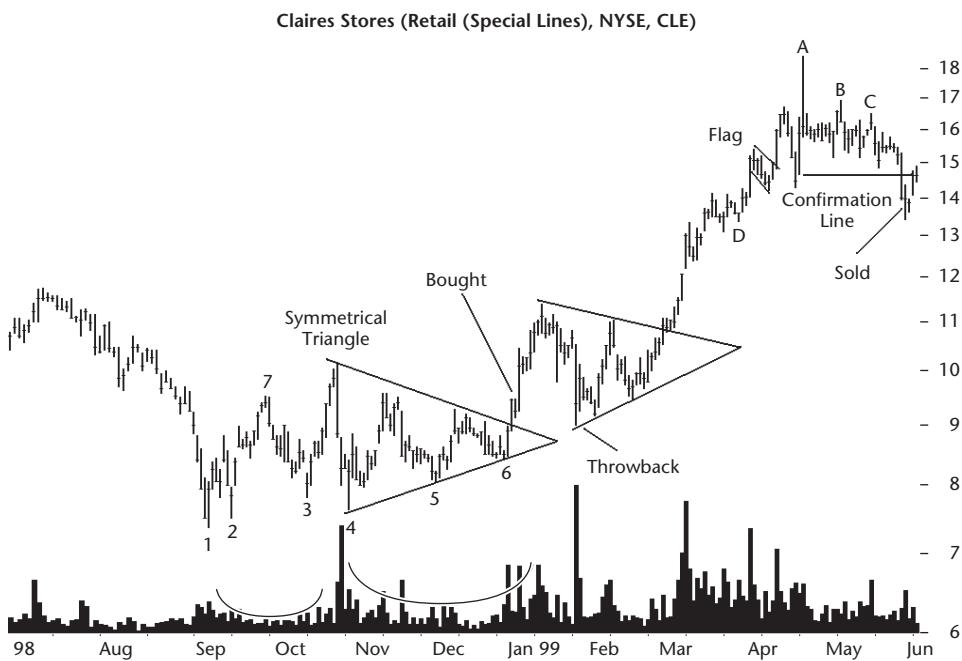


Figure 46.4 A three rising valleys pattern turned into a symmetrical triangle. As described in the Sample Trade, Joshua sold the stock when it started sinking lower with technical indicators showing divergence.

target of 11.66. Price hits the target in early March. The measure rule works just 58% of the time in a bull market and only 42% of the time in a bear market, so be conservative in your estimates.

As a check on the projected gain, turn the height into a percentage move. In this example, the height of 2.14 as a percentage of the high (9.52) would mean a rise of 22%. Table 46.3 indicates that about 38% (midway between 34% and 43%) will fail to rise at least 22% in a bull market. That finding means 62% will hit the target. If the hit rate gets much lower, then reduce your target price and look for nearby overhead resistance where price might stall.

Trade reversals. Price reversals perform better than continuations of the trend in a bull market, because a reversal catches a new trend at its lowest point. Look for underlying support, perhaps a flat base with the 3RV changing the horizontal price movement into an uptrend. Always use stops in case you are wrong because calling a trend change in a downtrend is a risky move.

Early entry. Usually, the highest high in the pattern marks the breakout price. Sometimes, like that shown in Figure 46.3, the highest high occurs between the first two valleys. Use the high between the second and third valley as the confirmation price. That strategy will get you into the trade sooner than using the highest high.

Trend-line break. You can also use a down-sloping trend line drawn between the two peaks in the pattern. Figure 46.4 shows an example as the top of a symmetrical triangle. Buy when price closes above the down-sloping trend line.

Wait for confirmation. Whichever method you use to determine the breakout price, always wait for confirmation (that is, wait for the breakout). Most of the time, a breakout will be a close above the highest high in the pattern. An early entry or trend-line break also confirms the pattern. Not waiting for confirmation is a game best left to amateurs and novice traders because of the low probability of success.

Sample Trade

Joshua made the trade shown in Figure 46.4. In late October, he noticed the 3RV pattern labeled 1, 2, and 3. Since price at point 4 dropped below point 3, it made him nervous trading the pattern. However, he liked that price tested the point 1 low (at 4) but rebounded (one of three conditions signaling a trend change; the other two being price pushing up through a down-sloping trend line and a close above a prior minor high).

He waited to buy the stock until the price direction became clear. At point 6, he saw the second 3RV chart pattern. Then he noticed the symmetrical triangle, created by drawing trend lines along the price peaks and valleys. Looking to the left, the rise at 7 connects with the symmetrical triangle to form a diamond.

He reviewed the “For Best Performance” list and found that the stock was in a bull market (good) with a rising S&P 500 index (good); the breakout was in the middle of the yearly price range (bad); he expected a throwback (bad); the pattern was short and wide (the worst possible combination); but volume was rising (good) and it had a U shape (good). The commodity channel index (CCI) issued a buy the day before the breakout, but the relative strength index (RSI) remained neutral. In short, he faced a mixed technical picture.

Joshua used the trend-line break method to signal an entry. When price closed above a trend line connecting the two peaks in the pattern, he bought and received a fill at 9.20. He used the measure rule to predict a price target and came up with 11.66, the same height as the July top (far left). If he sold at that price, he would make 27%. Just below that was a solid line of resistance from March to May of 1998 (not shown), at a price of 10.80 and rising to about 12. He suspected that the resistance zone would cause a throwback.

He put a limit order to sell at 11.47, below the predicted target of 11.66 and below 11.50, where everyone else would put their orders. If triggered, he would make 25%.

Over the coming days, he watched the stock reach the resistance zone and then come tumbling down. It completed a throwback in mid-January. Fortunately, price rewarded his patience when it resumed climbing. It formed another symmetrical triangle and when it broke out upward, he removed the

limit order, reasoning that the measure rule from the triangle (13.16) was above his price, and he did not want to limit profits.

Price hit the new target but kept going up, pausing at D. Then it created a flag pattern that predicted a target of 16.19. Price hit that target 2 days after it pierced the top flag trend line. Price peaked at A and then made two successively lower lows, B and C. This was a three falling peaks pattern and it spelled trouble.

He checked his two favorite indicators, the RSI and CCI. The RSI was in overbought range since March, showing a horizontal movement even as prices climbed. CCI was even more dramatic. It peaked in March and then made successively lower peaks in April through May. This divergence, where prices move up and the indicator moves down, signaled a sale.

The day after price pierced the three falling peaks confirmation line (the lowest low in the pattern), he sold and received a fill at 13.77 for a gain of 50% in about 4 months. The stock continued lower and reached bottom in October at 7.38.

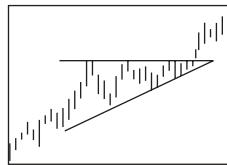
For Best Performance

The following list includes tips and observations for selecting 3RVs that perform better after the breakout. Consult the associated table for more information.

- Review the identification characteristics for correct selection—Table 46.1.
- Select three rising valleys in a bull market—Table 46.2.
- The pattern in a bull market has lower failure rates—Table 46.3.
- Pick patterns with breakouts near the yearly high—Table 46.4.
- Throwbacks and gaps hurt performance in a bull market—Table 46.4.
- Look for price to top out a month after the breakout—Table 46.5.
- Select tall patterns—Table 46.6.
- Choose patterns with a rising volume trend and U shape—Table 46.7.
- Patterns with light breakout volume outperform—Table 46.7.

47

Triangles, Ascending



RESULTS SNAPSHOT

Upward Breakouts

Appearance	Triangle shape with horizontal top, up-sloping bottom. Breakout is upward.	
Reversal or continuation	Short-term bullish reversal	
	Bull Market	Bear Market
Performance rank	17 out of 23	11 out of 19
Break-even failure rate	13%	12%
Average rise	35%	30%
Change after trend ends	-29%	-32%
Volume trend	Downward	Downward
Throwbacks	57%	54%
Percentage meeting price target	75%	63%
Surprising findings	Throwbacks hurt performance. Performs better with heavy breakout volume.	
See also	Head-and-Shoulders Tops; Three Rising Valleys; Triple Tops	

Downward Breakouts

Appearance	Same, but breakout is downward.
Reversal or continuation	Short-term bearish continuation

	Bull Market	Bear Market
Performance rank	9 out of 21	9 out of 21
Break-even failure rate	11%	3%
Average decline	19%	24%
Change after trend ends	52%	47%
Volume trend	Downward	Downward
Pullbacks	49%	45%
Percentage meeting price target	68%	66%
Surprising findings	Downward breakouts have the lowest failure rates for small price moves. Pullbacks hurt performance. Performance is best without a breakout day gap. Tall patterns perform better than short ones. Performs better with light breakout volume.	
See also		Same as for upward breakouts

Have you ever heard someone say, “I just happened to be in the right place at the right time?” Perhaps you have even said it yourself. Investing is a lot like that—being in the right stock just before it takes off. That is one of the reasons the ascending triangle is one of my favorite formations: It can show you where the right place is at the right time. You can make a bundle of money if you trade it properly. But before we get to trading tactics, let us look more closely at ascending triangles.

Since upward breakouts invariably perform better than downward ones, the biggest surprise is that downward breakouts have smaller break-even failure rates than upward breakouts. The differences are small except for the bear market when the failure rate is 3%, one quarter the 12% rate of upward breakouts. Speaking of failure rates, beginning with the second edition of the *Encyclopedia*, I count premature breakouts as the actual breakout. In the first edition, I ignored them. Thus, the failure rates are now higher and the average rise or decline is smaller. The reason for the change is that traders do not ignore premature breakouts because each breakout looks like the real thing. The statistics now reflect that trading reality.

Tour

Figure 47.1 shows a good example of an ascending triangle. A horizontal trend line drawn across the minor highs and an up-sloping trend line connecting the minor lows form the characteristic triangular pattern. Volume diminishes as

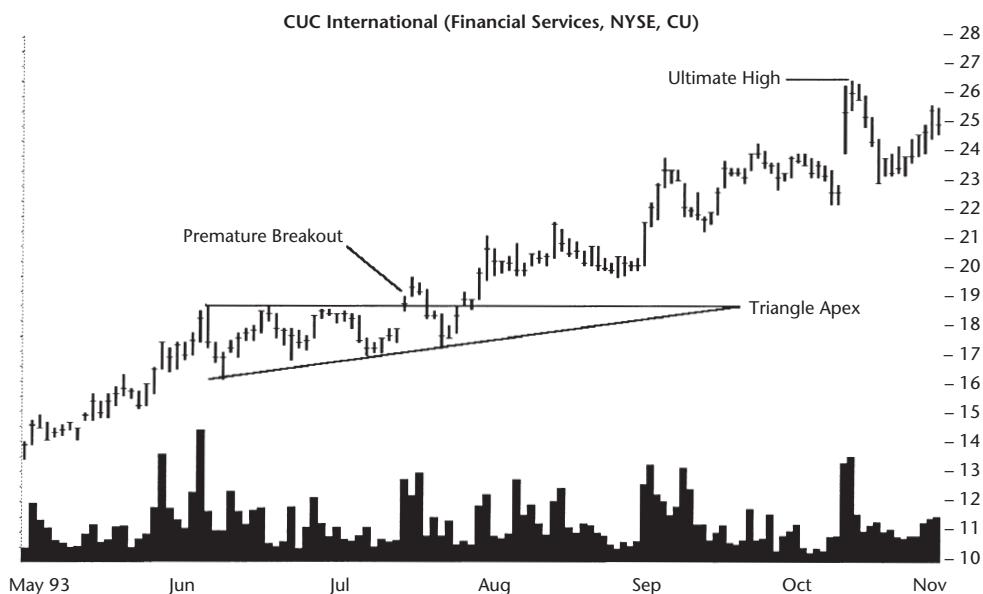


Figure 47.1 The horizontal top and up-sloping trend line on the bottom mark the boundaries of this bullish formation. The premature breakout on high volume is often indistinguishable from the real breakout. The volume trend is downward until the premature breakout.

prices bounce between resistance at the top and support at the bottom. A premature breakout gives a hint of the coming action; less than 2 weeks later, prices break out again and move higher.

Why do ascending triangles form? Imagine you are the manager of a large mutual fund. Over the years your fund has purchased a few hundred thousand shares of the company shown in Figure 47.1. After seeing the stock rise for almost a year, you are getting nervous about continuing to hold it. You believe the stock is trading well above its fair market value and you have spotted a more promising situation in another company.

You tell the trading department to dump all your shares as long as it receives at least 18.50. For 2 days, starting on June 4, 1993, the trading department sells shares. Since your fund has a large block of shares to get rid of, the price cannot climb much above 18.50 without the fund selling shares and forcing prices back down. The selling puts a ceiling on the stock. Word gets around that you are selling and other institutional investors jump on the band-wagon and sell too. Their aggressive selling satiates demand and the stock starts declining. It tumbles to a low of 16.25 on June 9, where buying demand halts the decline. Buyers, viewing the price of the stock as a steal, demand more shares. The buying pressure turns the decline around and prices start rising—quickly at first but more slowly as additional investors become willing to sell their shares. When the stock hits 18.50 again on June 16, your fund sells more shares, effectively halting the advance. The stock struggles at that level

for 3 days. Again, the selling pressure forces prices down and they cross to the other side of the now-forming ascending triangle. Prices rebound one last time, and hit the sell zone and stay there for about a week before being turned away by excess supply. A call from the trading department confirms that the stock has been completely sold.

Without an overhanging supply to halt the stock's rise, prices gap up on increasing demand and soar to 19.25. Your fund is out of the picture, but the forces of supply and demand are not finished with the company. Others still selling their shares force the stock price back down into the triangle proper. Prices race to the other side of the triangle, rebound off the lower trend line, then march back up out the top.

If I had to sum up the price action of an ascending triangle, I would say it forms because of a supply of shares available at a fixed price. Once the supply depletes, shares quickly break out of the formation and move higher. If demand continues to be strong, prices rise. Otherwise, the stock collapses back on itself and either regroups for another try or continues down.

Identification Guidelines

Finding an ascending triangle in a chart of daily price data is simple, perhaps too simple. I read a tutorial in a popular magazine in which nearly half the illustrations purporting to be triangles were incorrectly identified. If you have any doubt about the validity of a chart pattern, others may share those doubts. If others do not see the same shapes you do, chances are the pattern will not work as you expect. Under those circumstances, where there is some doubt about correct identification, do not trade the formation. Save your money for a trade where you are sure the formation is valid. I discuss identification problems later in this section. For now, Table 47.1 lists ascending triangle characteristics.

Triangle shape. The triangle pictured in Figure 47.1 is nearly a classic example of an ascending triangle. The horizontal top line of resistance repels prices and they rebound off a steadily rising support line below. The two narrowing lines, one horizontal and the other sloping up, outline a triangular shape. The ascending trend line predicts a rise in prices, hence the name *ascending triangle*.

Horizontal top line, up-sloping bottom trend line. The top horizontal trend line should have prices that approach and withdraw at least twice (in other words, two distinct minor highs). Similarly, two distinct minor lows support the up-sloping trend line. The two trend lines meet at the triangle apex, but prices usually break out of the formation well before then.

Crossing pattern. Price should cross the pattern several times, not walk along one of the trend lines. The pattern should look filled with price, not white space. Cutting off a price turn and calling it a triangle is a common selection error.

Volume. As the triangle forms, volume is heavy at first but tapers off until the day of the breakout. Often volume is abnormally low a few days before the

Table 47.1
Identification Characteristics

Characteristic	Discussion
Triangle shape	Two price trend lines, the top one horizontal and the bottom one sloping up, form a triangle pattern. The two lines join at the triangle apex.
Horizontal top line	Prices rise up to and fall away from a horizontal resistance line <i>at least twice</i> (two minor highs). Prices need not touch the trend line but should come reasonably close (say, within \$0.15). The line need not be completely horizontal but usually is.
Up-sloping bottom trend line	Prices decline to and rise away from an up-sloping trend line. Prices need not touch the trend line but should come close (within \$0.15). At least two trend line touches (minor lows) are required.
Crossing pattern	This is an important characteristic. Prices should cross the chart pattern several times; they should not leave a vast amount of white space in the center of the triangle.
Volume	Volume is heavier at the start of the formation than near the end. Volume is usually low just before the breakout.
Premature breakouts	Somewhat prone to premature breakouts, both up and down. Volume on a false breakout is also heavy, just as the genuine breakout.
Breakout	Volume is heavy (but need not be) and continues to be heavy for several days. The breakout can be up or down, usually following the existing price trend.
Price action after breakout	Once prices pierce the horizontal resistance line confirming a breakout, prices move away from the formation. Throwbacks to the formation top are common. If prices continue to climb rapidly, volume will probably remain high. For downward breakouts, volume is high at first and usually tapers off unless the price decline is rapid, in which case volume will probably remain high.

breakout, as if the formation is gathering strength for the final push. When the breakout comes, volume can rise substantially and usually does, but heavy volume on a breakout is not a prerequisite.

Premature breakouts and breakouts. How can you be sure the breakout is not a premature one? You cannot. A premature breakout is a close outside the boundaries of the two trend lines. After a few days, prices return to the confines of the triangle and eventually break out for good by soaring above the top trend line. Volume on premature breakouts is indistinguishable from normal breakouts and both occur at about the same distance to the triangle apex.

Price action after breakout. Once a triangle has a genuine breakout upward, what is the behavior like? Prices rapidly climb away from the triangle but occasionally throw back to the top of the formation. Volume is usually heavy, supporting the rise, and continues to be heavy as momentum gathers speed. Once price levels out, volume returns to normal. If price rises over several weeks, the volume pattern usually appears erratic and heavy when compared to earlier in the year.

What about support and resistance? If you consider the triangle as the momentary intersection of two trend lines, you can guess where support and resistance will be. It will be along the two trend lines. Figure 47.2 shows an example of this pattern on the weekly time scale. Notice the generally down-sloping volume trend from the formation start to the week before the breakout. Volume spikes upward on the breakout and then generally declines as prices round over and approach 1994. Prices start climbing again, essentially hugging the trend line started by the ascending triangle. The upward trend continues for several years following the triangle-initiated support line. Although the match between the sloping trend line and the slope of the later price action is not exact, the trend is clear. The triangle sports two minor high touches of the top trend line and three on the bottom, numbered in the figure. Trend-line touches and prices crossing the triangle are important selection criteria.

By now you may feel comfortable with correctly identifying an ascending triangle. However, there are some situations that may fool investors new to the formation. Figure 47.3 shows the first one. Cover up the right half of the figure and ask yourself if what you see on the left looks like an ascending triangle. The horizontal line, drawn to rest on top of the central peak, extends to the left and right until it intersects prices. Although the lower trend line has several instances where prices decline to and bounce off of the up-sloping line, the top trend line does not have such a situation.

Looking at the right side of the chart, does this still look like an ascending triangle? I can hear you asking me to lower the horizontal trend line until

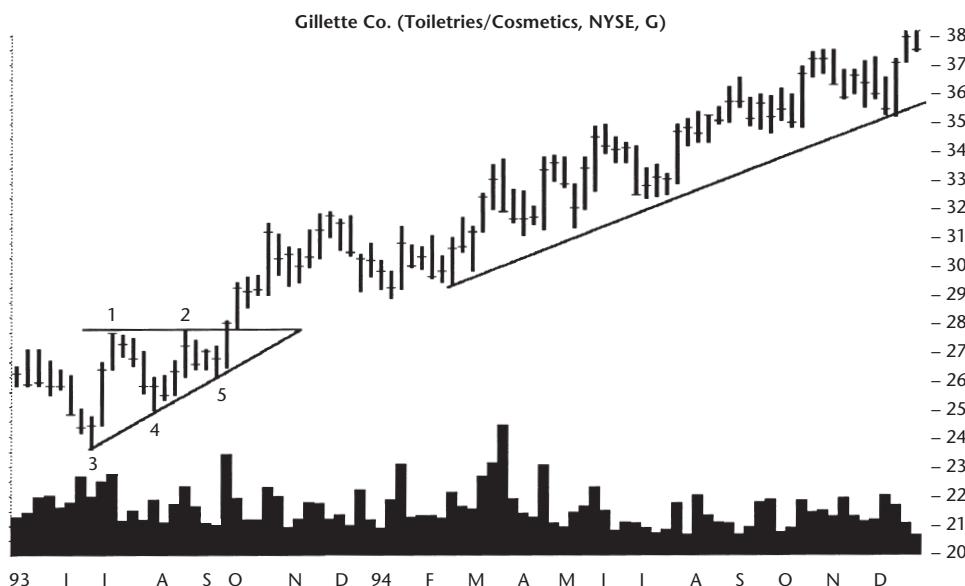


Figure 47.2 Ascending triangle on weekly time scale. The price rise generally follows the up-sloping support line of the triangle. The numbers count the minor high and low touches of the trend line.

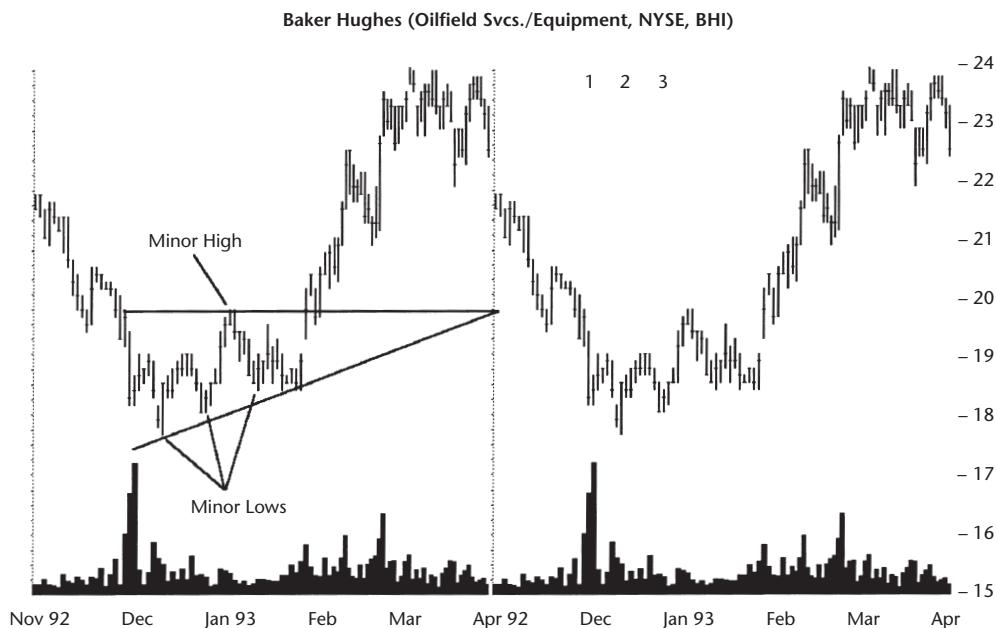


Figure 47.3 Two views of an incorrectly identified ascending triangle. What looks like an ascending triangle on the left clearly is not on the right. The three downward spikes in December, identified by the numbers near the top of the figure, mark a head-and-shoulders bottom with a horizontal neckline, not a triangle.

it touches the two minor highs in early to mid-December (below number 1 and midway between numbers 2 and 3). That is not a bad guess and it will work for a small triangle, but what you are really looking at is a head-and-shoulders bottom. The left shoulder has a large volume spike (under number 1). Located under number 2, the head shows a smaller volume spike. The right shoulder shows volume that recedes even further (number 3). A true ascending triangle has at least *two* minor highs forming the top trend line and at least *two* minor lows forming the bottom.

Figure 47.4 shows another example of a falsely identified ascending triangle. This chart has too much white space in the central portion of the triangle. A well-defined ascending triangle has prices that bounce from side to side as it nears the apex. Take a good look at the figure. It illustrates one of the most common identification mistakes. Novices will find a rounding bottom and draw a horizontal line across the top and another tangent to the bottom price action then yell, "Eureka! An ascending triangle!" Wrong.

Contrast Figure 47.4 with Figure 47.5. In Figure 47.5 notice the number of times price moves from one side of the triangle to the other. Even though prices do not rise very far before throwing back to the triangle apex and moving down, it is still a nicely formed ascending triangle. Also note the generally decreasing volume, especially near the breakout.

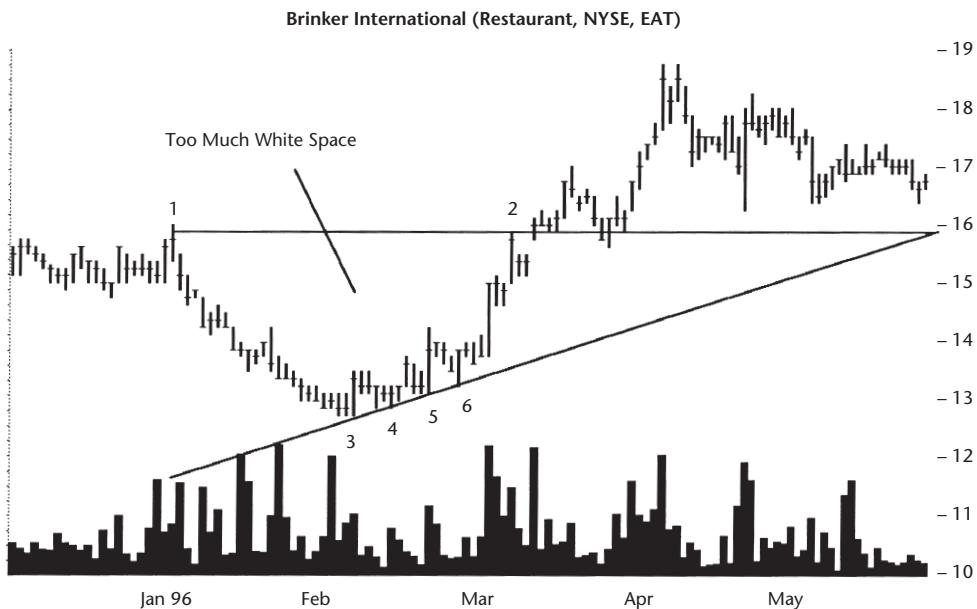


Figure 47.4 This pattern is not a valid ascending triangle. There are not enough crossings between the two trend lines to illustrate a valid triangle construction. The minor highs and lows are numbered.

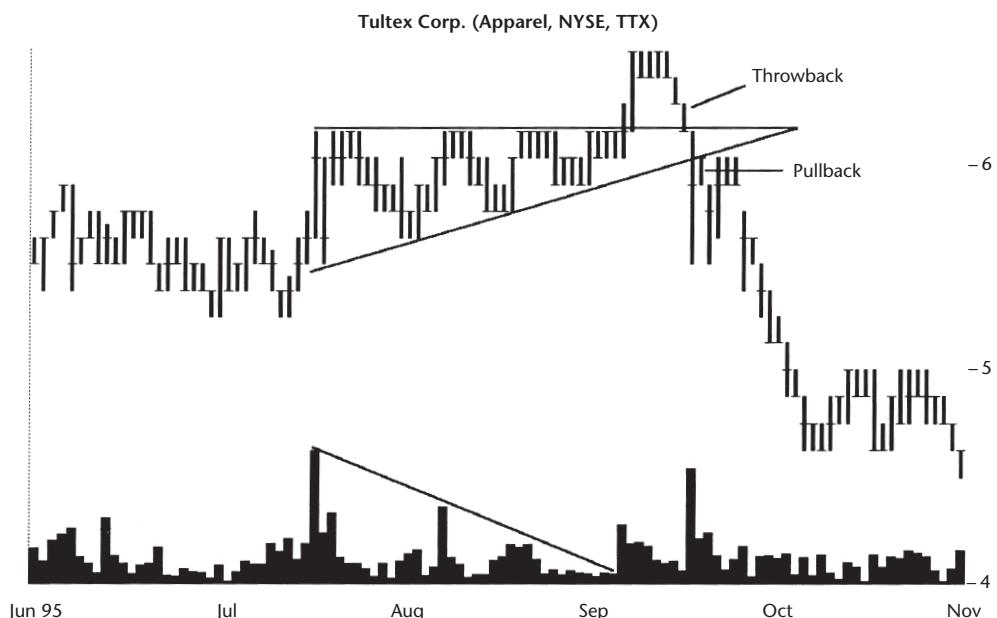


Figure 47.5 An excellent example of a correctly constructed ascending triangle. The number of minor highs and lows is good and there are plenty of crossings from the top trend line to the bottom. The volume trend is downward, too, until the upward breakout.

Focus on Failures

Figure 47.5 shows the first failure type: a 5% failure. Strictly speaking this is not a 5% failure (because price climbs by 6%), but it is typical of what one looks like. A 5% failure is when price breaks out and moves less than 5% higher before curling around and moving below the formation low. In this case, price leaves the formation at 6.13 and reaches a high of 6.50—a 6% move.

Most failures of this type have two causes. The first is overhead resistance, and it is easy to spot. Look for peaks or valleys sharing a common price or a solid block of horizontal price movement. Chart patterns, trend lines, and other technical patterns also set up resistance zones. Before investing in a pattern, always check for overhead resistance.

The second cause of failure is when the general market swings against the breakout direction. If the breakout is upward and the market turns down, that may be enough to kill a profitable trade. The same can happen with stocks in the same industry. If competitor's stocks are going down and yours is the lone holdout, chances are your stock will join the party and tank as well. Check the market and check stocks in the same industry before trading.

Statistics

Table 47.2 shows general statistics for ascending triangles.

Table 47.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	663	103	237	89
Reversal (R), continuation (C)	372 R, 291 C	58 R, 45 C	106 R, 131 C	42 R, 47 C
R/C performance	36% R, 34% C	37% R, 23% C	-18% R, -19% C	-24% R, -25% C
Average rise or decline	35%	30%	-19%	-24%
Rises or declines over 45%	200 or 30%	25 or 24%	13 or 5%	8 or 9%
Change after trend ends	-29%	-32%	52%	47%
Busted pattern performance	41% ^a	20% ^a	-22%	-28% ^a
Standard & Poor's 500 change	13%	-3%	3%	-11%
Days to ultimate high or low	185	97	64	39

Note: Minus sign means decline.

^aFewer than 30 samples.

Number of formations. I looked at 1,092 triangles using 500 stocks from mid-1991 to mid-1996, and 500 stocks mostly from 2000 to 2003 (the bear market) but included additional patterns between those two periods.

Reversal or continuation. Upward breakouts act as reversals of the downward price trend and downward breakouts act as continuations. The numbers are close enough that one behavior does not dominate the other (reversals make up 53% of the triangle population and continuations 47%). Triangles with upward breakouts acting as trend reversals outperform, sometimes significantly, and in downward breakouts, continuations outperform but by a slight degree.

Average rise or decline. The numbers in this row are, well, average when compared to other chart pattern types. The best and worst performance comes during a bull market. Upward breakouts climb 35% (the best performance) and downward ones drop just 19% (the worst performance). Remember that I include premature breakouts as regular breakouts, so that partly accounts for the lower performance numbers. Note that the best performance comes when prices follow the market trend: upward breakouts in bull markets and downward breakouts in bear markets.

Rises or declines over 45%. Upward breakouts perform well, as over a quarter rise more than 45%. Downward breakouts suffer using this measure, so the poor showing is expected.

Change after trend ends. Once price reaches the ultimate high or low, it drops about 30% (after the ultimate high) and climbs about 50% (after the ultimate low). The numbers show how much you can make if you successfully trade a trend change.

Busted pattern performance. Busted patterns are easy to spot as prices move less than 5% from the breakout before returning to the triangle and shooting out the other side. When that happens, trade in the direction of the new trend.

