HOW TO DAY TRADE LIKE A ROCKET SCIENTIST

A complete beginner's guide to day trading from the perspective of a NASA engineer.

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ASIN: B08Y5RDHF3

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Preface

The NASA Jet Propulsion Laboratory in Pasadena, California, is responsible for many of NASA's flagship missions including Mars rovers, outer planet explorers, and deep-space telescopes. I've worked there for over twenty years as a spacecraft electronics engineer and have found these missions to be very challenging and rewarding. I still can't believe we landed a 2000-pound rover on Mars using a sky crane and retrorockets!

Sample of NASA JPL missions and instruments by launch year: Voyager (1977), Galileo (1989), Cassini (1997), Kepler (2009), Juno (2011), Mars 2020 Perseverance Rover (2019), MIRI on James Webb Space Telescope (2022), Europa Clipper (2024), Mars Sample Return (2025+).

NASA often spends billions of dollars developing its one of a kind spacecraft, so the expectation is that every one of them will complete its mission. Ensuring the reliability of these spacecraft is very different compared to terrestrial products like cars, airplanes, and televisions – there is no opportunity for repair when you send things to other planets, so they need to be as close to perfect as possible when they

launch.

To ensure the reliability and success of these billion-dollar spacecraft, NASA engineers test, model, and analyze every aspect of the spacecraft's functionality using state of the art technology and analytical techniques. The more you know about its strengths and weaknesses, the more prepared you can be to ensure its success.

These skills also happen to translate to other industries as well, like Wall Street. This is why hedge funds famously gobble up engineers and scientists from all kinds of industries to help develop their trading strategies. Whether you are building spacecraft to visit outer space or building financial strategies to make a profit on Wall Street, it's all about gathering data, developing models, and using those models to inform your decisions.

In this book we will use statistics and probability theory I've used on the job at NASA to develop a model of trader performance and use that model to design a straightforward risk management plan ("trading system") that also happens to be perfect for new traders.

This model of trader performance is based on the binomial distribution, which you might remember from your high school statistics class. It's the most important piece of mathematics for traders, yet I did not find a single hit for "binomial" when searching the 20-plus day trading books on my Kindle. Therefore, with this book I hope to fill in some of the gaps left by other popular books on day trading while presenting a unique trading system known as "The RST Way" of trading.

Despite being born out of the same mathematics used by rocket scientists and hedge funds, it's actually the simplest form of trading I can imagine. I call it "one-button trading" because you only have to hit one button to complete a trade, which includes both the entry as well as the exit. The simplicity of the trading process as well as its built-in method of improvement are what make this trading system perfect for new traders. It's also great for traders of any experience level who are looking to have more control over their trading. If having wins of $500 and $1000 followed by a loss of $2000 is driving you crazy, then The RST Way of trading is for you!

CHAPTER ONE
Introduction

In this book, we will cover everything beginners need to know to day trade stocks. The goal is to guide brand new traders through the entire process from opening a brokerage account to developing a risk management plan. The cornerstone of this book is the chapter on Risk Management, where we develop a trading system known as "The RST Way" of trading.

In addition to presenting a complete trading system, what also makes this book unique is a strong emphasis on risk management. We use code, simulations, and mathematics, including statistics and probability theory (the "rocket science" stuff), to develop a model of trader performance that dramatically simplifies the trading process and also has a built-in method for improving profitability.

This is all part of a system that involves tight control over the size of wins and losses, a simplification of the trading process in order to decrease the number of variables involved in risk management, and a way by which we can easily tweak the remaining variables until we are profitable.

Since this is intended to be a book for new traders, we will also cover stock market basics, brokerages, transaction fees, stock scanners, trading platforms, and candlestick charts. However, this stuff is minor when it comes to the success of your trading, particularly candlestick patterns. Too many traders put too much emphasis on candlestick patterns and not enough emphasis on risk management. If you properly control the size of your wins and losses and stop interfering with your strategies after every losing trade, the candlestick pattern almost doesn't matter. As long as you go long on a stock that is generally trending up or short it when it's generally trending down, proper risk management is all you need to be profitable.

The three main themes of this book are:

Theme #1 - Trading Is a Game of Chance Modeled by the Binomial Distribution

You must look at trading as a form of gambling or game of chance. You cannot prevent a streak of 10 losses in a row any more than you can prevent 10 heads in a row when flipping a coin. You also cannot win any given trade any more than you can win any given hand of blackjack. When MIT mathematicians took down the house in Las Vegas playing blackjack in the 1980s, they didn't fuss over winning every hand; their edge over the house was just a couple of percentage points – that's all it took to make them millions. That's also true for day trading; you just need a few percentage points over breakeven to become very wealthy trading stocks.

Because of the inherently small edge, you must get used to losing trades and having streaks of losing trades. You must also accept that your trade results can fluctuate by as much as 2x (or more) month-to-month. This is not a sign that anything in your trading has changed, it's simply what mathematicians call "sampling error." Therefore, we turn to the binomial distribution to help us understand the natural variation that occurs in our trading so that we are prepared for this. You must accept the inevitability of losing trades, streaks of losing trades, and large variation in monthly results.

Notice I use the terminology "losing trade" rather than "bad trade." Knowing the difference between bad trading and bad luck is paramount to becoming a successful trader. Most new day traders are not taught how to tell the difference, and will end up in a death spiral of losing trades and constant strategy tweaking until they drain their account. However, if taught how to tell the difference between bad trading and bad luck, a trader can avoid the constant strategy tweaking and may discover that a strategy that began with a low win rate was actually very profitable when tested over a larger sample size.

Theme #2 - Trading Blocks, Not Individual Trades, Are What's Important

Another important aspect of "sampling error" is that anything less

than 100 trades is meaningless. Under The RST Way of trading, we only analyze our trading after blocks of at least 100 trades. This way we only modify our strategies after a statistically significant sample size and do not prematurely ruin what could have been a million-dollar strategy (we *do* interrupt trading for diagnosis when we hit *unexpectedly* long losing streaks).

The biggest mistake new traders make is modifying their strategies based on small sample sizes and incomplete information. When you do this, you have no way of measuring your performance as a trader since you never acquire the sample size needed to do so. Instead of 100 trades with one set of parameters, you have 100 sets of parameters with just one trade each and no idea if any of those are really profitable or not.

Many new traders will tweak their strategies after every loss – this is a death sentence for your trading. You could be throwing away a million-dollar strategy. To know if a strategy is good or bad, you have to use it at least 100 times, which is a number we will derive from the binomial distribution later in the book.

Theme #3 - Risk Management Is Almost Impossible Without Well-Controlled Trades

In addition to tweaking their strategies after every loss, another way new traders sabotage their profitability is by having the size of their wins and losses vary from trade to trade. If you have one win of $100, another of $500, but then a loss of $1000, your trading for that day is not well-controlled. Many traders trade that way, and there's nothing fundamentally wrong with it if overall you have a high win rate and high average risk/reward ratio, but it's bad for new traders and makes it impossible to execute The RST Way of trading. New traders trying to trade like savants is how many accounts get blown up and why 98% of day trading accounts are not profitable. Only the best of the best can rely on their years of experience to wing it like that and still be profitable.

Therefore, under The RST Way, we keep the size of wins and losses consistent which gives us control of our trading and makes it dead simple to become profitable. For example, if the trader uses a risk/reward ratio of 1/1 with a $10,000 account and 2% stop loss, then

every losing trade would be -$200 and every winning trade would be + $200. We program our trading platforms to automatically calculate the share size needed on the fly to give us these amounts. The entire RST Way of trading hinges on our ability to do this (it's very easy in DAS Trader). Then all we have to do is win about 60% of our trades at that R/R ratio to cover commissions and fees and be profitable. If we aren't profitable over the course of 100 trades, then there are a couple of very specific steps we can take before starting another block of 100 trades. That is The RST Way of trading a nutshell.

There are many day traders that have become profitable without reading this book, so obviously this approach is not the only path to success. I personally feel that by limiting the number of variables to deal with and exerting tighter control over your trading, you can achieve profitability in a much more methodical fashion with less frustration and guess work. The alternative is like walking around blind-folded until you happen to stumble into a pot of gold. That method of trial-and-error usually includes blowing up your account more than once along the way, which most traders can attest to having to endure before finding what worked for them.

In this book, we do not cover options trading, FOREX, swing trading, or cryptocurrency. This book focuses solely on day trading stocks and ETFs on NYSE and NASDAQ. Stocks and ETFs are treated equally in this book – they are just symbols to us quants.

The reason we focus on stocks and ETFs on the U.S. markets is because they behave in a more predictable manner relative to the market's operating hours. Stock trade volume and volatility is far greater during the first few minutes after the market open compared to the rest of the day. This is predictable behavior that occurs every trading day that can be exploited for profit. Other markets like cryptocurrency and FOREX are traded 24/7. The strategies that work in those markets are very different than the strategies that work for stocks with only 6.5 hours of regular trading Monday through Friday.

Despite being a step-by-step guide for novice traders, there are several discussions related to risk management, stop loss execution, position sizing, and profit forecasting that even the most advanced day traders will find useful for their trading.

The book aims to answer the following questions:

- What draws so many people to day trading?
- What kind of return on investment (ROI) is possible?

- What is the binomial distribution, and why is it so important to traders?
- How much income can day traders make?
- Which broker commission structure is right for me?
- What is the minimum account size needed?
- How can I change my trading habits to minimize commissions and fees?
- How many trade opportunities are available in the market each day?
- How do I find trades?
- How many red and green days can I expect?
- How can I forecast my account performance as a day trader?
- How can I systematically evaluate and improve my trading performance?
- What is risk management and how do I do it?
- What is The RST Way of trading?

The steps to becoming a day trader essentially mimic the table of contents of this book. First, we cover the basics of how the stock market works, how traders profit from it, and what it means to be a day trader. Second, we discuss what opportunities exist in the market for day traders, and how much income traders can earn. Then we jump into brokerages, the types of accounts they offer, and the fees associated with trading. After that, we'll cover scanners and how to find Stocks in Play before moving into candlestick patterns and trade strategies. Last, but not least, Chapter 10 - "Risk Management" covers everything you need to know to trade The RST Way.

If you're already an experienced trader, then Chapter 4 - "Stocks in Play," Chapter 5 - "The Binomial Distribution and Trader Income," and Chapter 10 - "Risk Management" are going to be the biggest bang for your buck. These three chapters are the primary reasons for writing the book and contain the most information that is difficult (or impossible) to find elsewhere. Appendix D is also good for experienced traders who may be familiar with DAS Trader hotkeys but are looking for a tutorial on how to develop the range orders that make the "fixed R/R ratio" or "one-button trading" discussed in this book possible.

This book assumes you trade using DAS Trader – The RST Way of trading is not possible in other platforms. The hotkeys and scripting in other platforms do not work the same way as DAS Trader.

Of course, teaching day trading in print format on the pages of a

book presents some challenges. Learning to day trade from a book is like learning to play basketball from a book. The author can describe the rules, theory, and strategies in fantastic detail, but absolutely no one will be able to play basketball at a high level after reading it. Words on a page could never paint an accurate picture of what it's like to see an NBA player dribble the ball and dunk on a defender. You need to see with your own eyes an athlete's movements, coordination, and speed to understand what it really means to play. The same is true for day trading. No words can fully describe what a trader is doing during live trading; a thousand screenshots and paragraphs could never convey the true experience of a 1-minute opening range breakout trade.

To compensate for the limitations of teaching day trading through the pages of a book, a companion website has been created at RocketScienceTrading.com/book. I encourage you to visit the site and familiarize yourself with its resources including video demonstrations of live trading, code snippets, invitation to our public Discord server, RST exclusive tools for traders, and more.

I have also created an online course at LearnToDayTrade.com that covers "The RST Way" of day trading described in this book. This is certainly the most immersive and thorough way to learn The RST Way of trading. Because the course is much easier to update than the book, it will also have the most up-to-date strategies, tips, and risk management rules. Signing up for the course also includes 1-on-1 tutoring sessions with myself and access to private student-only channels on the RST Discord server.

Summary

- This book covers everything beginners need to know to trade stocks and ETFs on the U.S. markets using The RST Way of trading.
- We use statistics and probability theory to develop a model of trader performance, which we will use to develop a straightforward risk management plan that any new trader can follow.
- The most common mistake traders make is prematurely tweaking their strategies. This leads to throwing away winning strategies and prolonging the time it takes to become

profitable. We use simple statistics and probability concepts to avoid this.

- Book resources can be found at RocketScienceTrading.com/book.
- Feel free to email me at jason@rocketsciencetrading.com with any questions you may have.
- LearnToDayTrade.com is the online video course version of this book teaching "The RST Way" of day trading.

CHAPTER TWO
Day Trading 101

Over the years, many research studies have analyzed the success of day traders. In general, they paint a rather gloomy picture of day trading, but I would argue it's no worse than most other business ventures. A study in 2010 by Lee Barber at U.C. Berkeley titled "Do day traders rationally learn about their ability?" found that 2.5% of day traders dropped out after a month, 44% after the first year, and only 15% were still trading after three years. If that discourages you, know that this is not any worse than other types of businesses. In the U.S., restaurant survivability is worse than day trading with 60% shutting their doors after the first year. The reality is that succeeding in any business is difficult, including day trading.

Anyone that tries to sell day trading as a "get rich quick scheme" or "easy money in your spare time" should be avoided. Day trading is nothing like that; it is a skill and craft that must be developed over time like any other profession.

By its nature, trading is a competition with winners and losers. In one corner you have the Wall Street hedge funds employing scores of computer scientists, engineers, and mathematicians, and in the other corner you have kids clicking buttons to trade on Robinhood like it's a video game. Billions of dollars flowing through a highly competitive marketplace with a very low barrier to entry means there will be a considerable number of losers. It's no wonder research studies show such a high failure rate with day trading. With millions of uninformed traders getting demolished by Wall Street, the body count will be high.

All traders are divided into "institutional traders" and "retail traders." Institutional traders are banks, hedge funds, and other firms on Wall Street. Retail traders are everyone else including day traders and teenagers trading from their phones.

On the lowest rung of the "retail trading superiority ladder" are uninformed gamblers on their cell phones. They really don't have a

clue why they are buying the stock, what the share size should be, or what the exit strategy is. They are mostly buying and selling "meme stocks" they see on Reddit, Twitter, and other social media.

One rung up the ladder are slightly more educated traders who understand economics, supply and demand, fundamental value, and what makes a stock price go up and down. These traders may not be hemorrhaging as much money as the mobile app warriors, but most are not outpacing the S&P 500 either. For the most part, they probably should have just invested their money in a mutual fund.

On the next rung up are the serious retail traders. These are day traders and swing traders who have probably read many books on day trading, options, futures, forex, volume price analysis, and risk management. They study the markets, have well-documented trading playbooks and risk management plans, and a solid idea of when they want to enter and exit trades. Some are making money, and some aren't. These are mostly aspiring, motivated traders who are trading part-time and wanting to quit their day jobs.

Finally, on the highest rung of the ladder, you have professional retail traders. These are true professionals who support themselves and their families through trading, or perhaps they make as much from trading as they do from their regular jobs and enjoy having two incomes. Not only are they well educated about trading, but they often have backgrounds in economics, engineering, computer science, or mathematics. These folks also have very high levels of dedication and resilience, which is needed to suffer through months or years of being a bad trader before finally becoming profitable.

Dedication, Execution, and Resilience

Almost anyone can become a successful day trader; you do not have to be a math genius to pull it off – far from it. Successful traders simply have the dedication, execution, and resilience that others don't. These three critical components are all you really need. However, most new traders don't put forth enough of these three things to become profitable, and they eventually stop trading. If you're serious about trading, you need to truly look within yourself, analyze your lifestyle and habits, and be honest about whether you have the dedication, execution, and resilience needed to get over the learning curve and become a successful trader.

Dedication means giving as much of yourself to trading as possible. As the saying goes, "You can have anything you want, if you are willing to sacrifice everything else." To be fully dedicated, you must remove distractions from your life and free up as much of your time as possible to make your dream a reality.

Next, a significant amount of momentum is required to "get the ball rolling," and you must keep it rolling. You can't become a professional day trader in a few hours per month; it would take years to complete all the required reading, studying, analysis, and simulator trading.

Getting over the learning curve in trading is like trying to kick a field goal in American football. You can't score a field goal with a million tiny kicks. First, it's against the rules, but more importantly, the ball will never get off the ground. A million tiny kicks amount to an incredible amount of effort, but the football never gets off the ground much less over the goal post. Trading is the same way. You must devote a large amount of effort all at once in order to get over the learning curve. Full dedication is required.

If you have a full-time job, two kids, three gym sessions per week, and church every Sunday, I think it's almost impossible to become a successful day trader. You simply won't have enough hours left in the week to dedicate to trading.

I think you need to find at least 20 hours in your week for the first few months to really get the ball rolling. That time is spent educating yourself about trading, developing your risk management plan, and getting to know your way around DAS Trader. Once you are in simulator and making trades every day, then perhaps you only need 10-15 hours per week. That's 1-2 hours per day trading with a few hours per week for trade review, updating your hotkeys, rearranging DAS Trader windows, and so on.

In addition to dedication, you need execution. Execution means completing all the steps necessary to reach a goal. For some would-be entrepreneurs, the problem isn't intelligence, creativity, or dedication – it's execution. You can fully dedicate yourself to something and never actually execute a thing. Execution means completing the education process, getting a home office setup, installing and properly configuring your trading platform, trading in simulator, and revising your failing strategies until they are profitable. Like I said earlier, you can kick a football a million times without it counting for anything. That's a lot of dedication with nothing to show for it.

As Benjamin Franklin said, "Never confuse motion with action."

Some people stay very busy, yet never actually get anything done. Don't get caught up in learning about day trading, do it!

Lastly, you may need to execute many times and this is where resilience comes in. Your first several trade blocks in simulator may not be profitable as you get accustomed to reading charts and Level 2 order books at the market open. You may need to spend several months or longer in simulator before having your first profitable trading block.

If a "successful restaurant" is one that is still open after 5 years, then only 20% of restaurants are successful. Whether or not a restaurant succeeds isn't totally dependent on the strength of the founders or the business plan. A good part of it is luck. You need the perfect location, menu, staff, and timing for it to work. Many successful restauranteurs have had one or more previous restaurants that failed. Behind many billionaires is often a string of failed companies. A good part of success is simply a matter of fit, timing, and luck. You must have resilience to endure all the bad rolls until you hit a jackpot.

Let's say that, in general, businesses have a 20% chance of succeeding. That means a new entrepreneur is rolling a five-sided die with four "Fail" sides and only one "Success" side on it. How many times will you have to roll that die before you get a Success? Mark Zuckerberg, Steve Jobs, and Bill Gates may have gotten a "Success" on their first roll at a young age, but the average number of rolls needed to get a Success is 5. Only 20% will get Success on the first try. Even after ten rolls, 10% still won't have a successful roll. That's just life (and math – our favorite "binomial distribution" which will make an appearance many times throughout the book). So you need resilience to keep trying until you succeed.

Day trading was certainly not my first roll of the Fail-Success die. It was my 14th attempt at generating a second income for myself. Some of the first thirteen made a little money, and some could have made more, but I eventually pivoted to something else after realizing the idea was flawed, I didn't enjoy it, or I found something else more interesting.

You could call those thirteen other ventures "failures," as they certainly are in many ways, but I look at them as all part of the process. For many entrepreneurs, success may not happen until after several failed attempts. It takes a tremendous amount of resilience to endure those failures and keep going until one idea takes off. You'll often hear start-up founders say, "after failing for many years, we became an

overnight success." That's resilience paying off.

If you want to succeed at day trading or any other business, you must be prepared to fail. Maybe you need fourteen tries like me, or more. This is the level of resilience you need. As Ray Dalio, head of the world's largest hedge fund said, "You won't be successful if you can't tolerate being wrong."

These are the facts: 1) like any business, day trading has a low success rate, 2) anything with a low success rate may need to be repeated many times before success is reached, 3) even failure requires a significant amount of dedication and execution to get to the point of failure, 4) only those with the resilience to execute and fail repeatedly will eventually succeed.

Day Trading Versus Swing Trading Versus Investing

When stock shares are purchased and sold on the same calendar day, it is considered a "day trade." If a position is held overnight, for a few days up to a few weeks, it is known as a "swing trade." Neither forms of trading are forms of investing. Trading and investing are two very different things. If you're familiar with chess, day trading is like a blitz game – hectic and fast-paced, requiring every cell in your brain to play. Investing is more like play-by-mail chess, where you only think about your positions for a few minutes every few days or weeks.

The goal of day traders is to exploit price volatility for profit. The goal of investors is to invest capital in companies they believe will grow into more valuable companies. Investors pay attention to who the CEO is, product roadmaps, budgets, and other business fundamentals. Traders only care about price patterns, trade volume, and other technical aspects of the stock market.

Traders hold positions from a few seconds to a few days, whereas investors hold positions for several weeks to years. If they are good, investors will want to know as much information about the company as possible. This is "qualitative" or "fundamental" analysis. On the other hand, traders are mostly "quantitative" or "technical" analysts, and often do not even know the name of the company behind the ticker symbol they are trading.

Day trading is considered active trading, whereas long-term investing is considered passive investing. Day traders actively watch the stock price throughout the time that the position is open. Investors

enter a position often knowing it will be weeks or months before they do something with their trade.

In a nutshell, day traders hope that their active, hyper-aware approach to trading volatile stocks for short-term gains will lead to considerably higher returns, whereas long-term investors hope that fewer, safer, less volatile trades will produce relatively lower ROI but with much less effort. Roughly speaking, the effort-to-ROI relationship holds true.

Day trading is usually an operation run by a single individual from their computer at home, with an account between $5,000 and $250,000. They use anywhere from 10% to 100% of their account on each trade to try to scalp short-term opportunities lasting a few minutes to a few hours. On the other hand, large investment groups and hedge funds are using millions or billions of dollars to earn somewhere between 10% and 40% over the course of a year. This is not as large of an ROI as day traders can make; however, when billions of dollars of profit are distributed over 100 people at the firm, it's quite a spectacular profit, especially for the fund managers, as you've seen in movies like *The Wolf of Wall Street* and *The Big Short*. Day traders aim to make a larger ROI on a smaller account, and hedge funds aim to earn a smaller ROI on a much bigger account.

The more capital you are trading, the less the expected ROI is. This is because you can't buy millions of dollars worth of a company's stock without significantly impacting its price. There will not be that many shares available at the best price, so the average price received will get progressively worse as the larger order is filled, an effect known as "price slippage." This is why day traders cannot scale up to becoming billionaires, and why billion-dollar funds do not use the same strategies as day traders.

In summary, trading and investing differ in the type of research involved, risk posture, and expected return on investment (ROI). Day trading is also just a lot more fun and exciting in my opinion. What sounds better to you? 1) Putting $25,000 into a mutual fund and then sitting around hoping it earns you $2,500 in a year, or 2) putting $25,000 into a day trading account and using it to earn $2,500 in a couple weeks?

A Day In the Life of a Day Trader

I live in the U.S. Central timezone, which means the market opens at 8:30 a.m. I get out of bed at 7:30, make coffee, and I am sitting in front of my trade station by 8:00. I run two computers: one PC with four monitors for my trading platform DAS Trader, and a second PC with a single monitor for stock scanners and chat rooms for the various trading groups I belong to. That is a total of five monitors, which is a tiny number compared to Stephen Kalayjian's famous setup that fills an entire garage, but it's all my two eyes can handle. In my experience, 99% of day traders use three to six monitors while trading.

My computer's speakers output the audio from various chat rooms where members call out their trades live. It's a great way to feel engaged in the business of trading; no one should trade on an island. The psychology of that would be very difficult. Not only because of the loneliness, but also due to the lack of validation for your trading ideas and overall approach to the business of trading. Being part of a community with live trading is imperative for new traders. In my opinion, it would be almost impossible to simply open DAS Trader and stumble into being a profitable trader. Watching other traders and having meaningful discussions with them is absolutely critical to your success.

From 8:05 to 8:30 I build my watchlist. I like to trade 10-minute opening range breakouts (ORBs) and subsequent ABCD patterns for those symbols. During these 25 minutes, I look for ORB opportunities in the list of symbols identified by my Overnight Gapper scanner in Trade Ideas. Each morning, Trade Ideas finds between 5 and 50 symbols that meet my criteria, which are large volume, medium to high float, and a high overnight gap of at least 2%.

During my evaluation of the Trade Ideas scanner results, I may find between two and ten good ORB candidates. Then I eventually pick six to watch like a hawk in DAS Trader.

When the market opens at 8:30 a.m. Central (9:30 a.m. New York), the market immediately goes into hyper mode. It's like a hibernating bear waking up with 10 shots of adrenaline. Many symbols will have more volume in the first minute than they had during the entire 4.5 hours of pre-market trading. This is why we prefer to trade stocks on NYSE and NASDAQ rather than crypto or FOREX markets. 24/7 markets do not enjoy the predictable volatility created by pent-up

demand from markets closing overnight. The entire U.S. stock market day trading industry is built around this predictable volatility.

Starting at 8:30, I watch the six 1-minute charts on my monitors for the six tickers on my watchlist, and I also listen to the chat rooms. My right hand is controlling my trade PC's mouse, and the fingers of my left hand are poised on the keys of my X-keys macropad. I use hotkeys in DAS Trader that are assigned to the buttons of my X-keys for quick and mistake-free trades. I run screen capture software on both PCs to record all the action for review later. Recording your trades with video is an indispensable educational tool. You can learn much more about the stock price action and volatility from the video compared to a candlestick chart.