Standard & Poor's 500 change. Compare the market numbers with the average rise or decline. When the market is bullish, that helps upward breakouts and hurts downward ones. Bearish market numbers have the same impact. The numbers suggest you trade with the market trend: upward breakouts in a bull market and downward breakouts in a bear market. Countertrend trades often lead to disappointing results.

Days to ultimate high or low. Upward breakouts take longer to reach the ultimate high than downward breakouts take to reach the ultimate low. The implication of this finding is that the bear market is steeper than is the rise in a bull market. For example, the 24% decline in a bear market takes 39 days. If the decline measured 35% (the same as the rise in a bull market), it should take 57 days not 185 as it did in a bull market. Thus, the decline in a bear market is steeper but shorter.

Table 47.3 shows failure rates for ascending triangles. Upward breakouts have higher failure rates than downward breakouts, with the best showing com-

Table 47.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	83 or 13%	12 or 12%	25 or 11%	3 or 3%
10	159 or 24%	30 or 29%	60 or 25%	9 or 10%
15	212 or 32%	37 or 36%	99 or 42%	26 or 29%
20	278 or 42%	50 or 49%	133 or 56%	38 or 43%
25	329 or 50%	54 or 52%	169 or 71%	46 or 52%
30	368 or 56%	59 or 57%	189 or 80%	63 or 71%
35	411 or 62%	65 or 63%	209 or 88%	70 or 79%
50	484 or 73%	79 or 77%	229 or 97%	85 or 96%
75	542 or 82%	90 or 87%	237 or 100%	89 or 100%
Over 75	663 or 100%	103 or 100%	237 or 100%	89 or 100%

ing in a bear market. I consider that finding unusual, but the sample size is also small—89. Still, it is one quarter the 12% rate of upward breakouts (103 samples).

Best explained by examples, you read the table as follows: About a third (32%) of ascending triangles with upward breakouts in a bull market fail to climb at least 15% after the breakout. Half (50%) fail to rise 25%. For downward breakouts, the bear market does best with just 3% failing to decline at least 5% after the breakout. Over half (52%) fail to drop more than 25%.

Notice how the failure rates climb for small changes in the maximum price rise or decline. The rates double or triple and then move up again, but not so dramatically, for maximum price moves from 5% to 10% and on to 15%. Such high increases are typical for all chart pattern types.

Compare the failure rates of bull market, upward breakouts with its complement, bear market, downward breakouts. Above 15%, the bull market takes over and shows a lower failure rate.

What do the numbers mean? Although most of the failure rates start high, they do not increase as fast as other chart patterns (which typically triple and then double for moves up to 15%). If you expect a large price move, hope that the pattern shows an upward breakout in a bull market for the best performance. For small moves, triangles with downward breakouts in a bear market do best. Avoid trading the countertrend triangles (bear market, upward breakout or bull market, downward breakout) as they underperform.

Table 47.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. Pay little attention to this statistic. The delay before the breakout is due to the way my computer program draws the triangles.

Table 47.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	3 days	4 days	6 days	5 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L21%, C28%, H51%	L23%, C31%, H46%	L26%, C35%, H39%	L29%, C30%, H40%
Percentage rise/decline for each 12-month lookback period	L34%, C33%, H38%	L36% ^a , C26%, H31%	L19%, C19%, H17%	L26% ^a , C25% ^a , H24%
Throwbacks/pullbacks	57%	54%	49%	45%
Average time to throwback/ pullback ends	11 days	10 days	11 days	9 days
Average rise/decline for patterns with throwback/pullback	31%	22%	-17%	-20%
Average rise/decline for patterns without throwback/pullback	41%	41%	-20%	-27%
Performance with breakout gap	35%	47% ^a	-13% ^a	-19% ^a
Performance without breakout gap	35%	28%	-19%	-24%
Average gap size	\$0.25	\$0.23	\$0.22	\$0.51
Breakout distance to apex	61%	63%	62%	57%

Note: Minus sign means decline.

^aFewer than 30 samples.

Yearly position. Across the table, ascending triangles appear most often within a third of the yearly high.

Yearly position, performance. The best performing triangles have breakouts near the yearly high or low (upward breakouts). Avoid those in the middle of the yearly trading range. No clear trend accompanies triangles with downward breakouts.

Throwbacks and pullbacks. Throwbacks and pullbacks occur about half the time and take between 9 and 11 days for the stock to return to the breakout price. In all cases, when a throwback or pullback happens, performance suffers. For example, triangles in a bear market with throwbacks show an average rise of 22%. Without a throwback, the rise averages 41%.

Gaps. Triangles have few gaps, so many of the results are questionable. Triangles with downward breakouts do best without a gap appearing on the breakout day.

Apex distance. I compared the time to the breakout with the length of the triangle from the start to the apex. Most of the time, ascending triangles will show breakouts about 62% of the way to the apex.

Table 47.5 shows a frequency distribution of time to the ultimate high or low. Many of the triangles with poor performance flame out early, usually in the first week or two. For example, 38% of the triangles with downward breakouts in a bear market will reach the ultimate low in less than 2 weeks. In 3 weeks, 53% will stop declining.

Some triangles take longer to reach peak performance, notably those with upward breakouts in a bull market. Over half, 53%, are still climbing to the ultimate high after 70 days. Upward breakouts take longer to reach the ultimate high than downward breakouts take to reach the ultimate low. As I mentioned before, downward breakouts have a steeper slope than upward breakouts. Thus, they tend to bottom quicker.

Table 47.6 shows statistics related to size.

Height. Tall patterns perform equal to or better than short ones across all market conditions and breakout directions. For example, tall triangles in a bull market with upward breakouts show rises of 43%. Short ones rise just 30%, on average.

Width. Width is not as robust a predictor of performance as height. Sometimes wide patterns perform better and sometimes narrow ones do. Countertrend triangles (bear market, up breakout and bull market, down breakout) do better when they are narrow. Wide ones do best when the breakout direction matches the market trend. In all cases, I used the median length as the separator between narrow and wide.

Average formation length. The average triangle is about 2 months long, measured from the start of the pattern to its end, which is a few days before the

Table 47.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	24%	5%	6%	8%	6%	1%	4%	1%	2%	0%	44%
Bull market, up breakout	20%	7%	3%	3%	3%	1%	2%	2%	3%	2%	53%
Bear market, down breakout	21%	17%	15%	4%	8%	6%	4%	3%	2%	1%	18%
Bull market, down breakout	18%	9%	9%	6%	5%	5%	8%	4%	3%	5%	27%

Table 47.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Tall pattern performance	43%	30%	-22%	-26%
Short pattern performance	30%	30%	-16%	-23%
Median height as a percentage of breakout price	10.13%	13.65%	12.02%	16.32%
Narrow pattern performance	33%	36%	-20%	-24%
Wide pattern performance	38%	26%	-18%	-25%
Median length	45 days	53 days	51 days	48 days
Average formation length	54 days	65 days	65 days	58 days
Short and narrow performance	31%	34%	-18%	-24%
Short and wide performance	28%	24% ^a	-13%	-21% ^a
Tall and wide performance	46%	27%	-20%	-27%
Tall and narrow performance	41%	41% ^a	-30%	-24% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

breakout. The numbers do not measure the time from the pattern's start to the apex.

Height and width combinations. Which combinations of height and width perform best? Anything tall outperforms anything short, usually. Triangles with breakouts in the direction of the prevailing market trend (bull market, upward breakout and bear market, downward breakout) have the best performance when they are both tall and wide. Countertrend triangles do best when they are both tall and narrow.

Table 47.7 shows volume-related statistics.

Volume trend. Triangles showing a rising volume trend perform best when the breakout is in the direction of the general market. Countertrend triangles do better when they have receding volume.

Volume shapes. It surprises me that triangles with random volume shapes outperform those when the breakout follows the general market trend. Countertrend triangles do best with U-shaped volume and worst with random-shaped volume.

Breakout volume. Heavy breakout volume helps push prices in triangles with upward breakouts to better performance. Triangles with downward breakouts perform better with light breakout volume.

Table 47.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Rising volume trend performance	39%	28% ^a	-16%	-26% ^a
Falling volume trend performance	34%	31%	-20%	-24%
U-shaped volume pattern performance	35%	36%	-20%	-25% ^a
Dome-shaped volume pattern performance	35%	30%	-19%	-23%
Neither U-shaped nor dome-shaped volume pattern performance	39%	19% ^a	-16% ^a	-27% ^a
Heavy breakout volume performance	37%	33%	-18%	-24%
Light breakout volume performance	32%	22% ^a	-20%	-26%

Note: Minus sign means decline.

^aFewer than 30 samples.

Trading Tactics

Now that you can identify ascending triangles and know their behavior, how do you trade them? Before I give an example of a trade, I discuss trading tactics and the measure rule (see Table 47.8).

Measure rule. The shape of the ascending triangle suggests prices will rise, but how far? If you compute the height of the formation and add the result to the price of the horizontal trend line, the result is the minimum predicted price. This is called the measure rule. For downward breakouts, subtract the triangle height from the breakout price to get the target.

An example makes the calculation clear for upward breakouts. Consider the stock shown in Figure 47.6. Calculate the height of the formation by subtracting the low (14.38 at the first minor low) from the high (17.63 denoted by the horizontal trend line) at the formation start. The difference is 3.25. Add the result to the highest high—the value of the horizontal trend line—and you get a target price of 20.88. Prices reach the target in mid-July 1992, when they climb to a high of 21.63, about 6 weeks after the upward breakout.

A more visual approach is to draw a line from the start of the formation (the top left corner) parallel to the up-sloping trend line. The value of the line the day price breaks out of the formation becomes the target price. The figure shows the new line. Be careful when determining where the formation begins

Table 47.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the height of the formation at the start of the triangle. Add the result to the price of the horizontal trend line (upward breakout) or subtract it from the break price (downward breakout). The result is the minimum price target.
Wait for confirmation	Buy the stock when price closes beyond the trend line.
Sell on measure rule	For short-term traders, sell when price nears the target (see measure rule). For intermediate- and long-term traders, hold the stock until fundamentals or market conditions change.
Sell on downward breakout	If you own the stock and it breaks out downward, sell. If you do not own it, sell it short. Should the stock pull back, that is another opportunity to sell, sell short, or add to your short position.
Short sales	If you short the stock and an ascending triangle appears, you have a 43% chance that it will break out downward. Cover the short immediately if it breaks out upward.

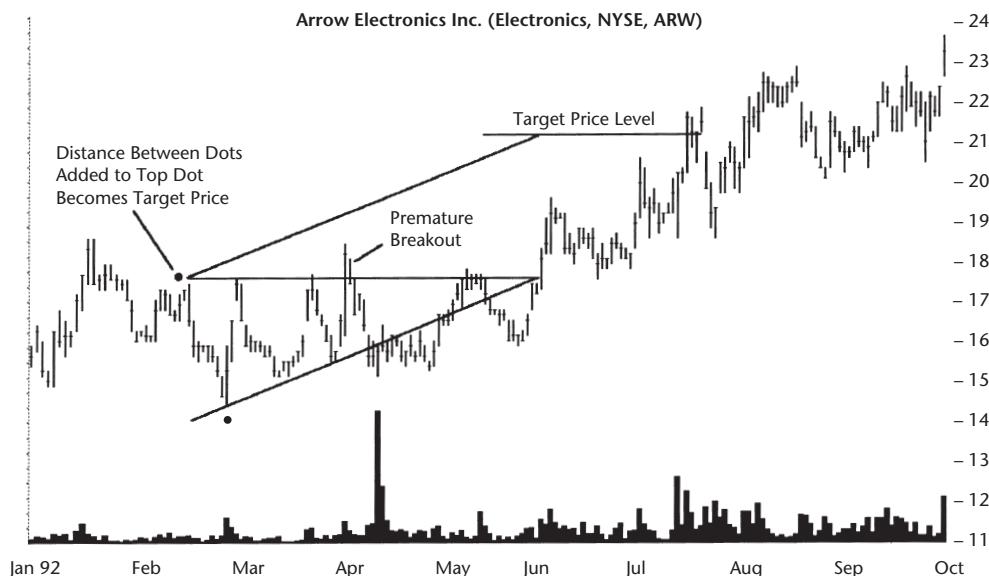


Figure 47.6 There are two ways to predict the price move of an ascending triangle. Compute the formation height by subtracting the low from the high at the start of the formation (denoted by the two circles). Add the result to the price marked by the top trend line. The combination is the price to which the stock will climb, at a minimum. Alternatively, draw a line parallel to the up-sloping trend line beginning with the left top corner of the formation. At the point where prices break out of the formation, the price level of the line becomes the target price.

since tagging the beginning of the formation too soon will cause an abnormally high price target.

Wait for confirmation. Thirty percent of triangles breakout downward, but the actual breakout direction is unknown ahead of time. If price closes above the top trend line or below the up-sloping trend line, that behavior signals a breakout. For the lowest risk of a failed trade, wait for confirmation—price closes outside one of the trend lines—before trading the stock.

Sell on measure rule. Once price breaks out, use the measure rule to estimate the move. Since the measure rule is not perfect (see the Results Snapshot, “Percentage meeting price target” for the numbers), be ready to take profits once price nears the target. Use past resistance zones to fine-tune the prediction.

Sell on downward breakouts, short sales. If prices break out of the triangle downward, then sell your holdings immediately. This is also a time to go short. If a pullback occurs, wait for prices to resume their downward direction and then add to your short position. Close out the trade if the fundamentals improve or if prices pause at a support zone.

Sample Trade

Dan is an investor with a few years of experience. He is new to technical analysis and discovered ascending triangles by accident. After doing some research to familiarize himself with the formation, he found that if he delayed buying a stock until after a breakout, he would increase his chances of success. However, he would also give up part of his gains because the fastest portion of the rise occurs at the start. That was a trade-off he was willing to make.

Dan took an interest in the company shown in Figure 47.7 when he noticed an ascending triangle forming in the stock. He believed that the breakout was nearly at hand when volume collapsed to 23,400 shares on August 19. Two days later, on higher volume, prices crossed the triangle and peaked out the top. For the next few days, prices balanced themselves on the top horizontal trend line and waited for demand to send them higher. The decisive breakout occurred on August 26, even though volume was tepid. Dan grabbed his calculator and computed the breakout distance to the apex and discovered that the breakout occurred at the 70% mark. This percentage signaled a potentially strong breakout.

However, volume told a different story. Although volume had been steadily receding throughout the formation as one would expect, there was not enthusiastic volume on the breakout. With this stealthy signal, Dan decided to wait before buying the stock.

Believing that a profitable opportunity was at hand, he computed the target price to see if it afforded a profitable move. The predicted price of 22.50 was

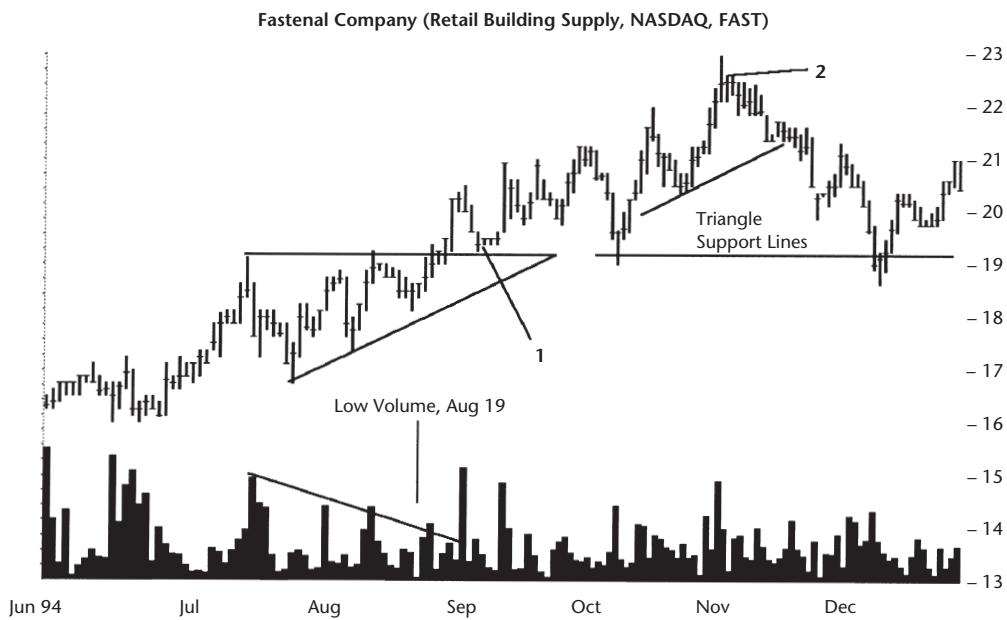


Figure 47.7 Trading an ascending triangle. As described in the Sample Trade, Dan bought 500 shares of the stock at point 1 after the stock threw back to the formation. He sold it at point 2, the day after the stock hit the price target of 22.50. Note the down-sloping volume trend during creation of the formation and the two support lines parallel to the two triangle borders.

15% above the 19.25 launch price. To Dan, the small move was not terribly exciting, but it was much better than the interest rate the banks were paying.

Two days after the breakout, the stock started declining and returned to the top of the formation. That is when Dan pulled the trigger and bought 500 shares at the high for the day, 19.50 (point 1 on Figure 47.7). Immediately, he placed a stop-loss order to sell the stock should it decline 0.15 below the lowest low of the formation. That would limit his loss to a steep 15%, but it was also slightly below the nearest support level (the bottom of which was at 16.75). He reasoned that there was a decent chance that if the stock declined, growing demand would repulse prices and not trigger his stop.

Then he waited and watched the stock. It peaked at 21.25 on September 26 before leveling off and heading back down. Since the stock was not near the price target of 22.50, Dan decided to hold on. The stock continued sinking until it found support at the horizontal triangle trend line at 19 on October 5. At that point, the stock started moving up again. On Halloween, the stock reached his price target by hitting a daily high of 23. He decided to sell the stock the next day and received a fill at 22.50.

Dan had a net gain of \$1,450 or almost \$3 a share. That is a 15% gain in 2 months. He also decided that he was lucky as he sold near the top. When the stock returned to the support level in early October, it could have continued

down. He decided that once a stock rises by 10%, he should raise his sell stop to breakeven, even though, in this case, it would have cashed him out prematurely.

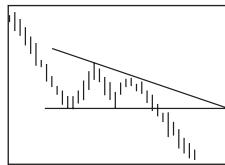
For Best Performance

The following list includes tips and observations to help select ascending triangles that perform better after the breakout. Consult the associated table for more information.

- Review the identification guidelines for correct selection—Table 47.1.
- Trade with the market trend: long in a bull market and short in a bear market—Table 47.2.
- Trade busted patterns—Table 47.2.
- The bear market decline is steeper and shorter than the rise in a bull market—Table 47.2.
- Triangles in a bear market with downward breakouts have the lowest failure rates for small price moves. Triangles with upward breakouts in a bull market have fewer failures for moves above 15%—Table 47.3.
- Avoid triangles with upward breakouts near the middle of the yearly trading range—Table 47.4.
- Throwback and pullbacks hurt performance, so avoid overhead resistance (upward breakouts) or nearby support (downward breakouts)—Table 47.4.
- Triangles with downward breakouts perform better without breakout day gaps—Table 47.4.
- Expect the breakout about 62% of the way to the apex—Table 47.4.
- Half the triangles with downward breakouts in a bear market reach the ultimate low in 3 weeks—Table 47.5.
- Select tall patterns—Table 47.6.
- Trade triangles with upward breakouts on heavy volume; downward breakouts, with low volume—Table 47.7.

48

Triangles, Descending



RESULTS SNAPSHOT

Upward Breakouts

Appearance	Triangle shape with horizontal bottom and down-sloping top. Breakout is upward.	
Reversal or continuation	Short-term bullish continuation	
	Bull Market	Bear Market
Performance rank	5 out of 23	7 out of 19
Break-even failure rate	7%	9%
Average rise	47%	27%
Change after trend ends	-30%	-34%
Volume trend	Downward	Downward
Throwbacks	37%	52%
Percentage meeting price target	84%	61%
Surprising findings	Throwbacks hurt performance. Patterns both tall and narrow give the best performance. Heavy breakout volume helps push prices higher.	
See also	Head-and-Shoulders Tops; Three Falling Peaks	

Downward Breakouts

Appearance	Same, but breakout is downward.
Reversal or continuation	Short-term bearish reversal

	Bull Market	Bear Market
Performance rank	10 out of 21	12 out of 21
Break-even failure rate	16%	11%
Average decline	16%	25%
Change after trend ends	60%	50%
Volume trend	Downward	Downward
Pullbacks	54%	59%
Percentage meeting price target	54%	50%
Surprising findings	Pullbacks hurt performance. Tall or wide patterns perform better than short or narrow ones. Heavy breakout volume helps push prices higher.	
See also	Same as for upward breakouts	

The Results Snapshot shows the important statistical results for descending triangles. Your best bet is to trade triangles with upward breakouts in a bull market. They have the lowest break-even failure rate and highest average rise. In addition, 84% meet or exceed their price targets.

One important change I made to the statistics from the first edition of this *Encyclopedia* is to consider a premature breakout as a genuine one. As soon as price closes outside of the trend lines, I now consider that a breakout. This altered criterion tends to increase the failure rate and decrease the average price move after the breakout. Keep that in mind when we get to the statistics section of this chapter.

Surprises are comparatively few and they are the same as with many other chart patterns. Throwbacks and pullbacks hurt performance and height or width influences postbreakout performance as does breakout volume.

Tour

Figure 48.1 shows a descending triangle that is typical in many respects. Prices rise to meet a down-sloping trend line on the top of the pattern and fall back. Then, they rebound off a horizontal trend line along the base of the formation. The volume pattern is unusual for a descending triangle. Normally, volume recedes as the breakout approaches, but this one appears to have a U-shaped trend—higher at the beginning and end, and weaker in the center. The breakout is downward and occurs on low volume. A bearish breakout can have high or low volume but volume is usually heavy. After the breakout, prices pull back to the triangle boundary before continuing down.

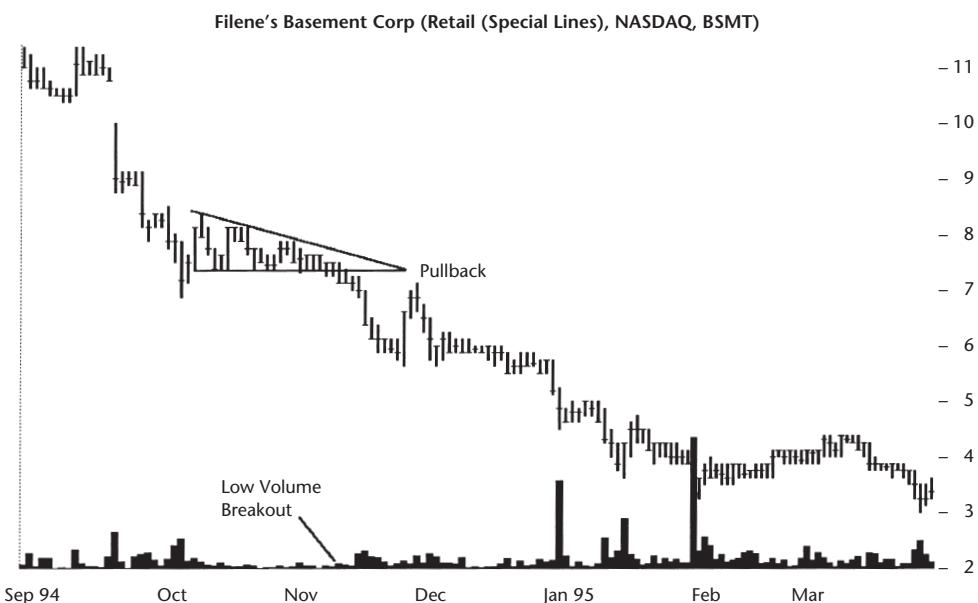


Figure 48.1 A nicely formed descending triangle with unusual volume pattern. Typically, volume trends downward and is quite low just before the breakout. Also shown is a pullback, repulsed by the horizontal resistance level.

Why do descending triangles form? The descending triangle shown in Figure 48.1 begins forming in October 1994 as part of a consolidation in a downward trend. Imagine you believe the fair value of this stock is 7.38 but is overvalued at prices much above that. You tell your broker to buy the stock should it fall to 7.38. After reaching a minor high at 8.38 on October 11, the stock begins declining for a few days. It descends and reaches the buy price 2 days later. Your broker buys the stock.

You are not alone. Other investors, believing the stock is retesting the low that occurred a week earlier, also buy the stock. Together, the buying puts a momentary floor on the stock. For the next 2 days, the stock returns to the 7.38 level before buying demand pushes the price higher. This time the stock does not climb as high as the prior minor high; it only reaches a value of 8.13 before turning down. Again, when the stock reaches a low of 7.38, buying demand increases enough to halt the decline at that level and to send the stock moving back up. During the next 2 weeks or so, you and other investors buy the stock. Enthusiasm for the stock quickly wanes and a series of lower highs outline a down-sloping trend. The floor, at 7.38, becomes the horizontal support level.

Eventually, investors buy enough of the stock and have either run out of money to buy more or decide they already own enough. The stock slips below the support line on November 9, and closes at the low for the day at 7.13. The stock hovers near that price for a few more days before continuing down in earnest on higher volume.

Quick-footed investors, realizing that the floor is no longer holding firm, sell the stock. The price begins declining rapidly now but soon levels off. For a few days, selling pressure meets buying demand and the decline halts, turns around, and begins moving up. It nears the base of the triangle and the smart money quickly disposes of any remaining shares in their portfolios. The pull-back completes and the stock rounds over and starts heading down again. In 3 months' time the stock reaches the ultimate low of just under 3 before leveling out. That is a decline of 60%.

Identification Guidelines

Descending triangles have distinctive chart patterns making them easy to identify. Consider the triangles shown in Figure 48.2. A descending triangle appears during March and April 1993 and marks the end of a long rise started in late 1992. Like a ball bouncing along the floor, each bounce from the support line is less high than the previous bounce, giving the formation a down-sloping appearance along the top. The support region at 29.50 is flat. These two ingredients, a down sloping trend line on the top and a horizontal support line on the bottom, are the two main characteristics of descending triangles. A receding volume pattern throughout the formation completes the picture.

The July formation is also a descending triangle although not as well formed. The volume pattern rises through the first half of the formation before



Figure 48.2 The March triangle forms after a long climb beginning in late 1992. The nicely formed chart pattern has a receding volume trend especially in the latter half of the formation. The July formation is a failure since it does not immediately descend as expected. Over a third of descending triangles break out upward.

moving downward toward the triangle apex. I am sure that if you owned stock in this company and sold during either of the descending triangles, you would be pleased. Although the second formation is a failure because it rises above the triangle top, prices do start down within the month. Sometimes failed formations prematurely alert you to a trend change, as the July example shows.

Table 48.1 outlines the identification characteristics for descending triangles.

Triangle shape. The triangular-shaped appearance makes the descending triangle pattern easy to identify. Look for two trend lines: the bottom one horizontal, or nearly so, and the top one sloping down. The two trend lines should eventually join at the triangle apex, but price usually breaks out before reaching it.

Horizontal support line. Price rebounds off the bottom of the formation creating a horizontal trend line. This imaginary line acts as support for the stock. Once price closes below the line, it resists any upward move. Look for at least two touches of the horizontal trend line. The touches should be distinct minor lows, not part of the same consolidation region.

Down-sloping top trend line. Prices oscillate up and down, with each wave getting smaller, and the tops of these waves following a down-sloping trend line. The trend line acts as a layer of resistance. Look for at least two touches of the top trend line, both from minor highs, not as part of the same congestion region.

Volume. Volume typically recedes over the course of triangle development. As price approaches the breakout, it usually becomes quite low, as if gathering strength before a wrestling match, and then explodes upward during

Table 48.1
Identification Characteristics

Characteristic	Discussion
Triangle shape	A triangular-shaped pattern bounded by two trend lines, the bottom one horizontal and the top one sloping down, that intersect at the triangle apex.
Horizontal support line	A horizontal (or nearly so) base acts to support prices. Prices should touch the base at least twice (at least two minor lows that either touch or come close to the trend line).
Down-sloping top trend line	A down-sloping price trend that eventually intersects the horizontal base line at the apex. Prices should rise up and touch (or come close to) the sloping trend line at least twice, forming two distinct minor highs.
Volume	Volume recedes and tends to drop off just before the breakout.
Breakouts	Usually occur on very high volume that diminishes over time. However, prices can also break out on low volume.
Price action after breakout	Prices usually move down quickly, reaching the ultimate low in a straight-line fashion. Pullbacks occur about half of the time.

the breakout. Volume need not be high during the breakout or low preceding the breakout, but that is the typical behavior. Do not exclude a descending triangle just because volume looks unusual.

Breakouts. Price can break out in any direction, including none at all when price just meanders out the triangle apex. If you were to trade descending triangles often enough, you would find that two out of three break out downward. However, the breakout direction follows the prior price trend half the time, meaning sometimes it acts as a reversal and sometimes not.

Price action after breakout. About half the time, price returns to the breakout price through either a throwback (upward breakout) or pullback (downward breakout), taking less than 2 weeks to complete the trip. After that, anything can happen. Usually, however, price returns to moving in the original breakout direction but sometimes not—just to frustrate the largest number of traders.

Support and resistance appear along the two trend lines. Throwbacks to the top of the formation usually stop at the sloping trend line, whereas pullbacks to the bottom halt at the horizontal trend line. After a breakout, prices often follow the sloping trend line down. During the recovery process after a descending triangle, prices rise to meet the level of the horizontal trend line and then pause. Sometimes it takes several tries before prices push up through the horizontal resistance line.

Triangles, as a group, are easy to spot. However, there are some situations that dictate a careful approach. Figure 48.3 shows an example of what looks like

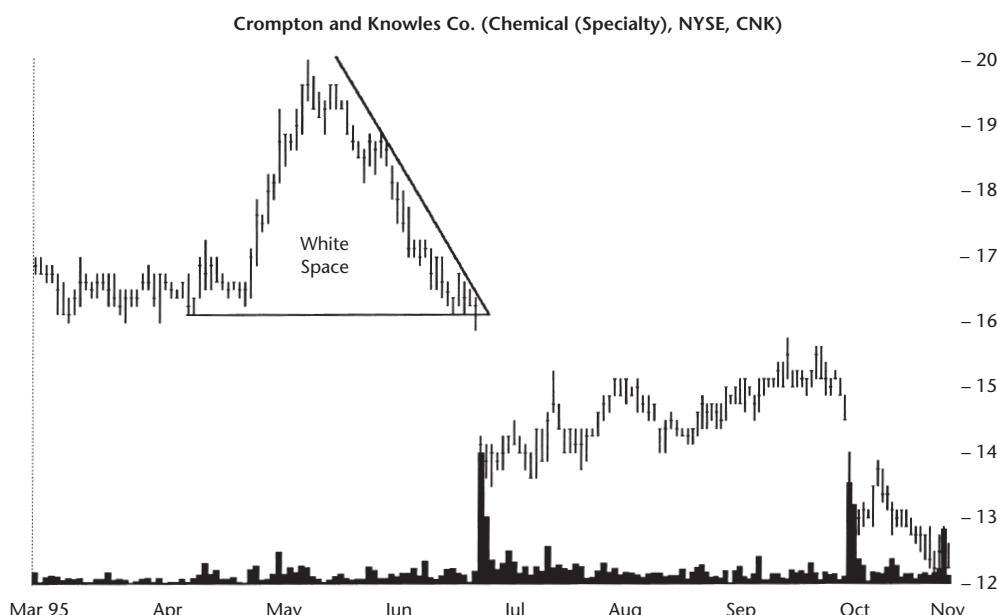


Figure 48.3 This is not a descending triangle. There is only one minor high, leaving too much white space in the center of the formation. Prices should cross from side to side several times forming at least two minor highs and lows.

a descending triangle, but is not. The volume trend does not conform to the usual receding pattern. In Figure 48.3 volume rises along with prices at the start of the triangle and then tapers off at the top when prices round over. However, volume climbs as prices descend and then ignites the day after the breakout.

Volume for many formations is not a crucial factor, and you should not attach too much significance to it. However, a volume pattern that is not characteristic raises a warning flag. Coupled with other factors, it might cause you to bypass the stock and look elsewhere for a more promising situation.

The price picture is even worse. Only one minor high composes the entire triangle. Well-formed descending triangles have prices that cross from side to side several times. There is no massive amount of white space in the center of the triangle. Contrast Figure 48.3 with Figure 48.1.

Focus on Failures

Figure 48.4 shows an example of what traders hate. The breakout is downward, but it lasts for just 2 days before price pulls back to the triangle. Then, as if jumping off a springboard, price takes to the air and climbs. When it rises above the top of the triangle, the descending triangle chart pattern becomes a

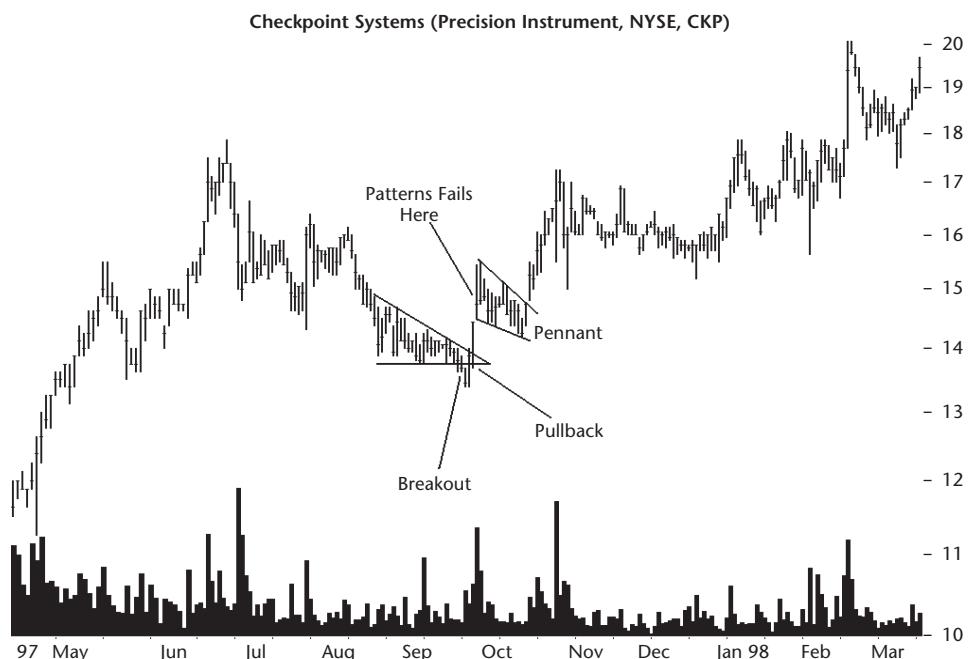


Figure 48.4 This is an example of a busted pattern. A brief downward breakout dooms this descending triangle. Underlying support and a bull market helped turn the price tide from down to up.

failure (because some traders will put a stop above the triangle top to prevent a catastrophic loss). The climb does not end there as price forms into a pennant with an upward breakout. That pennant, being a half-staff pattern, suggests a climb that equals the one leading to it. In this example, the rise is more than the preceding one.

What went wrong with this triangle? The price trend leads downward into the pattern and many traders would expect a downward breakout, but the triangle forms in the midst of a bull market. In a rising general market (that is, the S&P 500 index is moving up), a downward breakout is always a red flag. In fact, the S&P was on a straight uphill run leading into August and then the trend reversed. For about 2 weeks, prices declined and formed a bottom, then a higher bottom, and then a third higher low. The three rising valleys signaled a trend change and doomed the downward breakout from the triangle.

Besides the market tide robbing the triangle ship of momentum, the triangle looks almost perfect. Prices touch each trend line several times, crossing the triangle and leaving no white space, but volume tends to rise instead of recede. The two minor lows near the start of the triangle do not rest on the horizontal trend line. If you were to connect those two lows with a new horizontal trendline, the breakout would have come a bit sooner, but you still would have lost money if you shorted the stock.

In the summer of 1995 and into the fall (not shown), several peaks appeared near \$13. These peaks acted as support and played a role in stopping the decline. The underlying support coupled with a rising stock market truncated the decline and turned a handsome descending triangle into an ugly loser.

Statistics

Table 48.2 shows general statistics for descending triangles.

Number of formations. I dug up 1,166 descending triangles; most came from 500 stocks between mid-1991 and 1996. Another 500 stocks I used from 2000 to 2003, to encompass the bear market. The remainder of the patterns came between those dates as I found them in my daily trading activities.

Reversal or continuation. If you add the numbers, you will find that the pattern acts as a reversal 592 times and as a continuation of the prevailing price trend 574 times. Thus, descending triangles are as likely to act as continuations as they are reversals. Do not depend on the breakout direction continuing the trend leading to the pattern.

When the breakout direction agrees with the market trend (bull market, upward breakout or bear market, downward breakout), reversals tend to perform better than continuations.

Average rise or decline. Triangles in bull markets with upward breakouts are the stars, scoring a 47% rise after the breakout. Downward breakouts in a bear market also do well, with declines of 25%. The countertrend moves

Table 48.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	312	113	561	180
Reversal (R), continuation (C)	84 R, 228 C	37 R, 76 C	377 R, 184 C	94 R, 86 C
R/C performance	58% R, 43% C	27% R, 27% C	-16% R, -16% C	-26% R, -23% C
Average rise or decline	47%	27%	-16%	-25%
Rises or declines over 45%	125 or 40%	27 or 24%	19 or 3%	16 or 9%
Change after trend ends	-30%	-34%	60%	50%
Busted pattern performance	52%	43% ^a	-21% ^a	-25% ^a
Standard & Poor's 500 change	13%	-4%	1%	-9%
Days to ultimate high or low	178	86	50	32

Note: Minus sign means decline.

^aFewer than 30 samples.

are mediocre. The numbers strengthen the belief that you should trade in the direction of the prevailing market trend.

Rises or declines over 45%. An amazing 40% of the patterns in a bull market with upward breakouts show rises over 45%. That percentage is huge. Notice how numbers from the downward-breakout side of the street pale by comparison. Less than 10% of the triangles decline more than 45%.

Change after trend ends. Once price reaches the ultimate high or low, what happens? For upward breakouts, prices tumble about 32%, on average. For downward breakouts, the rise is about 55%. Thus, if you can determine when price has changed trend—even if you are late—you can still profit from it.

Busted pattern performance. Few triangles move less than 5%, so the sample count is small except for those with upward breakouts in a bull market. Those busted patterns have prices that rise 52% after the downward breakout turns around.

Standard & Poor's 500 change. Table 48.2 shows the influence of the general market on the postbreakout rise or decline. In a bull market, the rising market tide helped lift all boats. In a bear market, the selling pressure tended to keep upward breakouts from rising far and encouraged downward breakouts to sink even farther.

Days to ultimate high or low. Upward breakouts take longer to reach the ultimate high than downward breakouts take to reach the ultimate low. Thus, the decline in a bear market must be steeper than is the rise in a bull market. For example, the moves in a bear market were about the same, 27% up

and 25% down, yet the upward breakouts took almost three times as long (86 days versus 32 days).

What does this information mean? Be patient in a bull market for the largest gains. In a bear market, be ready to exit a trade quickly.

Table 48.3 shows failure rates for descending triangles. Triangles with upward breakouts in a bull market have the lowest break-even failure rate: 7%. Downward breakouts have the highest rate of failure.

How do you make sense of the numbers? Consider the 15% maximum price rise or decline row. Over half of the triangles with downward breakouts in a bull market drop less than 15%. That is a huge failure rate. Upward breakouts, by contrast, show just 20% failing to rise at least 15%.

Notice how the failure rates skyrocket for small changes in the maximum price. For example, triangles with downward breakouts in a bear market start with an 11% failure rate. That figure more than doubles to 23% and then almost doubles again, to 39%.

If you want to short a stock showing a descending triangle, do so only in a bear market. Trade upward breakouts from triangles in a bull market. With so many triangles failing so early in the trade, it must mean that a few triangles perform well above average. Thus, keep a close eye on your position over time. Chances are it will fail to meet your dreams.

Table 48.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. The numbers in this category are due to the way I drew each triangle, so you should ignore this row. The triangle ends when price closes above the top trend line or below the lower one (the breakout).

Table 48.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	21 or 7%	10 or 9%	91 or 16%	19 or 11%
10	35 or 11%	25 or 23%	211 or 38%	42 or 23%
15	62 or 20%	34 or 30%	300 or 53%	70 or 39%
20	81 or 26%	45 or 40%	394 or 70%	82 or 46%
25	111 or 36%	53 or 47%	449 or 80%	105 or 58%
30	131 or 42%	65 or 58%	487 or 87%	126 or 70%
35	152 or 49%	75 or 66%	513 or 91%	145 or 81%
50	198 or 63%	89 or 79%	552 or 98%	169 or 94%
75	238 or 76%	102 or 90%	561 or 100%	180 or 100%
Over 75	312 or 100%	113 or 100%	561 or 100%	180 or 100%

Table 48.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	5 days	3 days	3 days	3 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L32%, C30%, H38%	L32%, C37%, H31%	L39%, C31%, H30%	L51%, C35%, H13%
Percentage rise/decline for each 12-month lookback period	L44%, C53%, H46%	L34%, C26%, H24%	L17%, C15%, H14%	L25%, C24%, H26% ^a
Throwbacks/pullbacks	37%	52%	54%	59%
Average time to throwback/pullback ends	10 days	11 days	11 days	10 days
Average rise/decline for patterns with throwback/pullback	36%	19%	-14%	-23%
Average rise/decline for patterns without throwback/pullback	54%	38%	-18%	-28%
Performance with breakout gap	57%	24% ^a	-16%	-20%
Performance without breakout gap	45%	29%	-16%	-26%
Average gap size	\$0.23	\$0.41	\$0.24	\$0.67
Breakout distance to apex	64%	54%	66%	58%

Note: Minus sign means decline.

^aFewer than 30 samples.

Yearly position. Triangles with downward breakouts tend to appear within a third of the yearly low. Upward breakouts have the breakout most often in the middle or highest third of the yearly price range.

Yearly position and performance. There is no clear consensus of where the breakout should be for the best performance. For countertrend triangles (bear market, up breakout and bull market, down breakout), the best performers have breakouts near the yearly low.

Throwbacks and pullbacks. About half the time, price completes a throwback or pullback by returning to the breakout price in 10 or 11 days, on average. When price throws back or pulls back, performance suffers. For example, triangles in a bear market that throw back rise 19%, on average. Without a throwback, the rise measures 38%. Therefore, check for overhead resistance or underlying support before trading. If a congestion zone is nearby, say less than 5% away, then it is likely that price will punch through on the breakout. Otherwise, expect a throwback or pullback.

Gaps. Sometimes gaps help postbreakout performance and sometimes they hurt. Sometimes there is no performance difference at all. For example, in a bull market with an upward breakout, gaps help performance. In a bear market, gap performance suffers. Triangles in a bull market with downward breakouts show no performance difference.

Apex distance. Price breaks out of the chart pattern between 54% and 66% of the way to the triangle apex. Triangles in bull markets tend to breakout later (about 64% or 66% of the way to the apex) than do those in bear markets (54% to 58% of the way).

Table 48.5 shows a frequency distribution of time to the ultimate high or low. Within 3 weeks' time, 56% of the patterns with downward breakouts in a bear market will reach the ultimate low. Almost a third (31%) will bottom in the first week. At the other end of the scale, 52% of the triangles with upward breakouts in a bull market will still be looking for the ultimate high after 2½ months.

Grouping the numbers, we see that downward breakouts tend to hit bottom quickly compared to upward breakouts. Bear markets with upward breakouts show a slight tendency to peak 3 to 4 weeks and again 6 to 7 weeks after the breakout, so keep that in mind. You may need to exit a trade then.

Table 48.6 shows statistics related to size.

Height. Tall patterns perform as well as or better than short ones. Select patterns taller than the median and avoid trading short ones.

Width. Wide triangles perform better than narrow ones with one exception: up breakout in a bear market. I used the median length as the separator between wide and narrow.

Average formation length. The average triangle length from start to end (a few days before the breakout due to the way they were drawn on the computer) ranges from 53 to 69 days. Triangles with upward breakouts tend to be slightly longer than are those with downward breakouts.

Table 48.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	19%	4%	7%	7%	4%	6%	7%	3%	5%	4%	34%
Bull market, up breakout	13%	6%	4%	4%	5%	3%	4%	4%	4%	3%	52%
Bear market, down breakout	31%	14%	11%	8%	8%	6%	4%	2%	1%	0%	14%
Bull market, down breakout	31%	9%	10%	7%	5%	5%	3%	3%	3%	1%	23%

Table 48.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Tall pattern performance	52%	27%	-20%	-28%
Short pattern performance	43%	27%	-13%	-23%
Median height as a percentage of breakout price	11.63%	17.33%	11.50%	17.42%
Narrow pattern performance	46%	31%	-14%	-23%
Wide pattern performance	47%	24%	-18%	-27%
Median length	47 days	56 days	44 days	45 days
Average formation length	59 days	69 days	53 days	55 days
Short and narrow performance	43%	30%	-13%	-21%
Short and wide performance	44%	20% ^a	-12%	-26% ^a
Tall and wide performance	49%	25%	-21%	-27%
Tall and narrow performance	57%	35% ^a	-18%	-28% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Height and width combinations. By far, the combination of height and width that produces the best performance is tall and narrow triangles with upward breakouts in a bull market. They soar an average of 57%! The worst performers are short and wide triangles in a bull market with downward breakouts. They show declines of just 12%.

Grouping the combinations according to breakout direction shows that those breaking out following the market trend do better than do those moving against the trend. Upward breakouts from triangles that are both tall and narrow do best. Triangles with downward breakouts tend to do better when they are both tall and wide.

Table 48.7 shows volume-related statistics.

Volume trend. Triangles following the market trend (bull market, upward breakout and bear market, downward breakout) do better when volume trends higher throughout the triangle. The countertrend triangles do better with receding volume trends.

Volume shapes. Here again, triangles following the market trend do well with U-shaped volume. Those triangles with counter market moves do better with dome-shaped volume.

Breakout volume. Heavy breakout volume helps performance across the board. Traders seeing a glass half empty would notice that the numbers are not that far apart. Even so, for the best performance, trade triangles with breakout day volume that is higher than the 30-day average.

Table 48.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Rising volume trend performance	52%	21% ^a	-13%	-29%
Falling volume trend performance	45%	29%	-16%	-24%
U-shaped volume pattern performance	55%	26%	-14%	-27%
Dome-shaped volume pattern performance	41%	28%	-17%	-23%
Neither U-shaped nor dome-shaped volume pattern performance	52%	27% ^a	-17%	-25% ^a
Heavy breakout volume performance	48%	28%	-17%	-26%
Light breakout volume performance	44%	25%	-15%	-22%

Note: Minus sign means decline.

^aFewer than 30 samples.

Trading Tactics

Table 48.8 shows trading tactics for descending triangles.

Measure rule. As you would expect, the measure rule tries to predict the value to which prices decline after a downward breakout. Compute the height of the formation by subtracting the price of the lower trend line from the highest high in the triangle. Then, subtract the height from the value of the lower horizontal trend line (downward breakouts) or add it to the breakout price (upward breakout). The result is the target price.

Compute the height of the triangle shown in Figure 48.5 by taking the difference between the highest high and lowest low (marked by the black dots). The value is 1.44 (that is, 8.82 – 7.38). Subtract the height from the value of the horizontal trend line, or 7.38 – 1.44, giving a predicted price decline to 5.94. Prices reach the target the day of the breakout. Since the measure rule suggests the minimum price move, the final decline is often larger. In this case, the stock reached a low of 4.69 in mid-April 1994 for a total decline of 36%.

An alternative approach, which eliminates the cumbersome math, is to draw a line parallel to the down-sloping trend line starting at the lower left corner of the formation. The value of the line where prices break out of the formation becomes the target price.

Wait for confirmation. Waiting for a breakout to occur is paramount since the direction is unknown ahead of time. If you do not wait for a downward breakout before shorting the stock, prices could quickly rise away from you in an upward breakout. However, shorting a stock is not for the faint of heart and entails substantial risk. If you miss the initial breakout, you can

Table 48.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Calculate the height of the formation by subtracting the highest high from the lowest low. Subtract the height from the value of the lower trend line to get the predicted minimum price decline. Alternatively, draw a line parallel to the down-sloping trend line starting at the lower left corner of the formation. The value of this line <i>where prices break out of the formation</i> becomes the target price. For upward breakouts, add the height to the price where it pierces the top trend line.
Wait for confirmation	Since the breakout direction is unknown, always wait for the breakout to occur. After a downward breakout, sell short immediately or after prices pull back to the triangle base and start moving down again. Another way to play the formation is to wait for an <i>upward</i> breakout then <i>buy</i> the stock.
Sell on downward breakout	If you are a short-term trader, sell immediately should the stock break out downward. The likelihood is that prices will continue down. For intermediate- or long-term holders who do not want to sell, consider adding to your position once prices near the measure rule target. Use support levels to help predict the ultimate low.
Cover on measure rule	For short-term traders, cover your short positions when prices <i>near</i> the target price (see measure rule).

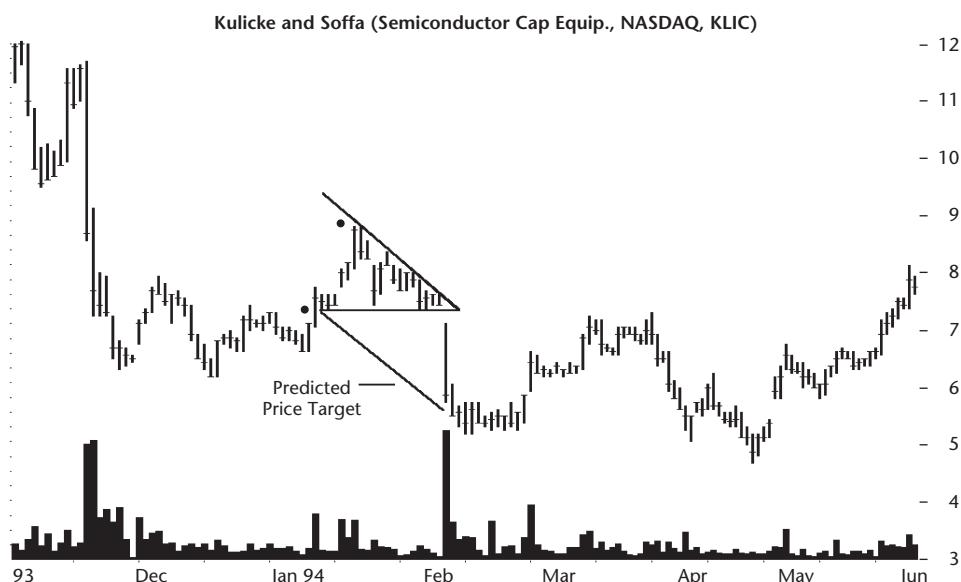


Figure 48.5 There are two ways to predict the minimum decline. Take the difference between the two trend lines at the formation start (denoted by the black dots) and subtract the result from the value of the lower trend line, or draw a line parallel to the down-sloping trend line beginning at the lower left corner. The value of the line when prices break out of the formation becomes the target price.

always short after a pullback. A pullback is also a good time to add to your short position. Wait for prices to resume falling before shorting. Cover your position when prices approach the target price or until the picture changes (either fundamentally or technically).

Sell on downward breakout. Since a downward breakout can take prices lower rapidly, the pullback typically allows you to enter the trade at a higher price than if you bought the day after a downward breakout. If the stock fails to pull back, look elsewhere for another opportunity. Do not chase the stock down should a pullback not occur. If the stock declines and you still decide to short the position, then you are probably entering near the low and setting yourself up for a disappointment.

Cover on measure rule. If you are long the stock and are an intermediate- or long-term holder and you do not want to suffer through such a decline (which could go much lower than the 16% to 25% average), consider selling the stock on the downward breakout and buying it back after it fulfills the measure rule. Remember, the measure rule suggests a *minimum* price move and yet prices meet the target only half of the time. In other words, if you sell the stock, it might not decline as far as you expect.

Sample Trade

Jacob is a novice investor. He has an MBA and works in the insurance industry, which has acclimated him to risk. Still, shorting a stock is not his first choice. The stock shown in Figure 48.6 interested him. A few days before the breakout, he ran through the qualifiers. The volume trend looked good: generally downward as you would expect until a few weeks before the breakout when it deviated from the normal pattern. The number of touches from side to side was good, and the minor highs and lows were distinct. He concluded that this was a valid descending triangle in the making.

Jacob was nervous about shorting the stock since it could turn around and climb away from him, but a stop placed at the top of the triangle would limit his risk if things did not work out. Still, he was uncomfortable shorting and really wanted to own the stock at a lower price. He decided to buy the stock after it fulfilled the measure rule.

He computed the height of the triangle and discovered that the minimum downward move would take the stock to 12.50. As Jacob watched the stock each day, he saw it break out downward and begin declining. The first time it reached the target price and recovered a bit, he suspected the stock was near its low. At least, that is what he hoped.

On October 19, 1992, Jacob bought 200 shares of the stock at the close of 12.50, exactly the target price he predicted earlier. He placed a stop-loss order at 11.13, slightly below the prior December's low of 11.25, a support level. Then, he looked at the possible reward and believed the stock would rise to its old high of 17. He sat back and waited.

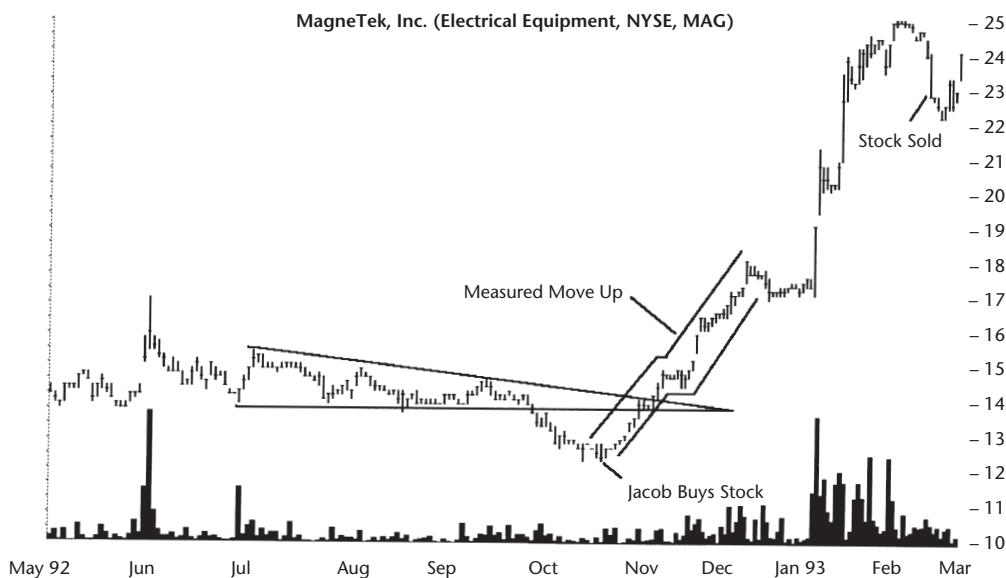


Figure 48.6 As described in the Sample Trade, instead of opening a short position, Jacob bought into the stock after the descending triangle fulfilled the measure rule. He raised his stop as prices climbed and was eventually stopped out at 23 for a \$2,000 profit. A measured move up formation helped him gauge the rise.

It didn't take long for the stock to bottom out and start its climb. In mid-November, Jacob hoped the trend was the beginning of a measured move up. He calculated the difference from the low near where he bought the stock to the most recent high and came up with a value of 2.63. He added this to the current closing price and computed a new target price of 17.50. This number was quite close to his original price target of 17.

Over the next few days, the stock started moving up again. By early December it had hit his new price target and the measured move was complete. Jacob decided to raise his stop-loss point to 16, the top of a support layer. If the stock sold at 16, he would have a gain of 28%, a respectable return. The results pleased him so far, but he worried that prices would hit his stop as the stock consolidated.

Just after the new year the stock started climbing again and he held on for the ride. He kept raising his stop until he was taken out at 23, to which the stock declined in mid-February 1993. After expenses, this trade made him nearly \$2,000, substantially more than his initial estimate.

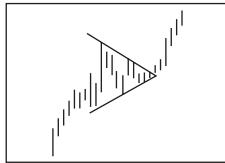
For Best Performance

The following list includes tips and observations to help select descending triangles that perform better after the breakout. Consult the associated table for more information.

- Review the identification guidelines for correct selection—Table 48.1.
- Select triangles in a bull market with upward breakouts or bear markets with downward breakouts—Table 48.2.
- Buy busted patterns after the downward breakout reverses—Table 48.2.
- Triangles with upward breakouts in a bull market have the lowest failure rates—Table 48.3.
- Avoid throwbacks and pullbacks by searching for overhead resistance and underlying support—Table 48.4.
- Expect the breakout about 56% (bear markets) to 65% (bull markets) of the way to the apex—Table 48.4.
- Expect a quick decline in a bear market as 56% bottom in less than 3 weeks—Table 48.5.
- Select tall patterns or patterns that are both tall and narrow (upward breakouts) or tall and wide (downward breakouts)—Table 48.6.
- Trade triangles with heavy breakout volume—Table 48.7.

49

Triangles, Symmetrical



RESULTS SNAPSHOT

Upward Breakouts

Appearance	Price forms lower highs and higher lows following two sloping trend lines that eventually intersect. The breakout is upward.	
Reversal or continuation	Short-term bullish continuation	
	Bull Market	Bear Market
Performance rank	16 out of 23	7 out of 19
Break-even failure rate	9%	7%
Average rise	31%	26%
Change after trend ends	-31%	-33%
Volume trend	Downward	Downward
Throwbacks	37%	55%
Percentage meeting price target	66%	57%
Surprising findings	Busted patterns perform better than the originals. The best performance comes from patterns near the yearly low. Throwbacks hurt performance. Tall and narrow patterns perform better than other combinations.	
Synonym	Coils	
See also	Diamond Bottoms; Diamond Tops; Head-and-Shoulders Bottoms; Head-and-Shoulders, Tops; Triangles, Ascending; Triangles, Descending	

Downward Breakouts

Appearance	Same, but breakout is downward.	
Reversal or continuation	Short-term bearish reversal	
	Bull Market	Bear Market
Performance rank	15 out of 21	18 out of 21
Break-even failure rate	13%	9%
Average decline	17%	19%
Change after trend ends	50%	45%
Volume trend	Downward	Downward
Pullbacks	59%	62%
Percentage meeting price target	48%	42%
Surprising findings	Busted patterns perform better than the originals. The best performance comes from patterns near the yearly low. Pullbacks hurt performance. Tall and narrow patterns perform better than other combinations.	
Synonym	Same as for upward breakouts	
See also	Same as for upward breakouts	

In the first edition of this book, I split symmetrical triangles into tops and bottoms because I wanted to explore the performance difference. The difference was small, and I found out that people were accidentally referring to the wrong chapter. Therefore, I combined the two chapters in the second edition.

The Results Snapshot shows the performance for symmetrical triangles under varying market conditions and breakout directions. In my opinion, symmetricals do not perform as well as hoped. The average rise or decline is smaller than the average for all chart patterns. This finding may be, in part, due to no longer treating premature breakouts for what they are. Instead, I now consider them as actual breakouts, because that is how experienced traders trade triangles. This change makes for a higher failure rate and a smaller average rise or decline.

Tour

Figure 49.1 shows an example of a symmetrical triangle. Prices rise to the start of the formation and make a new high. Then prices cross the formation from side to side, making lower highs and higher lows. After nearly 2 months, the trends are in place. A down-sloping trend line drawn along the tops connects

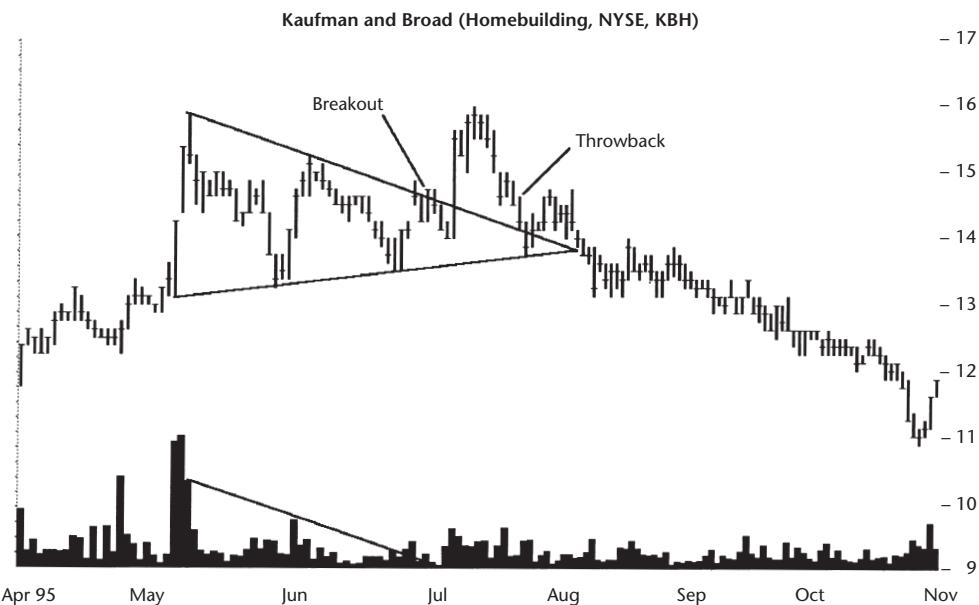


Figure 49.1 A symmetrical triangle with a small price rise.

the minor highs, whereas an up-sloping trend line on the bottom supports the minor lows.

The volume trend recedes although it is spiky in places. Price attempts to leave the formation in late June but gets sucked back in. It tries again and with higher volume shoots out the top of the triangle but quickly throws back, curls around, and heads lower.

Why do symmetrical triangles form? Prices zoom up making higher highs on succeeding days. Eventually, selling pressure quenches demand for the stock and prices turn down. Swing traders, sensing a change in trend, quickly sell their holdings, putting additional pressure on the stock. Prices fall to a level where prior support set up by a peak months earlier or various other factors entice investors to view the stock as a bargain. The price is shooting up, they reason, so why not join the trend, especially now that it is cheaper?

Such rationalizations increase demand and send the stock up again, but this time the momentum players that missed a chance to sell earlier do so now. Others, believing that there may not be enough upward momentum to carry the stock to the old high, sell too. The selling pressure halts the price rise at a lower level and turns it around.