I always wait at least ten minutes after the market open before making a trade. By 9:00 I may have taken two to ten trades, or none on some days. There's no shame in that – if the setups aren't there, it's much better for your bottom line to not trade.

By 9:30 I'm done for the day. I never trade after this time. For one, I have a job to do as an engineer, but the other reason is that my playbook and trading style fits the volatile market open. I've never had an opportunity or desire to develop a playbook for the other market hours.

An Example Day Trade

XPEV on July 1, 2021 (Figure 2.1), is a good example of a trade that many day traders will look for when the market opens. XPEV was on many traders' July 1 watchlist as it "gapped" up almost 2% overnight. The "gap" refers to the visible gap you can see on the daily candlestick chart between the day's open price and previous day's close price. XPEV closed around $44.50 on June 30 and then opened above $46 on July 1 (a $0.50 gap). This is due to the change in price that occurs during after-hours trading, which isn't reflected in the candlesticks.

Stocks that significantly gap overnight (2% or greater) are prime targets for day traders. The gap is usually an indication of company news or event that is providing strong pressure to move the stock up or down. This usually means very high trade volume and volatility when the market opens, providing large price moves that day traders can profit from.

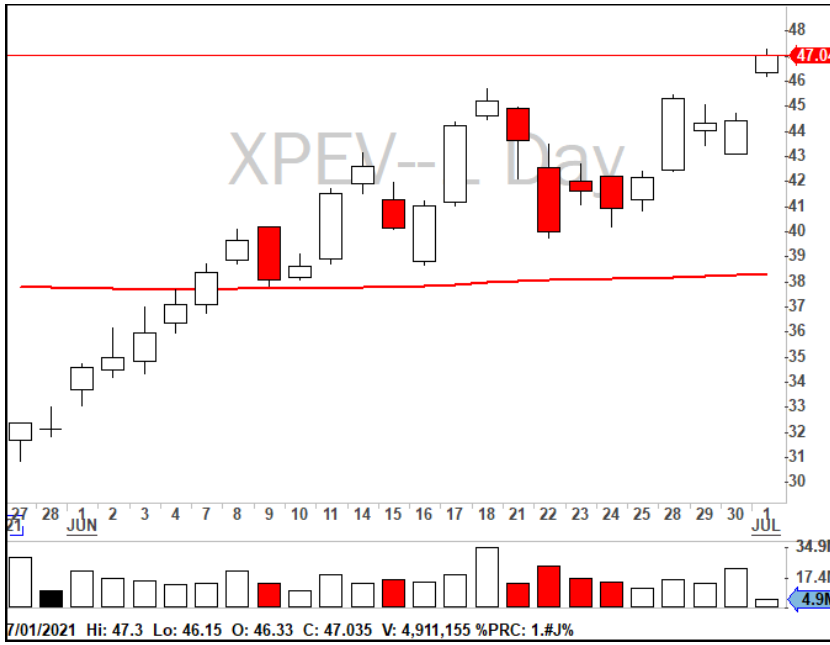


Figure 2.1 - Daily chart showing overnight gap up from 6/30 to 7/1.

Figure 2.2 shows the 1-minute candlestick chart for XPEV five minutes after the market open (9:35 a.m.). The overnight gap was clearly an indication of strong pressure to move the stock price further up after the market open. XPEV is the ticker symbol for Xiaopeng Motors, a Chinese electric car company. Electric car companies were hitting day traders' watchlists almost every day during 2020 and 2021. These were very volatile stocks trading with high volume and often having overnight gaps, which are perfect for day trading at the market open.

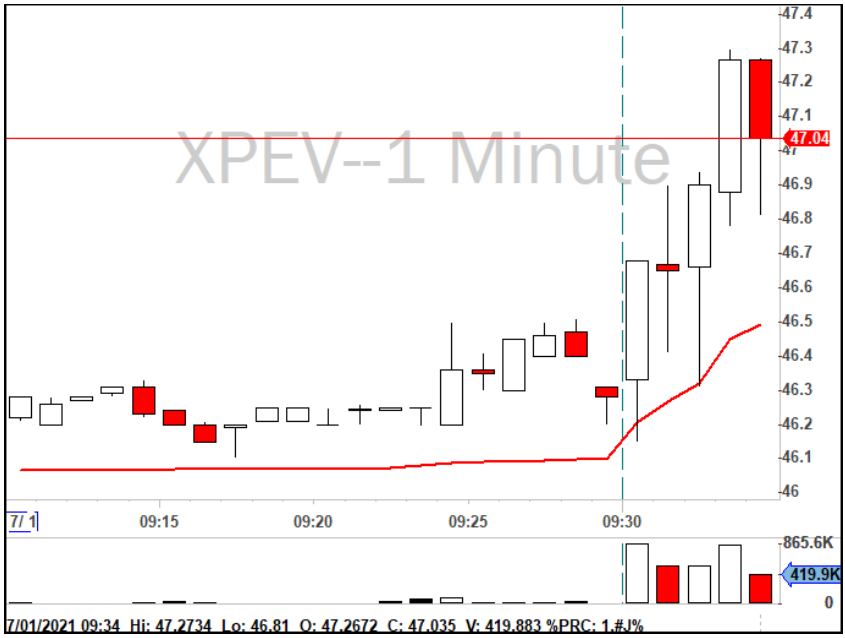


Figure 2.2 - 1-minute chart for XPEV on July 1, 2021.

The move from $46.30 at the open to $47.30 within four minutes is a good example of typical price action that traders capture for profit. That move of $1.00 is more than a 2% change in 4 minutes. With a modest trading account of $30,000 and standard broker margin of 4:1, the $1.00 move, if timed perfectly, could mean a profit of more than $1,200 in just a few minutes (assuming the trader uses 50% of their trading equity to purchase 1300 shares at $46.30). That amount of profit corresponds to an account growth of 4%. That's an astonishing amount of account growth for a four-minute trade. The S&P 500 grows at 7-8% per *year*. The world's most successful hedge funds are growing around 20-40% per year. Earning 4% in four minutes is quite impressive by comparison. Of course, not all trades are winners, and some net more than others, but growing an account by 0.5-2% per day is within reason for professional day traders.

If you can maintain 1% growth every day for 240 trading days (one year's worth of trading days), that is more than 1000% growth for the year. This is dramatically higher compared to the 7-40% of growth of S&P 500 and top hedge funds. This is what draws so many people to day trading. It's a lot more work than passive investing, but the potential returns are also much higher.

Figure 2.3 shows a more realistic trade for XPEV on 7/1/21. The entry at $47.05 is at the close of the 9:34 candle. At this point, the stock price is going down, as indicated by the red/dark-colored candle. A stock's price action is always fluctuating, which is known as "volatility." The 9:34 candle ended down, and so did the next 9:35 candle. But then four out of the next five candles were up. Based on the overnight gap and strong upward movement during the first five minutes after market open, my expectation was that the uptrend would continue. As everyone knows, the goal is to buy low and sell high, so that is why I bought where I did, on what we call a "pull-back." The idea is to buy on a pull-back so that you get a good price, then hope the overall trend of the stock's price action is still valid. Then you sell at a higher price, which is what I did in this trade.

Selling the shares at $47.85 means an increase of $0.80 per share. If you were trading with a $30,000 account and used 50% of your buying power towards the trade (roughly 1000 shares), that's a gross profit of $800. Broker commissions and fees would be around $10-15, so the net profit would be about $785 on the six minute trade.

Figure 2.3 - Example XPEV trade on July 1, 2021.

Why Day Trade

There are many ways to earn a living including speculation (trader, gambler, venture capitalist), prospecting (natural resource miner, fisherman), service provider (teacher, doctor, lawyer, waiter), intellectual property ownership (author, inventor, software developer), lender (bank, landlord), and manufacturer (factory, farmer). All these require you to rely on some combination of bosses, coworkers, and customers in order to operate. Day trading is one of the very few (perhaps only?) professions that does not rely on any of those. All you need is a brokerage account, computer, and an internet connection. No drama, no office politics, no annoying customers, and no demanding bosses. It's just you versus the markets.

Another incredible benefit of day trading is that it can be carried out from anywhere in the world. You don't have to be in the U.S. or be a U.S. citizen to trade U.S. markets. Also, experienced traders don't need fiber-optic internet and nine-plus monitors to trade. Many traders do just fine trading from beaches in the Caribbean with just a laptop on hotel Wi-Fi and 1-2 external USB monitors. The freedom to be anywhere in the world and still earn a living is perhaps the greatest blessing professional day traders enjoy.

Day trading is also pandemic proof. The markets did not close for a single minute due to the COVID-19 pandemic of 2020-21. They did, however, see unprecedented volatility, which for day traders was like Christmas every day. Day traders don't care if the markets are setting record highs or record lows - all they care about is that the markets are moving. The worst thing for day traders are calm and flat markets.

Then, of course, is the earnings potential. Chapter 5 - "The Binomial Distribution and Trader Income" shows how 7-figure incomes are possible in day trading. However, it's important that you understand that it is very difficult to achieve this level. Not every basketball player makes the NBA and not all traders drive Lambos. Only the best of the best will reach this level, but that doesn't mean you can't earn a great living while being your own boss and working from anywhere in the world. It's important to properly set and manage your expectations. If you expect to be driving flashy cars and buying a diamond Rolex in six months, you are doomed to fail as a trader. The proper mindset is to expect to fail miserably at first, and to slowly and steadily improve over the course of many months and years. This is why learning to

trade in simulator is so important. A simulator account allows a new trader to use the trading platform just like real trading without risking real money. It is expected that you'll spend at least a few months in simulator before graduating to live trading, and we'll discuss later in the book how to tell when it's time to make the jump.

Day trading can pay handsomely in terms of money, but it pays the most in terms of time. Your workday can be over in less than an hour from the time you wake up; most people aren't even at their desks within an hour after waking up. Then it's eight to ten hours later before they return home, exhausted with not much energy for anything else. For the average working stiff, it's dinner and T.V. after work and then back to bed to repeat it all again the next day. If you work on the U.S. west coast as a day trader, your workday may be over by 7:30 a.m. every day. You have essentially gained your entire life back, to fill your days any way you want.

You can also realistically consider having another job in addition to trading. It's a bit more difficult in some time zones, but it's still doable from just about anywhere in the world.

For these reasons, I believe day trading is the ultimate profession (or second profession). The combination of income potential, freedom, challenge, and fun is unbeatable.

Summary

- Succeeding in any business is difficult with most dropping out within a few years, which is also true for day trading.
- Successful traders have the dedication, execution, and resilience that unsuccessful traders do not.
- Day trading involves technical analysis of charts and price action and is not considered "investing," which focuses on fundamental analysis of companies and markets.
- Day traders hope that their more active approach to trading volatile stocks will lead to higher returns, whereas long-term investors aim to make smaller returns with less effort.

CHAPTER THREE
Stock Market Basics

In "the old days," you had to make a phone call to your broker to submit an order to the stock exchange on your behalf. Before electronic trading over the internet, "day trading" had a very different meaning. It basically took a full 24 hours to make a trade. You would check the newspaper for yesterday's closing prices, call your broker to trade on your behalf, and then wait until the next day's paper came out to make your next move.

Today, you can still pick up the phone and call your broker to place orders for you, but they'll charge a premium for doing so. Nowadays, they would much rather you use their software on your computer or smart phone to place the order yourself.

Traders today may not have the personal relationships they used to have with their brokers, but traders still rely on them for a lot of behind-the-scenes support. Brokers provide important clearing and settlement services and guarantee their clients' trades. Without brokers, traders would have to check the credit of every trader they deal with.

Today, thanks to electronic trading from our personal computers and cell phones, trading in real time is possible. You can profit from buying and selling a stock just seconds apart. Serious day traders make trades from their home PCs or laptops (not mobile phones). The trading software is one of the two or three options provided by the broker. These options include DAS Trader, Sterling Trader, and others. Thanks to "direct access" brokers and trading platforms, traders can submit orders directly to the exchanges from their trading software. The orders are filled within 1-2 seconds (often less than 1 second) during normal trading hours.

Figure 3.1 shows an example of what a trader's screen (usually one of many screens) looks like. This screen shows: 1) candlestick charts representing changes in the stock's price, 2) montage window for

placing orders and also viewing the Level 2 order book (upper left), 3) Time & Sales window (between montage and candlestick charts), and 4) list of ticker symbols / watchlist (bottom left).

Figure 3.1 - Example of DAS Trader window layout.

Most traders are watching standard open-high-low-close candlestick charts such as those in Figure 3.1 to look for patterns telling them to buy or sell. These charts indicate the open, high, low, and close price during a specified time frame from 1 minute to 1 week or longer. You'll often find day traders looking at 1-minute, 5-minute, and 15-minute charts to look for patterns that fit their strategies.

All traders have a "trade playbook," which includes a description of the types of trades the trader is looking for. There are countless strategies and candlestick patterns to look for. It's impossible to become an expert at all of them, so it's important for traders to start with just a single strategy and master it before learning a new strategy. If a single strategy produces enough profits to make the trader happy, then there may not be any need to add additional strategies to their playbook.

An entry in the trader's playbook will include a detailed description of the candlestick pattern and other items about the stock's price and volume, entry strategy, share size, and exit strategy. All the information that tell a trader when to enter a trade is called the "setup." When a trader sees that a symbol's price, volume, and other factors meet the setup described in their playbook, they take the trade. Their stop loss and exit strategy will also follow the rules they have defined in their

playbook. Having a well-defined trade playbook is crucial to success as a trader.

The trade playbook, share size, stop loss, entry strategy, and exit strategy are all part of a comprehensive risk management plan, which we discuss in detail in Chapter 10 - "Risk Management." Your risk management plan will help ensure your wins are big, your losses are small, and that you do not blow up your trading account. A proper risk management plan also helps guide you in knowing the difference between a losing streak that is expected and one that is indicative of bad trading so you don't inadvertently trash a million-dollar strategy.

The act of trading mostly involves maintaining a well-defined trade playbook and risk management plan, and only taking trades that fit the parameters of those two sacred documents. A large sample of trades and some basic mathematics tell us when and how to modify strategies that are not working for us. By the way, some strategies may work for some traders and not others. The stock market is an incredibly complex and fast-moving entity. No two traders see it the same way at all times. Give two identical playbooks to two traders with the exact same trading platform and you will get two different results.

This is why the trade improvement process discussed in Chapter 10 is so important. There are no silver bullets or magic candlestick patterns that will make all traders profitable. Day trading is really about learning the skills of trading, and having a systematic method improving until you find what works for you. Other trade systems out there make this extremely difficult in my opinion. You may have to spend years stumbling around until you find what works for you. However, with The RST Way of trading, the entire trading process is dramatically simplified so it becomes much easier to find what works for you.

Double Auctions

The stock market is a two-sided auction, also known as a double auction. Every stock has two prices, the bid price (traders wanting to buy from you) and the ask price (traders wanting to sell to you). The price reported by newspapers and cable news channels are the most recent price at which a transaction took place. This could be a trade that hit the bid or the ask. The price shown on TV during the day is

always slightly out-of-date as the most recent price is changing almost every millisecond when the markets are open.

Figure 3.2 shows the montage window from DAS Trader including the Level 2 order book. The best bid and best ask prices are known as "Level 1" data. These are in the title bar of the window shown as "55.81 -- 55.82" in this example. "Level 2" is the complete order book of all bids and asks as shown in the two long columns of prices.

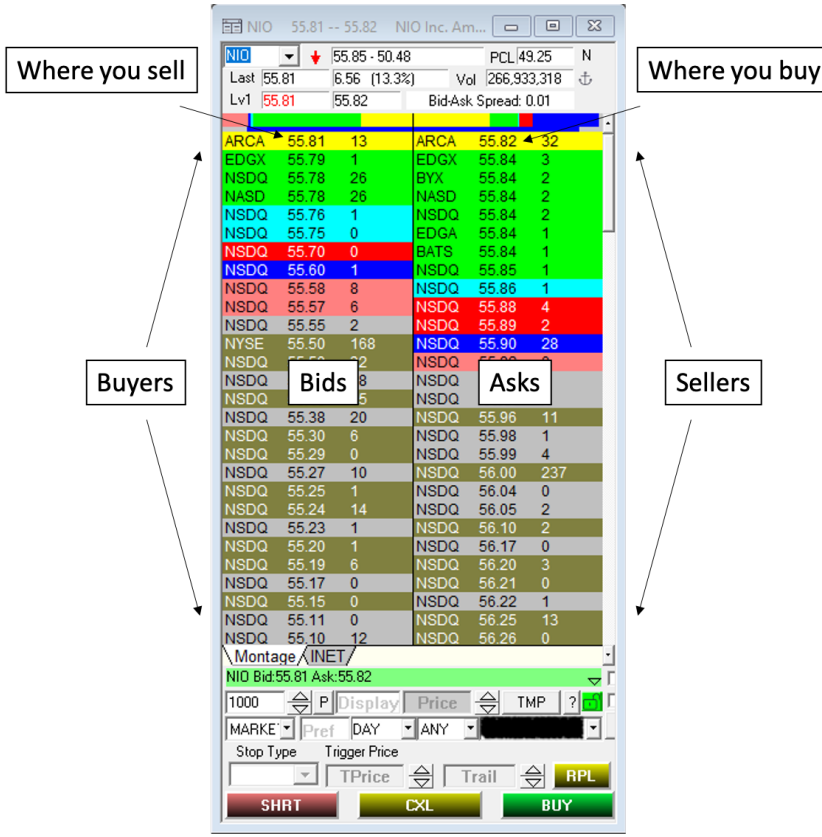


Figure 3.2 - Montage window in DAS Trader showing Level 2 order book for symbol NIO.

The Level 2 order book shows the double auction happening in real time. It's not possible to tell from the figure, but in real time the orders are rapidly changing on both sides of the order book. For highly volatile stocks, the orders may be changing faster than you can see them.

On the left-hand side of the figure are the orders to buy shares. It

shows the exchange, the bid price (what the buyer is "bidding" to buy shares), and the number of lots (one lot equals 100 shares).

On the right-hand side are the orders to sell shares. It shows the exchange, the ask price (what the seller is "asking" for their shares), and the number of lots.

If you want to buy shares, you can either trade with one of the existing sellers and purchase shares at the best ask price, or you can join the list of buyers on the bids and wait for the stock price to move to your price and fill your order. When buying from existing sellers on the ask, this is called "taking liquidity" from the market. If you put an order on the list of bids, you are "adding liquidity" to the market.

I once had a dream where the market glitched and I was able to buy on the bid and sell on the ask. It was incredible! (If you don't understand why this was so amazing, please reach out to me on Discord to discuss!)

When selling your shares back to the market, you have similar options. You can either sell to the existing buyers sitting on the bid or add an order to the list of asks on the right-hand side with all the other sellers and wait for your order to be filled.

Taking liquidity (trading with an existing order on the Level 2) is done by placing a "market" order. Adding liquidity (adding your own order to the Level 2) is done by placing a "limit" order. We'll talk more about the different types of orders along with the best ones to use for day trading later in the chapter.

You may have bought and sold stocks your entire life and had no idea you were participating in a two-sided auction like this, but this is how the stock market has always operated. Brokers like Charles Schwab and E-Trade want to make the experience as simple as possible, so this process is hidden away from you. However, to be a successful day trader, you must become completely comfortable with bids, asks, the order book, Time & Sales, and every thing else in the trade platform. When entering a long position, you'll be focused on the asks. When entering a short position, you'll be focused on the bids, and so on. Understanding the double-sided auction and the information being displayed to you in DAS Trader will become second nature to you.

Buy, Sell, Short, and Cover

Table 3.1 summarizes the terminology used for entering and exiting long and short positions.

Anticipated Direction	Position Taken	When Entering a Position	When Exiting a Position
Up	Long	Buy	Sell
Down	Short	Short (Sell)	Cover (Buy)

Table 3.1 - Terminology used for entering and exiting long and short positions.

When anticipating an increase in stock price, you buy shares, which is known as entering a *long* position. To close a long position, you sell your shares back to the market.

Figure 3.3 shows an example of what the Level 2 order book may look like before and after a successful long trade. These montage windows for NIO were captured ten minutes apart on October 14, 2020. The one on the left is at 9:30 a.m. and the one on the right is at 9:40 a.m.

When opening a long position on NIO at 9:30, you would buy shares of NIO at the best ask price of $23.99 as shown in the montage window on the left. Since there are a total of ten lots (1000 shares) available at that price, you could buy up to that many shares and get the $23.99 per share price (in reality, there's no telling exactly what price you'll get since there are other traders submitting orders at the exact same time, with liquidity being added and removed simultaneously, but the point is you'll be given the best price according to the number of shares available at each price level).

If you sold ten minutes later, the order book could look like the montage window on the right side of Figure 3.3. The best bid of $24.36 was only for 100 shares, so if you traded more than 100 shares, you would start to see price slippage after that. Per the order book, there were approximately 4600 shares on the book at $24.35, 6700 shares at $24.24, and so on.

Assuming you *were* able to get the absolute best price on the order book when you bought and sold, your gross profit would be $24.36-$23.99=$0.37 per share. If you traded 1000 shares, that would be $370.

When we discuss gross profit, we are referring to the profit before commissions and fees. Net profit is the profit after those deductions, which depends on your broker's commission structure and can vary

significantly depending on the brokerage and how you trade. For most traders, commissions and fees on a round-trip trade of 1000 shares would be about $10-$15, so net profit in this example would be about $355.

If instead of looking to go long you were instead anticipating a price *drop*, you would enter a *short* position. Technically speaking, you are selling shares that you borrowed from your broker. Although the physical act of entering and exiting a short position is similar to a long position in that it's just one button in your trading platform, what happens behind the scenes is a bit more complicated.

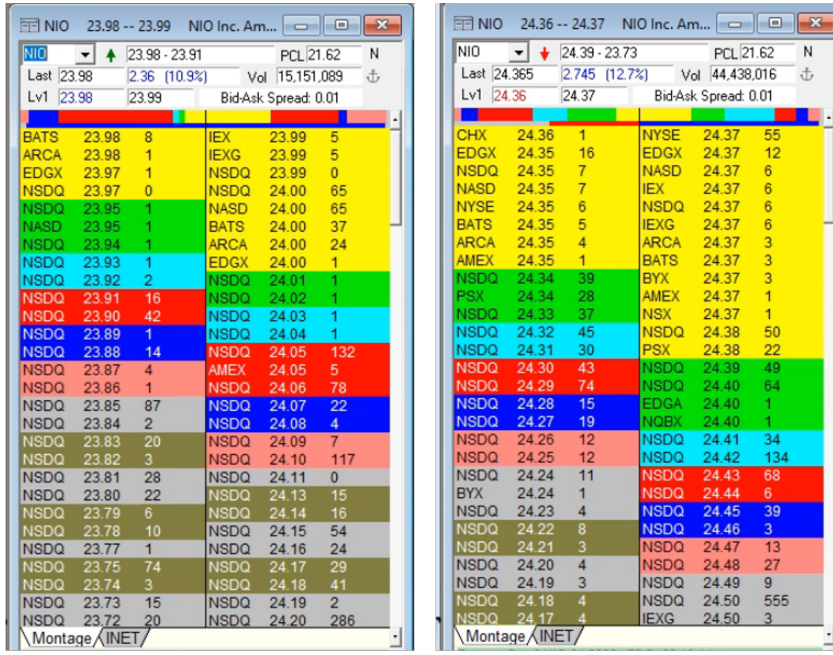


Figure 3.3 - Example of Level 2 order book before and after successful long trade.

When entering a short position, the first thing that happens behind the scenes is that your broker loans you shares to sell back to the market. The idea is that you believe you can sell the shares now and buy them back later at a lower price and pocket the difference. For example, let's say TSLA is trading at $800/share and you short 100 shares at that price. Your broker loans you the shares which are immediately sold to the market at $800/share. You now have $80,000 in proceeds but still owe your broker 100 shares. You make a profit if

you're able to buy 100 shares later at a lower price. If TSLA drops to $750/share and you cover your short at that price, then you'd spend $75,000 to buy the 100 shares that you owe your broker, and you'd profit the $5,000 difference.

Since you must borrow shares from your broker to enter a short position, you cannot short any stock you want. You are dependent on the inventory of shares for short that your broker maintains. This will vary day-to-day and even throughout the day. There is also significant variation among brokers with CenterPoint and Interactive Brokers having much better short inventory than CMEG in my experience.

Although the technicalities of shorting stocks is more complicated than going long, the actual process of executing either type of trade is very similar. Whether you are going long or short, it's still just one button in your trading platform to enter or exit the trade.

You may have heard that your losses on a short position are theoretically infinite, which is true, but there are some conditions. It's true that there is no upper limit on stock price so a short position gone bad could go to infinity and so would your losses. But in reality, brokerages impose minimum account equity requirements and issue margin calls when necessary. Brokers aren't going to allow you to lose all of your equity plus the margin they extended to you thus putting their own capital at risk. So whether it's a long or short position, when your account equity gets too low, they will issue a margin call, which means you have to deposit more funds or they will automatically close your position and you take the loss.

However, this is something that you should never encounter as a day trader as you should never risk more than 1-2% of your account equity on any given trade (more on that in Chapter 10).

Short Selling Restriction (SSR)

As if shorting stocks wasn't already complicated enough, the Short Selling Restriction (SSR) is another you need to know in order short stocks. You will run into this almost daily trading volatile stocks, so you need to know what "SSR" means when you see it next to a symbol in your trading platform (see Figure 3.4).