Value investors seeing the stock drop, and since the fundamentals have not changed, buy it on the way down. Some add to their positions at a lower price and others buy it for the first time. The buying may force prices to move horizontally for a bit instead of straight down. Eventually, though, a higher low forms not so much from anxious buyers, but from a dearth of sellers.

Throughout the trend, volume is decreasing. Fewer and fewer shares change hands and it becomes easier for the stock to change direction. Eventu-

ally, though, a large buy order comes in and price rises. When it pierces the top trend line, it takes out the orders that investors have placed to buy when price rises above the trend line. This additional buying cascades and prices soar on heavy volume.

If demand is strong enough, prices continue rising. About half the time, though, prices spin around and head back to the triangle boundary—a throw-back. There prices meet support at the top trend line or at the level of the triangle apex. Usually, prices rebound and continue in their original direction. Sometimes, though, prices continue down, signaling an end to the upward trend (such as that shown in Figure 49.1).

Identification Guidelines

Table 49.1 lists identification guidelines for symmetrical triangles.

Shape. Consider Figure 49.2, a symmetrical triangle with a premature upward breakout. The overall shape of the formation is triangular and defined by two trend lines: One slopes downward from the top and the other slopes upward from the bottom so that they join at the apex.

Touches. Numbers mark the minor highs and lows, which touch or come close to each trend line at least twice. That feature is important as the touches should be distinct individual hills (minor highs) and valleys (minor lows).

White space. Price must cross the triangle several times, covering any white space.

Volume. The volume pattern has a downward slope to it. Turnover may increase when price rises and declines when price falls, but the overall trend is receding. Let me say it is unusual for a symmetrical triangle to not have a

Table 49.1
Identification Characteristics

Characteristic	Discussion
Shape	A triangular shape forms within the confines of two trend lines, one sloping up and the other down so that they intersect at the triangle apex. The trend lines need not be the same length.
Touches	There should be at least two distinct minor highs and two minor lows that touch the trend lines (in other words, at least four trend reversals).
Volume	Usually recedes throughout the formation but can be irregular and is often very low just before the breakout.
White space	Price should cross the pattern, covering much of the white space.
Breakout direction	Unknown ahead of time. Occurs when price closes outside the trend-line boundary.
Duration	Typically longer than 3 weeks, at a minimum. Formations 3 weeks or less classify as pennants.



Figure 49.2 A symmetrical triangle with an upward breakout. Price closes outside the triangle but returns before the apex. In this instance, prices not only return but shoot out the other side. Numbers mark the various trend-line touches. A dead-cat bounce sees prices tumble \$5 in 1 day, then bounce up, and eventually move lower.

receding volume trend, but that does not mean it will not happen. Even when volume does taper off, it may not be noticeable unless you run linear regression and look at the slope of the resulting line. However, more than 80% of the triangles do show a receding volume trend, high enough to make you consider any deviations carefully.

Breakout direction. The breakout can be in any direction, including meandering horizontally, but 54% of the time it will follow the prevailing price trend (upward breakout in an upward trend or downward breakout in a downward trend).

Duration. Symmetrical triangles can be any length, but most analysts say the minimum length is 3 weeks.

Figure 49.3 shows two triangle formations. The one on the left is not a valid symmetrical triangle. The left triangle forms beginning from the minor low at point A and rises to the minor high at point B. Then price declines following the top trend line and reaches the minor low at point C. Notice that there is only one minor high (point B) and two minor lows, but the second minor low, point C, is not included in the triangle. Not only is there a minor high and low missing, but the bottom trend line is drawn incorrectly as well. The white space in the center of the triangle is often a clue to an improperly identified formation. Prices should cross the formation and fill the space.

The second triangle shown in mid-October has plenty of minor highs and lows that touch the two trend lines. It is a valid symmetrical triangle but it has

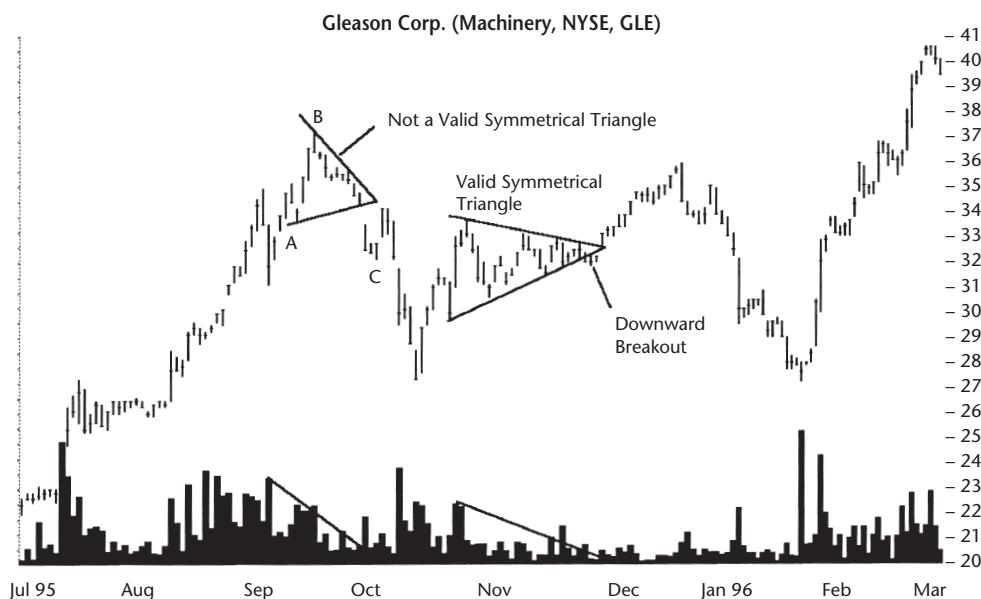


Figure 49.3 Two symmetrical triangles, one valid, the other invalid. The triangle on the right shows a premature downward breakout followed by a valid upward breakout. The triangle on the left is bogus.

a kicker. Just before the triangle apex, prices move outside the triangle trend-line boundaries, pull back, and move sharply higher.

When price moves less than 5% and then returns to the triangle and stages a breakout on the opposite side, the triangle is a so-called busted pattern, and the move in the new breakout direction is likely to be large.

The volume trend is predominantly downward in both chart patterns. Volume is 60,100 shares at the start of the October triangle but recedes until the day before the breakout, when only 4,600 shares trade. Quite a decline.

Before you pronounce a chart pattern to be a symmetrical triangle, look to the left of the formation. Is there a minor high that mirrors the one on the right? If so, then you might be looking at a head-and-shoulders top.

A mirror image of the symmetrical triangle, one that is back to back with the one you have selected, probably represents a diamond top or bottom. When one of the trend lines is horizontal, then the formation is an ascending or descending triangle. All these other formations are ones that you need to search for. Many are more powerful than a symmetrical triangle and give a better gauge to the ultimate price move.

Focus on Failures

Symmetrical triangles have two types of failures. The first is one of identification, and Figure 49.4 shows an example.

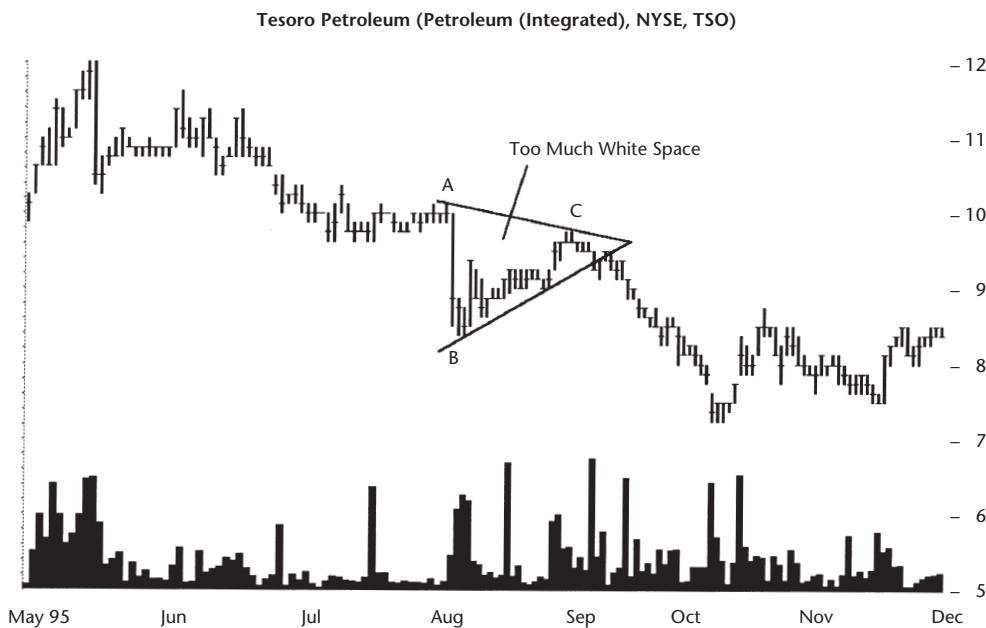


Figure 49.4 An invalid symmetrical triangle. There are not enough price crossings to fill the triangle, leaving white space predominating.

I cannot stress how important it is to have at least two minor highs and two minor lows in the formation. Many times a rounding bottom may tempt you to create a symmetrical triangle out of it. The price action seems to narrow over time but there is really only one minor high. Figure 49.4 is a good example. The pseudotriangle forms beginning with the minor high at point A and drops rapidly to the minor low at point B. Then prices meander up along the lower trend line before crossing to point C. There are not enough price crossings of the triangle to suggest a reliable formation. Although prices touch both trend lines several times, there is too much white space filling the center of the formation.

Figure 49.5 shows the second type of failure, and it is what I call a 5% failure because price fails to continue moving in the breakout direction by more than 5% before reversing. The figure shows a well-formed symmetrical triangle during February and March with two minor highs and three minor lows, all of them touching (or coming close to) their respective trend lines. The two trend lines intersect and the formation stands alone. By that, I mean it is not part of another formation. Or is it? The left peak in conjunction with the first minor high in the triangle might mark the beginning of a double top (or, if you include the second, lower, peak in January, it might be a triple top). Since prices do not fall below the lowest low between the two peaks before reaching a higher high, the formation does not confirm and is not a double (or triple) top.

However, the higher high forming as part of the throwback to the triangle apex (late March) could extend the double top into a larger triple top. Once prices tumble below the low formed between the three peaks, a triple top is



Figure 49.5 The symmetrical triangle on the left has an upward breakout that fails to rise by more than 5%. The formation is a 5% failure. The triangle is part of a double or triple top.

confirmed and prices head downward, pulling back briefly (twice) to just above the formation low before continuing down. The pullback forms another symmetrical triangle, as shown in Figure 49.5.

The big picture explains why the triangle fails. No matter whether you call this a nested triple top or a multiple top (or whatever), the word *top* in the phrase is a big clue. If it is a triple or multiple top, the breakout direction is down. The triangle breaking out upward instead of downward in this situation is suspicious. Before you invest, make sure you take a wider view; flip over to the weekly chart and see if a different situation arises from the one shown on the daily chart. Defer to the weekly chart if you see a conflict.

Statistics

Table 49.2 shows general statistics for symmetrical triangles.

Number of formations. I found 1,347 symmetrical triangles in 500 stocks from mid-1991 to mid-1996, in 200 stocks from 2000 to 2003, and the rest between those two dates. I did not do a thorough search because triangles are so plentiful and logging all of them using a mouse made my wrist sore enough that I had to use my other hand (I would consider giving my right hand to be ambidextrous).

Table 49.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	476	246	361	264
Reversal (R), continuation (C)	195 R, 281 C	104 R, 142 C	164 R, 197 C	139 R, 125 C
R/C performance	33% R, 30% C	24% R, 28% C	-17% R, -18% C	-19% R, -20% C
Average rise or decline	31%	26%	-17%	-19%
Rises or declines over 45%	144 or 30%	47 or 19%	12 or 3%	19 or 7%
Change after trend ends	-31%	-33%	50%	45%
Busted pattern performance	40%	38%	-23%	-28%
Standard & Poor's 500 change	11%	0%	2%	-9%
Days to ultimate high or low	124	77	45	30

Note: Minus sign means decline.

Reversal or continuation. Reversals make up 45% of the patterns and continuations compose the other 55%. Continuations perform marginally better than reversals in most cases. The lone exception is for triangles in a bull market with upward breakouts. There, reversals show rises averaging 33% compared with a 30% rise for continuations.

Average rise or decline. The average rise is a disappointing 31% in bull markets. This figure is well off the pace set by other chart pattern types. It suggests that as popular as symmetrical triangles are, a trader could do well to trade another type of chart pattern.

Rises or declines over 45%. Almost a third of the bull market patterns show rises of at least 45%. Although I like to see a higher number, this is still a decent showing. Downward breakouts never fare well with this measure.

Change after trend ends. After price reaches the ultimate high or low, price rebounds but the results are not impressive. Some other chart patterns show rises of 60% in a bull market after a downward breakout. *That* is the kind of rise I like to see!

Busted pattern performance. A busted triangle is a breakout in which prices move less than 5% and then return to the pattern and break out the opposite side. If you see a busted pattern and the new breakout confirms (closes outside the triangle trend line), trade the new direction and enjoy the move.

Standard & Poor's 500 change. Notice how the general market, as measured by the S&P 500 index, helped or hindered the performance of the average symmetrical triangle. Consider that the best rise is 31% in a bull market for triangles with upward breakouts. That figure corresponds to an 11%

rise in the index. A downward market helped triangles with downward breakouts in a bear market. They dropped 19%, a better showing than the 17% decline in a bull market.

What does all this mean? Trade with the market trend for the best results.

Days to ultimate high or low. Triangles in bull markets take longer to reach the ultimate high than bear markets take to reach the ultimate low. For example, downward breakouts in a bull market take 45 days to drop 17%. In a bear market, a 19% decline takes 30 days. Thus, the decline in a bear market is steeper and shorter than in a bull market.

Table 49.3 shows failure rates for symmetrical triangles. For small declines, triangles with upward breakouts in a bear market have the lowest failure rates. After a maximum price rise of 15%, triangles with upward breakouts in a bull market take over. They show smaller failure rates.

How do you read the table? I know your eyes probably glaze over when you see a table swimming with numbers, but consider the bear market, up breakout column. Seven percent of the patterns I looked at climbed less than 5%. Almost half fail before climbing 20%. The worst performer for triangles is in a bull market with downward breakouts. Half of them fail to rise at least 15%.

Say you want to shoot for the moon and make 50%. How many triangles perform that well? You would trade triangles with upward breakouts in a bull market because they post the best results. Even so, 74% will fail to climb 50% after the breakout.

Table 49.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. This row is a result of the way my computer program draws the triangles. Ignore it. I show the numbers for consistency.

Table 49.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	44 or 9%	18 or 7%	48 or 13%	25 or 9%
10	104 or 22%	44 or 18%	121 or 34%	81 or 31%
15	162 or 34%	78 or 32%	179 or 50%	126 or 48%
20	206 or 43%	115 or 47%	232 or 64%	153 or 58%
25	233 or 49%	139 or 57%	279 or 77%	193 or 73%
30	262 or 55%	162 or 66%	309 or 86%	211 or 80%
35	284 or 60%	178 or 72%	330 or 91%	226 or 86%
50	350 or 74%	210 or 85%	355 or 98%	251 or 95%
75	411 or 86%	229 or 93%	361 or 100%	263 or 100%
Over 75	476 or 100%	246 or 100%	361 or 100%	264 or 100%

Table 49.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	4 days	3 days	3 days	3 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L24%, C32%, H43%	L29%, C41%, H30%	L27%, C34%, H38%	L33%, C37%, H30%
Percentage rise/decline for each 12-month lookback period	L40%, C25%, H32%	L33%, C26%, H23%	L19%, C18%, H16%	L23%, C19%, H17%
Throwbacks/pullbacks	54%	55%	59%	62%
Average time to throwback/ pullback ends	11 days	11 days	10 days	9 days
Average rise/decline for patterns with throwback/pullback	25%	21%	-15%	-18%
Average rise/decline for patterns without throwback/pullback	38%	34%	-21%	-21%
Performance with breakout gap	35%	23%	-18%	-27%
Performance without breakout gap	31%	27%	-18%	-19%
Average gap size	\$0.36	\$0.23	\$0.37	\$0.57
Breakout distance to apex	75%	73%	73%	71%

Note: Minus sign means decline.

Yearly position. Triangles have their breakouts most often near the yearly high in a bull market and in the middle of the yearly price range in bear markets.

Yearly position, performance. Where do the best performing triangles appear? In all cases, the overachievers have breakouts within a third of the yearly low. Those are the ones to trade.

Throwbacks and pullbacks. Throwbacks and pullbacks occur just over half the time. Triangles in bear markets with downward breakouts have the highest likelihood of pulling back: 62%. On average, it takes between 9 and 11 days for the stock to return to the breakout price. When a triangle has a throwback or pullback, performance suffers. For example, triangles in a bull market that throw back show postbreakout rises averaging 25%. Without a throwback, the rise averages 38%.

To avoid a throwback or pullback, look for nearby overhead resistance or underlying support before trading the triangle.

Gaps. Gaps are important to performance when they occur in the direction of the prevailing price trend (upward breakouts in a bull market and

downward breakouts in a bear market). Countertrend triangles show the same or better performance without a gap.

Apex distance. The average distance from the start of the triangle to the breakout is about 73% of the way to the apex, which is longer than in other triangle types.

Table 49.5 shows a frequency distribution of time to the ultimate high or low. As you can see in the table, many symmetrical triangles take over 70 days to reach the ultimate high or low. However, a large portion reach their end moves in the first week. In fact, about a quarter of the up breakout triangles and over a third of the down breakout ones will reverse course in week 1.

Triangles with downward breakouts show a slight rise in the numbers during week 3 (21 days). If your stock shows signs of a trend reversal around that time, then close out your short or put on a long trade. Protect your position with a stop.

Table 49.6 shows statistics related to size.

Height. Tall patterns perform better than short ones under all market conditions and breakout directions. For the best performance, select a tall pattern, as measured from the highest minor high to the lowest minor low. Divide the results by the breakout price and compare it to the median in the table. If your result is above the median, then you have a tall pattern.

Width. Wide patterns also perform better, except for triangles in a bear market with downward breakouts. I used the median length shown in the table as the separator between wide and narrow.

Average formation length. The average triangle length is about 50 days, or just shy of 2 months long.

Height and width combinations. In all cases, triangles that are both tall and narrow outperform. The combined performance of height and width is better than the individual performance. For example, the 41% rise in a bull market after an upward breakout is better than the 38% rise for tall patterns and the 33% rise for wide ones.

Table 49.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	26%	9%	6%	7%	6%	4%	6%	2%	1%	1%	32%
Bull market, up breakout	22%	8%	8%	3%	4%	3%	4%	3%	1%	3%	41%
Bear market, down breakout	38%	8%	10%	9%	9%	4%	3%	5%	2%	2%	11%
Bull market, down breakout	34%	8%	9%	7%	6%	4%	4%	3%	3%	4%	20%

Table 49.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Tall pattern performance	38%	30%	-19%	-20%
Short pattern performance	26%	23%	-16%	-19%
Median height as a percentage of breakout price	14.48%	18.10%	14.50%	18.04%
Narrow pattern performance	30%	24%	-17%	-20%
Wide pattern performance	33%	28%	-18%	-18%
Median length	42 days	38 days	39 days	36 days
Average formation length	51 days	50 days	50 days	46 days
Short and narrow performance	25%	21%	-17%	-19%
Short and wide performance	28%	25%	-15%	-19%
Tall and wide performance	36%	30%	-19%	-18%
Tall and narrow performance	41%	31%	-20%	-23%

Note: Minus sign means decline.

Before trading, look for triangles that are both tall and narrow. If you cannot find one, then look for triangles that are taller than the median (see Height).

Table 49.7 shows volume-related statistics.

Volume trend. The volume trend splits between those triangles with breakouts in the direction of the prevailing trend and the countertrend triangles. Those following the trend do best with falling volume; countertrend triangles do best with rising volume.

Volume shapes. Triangles with upward breakouts in a bear market perform best when accompanied by U-shaped volume. They rise 32%, well above the performance of the other two shapes. The volume shape is less important to the other symmetrical triangles with different breakout directions and market conditions.

Breakout volume. In all cases but one, heavy breakout volume helps performance. The lone holdout is for triangles in a bear market with downward breakouts. They do best after a light volume breakout.

Trading Tactics

Table 49.8 outlines trading tactics.

Measure rule. There are two types of measure rules for symmetrical triangles. Figure 49.6 shows the first one. Compute the formation height from

Table 49.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Rising volume trend performance	26%	30%	-20%	-19%
Falling volume trend performance	32%	26%	-17%	-20%
U-shaped volume pattern performance	31%	32%	-18%	-19%
Dome-shaped volume pattern performance	31%	24%	-17%	-20%
Neither U-shaped nor dome-shaped volume pattern performance	30%	23%	-19%	-20%
Heavy breakout volume performance	35%	29%	-19%	-19%
Light breakout volume performance	24%	22%	-15%	-20%

Notes: Minus sign means decline.

highest high (point B at 9.75) to lowest low (point A at 8.38). Either add to or subtract the difference, 1.37, from the breakout price depending on the breakout direction. In this case, the breakout is upward, so the target price becomes 10.50 (that is, 9.13 + 1.37). Prices reach the target in less than a month.

Some symmetrical triangles act like larger versions of pennants. They are half-staff formations and mark the halfway point in a move (like a measured

Table 49.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the formation height by subtracting the lowest low from the highest high. For upward breakouts, add the difference to the highest high or for downward breakouts, subtract the difference. Alternatively, symmetrical triangles can be halfway points in a move, so project accordingly.
Trade with trend	As consolidations, prices usually leave the triangle in the same direction as when they enter.
Wait for breakout	Always wait for the breakout in case the triangle reverses.
Trade busted patterns	If a triangle breaks out and moves less than 5% or so, then returns and breaks out in the opposite direction, trade it in the new direction.
Intrapattern trade	If the triangle is tall and long enough, sell or go short at the top trend line and buy or cover at the bottom one. Cover at the breakout if it goes against you, or stop trading once prices near the apex.

move up or down formation). Had the triangle broken out downward, it might have continued down and fulfilled the measure rule. In such a case, the measure from point C (on the left at 11.88) to point A should be subtracted from the value of point B. The result is the target price of 6.25. Point C is the start of the move leading to the triangle and the measure rule applies just as in a measured move up or down formation.

Use one or both measure rules as appropriate to the situation. The first method, using the formation height, is the more conservative of the two and more likely to be fulfilled.

Trade with trend. It is difficult or impossible to determine in which direction price will break out. Generally, it continues the prevailing trend. Even in Figure 49.6, although the formation acts as a short-term reversal of the downward trend, the longer-term trend is upward (not shown in the figure).

Wait for breakout. Always wait for a breakout. Occasionally, price squeezes out the triangle apex and has no breakout at all. This is a rarity, but it does happen. Once price breaks out, trade with the trend: Go long if price breaks out upward and short on downward breakouts.

Trade busted patterns. I have noticed that even when price breaks out in an adverse direction (a reversal of the prevailing trend), it quickly reverses again and resumes the original trend. This means, for example, in an upward trend price breaks out downward and falls by 5%, then heads back up and finishes much higher. Figures 49.2 and 49.3 show examples. This behavior for reversals is something to watch out for, especially for downward breakouts in a raging bull market. Trading these busted patterns can be profitable.

Intrapattern trade. Another way of trading triangles is to buy near the lower trend line, sell near the upper one, and then go short. Occasionally, a symmetrical triangle is tall enough and long enough that you can profitably trade it in this manner, but you have to be nimble. If you are inexperienced, be sure to practice this on paper before trying it with real money.

Sample Trade

Can you make money on symmetrical triangles? Yes. Consider the trade I made in the stock shown in Figure 49.6. There were a number of factors that led me to this stock, including a rising rig count, rising oil prices, cold weather, and related political events (OPEC tightening and possible oil boycott against Nigeria). All of these factors suggested the price of oil during the winter would continue rising and demand for the oil field services industry would remain strong.

Another factor was that the stock price was riding along the bottom of a trend channel. The method used to create the trend channel is somewhat complicated but it involves drawing a line using linear regression on the closing prices and then plotting two lines parallel to the regression line, each two stan-



Figure 49.6 Measure rule for symmetrical triangles. Use the measure rule to predict the target price. Subtract the low (point A) from the high (point B) and add the difference to the breakout (point D).

dard deviations away. Figure 49.6 shows the upper line of the channel. I did not draw the lower line, but it intersects point A and is parallel to the top channel line. The trend channel suggests prices would move from one side of the channel to the other.

Since the upward breakout was on weak volume, I decided to hold off and wait for a throwback. This was a risky maneuver, but it worked out. On December 1, I bought the stock and received a fill at 9.13.

The apex of a symmetrical triangle is often a place of support or resistance. You can see this on the chart. Prices declined to the apex and stayed there for 3 days. As predicted, the stock took off and climbed after that. Even though the stock fulfilled the measure rule, I suspected that it would continue crossing to the upper channel line. The stock stalled out midway across the channel, pausing at the linear regression line (not shown, but it is equidistant between the top channel line and point A). This pause is often the case and I was anticipating it.

In about a week, prices started moving up again and quickly made a new high. When prices touched the top of the trend channel, I considered selling but did not for tax reasons. I decided to hold off until the new year—just 2 trading days away. On January 2 I sold the stock and received a fill at 11.63. The delay in selling dropped my return from nearly 40% to 27%. Still, that is not a bad return for a hold time of 1 month!

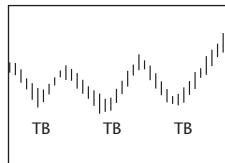
For Best Performance

The following list includes tips and observations to help select symmetrical triangles that perform better after the breakout. Consult the associated table for more information.

- Review the identification guidelines for correct selection—Table 49.1.
- Trade triangles with breakouts following the market trend (upward breakouts in a bull market, downward breakouts in a bear market)—Table 49.2.
- Trade busted patterns—Table 49.2.
- Triangles with upward breakouts in a bear market have low failure rates for small moves (up to 15%), but triangles in a bull market do better for larger moves—Table 49.3.
- Select triangles with breakouts near the yearly low—Table 49.4.
- Throwbacks and pullbacks hurt performance—Table 49.4.
- Expect a breakout 73% of the way to the apex—Table 49.4.
- A quarter to a third of the triangles reach their ultimate move in week 1. Expect a trend change in week 3 for triangles with downward break-outs—Table 49.5.
- Select tall patterns or triangles that are both tall and narrow—Table 49.6.
- Trade triangles that have heavy breakout volume—Table 49.7.

50

Triple Bottoms



RESULTS SNAPSHOT

Upward Breakouts

Appearance	Three distinct minor lows at about the same price	
Reversal or continuation	Short-term bullish reversal	
Bull Market		
Performance rank	7 out of 23	8 out of 19
Break-even failure rate	4%	8%
Average rise	37%	23%
Change after trend ends	-33%	-36%
Volume trend	Downward	Downward
Throwbacks	64%	61%
Percentage meeting price target	64%	57%
Surprising findings	Throwbacks hurt performance. Narrow patterns perform better than wide ones.	
See also	Broadening Bottoms; Broadening Formations, Right-Angled and Descending; Broadening Wedges, Descending; Head-and-Shoulders Bottoms; Head-and-Shoulders Bottoms, Complex; Triangles, Descending	

The surprising thing about triple bottoms is their lack of surprises. More about that in a moment. In a bull market, triple bottoms have a low failure rate and a

high average rise. In a bear market, the results are about what you would expect from a bullish pattern in a bear market.

Almost two out of three triple bottoms will throw back, so consider that before you trade. If price continues down after the throwback, then your trade may well end up with a loss. If it rebounds, the numbers suggest that performance will suffer. In other words, the best performers are triple bottoms without throwbacks.

Another surprise is that narrow patterns perform better than wide ones. Usually, width is not a good indicator of performance but height is. The reason for that unusual behavior is unclear. Of one thing I am certain, triple bottoms in a bear market act differently than those in a bull market. Often the results are opposite. For example, when the last bottom is above the middle bottom, performance excels in a bull market but underperforms in a bear market.

Tour

Figure 50.1 shows an example of a triple bottom. Prices descend to the 37 area three times and each time, they turn away; the level marks a zone of support preventing future declines. The sharp V-shaped recession, especially during the last valley, is typical for triple bottoms. The rounded-looking rise from the first valley to the second is also characteristic of triple bottoms but not a strict requirement.

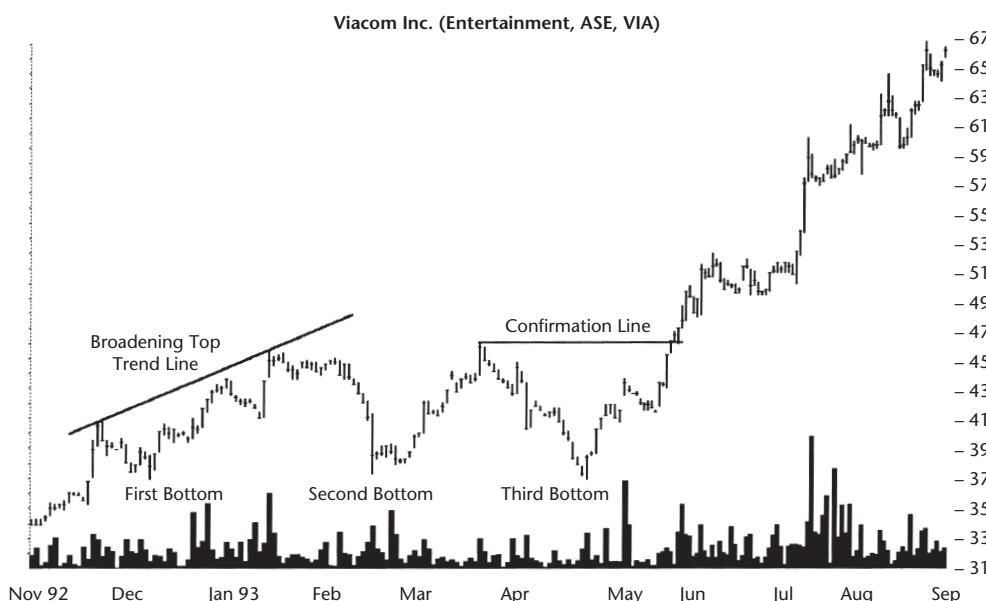


Figure 50.1 A somewhat unusual triple bottom as it forms in the middle of a rising price trend. Prices eventually rise to 67.50 from the confirmation level of 46.50.

The price level of the three valleys is nearly the same, in this case, within \$0.38 of one another. That feature is a key element of triple bottoms as we see in the Identification Guidelines section.

Each chart formation is unique with characteristics that distinguish it from other patterns, and the one in Figure 50.1 is no exception. The stock reaches a low in mid-October 1992, after trending down for 5 months. Then prices retrace their losses and stray into new high territory before heading down to the first triple bottom low. Support reached during formation of the first low is set up by the peak back in May 1992. Prices climb to the 37 area several times from January to May but fail to burst through the resistance.

The multiple hits on the ceiling are in no small measure responsible for the support the triple bottom encounters. As prices descend to 37, investors willing to part with their shares at the lower level are scarce. When someone does offer to sell, buyers snatch the stock believing they are getting a good bargain. They are right. Prices do not meander at the 37 level for long. If you look closely at Figure 50.1, each valley floor is a 1-day downward spike, albeit small but visible.

The start of the formation, from the first to the second bottom, looks like a broadening top, right-angled and ascending, with its horizontal bottom and up-sloping top trend line. However, there are not enough price crossings to validate the formation. It always makes me nervous when I see plenty of white space in a formation (such as that shown between the first and second bottoms). When the rise between the second and third troughs fails to come anywhere near the up-sloping trend line, the jig is up.

Prices stop rising at the same point, about 46, making the triple bottom look like a double top. This pattern, too, fails to come to fruition when prices reach the 37 support zone and turn around. The double top remains unconfirmed and it just becomes another two bumps on the price chart.

Price eventually punches through the overhead resistance and continues higher, following a near straight-line run. In this example, the triple bottom acts as a consolidation of the uptrend.

Identification Guidelines

Table 50.1 outlines the guidelines for identifying triple bottoms.

Three bottoms, price. I think most technical analysts will tell you that not any three bottoms will do for a triple bottom. The three bottoms are usually large and well separated with generally rounded rises in between. The lowest price in each bottom is at about the same level. If the center price is lower than the other two, then you might be looking at a head-and-shoulders bottom. When the bottoms are successively lower in price, it might be one of the broadening series of formations.

Volume. The volume trend usually recedes over the course of the formation. Since the formation tends to be long, the volume pattern appears

Table 50.1
Identification Characteristics

Characteristic	Discussion
Three large, distinct bottoms	Look for three minor lows, well separated and distinct. The bottoms are usually large but sharp, and the price rise between them often appears rounded but need not be.
Same price	The price variation among the three bottoms is minor. The center bottom should not be significantly below the other two, otherwise it is a head-and-shoulders bottom.
Downward volume trend	The overall volume trend is usually downward but may be high in each of the three bottoms. Volume is usually highest on the first bottom and weakest on the last one.
Confirmation point	Price must rise above the highest high in the formation (the confirmation point) or the chart pattern is not a triple bottom.
Weekly chart	Since triple bottoms are usually large price formations, look at the weekly chart to help identify the longer variety.

ragged or irregular at times. Each of the three bottoms usually shows volume that peaks above the days leading to the bottom, with the first bottom usually having the highest volume of the trio.

Confirmation point. Figure 50.2 shows a good example. Notice the three downward price recessions. They are distinct and separated, with the rally between each bottom quite pronounced. Price rises from the low of about 35 to the confirmation line just over 40. The confirmation line is the highest

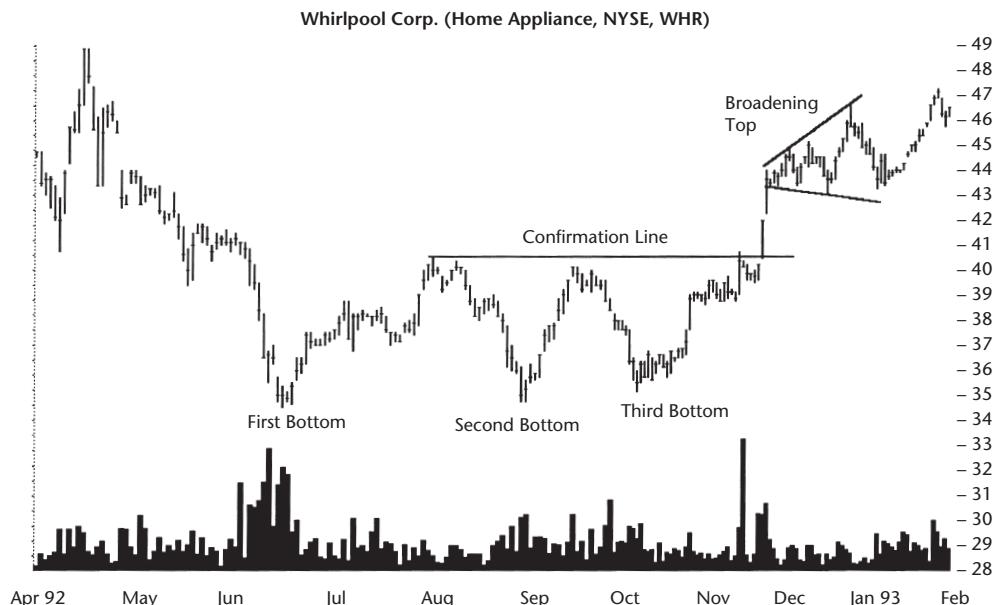


Figure 50.2 A triple bottom with three widely spaced, distinct troughs. A broadening top appears in mid-November.

high reached during the chart pattern. It serves as the breakout point, the point to which price must rise before any three minor lows become a true triple bottom. When price rises above the confirmation line, the formation confirms and price should continue rising.

You can see in Figure 50.2 that the three bottoms are at nearly the same price. Only the last bottom falls short of the goal. As we see in the Statistics section, this often signals a better performing formation. This triple bottom is the beginning of a large, extended move that takes prices from a low of 34.50 to a high of 73.50 in 16 months.

The volume trend in this formation is downward with the largest concentration of high volume on the first bottom. The center bottom has subdued volume and is even lower on the third bottom in early October. Volume spikes upward as price rises to the confirmation point in mid-November.

Weekly chart. Triple bottoms are usually large enough to be visible on weekly charts.

Focus on Failures

Once price reaches the confirmation line, it usually has been rising for about a month, on average, since the third bottom. Price often pierces the resistance line but doubles back, hesitating before continuing up—most of the time. In some cases, price rises above the confirmation point by less than 5% before throwing back and continuing down. When that happens, it is called a 5% failure. In this study of triple bottoms, all chart patterns must stage an upward breakout (a rise above the highest high in the formation) before being labeled a triple bottom. Since all formations have upward breakouts, only 5% failures remain to wipe the warm glow of a successful investment from a novice investor's face. Fortunately, 5% failures are rare. Figure 50.3 shows an example of such a failure.

The formation is a triple bottom since price rises above the confirmation line in mid-September. But the rise is brief—only 1 day has a close above the confirmation line before price tumbles.

What are the signs of a budding failure? In this situation, the curved rise leading to the triple bottom suggests a rounding top. The volume pattern is suspiciously flat, but an irregular or abnormal pattern is common and should not automatically disqualify a formation. Perhaps the most likely failure is not one of performance but of identification. Are the three bottoms well separated, each a significant minor low in its own right? Are the low prices near to one another without the center bottom being meaningfully below the other two?

As you look at the formation, it should take on a striking appearance and almost shout, "Yes, I am a triple bottom!" There should be something familiar, a special quality that distinguishes a valid triple bottom from any other three-lump configuration. If it does not scream, "Buy me!" then you should probably look elsewhere.

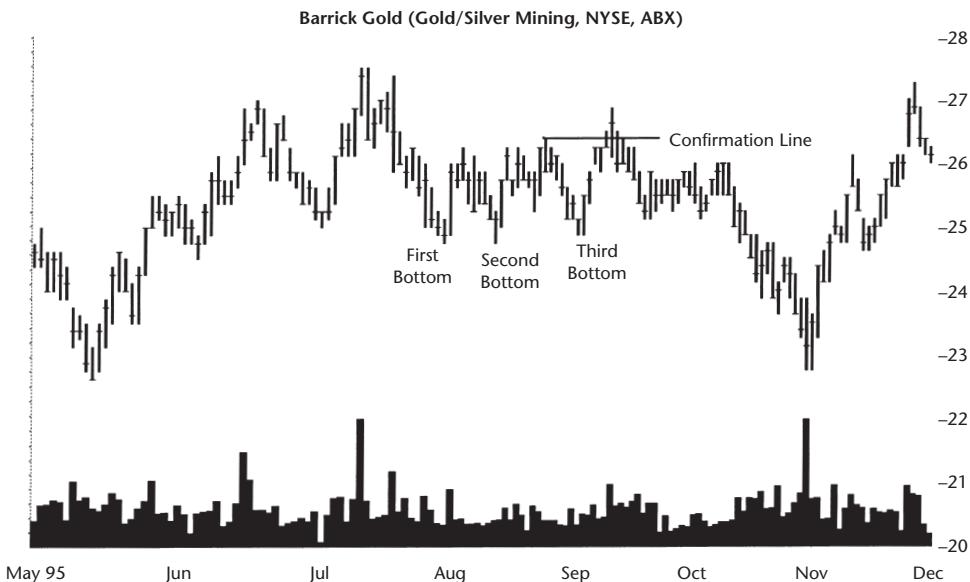


Figure 50.3 A triple bottom failure. This triple bottom fails to make a convincing upward run. It is a 5% failure since prices fail to rise by more than 5% before tumbling.

Statistics

Table 50.2 shows general statistics for triple bottoms.

Number of formations. I searched 500 stocks from mid-1991 to mid-1996 and 220 from 2000 to 2003 and another 300 from 1999 to 2004. I also included any patterns I found in my daily trading between those dates. This study accepted many shorter patterns (mainly in a bear market), balancing the longer ones I found in the first edition of the *Encyclopedia* (bull market).

Reversal or continuation. As Table 50.2 shows, triple bottoms act as reversals of the downward price trend most of the time. However, in a bull market, those acting as continuations of the upward price trend performed slightly better than reversals (38% versus 35%, respectively). In a bear market, the results flip, with reversals doing marginally better.

Average rise. The average rise in a bull market is slightly above that posted by other bullish chart patterns, but the bear market rise is slightly below the average (of all other chart pattern types). This finding suggests you concentrate on triple bottoms in a bull market.

Rises over 45%. Both markets do well with this benchmark, but the bull market excels with nearly a third (32%) rising at least 45%. The bear market has about half that rate (17%) doing well.

Change after trend ends. Once price reaches the ultimate high, it tumbles an average of 33% to 36%, depending on market conditions. Thus, if you can determine when the trend changes, short the stock but use stops in case you are wrong.

Table 50.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	286	316
Reversal (R), continuation (C)	251 R, 35 C	211 R, 105 C
R/C performance	35% R, 38% C	23% R, 22% C
Average rise	37%	23%
Rises over 45%	92 or 32%	54 or 17%
Change after trend ends	-33%	-36%
Busted pattern performance	-29% ^a	-38%
Standard & Poor's 500 change	17%	-2%
Days to ultimate high	165	80

Note: Minus sign means decline.

^aFewer than 30 samples.

Busted pattern performance. Triple bottoms with upward breakouts in which prices move less than 5% and then drop tumble between 29% and 38%. These busted bulls make good short candidates because they are easy to spot. Short them as soon as you are confident the stock is going down.

Standard & Poor's 500 change. In a bull market, the index climbed 17%, helping lift the average rise. In a bear market, the 2% decline is weak but still restrains the upward climb after a triple bottom breakout.

Days to ultimate high. Notice that it takes twice as long to reach the ultimate high in a bull market than in a bear market, on average. Since the price rise in a bull market is not double the bear market one, the rise in a bear market must be steeper than in a bull market. This information suggests that if you trade this in a bear market, be prepared to take profits quickly. The climb is apt to be steep and quick.

Table 50.3 shows failure rates for triple bottoms. The rates start small, single digits, but climb rapidly. For example, 4% of triple bottoms in a bull market fail to rise at least 5%. This figure quadruples to 16% failing to rise at least 10% and 28% failing to climb at least 15%. Half the bull market patterns will fail to go up less than 30%, and half in a bear market will rise less than 20%.

The numbers may sound alarming but they are better than other chart patterns. Still, the results emphasize that you should trade a triple bottom in a bull market for the best average rise.

Table 50.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. It takes about a month for prices to climb from the third bottom to the breakout (the price of the highest high in the pattern). Since the bear market rise is steeper, it takes less time.

Yearly position. Most patterns have breakouts near the yearly high. In fact, they appear almost twice as often near the yearly high than the low.

Table 50.3
Failure Rates

Maximum Price Rise (%)	Bull Market	Bear Market
5 (break-even)	12 or 4%	24 or 8%
10	45 or 16%	65 or 21%
15	79 or 28%	116 or 37%
20	107 or 37%	159 or 50%
25	132 or 46%	199 or 63%
30	150 or 52%	217 or 69%
35	167 or 58%	239 or 76%
50	208 or 73%	275 or 87%
75	243 or 85%	297 or 94%
Over 75	286 or 100%	316 or 100%

Yearly position, performance. The best performance comes from triple bottoms with breakouts in a bull market in the middle of the yearly trading range. In a bear market, breakouts near the yearly low do best.

Throwbacks. A throwback occurs in almost two out of three trades, and it takes about 9 or 10 days for the stock to return to the breakout price. When a throwback occurs, performance suffers. For example, in a bull market, the average rise when a throwback happens is 34%. Without a throwback, the rise averages 41%.

Gaps. In a bull market, gaps hurt performance. That finding may surprise many traders used to trading gaps and seeing them as beneficial. In my

Table 50.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	35 days	25 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L23%, C37%, H40%	L23%, C34%, H42%
Percentage rise for each 12-month lookback period	L34%, C38%, H36%	L29%, C24%, H20%
Throwbacks	64%	61%
Average time to throwback ends	10 days	9 days
Average rise for patterns with throwback	34%	21%
Average rise for patterns without throwback	41%	26%
Performance with breakout day gap	34%	23%
Performance without breakout day gap	38%	23%
Average gap size	\$0.51	\$0.63

Table 50.5
Frequency Distribution of Days to Ultimate High

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	14%	8%	9%	6%	8%	7%	4%	3%	5%	2%	34%
Bull market	15%	4%	5%	4%	2%	5%	2%	3%	2%	2%	55%

research, the results are mixed. Some gaps hurt performance and some help. In a bear market, performance is unchanged with or without gaps.

Table 50.5 shows the time it takes prices to reach the ultimate high. Many patterns take over 70 days before they top out. At the other end of the table, 14% to 15% reach the ultimate high in the first week. Notice the spike in a bear market about day 35. If a triple bottom shows weakness a month into the trade, then consider closing out your position. That weakness may signal a trend change. The bull market shows a slight rise at day 42 (6 weeks after the breakout), when 5% of the patterns top out. That percentage may not sound like much, until you experience a flameout.

Table 50.6 shows size statistics for the triple bottom pattern.

Height. Triple bottoms are one of the few chart patterns in which short ones outperform tall ones. However, this characteristic turns up only in a bull market, and it may be due to the many small patterns I added to this study.

Width. Narrow patterns perform better than wide ones with the bear market showing a wider performance gap—24% versus 21%. I used the median length as the separator between wide and narrow.

Average formation length. Bull market patterns are wider (3 months) than bear market ones (2 months). This finding may be due to a large number

Table 50.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	34%	23%
Short pattern performance	39%	23%
Median height as a percentage of breakout price	18.66%	16.26%
Narrow pattern performance	37%	24%
Wide pattern performance	36%	21%
Median length	78 days	43 days
Average formation length	99 days	60 days
Short and narrow performance	39%	25%
Short and wide performance	38%	18%
Tall and wide performance	35%	23%
Tall and narrow performance	32%	23%

of small patterns I added to this study in a bear market. I remember deleting a few wide patterns from the weekly chart simply because they did not fit on my daily price screen without massive scrolling.

Height and width combinations. The best performance comes from the short and narrow combination for both bull and bear markets. Avoid tall and narrow ones in a bull market and short and wide triple bottoms in a bear market. They underperform.

Table 50.7 shows volume statistics for triple bottoms.

Volume trend. The results are close, but in a bull market, triple bottoms with a rising price trend tend to outperform. In a bear market, the results swap, with falling volume showing the better performance.

Volume shapes. In a bull market, triple bottoms with dome-shaped volume perform significantly better than the other shapes. In a bear market, triple bottoms with U-shaped volume do well.

Breakout volume. With triple bottoms, it seems that patterns in bull markets act one way and in bear markets, they work the other way. Triple bottoms with light breakout volume do well in a bull market, but heavy breakout volume works well in a bear market.

Average rise. I computed the 5-day average volume surrounding the second and third bottoms and then mapped performance. I found that when volume on the last bottom was below the center bottom, performance improved in a bull market but deteriorated in a bear market.

Table 50.8 shows miscellaneous statistics. I looked at the price of the lowest low in the middle (bottom 2) and last (bottom 3) valleys in the triple bottom. The best performance in a bull market (43% rise) came when the last bottom had a higher price than the middle bottom. In a bear market, that same combination resulted in the worst performance (21%).

Table 50.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	38%	22%
Falling volume trend performance	36%	23%
U-shaped volume pattern performance	32%	26%
Dome-shaped volume pattern performance	41%	22%
Neither U-shaped nor dome-shaped volume pattern performance	35%	20%
Heavy breakout volume performance	35%	24%
Light breakout volume performance	42%	20%
Average rise when bottom 3 volume is above bottom 2	35%	24%
Average rise when bottom 3 volume is below bottom 2	38%	22%

Table 50.8
Miscellaneous Statistics

Description	Bull Market	Bear Market
Average rise when bottom 3 is above bottom 2	43%	21%
Average rise when bottom 3 is equal to bottom 2	29%	25% ^a
Average rise when bottom 3 is below bottom 2	32%	25%

^aFewer than 30 samples.

If trading this pattern in a bull market, select triple bottoms with a higher third valley for the best performance.

Trading Tactics

Table 50.9 shows trading tactics for triple bottoms.

Measure rule. The measure rule predicts the minimum price move. To use it, subtract the lowest low from the highest high reached in the formation and then add the difference to the highest high. The result is the expected minimum price move. For example, consider the triple bottom shown in Figure 50.4. The lowest low occurs on the first bottom at 21.25. Price reaches the highest high during the rally from the first bottom to the second. The confirmation point is the highest high in the formation because price must rise above this level before the formation confirms as a true triple bottom. In this example, the confirmation point is 25.75. The difference between the high and the low, 4.50, is the formation height. Add the height to the confirmation point to get the target price, namely, 30.25. Prices hit the target in early July.

Table 50.9
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute formation height from highest high to lowest low in the formation. Add the height to the highest high. The result is the expected minimum price move.
Wait for confirmation	Since most triple bottom formations continue heading down, always wait for price to rise above the highest high reached in the formation (the confirmation point).
Trade the trend line	Draw a line connecting the highs. If it slopes down, buy when price closes above it.
Wait for throwback	Almost two-thirds of the formations throw back to the breakout price, so consider waiting for the throwback before investing or adding to your position.
Stop loss	Place a stop-loss order 0.10 below the lowest low. Raise your stop as prices rise.

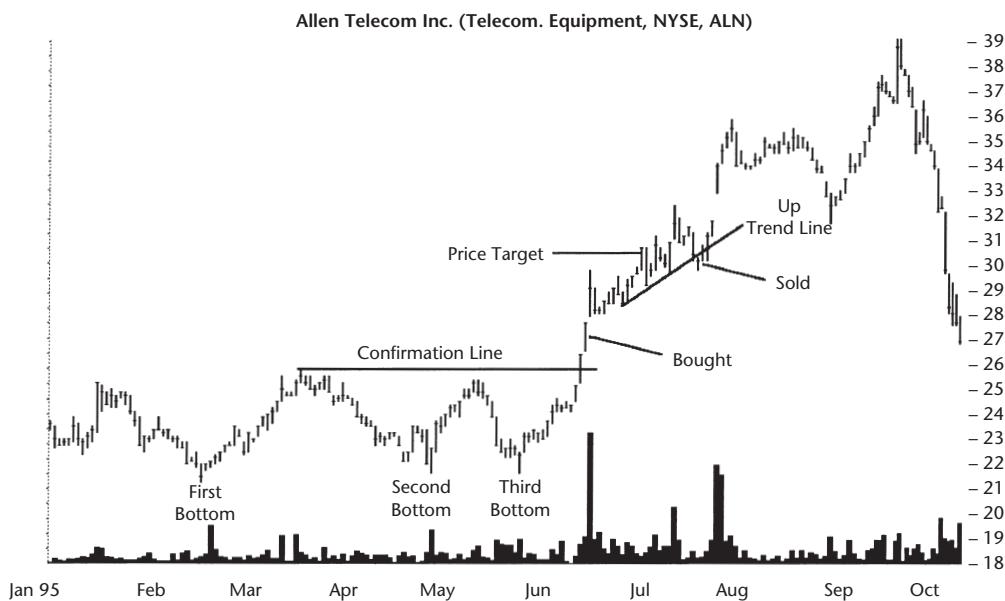


Figure 50.4 This triple bottom acts as a consolidation of the upward trend. As described in the Sample Trade, Russell rode this triple bottom up but exited too soon. Several months after he sold, the stock was trading near 16.

Wait for confirmation. When is a triple bottom not a triple bottom? When price fails to rise above the confirmation point. Always wait for confirmation. On average, it takes about a month to get there, but it is well worth the wait. The longest time it took to reach the confirmation point in the formations I looked at is 207 days—almost 7 months. Was the gain worth waiting for? Yes, prices rose by 54%!

Trade the trend line. In those patterns with a down-sloping trend line—a line joining the twin highs in the pattern—buy the stock when price closes above the trend line. That strategy will get you in sooner, lowering your risk of failure.

Wait for throwback. If you invest before the formation confirms, prices will likely resume their original trend. If the prevailing trend is down, prices will likely tumble below the support level shown by the three bottoms. At other times, prices will remain flat for an extended period (up to a year or more). Once price pierces the confirmation point, should you invest? Not necessarily. Many, but not all, formations throw back to the confirmation price level. This is perhaps not so much a throwback in the traditional sense as it is a meandering down of prices. They pause at the breakout point and move sideways for a time, gathering strength for the push upward. That pause is when you often see a 1-day downward spike that tags the confirmation price—a throwback—if it occurs within 30 days after confirmation.

At other times, prices return to the confirmation point quickly, usually in less than 2 weeks but certainly no more than a month. It is at these times that you should invest or add to your position. However, do not invest immediately. The time to jump in is once prices flip around after the throwback and start heading up again. Otherwise, you risk throwing good money after bad as prices throw back and continue moving down. Do not let me scare you. This scenario rarely happens, but it does happen.

Stop loss. If you are so unlucky as to misidentify a triple bottom or perhaps catch one that fails, then be sure to place a stop-loss order about .10 below the lowest low. The three lows mark a point of support, so you will want to be just under that point to give the stock every opportunity to rebound before being taken out.

If the decline to the stop point is too far, place your stop .10 below a nearer support zone. Raise your stop as prices rise; that way you will be cashed out at the first sign of trouble.

Sample Trade

Russell is an engineer working in the telecommunications industry. He once said that the half-life of an engineer's knowledge is 10 years. "After twenty years, there's nothing left! That's when it's time to hide from management." Before his time comes, he hopes to have a nest egg of funds accumulated from investing in stocks with which he is familiar.

He is a player, a position trader who might be in a stock for a week or two, while at other times he takes a longer view. Occasionally, his positions last for years; these are the most profitable.

He invested in the stock shown in Figure 50.4 well before the triple bottom appeared. Even though the stock climbed from his \$14 purchase price nearly a year before, seeing the triple bottom thrilled him. He believed that the formation would act as a consolidation of the upward trend. He was right. A day after the stock pierced the confirmation line, he bought more, receiving a fill at 27. His analysis suggested prices would rise to 30.25, fulfilling the measure rule. Russell believed the stock could do better and secretly hoped for more.

After the purchase he waited. As the stock climbed, he logged into his broker at the end of the trading session each day and plotted the daily price change. Over time, he was able to draw an up trend line that skirted the daily lows as the price ascended (see Figure 50.4).

He drew a second trend line from the third bottom low upward (not shown). As he extended the two lines, they intersected on July 20. On that day, price closed below both trend lines. Time to sell.

That evening, Russell phoned his broker and placed a market order to sell his holdings in the company the next day. The following day word came that

his shares traded at 30.25. Much to his surprise, he met the measure rule prediction exactly.

He knew that he had done the right thing by selling, since a trend line penetration is not something to take lightly. In this instance, however, he was wrong. The stock turned around and continued moving up. Soon, news came that earnings would be 40% above the prior year. This information sent the stock gapping up (breakaway gap), eventually reaching a high of 39.38. Four months after reaching the high, the stock was trading at 16.13.

Russell left a lot on the table getting out at 30 and watching the stock coast to 40, but the feel of green in his pocket was a whole lot better than riding the stock down to 16.

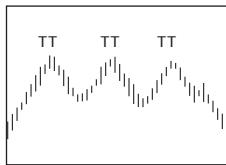
For Best Performance

The following list includes tips and observations for selecting triple bottoms that perform well. Consult the associated table for more information. Also if the triple bottom has a down-sloping trend line, buy the pattern when price closes above the trend line. The trend line is a line connecting the two highest peaks between the three valleys. When it slopes downward, you can usually buy in at a lower price than waiting for normal confirmation.

- Use the identification guidelines to help select the pattern—Table 50.1.
- Trade triple bottoms in a bull market—Table 50.2.
- Trade busted patterns, when price rises 5% then drops dramatically—Table 50.2.
- In a bear market, expect a short, steep rise—Table 50.2.
- Patterns in a bull market have lower failure rates—Table 50.3.
- Avoid triple bottoms with overhead resistance; they may throw back—Table 50.4.
- If price weakens a month after the trade, consider selling—Table 50.5.
- Select patterns that are both short and narrow—Table 50.6.
- Patterns with dome-shaped volume do well in bull markets; U-shaped do well in bear markets—Table 50.7.
- In a bull market, trade triple bottoms with a higher third valley—Table 50.8.

51

Triple Tops



RESULTS SNAPSHOT

Downward Breakouts

Appearance	Three distinct minor highs at about the same price level	
Reversal or continuation	Short-term bearish reversal	
	Bull Market	Bear Market
Performance rank	7 out of 21	12 out of 21
Break-even failure rate	10%	5%
Average decline	19%	24%
Change after trend ends	53%	46%
Volume trend	Downward	Downward
Pullbacks	61%	64%
Percentage meeting price target	40%	51%
Surprising findings	Busted patterns in a bull market rise 63%. Pullbacks hurt performance but gaps help. Tall or narrow patterns perform better than short or wide ones. Triple tops with U-shaped volume perform best. When volume surrounding the last peak is below the center peak, the triple top does well.	
See also	Broadening Formations, Right-Angled and Descending; Broadening Tops; Broadening Wedges, Descending; Head-and-Shoulders Tops; Head-and-Shoulders Tops, Complex; Triangles, Ascending	

Triple tops remind me of some mountains in New Mexico or the drumlins in upstate New York. A mountain or hill soars above a flat plain. They look odd because they stand alone. I love those mountains, but triple tops are another matter. As bearish patterns, they predict a price downturn and that is never a good omen for traders holding the stock.

The low failure rate in a bear market (5%) plus the average decline (24%) make triple tops a solid performer. As you might guess, the performance in a bull market suffers.

Surprises are many with this pattern, but I am sure you can guess what most of them are. Busted patterns perform very well, so if you see a confirmed triple top with price that drops less than 5%, buy it. The taste of an average 63% rise is positively mouthwatering in such situations. Another unusual surprise is when weak volume surrounds the last peak. For some reason, that occurrence predicts a larger decline. Since the statistics are averages, your results will vary, so be sure to use stops and prudent money management.

Tour

Figure 51.1 shows a triple top on the daily scale. The pattern reminds me of a roller coaster as prices climb the first hill. Then it is over the top to glide down the slope and up to the next high and over the third one as well. After the final high, prices decline for the intermediate term pausing at the confirmation line while deciding which route to take.

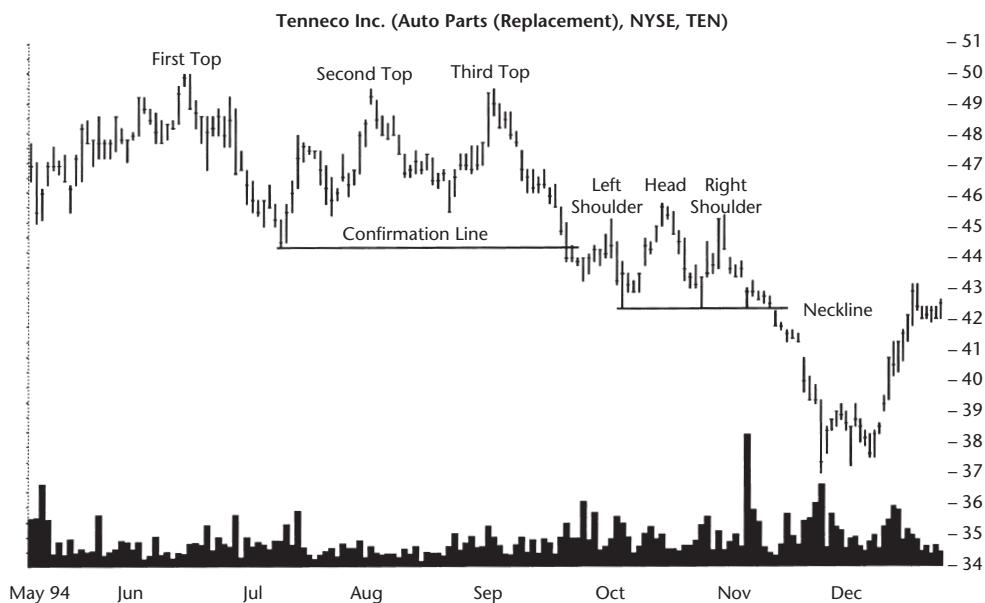


Figure 51.1 A triple top has three peaks and a pullback usually follows. A head-and-shoulders top forms at the confirmation point signaling further weakness.

A head-and-shoulders top forms, warning investors of further declines. Prices pull back to the triple top confirmation line, forming the left shoulder, peak at the head, and rise to form the right shoulder. Price piercing the neckline seals the fate of the stock. Price tumbles in a straight-line fashion until reaching a low of 37, a decline from the triple top high of 50.

The three peaks of the triple top form at about 50 and have two valleys between them. The lowest valley low marks the confirmation point, the level to which prices must decline to confirm the validity of the formation. After confirmation, prices usually pull back to the confirmation point before stumbling.

Identification Guidelines

Table 51.1 outlines identification guidelines for triple tops.

Three large distinct tops. When searching for a triple top or verifying that the three bumps on a price chart belong to the formation, look at the highest high in each peak. The peaks should be near one another in price. A center peak that towers above the other two suggests the pattern is a head-and-shoulders top. When the tops consistently inch upward, the activity suggests a broadening top. While looking at the three peaks, do not ignore the lows. The formation may be a right-angled descending broadening top or even a descending broadening wedge if the three peaks are moving down slightly in price.

Table 51.1
Identification Characteristics

Characteristic	Discussion
Three large distinct tops	Look for three minor highs, well separated and distinct. The tall peaks are often sharp spikes that contrast with more rounding-appearing valleys.
Same price	The price variation among the three tops is minor. The center top should not be significantly above the other two, otherwise it is a head-and-shoulders top. There is a tendency for smaller triple tops to be one of the broadening family of chart patterns, especially the right-angle variety, so pay attention to the price lows, too.
Downward volume trend	The volume trend is usually downward but may be hard to read. Often the volume pattern is flat except near each of the three peaks. The first peak often has the highest volume.
Confirmation point	Prices must decline below the lowest low in the formation (the confirmation point) or it is not a triple top. An up-sloping trend line drawn connecting the valley lows can also serve as confirmation.
Weekly chart	Since triple tops are usually large price formations, look at the weekly chart to help identify the longer variety.

In the case of a right-angled broadening top, you can probably make money on the triple top formation even before the broadening top breaks out. At least with a broadening formation, you can anticipate when it will be time to close out your position (do so when prices approach the lower, down-sloping, trend line).