Figure 3.4 - DAS Trader montage window for DPHC showing the stock is trading under Short Selling Restriction as indicated by the "SSR" printed next to the bid-ask spread.

The SSR rule was imposed by the SEC in 2010 to prevent stocks from rapidly tanking. If at any point during the day a stock's best bid price is 10% lower than the previous day's close, the SSR rule kicks in and remains for the rest of the trading day. It applies to all stocks listed on American exchanges like NYSE and NASDAQ. The SSR circuit breaker effectively prohibits the display or execution of a short sale order at the best bid or lower, even if the short sale order was a market order.

Therefore, under SSR, you are not allowed to take liquidity from the market by short selling on the bid. Preferential treatment is given to traders holding long positions. They can still sell their shares on the bid as normal, but short sellers must do so with a limit order higher than the best bid. In the case of DPHC in Figure 3.4, you would have to submit a limit order for at least $20.01 (at least one tick above the best bid of $20.00). If the bid increases to that amount, then your order is recognized by the exchange and will be filled along with the other sell orders.

For these reasons, you must have two hotkeys in DAS Trader for short selling: one for when the stock is under SSR and one for when it is not. When there is no SSR, your hotkey would short sell on the bid as normal. Under SSR, you must submit a limit order of at least one tick (one cent for most stocks) above the best bid. This is why SSR is also known as "the uptick rule." Your hotkey would include a command like "bid + 0.01". Of course, there's no guarantee that the order will be filled since there may not be enough supply to meet the demand of all the short sellers at that price.

Market, Limit, and Marketable Limit Orders

When you place an order to buy or sell shares, you must specify what type of order it is. There are three common types of orders: 1) market, 2) limit, and 3) marketable limit.

Market orders are filled at the best bid/ask price on the order book. If there are not enough shares to fill your order (due to the countless other orders moving through the market at that moment), then the rest of your order will be filled at the next best price, and so on. This is known as price slippage, and the bigger your order is, the more price slippage you can expect. That said, price slippage is not really an issue for small accounts under $50,000 or so when trading high-volume, high-float stocks (stocks with many outstanding shares and lots of orders moving through the market).

The advantage of a market order is that your order gets filled as fast as possible. There is no control on price slippage, but you have peace of mind that your order will be fully executed.

The second type of order is the limit order. Limit orders allow you to get better pricing on your trades compared to a basic market order. With a limit order you specify the price you want to trade at. This means you have to wait for the market to move towards your price before the order is filled, so if the market does not move in that direction, your order will not get filled. The control over price with a limit order is nice, but comes with the risk that the order never gets filled. It may be only partially filled (depending how many shares are available once the market moves to that price), or not filled at all. This is a huge problem for day traders. If you're already in a position and try to use a limit order to exit, but the price never gets there, then you will be stuck in your position and may have to exit at a worse price. It

would be much better to use a market order on the exit so that you get exited immediately, even if the price is a few cents worse.

That said, in highly volatile markets, the price slippage you can encounter with a market order can be quite scary. With wild price swings up and down in a highly volatile stock, you could attempt an exit thinking you have a $500 profit but by the time your order gets filled (after the hundreds or thousands of other traders trying to exit), your $500 profit may actually be much worse, or even become a loss (these are extreme cases, this is not a daily thing – some traders just avoid these extremely volatile tickers and never have to experience this).

It should be clear that market orders are preferred for day traders since it gets them in or out of the position as fast as possible, but it would be nice if there was a way to control price slippage, which is where the "marketable limit" order comes in.

Marketable limit orders are essentially limit orders with really bad pricing. Instead of specifying a price *better* than the current best bid/ask price as you would normally with a limit order, you would specify a price *worse* than the current best bid/ask price.

By doing this, your marketable limit order will start getting filled immediately *up to the price you define with your order*. So it's like a market order since it begins to get filled immediately, but there is also control over the amount of price slippage allowed. Therefore, it's the best of both market and limit orders, and this is the preferred type of order for day traders.

In practice, when trading a small account under $50,000, all of your marketable limit orders will essentially perform like market orders if you allow a reasonable amount of price slippage. In other words, you should very rarely hit your price slippage cap and not have your entire order filled immediately. For example, if you define your marketable limit order price as "Ask + 0.10" to enter a long position, it's very likely your entire order will be filled. On the other hand, if your order was for 100,000 shares on a large account and you specified "Ask + 0.02" instead, then there is a very high likelihood your order will only be partially filled.

All of my DAS Trader hotkeys are programmed for marketable limit orders with ten cents of price slippage allowed (e.g. "Bid - 0.10" or "Ask + 0.10"). I tend to trade stocks under $50, and my hotkeys sometimes don't work well for higher priced stocks that can jump more than $0.10 very quickly.

I don't increase the amount of price slippage since 0.10 works very well for the stocks I tend to trade. The price slippage cap limits my exposure in very volatile markets. In those cases, I would much rather only be partially filled on the entry than totally filled at a bad price. This is the whole point of marketable limit orders after all.

My preference would be to use marketable limit orders to enter a trade and market orders for the exit. Unfortunately, the DAS Trader "range orders" we use for our hotkeys under The RST Way of trading force us to use limit orders on the exit in some cases (see Appendix D). I'm hoping to find a workaround for this in the near future or that DAS Trader will expand the functionality of its range order hotkeys.

Stop Orders

Before entering a trade, you should decide the price at which you will exit for a loss, which is known as the stop loss. In general, you want to maximize profits and minimize losses, so being able to quickly exit a losing position is critical. The worst thing you can do is sit around on a losing trade, waiting for it to turn around. This would only compound your losses. As soon as the stock price proves the initial assumptions about its direction and behavior were proven false, you must exit the trade. Never hold it with hope of a turnaround. Remember, you don't need to be right about every trade to be profitable. Depending on your R/R ratio, you can lose many more trades than you win and still make a fortune.

There are two types of stop losses: mental stop losses and actual stop loss orders. A mental stop loss is used by someone who has a rough idea of where they will exit the trade for a loss, but they don't want to fully commit to a specific price because the stock's price action is what's most important to them. This means that while the position is open, the price could be fluctuating dramatically, and the trader has enough experience to identify what is a true trend versus erratic/random behavior. This trader does not want to get stopped out of a trade prematurely by a transient down tick, so instead will watch the price action like a hawk and exit the position when the trade goes bad.

This can work for the most experienced traders, but it has some disadvantages for beginners. The biggest disadvantage is that the price can move away very quickly and large losses can pile up within a few seconds. To avoid this, it is recommended that all new traders use real

stop loss orders to exit the position when the price moves to a predetermined value. In my opinion, all traders should use real stop loss orders instead of mental stop losses. This is part of "The RST Way" of trading and real stop loss orders are necessary to ensure we get the same risk/reward ratio for every trade ("fixed R/R ratio" trading is the center of the RST way of trading and is something we'll discuss in detail later in the book).

Setting the stop loss close to the price action will make your losses smaller, but will come with an increased likelihood of getting stopped out which may lower your win rate and profitability. Setting the stop loss far away from the price action gives the trade more room to breath and may yield a higher win rate, but will come at the expense of larger losses.

Where to set the stop loss is a tricky balancing act to get used to at first, but over time you will get the hang of it. We'll discuss how to find the sweet spot for stop losses in Chapter 10.

Market Hours & Volume

The New York Stock Exchange (NYSE) and National Association of Securities Dealers Automated Quotations (NASDAQ), the two primary stock exchanges in the United States, are open for trading from 4 a.m. to 8 p.m. EST. "Pre-market" is 4 a.m. to 9:30 a.m., "regular trading hours" are 9:30 a.m. to 4 p.m, and "after-hours" is 4 a.m. to 8 p.m. No trading occurs overnight from 8 p.m. to 4 a.m. Most trade volume occurs during regular hours with usually <5% of trade volume occurring during pre-market and after-hours.

All three periods from 4 a.m. to 8 p.m. are available for trading, but since liquidity and volatility are so important to day traders, you'll mostly be trading regular hours since so little trading occurs during pre-market and after-hours.

Figure 3.5 is an example of what trading volume looks like throughout the day. The bars at the bottom of the chart represent trade share volume for each 30-minute period during the day from 4 a.m. to 8 p.m for AMD on 7/9/21. The volume during pre-market and after-hours trading barely registers on the chart, with the highest volume being the first half our after regular trading begins at 9:30. This first half-hour is where most day traders try to make their money.

Figure 3.6 is a zoomed-in view of the first hour, further illustrating

how the market explodes with volume and volatility at market open with the first 1-minute candle having the largest volume on the chart. All of the trading demand that is built up overnight is released at this point rather than during pre-market hours. Some strategic trading occurs during the pre-market, but 99% of the time traders prefer having the liquidity that is only available after the market open.

The problem with trading in the pre-market is that the order book is very thin and is basically static with almost no liquidity moving through the market. If you have a large trade to make, the price slippage will be enormous as you eat through the order book. That's not a problem during regular hours as liquidity is usually being added as fast as its being taken.

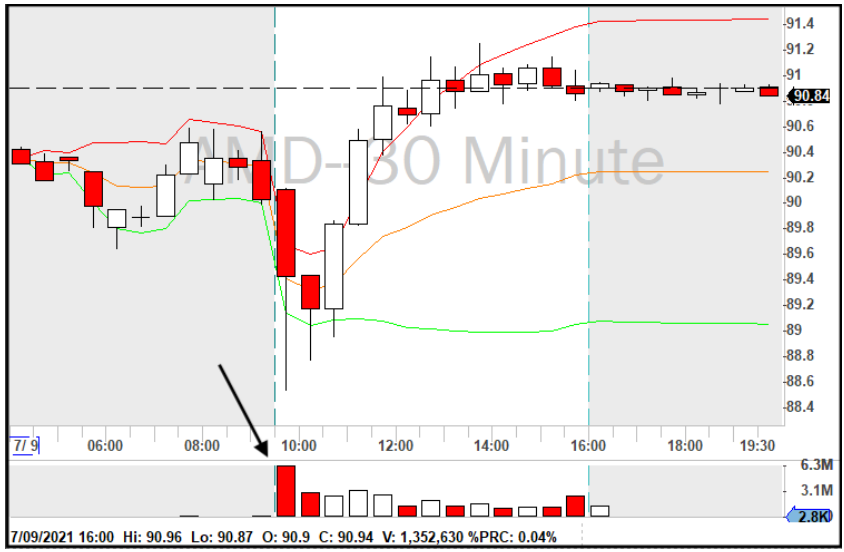


Figure 3.5 - 30-minute chart for AMD on 7/9/21 showing price candlesticks (top) and share volume (bottom). The highest volume during the day is found during the first half-hour after market open.

Figure 3.6 - 1-minute chart for AMD on 7/9/21 showing volume per minute. The highest volume is found in the first minute after market open.

The Power of Leverage

Leverage means being able to use someone else's money to amplify what you could afford to buy on your own. The two most common examples of this are real estate and stock trading. Leverage is a big part of why so many people find these investment opportunities so attractive.

Brokers in the U.S. provide accounts with up to 4:1 margin, and overseas brokers like CMEG offer as much as 6:1. With 4x margin on a $30,000 equity account, your buying power is $120,000. Being able to buy four times the number of shares means your profit will be four times greater compared to having no margin. This also means your losses will be four times greater.

Although it's highly recommended to trade on margin with leverage, you don't have to trade on a margin account. You could use a cash account with no leverage instead, but if you're a successful trader, why would you? If you're a profitable trader, there is no reason to trade on a cash account and miss out on the profit amplification you get with a margin account.

Pattern Day Trader Rule

Actually, there *is* one reason you may want to trade on a cash account, and that has to do with the Pattern Day Trader (PDT) Rule.

The Pattern Day Trader Rule makes it a requirement for day traders to have at least $25,000 in their trading account to participate in day trading on margin. The idea behind this legislation is to protect people from themselves. By making it harder to get into day trading, only the more serious traders will get into this business and hopefully less folks will lose their life savings in the stock market.

From the SEC: "FINRA rules define a pattern day trader as any customer who executes four or more 'day trades' within five business days, provided that the number of day trades represents more than six percent of the customer's total trades in the margin account for that same five business day period." The SEC defines a "day trade" as: "The purchasing and selling or the selling and purchasing of the same security on the same day in a margin account."

If the PDT applies to you, then the Minimum Equity Requirement kicks in. From the SEC: "The minimum equity requirement for a customer who is designated as a pattern day trader is $25,000. This $25,000 requirement must be deposited into the customer's account prior to any day trading activities and must be maintained at all times." By requiring at least $25,000 to open an account for margin day trading, the SEC is trying to limit the participants to serious traders only.

The PDT Rule only applies to traders using a margin account. If you trade on a cash account, the PDT Rule does not apply. You can make as many day trades as you wish, but you will not be able to enjoy the profit amplification of a margin account.

Traders using U.S. brokers are subject to the PDT Rule and Minimum Equity Requirement. However, another option is to use overseas brokerages such as Capital Markets Elite Group (CMEG). You'll encounter many day traders that use CMEG in order to enjoy 6:1 margin without having to maintain a $25,000 account balance. Last time I checked, the minimum equity requirement was $500 to have 6:1 margin at CMEG.

Summary

- The stock market operates as a double auction, with buyers and sellers trading on two separate sides of an order book.
- The market open at 9:30 a.m. EST is the busiest period of the day with the highest volume and volatility and is prime time for day trading.
- *Market* orders are filled at whatever the current best price is on the order book. Traders are vulnerable to wild price swings when using market orders but are more likely to have their orders accepted and executed by the exchange.
- To protect themselves from getting bad pricing, traders use *limit* orders to define the price they are willing to trade at. This control comes at the risk of not having an order filled if the price moves away from the limit order price.
- With *marketable limit* orders, traders get the best of both worlds with high likelihood of order fulfillment as well as some control over price slippage.
- Stop losses are used to limit losses on a trade and are critical to day trading success. Real stop loss orders at a specified price are recommended over mental stop losses.
- Most day traders trade on margin accounts which provide leverage and amplification of buying power.
- The Pattern Day Trader (PDT) Rule prohibits traders at U.S. brokerages from day trading on margin accounts without maintaining a $25,000 minimum equity balance. Offshore brokerages such as CMEG provide up to 6:1 margin and are not subject to the PDT Rule.

CHAPTER FOUR
Stocks in Play

In this chapter we do some market research on the stock market. Before committing to any business venture, the first thing you should do is market research. Some questions that an entrepreneur should answer include: How many potential customers are there? What is the average revenue per customer? What is total projected revenue? These questions are critical to any new business, and day trading is no different. Are you still going to try day trading if you have to sit in front of a wall of monitors for 6.5 hours per day for just one trade? If this is how day trading works, is it still attractive to you? Fortunately, this is not the case, and I hope this chapter and the next give you better insight into the business of day trading.

We will also sprinkle some Python code on this chapter. Being able to code helped me to explore these topics when I first got into trading. However, learning to program is not critical to your success as a trader, especially since I'm sharing with you what I've learned from the Python studies. That said, since the purpose of this book is to provide an analytical and technical look at day trading, I assume many readers will have some coding experience and may want to replicate some of the code in this book or adapt it and further explore the topics on their own. Therefore, I have made the code available for download on the book's website.

In this chapter we'll answer the following questions:

- How many stocks/ETFs are there to trade?
- How many of these typically gap overnight? (How many Stocks in Play could there be?)
- What percentage of the Stocks in Play will present tradable setups?
- How big are the moves made by Stocks in Play? (How much can be earned on each trade?)

- How many stocks/ETFs are there to trade? (How many potential "customers" are there?)

As a day trader, you'll be trading stocks and ETFs listed on NYSE and NASDAQ. Unfortunately, the websites for NYSE and NASDAQ do not make it easy to see how many tradable stocks and ETFs are being traded on the exchanges.

One way to get a complete list of symbols is to use FTP software to connect to ftp.nasdaqtrader.com. Inside the SymbolDirectory folder are two files: nasdaqlisted.txt and otherlisted.txt.

The nasdaqlisted.txt file has about 4000 symbols from NASDAQ, and otherlisted.txt has about 5100 symbols from NYSE for a total of 9100 symbols at the time of this writing.

9100 symbols are far too many for a day trader to keep an eye on. Not even Stephen Kalayjian with his dozens of monitors could handle that. Most of these 9100 companies are low-float and low-volume stocks anyway, and therefore of low-interest to day traders.

If we want to figure out how many stocks could potentially be of interest each day, we need to put our Python hats on. IEX Cloud provides free and premium access to real-time and historical stock market data. We can use their data to filter the 9100 symbols based on stock price, average daily volume, and float to get a more accurate number of daily tradable stocks.

The code below returns the number of symbols supported by IEX Cloud, 9357, which is close to the number 9100 we got from the nasdaqtrader.com

FTP server. I would say those are close enough and agree with each other.

```
[8]: iexc_symbols = requests.get(iexc_base + '/ref-data/symbols?token=' + iexc_key).json()
     len(iexc_symbols)

[8]: 9357
```

After removing all symbols that are not common stock, we get 5609 symbols. We are also removing all ETFs for this study, although there may be some ETFs that you'll want to trade. But it's just a handful of ETFs that day traders are usually trading so that number does not significantly impact this study.

```
[11]: # Keep only 'common stock' symbols (i.e. ignore ETF, preferred stock, REIT, etc.)
      cs_symbols = [x for x in iexc_symbols if x['type'] in ['cs','ad','gdr']]

      # Simplify to list of symbols and remove other data
      symbols_list = []
      for item in cs_symbols:
          symbols_list.append(item['symbol'])

      len(symbols_list)

[11]: 5609
```

To answer the question of "how many stocks are there to trade?", we find that there are more than 5000! No shortage of potential customers here.

How many of these typically gap overnight? (How many Stocks in Play could there be?)

Because there are so many stocks and ETFs to trade, day traders can be picky about the ones they choose to keep an eye on for trading. Price, daily volume, pre-market volume, overnight change (gap), and number of outstanding shares ("float") can be used to find the best stocks for day trading. Day traders typically look for volatile stocks (large price movement in a short amount of time) with higher than average volume, and they also tend to avoid "penny" stocks, which are easily manipulated. The stocks that meet a trader's criteria are known as "Stocks in Play."

If we apply filters for price, average daily volume, and float, we can shrink the number of symbols significantly. The next three filters we apply to the list of 5609 symbols are:

- Stock price greater than $10
- Average daily volume greater than 10M shares
- Float greater than 20M shares

The code below is used to filter out stocks using these criteria (the code below is simplified for print purposes. The actual Jupyter notebook is longer). It's not important to be an expert with this code – it's included to illustrate that in less than 50 lines of code we can create very useful tools for day traders in Python.

```
[ ]: print('Start: ' + str(datetime.now()) )

watchlist = []
for this_chunk in symbols_chunks:

    this_batch = ','.join(this_chunk) # string for batch API call

    # Get date of previous trading day (this is needed so we can calculate overnight % change to find overnight gappers)
    res = requests.get(iexc_base+'/ref-data/us/dates/trade/last/1/'+watchlist_date.strftime('%Y%m%d')+'?token='+iexc_key)

    # Get prev_date charts
    URL = iexc_base+prev_date_URL
    res = requests.get(URL)

    # Get watchlist_date charts
    URL = iexc_base+watchlist_date_URL
    res = requests.get(URL)

    # loop through symbols, add to watchlist if they meet the criteria
    for symbol in prev_date_charts:

        if (len(prev_date_charts[symbol]['chart']) == 0) or (len(watchlist_date_charts[symbol]['chart']) == 0) :
            continue

        ### Filters for price, volume, float, overnight change, etc. ###

        run_gapper_filters()

        # add symbols to watchlist that survive all criteria
        print('adding', symbol, 'to watchlist')
        watchlist.append([symbol, prev_day_close, watchlist_day_price, overnight_change, symbol_float, premarket_volume])

df = pd.DataFrame(watchlist, columns=['Symbol','PDC','Open','Overnight Change', 'Float', 'Premarket Vol'])
df = df.sort_values('Overnight Change', ascending=False)
df.to_excel(watchlist_date.strftime('%Y%m%d')+'_gappers.xlsx')

print('End: ' + str(datetime.now()) )
```

After applying the price, volume, and float filters, the number of symbols shrinks to 764. This is still far too many stocks for a day trader to pay attention to, so we need more filters.

Another important filter is overnight gap. The smallest gap most day traders pay attention to is 2%, and some prefer to use 3% or higher to identify their daily list of "Stocks in Play." We also want to the price to be moving with volume, so we can also apply a pre-market volume filter as well. Using an overnight gap filter of at least 3% and pre-market volume filter of at least 250,000 shares, we whittle the list down to 31 symbols, which is much more manageable. Needless to say, there are plenty of tradable stocks every single day.

Prior to the market open at 9:30 a.m. is when a trader will do their "pre-market prep" and evaluate the Stocks in Play that hit their pre-market scanners. The trader will evaluate the news for those symbols and the price action in their candlestick charts in order to identify 3-8 symbols that will become their own personal watchlist. These will get entered directly into DAS Trader and their candlesticks monitored very closely for trade setups. We'll discuss scanners and pre-market prep further in Chapter 8 – "Scanning for Stocks in Play."

What percentage of the Stocks in Play will present tradable setups?

The short answer is "plenty." If you sit around all day watching scanners, you could find hundreds of tradable opportunities throughout the day. Of the 10-50 that pass my pre-market scanner in the morning, virtually all of those will present opportunities for ORBs, ABCD patterns, reversals, or other patterns at some point during the day. Plus, you could setup intraday scanners that find even more opportunities throughout the day.

A "tradable opportunity" means having a recognizable candlestick pattern that later results in a change in stock price sufficient to produce a profit.

In the first 30-60 minutes after the open, there are more than enough opportunities to trade. Sometimes, traders will take an ORB within the first few minutes after the open and then call it a day afterwards. Of the four to eight symbols on your morning watchlist, you'll usually take a trade on 1-3 of them. You may take several trades on each, but you would rarely trade more than 3-5 symbols in that first 30-60 minutes after the open. Some symbols will setup more cleanly than others and you will be focusing your attention there.

Later in the day, if you choose to trade past the first hour of the day, you will use different scanners with different criteria. The strategies and types of stocks that are attractive at market open are not necessarily great during other market hours. For example, you probably aren't looking for reversals when the market opens, but this strategy is very useful midday. After a strong sell-off at market open based on overnight news, stocks often rebound midday as investors are looking to get a good price on that symbol. This may be a perfect time to scalp profits over the course of 15-60 minutes while the price bounces off the daily low.

How big are the moves made by Stocks in Play? (How much can be earned on each trade?)

Figure 4.1 shows a typical 1-minute candlestick chart for a Stock in Play, which in this case is symbol "T" (AT&T). You can see that at the market open the stock began to sell off from about $29.90 to about $29.70. The purple line is VWAP (Volume Weighted Average Price), which is an indicator line that many traders pay close attention to. We'll discuss it more in Chapter 9 - "Trade Playbook," but for now just

know that it is often used to determine good entries and exits for Opening Range Breakout (ORB) trades. Many traders who were watching T on this day saw the first candle close below VWAP and continue to go down. This momentum going through VWAP is a strong sign that it may continue to go down, which it did. The break below VWAP is where most traders will enter and take a short position.

The stop loss would be another candlestick that closes above VWAP, which never occurs on this chart. So many traders would keep the position open until it begins to reverse. At around 9:37 there are a couple more candlesticks with higher highs, but not significantly higher, so most traders would hopefully ride those out and not exit the position until the large white candle that closes at 9:42.

The change in price from entry at $29.70 to exit at $29.10 is $0.60. That's 2%! If you trade a small-to-medium sized account ($5,000-$50,000), and you use half of your equity per trade with a 4:1 margin account, you've earned a 4% return on your account on an 11-minute trade.

This example, similar to the other examples already shown in the book, were chosen because they are typical, ordinary trades. These are the types of trades you can expect to find on your watchlist at the market open most days. A swing of 1-2% over the course of 5-15 minutes is very common. Most days you'll also encounter stocks that swing more than 10% in the same time period. This is especially true since the COVID-19 pandemic started, which introduced a significant amount of volatility into the markets.

Figure 4.1 - AT&T 1-minute candlesticks at market open showing possible entry and exit for Opening Range Breakout trade.

Summary

- There are more than 5,000 stocks on NYSE and NASDAQ available to trade.
- Day traders use scanners to filter these stocks based on volume, float, price, overnight gap, and other parameters in order to identify Stocks in Play for the day.
- There are typically dozens of Stocks in Play each day, depending on the scanner criteria used. Traders then use news and pre-market price action to identify which 3-8 symbols they want to include in their personal watchlist, which they enter into DAS Trader and monitor for trade setups.

CHAPTER FIVE
The Binomial Distribution and Trader Income

The most important piece of mathematics to traders is almost never talked about. Search your favorite internet forum or Discord server for "binomial distribution" and see how many hits you get. In my opinion, "binomial distribution" are the two most important words in this book. Every trader needs to think about their trading in terms of sampling a binomial distribution as this dictates almost all aspects of our trading. First, the binomial distribution tells us how long our losing streaks could be. This in turn drives how much we should risk on each trade so that we don't lose too much capital during such a streak. This of course defines our share size, and so on.

If you're interested in day trading, then there is a good chance you've read about famous hedge fund managers like Jim Simons, Peter Muller, Ken Griffin, and Boaz Weinstein. These billionaire hedge fund managers have a lot more in common than just working on Wall Street. Universally they are interested in game theory, statistics, probability, chess, poker, sports betting, and other forms of gambling. At one point or another they all considered card counting in blackjack or becoming professional poker players.