Same price. The three peaks in a triple top usually are sharp and pointed looking, with rounded-appearing valleys in between. There are wide variations in this pattern, so do not be too critical. Make sure the three well-separated peaks are not part of the same congestion pattern. Each top should be a part of its own minor high, a distinct peak that towers above the surrounding price landscape. The price difference between the three peaks is usually minor, with the center peak often below the other two. A large price variation should exclude the pattern from consideration.

Downward volume trend. The overall volume trend is usually downward and lackluster, but varies from formation to formation. Volume on the three peaks, especially the first one, is higher than in the valleys.

Confirmation point. The three-bump pattern confirms as a triple top when price closes below the lowest low in the pattern. Without confirmation, you do not have a triple top and price is likely to continue rising. Alternatively, an up-sloping trend line drawn across the bottoms of the two valleys can also serve as confirmation. Often, this approach will allow you to enter a trade sooner.

To see what a triple top looks like, examine Figure 51.2. The three peaks are pointed, well separated, and distinct. The three minor highs are obvious and that is important in any formation. If other investors do not recognize a chart pattern for what it is, they will not try to take advantage of it. If they do not buy or sell appropriately, the pattern will fail. Chart patterns are a self-fulfilling prophecy that depend on the crowd behaving the same way.

All three peaks are at about the same price level with the center peak a bit recessed from the other two. This feature is common as quite a number (25%) of triple tops have a lower center peak.

The receding volume trend is clear in the figure with the first peak witnessing the highest volume of the three.

An interesting development in this formation is a trend line drawn below the lows (not shown but it connects points A and B on the chart). With another trend line drawn horizontally across the three tops, the formation takes on the appearance of a right-angled descending broadening top. In many triple tops, the broadening formation also appears. This occurrence does not diminish the validity of the triple top; it just makes both formations easier to trade (because you can buy or sell at the trend lines and take advantage of partial rises or declines).

Weekly chart. The larger triple tops appear on the weekly scale, and Figure 51.3 shows an example. Even though the average triple top sports a 19% to 24% decline, price occasionally falls much farther. As you can see in the chart, the triple top marks the peak in the stock. From the high of 32.94, the stock plummets to 4.75, a stomach-churning decline of 86% in 2 years.

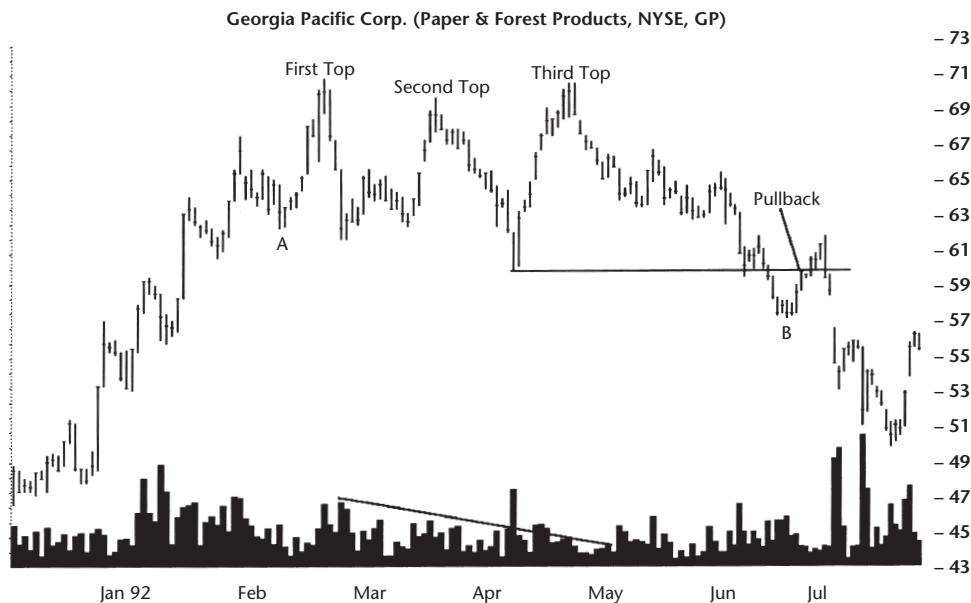


Figure 51.2 This triple top shows three distinct widely spaced tops at nearly the same price level.

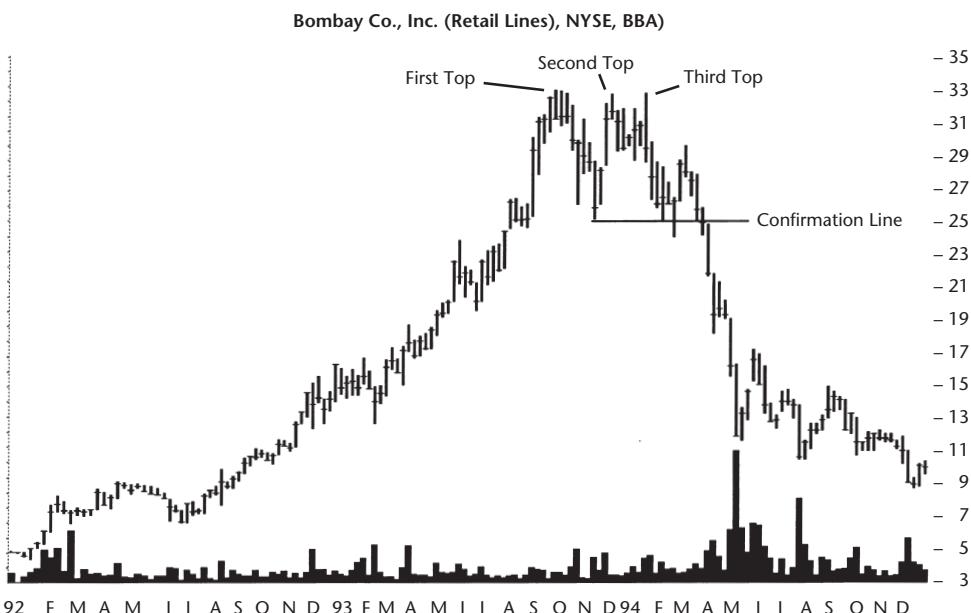


Figure 51.3 Triple top reversal on the weekly scale. The triple top marks the high point for the stock.

The chart also suggests some lessons. Sometimes the buy-and-hold strategy does not work. Whether you sold a bit early or a bit late, anything would have been better than riding the stock all the way up and all the way back down. Do not laugh; I have done it myself, but not with this stock. It is probably a mistake we all have made at one time or another and hope never to make again. Unless you use stops, you will probably make it again. You will watch all your profits evaporate as a stock declines while you continue hoping it will turn around. Then, just after you get disgusted enough to sell, prices bottom and start recovering.

Focus on Failures

The failure rate of triple tops at 10% is comfortably below the 20% maximum that I consider reliable formations to maintain. I classify a failure of a triple top to be when price reaches the confirmation point and continues moving down by less than 5% before turning around and heading meaningfully higher. This is a key point. Prices must decline to the confirmation point, the lowest low reached in the formation. If prices do not decline to that level, then the three-bump formation *is not a triple top*—it is just a collection of minor highs (or, perhaps, some other formation).

Figure 51.4 shows a typical example of a 5% failure. The three tops are distinct minor highs that form after a 2-month spurt upward. It is not surprising



Figure 51.4 This is an example of a 5% failure where prices fail to continue moving down by more than 5% before turning around. Strong industry trends were instrumental in turning around the stock.

that the stock needs a rest and decides to retrace some of its gains—a common occurrence. From the high, the stock backtracks about four points before moving up again. The lowest low is just a smidgen below the confirmation point, which validates the formation, before prices begin climbing again.

Had you sold this stock short at the confirmation point of 20.25, you should have covered your trade once prices climbed above the highest high in the formation, in this case, 23.88. This tactic would have kept losses to a rather large 18%, but that is certainly better than hoping for a decline while watching it rise to 33!

Sometimes, it is difficult to determine exactly why a stock fails to perform as expected. Often fundamentals are the key. In this case, the oil-field services sector was improving due to an increase in exploration activity and deep water drilling. In late January, the Federal Reserve cut two key interest rates by 0.25% giving hope that the health of the overall economy would improve.

On the technical front, if you draw trend lines along the three tops and the minor lows, the formation takes on the appearance of a descending broadening wedge since the three tops are at consecutively lower prices. With the wedge, it is difficult to predict in which direction the breakout will occur. The fundamentals suggest the breakout will be upward, and that is exactly what happens. The formation serves as a resting place for the stock as it gathers strength for the next up leg.

One could view the formation as the corrective phase of a measured move up formation. The price prediction of the measured move fulfills quickly when prices climb to 28.88 in late April.

Statistics

Table 51.2 shows general statistics for the triple top chart pattern.

Table 51.2
General Statistics

Description	Bull Market	Bear Market
Number of formations	278	349
Reversal (R), continuation (C)	245 R, 33 C	305 R, 44 C
R/C performance	-19% R, -19% C	-23% R, -25% C
Average decline	19%	24%
Declines over 45%	11 or 4%	23 or 7%
Change after trend ends	53%	46%
Busted pattern performance	63%	33%
Standard & Poor's 500 change	1%	-15%
Days to ultimate low	60	42

Note: Minus sign means decline.

Number of formations. I used 500 stocks from mid-1991 to 1996 as the bull market proxy and 500 stocks from 2000 to 2003 plus additional samples between those dates. I uncovered 627 triple tops.

Reversal or continuation. Since we are dealing with tops, most of the chart patterns acted as reversals of the uptrend. However, I found almost 100 that formed as a congestion area in a falling price trend. Those I call continuations because price continues lower after the breakout.

The performance difference between continuations and reversals is slight, 25% versus 23% in a bear market. A bull market shows no performance difference. Still, if you see a triple top forming in a downtrend, that will be the one to consider shorting.

Average decline. The average decline in a bear market is 24%, slightly ahead of the 19% decline in a bull market.

Declines over 45%. Bearish chart patterns never perform well in this category and the results speak for themselves. Just 7% of the bear market patterns decline more than 45% after the breakout.

Change after trend ends. Once price reaches the ultimate low, it soars between 46% and 53%. That gain may sound huge, and I often wish for such results, but it pales in comparison to other patterns that show recoveries of 60% or more.

Busted pattern performance. If you find a triple top in which price drops less than 5% before shooting upward, buy it. Chances are the rise is going to be an exceptional one. In a bull market, the rise averages 63%, but that observation comes from just 18 samples. In all likelihood, the results will shrink like cotton socks in hot water as more samples become available.

Standard & Poor's 500 change. If you compare the average decline (19%, 24%) with the market change from the breakout to the ultimate low (1%, -15%), you can see the market influence on triple top performance. A bear market helps stocks decline. This finding suggests that you short a stock in a bear market or sell a long holding before the cleaners find you.

Days to ultimate low. In a bull market, it takes about 2 months to reach the ultimate low and about 1.5 months in a bear market. Comparing the average decline in both markets, the slope of the decline must be steeper in a bear market than in a bull one. This finding emphasizes the need for stops. Without a stop, if you are not careful, your loss can grow to huge proportions quickly.

Table 51.3 shows failure rates for triple tops. Clearly, the bear market numbers are lower than the bull market ones. For example, 5% of the triple tops I looked at in a bear market failed to decline at least 5%. Almost half, 46%, failed to drop at least 20%. In a bull market, the result is even worse with 63% failing to drop at least 20%.

The table suggests you trade this pattern in a bear market. That is the time to consider shorting a stock. If you own a stock, and a confirmed triple top appears, sell it. You can always buy back into the stock once it bounces off the bottom, 20% below where it is selling now.

Table 51.3
Failure Rates

Maximum Price Decline (%)	Bull Market	Bear Market
5 (breakeven)	29 or 10%	19 or 5%
10	81 or 29%	60 or 17%
15	137 or 49%	109 or 31%
20	174 or 63%	162 or 46%
25	208 or 75%	208 or 60%
30	229 or 82%	243 or 70%
35	249 or 90%	283 or 81%
50	272 or 98%	328 or 94%
75	278 or 100%	349 or 100%
Over 75	278 or 100%	349 or 100%

Table 51.3 also says not to expect a large decline. Just 6% of the stocks in a bear market see their price cut in half (94% fail to drop 50%).

Table 51.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. It takes about a month for price to decline from the last peak to the confirmation price—the lowest low in the pattern.

Yearly position. Most triple tops have breakouts that appear in the middle of the yearly price range. The breakout, being at the bottom of the pattern, explains why few appear within a third of the yearly high.

Table 51.4
Breakout and Postbreakout Statistics

Description	Bull Market	Bear Market
Formation end to breakout	37 days	29 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L40%, C45%, H16%	L38%, C43%, H20%
Percentage decline for each 12-month lookback period	L18%, C19%, H21%	L24%, C24%, H23%
Pullbacks	61%	64%
Average time to pullback ends	10 days	12 days
Average decline for patterns with pullback	18%	23%
Average decline for patterns without pullback	21%	25%
Performance with breakout day gap	-21% ^a	-24%
Performance without breakout day gap	-19%	-23%
Average gap size	\$0.85	\$1.76

Note: Minus sign means decline.

^aFewer than 30 samples.

Yearly position, performance. In a bull market, the best performance comes from triple tops with breakouts near the yearly high. In a bear market, the worst performance comes from the same range.

Pullbacks. Pullbacks occur in almost two out of three patterns, and price takes about 11 days to return to the breakout price. When a pullback occurs, performance suffers. For example, in a bull market prices decline 18% after the breakout when a pullback is present. Without a pullback, the decline measures 21%.

Gaps. Gaps that occur on the breakout day tend to send prices down farther than breakouts without gaps. Look at the gap size: \$0.85 in a bull market and double that, \$1.76, in a bear market. That is huge! The bad news is that you must have a position in the stock before the gap in order to participate fully in the decline.

Table 51.5 shows a frequency distribution of time to the ultimate low. The first week sees the most triple tops bottom out, about 25%. In a bear market, half will reach the ultimate low by week 3. Thus, if you short a stock showing a triple top, expect a quick but sharp decline. At the other end of the table, almost a third (29%) of the triple tops in a bull market are still searching for the ultimate low after 2.5 months.

Notice the slight rise during week 7 (49 days) in a bull market. Eight percent of the patterns reach the ultimate low then, about double the surrounding weeks. If you see price showing signs of turning up 1.5 months into the trade, then close out your short position.

Table 51.6 shows size statistics.

Height. Tall patterns perform better than short ones, but the results are closer than I expected.

Width. Narrow patterns beat wide ones, but, again, the numbers are close. I use the median length to separate wide patterns from narrow ones.

Average formation length. The average triple top is 2 months long in a bear market and 3 months long in a bull market. The difference may be that I picked smaller triple tops in a bear market than in a bull one. (I selected many of the bull market patterns a number of years ago for the first edition of this *Encyclopedia*.)

Height and width combinations. The best performing combination of height and width comes from triple tops that are both tall and narrow. Avoid short and wide patterns as they perform worst.

Table 51.5
Frequency Distribution of Days to Ultimate Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market	25%	15%	10%	7%	6%	5%	4%	4%	3%	2%	19%
Bull market	24%	10%	7%	6%	3%	4%	8%	4%	2%	3%	29%

Table 51.6
Size Statistics

Description	Bull Market	Bear Market
Tall pattern performance	-20%	-24%
Short pattern performance	-19%	-23%
Median height as a percentage of breakout price	19.44%	19.41%
Narrow pattern performance	-20%	-24%
Wide pattern performance	-18%	-23%
Median length	75 days	50 days
Average formation length	95 days	66 days
Short and narrow performance	-19%	-24%
Short and wide performance	-17%	-20%
Tall and wide performance	-19%	-24%
Tall and narrow performance	-23%	-24%

Note: Minus sign means decline.

Table 51.7 shows volume statistics for triple tops.

Volume trend. If volume is any gauge, bull and bear markets act differently. In a bull market, triple tops with rising volume perform better than do those with falling volume. In a bear market, the results flip, with patterns showing falling volume outperforming.

Table 51.7
Volume Statistics

Description	Bull Market	Bear Market
Rising volume trend performance	-21%	-22%
Falling volume trend performance	-18%	-25%
U-shaped volume pattern performance	-21%	-25%
Dome-shaped volume pattern performance	-18%	-22%
Neither U-shaped nor dome-shaped volume pattern performance	-20%	-24%
Heavy breakout volume performance	-19%	-24%
Light breakout volume performance	-20%	-23%
Average decline when top 3 volume is above top 2	18%	23%
Average decline when top 3 volume is below top 2	20%	24%

Note: Minus sign means decline.

Table 51.8
Miscellaneous Statistics

Description	Bull Market	Bear Market
Average decline when top 3 is above top 2	18%	24%
Average decline when top 3 is equal to top 2	24%	20% ^a
Average decline when top 3 is below top 2	20%	23%

^aFewer than 30 samples.

Volume shapes. Triple tops with U-shaped volume tend to do well after the breakout. Avoid trading triple tops with dome-shaped volume. They perform worst.

Breakout volume. Light breakout volume helps triple tops perform in a bull market and hurts them in bear markets, but the performance difference is slight.

Average decline. Comparing the 5-day volume surrounding the last two tops, we find that when volume on the last top is below the middle one, performance improves. The numbers are close, though, so do not expect much of a difference.

Table 51.8 shows postbreakout performance when comparing the price level of the middle and last tops. In a bull market, when the two tops are at the same price, the triple top tends to show larger declines. In a bear market, that combination results in the worst performance, but samples are few. The best bear market performance comes when the last top has a higher price than the middle one. The decline averages 24%, but this percentage matches the results for *all* bear market triple tops.

Trading Tactics

Table 51.9 outlines trading tactics for triple tops.

Measure rule. Use the measure rule to help gauge how far price will decline. Begin with computing the height of the formation by subtracting the lowest low from the highest high reached in the chart pattern. Subtract the difference from the lowest low to arrive at the predicted price. The predicted price serves as the expected minimum move. Unfortunately, the measure rule for triple tops works only between 40% (bull market) and 51% (bear market) of the time, meaning that prices usually fall short of their targets.

Figure 51.5 makes the computation more clear. The lowest low of the formation occurs in late December when prices touch 17.75 briefly. The last peak harbors the highest high, 23.38. The difference, 5.63, is the formation height. Subtract the height from the lowest low to arrive at a target price

Table 51.9
Trading Tactics

Trading Tactic	Explanation
Measure rule	Compute the formation height by subtracting the lowest low from highest high in the formation. Subtract the height from the lowest low. The result is the expected minimum price move.
Wait for confirmation	Since prices after most three-top formations continue moving up, always wait for prices to close below the lowest low reached in the formation (the confirmation point). Once confirmed, prices usually continue moving lower.
Trade the trend line	Draw a trend line connecting the two valleys. If the line slopes upward, the pattern confirms when price closes below the line. Trade after pattern confirmation.
Wait for pullback	The vast majority of triple top formations have pullbacks, so if you miss the breakout, place or add to your short position once prices begin heading back down after the pullback.
Stop loss	For short positions, place a stop-loss order \$0.10 above the nearest high.

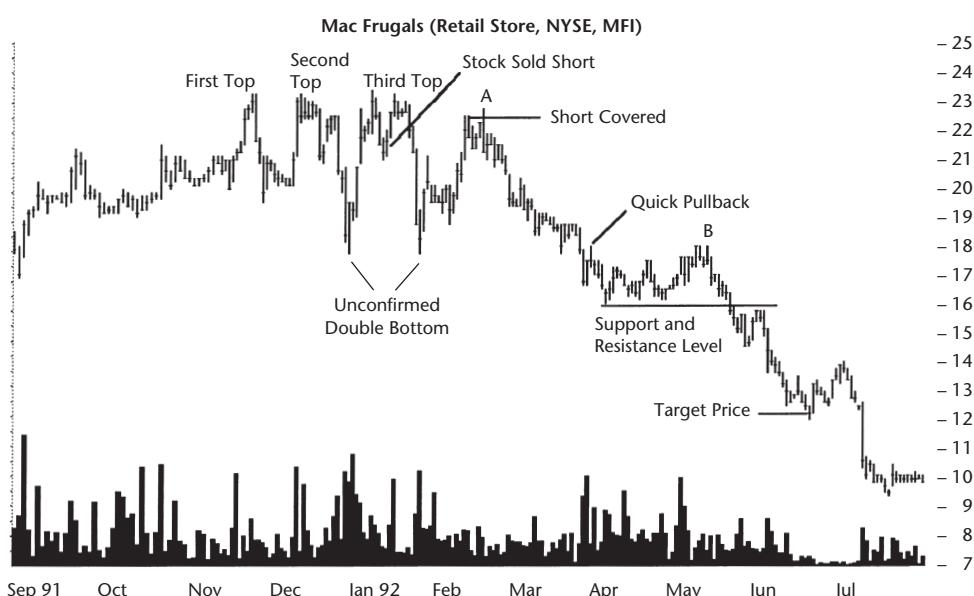


Figure 51.5 Triple top with unconfirmed double bottom. As described in the Sample Trade, Danielle sold this stock before it reached the confirmation point and then panicked at the unconfirmed double bottom. The stock eventually declined 56%. A descending scallop appears between points A and B.

of 12.12 (that is, 17.75–5.63). The figure shows price reaching the target in mid-June.

To better gauge the veracity of the result, you might look at the predicted decline in percentage terms. From the confirmation point (the lowest low) of 17.75, a 5.63 point decline is a loss of 32%. Table 51.3 indicates that less than 18% of the formations have losses over 30%. Those are terrible odds.

In such a situation, and in most cases, you should look at support levels. Prices indicate support when they decline to a level and then rebound. For example, the stock paused at \$16 during July and August 1991 (not shown in Figure 51.5). This pause created the support level where the stock again paused during April. Eventually, the stock worked through the support and tumbled to a lower support level.

Wait for confirmation. In a roaring bull market, triple tops are often deceiving. Three price bumps appear and price does not decline to the confirmation point before soaring. Thus, an important guideline in using triple tops is to wait for prices to close below the confirmation point.

Trade the trend line. Draw the trend line connecting the two valleys. If this trend line slopes upward, a trade signals when price closes below it. This method will often get you in sooner than waiting for price to close below the lowest low.

Wait for pullback. Pullbacks occur over 60% of the time, so if you miss the original breakout, you can often place your trade during the pullback. Figure 51.5 shows a quick pullback occurring just 2 days after the breakout (I define a breakout as being when price closes below the confirmation point). Just over a month later, investors have other opportunities (because price rises to the breakout point) to add to their position before the decline really begins.

Stop loss. Should the trade go against you, place a stop-loss order \$0.10 above the nearest high. Since the three tops establish a resistance zone, prices will not hit the stop order until the resistance burns through. Sometimes a fourth peak will appear before prices move down.

Sample Trade

Danielle is in charge of the family finances. To boost the return on their savings, she has taken to playing the stock market. Her first few trades were tentative but profitable. That gave her enough courage to undertake the trade featured in Figure 51.5.

She is a brilliant, anxious, high-energy person who is comfortable taking more risks than most people, so it came as no surprise when she jumped the gun and sold the stock short in early January. She wanted to maximize her gains and once prices were clearly heading down, she placed the trade and received a fill at 21.50.

The day after she shorted, the stock turned around and headed back up, making a fourth peak. Instead of covering her loss, she decided to hang on. It was a good call as prices flipped around and headed back down. Seven days later they reached the confirmation point of 17.75 but stalled.

To Danielle, it looked as though the triple top became a multiple top and later developed into an unconfirmed double bottom. Each day as prices climbed and her gains dwindled, she became more nervous holding onto her short position.

Eventually, fear overcame greed and she covered her position at 22.25, suffering a minor loss of less than a point. A week or so after she bailed out, the stock was lower and it kept moving down. Eventually, the stock bottomed out at 9.38, comfortably below the predicted price and well below her entry point at 21.50.

Danielle made two mistakes with this trade. First she did not wait for price to close below the confirmation point. Had she waited, she would have seen the false double bottom (it never confirmed as a true double bottom because price did not close above the highest high between the two bottoms).

Furthermore, she was not patient enough for the trade to work out. When a trade goes against you, most times it is wise to quickly close out a position, especially if it is a short sale where losses can be unlimited. However, there are times, such as this trade, where a bit of patience is necessary along with a properly placed stop. Since the three peaks represent a resistance zone, it is wise to place a stop just above the highest high and then wait for price to hit it. Had Danielle waited, the trade would have worked out better than her analysis predicted.

For Best Performance

The following list includes tips and observations to help select triple tops that perform better after the breakout. Consult the associated table for more information.

- Review the identification guidelines for correct selection—Table 51.1.
- Short triple tops in a bear market—Table 51.2.
- The decline in a bear market is steeper and shorter than in a bull market, so trade accordingly—Table 51.2.
- Trade busted patterns in a bull market—Table 51.2.
- Select triple tops in a bear market because they have lower failure rates—Table 51.3.
- Look for underlying support to avoid a pullback; pullbacks hurt performance—Table 51.4.
- Breakout day gaps help performance—Table 51.4.

- A quarter of the patterns bottom in the first week, so be prepared to cover a short quickly—Table 51.5.
- Select tall or narrow patterns; avoid short and wide ones—Table 51.6.
- Trade triple tops with U-shaped volume; avoid those with a dome shape—Table 51.7.
- Pick triple tops with volume surrounding the last peak below the middle peak—Table 51.7.
- In a bull market, select triple tops with the last peak at the same price as the middle one. In a bear market, look for the last top to be higher than the middle one—Table 51.8.

52

Wedges, Falling



RESULTS SNAPSHOT

Upward Breakouts

Appearance	A downward price spiral bounded by two intersecting, down-sloping trend lines	
Reversal or continuation	Short-term bullish reversal or continuation	
	Bull Market	Bear Market
Performance rank	20 out of 23	11 out of 19
Break-even failure rate	11%	11%
Average rise	32%	26%
Change after trend ends	-28%	-33%
Volume trend	Downward	Downward
Throwbacks	56%	61%
Percentage meeting price target	70%	60%
Surprising findings	Busted patterns perform well. Throwbacks hurt performance. Tall patterns perform better than short ones. Wedges with random volume shapes do well.	
Synonyms	Descending wedges	
See also	Pennants	

Downward Breakouts

Appearance	Same, but breakout is downward.
Reversal or continuation	Short-term bearish continuation

	Bull Market	Bear Market
Performance rank	17 out of 21	7 out of 21
Break-even failure rate	15%	6%
Average decline	15%	24%
Change after trend ends	51%	52%
Volume trend	Downward	Downward
Pullbacks	69%	72%
Percentage meeting price target	30%	36%
Surprising findings	Wedges that act as reversals of the price trend perform better than continuations. Tall or wide patterns perform better than short or narrow ones.	
Synonyms	Same as for upward breakouts	
See also	Same as for upward breakouts	

The Results Snapshot shows the important numbers for falling wedges. When compared to other chart patterns, the failure rate is a bit high except for downward breakouts in a bear market. The average rise or decline is also unexciting. Coupled with their rare appearance and the difficulty in spotting these patterns in the bush, falling wedges are beasts you probably will not want to trade. Still, they can come in as handy as metric wrenches.

Concerning surprises, the lineup shows the typical suspects. I found an unusually high number of wedges with a random volume shape. They tended to perform well when the breakout was upward. Busted patterns also performed well, but the sample size was small, leading me to question the results.

Finally, I did a frequency distribution of the breakout distance to the wedge apex and found that the best performers in a bull market had upward breakouts 55% to 80% of the way to the apex, with rises averaging 37%. Remember that even though a falling wedge may have a breakout 60% of the way to the apex, that does not mean you will see a 37% rise. Since we are dealing with probabilities, anything can happen, but the statistics suggest a more powerful move.

The percentage meeting the price target (that is, the measure rule) for upward breakouts uses the highest high in the wedge for the target—an easy objective. For downward breakouts, I use the formation height subtracted from the breakout price. That method is why downward breakouts rarely hit their targets but upward breakouts do better.

Tour

Figure 52.1 shows a falling wedge. Prices tagged a new low in late July and bounced upward. The upward momentum did not carry quite as far as before.

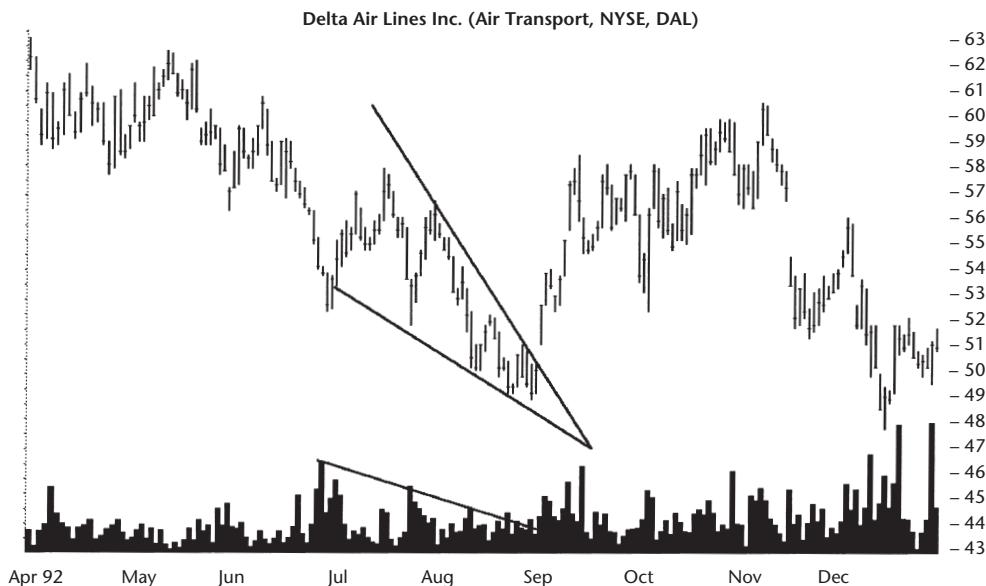


Figure 52.1 A falling wedge bounded by two down-sloping trend lines.

Another up and down oscillation occurred during mid-August just before prices finally reached a new low.

If you draw a trend line along the bottom of the minor lows and another along the tops, you see the familiar shape of a falling wedge. Falling wedges are rare formations that have price movements bounded by two down-sloping and converging trend lines. When drawn on the chart, the picture looks like a wedge tilted downward.

Once prices break out upward, they rise and quickly climb above the top of the formation. Many times prices continue moving up.

Identification Guidelines

Table 52.1 shows identification guidelines, of which there are few.

Two down-sloping trend lines. As mentioned before, two trend lines outline the price action. Both trend lines slope downward, with the top trend line having a steeper slope than the bottom one. Eventually, the two trend lines intersect at the wedge apex. You can see this in the wedge pictured in Figure 52.2. This wedge forms as part of a consolidation pattern in an uptrend. Prices oscillate from one trend line to the other several times before breaking out of the narrowing price pattern in mid-June.

Multiple touches. I usually regard five touches as the minimum necessary to safeguard a good formation. The reason for the multiple touches is that the price pattern creates several minor highs and minor lows, each succeeding one narrower than the last. Having a five-touch minimum prevents a price pattern that resembles a rise and gradual decline from being labeled as a wedge.

Table 52.1
Identification Characteristics

Characteristic	Discussion
Two down-sloping trend lines	Draw two trend lines, one along the tops and one along the bottoms. The trend lines must both slope downward and eventually intersect.
Multiple touches	Most formations have at least five touches, three along one side and two along the other. Be skeptical of formations with fewer than five touches.
Three-week minimum	A falling wedge has a minimum duration of 3 weeks. Anything less is probably a pennant. Formations rarely exceed 4 months long.
Volume trend	Volume usually trends downward until the breakout.