They are also math geniuses. The binomial distribution is just the tip of the mathematics iceberg at their firms. The binomial distribution is to them like tying our shoes is to us. I recommend "The Quants" by Scott Patterson if you're interested in learning more about these firms and the fascinating men and women behind them.

Although we may never be billionaire hedge fund managers, there is a lot we can learn from them to improve our trading. It's all about risk management. "Hedging" is synonymous with risk management. The key to success as a day trader is being able to define risk and

reward for your trades, calculate what the expected outcomes are, and identify when your trading has gone off the rails. The binomial distribution does all of this for us.

The binomial distribution isn't just a concept related to day trading. It pops up everywhere in our day-to-day lives. For example, if there is a 20% chance of rain every day this week, what is the likelihood it will rain at least one day? If you flip a coin 10 times, what is the probability of getting at least 5 heads? If there is a one in a thousand chance of getting a Golden Ticket in a chocolate bar, how many bars should I buy in order to have a 50% chance of finding a Golden Ticket?

If you studied statistics and probability in high school or college, then you've already seen the binomial distribution. If you're like me, then you probably forgot it ages ago, but as an electronics reliability engineer, the binomial distribution is something that I actually use on the job. For example, I use it to answer questions like, "If a spacecraft data recorder uses memory chips that fail at a rate of 1% per year, and we're flying twenty of them on our next mission, what's the likelihood that at least ten out of twenty memory chips will survive a 10-year mission?"

In this chapter we use the binomial distribution to answer:

- What factors drive account growth and trader income?
- How much variation in income can be expected month-to-month?
- How much money can a day trader theoretically make?

What factors drive account growth and trader income?

Wondering how much you can earn as a day trader is the same as asking how quickly you can grow your account, which depends on your win rate, risk/reward ratio, trade frequency, and account size.

The win rate is the number of trades with a positive net after commissions and fees divided by the total number of trades. That could be just $0.01 but it still counts. If you have 1000 trades under your belt with 603 netting $0.01 or more, then the win rate is 60.3%.

The risk/reward ratio (R/R ratio, or RRR), is the ratio of the average

size of the losing trades to the average size of the winning trades. Most traders need to calculate this *after* they've made some number of trades. Under The RST Way of trading, we *choose* our R/R ratio before trading and use DAS Trader hotkeys to enforce that R/R ratio on every single trade.

This a unique and significant aspect of The RST Way of trading, which is why it's sometimes referred to as "fixed R/R ratio" trading, which then allows it to be "one-button" trading, which we'll discuss in detail later. For now, understand that RST traders are inherently a bit different from other traders in that the R/R ratio *drives* our trading, not the other way around. We enforce a specific R/R ratio on every trade, and adjust the R/R ratio block to block in order to make us more profitable. (That's a preview into the built-in method of improvement within The RST Way of trading, and how we exert very tight controls on our trading in order to make improvement block to block dramatically more straightforward compared to other traders.)

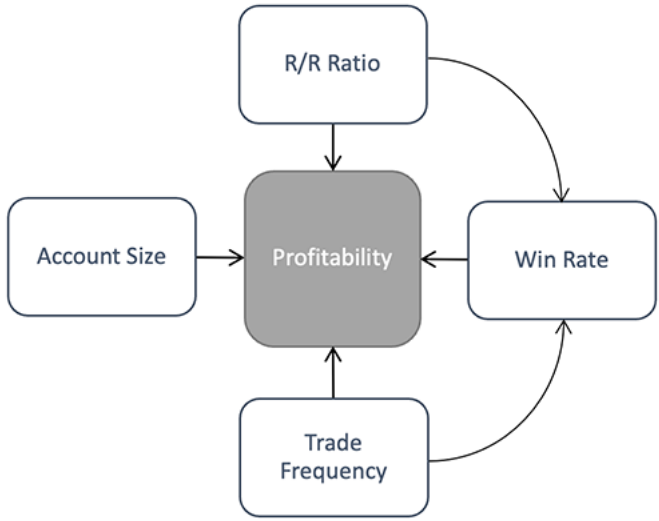


Figure 5.1 - Relationship between account size, R/R ratio, win rate, trade frequency, and profitability.

Figure 5.2 shows the relationship between win rate, R/R ratio, and profitability. Of course, the higher your win rate is, and the better your R/R ratio is, the more profitable you'll be. For an R/R ratio of 1/1, your win rate only needs to be 50% to breakeven. For R/R ratio of 2/1, it needs to be 67%, and so on.

Notice that any R/R ratio can theoretically be profitable, as long as the win rate is high enough. For this reason, you should keep an open mind as to what R/R ratio is best for you. Having losses bigger than your wins may not sit right with you, but if it makes you more profitable, then watching your account grow should make you feel better.

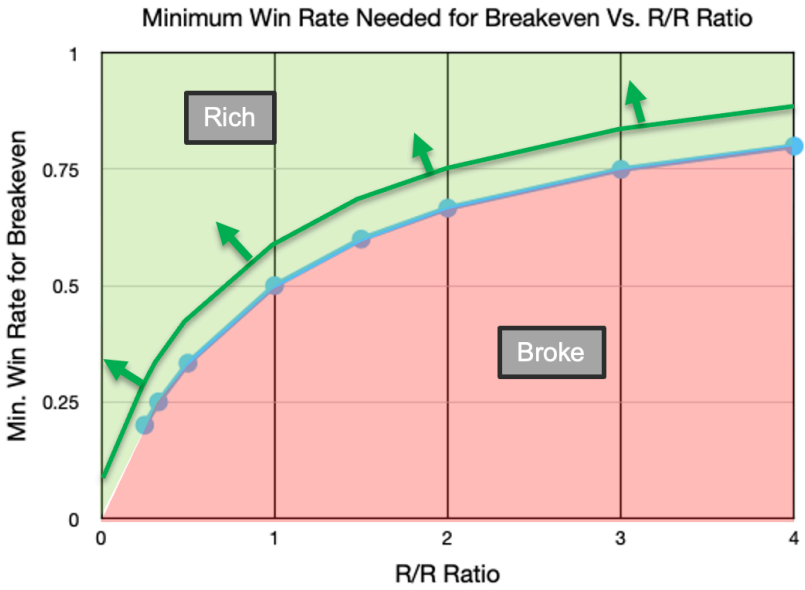


Figure 5.2 - Minimum Win Rate for Breakeven Versus R/R Ratio. The blue line is breakeven and the green line is where very high returns begin.

The blue line in Figure 5.2 is breakeven, and the green line represents where you start to make very serious money trading. Notice that it is not much further beyond breakeven. It really depends on how many trades you're able to take while maintaining the desired win rate and R/R ratio. If you could take a million trades per day with a win rate just high enough to cover expenses and a fraction of a penny profit, then you could make many tens of thousands of dollars per day. You've probably heard of "high frequency trading" executed by hedge fund computers; that's exactly the type of minuscule advantage they profit from.

If two traders have the same R/R ratio and win rate but one is taking five times more trades than the other, then that trader is going to earn five times as much. However, that should not encourage you to

start taking as many trades as possible once you achieve a profitable R/R ratio and win rate. Taking more trades probably means that you are bending the rules of your playbook in order to take more trades, which could adversely impact your win rate and profitability. It's okay to take more trades, but you must keep this principle in mind when doing so.

This is why arrows point from R/R ratio and trade frequency towards win rate in Figure 5.1. Both trade frequency and R/R ratio can impact the win rate.

Finally, your income as a trader also scales directly with your account size. Someone with an account that is four times bigger and uses share sizes that are four times larger is going to earn four times the income (ignoring the effects of price slippage on larger accounts).

How much variation in income can be expected month-to-month?

Now that you have a basic understanding of win rates and R/R ratio, it's time to dive deeper into understanding how these work together to grow (or shrink) an account. To do this, I created the "Trade and Account Growth Simulator" (TAGS) program in Python (available on the book website). TAGS uses trader win rate, R/R ratio, account size, and trade frequency to simulate trader performance for a week, month, or any number of trading days. TAGS creates account equity growth curves along with other useful statistics and information.

Why do we need to build a complicated simulator for this? You might be thinking that if a trader makes 100 trades, has a 50% win rate, and a 1/2 R/R ratio, it would be pretty straightforward to calculate how much the trader earned over the course of 100 trades. With a 50% win rate, that means 50 wins and 50 losses. If the average win is $200 and the average loss is $100, then after 50 wins and 50 losses the trader will have earned: 50*$200 - 50*$100 = $5,000 (we assume commissions and fees are factored in). However, this $5,000 per month is what the trader can expect on *average*. This is far from the whole story. In fact, most months will be anything but $5,000 and traders need to be prepared for that.

The problem is, a 50% win rate does not mean the trader will always win 50% of their trades. You need to be prepared for the natural

variation that occurs in trading performance week-to-week and month-to-month. The variation is quite substantial and could lead you to throwing away winning playbooks, which would be a shame!

If you flip a coin ten times, you are not always going to get five heads and five tails. The number of heads or tails could be anything from zero to ten, but that doesn't mean the probability of heads or tails is changing.

The probability of heads or tails is always 50% *regardless of what is observed in a sample of flips*. This is what mathematicians all "sampling error." It's important to understand that samples do not always represent the population they were selected from. This is how political polls often fail and how Major League Baseball players can go "0 for 20" despite having batting averages of 0.300 (30%). It's not because their swings changed, it's just bad luck.

The same is true for trading. If you have historically been winning 50% of your trades over the course of 1000-plus trades, the next 100 trades could be anything. 50 wins out of 100 trades is the most likely result, but any number of wins from 0 to 100 is theoretically possible and does not necessarily mean the trader's strategies or skills have changed.

"Bad luck," or "not getting the expected result," is the same as "sampling error." Knowing the difference between bad luck and truly bad trading is extremely important in day trading. You don't want a little bad luck causing you to trash a million-dollar playbook. You only want to do that when you are reasonably confident the trading is truly flawed, which occurs after you've reached a sufficiently large sample size (more than 100 trades) upon which to make a decision. At that point you can start changing parameters of your trading to see if profitability improves or not. We'll discuss this process in detail in Chapter 10.

To give us an idea of the impact sampling error has on trader performance from one period to the next, we use the TAGS program. Figures 5.3 and 5.4 came from TAGS program with a specific trader profile as the input. Both of these are simulations of 100 trades (roughly one month) by a trader with 50% win rate and 1/2 R/R ratio (we assume $100 losses and $200 wins on average after commissions and fees). The y-axis is the cumulative amount the trader has earned or lost during the month (5 trades per day for 20 trading days). The x-axis is the number of days.

In Figure 5.3 the trader earned $7,400, and in Figure 5.4 the trader

earned only $3,200. Everything about the two simulations is exactly the same. It's the exact same win rate, R/R ratio, and size of wins and losses. This is similar to you and I both flipping a coin 100 times with you getting 74 heads and I get 32. It's remarkable to think that one month of 100 trades could have half the profit compared to the next month.

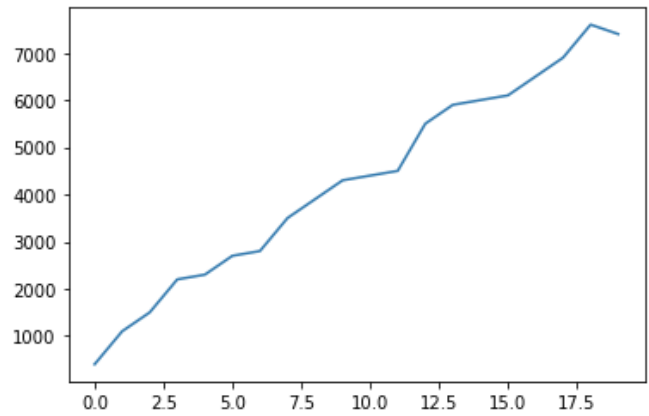


Figure 5.3 - Trader account growth over 20 trading days assuming 50% win rate, 5 trades per day, and 1/2 R/R ratio ($100 loss, $200 win). In this simulation the trader earned a total of $7,400 over the course of 100 trades.

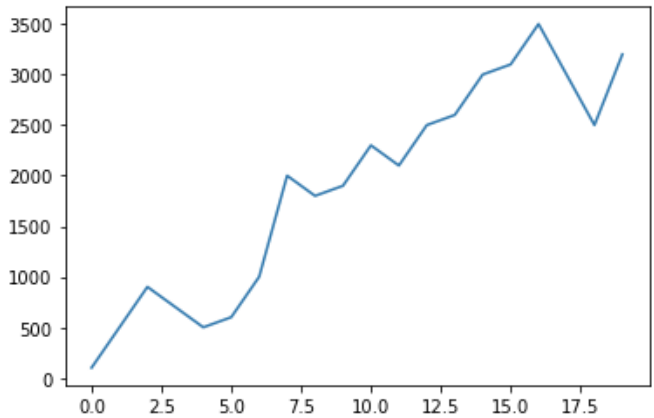


Figure 5.4 - In this simulation the trader earned a total of $3,200 over the course of 100 trades (same trader profile as Figure 5.3).

The way the TAGS software works is as follows. First, TAGS

simulates a day's worth of trades by sampling a binomial distribution based on the trader's win rate. This means some days will have 0 wins, some will have 1 win, 2 wins, and so on. The relative likelihood of each of those outcomes is based on the binomial distribution. After simulating a day's worth of trades, the net gain or loss for the day is added to the trader's account balance from the previous day. TAGS then repeats that process for the desired number of trading days and generates an account growth curve similar to Figures 5.3 and 5.4.

What I love about TAGS is that you can vary the win rate and R/R ratio to see how different the trader performance is. Tweaking win rate by just 5% can have an enormous impact on the results.

The Binomial Distribution

The above explanation of how TAGS works probably makes sense to you except for one part – how TAGS simulates trades by sampling a binomial distribution.

The binomial distribution tells you how many wins and losses you can expect out of some number of trades. "Binomial" means "2 terms," so the binomial distribution is used to analyze events with two possible outcomes: pass or fail, rain or dry, heads or tails, and so on.

Figure 5.5 shows the binomial distribution probability mass function, which is just a fancy name for the formula that gives the likelihood of any given outcome per the binomial distribution. For example, to calculate the likelihood of getting three heads out of five coin flips: n=5, x=3, and p=0.5. P(x, p, n) in this case would be 31.25%.

The binomial distribution calculates the probability of observing x successes in n trials, with the probability of success on a single trial denoted by p. The formula for the binomial probability mass function is:

$$P(x,p,n) = \binom{n}{x}(p)^x(1-p)^{(n-x)}$$

where $\binom{n}{x} = \frac{n!}{x!(n-x)!}$

Figure 5.5 - Binomial distribution probability mass function.

Table 5.1 gives the probability distribution for a 10-flip coin experiment. Figure 5.6 is the same information in bar chart form. If you

keep repeating the 10-flip experiment over and over, you can expect them to follow these probabilities. In other words, about one out of a thousand experiments will be all heads (or no heads), about one in ten will have 3 or 7 heads, and the most likely outcome is 5 heads, which occurs about 25% of the time.

The key point here is that due to sampling error, the most likely result rarely occurs (<25% of the time), which is also true in trading. You may be a 75% win rate trader, but day to day or week to week you're going to see anything but 75% wins. This is very important to keep in mind so you don't prematurely modify your strategies.

Number of Heads	Probability
0	0.1%
1	1%
2	4.4%
3	11.7%
4	20.5%
5	24.6%
6	20.5%
7	11.7%
8	4.4%
9	1%
10	0.1%

Table 5.1 - Probability of X number of heads out of ten coin flips.

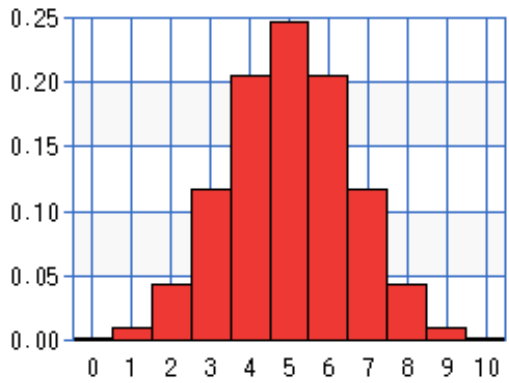


Figure 5.6 - Binomial distribution for 10 coin flips.

Now we'll apply the same binomial distribution concepts to trading, and use Trader Tony as an example. The parameters of Trader Tony's

trading is in Table 5.2.

Parameter	Value
Days Traded	20
Trades Per Day	5
Win Rate	50%
R/R Ratio	1/2
Total Account Equity	$25,000
Average Win Size	$250
Average Loss Size	$125

Table 5.2 - TAGS simulation parameters for trader Tony.

Tony averages five trades per day with a win rate of 50%. Using the binomial distribution, we calculate the probabilities of 0, 1, 2, 3, 4, or 5 wins out of five trades, which are shown in Table 5.3 and Figure 5.7.

Number of Wins	Probability
0	3.1%
1	15.6%
2	31.3%
3	31.3%
4	15.6%
5	3.1%

Table 5.3 - Binomial probability distribution for 5 trades with 50% trader win rate.

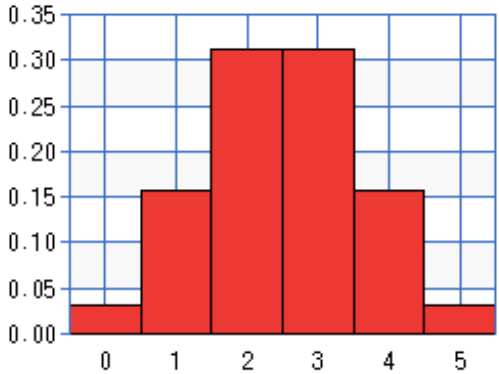


Figure 5.7 - Binomial distribution for 5 trades with 50% trader win rate.

When the TAGS program is simulating a trade for Tony, it samples the binomial distribution shown in Figure 5.7 and Table 5.3. That

means if TAGS were to simulate a very large number of days for Tony, like 100 days or more, then the distribution of outcomes will look very similar to Figure 5.7.

Tony may not know exactly what he'll get day to day or week to week, but he can rest assured that over the long run, his results will shape up to look like the distribution in Figure 5.7, with most days having 2-3 wins (62.6%), and almost all days will be 1-4 wins (93.8%). About 1 in 30 days will have 0 wins and another 1 in 30 days will have 5 wins.

If we use TAGS to simulate a month of trading for Tony (20 days of 5-trade days for 100 total trades), the results should look similar to Figures 5.3 and 5.4, since Tony's average loss and win size are similar to the ones used for those simulations. Figure 5.8 shows another possible month for Tony.

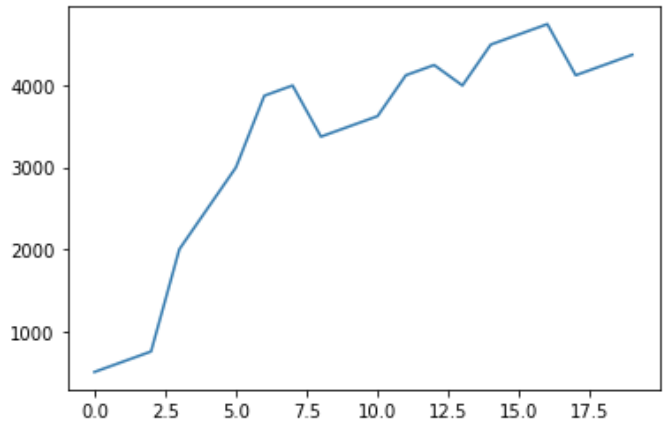


Figure 5.8 - Simulated trading month for trader Tony.

Table 5.4 gives five possible simulations for a month's worth of Tony's trading:

Simulation Run:	#1	#2	#3	#4	#5
Net Gain or Loss	$4,375	$8,125	$6,250	$7,375	$5,875
Account Growth	17.5%	32.5%	25%	29.5%	23.5%
No. Red Days	3	4	6	0	4
No. Green Days	17	16	14	20	16
Average Daily Net	$218.75	$406.25	$312.50	$368.75	$293.75
Average Daily Account Growth	0.8%	1.4%	1.1%	1.3%	1.1%
Longest Losing Streak (Days)	1	2	2	0	1
Longest Winning Streak (Days)	8	11	7	20	5

Table 5.4 - Five simulated months (100 trades each) for trader Tony.

Just like we saw earlier in the chapter, the best and worst month can be two times (or more) different. This isn't because Tony's performance or approach to trading is changing month-to-month; this is natural variation caused by sampling error. All of these months are from the same distribution. Fortunately, Tony, a student of Rocket Science Trading, was prepared for this and did not light his playbook on fire in response to these swings.

Figure 5.10 shows a binomial distribution of 100 trades for a trader with a 50% win rate. This chart shows that although anything from zero to 100 wins is theoretically possible, their likelihoods are so small they do not even register on the cart. Most months of 100 trades will have between 35 and 65 wins.

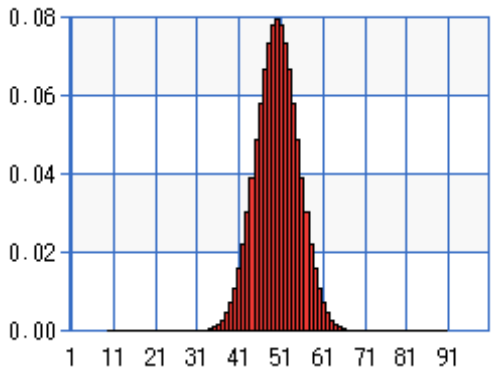


Figure 5.9 - Binomial distribution of 100 trades with 50% trader win rate.

Depending on your R/R ratio, some months may actually be red. If your R/R ratio is 1/1, then anything under 50 wins is a red month. Of course, with better R/R ratios, like 1/2, the likelihood of a red month with 50% win rate is much more unlikely (anything above 33 wins is

green in that case).

Having 65 wins one month and 35 the next is a very dramatic change in trading performance. Hopefully this section on the binomial distribution convinces you that this variation is normal and simply a result of sampling error and not necessarily bad trading. In Chapter 10 we derive the sample size of 100 trades as being the minimum for making informed decisions regarding our trading.

How much money can a day trader theoretically make?

How much traders earn varies significantly. There are millions of traders losing money every year, with millions more barely breaking even. I estimate (wild guess) there are less than a million traders who earn more than $75,000 in net profit per year.

As shown at the beginning of the chapter in Figure 5.1, how much a given trader earns depends on: 1) win rate, 2) R/R ratio, 3) trade frequency, and 4) account size. With those values you can calculate the average income of a trader, but those four parameters vary wildly from trader to trader.

For someone like Trader Tony who takes 100 trades per month with 50% win rate, $250 per win, and $125 per loss, then the average month will be $6,250 of income. This assumes he withdraws all profits each month. The alternative would be to leave some in the account in order to grow the account, trade with bigger share sizes, and earn more per winning trade. Averaging $6,250 for 12 months means $75,000 per year.

You are probably one step ahead and already thinking about the fact that year-to-year performance can vary just as day-to-day and month-to-month performance has been shown to. I repeatedly ran a simulation for trader Tony using 240 trading days (1 year) and got values in the range of $70,000 to $90,000. As we discussed earlier, sampling error decreases with increasing sample size, so yearly performance metrics will not have an much variation as weekly or monthly performance metrics.

$75,000 per year is a decent salary, but only slightly above the median U.S. household income in 2019 of $68,703 according to the U.S. Census. You may not become wealthy trading like Tony, but at least you could be your own boss, work your own hours, and only work 1

hour per day. Still a pretty good deal if you ask me! Or maybe you have another job with a schedule that does not conflict with trading.

If you already have a job that is paying the bills, but you're struggling to get ahead, maybe this extra $75,000 per year is just what you need to start saving for a down payment on a home, save for your kids' future, and so on. I highly recommend trading part time if you already have a stable full-time job. The combination of the two can be very powerful in helping you reach your financial goals.

Trader Tony may be doing OK, but how can he earn enough to break into the top 1% of incomes in the U.S.? In 2020, the top 1% income level started around $500,000. How could Tony improve his trading to become a "one-percenter"?

There are a few ways Tony can generate more income. If possible, I would recommend Tony keep his profits in his account and continuously trade larger share sizes as his account grows. The price slippage with a $100,000 account is certainly worse, but it's not so bad as to be a dominant factor in Tony's overall performance. (A little change to trade win rate or R/R ratio still has a far greater impact on account growth.)

If Tony is able to grow his account to $100,000, all else being equal, his income will quadruple to $280,000 per year from trading. To join the 1% club, Tony needs to double it one more time to surpass $500,000 per year. He could double the size of his account again, or address one of the other three income factors: R/R ratio, win rate, and trade frequency.

So far, we've assumed Tony has a 50% win rate, 1/2 R/R ratio, and makes 5 trades per day on average. The next easiest element to improve is probably the number of trades made per day. Win rate and R/R ratio are intimately tied together and changing one might have a detrimental impact on the other. Increasing trade frequency is more straightforward.

If Tony can maintain a 50% win rate with 1/2 R/R ratio and increase the number of trades to 10 per day, he'll be able to double his income again thus surprising the $500,000 per year level. That might be easier said than done, but I hope it gives you a general idea of how to think of trader income in terms of win rate, R/R ratio, trade frequency, and account size.

The upper limit on income as a day trader is probably in the seven or 8 figure range. There are only so many shares available at a given price, so eventually the share sizes become so big that they start to

work against you. Being profitable when you have to fight against your own impact on the market in addition to the bid-ask spread and commissions and fees makes it harder and harder to reach the next level of income day trading. This is why billionaires don't day trade and day traders don't become billionaires. At some point, your own trades start to work against you as the price slippage becomes too powerful.

Bottom line, if you're serious about trading, making more than $100,000 per year is quite reasonable. If you can afford to retain profits and grow the account to $200,000 or $300,000 or more, then a very high income is possible.

Summary

- Every trade is a sample from a binomial distribution, the most important piece of mathematics in day trading.
- The binomial distribution tells traders the likelihoods of certain events occurring in their trading. It describes the number of red days versus green days, the amount of variation in monthly income, the size of expected losing streaks, and so on.
- Due to sampling error and the natural variation in trader performance that occurs, changes in monthly income can be quite dramatic for certain trader profiles. Traders should be aware of this so that they are not caught off-guard and begin altering their strategies, which may have detrimental effects on their trading and forever alter the course of what may have been a million-dollar playbook.

CHAPTER SIX

Brokerages and Trading Platforms

There are many brokerages you could use for day trading, but when you consider the unique needs of day traders, especially those trading The RST Way, there are just a few candidates to consider.

Brokerages change their services and prices frequently so the content in this chapter may be out of date by the time you read it. You may check the RST website and Discord server for up-to-date recommendations.

Commission-Free Account Types

Before discussing the types of brokerages and trading platforms professional day traders use, it's worth discussing commission-free platforms like Robinhood and Webull, as they have recently seen a huge rise in popularity. I want to warn you against using these for day trading.

Robinhood grew by 30% in the first half of 2020, putting its total users around 13 million at the time. The average account size was less than $5,000 according to some estimates, indicating that the user base is mostly new traders (not established professional day traders migrating to their platforms). It's important for new traders to understand why these types of platforms are not suitable for day trading.

Robinhood and Webull were by far the fastest growing trading platforms in 2020 due to their low trade commission fees (zero) and easy to use mobile apps. In fact, they are only available as mobile apps (no desktop trading platform is available), thereby disqualifying them

as viable day trading platforms for serious traders.

Robinhood and Webull's rapid growth was fueled by people stuck at home during the COVID-19 pandemic of 2020. Some had lost their jobs and needed to replace income, while others just had more time on their hands, as they couldn't travel or socialize as much as they did before. The user growth was so large that it overwhelmed Robinhood's systems, and you can find countless horror stories of trades gone wrong during the spring of 2020 due to service outages. Rock bottom of the amateur trading frenzy on these apps was when a young man committed suicide after not fully understanding the information reported to him in the Robinhood app.

In addition to system reliability issues, Robinhood, Webull, and similar apps rely on a shady-at-best system called Payment for Order Flow (PFOF). PFOF is how these apps make money without charging commissions. In a PFOF arrangement, brokerages such as Robinhood and Webull act as a pass-through for their platform's order flow, which is ultimately filled by market makers such as Citadel Securities. High-frequency trading (HFT) firms like Citadel are happy to pay for the order flow from a huge population of uninformed amateur traders. Therefore, Citadel pays Robinhood for the order flow, and Robinhood doesn't have to charge their customers commission fees.

PFOF was created by none other than Ponzi scheme extraordinaire Bernie Madoff. PFOF itself is not illegal, but the practice makes it very easy for the parties involved to engage in illegal activities like front-running and other practices that do not uphold these firms' "best execution" obligations. It's not surprising that Robinhood was fined $1.25M in 2019, and Citadel was fined $700,000 in 2020 for these types of violations.

Despite the order flow being processed at gigantic HFT firms like Citadel, the trade execution experienced Robinhood and Webull users experience is quite poor compared to using direct access platforms and brokers. When the market opens at 9:30 a.m., stock prices can swing 1-5% within seconds, and 10% or more within a minute. When you enter a trade, you want the exact price you see on your chart software. There's no telling where the price could be 10-20 seconds later; you could miss the opportunity entirely. With mobile platforms, the difference between the price your order is filled at and the price you saw when you sent the order can be quite different. This poor execution – along with PFOF and lack of desktop software – is a showstopper for professional day traders. Commission-free trading

apps like Robinhood and Webull are not recommended for serious day trading.

Direct Market Access Brokers and Trading Platforms

"Direct access" means the broker and trading platform connect the trader directly to the stock exchanges and ECNs (electronic communication networks). These are the types of brokers and platforms professional day traders use. There are no middle-men or shady PFOF in the way. You have the freedom to choose exactly what ECN you want to send your order to, or you can take advantage of "smart" routing, which is designed by the broker (and implemented by the trading platform) to give you consistently good pricing without having to specify the route yourself.

Robinhood and Webull provide traders with a brokerage account as well as the software with which to trade stocks. With direct access brokerages such as Interactive Brokers, CenterPoint, and CMEG, the trading platform may come from a third party. For example, you may open an account at Interactive Brokers and then sign-up separately at DAS Trader to use it with your Interactive Brokers account. Regardless of what broker or trading platform you end up using, one thing it must do is provide direct access to the markets.

Direct access brokers may also provide commission-free account options similar to Robinhood/Webull. These are essentially the same account types as those mobile platforms, where the broker makes a profit through payment for order flow (PFOF). Day traders should avoid these account options as they prioritize PFOF over the absolute best price for the trader.

One more characteristic that the trading platform must have in addition to offering direct access is support for hotkeys. Hotkeys allow you to execute complex trades including automatic exit orders with the touch of a button. The only two direct access platforms that I know of that support these types of hotkeys are Sterling Trader and DAS Trader. However, DAS Trader's hotkeys are vastly more sophisticated than Sterling Trader, which makes it *the only trading platform that supports The RST Way of Trading*. I'm not affiliated with DAS Trader – they don't even know who I am – it's just a fact that their hotkey scripting language is the only one that supports the "fixed R/R ratio" and "share size based on risk" we need to execute The RST Way of

trading. Plus, DAS Trader is the only trading platform for retail traders that is a NASDAQ Certified Partner, and it's a "Platinum" partner to boot.

Figure 6.1 – DAS Trader platform.

Direct Access Brokers

Broker	Trading Platforms	Headquarters	PDT Rule	Min. Deposit for Margin Account
CenterPoint	DAS Trader, Sterling Trader	U.S.	Yes	$30,000
Interactive Brokers	IB TWS, DAS Trader	U.S.	Yes	$25,000
CMEG	DAS Trader, Sterling Trader	Trinidad and Tobago	No	$500

Table 6.1 - Direct access brokers for day traders.

For day traders, three popular brokers are CenterPoint, Interactive Brokers, and CMEG. I have no affiliation with any of these brokers, so these suggestions are based solely on my experience and what I've heard from other traders.

IB and CenterPoint are very popular and have great reputations among day traders. They have low commissions, support DAS Trader, and usually have a great inventory of shares for short. That's the day trading trifecta as far as brokers go. Choosing between IB and

CenterPoint basically comes down to availability in your country, and your monthly trade volume. CenterPoint charges slightly lower commissions compared to IB for large monthly share volumes (more on that in the next chapter when we discuss broker commissions and transaction fees in detail).

Traders at U.S.-based brokerages, such as IB and CenterPoint, are subject to PDT restrictions (see Chapter 2 for more on the Pattern Day Trader Rule). CMEG is an option for traders who want to start with a smaller account with less than the $25,000 PDT Minimum Equity Requirement. At CMEG you only need $500 to open an account with 6:1 margin, which is better than the 4:1 margin you'll get in the U.S.

Keep in mind you don't have to trade with all $25,000 if you open an account in the U.S. If you don't feel ready to trade with tens of thousands of dollars per trade, then you can simply scale down your risk amount per trade and pretend like you're trading with a smaller account. Bear in mind you'll get eaten alive by commissions and fees when share sizes are too small, which we'll discuss in the next chapter. Other than that, you can play it safe, despite having more capital in your account than you need.

If you have $25,000-$30,000 to put into an account at CenterPoint or IB, I recommend doing that instead of trading at CMEG due to the uncertainty and risks associated with using an off-shore brokerage.

The biggest downside to overseas brokers like CMEG is that they are not subject to U.S. regulations. The oversight body for CMEG is the Trinidad and Tobago Securities and Exchange Commission (TTSEC). You can find a few reviews on the internet about CMEG and the Trinidad and Tobago government, which might deter you from using CMEG. I don't blame you. However, myself and many other traders have used them without issues. I used CMEG at first and then later "graduated" to a U.S. brokerage.

Many new traders with limited capital may decide to accept the risk at an overseas broker like CMEG and later move to a U.S.-based broker like CenterPoint or IB. You can start with a small account, grow it, withdraw profits, and repeat until you have the $25,000 needed to open an account in the U.S. This way, you don't have all your capital in the overseas account. How big you let your account grow before withdrawing your funds depends on your particular financial situation and risk tolerance. One possibility could be to open an account at CMEG with $7,500-10,000 to start. After growing the account to $15,000, you could withdraw $5,000 and use the remaining $10,000 to

earn $5,000 in profits twice more, leaving you with $25,000 in total capital – enough to open a margin account in the U.S.

Account Types

The three brokers compared in this chapter have different account types to choose from. CenterPoint has two account types: "CenterPoint" and "CenterPoint Lite." The "Lite" account only requires $10,000 to open, but it does not offer margin, making it much more difficult to earn profits. Therefore, most day traders choose the "CenterPoint" account type.

Interactive Brokers also has two account types called "IBKR Pro" and "IBKR Lite," but the Lite account at IB is very different than the Lite account at CenterPoint. CenterPoint Lite is a direct access account with per-order commissions. IBKR Lite is more like Robinhood as it is a commission-free account type where broker profits come from PFOF. It also does not have an account balance minimum and does not offer margin. For these reasons, most day traders at Interactive Brokers are using "IBKR Pro."

CMEG also has two account types for retail traders, "Standard" and "Active." "Standard" only has access to Level 1 data, which is a dealbreaker for most day traders. It also lacks support for DAS Trader Pro desktop software and only supports DAS Web/Mobile. For these reasons, to trade The RST Way at CMEG, you would use their Active account type.

Summary

- Commission-free trading apps like Robinhood and Webull are not recommended for serious day trading.
- Direct access platforms and brokers are preferred by professional day traders.
- DAS Trader is the only trading platform that supports the type of hotkeys needed to execute The RST Way of trading.
- Traders at U.S. brokers are subject to Pattern Day Trader (PDT) restrictions. The PDT legislation requires a $25,000 minimum account equity to day trade on margin.
- U.S.-based CenterPoint and Interactive Brokers are my

recommended brokers for traders with $25,000 or more in capital to start a trading account.

- CMEG is an overseas option, where the PDT minimum equity requirement of $25,000 does not apply and you only need $500 to open a margin account.

CHAPTER SEVEN

Broker Commissions and Transaction Fees

Day trading is practically an overhead-free business – the only fixed costs are your internet service provider and the platform/data fees charged by your broker (Table 7.1). The profitability of your trading business is largely driven by the broker commissions and transaction fees assessed on each trade.

Expense	Type	Payee	Amount
Home Office and PC	Fixed	Amazon, Best Buy, etc.	$500-$2000
Internet Service	Fixed	Internet Service Provider	$50/mn
Education and Training	Fixed	Book stores and YouTubers	Common for day traders to spend over $1000 on training materials, courses, and trading club memberships.
Bank Wire Transfers	One-time	Your bank and your broker	$25-$100
Trading Platform and Data Fees	Fixed	Broker	$100-$150/mn
Broker Commissions and Transaction Fees	Variable	Broker (who pays SEC, exchanges, etc., on your behalf)	Depends on trading style and performance as a trader. Could be <10% of trade gross or >100%.

Table 7.1 - Expenses associated with day trading.

Commissions and fees are mostly based on the number of shares traded. Only a small fraction of these fees depend on the stock price, and there is zero relationship with the amount of profit or loss on the trade (in contrast to how taxes work). This means that you could have a slightly profitable gross profit on a trade, but end up losing a significant amount of capital overall due to the commissions and fees. Brokers don't care if you made or lost money on the trade, the commissions and fees are the same.

Hundreds of dollars of fees and commissions on a single trade are common for large trades of thousands of shares, so a handsome gross

profit can easily be a net loss in some cases. It's important to understand how these fees work so that this doesn't happen to you. All new traders have experienced days where they were happy to earn a small gross profit only to get the statements from their broker showing they actually lost a ton of capital in commissions and transaction fees.

With a better understanding of how commissions and fees work, you will know exactly how much they will be before you enter a trade, how much stock price movement you need in order to cover them, and how big of a trading account you need to avoid minimum commissions.

Broker Platform and Data Fees

Once you open your trading account and fund it, you'll start being charged platform and data fees. This can be $100-150 per month, so you may want to consider holding off on opening a live account with a broker until you are ready for live trading. If you open your account and fund it while you are still learning to trade in simulator, you may waste $500-$1000 in platform and data fees during those months. You only need the brokerage account when you are ready to trade live.

On top of having to pay monthly platform and data fees, you'll also be charged periodic inactivity fees, so it's a double whammy of fees to keep a brokerage account you aren't using.

The platform fee is a monthly subscription that gives you access to a trading platform such as DAS Trader. This is usually about $100/month.

The other monthly fee, the data fee, is the "market data package" all traders must pay, otherwise their trading platforms would be empty and charts blank. All the pricing information, Level 2 order book, and data behind the candlestick charts in your trading platform comes from this market data. Brokers charge a separate fee for this because different traders have varying needs and may subscribe to additional exchange data, level 3, and so on. The total monthly data package fee is usually between $25 and $50 per month. I have always chosen the cheapest package available that included Level 2 data, so my monthly charge has been $25/month for my data package. Some brokers also give rebates so you may not have to pay for the data package if you're also paying a certain amount in commissions.

Transaction Fees

Roughly speaking, for the average new trader with typical share sizes of 100-1000, 50% of the fees are broker commissions, 40% are ECN fees, and 10% goes to the U.S. government. It's a lot of hands in your cookie jar, but all are providing essential services to the trading process.

Fee	Description	Amount
Broker Commission	Charged by broker to provide trading account services.	$2.95-$5.95 per trade, or $0.002-0.005 per share.
ECN Fee	Charged by ECNs to operate the markets.	$0.002 - $0.004 per share.
NSCC Fee	Goes to National Securities Clearing Corporation (NSCC) for clearing services.	Up to $0.0002 per share.
SEC Fee	Goes to U.S. Treasury to fund SEC.	$22.10 per million dollars. Applies to sale (or short) only.
Trading Activity Fee (TAF)	Assessed by FINRA to recover costs with supervising and regulating trading firms.	$0.000119 per share. $5.95 max. Applies to sale (or short) only.

Table 7.2 - Trade fees and commissions in 2020.

Table 7.2 summarizes the commissions and transaction fees your trades will be subject to. You may encounter a few more on your brokerage statements, but they will be small and will not significantly impact whether you are profitable.

The last three items in the table are government and regulatory fees and are quite small – just a few dollars at most even if you earned $10,000 profit on a 20,000-share trade.

The ECN fees are pretty standard from broker to broker and are not significant enough to really steer you from one broker to another. For extremely high-volume traders (e.g. firms trading millions of shares per day), the ECN fees are quite important as there are many kinds of rebates available and complex rules that govern them. At-home day traders do not need to be too concerned with these.

Please keep in mind that these fees and rates change frequently – be sure to check your broker's fee schedule and statements for the most accurate information. The goal of this chapter is not meant to be a reference of fee amounts but instead guidance on what fees to expect, which are the most significant, and how to control them.

Broker Commissions

Brokerage	Account Type	Commission Pricing Offered
CenterPoint	“CenterPoint”	Per-share (Tiered)
Interactive Brokers	“IBKR Pro”	Per-share (Tiered), Per-share (Fixed)
CMEG	”Active”	Per-order (Fixed)

Table 7.3 - Commission pricing options at CenterPoint, Interactive Brokers, and CMEG.

Broker commissions are by far the biggest driver when it comes to evaluating brokerages and deciding which broker and commission structure are right for you. Table 7.3 lists the commission pricing options available at CenterPoint, Interactive Brokers, and CMEG. The most important distinction to make is the difference between per-share and per-order commissions. "Per-share" commissions involve a rate like "$0.004 per share" when you trade. If you buy 1000 shares and then sell 1000 shares, that's 2000*0.004 = $8 in commissions. Under per-share commissions, it doesn't matter if you bought the 1000 shares on one order/ticket or ten orders of 100 shares. All that matters is the number of shares.

"Per-order" commissions are the opposite of "per-share"; with per-order commissions, all that matters is the number of orders while the number of shares is irrelevant. If you use ten orders of 100 shares to purchase the 1000 shares, the commissions will be ten times more expensive compared to having bought all 1000 shares on one order. This makes the practice of "partialing" in or out of a position prohibitively expensive with per-order commissions. (Fortunately for us, partials are not part of The RST Way of trading anyway.)

You can see in Table 7.3 that IB and CP use per-share commissions while CMEG uses per-order. For traders using smaller accounts, per-share is definitely cheaper compared to per-order, but unfortunately this is not how CMEG structures their commissions.

The next distinction to make is the difference between "tiered" and "fixed" commissions. Most commission structures are "tiered," meaning the commission rate decreases as you hit higher volume thresholds during the month. Most new day traders will not exceed the first threshold of 300,000 shares per month and will therefore fall into the lowest volume tier. Penny stock traders (cheap stocks and therefore large share sizes) and those with larger accounts may hit the higher volume tiers.

Interactive Brokers also has a "fixed" commission plan. "Fixed" means there are no volume tiers and the rate is therefore fixed. The per-share fixed rate at IB is $0.005, which also includes ECN and pass-through fees. It's the best deal for new traders in the low volume bracket (less than 300,000 shares per month).

The following tables include the commission rates at CenterPoint, IB, and CMEG at the time of this writing. You can see how the per-share commissions decrease with increasing monthly volume. You should also pay attention to the minimum commissions. They can eat you alive if you are a new trader with small account trading small share sizes. The minimum commissions essentially define a lower limit for how small a trading account can be, which we will get into later in the chapter.

Monthly Share Volume Tier	Per-share Rate	Minimum	Maximum
<300,000	$0.004	$0.95	None
300k-500k	$0.003	$0.95	None
500k-1.5M	$0.0025	$0.95	None
1.5M-4M	$0.002	$0.95	None

Table 7.4 - CenterPoint Per-share Tiered commission rates.

Monthly Share Volume Tier	Per-share Rate	Minimum	Maximum
<300,000	$0.0035	$0.35	1% trade value
300k-3M	$0.002	$0.35	1% trade value
3M-20M	$0.0015	$0.35	1% trade value
20M-100M	$0.001	$0.35	1% trade value
>100M	$0.0005	$0.35	1% trade value

Table 7.5 - IBKR Pro Per-share Tiered commission rates.

Per-share Rate	Minimum	Maximum
$0.005	$1.00	1% trade value

Table 7.6 - IBKR Pro Per-share (Fixed) commission rate.

Per-order Rate
$2.95

Table 7.7 - CMEG Active Per-order Fixed commission rate.

ECN Fee

ECN rates vary from broker to broker according to their business models and ECN agreements. The fee is usually about $0.0025/share, but it also depends on other factors such as which route/ECN your trade goes through, and whether you add or remove liquidity from the market. You may see the ECN fee vary quite significantly when reviewing the trading account reports from your broker.

Of all the fees associated with trading, this is the only one that is not pre-determined. You know exactly how much the broker commission and other transaction fees will be before you submit a trade, but not the ECN fee since you don't always have control over how the order gets routed. However, the average ECN fee should be roughly $0.0025/share across all your trades, so you can use that value when estimating total transaction fees.

NSCC Fee

The National Securities Clearing Corporation (NSCC) provides clearing services for American exchanges. Although you are trading on American exchanges with CMEG, this fee does not appear on your CMEG account statements.

SEC Fee

The SEC fee is a small fee that exchanges and brokers must pay the U.S. Treasury to offset the governmental costs associated with regulating the stock market. The SEC fee is one of the few transaction costs that actually depends on total value of the trade. It is equal to "$22.10 per million dollars" of stock value *sold*. It is only applicable to selling a long position or entering a short position. You will not pay this fee when entering a long position or covering a short position.

FINRA Trading Activity Fee (TAF)

The trading activity fee (TAF) is a regulatory fee FINRA assesses to recover the costs of supervising and regulating firms. The fee is equal to $0.000119 per share for each sale of stock, similar to the SEC fee.

Broker Comparison

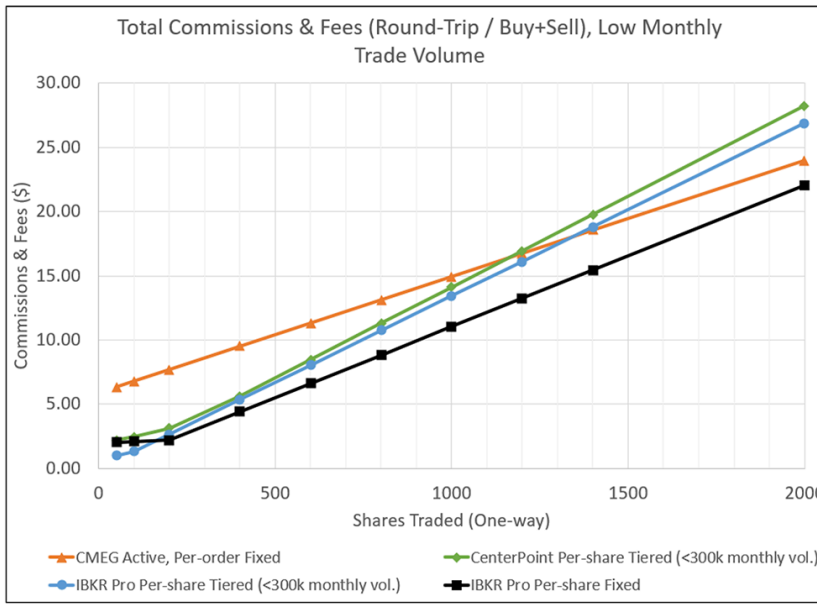


Figure 7.1 - Total commissions and fees for round-trip trade of $40 stock.

Figure 7.1 shows how much it costs to make a trade under the four account types at CMEG, IB, and CP. If you buy 1000 shares of a $40 stock and then sell those 1000 shares, it will cost you about $11-$15 in total commissions and fees for the round-trip trade.

As shown in Figure 7.1, IBKR Pro Per-share (Fixed) is clearly the lowest-cost option for new (lower volume) traders. If you have $25,000 to open a day trading account, IBKR Pro Per-share (Fixed) would be the best way to go based on this chart. If you prefer to start with a small account at CMEG, you could switch to IBKR Pro Per-share (Fixed) account when you have enough capital.

There are some exceptions at small share sizes less than 200. IBKR Pro Per-share (Tiered) is a little cheaper compared to IBKR Pro Per-share (Fixed) when trading less than 200 shares, but that shouldn't be a factor since your share sizes at those brokerages should rarely be less than 400 if you're trading on a $25,000 account.

You can also see in Figure 7.1 that CMEG becomes the cheapest option around 1200 shares. However, this chart is just for the lowest volume tier at IB and CP, both of whose tiered pricing drops

dramatically as your monthly share volume increases. You'll quickly move up into the higher tiers if you trade thousands of shares per trade, and CMEG will no longer have a price advantage. Therefore, it's irrelevant that CMEG eventually becomes cheaper at the lower volume tier pricing.

Minimum Account Size

Due to the PDT rule, $25,000 is the minimum equity requirement in the U.S. for margin accounts. If your balance dips below that amount, you'll have to make another deposit or stop day trading. For this reason, you may want to open the account with more than $25,000 to give yourself some breathing room.

Keep in mind that you don't have to use the full buying power of your account for trading. If you are uncomfortable trading thousands of shares per trade as a new trader, you can simply trade smaller share sizes.

If you don't have the capital to meet the minimum equity requirement in the U.S. for day trading on margin, you can consider starting at CMEG and switching to the U.S. once your account is large enough. The unfortunate aspect of CMEG commissions is that their per-order pricing is actually the worst option for traders with small accounts.

Let's assume you use an R/R ratio of 1/1 as a new trader, which means a 50% win rate for breakeven. However, after you factor in commissions and fees, the win rate needed for breakeven goes up significantly for small accounts under per-order commissions.

If you use a risk size of 2% with the $3,000 account, your wins and losses would both be $60. The total commissions and fees on each trade will average about $8, which means your wins are actually $52 and losses $68. Instead of a R/R ratio of 1/1, the R/R ratio is actually 1.3/1. The minimum win rate needed for breakeven has jumped from 50% to 57%. That might not sound like much but in the world of trading, that is an enormous jump.

Now if your account was $7,500 instead of $3,000, your wins and losses would be $150 instead of $60. Because per-order commissions are independent of your share size, the commissions stay the same. The ECN fee and other fees will increase due to larger share sizes on the bigger account, but overall the percentage of your gross goes

down. So instead of $8 worth of commissions and fees you paid on the smaller account, now you would pay about $12 on average. With wins of $138 and losses of $162, the R/R ratio is about 1.17/1 and the minimum win rate needed for breakeven is 54%. By simply increasing the account and share size, the minimum win rate needed for breakeven was pulled back significantly.

If you're a 60% win rate trader, having breakeven at 54% instead of 57% doubles your profits. Not only would you be earning more due to the larger account and share size, you're also keeping a larger percentage of the gross due to the commissions not scaling with account/share size.