There needs to be several, opposing, touches of the trend line as prices progress through the formation. For example, Figure 52.2 shows six touches of the trend lines, five of which occur on the opposite side of the previous touch.

The minor highs and lows are descending even as they narrow. Down-sloping trend lines outlining the minor highs and lows are another key to correct identification of a falling wedge. Avoid a horizontal or near horizontal bottom trend line as the formation is most likely a descending triangle. For a falling wedge, both trend lines *must* slope downward.

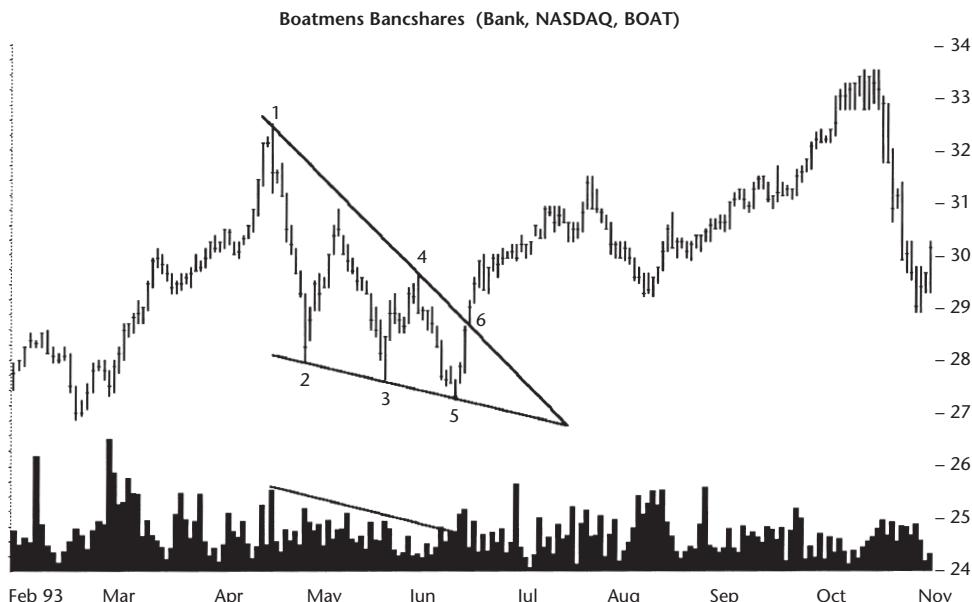


Figure 52.2 A falling wedge with six trend-line touches. Several alternating touches of the trend lines are needed to form a reliable falling wedge.

Three-week minimum. Taken together, the wedge should have a minimum duration of 3 weeks and seldom does it last over 4 or 5 months. The formations in this study, for example, have durations from 3 weeks to 1 year. Durations shorter than 3 weeks are probably pennants.

Volume trend. The volume trend should be downward. This is not an inviolate rule; it is only a guideline that usually rings true. For this study, 7 out of every 10 formations show a downward volume pattern.

Once price pierces the upper trendline, it continues higher. Figure 52.2 shows price staging a breakout in mid-June and reaching the ultimate high in early October. The rise, at 17% from the breakout, is well below the average rise.

Why do falling wedges act as they do? About half of the formations act as consolidations of the prevailing trend. Like the wedge shown in Figure 52.2, prices are heading upward when they run into turbulence. Investors pause from their buying spree and sit on the sidelines. Price retraces its rise by creating the wedge, oscillating in ever-narrowing spirals, until the buying enthusiasm resumes. Volume shows this lack of enthusiasm as it recedes. When buying momentum resumes, price and volume shoot upward again after the breakout.

Think of a falling wedge not as a pattern of weakness, but one of strength, a spring winding tighter and tighter. As a spring tightens, it shrinks, and so do price and volume in the falling wedge. During a breakout, the pent-up force releases, and price bursts through the formation boundary and zooms upward.

Focus on Failures

Like many formations, falling wedges suffer from 5% failures (see Figure 52.3). The falling wedge acts as a reversal of the upward trend. Although not shown on the chart, price began rising in early December 1994. During creation of the chart pattern, price moved lower in a narrowing channel. After the breakout, price climbed and reached a high of 45.38, less than 5% above the breakout price of 43.25. From the high, price headed down and reached the ultimate low in late October at a price of 36.38. The inability of price to continue rising more than 5% after the breakout constituted a 5% failure.

The causes of 5% failures can be many. Overhead resistance, as in this case, blocked the upward rise, so be sure to check for resistance before trading. For downward breakouts, look for nearby underlying support that may halt a decline.

Other causes may include a sharp drop in the stock market—that can keep an industry down for months (think of airline stocks after the tragedy of September 11, 2001). Certainly, a switch from a bull market to a bear market will tend to keep high-flying stocks cruising at a lower altitude, but even a short decline in the market can cause havoc.

Rising commodity prices affect the stock market, too. For example, natural gas and oil prices affect airlines, chemicals, utilities, oil companies, oil service companies, refiners, and so on. The Federal Reserve raising interest

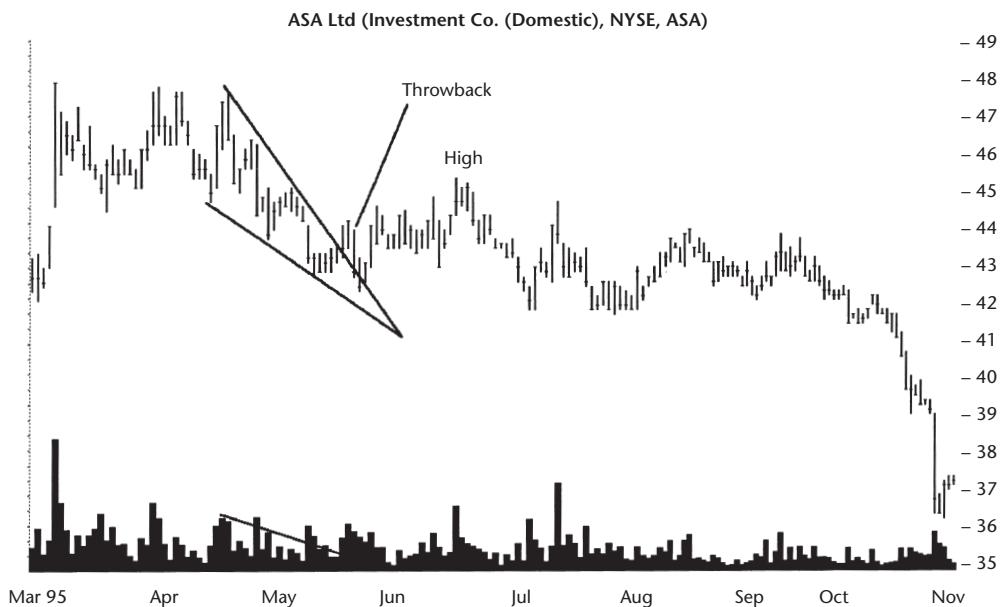


Figure 52.3 An example of a falling wedge 5% failure. Price does not move more than 5% above the breakout point before heading down again.

rates to slow the economy may push it into a recession. The prospect of rising rates is never a good omen for stocks.

What happens after you buy the stock is irrelevant. What is important is how you handle it. Do you cash out quickly, savoring a short-term profit? Do you hold on for the long term and weather the loss? The answer to these questions you should know before trading. Switching your attitude to a long-term holding as price drops in a short-term trade is a game best left to the amateurs. They are the ones that ride a position down and sell just before it bottoms.

Statistics

Table 52.2 shows general statistics for falling wedges.

Number of formations. I searched 500 stocks from mid-1991 to mid-1996 and another 500 with varying durations from 1999 to mid-2004. I included both upward and downward breakouts because I wanted to know how often wedges broke out downward (falling wedges are supposed to go up after the breakout). I found 542, suggesting that wedges are rare considering I looked at 10 years of price data.

Reversal or continuation. Wedges split almost evenly between reversals and continuations of the price trend. Upward breakouts tend to act as reversals, and continuations take a slight lead in downward breakouts. Reversals tend to outperform, though.

Table 52.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	245	126	93	78
Reversal (R), continuation (C)	124 R, 121 C	64 R, 62 C	48 R, 45 C	29 R, 49 C
R/C performance	32% R, 32% C	27% R, 25% C	-15% R, -14% C	-25% R, -23% C
Average rise or decline	32%	26%	-15%	-24%
Rises or declines over 45%	80 or 33%	30 or 24%	1 or 1%	10 or 13%
Change after trend ends	-28%	-33%	53%	52%
Busted pattern performance	38% ^a	52% ^a	-15% ^a	-20% ^a
Standard & Poor's 500 change	8%	-2%	1%	-11%
Days to ultimate high or low	116	77	43	32

Note: Minus sign means decline.

^aFewer than 30 samples.

Average rise or decline. The upward breakout numbers are unexciting. In fact, they are below the average rise for many other bullish chart patterns. Downward breakouts only excel in a bear market (24% decline), but that percentage ties the average of all chart pattern types.

Rises or declines over 45%. Upward breakouts do well with 24% and 33% of falling wedges rising more than 45% after the breakout (bear and bull market, respectively). Downward breakouts always have a tougher time declining that far, but bear markets show 13% managing to decline by at least 45%.

Change after trend ends. Once price reaches its ultimate high or low, the price trend reverses. After an upward breakout, price declines between 28% and 33%. After a downward breakout, the rise is a mouthwatering 52% to 53%, on average. Still, that finding is below the 60% we have seen for other chart patterns.

Busted pattern performance. If price moves less than 5% after the breakout, look for price to shoot in the opposite direction. Trade that new direction, especially if the original breakout is downward. The resulting rise of 38% to 52% can be quite profitable.

Standard & Poor's 500 change. Notice the effect the market has on the postbreakout rise or decline. When the market and breakout direction agree, the average rise or decline tends to be larger than the countertrend moves. For example, the market climbed by 8% and prices climbed 32% after a breakout from a falling wedge. In a bear market, the index dropped 2% and wedges having upward breakouts averaged a 26% rise.

Days to ultimate high or low. The rise in a bull market is slower than the decline in a bear market. You can see this feature by comparing the bear market numbers. Upward breakouts take 77 days to rise 26%, but bear markets take 32 days—less than half as long—to drop almost as far, 24%. Thus, bear markets are steeper and reach the ultimate low quicker than bull markets climb to the ultimate high.

Table 52.3 shows failure rates for falling wedges. The best performance comes from wedges in a bear market with downward breakouts. They have the lowest failure rates but only for small moves. Once price moves over 15%, then wedges in the bull market (both breakout directions) outperform.

For example, 50% of the wedges with downward breakouts in a bear market will drop less than 20%, but 44% of the wedges with upward breakouts in a bull market will fail to rise at least 20%. Thus, if you expect a large move, trade wedges in a bull market with upward breakouts because they have lower failure rates.

Here is another way to use Table 52.3. Suppose you find a falling wedge that peaks at 15 and spirals down to 10, where price breaks out upward in a bull market. Since the measure rule says to expect a climb back up to the top of the wedge, what are the chances of that happening? A move from 10 to 15 is 50%, and the table shows that 71% fail to climb that far. Thus, the measure rule is probably wrong, and price is unlikely to reach the top of the pattern before tumbling at least 20%.

Table 52.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. The time from the formation end to the breakout for this pattern is simply a delay imposed by the program I use to draw the patterns. Ignore the numbers. I show them only for completeness.

Table 52.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	27 or 11%	14 or 11%	14 or 15%	5 or 6%
10	57 or 23%	32 or 25%	35 or 38%	16 or 21%
15	88 or 36%	51 or 40%	58 or 62%	27 or 35%
20	109 or 44%	60 or 48%	66 or 71%	39 or 50%
25	124 or 51%	69 or 55%	73 or 78%	48 or 62%
30	133 or 54%	81 or 64%	82 or 88%	54 or 69%
35	147 or 60%	88 or 70%	88 or 95%	58 or 74%
50	173 or 71%	100 or 79%	92 or 99%	71 or 91%
75	203 or 83%	116 or 92%	93 or 100%	78 or 100%
Over 75	245 or 100%	126 or 100%	93 or 100%	78 or 100%

Table 52.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	4 days	3 days	4 days	4 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L45%, C32%, H23%	L51%, C29%, H20%	L56%, C28%, H16%	L59%, C35%, H6%
Percentage rise/decline for each 12-month lookback period	L37%, C30%, H27%	L25%, C31%, H19% ^a	L15%, C16% ^a , H11% ^a	L25%, C21% ^a , H27% ^a
Throwbacks/pullbacks	56%	61%	69%	72%
Average time to throwback/pullback ends	10 days	9 days	9 days	8 days
Average rise/decline for patterns with throwback/pullback	24%	21%	-15%	-21%
Average rise/decline for patterns without throwback/pullback	43%	36%	-14% ^a	-28%
Performance with breakout gap	39%	23% ^a	-18% ^a	-24%
Performance without breakout gap	31%	27%	-15%	-24%
Average gap size	\$0.25	\$0.26	\$0.54	\$0.87
Breakout distance to apex	57%	56%	59%	56%

Note: Minus sign means decline.

^aFewer than 30 samples.

Yearly position. Most of the time, falling wedges will have their breakouts near the yearly low. Rarely will you see a falling wedge with a breakout near the yearly high.

Yearly position, performance. The numbers for this row have no consistency. The sample sizes are too small to make any definite conclusions, but the middle of the yearly price range seems to work well for countertrend moves (wedges in a bear market, up breakout and bull market, down breakout).

Throwbacks and pullbacks. In all cases but one, throwbacks and pullbacks hurt performance when they occur. The lone holdout is from wedges in a bull market with downward breakouts. They do better after a pullback, but the sample size is small. Before trading, look for overhead resistance and underlying support. The location of those will tell you if the reward outweighs the risk of a trade.

Look at the performance difference between the two rise/decline rows. For example, in a bull market, wedges with throwbacks rise just 24%. Without a throwback, the rise is 43%. Try to pick wedges that are unlikely to throw

back or pull back (that is, they have no nearby overhead resistance or underlying support).

Gaps. Wedges in bull markets do better when a price gap appears on the breakout day. Wedges with upward breakouts in a bear market do better without gaps. A contradiction? Many analysts will tell you that gaps improve performance, but I have found mixed results like those just cited.

The gap size, in the majority of chart patterns, is larger for downward breakouts than upward ones. Why this is the case is unknown, but you should factor that information into your short trade. While it is better to short a stock before the gap, can you still make money shorting after a gap occurs or does the gap represent a large portion of the decline? My personal opinion is that shorting a stock does not yield large gains most of the time, and having a gap chew up some of it even before you trade suggests a more risky approach.

Apex distance. Where the breakout occurs is nearly the same across the table: 56% to 59% of the way to the apex. As I mentioned earlier, the most powerful upward breakouts in a bull market (only) occur between 55% and 80% of the way to the apex. Those falling within that range have rises that average 37%. I did not measure the other variations of market conditions and breakout directions because they rarely occur.

Table 52.5 shows a frequency distribution of time to the ultimate high or low. Notice how quickly prices reach the ultimate high or low. In 2 weeks, over half the wedges with downward breakouts have bottomed. In 3 weeks, 65% of those in a bear market have hit the ultimate low. At the other end of the scale, between a quarter and a third of the wedges with upward breakouts are still looking for the ultimate high after 2.5 months.

These findings suggest two things. First, be prepared to take profits quickly if you short a wedge with a downward breakout. Second, be patient with wedges with upward breakouts. You still need to be careful, but give price room to move up in the usual rise, retrace fashion.

Table 52.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	30%	7%	4%	3%	6%	6%	7%	2%	5%	1%	29%
Bull market, up breakout	20%	9%	7%	7%	4%	3%	3%	4%	4%	2%	36%
Bear market, down breakout	32%	19%	14%	5%	5%	4%	1%	0%	4%	3%	13%
Bull market, down breakout	44%	11%	4%	5%	6%	4%	1%	1%	1%	1%	20%

Table 52.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Tall pattern performance	41%	34%	15%	25%
Short pattern performance	27%	20%	14%	23%
Median height as a percentage of breakout price	17.75%	21.88%	16.87%	24.22%
Narrow pattern performance	32%	23%	-14%	-22%
Wide pattern performance	32%	29%	-15%	-26%
Median length	36 days	33 days	42 days	40 days
Average formation length	43 days	40 days	49 days	53 days
Short and narrow performance	29%	20%	-13%	-22% ^a
Short and wide performance	24%	21% ^a	-18% ^a	-24% ^a
Tall and wide performance	40%	35%	-14%	-27% ^a
Tall and narrow performance	41%	33% ^a	-17% ^a	-22% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 52.6 shows statistics related to size.

Height. Tall patterns perform better than short ones, regardless of market conditions or breakout directions.

Width. Wide patterns perform equal to or better than narrow ones. This finding would be a blowout if it were not for wedges with upward breakouts in a bull market. They show no performance difference. For reference, I used the median length to determine whether a wedge was narrow or wide.

Average formation length. I used a minimum wedge length of 3 weeks with no upper limit. However, it is rare for wedges to be longer than 4 months. In my study of 542 patterns, the average length was less than 2 months.

Height and width combinations. If I had more samples, I feel confident that wedges both tall and wide would outperform, but I have been fooled before. Just because the height or width characteristic does well by itself does not guarantee good performance when combined. What we can say from the numbers is that you should avoid short wedges.

Table 52.7 shows volume-related statistics.

Volume trend. Wedges with breakouts that follow the market trend (upward breakouts in a bull market or downward breakouts in a bear market) do better with a rising volume trend from the start of the pattern to the breakout. Countertrend patterns do better with falling volume.

Table 52.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Rising volume trend performance	34%	25%	-12% ^a	-26% ^a
Falling volume trend performance	32%	26%	-15%	-22%
U-shaped volume pattern performance	31%	26% ^a	-14% ^a	-26% ^a
Dome-shaped volume pattern performance	31%	19%	-15%	-22%
Neither U-shaped nor dome-shaped volume pattern performance	36%	32%	-15%	-23% ^a
Heavy breakout volume performance	36%	28%	-15%	-25%
Light breakout volume performance	28%	23%	-14% ^a	-20% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Volume shapes. Falling wedges with upward breakouts and random volume shapes outperform the other shapes. Downward breakouts are mixed and additional samples might help determine a winner.

Breakout volume. In all cases, volume on the breakout day that is heavier than the prior 30-day average suggests a wedge that will do well. Light breakout volume suggests under performance.

Trading Tactics

Table 52.8 shows trading tactics for falling wedges.

Measure rule. For upward breakouts, the target price is the highest high in the formation. Prices reach that 70% of the time in a bull market and 60% of the time in a bear market. Figure 52.4 shows an example.

The highest price is just as the formation starts in early June at 48.63, and it becomes the target price. After the breakout, price hesitates and attempts a throwback to the formation trend line, but cannot quite reach it. After that, it is straight up. Price reaches the target in early August. The old high is a place of resistance and it takes about 2 weeks before price is able to push decidedly above that level. Price moves higher until hitting 51 before stumbling and entering an extended downtrend.

For downward breakouts, I used the formation height subtracted from the breakout price to compute a target. For example, the falling wedge shown in Figure 52.4 has a high of 48.63 and a low of 44.38. The height is the differ-

Table 52.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	For upward breakouts, the highest high in the wedge is the price target. For downward breakouts, use the formation height subtracted from the breakout price as the target.
Buy after breakout	Since price can break out in any direction, wait for a close outside the trend line before taking a position.
Buy after throwback or pullback	If you miss the breakout, trade the throwback or pullback. Trade when price resumes moving in the breakout direction.
Watch for dip	A substantial number of wedges break out downward but turn up and make a large rise.

ence between the two, or 4.25. If we assume that a downward breakout occurs at the low price in the pattern, that would give a target of 40.13 (or 44.38–4.25). A 10% decline sounds reasonable.

Buy after breakout. Two out of every three (68%) wedges break out upward, but you may stumble upon one that breaks out downward. Wait for price to close outside the trend-line boundary to signal the breakout. Only then should you trade the wedge.

Buy after throwback or pullback. Pullbacks are more likely than throwbacks to occur (about 70% of the time versus 58%). The best performance comes if a throwback or pullback does not occur. Search for overhead resistance or underlying support before trading.

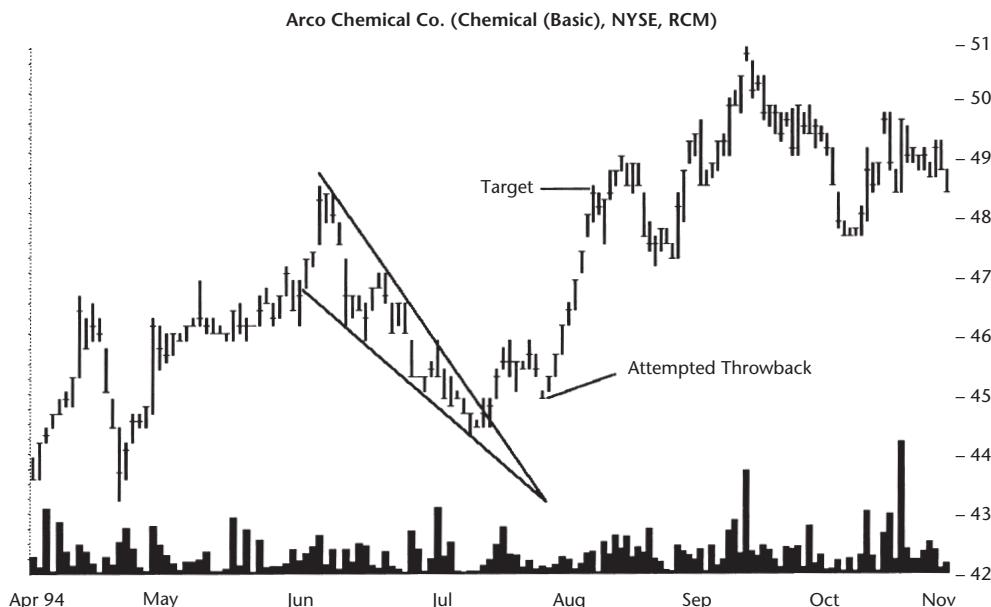


Figure 52.4 The highest price in the formation becomes the target price to which the stock will climb at a minimum.

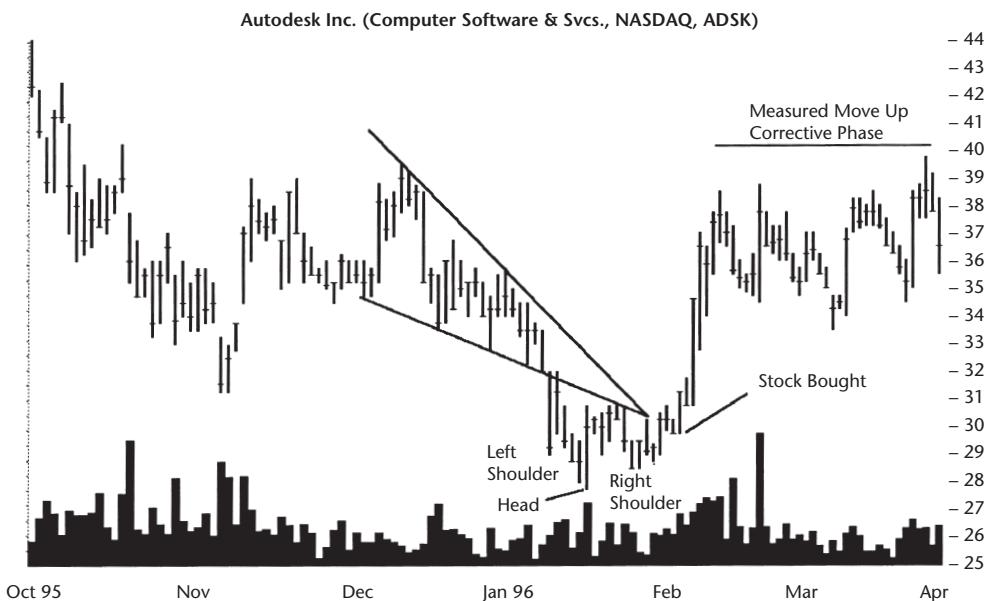


Figure 52.5 More than one-fourth of falling wedges drop below the bottom trend line and then quickly turn up and head higher. A small head-and-shoulders bottom appears as prices swing around the apex.

If the wedge throws back or pulls back, you can add to your position or put on a new one. Do so only after the throwback or pullback completes. By that, I mean wait for price to resume rising (after a throwback) or falling (pull-back). In some cases, price continues moving in the adverse direction.

Watch for dip. As I was researching this formation, I noticed an interesting quirk. Sometimes prices drop below the bottom trend line, circle around, then head up. Figure 52.5 shows an example of this behavior. You can see in the figure that in early January, prices break out downward, circle around, and then move higher. In late April, prices rise to 44.25, well above the low of 27.75.

Sometimes the downward breakout takes the form of a premature downward breakout. Prices might drop below the trend line for a few days and then reenter the formation only to zoom out the other side and stage an upward breakout. In either case, the real action is upward. Over a quarter (27%) of all falling wedges show this momentary downward spin.

Sample Trade

Clint is the CEO of a small company that specializes in software for chambers of commerce. It is a cut-throat business because market growth is limited. The only way to increase revenue is to take business away from a competitor. Once a company entrenches itself with a chamber, it is almost impossible to pry it

loose. But Clint has had some success because of the breadth of his offerings and some skilled marketing ploys.

When Clint is not worrying about his business or pitching his wares to a prospective customer, he plays the stock market hoping to make enough extra income to someday buy out his closest competitor. He added multimedia to his demo and that is what alerted him to the company shown in Figure 52.5.

Clint watched the stock stumble and then saw the falling wedge form. He hoped that the new chart pattern marked the limit of the downward move and that he could buy in at a good price with a mouthwatering chance of prices rising to the old high.

When the stock punched through the bottom wedge trend line, he waited to see what price would do next. It curled around and made a mini head-and-shoulders bottom. He penciled in a neckline joining the rises between the two shoulders, following the slope of the lower wedge trend line.

Once price pushed above the neckline and above the wedge apex, he placed an order with his broker and received a fill at 30. Clint's timing was excellent. Two days after he bought, prices were already in the mid-thirties and climbing. He saw prices go horizontal in mid-February through March and wondered if this were the corrective phase of a measured move up formation. That is the way he decided to play it.

The base of the measured move was at the head, 27.75, and the top of the corrective phase was at 38.50. The height was the difference between the two or 10.75. Projecting the height upward from the corrective phase bottom of 33.50 gave him a target of 44.25. He phoned his broker and placed a limit order to sell his holdings at that price.

In mid-April the stock left the corrective phase and started climbing again on the second leg up. In late April, an e-mail message from his broker told him price reached his target and the stock sold at 44.25. In the days that followed, he smiled at his luck. Not only did he hit the high exactly, but the stock tumbled below 30 by the start of July.

For Best Performance

The following list includes tips and observations to help select falling wedges that perform better after the breakout. Consult the associated table for more information.

- Review the identification guidelines for correct selection—Table 52.1.
- Wedges acting as reversals perform better than continuations of the price trend—Table 52.2.
- Trade with the market trend: upward breakouts in bull markets and downward breakouts in bear markets—Table 52.2.

- Bear markets decline faster than bull markets rise, so be prepared to take profits quickly after a downward breakout in a bear market—Table 52.2.
- Trade busted patterns in which price declines less than 5% after the breakout then starts moving up—Table 52.2.
- Wedges with downward breakouts in a bear market have the lowest failure rates, but for larger moves, wedges with upward breakouts do better—Table 52.3.
- Throwbacks and pullbacks usually hurt performance, so avoid overhead resistance or underlying support—Table 52.4.
- Gaps in a bull market help wedge performance—Table 52.4.
- Expect the breakout to occur just over halfway to the apex—Table 52.4.
- For wedges with downward breakouts, expect to take profits quickly; be more patient with upward breakouts—Table 52.5.
- Select tall or wide patterns; avoid short patterns—Table 52.6.
- Wedges with breakouts in the market direction do better with rising volume trends; countertrend wedges do well with falling volume—Table 52.7.
- Select wedges with heavy breakout volume—Table 52.7.

53

Wedges, Rising



RESULTS SNAPSHOT

Upward Breakouts

Appearance	An upward price spiral bounded by two intersecting, up-sloping trend lines	
Reversal or continuation	Short-term bullish continuation	
	Bull Market	Bear Market
Performance rank	18 out of 23	17 out of 19
Break-even failure rate	8%	14%
Average rise	28%	17%
Change after trend ends	-30%	-35%
Volume trend	Downward	Downward
Throwbacks	73%	66%
Percentage meeting price target	58%	33%
Surprising findings	Busted patterns perform well. Wide patterns perform better than narrow ones. Wedges with a rising volume trend or heavy breakout volume do well.	
Synonyms	Ascending wedges	
See also	Pennants	

Downward Breakouts

Appearance	Same, but breakout is downward
Reversal or continuation	Short-term bearish reversal

	Bull Market	Bear Market
Performance rank	20 out of 21	21 out of 21
Break-even failure rate	24%	15%
Average decline	14%	20%
Change after trend ends	53%	36%
Volume trend	Downward	Downward
Pullbacks	63%	63%
Percentage meeting price target	46%	40%
Surprising findings	Busted patterns perform well. Pullbacks hurt performance. Tall patterns perform better than short ones.	
Synonyms	Same as for upward breakouts	
See also	Same as for upward breakouts	

I received an e-mail asking if the S&P 500 index was making a rising wedge beginning in December 2002. I pulled up the chart and, sure enough, the wedge was as plain as day and almost a year long. In my daily review of stock charts, I missed finding this one. That is the major problem with wedges, whether rising or falling. You cannot find them. Not only are they rare, but also their spiraling price action seems hidden in a historical price series. A few stand out and shout “rising wedge,” like the ones shown in the figures accompanying this chapter, but most remain hidden like a raindrop joining a pond.

The Results Snapshot gives you the bad news. Rising wedges are lousy performers. In all market conditions and breakout directions, the average rise or decline is below the average for all other chart patterns. The failure rates, most of which are double digits, are higher than I like to see and one even goes above the 20% maximum I allow for well-performing patterns.

Are there no redeeming qualities? Busted patterns perform well, beating the average rise or decline posted by all rising wedges. So, if you see price nipping outside of the wedge trend line that then returns and makes a breakout in the opposite direction, it might be worth a closer look.

Perhaps the most surprising thing about rising wedges is that the usual surprises do not apply. For example, tall patterns perform better than short ones, but that is only true for downward breakouts from wedges. Throwbacks and pullbacks usually hurt performance, but that is only true for wedge pullbacks (downward breakouts).