With $2.95 per-order commissions, I believe $7,500 to be the minimum account size needed to avoid getting swamped by commissions and fees. It's true that if your win rate is very high (>70%), then it doesn't matter. But it is very rare for a beginner trader to maintain that win rate. A goal of 60% is much more reasonable, and every percentage point you can push down breakeven by trading larger share sizes is very valuable.

Quick Commission & Fees Estimation

When trading at CMEG, it's very easy to estimate commissions and fees due to their per-order pricing. If trading 200-1000 shares, the commissions and fees will be $3.50-4.50 per order (the variation is due to ECN fee, which is based on share size).

For IB and CenterPoint, it's about $0.006 per share. If you buy 1000 shares and sell 1000 shares, it'll cost about $12 to do so.

Price Action Needed to Cover Commissions & Fees

It was said in the previous section that commissions and fees at IB and CP are about $0.012 per share round-trip. Therefore, to breakeven, you need the stock price to improve by about $0.012 plus the bid-ask spread.

$0.012 is roughly accurate for the range of 200-1000 shares. If you are trading smaller share sizes around 200 or less at IB or CP, then you'll need the stock price to improve a bit more – by $0.03 plus the bid-ask spread to breakeven.

For example, let's assume you take a long position on FB and the best ask price is $20.50, which you pay for all of your shares. Let's also assume the bid-ask spread is $0.05, meaning the best bid is $20.45 when you enter the trade. In this scenario, you need the bid to increase from $20.45 to $20.51-$20.53 and sell at that price in order to breakeven.

At CMEG, in the range of 200-1000 shares, their pricing is equivalent to about $0.03-0.10 per share. That's quite a bit more expensive than IB and CenterPoint, so you'll need the stock price to improve more to breakeven compared to IB and CenterPoint. Getting stock prices to move enough to cover the bid-ask spread is difficult enough; needing another $0.10 just to breakeven makes it very difficult to be profitable on that type of account with small share sizes. This is why you really need to use an account of at least $7,500 at CMEG so breakeven is not so difficult to reach.

Minimizing Commissions & Fees

Trading fees are largely dominated by the broker commission and the ECN fee. Because IB and CenterPoint use per-share commissions, and the ECN fee is also per-share, one strategy to lower commissions and fees would be to trade higher priced stocks as that lowers the number of shares traded.

This strategy also works at CMEG to lower the ECN fees, but does not impact the commissions since they use per-order commissions independent of share size. The best thing you can do at CMEG is avoid using partials to enter and exit your positions, but that should not be part of the plan anyway if you are trading The RST Way as we always use just one order for the full share size to enter and exit our positions.

Summary

- The profitability of your trading is largely driven by the broker commissions and transaction fees assessed on each trade.
- With per-share pricing at Interactive Brokers and CenterPoint, commissions and fees are dominated by number of shares traded. Trading higher priced stocks means fewer shares and smaller commissions and fees. Trading higher priced stocks at

CMEG also lowers the ECN fees, but does not impact the per-order commission prices.

- IBKR Pro Per-share Fixed is the cheapest commission structure for new, low-volume traders. This is recommended for new traders who can meet the $25,000 minimum equity requirement in the U.S.
- CMEG is an off-shore option with no PDT rule and minimum equity requirement of only $500 for a margin account.

CHAPTER EIGHT
Scanners

In Chapter 4 - "Stocks in Play", we discovered that there are more than 9,000 stocks and ETFs on NYSE and NASDAQ. It doesn't matter how many monitors you have – you can't keep your eyes on 9,000 charts at a time, so you'll need a way to narrow these down to just symbols of interest to day traders.

Day traders use scanners to alert them to symbols that meet their criteria, such as price, volume, and other criteria. Examples of commonly used scanners include Overnight Gappers, High of the Day, Low of the Day, Moving Average Crossovers, Reversal, RSI Extreme, and Unusual Volume.

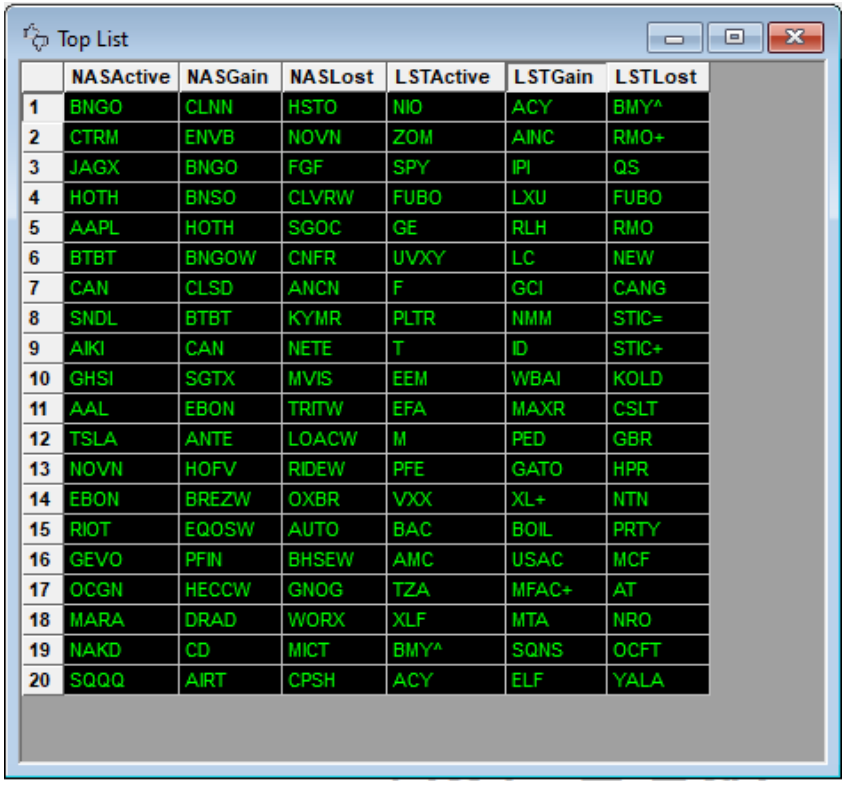
These types of scanners can be found within the trading platform, such as DAS Trader or thinkorswim, or in scanner-dedicated software such as Trade Ideas. Another source of real-time Stocks in Play is social media and chat rooms, which might alert you more quickly than the scanner software itself.

Of course, no matter how reliable or trustworthy the source of the call out is, it is the responsibility of the trader to assess the trade setup to see if it meets their personal trade playbook and risk management plan. It may be a great trade opportunity, but if the trader is not familiar with that pattern or strategy, and has not developed a playbook for it in simulator, there is a strong likelihood for losing the trade.

DAS Trader Scanner, Trade Signal, and Top List

DAS Trader has three built-in scanner-like features. Under the "Tools" menu in DAS Trader are two scanners called "Scanner" and "Trade Signal." Under the "Trade" menu you can find a third type of scanner called "Top List." Sometimes new traders find it confusing to

have three different scanners inside the platform, so we'll briefly go over the differences between them. We won't spend too much time on them however, since most traders prefer third-party scanners such as Trade Ideas or thinkorswim.



	NASActive	NASGain	NASLost	LSTActive	LSTGain	LSTLost
1	BNGO	CLNN	HSTO	NIO	ACY	BMY^
2	CTRM	ENVB	NOVN	ZOM	AINC	RMO+
3	JAGX	BNGO	FGF	SPY	IPI	QS
4	HOTH	BNSO	CLVRW	FUBO	LXU	FUBO
5	AAPL	HOTH	SGOC	GE	RLH	RMO
6	BTBT	BNGOW	CNFR	UVXY	LC	NEW
7	CAN	CLSD	ANCN	F	GCI	CANG
8	SNDL	BTBT	KYMR	PLTR	NMM	STIC=
9	AIKI	CAN	NETE	T	ID	STIC+
10	GHSI	SGTX	MVIS	EEM	WBAI	KOLD
11	AAL	EBON	TRITW	EFA	MAXR	CSLT
12	TSLA	ANTE	LOACW	M	PED	GBR
13	NOVN	HOFV	RIDEW	PFE	GATO	HPR
14	EBON	BREZW	OXBR	VXX	XL+	NTN
15	RIOT	EQOSW	AUTO	BAC	BOIL	PRTY
16	GEVO	PFIN	BHSEW	AMC	USAC	MCF
17	OCGN	HECCW	GNOG	TZA	MFAC+	AT
18	MARA	DRAD	WORX	XLF	MTA	NRO
19	NAKD	CD	MICT	BMY^	SQNS	OCFT
20	SQQQ	AIRT	CPSH	ACY	ELF	YALA

Figure 8.1 - DAS Trader Top List window.

Top List is the simplest type of scanner in DAS Trader and shows the day's biggest movers, as shown in Figure 8.1. This window does not support any customization or configuration. Despite its lack of features, it's actually the most used of DAS Trader's scanners, and many traders keep it open as a quick way to see the day's primary movers.

Trade Signal and Scanner are more customizable and allow the trader to better target their preferred types of stocks. There is some overlap in features between the two, with Trade Signal essentially being Scanner's big brother.

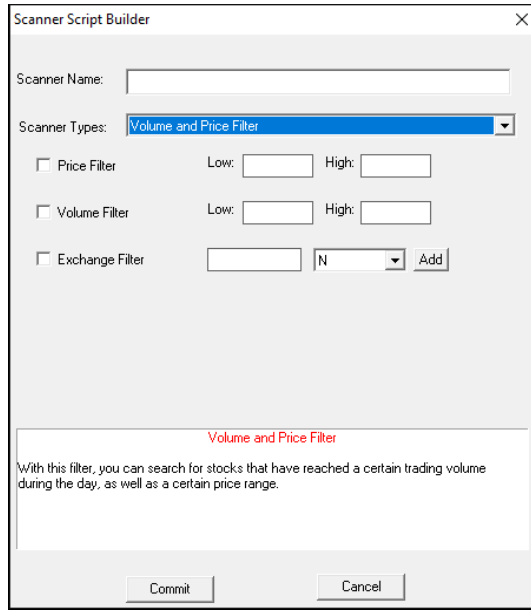


Figure 8.2 - DAS Trader Scanner window.

Scanner provides just a handful of scanner types, which can be found under the "Scanner Types" drop-down menu shown in Figure 8.2. A few checkboxes and fields are provided for customizing the inputs to the scanner. After setting up the criteria and hitting the "Commit" button, DAS Trader shows a list of the symbols matching the criteria. The Scanner list does not periodically refresh, so you must manually refresh the results as needed.

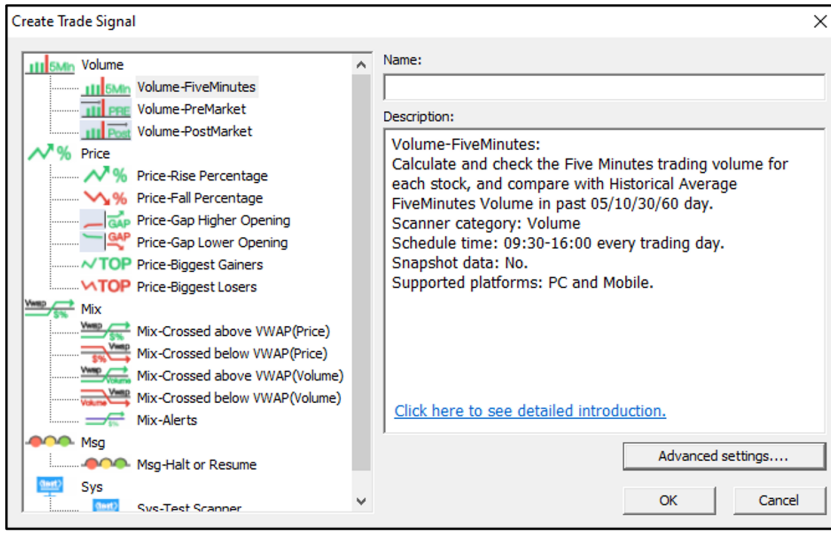


Figure 8.3 - DAS Trader Create Trade Signal window.

Trade Signal, as shown in Figure 8.3, is the most advanced scanner inside DAS Trader. In addition to advanced filter options and more control over the scanner results, the results automatically refresh every 20 seconds. With Trade Signal, you get much more customization compared to Scanner, plus automatic updates.

Trade Ideas

Trade Ideas is the de facto scanner for day traders and has much more comprehensive filters and more user-friendly result windows compared to the DAS Trader scanners. With Trade Ideas it's easy to see the results of many scanners at one time on a single screen as shown in Figure 8.4. Trade Ideas scanners are automatically updated in near-real-time making it very attractive to day traders. These improvements come at a price, with monthly subscriptions being about $100, but you get what you pay for.

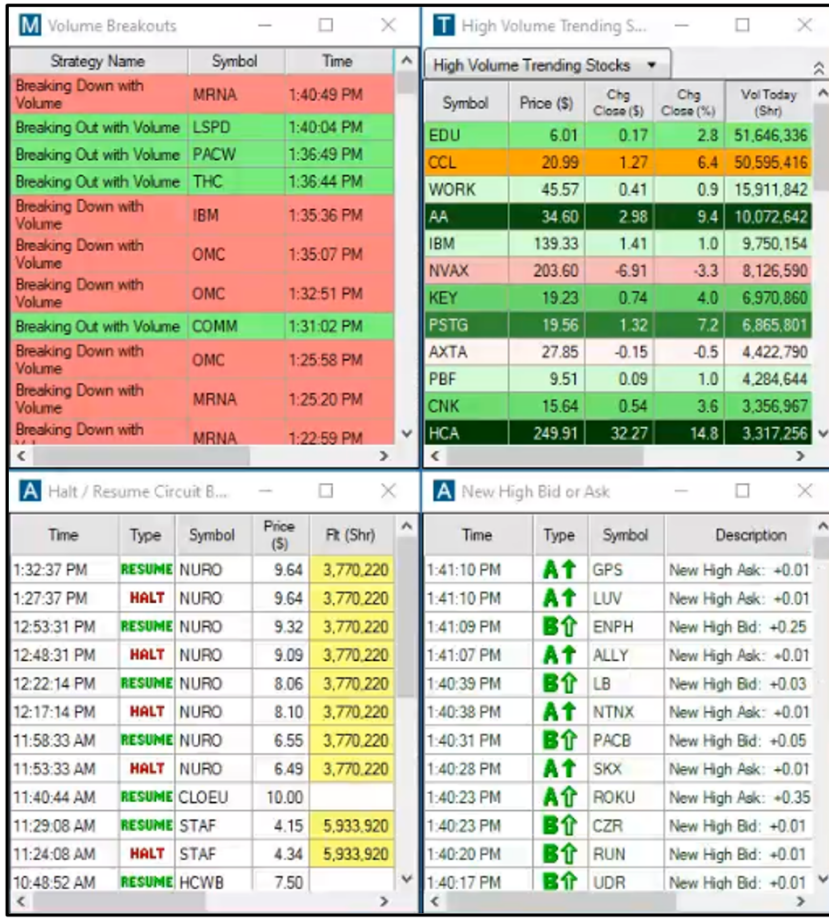


Figure 8.4 - Trade Ideas scanners.

I like to trade overnight gappers with medium-to-high float and large volume – my settings for this are shown in Table 8.1. This scanner may find too many symbols on days with higher-than-average volatility, at which point I increase float to at least 20M and/or overnight change to at least 3%. This scanner finds anywhere between 10 and 50 symbols each morning at market open.

Criteria	Value
Price Range	$10-$200
Pre-market Volume	>200,000
Overnight Change	>2%
Float	>10M

Table 8.1 - Trade Ideas settings for overnight gapper scanner.

TDAmeritrade thinkorswim

Any trader interested in developing custom indicators or backtesting strategies should open a free account at TDAmeritrade to get access to thinkorswim (TOS).

TOS has its own scripting language called thinkscript, which is very powerful and very easy to learn. You can create almost any kind of chart indicator you can imagine using thinkscript; for example, remember that guy on YouTube who always tried to sell you on his "three bar play"? With thinkscript, you can backtest that strategy and see for yourself its profitability.

Scanner Results to Avoid

Some symbols that hit your scanners should not be considered Stocks in Play. These may be false positives, or symbols that technically met the criteria of your scanner but really don't have much going on. Perhaps one shareholder sold a block of shares to another which created enough volume and change in stock price to hit your scanners, but it's not a stock day traders would be interested in adding to their watchlists.

Figure 8.5 is an example of a good scanner result with clear trend and clean price action, while Figure 8.6 shows an example of one that would be avoided. CRM shows clear upward trend since previous day close, and also shows strong validation from volume on the 1-minute chart. BHP shows wild swings with little volume, and more or less flat after that. It may register on the scanners just due to one large trade.

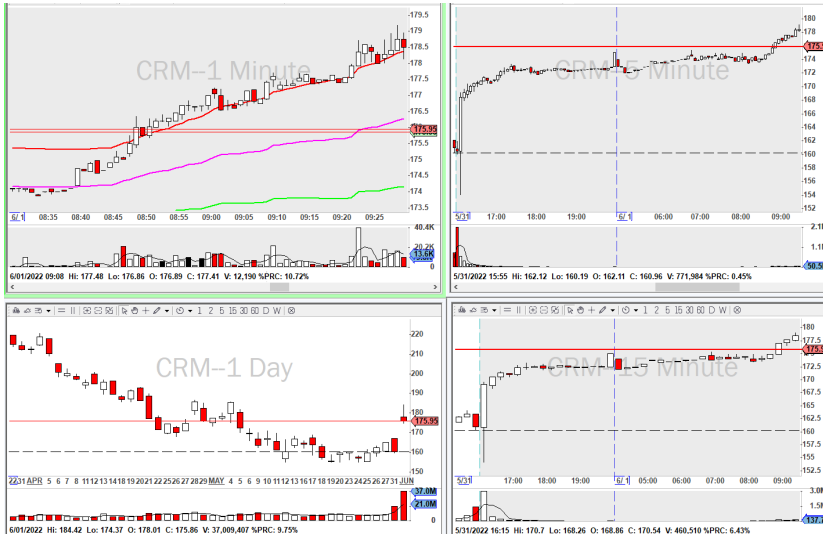


Figure 8.5 - Example of scanner result with strong overnight gap and clear price action that a trader would likely add to their watchlist.

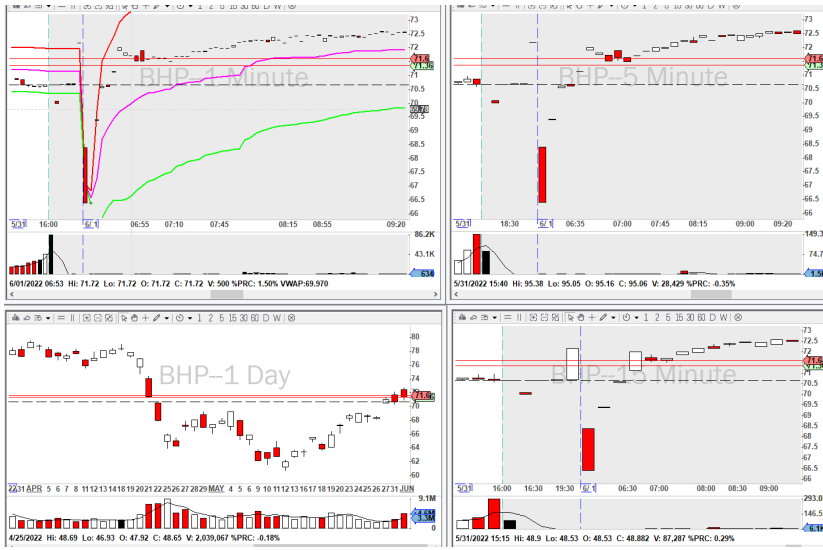


Figure 8.6 - Example of scanner result that would not be added to trader's watchlist due to lack of strong price action and clear trend.

Summary

- Day traders use software called scanners to find Stocks in Play based on price, overnight gap, float, pre-market volume, and other criteria.
- DAS Trader has three built-in scanners, but most traders will use third-party software to find most of the symbols they trade.
- Trade Ideas is the de facto scanner for day traders.
- Not all results found by the scanners are suitable for day trading. News and clean price action can be used as discriminators to ensure the right symbols make it to your daily watchlist.

CHAPTER NINE
Trade Playbook

Now that you know what types of stocks to look for (the "Stocks in Play" trading with high volume and volatility) and how to find them (using scanners like Trade Ideas), in this chapter we analyze the behavior of these stocks using candlestick charts and define candlestick patterns that day traders look for to help them find the best time to enter a trade.

The reason day traders use candlestick patterns as guides for their entries is because it's actually quite easy to take a long position on a stock that is trending upwards but still lose the trade. This is due to the constant fluctuation in price action that volatile stocks experience. Within any given candle or time period, the stock experiences many ups and downs as bears and bulls duke it out. Also, there can be several down candles within an overall upward trend. Fortunately, there are some clues and patterns day traders rely on to help them get better entries.

As you already know, traders want to buy low and sell high for a long position, and short high and cover low for a short position. The candlestick patterns described in this chapter are designed to help traders achieve this. For example, when taking a long position, there are tricks you can follow to help you enter the trade when the price is in a transient down-trend within the overall upward trend so that you get a good (low) price for your long position entry.

There are countless candlestick patterns day traders look for – some with crazy names like "abandoned baby," "three white soldiers," and "three black crows." This book is not intended to be a complete reference on candlestick patterns, so we will only cover a few of the most common patterns and describe how day traders profit from them. With the rigorous risk management strategy we discuss in Chapter 10 - "Risk Management," you only need one or two candlestick patterns in your repertoire to be a profitable trader. Plus, if you are able to find

enough trades with a single pattern to earn your desired income, then there is no need to learn additional patterns.

I believe opening range breakouts (ORBs), ABCD patterns, and reversals are the best way for beginners to learn to trade. They are simple patterns, which makes them easy to learn, but most importantly, they are rooted in sound supply and demand theory.

These three patterns are also attractive to traders because they can be effectively traded within the first 30-45 minutes after the market open, making for a very short workday. However, ORBs are very fast-paced and require split-second decisions, which may not be to everyone's taste. Some traders prefer a more relaxed trading style with reversals or other strategies that can be traded over longer time scales.

You should choose the strategies that you feel are easiest to find trades for and make you the most money. That is to say – whatever gives you the best combination of R/R ratio, win rate, and trade frequency in order to give you the most income.

There is no "one way" to day trade. Every trader has a unique way of trading. Some will keep reversal positions open for hours, while some will be in and out in a few minutes. They could actually have the exact same R/R ratio, win rate, and profitability but trade the reversal completely differently. This is because there are no silver bullets or magic candlestick patterns that will make all traders profitable. Traders are just like other professionals whether it be athletes, lawyers, or doctors. They can all be successful, but each individual develops a unique approach that suits their style and strengths.

That said, having a well-defined trading system and risk management plan in place will ensure you have the best chance of succeeding. Regardless of what types of stocks or strategies your prefer, you always need a good system and plan to guide you to profitability. This is why The RST Way uses a fixed R/R ratio, well-controlled win/loss sizes, application of the binomial distribution, and DAS Trader hotkeys – these form the backbone of our trading success regardless of our individual preferences for certain candlestick patterns or trading styles.

In this chapter we focus on the candlestick charts along with other pieces of information that help traders decide when to enter trades. Other traders also use them to identify the best time to exit; however, this is not applicable to The RST Way of trading since our exits are automatically determined by our R/R ratio as soon as we pick an entry and stop loss, which we will discuss further in Chapter 10.

Looking into the Past, Present, and Future of a Stock's Price

Candlestick charts along with Time & Sales and the Level 2 order book give you all the information you need to see into the past, present, and future of a stock's price.

Candlestick charts look into the past of a stock's price period by period. Time & Sales tells you what is happening in the moment with its running log of all orders flowing through the market for that symbol. Finally, the Level 2 order book can act as a *leading* indicator peering into the future of a stock's price by showing all of the open orders in the market for the symbol. Together, they are the trifecta of stock price information. These three pieces of information will guide you to finding the perfect time to enter a trade.

Figure 9.1 - Candlestick charts, Time & Sales, and Level 2 describe the past, present, and future of a stock's price action.

Candlestick Charts

Candlestick charts are just one of many ways to represent a stock's price. Other types include range bar charts, equivolume charts, line charts, and Heikin-Ashi charts among many others.

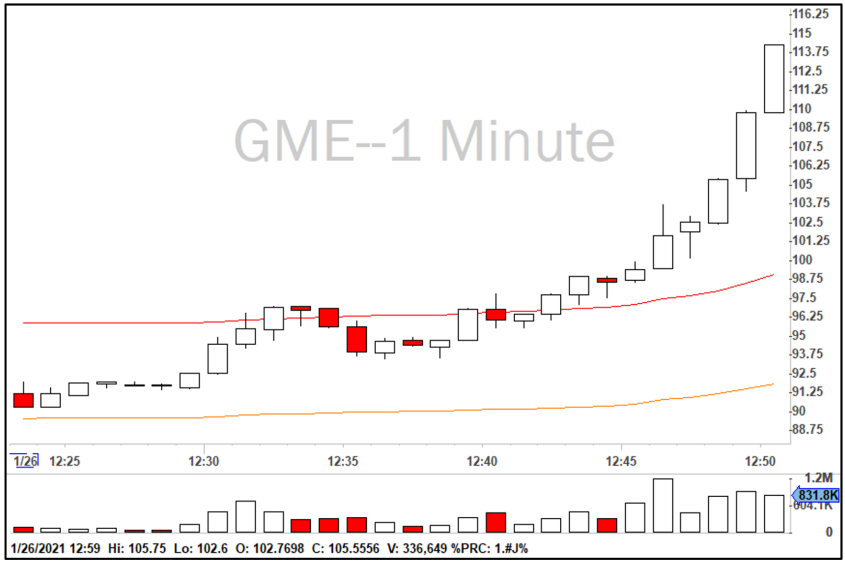


Figure 9.2 - 1-minute candlestick chart for GameStop on January 26, 2021.

Candlestick charts, like the ones in Figure 9.2 and Figure 9.3, are also known as OHLC as each bar identifies the open, high, low, and close price of each period. These are the most common style of charts used by day traders.

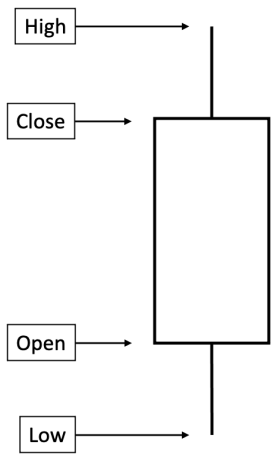


Figure 9.3 - Anatomy of OHLC candlestick.

How do we know which end of the body is the open and which is

the close? Traders can define any colors they want for their charts, but typically a white candle would mean the price increased during the period, and a red candle would indicate the price decreased. Therefore, when looking at a white candle, we know the open is at the bottom of the body and the close is at the top, with the high and low of the period being at the ends of the tails/wicks.

The white candlesticks are therefore bullish candles, and the red candles are bearish candles. When looking at a candlestick chart, you can see who is in charge during different periods of the chart. In the case of GME above, you have a very strong bullish trend across the chart. This example is one of the wildest charts of 2021, where you see a stock's price increase 35% in less than half an hour. The bulls are obviously very much in control of GME during this period, so there are many white candles, most of which have little or no wick on the bottom. The small or missing lower wick means most candles are up-ticking after they open with little or no pulling back during the candle's period.

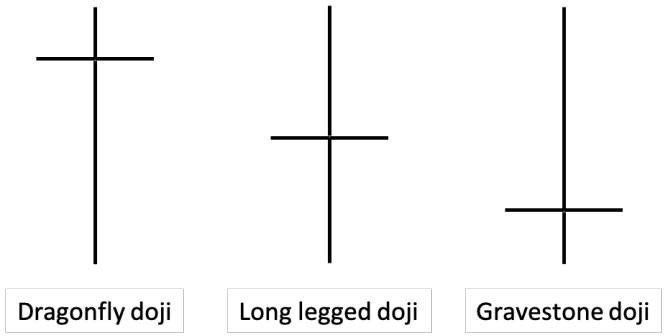


Figure 9.4 - Candlestick dojo.

The relative proportions of a candle's wicks and body also has a story to tell. Take a look at the candlesticks in Figure 9.4. In each case, the open and close price is the same price. In the case of the dragonfly doji, the bears tried to push the stock price down but ran out of steam, and the candle closed back up near the top. This could signal the end of a downtrend and the start of an uptrend. The opposite is true of the gravestone doji – bulls tried to push the price up but couldn't, so they may be exhausted at this point and a downtrend may follow. Traders often look for doji when considering taking reversals.

The middle doji is called an "indecision" candle, as it indicates there is no clear leader in the market. The pressure from both bulls and bears

was equal during that period.

When looking at candlestick charts, you aren't just looking for specific patterns – you're also looking at the candles' characteristics to see who is in control. You might spot a good setup for ABCD pattern, but if it's not clear from the candles who is in control when you are ready to enter, then you should not enter the trade.

Most of the charts and examples in this chapter and throughout the book use 1-minute candlestick charts. That is for ease of illustration in the book, and my intention is not to imply they are superior to other time frames. My DAS Trader has 1-minute, 5-minute, and 1-day candlestick charts for each symbol I'm watching.

Most traders are watching multiple candlestick charts, but they are not all using the same primary candlestick chart. For me, I do basically all my trading on a 1-minute chart. I like fast and furious trades at the open, and anything midday or near closing seems to move like a glacier to me. However, other traders may exclusively trade reversals on 5-minute charts, for example. They may use the 5-minute chart to find the trade, and also reference the 1-minute chart to help find the perfect entry and exit. They may also use 15-minute or 30-minute charts to help define larger trends. Therefore, different traders may have the same charts open but use them for different purposes.

Indicators

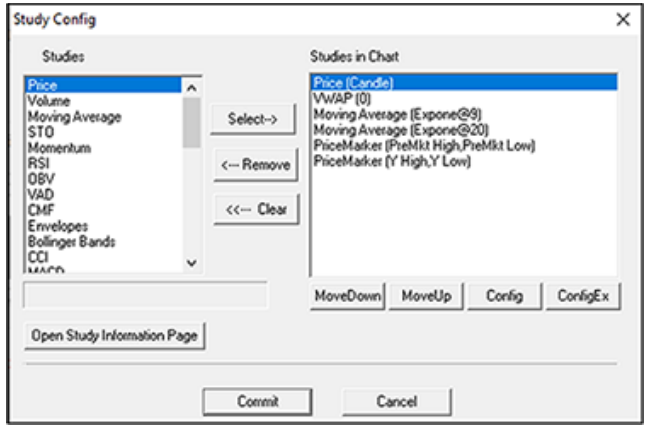


Figure 9.5 - DAS Trader Study Config.

In DAS Trader, moving averages and other indicators can be added to your charts by right-clicking on the chart and selecting Study Config. On the right side of Figure 9.5 are the indicators I have on my charts, which DAS Trader calls "studies." Please go easy on the indicators – you can easily turn your charts into Jackson Pollock paintings!

The most common indicators are simple moving averages (SMA) and exponential moving averages (EMA) along with volume weighted average price (VWAP). There are probably more than 1,000 indicators out there being used by day traders. I think most of them are crazy ideas that some trader happened to get lucky with one day, so they kept them on their charts and made a YouTube video about it. That doesn't mean it's useful. In fact, even though I have used SMA and EMA in the past, which almost all traders do, you can see from the figures in the book that I removed them from my charts and now only use VWAP.

VWAP tells you what price most trades occurred at during the day. VWAP is the sum of every sale price multiplied by the number of shares sold at that price, divided by the total number of shares traded up to that moment. A candlestick chart by itself can tell you how the price has moved up and down during the day, but it can't tell you which price(s) were traded the most. VWAP gives you that volume-weight price, which you can use identify when stocks are moving in an uptrend or downtrend away from VWAP. Also, when stock prices get too far from VWAP, you can often expect a reversal – a "return to the mean," if you will.

Exponential moving averages are similar to simple moving averages, except more weight is given to more recent candles. A 9-period EMA will therefore more quickly respond to candles moving up or down than a 9-period SMA will respond.

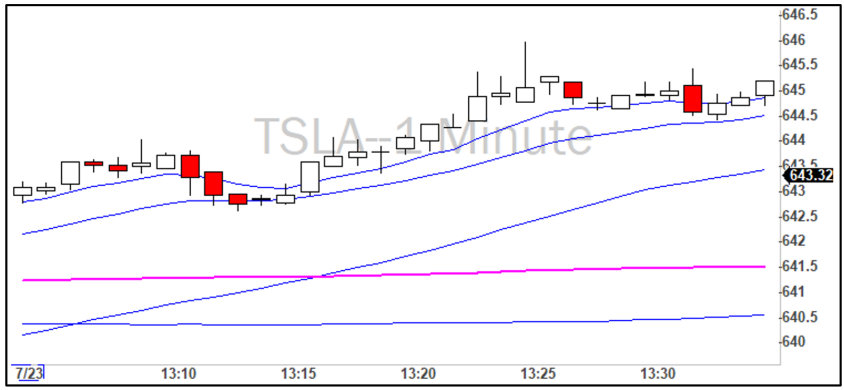


Figure 9.6 - EMA, SMA, and VWAP indicators.

Figure 9.6 shows the relative positions of the 9-EMA, 20-EMA, 50-SMA, and 200-SMA indicators for TSLA on 7/23/21. Because TSLA has been in strong uptrend for a long time as indicated by it's current price being above all moving moving averages on the chart, someone looking to take a reversal might look for a gravestone doji in addition to the candles moving below 50 SMA. Each on its own could indicate a reversal is coming, but together they make a stronger case.

The types of indicators and candles you use are part of your playbook. An entry in your playbook isn't just a strategy and share size, it includes all the other details about the candles, indicators, and other information at your disposal that gives you sufficient justification to take the trade. There is no minimum or maximum number of indicators or pieces of information you need in your favor to develop a successful playbook. Later in this chapter we'll cover what I think is needed for the various strategies, but that doesn't mean my approaches are the final word on these strategies. You will likely find other indicators or tricks that help you improve win rate and profitability.

Level 2 Order Book

Candlestick charts are the most essential part of trading with the Level 2 order book being a close second.

The Level 2 order book contains all the open limit orders from the various exchanges that your trading platform is connected to. Of all the information at our disposal, the Level 2 is the only one that can act

as a leading indicator. All the moving averages and other studies cluttering up our candlestick charts are lagging indicators, describing what has already happened. The order book can sometimes tell us what is *going* to happen.

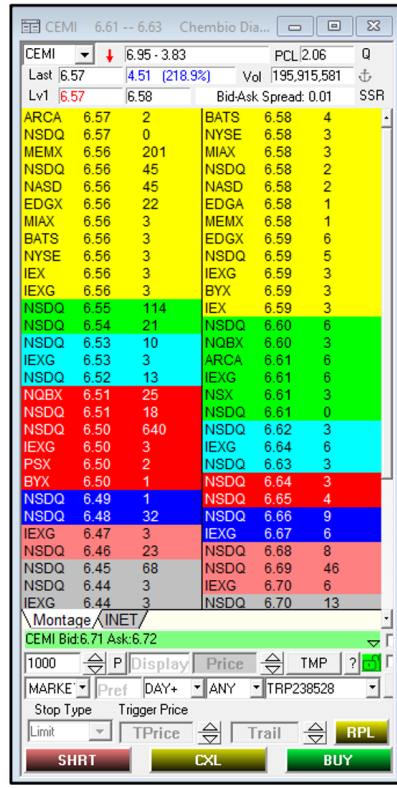


Figure 9.7 - DAS Trader Level 2 order book showing imbalance between bids and asks.

Figure 9.7 shows a few large bids on the left side of the montage window. These are orders to buy as much as 20,000 shares. It's counterintuitive, but this may signal that the price will go down in the short term. In grade school, we were taught that increasing demand raises prices and decreasing demand lowers them. So when we see large orders to buy shares, shouldn't that mean increasing demand and higher prices?

Not so fast. What we are actually witnessing on the Level 2 in this case is large limit orders from informed traders and likely those with sophisticated computer models or servers co-located on Wall Street.

Based on their research and information, they believe the price is going to continue to go down, and they will be able to buy your shares at a price lower than the current best price.

Therefore, large asks on the Level 2 can be a bullish sign and large bids can be a bearish sign for near-term price direction. When trading the market open, the window of this indicator is open for no more than 10-20 seconds. Generally speaking, you will have identified a favorable candlestick pattern, then be looking at Time & Sales and Level 2 to confirm a good time to enter. When you see the large bids/asks, you would enter the trade immediately.

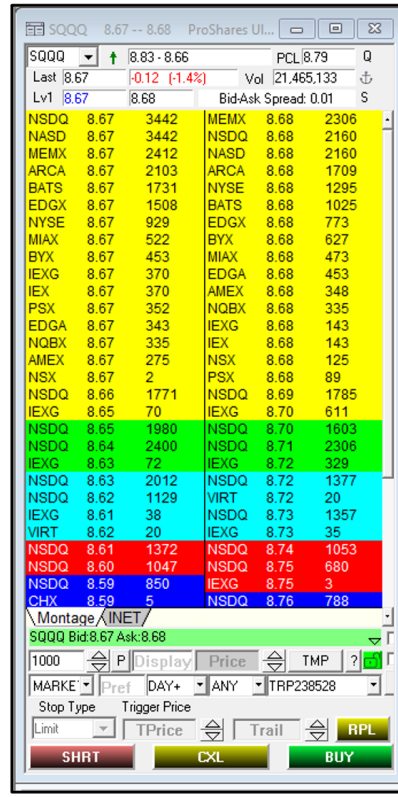


Figure 9.8 - DAS Trader Level 2 wall of orders.

Another interesting Level 2 phenomenon is in Figure 9.8, which shows "walls" of orders building up on both sides of the Level 2. With an equal and large number of both buyers and sellers in the market, it's very difficult for the price to move. You'll often see these walls build

up around even numbers like $25.00, $50.00, and so on, especially if that happens to have additional importance like a recent high or low.

Some traders use these order walls to build strategies around. If a stock has been trending upward all day but then hits an order wall at $25.00, this can be a perfect time to enter a long position if all other data, like company news, is also bullish. By entering the trade at the order wall, there is very little downside with quite a large upside. Especially if it's high-of-the-day or an all-time high. If there is enough demand in the market to eat through the wall of sellers, that stock could accelerate upwards quite quickly after eating through the sellers. This is also what often happens in the ABCD pattern. The consolidation phase of the ABCD patterns often occurs at the point where there is a balance of large number of buyers and sellers, so the price levels off for a bit. Once all the sellers' orders have been filled, the price can continue to increase (or go down in the case of a wall of buyers in a downward trend).

Time & Sales

Figure 9.9 - DAS Trader Time & Sales.

Time & Sales is a running log of all the filled orders moving through the market for a particular symbol. This window tells you what's happening at any given moment. Every transaction for the symbol is flying through this window in real-time. For high volume stocks, the Time & Sales log might be moving too fast to be useful if not

configured properly. Right-clicking on the window allows you to filter out orders with smaller share quantities. I have mine set to display only orders with a share quantity greater than 100 shares, which usually makes the Time & Sales slowdown enough to be useful. I also have the "Share / 100" box ticked, which means all the values in my Time & Sales windows are not shares but lots of 100. Therefore, when I see a "3" under the Qty column, that means 300 shares. I will also see Qty of "1" for orders down to 100 shares.

If you're trading highly volatile stocks at the open and making split-second decisions on when to enter a trade, Time & Sales can be a big help when determining when to enter a trade. Default color settings in DAS Trader show orders in green when they hit the ask, and red when they hit the bid. Seeing a run of red followed by a run of green may be a good time to enter a long position for opening-range breakout (ORB) trade strategy for example. In an ORB trade, once you have identified the trend (up or down), you look for a pull-pack to get a good price and then enter the trade right before it takes off. The pull-back and turnaround would appear as a run of red followed by run of green in Time & Sales.

Mass Psychology & Support and Resistance Levels

One last item to add to your arsenal is support and resistance levels. These are prices at which a stock may reverse course or just fizzle out. On your charts, they are drawn as horizontal lines across the chart at the level's price. For example, if a stock's price has been trending upward towards the stock's previous all-time high, many traders may treat that price as a resistance level, meaning the stock will not go higher, and will either fizzle out near that price or reverse course entirely. It's called a "resistance" level when the level halts an upward trend, and it's called a "support" level when it halts a downward trend. These levels do not necessarily force a complete reversal and may only cause the stock to oscillate about that level and fizzle out.

In the case of the reversal at the previous all-time high, the mass psychology is: "no one has previously valued the stock higher than this price before, so why should we now?" If there is not significant news for the company, then many traders will sell off their shares which lowers the price and validates the resistance level like a self-fulfilling prophecy.

You may also have stockholders who previously purchased at that previous all-time high hoping for it to continue to increase, but are still "holding the bag," and are quite eager to sell for breakeven at that price, which further acts to steer the price back down away from the resistance level.

These ways of thinking create a herd mentality among traders. Everyone is paying close attention to these "important" levels such as all-time high, previous day open, previous day close, pre-market high, and pre-market low. Some traders even look back two days for additional OHLC values. However, if your chart looks like Figure 9.10, is it really useful?

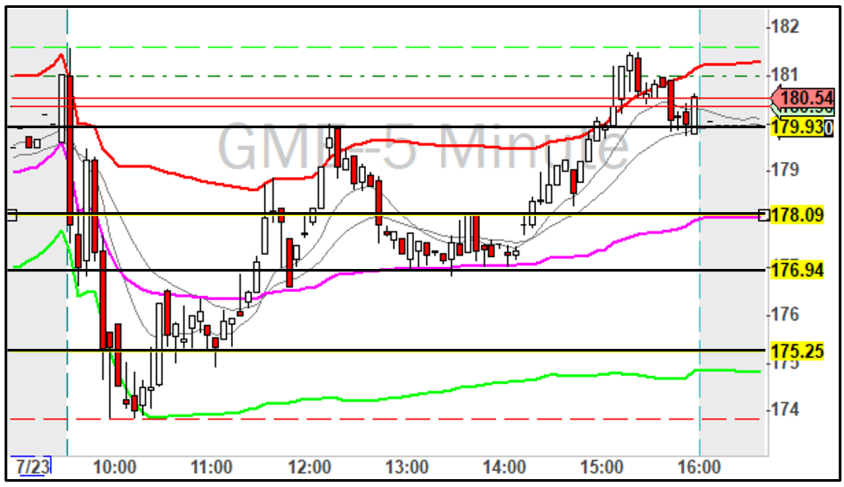


Figure 9.10 - Support and resistance level overkill.

For me, not every peak and valley on a chart has significance, so there's not need to draw a horizontal line for every one. That said, support/resistance levels are very real, and if you're still skeptical, take a look at Figure 9.11:

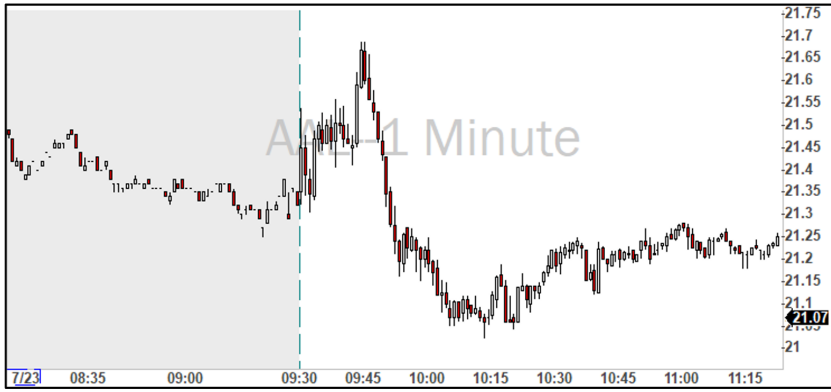


Figure 9.11 - Candlestick chart for American Airlines (AAL).

On this day, AAL shot up before reversing down to a new low of the day around $21.20, where it stalled out for a while before eventually continued downward. The price recovered a little bit and leveled off around $21.20-$21.25.

Now take a look at Figure 9.12:

Figure 9.12 - Candlestick chart for AAL with previous day close indicator drawn.

The dotted red line is the previous day's closing (PDC) price, a very powerful support/resistance level. This figure is an excellent example of the power of these levels and mass psychology in action. We can see that when the price began to tank at 9:45, it was on a highway to hell until it got to the PDC level. Some traders thought the price would rebound from that level, so there is a lot of buying activity at that level. Unfortunately for them, there was not enough demand to prevent the

downward trend which soon continued (reverse ABCD pattern). PDC appeared again later in the morning as the first price it settled around after it rebounded. It's not by accident that PDC and other levels have so much activity surrounding them.

Of course, stock prices don't always make 100% predictable responses to support and resistance levels; however, they almost always have some effect, so traders should pay attention to them.

Opening Range Breakouts (ORBs)

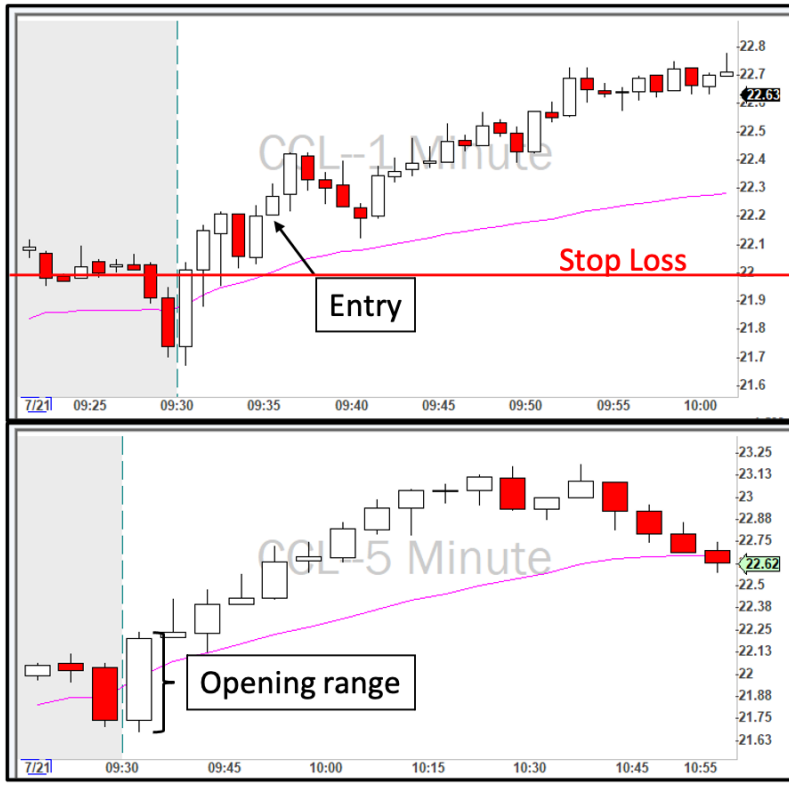


Figure 9.13 - Opening Range Breakout (ORB) setup on CCL.

When the COVID-19 pandemic hit, travel stocks went nuts and it was the most glorious time in the history of day trading. Shares of rental car companies, hotels, cruise lines, and airlines traded with huge amounts of volume and volatility, giving traders the time of their lives.

It was like Christmas every day for months. CCL (Carnival Cruise Lines) was one such symbol, hitting day traders' watchlist almost every day of 2020 and 2021.

Figure 9.13 is a good example of an opening range breakout (ORB) trade on one such travel stock, Carnival Cruise Lines (CCL). The main goal of ORBs is to profit from the release of pressure that occurs at market open on the overnight gappers that hit our watchlists. Since there is very little trading outside normal market hours, there is a lot of pent-up demand that builds up during the other 17.5 hours of the day. The stocks that do make big moves outside normal trading hours are usually the ones that are going to pop-off the most at market open. The trading outside normal hours is kind of a peek at what will happen at the market open. Then, when 9:30 a.m. hits, all the trading that occurred since yesterday's closing bell becomes amplified.

The stocks that significantly moved overnight tend to trade with large volume and volatility at the market open. If it was a significant move up, like an all-time high or at least recent high, there may be many stockholders ready to sell, so you could see that stock sell off heavily at the open. Or, maybe the stock moved up on positive news overnight which propels the price even further after the market open.

More often than not, you have many competing types of traders buying and selling the overnight gapper at the market open. Some want to take profits, and others believe the move is just the beginning. As the bears and bulls duke it out, the stock will trade with large volume and often very dramatic price swings. After a few minutes though, a clear trend will develop, and this is when traders will enter an ORB trade.

"Opening range" refers to the wild price swings that occur while the two sides of the market battle it out. When one side wins, the price will then "break out" of the range and follow that trend.

I prefer to wait at least 5 minutes for the trend to develop. Some traders wait up to 15 minutes, and some only wait 1 minute. The opening range can be of any duration, and you do not have to always wait the same amount of time.

There are few characteristics that I think make for an ideal ORB:

- VWAP runs through the middle of the opening range. This is not always the case if your VWAP indicator includes pre-market trading, so I recommend ensuring that it does. I do not like taking ORB trades that are too far away from VWAP

which may indicate the "pop" has already occurred.
- The symbol was an overnight gapper with at least 2% change since yesterday's closing price.
- There is fundamental news that caused the overnight gap to occur. Sometimes, which is the case of CCL, one event (the pandemic) caused the ticker to be a Stock in Play essentially every day for over a year. You can trade CCL every day under those conditions, but I prefer to trade the initial event only. The subsequent days and weeks are essentially the dampening out / ringing of the initial event.

When you enter the trade, you want to enter as early as possible and with a good price. I always look for a small price pull-back before entering a trade so that I get a good price. Using the CCL example above, we can see that the sixth and seventh 1-minute candles do not have much of a pull-back. There is a bit of a wick on the sixth candle, so I probably would have entered at the close of the sixth candle. When watching that price action, it probably opened and made its way to the high of the candle before dropping a bit to the close of the candle. That's probably where I would have entered – around $22.25.

The stop loss is going to be the price at which the candle intercepts VWAP, which is $22.00 in this case. Therefore, the stop loss distance is $0.30. If you are trading with 1/2 R/R ratio, then the profit target would be $0.60, or a price of $22.85.

Looking at both the 1-minute and 5-minute charts for CCL in the figure, it's clear that the profit target would have been reached before the stop loss for a winning trade.

Although this example was for a long position ORB trade, it is equally valid for short trades.

In summary, my ORB playbook looks like:

1. Wait at least 5 minutes after market open before entering an ORB.
2. VWAP should be near the middle of the opening range.
3. The low of the prior 1-minute candle (before entering the trade) should be near VWAP.
4. Time & Sales should be showing many transactions on the bid for a short position or on the ask for a long position.
5. Wait for either a large ask (long position) or large bid (short position) before entering a trade.