Tour

Figure 53.1 shows an example of a rising wedge. For years, the stock moved in a nearly horizontal trading range between about 25 and 31. The rising wedge

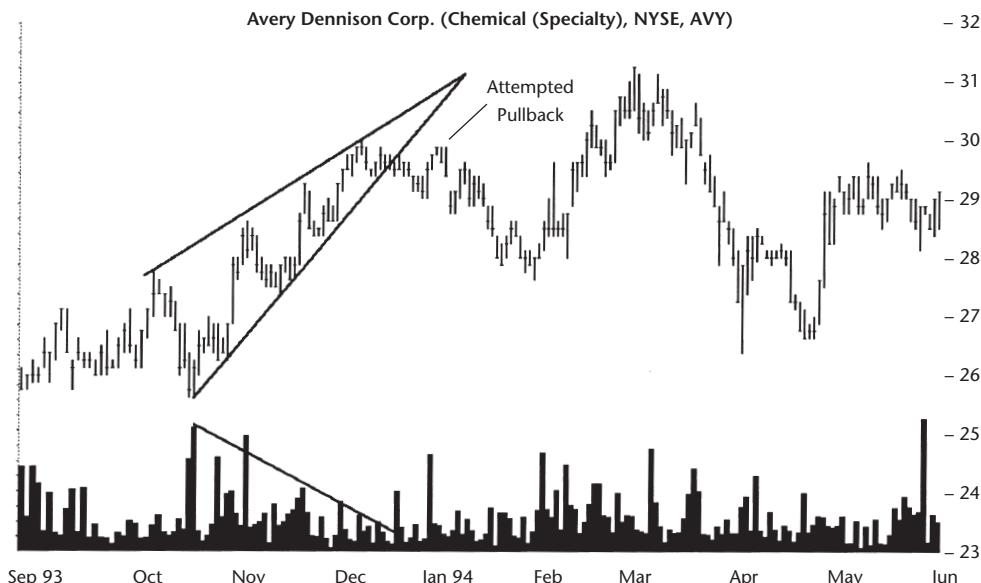


Figure 53.1 A rising wedge with two up-sloping trend lines. The volume trend usually slopes downward.

chart pattern formed near the bottom of that range. Prices came off the prior high, rounded about, and headed up in October.

It was not clear from the chart pattern until well into the formation that a rising wedge was forming. The side-to-side oscillations bounded by the two rising trend lines gave a clue to the outcome. The receding volume trend bolstered the case that the pattern was indeed a rising wedge.

During mid-December, price did not break down out of the formation so much as just meander lower. There was high volume on December 16, which probably marked the actual breakout, but it only lasted 1 day.

Price attempted a pullback to the lower formation trend line but did not quite make it. Price moved lower, recovered to post a new high, and then withdrew to make another minor low during April. The April low marked the beginning of a new uptrend that lasted beyond the end of this study in mid-1996. By that time, the stock reached 58.63.

Identification Guidelines

Rising and falling wedges are among the most difficult formations to identify. However, there are some guidelines that can make identification easier and Table 53.1 lists them.

Two up-sloping trend lines. Refer to the rising wedges in Figure 53.2 as I discuss the guidelines. You probably first notice the two up-sloping trend lines. Both lines must slope upward and no near-horizontal trend lines are allowed (a horizontal top trend line indicates an ascending triangle).

Table 53.1
Identification Characteristics

Characteristic	Discussion
Two up-sloping trend lines	Draw two trend lines, one along the minor highs and one along the minor lows. The trend lines must both slope upward and eventually intersect.
Multiple touches	Well-formed rising wedges have multiple touches of the two trend lines. Be skeptical of wedges having fewer than five touches (three on one side and two on the other).
Three-week minimum	A rising wedge has a minimum duration of 3 weeks. Anything less is a pennant. Formations rarely exceed 3 or 4 months long.
Volume trend	Volume usually trends downward throughout the formation.

Price moves upward, forming higher highs and higher lows, but two trend lines bound the price action. Rarely does price move outside the two trend lines until the final breakout.

Multiple touches. A well-formed rising wedge has multiple touches of the trend-line boundaries. Figure 53.2 shows the touches labeled 1 through 5. Fewer than five touches, three on one side and two on the other, should cast the formation in a dim light. It might not be a rising wedge at all.

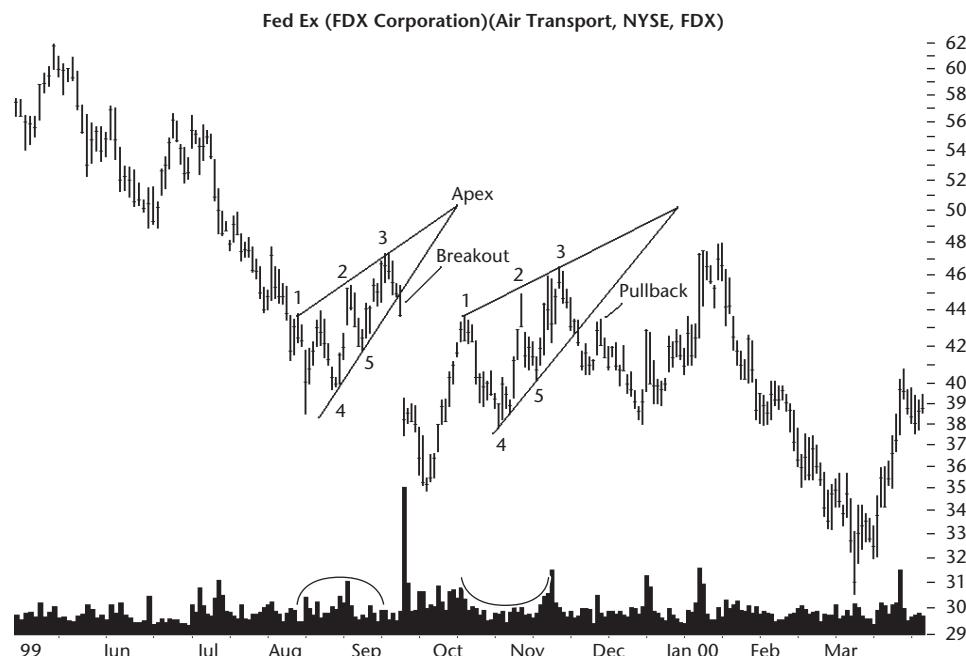


Figure 53.2 Shown are two rising wedges with at least five touches of the two trend lines. One has dome-shaped volume, the other, U-shaped volume.

Three-week minimum. A rising wedge takes time to form. Prices make new minor highs and minor lows as they bounce from trend line to trend line. It takes over 3 weeks for the formation to take on the wedge appearance. Formations shorter than 3 weeks are pennants. However, rising wedges do not last long. Typically, the apex—where the two trend lines meet—marks the end of the formation. Prices usually break out about half to two-thirds of the way to the apex. Rising wedges rarely last more than three months (just 21 patterns, or 3%, are longer than 3 months).

Volume trend. The receding volume pattern is another key element in correctly identifying a rising wedge. Most of the time, volume trends downward and becomes especially low just before the breakout. However, this is not an absolute rule. If you suspect a wedge but it has a rising volume trend, then ignore the volume trend. Review the other guidelines (especially the number of touches) to make sure the chart pattern resembles a rising wedge. If there is doubt, do not invest until the stock breaks out of the formation. Not trading a wedge until after the breakout is almost always a wise course of action.

Rising wedges can form anywhere. You might expect them to form at the end of a long uptrend and that is indeed the case most of the time. Occasionally, prices are heading downward and a rising wedge forms as a sort of retracement against the downward trend. After the breakout, prices resume falling.

Focus on Failures

With poor measure rule performance and a small average rise or decline, it should come as little surprise that rising wedges have higher failure rates than other formations. Consider Figure 53.3, a 5% failure in a rising wedge. Prices that drop by less than 5% before moving higher I call 5% failures.

You can see in Figure 53.3 the chart pattern forms after a downward price move of nearly 2 months' duration. The wedge appears to be a retracement in a downward price trend. The formation is part of the second up-leg in a measured move up chart pattern. Not shown is the first up-leg but the decline between the two up-legs begins in late September, and a portion of it shows in the figure.

Thus, one might have reason to suspect that this formation might not work out as expected. Prices move up, touch the top trend line, and then bounce to the other side. Prices cross from side to side as they rise and form a narrowing price channel.

Prices drop out of the pattern 68% of the way to the apex, about where you would expect them to. Volume is unusual as it is trending upward, but begins receding the week before the breakout. It is exceptionally low just before the downward breakout.

Once price closes below the lower trend line, investors usually sell, helping drive prices down. However, volume is low on this breakout. Price need

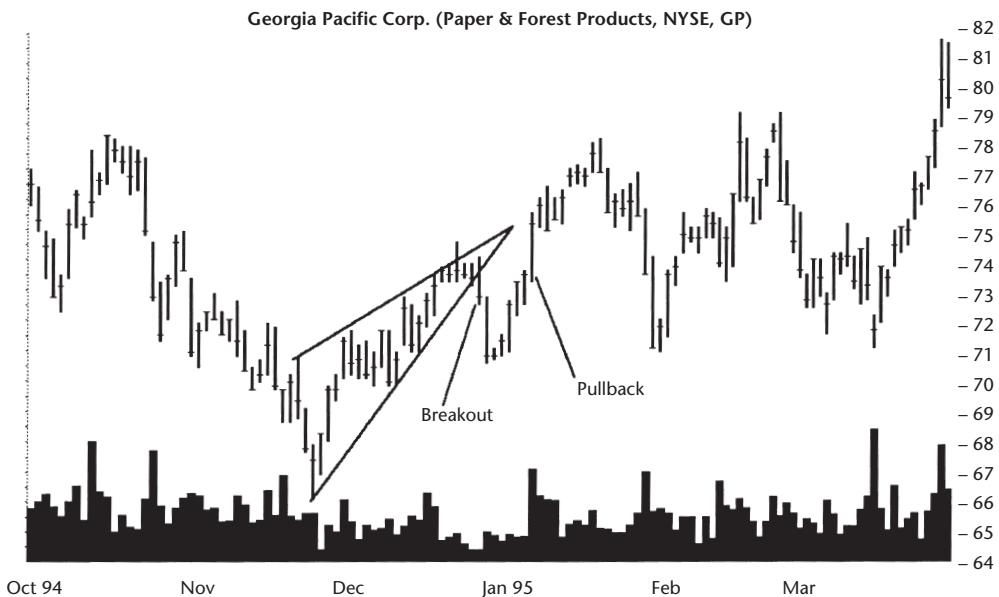


Figure 53.3 An example of a rising wedge 5% failure. Prices fail to move down by more than 5% before rebounding.

not have high volume to recede; sometimes it can fall on its own weight. Almost half (47%) of the formations in this study have breakouts with below average volume.

If you shorted the stock after the downward breakout, you would have visited the woodshed; price turns around and heads higher. In less than 2 weeks, price rises above the wedge top. In another 3 months, price finally breaks out of its consolidation zone and really begins climbing. In July, it reaches a new high of over 95.

Statistics

Table 53.2 shows the general statistics for rising wedges.

Number of formations. I uncovered 621 rising wedges in 500 stocks from mid-1991 to 1996 and from 1999 to mid-2004. I included some from dates between those periods, as I needed all the samples I could get. Still, I consider these formations rare, especially in a bear market.

Reversal or continuation. Depending on the breakout direction, wedges act as continuations (upward breakouts) or reversals (downward breakouts) of the prevailing price trend. Continuations perform better than reversals after downward breakouts. Upward breakouts show no real performance difference between reversals or continuations.

Average rise or decline. In the first edition of this book, I included premature breakouts and separated them from the actual breakout. In this edition,

Table 53.2
General Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Number of formations	128	64	292	137
Reversal (R), continuation (C)	45 R, 83 C	18 R, 46 C	194 R, 98 C	85 R, 52 C
R/C performance	28% R, 27% C	17% R, 17% C	-13% R, -17% C	-17% R, -23% C
Average rise or decline	28%	17%	-14%	-20%
Rises or declines over 45%	22 or 17%	8 or 13%	5 or 2%	10 or 7%
Change after trend ends	-30%	-35%	53%	36%
Busted pattern performance	36%	23% ^a	-17% ^a	-39% ^a
Standard & Poor's 500 change	10%	0%	1%	-6%
Days to ultimate high or low	127	60	38	38

Note: Minus sign means decline.

^aFewer than 30 samples.

I consider price closing outside the trend-line boundary as the breakout, whether it is premature or not. The effect of using this redefined parameter is an increase in the failure rate and a hindrance of the average rise or decline.

The best performance comes from wedges that follow the market trend—upward breakouts in a bull market and downward breakouts in a bear market. Stick with those directions for trading and avoid the countertrend wedges, the ones that break out against the market trend.

Rises or declines over 45%. Few wedges move more than 45%. The best showing is in a bull market, but even with 17% climbing at least 45%, that is still a poor showing.

Change after trend ends. As poorly as this pattern performs, the performance after the end of the trend is nothing to get excited about either. Only in a bull market with a downward breakout does a wedge perform anywhere near what it should by rising 53% after the ultimate low. Still, that is less than the 60+% we have seen in other chart patterns.

Busted pattern performance. In all cases, busted patterns perform better than the average rising wedge. For example, after price drops less than 5% in a bull market from a rising wedge, it soars 36%, which is well above the comparable rise of 28% for wedges with upward breakouts.

Standard & Poor's 500 change. The index climbed or dropped the most in step with wedges that climbed or dropped the most. This finding shows that the best results occur when the breakout direction and market direction are the same (bull market, up breakout and bear market, down

breakout). Wedges with breakouts against the market trend have performance that suffers.

Days to ultimate high or low. For upward breakouts, the time to the ultimate high ranges between 2 and 4 months. For downward breakouts, the decline lasts an average of 38 days (about 5 weeks). The decline in a bear market is steeper than is the rise in a bull market.

Table 53.3 shows failure rates for rising wedges. Wedges in a bull market with upward breakouts have the lowest failure rates. That finding may sound odd because rising wedges are supposed to break out downward and, presumably, that is the direction of best performance. However, the 8% failure rate in a bull market is half that of a bear market (15%).

Like all other chart patterns, the failure rates rise dramatically for small changes in the maximum price rise or decline. For example, 8% of the wedges in a bull market with upward breakouts fail to rise at least 5%. This figure triples to 23% failing to rise at least 10% and 36% fail to rise at least 15%. Over half do not rise over 20%.

The worst performance comes from wedges in a bull market with downward breakouts. Almost three of every four patterns (74%) will fail to drop at least 20%.

How do you use Table 53.3? Say your cost of trading is 5% and you want to make 20%, on average, for a total of 25%. Which breakout direction and market condition will work best for wedges? Answer: Select wedges with upward breakouts in a bull market. They fail 60% of the time to rise at least 25%, but that is the best of the lot. Do you really want to have two losing trades for every winning one? That winner will have to perform miracles for you to *net* 25%.

Table 53.3
Failure Rates

Maximum Price Rise or Decline (%)	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
5 (breakeven)	10 or 8%	9 or 14%	70 or 24%	20 or 15%
10	30 or 23%	22 or 34%	128 or 44%	52 or 38%
15	46 or 36%	35 or 55%	180 or 62%	70 or 51%
20	67 or 52%	40 or 63%	216 or 74%	91 or 66%
25	77 or 60%	45 or 70%	237 or 81%	99 or 72%
30	84 or 66%	49 or 77%	254 or 87%	109 or 80%
35	93 or 73%	52 or 81%	272 or 93%	115 or 84%
50	109 or 85%	60 or 94%	288 or 99%	129 or 94%
75	116 or 91%	63 or 98%	292 or 100%	135 or 99%
Over 75	128 or 100%	64 or 100%	292 or 100%	137 or 100%

Table 53.4
Breakout and Postbreakout Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Formation end to breakout	3 days	2 days	3 days	3 days
Percentage of breakouts occurring near the 12-month low (L), center (C), or high (H)	L10%, C28%, H62%	L13%, C34%, H53%	L16%, C26%, H59%	L15%, C35%, H49%
Percentage rise/decline for each 12-month lookback period	L27% ^a , C28%, H28%	L12% ^a , C21%, H16%	L16%, C15%, H13%	L28% ^a , C25%, H15%
Throwbacks/pullbacks	73%	66%	63%	63%
Average time to throwback/pullback ends	9 days	10 days	10 days	8 days
Average rise/decline for patterns with throwback/pullback	26%	18%	-11%	-14%
Average rise/decline for patterns without throwback/pullback	31%	14% ^a	-19%	-29%
Performance with breakout gap	38% ^a	17% ^a	-11%	-23% ^a
Performance without breakout gap	26%	17%	-15%	-20%
Average gap size	\$0.19	\$0.24	\$0.25	\$0.54
Breakout distance to apex	64%	56%	58%	63%

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 53.4 shows breakout- and postbreakout-related statistics.

Formation end to breakout. The time from the end of the pattern to the breakout results from how I draw the patterns. I mark the end of the pattern as the first time price penetrates the trend line, not as the first close outside the trend line. Ignore the row. I show the numbers only for completeness.

Yearly position. As you can see, most rising wedges have breakouts near the yearly high. Few appear within a third of the yearly low.

Yearly position, performance. The best performers occur in the middle of the yearly price range for upward breakouts and near the yearly low for downward breakouts. The results might change with additional samples. The numbers reflect how often the *breakout* appears within the associated price range, so keep that in mind.

Throwbacks and pullbacks. Throwbacks occur between 66% and 73% of the time, and pullbacks happen 63% of the time. After price breaks out, it takes between 8 and 10 days, on average, for the stock to return to the breakout

price. Note that in many cases price did not have to return to the trend line to be classified as a throwback or pullback, just as long as it neared or touched the breakout price.

Wedges showing pullbacks suffered worse performance. For example, in a bear market, wedges with pullbacks declined 14%. Without pullbacks, the decline measured 29%.

Gaps. Gaps on the day of the breakout helped performance as long as the breakout was in the direction of the market trend (upward breakout in a bull market or downward breakout in a bear market). Countertrend wedges were either unchanged or showed better performance when no breakout day gap appeared.

The gap size was larger after downward breakouts than after upward ones, and this finding follows a trend I have seen with other patterns. Thus, if you want to take advantage of a possible gap, you must enter the trade before the breakout. Entering then will increase your risk, as you cannot accurately predict the breakout direction. For reference, 44% of the time the breakout is in the same direction as the trend leading to the wedge. That finding means if price is rising into the wedge, chances are it will breakout downward. If price is declining into the wedge, chances are it will breakout upward.

Apex distance. The breakout occurs between 56% and 64% of the way to the wedge apex (where the two trend lines touch), on average. Most wedges occur in a bull market with a downward breakout, and the most powerful of those have breakouts between 60% and 90% of the way to the apex.

Table 53.5 shows a frequency distribution of time to the ultimate high or low. Notice how quickly some of the wedges reach the ultimate price. For example, 35% of the wedges with downward breakouts in a bull market bottom out in the first week. By the third week, 57% have reached the ultimate low. In contrast, upward breakouts show 21% reaching the ultimate high in the first week and just 30% by week 3.

Table 53.5
Frequency Distribution of Days to Ultimate High or Low

Days:	7	14	21	28	35	42	49	56	63	70	>70
Bear market, up breakout	34%	8%	11%	5%	2%	2%	2%	3%	5%	3%	27%
Bull market, up breakout	21%	5%	4%	5%	6%	4%	1%	4%	5%	1%	45%
Bear market, down breakout	30%	12%	8%	8%	7%	8%	5%	1%	5%	4%	11%
Bull market, down breakout	35%	12%	10%	8%	5%	2%	4%	2%	3%	2%	16%

At the other end of the table, 45% of wedges with upward breakouts in a bull market are still searching for the ultimate high after 70 days (about 2.5 months).

Notice the slight uptick after 21 days for wedges with upward breakouts in a bear market. Eleven percent reach the high during that period. If you watch your stock closely, you may see it begin topping out after the second week. Be prepared to take profits then.

Table 53.6 shows statistics related to size.

Height. Most of the time, tall wedges perform better than short ones. The lone exception is for wedges with upward breakouts in a bull market. Under those circumstances, short ones perform better.

Width. Wide wedges perform better than narrow ones in all cases except those in a bear market with downward breakouts. Those perform better if the wedge is narrow. For reference, I used the median length as the separator between narrow and wide.

Average formation length. The average wedge length is consistent across the various breakout directions and market conditions: about 44 days long.

Height and width combinations. With additional samples, the results may change, but tall and narrow wedges perform best in a bear market. In a bull market, the best performance splits between wedges that are both short and wide (upward breakouts) and tall and wide (downward breakouts).

Table 53.6
Size Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Tall pattern performance	27%	22%	-17%	-21%
Short pattern performance	28%	12%	-12%	-19%
Median height as a percentage of breakout price	15.12%	18.33%	15.00%	21.11%
Narrow pattern performance	21%	16%	-12%	-21%
Wide pattern performance	34%	18%	-16%	-18%
Median length	38 days	34 days	37 days	37 days
Average formation length	46 days	44 days	42 days	44 days
Short and narrow performance	24%	10% ^a	-12%	-19%
Short and wide performance	36% ^a	16% ^a	-12%	-17% ^a
Tall and wide performance	32%	20% ^a	-19%	-19%
Tall and narrow performance	16% ^a	28% ^a	-13%	-25% ^a

Note: Minus sign means decline.

^aFewer than 30 samples.

Table 53.7
Volume Statistics

Description	Bull Market, Up Breakout	Bear Market, Up Breakout	Bull Market, Down Breakout	Bear Market, Down Breakout
Rising volume trend performance	33% ^a	18% ^a	-11%	-20%
Falling volume trend performance	26%	17%	-15%	-20%
U-shaped volume pattern performance	35% ^a	13% ^a	-14%	-16% ^a
Dome-shaped volume pattern performance	23%	22% ^a	-15%	-20%
Neither U-shaped nor dome-shaped volume pattern performance	29%	16% ^a	-13%	-21%
Heavy breakout volume performance	29%	18%	-14%	-18%
Light breakout volume performance	25%	14% ^a	-14%	-21%

Note: Minus sign means decline.

^a Fewer than 30 samples.

Table 53.7 shows volume-related statistics.

Volume trend. Wedges with upward breakouts do better with a rising volume trend, but the sample size is small, meaning that the results may change. Those with downward breakouts in a bull market do better with a falling volume trend.

Volume shapes. Performance associated with volume shape has no consistent trend. Dome-shaped volume does well in the countertrend wedges (bear market, up breakout and bull market, down breakout). Again, additional samples may clarify the results.

Breakout volume. Wedges with upward breakouts do best with heavy breakout volume. Light breakout volume outperforms in wedges with downward breakouts in a bear market.

Trading Tactics

Table 53.8 shows trading tactics for rising wedges.

Measure rule. The measure rule for rising wedges is opposite that for falling wedges. The measure rule says that prices should decline (downward breakouts) to the start of the formation (the lowest low), at a minimum. For upward breakouts, I use the height of the wedge added to the breakout price. Even though the predicted decline is usually small, less than half of the formations meet the benchmark. I view a score of 80% as being reliable, so this for-

Table 53.8
Trading Tactics

Trading Tactic	Explanation
Measure rule	Prices should fall to the bottom of the formation, at a minimum. For upward breakouts, subtract the lowest low from the highest high and add it to the breakout price. The result is the target price.
Sell after breakout	Wait for the breakout (prices should close outside the trend line) to improve the chances of a successful trade.
Sell after throwback or pullback	If you miss the breakout and still want to trade the stock, sell short after a pullback, once prices turn down or after a throwback, once the rise resumes.
Take profit quickly	Since the postbreakout move is meager, be ready to pull the trigger and close out the trade.

mation comes up short. For upward breakouts, price reaches the target between 33% (bear market) and 58% (bull market) of the time.

Figure 53.4 shows one application of the measure rule. The well-defined rising wedge passes all the identification guidelines outlined in Table 53.1. An investor willing to short the stock would use the measure rule to gauge the profitability of the trade. In this example, the target price is the lowest price in

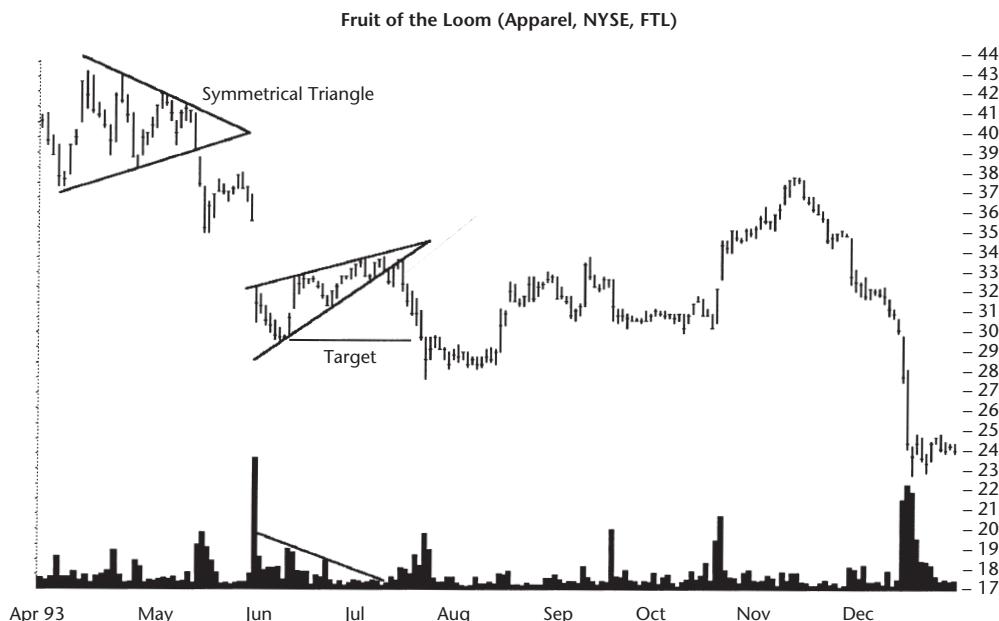


Figure 53.4 A downward breakout from the symmetrical triangle suggests price will fall. The measure rule for rising wedges with downward breakouts is simply the lowest price in the formation, shown here at 29.75.

the formation, or 29.75. Prices drop through the target just over a week after the breakout.

Sell after breakout. To improve the chances of investment success, sell short after a downward breakout or buy long after an upward breakout. Price must close outside the formation trend line before you place a trade.

Sell after throwback or pullback. If you miss the breakout, perhaps you can jump in on the throwback or pullback. Sixty-three percent of the formations pull back to the bottom trend line. Upward breakouts do even better, with 66% to 73% throwing back. After prices throw back or pull back, wait for them to start moving in the original breakout direction before investing.

Take profit quickly. The last guideline in the table suggests taking profits quickly. The average decline ranges between 14% and 20%. So, in all likelihood, the stock will decline only briefly before recovering. If the stock looks like it is making a turn upward, then close out your short position.

If you are considering shorting the stock, check the fundamentals and make sure there is a good reason for the stock to weaken. Just because you *hope* it will go down is no reason for the stock to comply.

Even for short-term (long side) traders, I do not suggest they sell their holdings if they see a rising wedge in a stock they own. Of course, if the fundamentals suggest otherwise, then sell your holdings and look elsewhere for another opportunity.

For upward breakouts, this rise is not all that exciting—17% to 28%. If you see a compelling opportunity in a stock you are familiar with, then trade it. Otherwise, wedges do not pose as good trading candidates.

Sample Trade

Joe is a midlevel manager at a large corporation. One of the qualities in which he is gifted is patience. He handles stress easily and does not let small problems bother him. In his spare time, he likes to trade stocks and has developed a keen sense to make short sales work for him.

After returning from vacation, Joe discovered the situation shown in Figure 53.5. He missed the initial downward breakout but still wanted to short the stock.

Viewing the chart from a longer-term perspective, Joe believed that the formation was an upward retrace in a long-term downtrend (not shown in the figure). At a minimum, he believed the stock would withdraw back to its base of about 30. He would consider closing out the trade at that point and not before unless price rose against him. So, he set a stop-loss order at the top of the formation at 36.75, about 0.25 point above the formation high.

If the stock continued in his favor, then it would be completing a downward measured move. Joe estimated that the measured move formation would take the stock to 28 and perhaps lower.

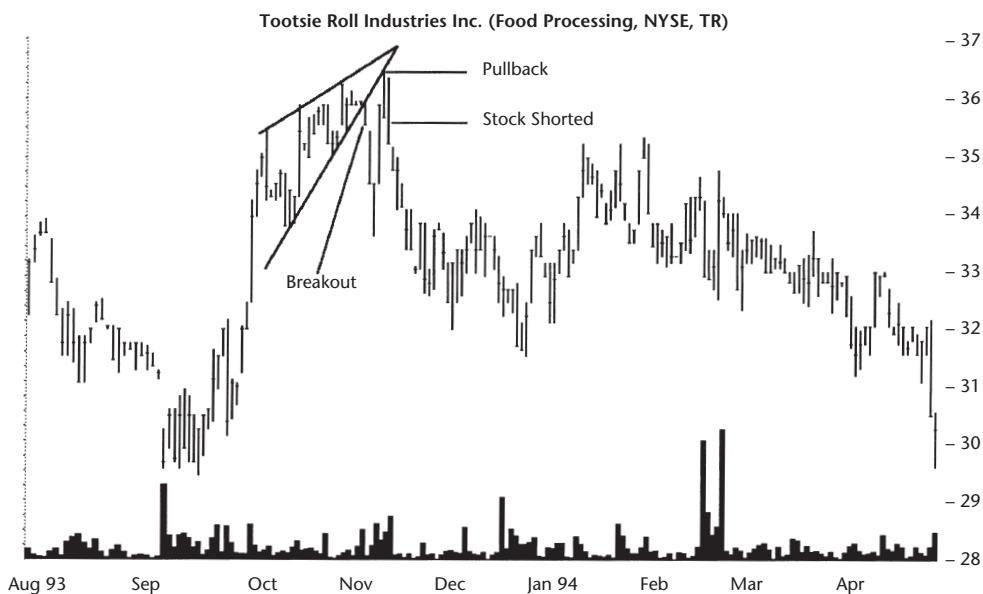


Figure 53.5 This rising wedge predicts prices will fall to 33.75 and they do, in just 2 days.

When the stock pulled back to the bottom trend line and headed down the next day, Joe sold the stock short and received a fill at 36. He reviewed the measure rule that said the stock would fall to the bottom of the formation for a decline of about 6% from the purchase price.

Joe watched the stock closely and was gratified to see prices soon drop below the measure rule target of 33.75. Then the stock rebounded. As the stock climbed at the start of December, Joe reevaluated his short position. From what he was able to gather, the fundamental and technical situation had not changed so he decided to sit tight.

Even as the stock climbed above 35, Joe believed he was right. The tenacious attitude served him well on this trade and the stock soon began heading down again. In May, the stock reached his target price of 30 and Joe considered closing out his position, but did not.

The stock moved sideways for about 4 months and then dropped again. It reached a low of 25.43 in mid-December and headed back up. Joe closed out his short position at 27, just a week after it made a new low. On the trade, Joe made almost \$9,000, or about 25%, on his 1,000 shares in about a year.

For Best Performance

The following list includes tips and observations to help select rising wedges that perform better after the breakout. Consult the associated table for more information.

- Review the identification guidelines for correct selection—Table 53.1.
- Continuations show the best performance after a downward break-out—Table 53.2.
- Trade busted patterns when the new direction aligns with the market trend—Table 53.2.
- The decline in a bear market is steeper than in a bull market—Table 53.2.
- Select wedges in a bull market with upward breakouts; they have the lowest failure rates—Table 53.3.
- Pullbacks hurt performance—Table 53.4.
- Gaps help performance but only if the breakout is in the direction of the market trend—Table 53.4.
- Downward breakouts reach the ultimate low quickly—Table 53.5.
- Upward breakouts in a bear market may show weakness after week 2—Table 53.5.
- Select tall patterns for most wedges—Table 53.6.
- Pick wide patterns for most wedges—Table 53.6.
- Wedges with upward breakouts do best if volume is rising and break-out volume is heavy—Table 53.7.