6. Large volume can be used as a substitute for a large bid or ask to indicate momentum in the preferred direction.
7. Enter when large bid/ask occurs or volume begins to increase.
8. If neither large bids/asks or volume occur, do not take the trade.
9. Set stop loss to slightly below VWAP.
10. Exit determined by R/R ratio and stop loss.

ABCD Pattern

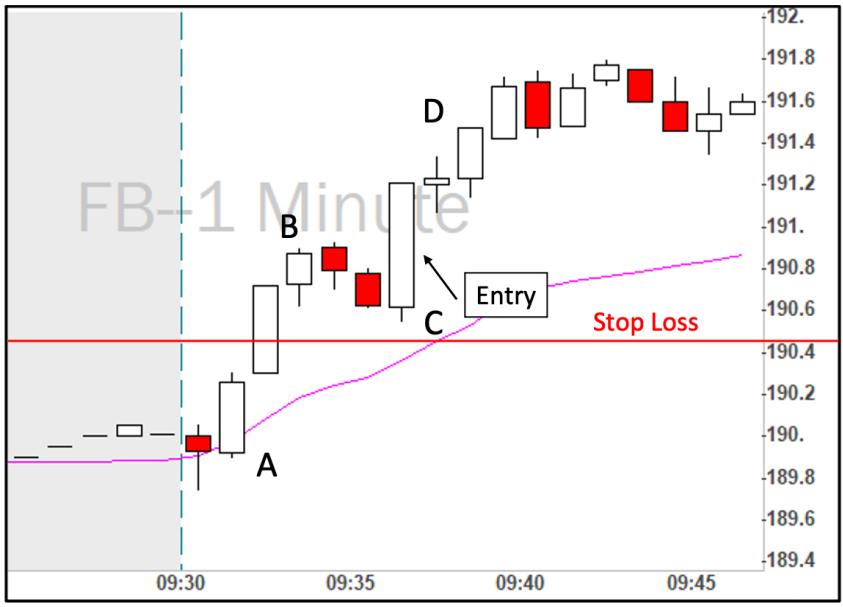


Figure 9.14 - ABCD pattern setup on FB.

The chart for FaceBook (FB) in Figure 9.14 shows an ORB setup followed by an ABCD pattern. It is very common to take ABCD trades after ORBs. An ORB could have been taken after the first two candles and later followed by an ABCD pattern (although I've shied away from taking ORBs within the first five minutes).

"A" is the point at which the stock begins to move in a clear direction. "B" is where that momentum slows down. During all big moves, there are always pull-backs – some bigger than others. Within the range of each candle are smaller pull-backs, and what you see between "B" and "C" is a bigger pull-back. This occurs during a sell-off

from traders cashing in their profits if they were lucky enough to ride the stock from "A" to "B." The bigger the move from "A" to "B," the bigger the sell-off can be.

Eventually everyone interested in selling does so, and the momentum picks back up and the stock will continue the trend and set a new daily high.

The perfect entry is about the same price as "B." So when the stock begins to recover after "C," a good time to enter is around the "B" price. That often gives you enough indication that the stock is indeed recovering and ready to continue the trend and set a new high.

Finally, the trend continues towards "D" and sets a new high for the day and may even continue beyond that.

The appropriate stop loss is below any lows that occurred during the consolidation phase between "B" and "C." Looking at the figure for FB, an ABCD trade in this case presented about a 1/4 R/R ratio and would have been a nice winning trade.

Again, although we took an ABCD pattern to the long side, if you flip it upside you can find an equally valid short trade.

In summary, my ABCD playbook looks like:

1. Enter after "C" when price returns to "B" level.
2. Time & Sales should be showing many transactions on the bid for a short position or on the ask for a long position.
5. Wait for either a large ask (long position) or large bid (short position) before entering a trade.
6. Large volume can be used as a substitute for a large bid or ask to indicate momentum in the preferred direction.
5. Enter when large bid/ask occurs or volume begins to increase.
6. If neither large bids/asks or volume occur, do not take the trade.
7. Set stop loss slightly below "C."
8. Exit determined by R/R ratio and stop loss.

Reversals

Virgin Galactic has been another favorite of day traders in the last couple years (side note: SPCE was the very first symbol I ever traded!). On June 30, 2021, it presented a perfect reversal opportunity about an hour after the market open. After initially climbing from $44.25 to

almost $46.25, it began to sell off approaching $43.00. A little after 10:30 an indecision candle presented itself, which is often a great time to consider taking a reversal.

The indecision candle has a long lower wick indicating that the bears tried to push the price down to $43.00 but couldn't quite make it happen. The close of the candle is almost identical to the open, thus forming a doji / indecision candle. When the candle closes, the bulls are in control. The next 5-minute candle closed significantly higher than the previous, also indicating the reversal is in full effect. One thing you want to see is higher highs and lower lows, which is evident throughout the entire return trip back up to $46.00 in this chart.

A good entry would be at the close of the next candle after the doji. The safest stop loss is below the low of the doji candle, but you could also be a little riskier and move the stop loss up to the low the next candle. The problem is that apparent reversals will sometimes be attacked by the bears one more time, forming what is known as a "double bottom." In that case, you would be stopped out if your stop loss was the low of the candle after the doji. The stop loss drawn in Figure 9.15 is where I prefer to put it.

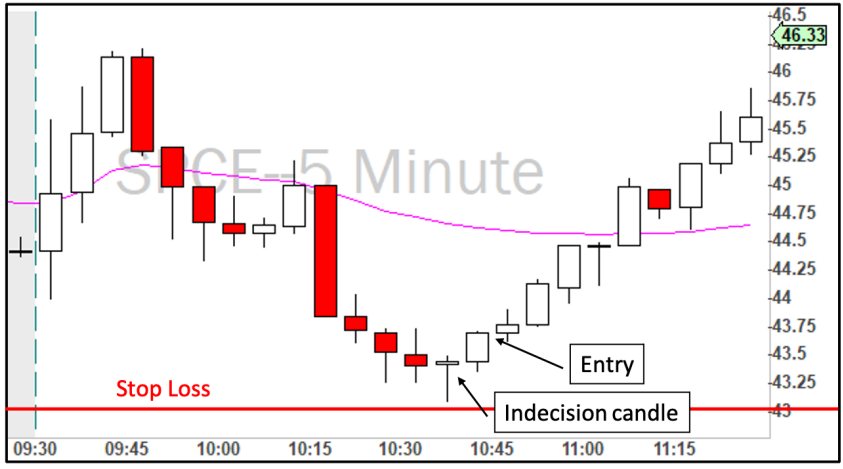


Figure 9.15 - Reversal on SPCE.

In summary, my reversal playbook looks like:

1. Look for doji candle signaling indecision.
2. Look for exhausting volume during the doji candle's period signaling the original trend is ending.

3. Enter on next candle after doji with higher high and higher low (opposite for short position).
4. Set stop loss to below low of doji.
5. Exit determined by R/R ratio and stop loss.

Volume

I don't want to overwhelm new traders with too many things to think about during their trading, but volume is one last item that is too important to ignore. In addition to watching the candlestick charts, Level 2, and Time & Sales, volume is another important piece of data to inform you when it may be a good time to enter or exit a trade.

You may have noticed that most of the charts in this book have a bar chart at the bottom. These are volume bars showing the volume of each candlestick above it.

"A Complete Guide to Volume Price Analysis" by Anna Coulling is the best resource for learning about volume and how to improve your entries and exits using it. I encourage all new traders to read it.

Bottom line, volume can act as a verification of the strategy you want to use. For example, if you want to take an ORB-up but there is not significant buying volume at that time, then perhaps it is not a good time to enter the trade. To paraphrase Anna, "real moves happen with volume." I would encourage you keep an eye on volume and re-evaluate your entry if you do not see increasing volume in your favor. Day traders always prefer high volume signaling a strong move.

Summary

- Candlestick charts, Time & Sales, and Level 2 are the trifecta of stock price information and allow traders to see into the past, present, and future of a stock's price.
- Candlestick charts provide a graphical representation of a stock's historical price and provides traders with a look into the stock price's past.
- Time & Sales shows traders a stock's order flow and provides information about what is happening to a stock in the moment.
- The Level 2 order book can often act as a leading indicator and

help traders see into the future of a stock's price when informed traders place large orders on the order book signaling a trend in that direction.

- Mass psychology drives stocks to make predictable moves near support and resistance levels.
- ORBs, ABCD patterns, and Reversals are three great candlestick patterns for beginner traders.

CHAPTER TEN

Risk Management, The RST Way

Now that you know how to find Stocks in Play and the fundamentals of how to trade them, it's time to define the rest of your risk management plan including share size, risk/reward ratio, trade block size, max loss size, and losing streak circuit breaker. Sometimes these parameters and other similar aspects of trading are referred to as a "trading system." More specifically, in this chapter we'll cover The RST Way of trading, which I sometimes refer to as "fixed R/R ratio" or "one-button" trading.

Most new traders want to open a brokerage account and immediately start trading while "learning along the way." That isn't trading – it's gambling. Real trading, the type of trading done by professionals, involves rigorous risk management. Risk management planning, which is simply a way of minimizing losses and maximizing profits, is what separates the winners from losers.

Alan Greenspan, Chair of the U.S. Federal Reserve from 1987 to 2006, once said, "Risk management may be the only truly necessary element of success." He was referring specifically to banking but that also includes investing and trading. This is why this book does not spend too much time on candlestick patterns and instead focuses on execution and risk management. To the uninitiated, the world of day trading appears to revolve around candlestick patterns and finding trade setups. In reality, that is just the beginning – it's how you manage a trade and all of your trades as a whole that makes or breaks your profitability. That is the essence of risk management.

It's called "risk management" because you take deliberate steps to limit losses while maximizing profits. As with any business or investment, there is inherent risk with day trading.

The specific risks faced by day traders are:

1. Losing excessive capital while holding a losing trade for too long.
2. Not recognizing when a strategy is inherently flawed.
3. Inability to diagnose and analyze one's trading when too many confounding variables are involved.
4. Inadvertently turning a winning strategy into a losing one based on incomplete data.
5. Reduced capital and earning power after a losing streak.

These risks are managed by:

1. Using automatic stop loss orders to exit trades at prices that maximize the win rate at the chosen R/R ratio.
2. Employing losing streak circuit breakers that interrupt trading blocks for diagnosis after an unexpectedly long losing streak.
3. Trading with fixed R/R ratio and automatic share size so all wins and losses are tightly controlled and kept consistently sized trade to trade.
4. Analyzing trade blocks of at least 100 trades before making changes to strategies or risk management plan.
5. Limiting the size of losses such that the trader has enough capital remaining after a losing streak to quickly regrow the account.

The Risk Management Plan

All traders should develop a Risk Management Plan (RMP). The items that go into the plan may vary depending on the type of trading system being used. When trading The RST Way, the RMP includes:

- R/R ratio and minimum win rate needed for breakeven
- Win/loss size as percentage of equity
- Trade block size
- Trade block analysis and improvement process
- Losing streak circuit breaker

Traders without well-defined RMPs are destined to fail – as are

RMPs with too many variables. If you're using different share sizes, different exit strategies, partials, a zillion different indicators, and so on, then the math and laws of probability are no longer in your favor. You no longer have a single system that you are trying to optimize; you have many systems overlapping each other.

The key to trading success is defining a single, clear RMP and sticking to it, and only modifying it after you've collected enough data to make an informed decision (or when the losing streak circuit breaker is activated). This means trading in blocks with a large sample of trades, and not changing a thing to your trading during the block.

Later in this chapter we'll calculate how big trade blocks need to be to give you an accurate picture of your trading performance. Tweaking your strategies mid-block is acting on too little information. Without a large sample size of trades, it's not possible to tell the difference between bad luck and bad trading. Even the world's best traders with ultra high win rates are going to have less than stellar days/weeks/months. To prematurely start tweaking strategies would be foolish and could cause a trader to transform a million-dollar strategy into a losing one.

The RST Way: "Fixed R/R Ratio Trading" or "One-button Trading"

The foundation of The RST Way of trading is based on two things that most other traders do not use: 1) a fixed R/R ratio for every trade, 2) controlled win/loss size.

"Fixed R/R ratio" means that the R/R ratio is selected prior to executing any trades, and following that R/R ratio for every trade in the block. It's recommended that new traders start with an R/R ratio of 1/1 (that's still what I use).

Trading with a predetermined R/R ratio means that when you enter a trade, the entry, exit for loss, and exit for profit are all set. When trading this way, you don't have to think about the trade anymore after the entry since the exits are already defined; you define the stop loss when you enter the trade and the exit for profit ("profit target") is based on the stop loss and R/R ratio (i.e. if your R/R ratio is 1/1 then the profit target is the same distance from entry as the stop loss).

Fixed R/R ratio is the first step, but we also need to control the size

of our wins and losses in order to achieve the trading nirvana that is The RST Way of trading. With a fixed R/R ratio on its own, you could still have a win of $100, loss of $500, loss of $5,000, win of $450, and so on. These win/loss amounts could have come from a trader who used an R/R ratio of 1/1 on *each trade*, but that is not enough. The average size of losses is ten times larger than the average size of the wins (R/R ratio of 10/1), so the win rate would need to be extremely high per Figure 5.2 from Chapter 5 (repeated below). The win rate needed is so high it's not even on the chart since the chart ends at R/R ratio of 4/1.

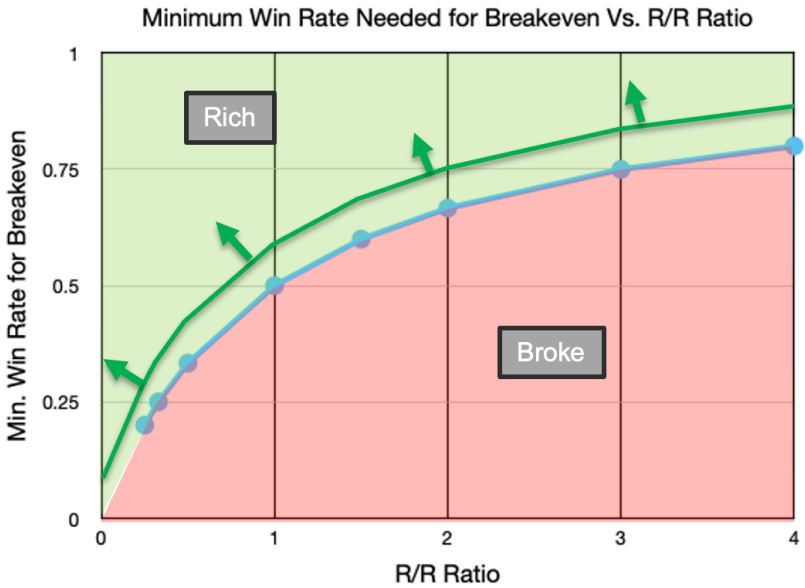


Figure 5.2 - Minimum Win Rate for Breakeven Versus R/R Ratio. The blue line is breakeven and the green line is where very high returns begin.

Therefore, we also need to keep the size of wins and losses consistent in order to achieve The RST Way of trading and ensure that Figure 5.2 holds true. This way, the R/R ratio over *all trades* is what we want it to be.

For example, let's assume a trader with a $10,000 account trades with an R/R ratio of 1/1 and 2% risk ($200). This means the trader will need to either lose $200 or win $200 on every trade. There are no other options, and the trader's only job is therefore to exceed the win rate needed for breakeven in Figure 5.2 which is 50% in this case. Ideally, the trader's win rate would exceed 60% where they will be very

profitable.

This makes trading extremely simple and removes all the doubt and uncertainty in the trader's mind regarding when to exit, how many partials to take, and so on. None of that matters and is not in our vocabulary as RST traders. We simply use a fixed R/R ratio, take advantage of the features already in DAS Trader to automatically calculate share sizes, and then guess up/down well enough to achieve the desired win rate to be profitable.

How hard is it to achieve the win rate needed to profitable? Consider a cat doing your trading for you. There are only two directions stocks can move: up or down. If your cat randomly picks up or down for any trade, and trades with a fixed R/R ratio and controlled win/loss sizes, then the cat will simply breakeven as a trader (ignoring commissions and fees). Just by adding fixed R/R ratio and controlled win/loss sizes to the cat's trading, the cat already is doing a lot better than many human traders I know!

Referring again back to Figure 5.2, to surpass breakeven and become profitable, you simply need to achieve a win rate slightly higher than the cat. The green line is just a few percentage points beyond the blue line (where the cat would be), and is where you begin to make serious money trading. So while the cat is breaking even at a 50% win rate, if you can use your big human brain to get to 57-60%, you can become a very profitable trader.

By trading this way, all of the other variables have been eliminated and you have a much easier to control trading system. Under The RST Way of trading, you only have three things to worry about:

1. Entry Price
2. Stop Loss Price
3. R/R Ratio

With this method of trading you do not have to worry about partials, breakevens, candlestick charts full of indicators, share size, profit target, exit price, and so on. All you have to do is evaluate the candlestick pattern, pick your entry and stop loss, and let DAS Trader hotkeys work their magic of automatically calculating share size and exit price.

More specifically, DAS Trader hotkeys do the following:

1. Automatically calculate the exit price for profit based on the

stop loss price and trader R/R ratio. (Stop loss is set by the trader when entering a trade by double-clicking on the chart where the stop loss should be.)

2. Automatically calculate share size such that when the stock price hits the stop loss or profit target, the gain/loss for the trade is exactly the same trade to trade. (e.g. $200 gain and $100 loss for all trades for trader with $10,000 account, 1% risk and 1/2 R/R ratio.)
3. Automatically exit the position as soon as the stock price reaches the stop loss or profit target.

Those three actions automatically performed by DAS Trader makes The RST Way of trading possible.

It should be clear now why The RST Way of trading is called "fixed R/R ratio" trading. The reason it's also called "one-button trading" is because you only have to press one hotkey for the entire trade. Figure 10.1 shows The RST Way of trading in action.

Figure 10.1 - The RST Way: "Fixed R/R Ratio" or "One-button" Trading.

First, the trader double-clicks on the chart where the stop loss price should be. Then the trader hits their hotkey for either long, short, or "short SSR." At this point, the trader's work is finished and DAS Trader

does the rest. Upon hitting the hotkey, DAS Trader calculates the share size and creates three orders: one to enter the position and two for exiting for either a profit or loss.

After hitting your hotkey, you can sit back and relax and wait for the trade to conclude. Remember, if you are trading The RST Way, you must let the trade reach either the profit target or stop loss at which point your exit orders automatically kick-in. There are no other options if you want the math contained in Figure 5.2 to hold true and guide us to trading better than the cat. The only time you should be exiting for any other reason is if DAS Trader behaves in a way that is unexpected and you need to close all positions in a panic (you should create a "panic" hotkey for this), or if there is an emergency at home, and so on. Otherwise, all of your trades should be wins and losses of the exact desired amounts in accordance with your R/R ratio.

If you want to learn how to setup these types of hotkeys in DAS Trader, a tutorial is included in Appendix D. Also, the DAS Trader Hotkey Generator on the book's website can create these types of hotkeys for you.

Stop Losses

If the trade moves away from you, it's natural to want to wait for it to come back. Sometimes it does, and sometimes it doesn't. Sometimes it continues down the "highway to hell" as we call it. Worst case, a trader watches it move further and further away and may even hold the trade overnight. The next morning, they may wake up to find that trade value is down 10% or more since entering the trade. If it was a new trader with a small account, and they used 100% of the account equity for the trade on 4:1 margin, that 10% loss in trade value represents a whopping 40% hit to the trader's account!

Holding on to losing trades is the surest and fastest way to blow up your account. Day trades should never be held overnight. In fact, for most strategies, there is no reason to ever hold a trade for more than a few minutes or couple of hours at the most. For an ORB or ABCD pattern trade at the market open, you should be reaching your pre-defined stop loss or profit target in 3-20 minutes or so.

If you're trading reversals later in the day, it may take longer, maybe as much as 30-120+ minutes to get stopped out in some cases. In any case, you should always have a pre-determined stop loss defined

before entering a trade, and you must exit the trade when the price moves to the stop loss.

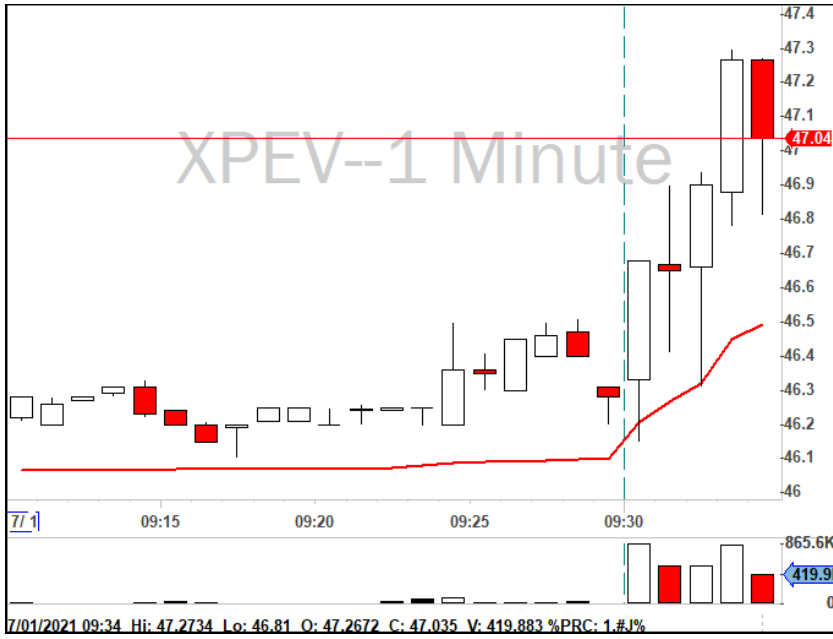


Figure 10.2 - XPEV on July 1, 2021.

Consider Figure 10.2 showing XPEV five minutes after the market open. Let's assume you want to take an ORB up and enter on the pull-back at $47.04. Where do you set the stop loss?

The 9:33 and 9:34 candles both had lows near $46.80. It's possible the price could dip a bit below that before continuing to tick back up. $46.50 – near VWAP – might be a good place for the stop loss.

Setting the stop further away gives the trade more room to breath, but also means the profit target is further away (remember, the profit target is determined by the R/R ratio) and therefore more difficult to convert into a win. Bringing the stop loss closer to the entry means the profit target is also closer, but you may be more likely to get stopped out. This is the delicate balancing act you will learn to walk as a new trader.

The process of deciding where to put the stop loss may cause you to skip the trade. If you don't think the setup allows for the R/R ratio and win rate you want, then you don't have to take the trade.

This is part of the art of trading, and why it's sometimes difficult for

educators to simply say "do it this way" when it comes to trading. A large part of it is becoming familiar with stock price behavior and developing confidence in knowing when a setup can support your desired R/R ratio and win rate.

Many new traders set their stop losses way too close to the purchase price. If you put a stop loss within the range of the previous candle, you are almost certainly going to get stopped out. Usually, our profit target prices are far beyond the high of the previous candle, so when you set a stop loss that close, you are essentially saying you expect the price to shoot straight up, which almost never happens. Whether you are going long or short, price action usually doesn't shoot like a rocket in that direction – it tends to meander along the way. There are always pull-backs and oscillations so set your stop losses appropriately.

Knowing where to set the stop loss is the most difficult skill for new traders to learn, and it is also the most difficult skill to teach. Five traders can look at a chart, define five different stop losses, and all be right. It depends on their R/R ratio, desired win rate, and experience with the symbol.

Win/Loss Size and Share Size

Now that you know where you will exit a trade for either profit or loss, the only other thing you need to figure out is share size, which is based on the maximum allowable loss per trade that you define for yourself.

As we learned in Chapter 5, losing streaks are inevitable. You might lose 5-10 trades in a row or more during your trading. That is perfectly acceptable, but you need to protect your trading capital so you can live to trade another day. If your maximum allowable loss is equal to 50% of your equity, you will wipe out your account as soon as you hit a two-trade losing streak. Traders need to be prepared to have much longer losing streaks than two.

I recommend using a share size that represents 1-2% equity loss if the trade were to be stopped out. More accurately, the risk should be equal to 1-2% of your starting equity at the beginning of a block. For example, if you have a $25,000 account, the risk would be $250 (1%) per trade for every trade in the block. With a 1/2 R/R ratio, each win would be $500.

The reason we use a fixed dollar amount instead of a fixed

percentage of the account equity is due to something I call the "loss-recovery imbalance" problem, which is a situation in which your wins have to work harder to make up for your losses if you base win/loss sizes as the same percentage of equity. This concept is illustrated in Figure 10.3.

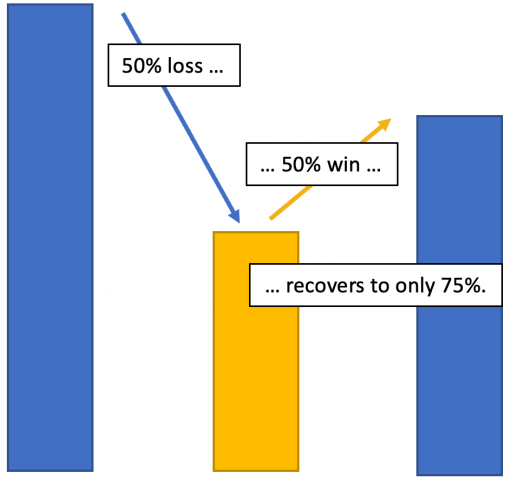


Figure 10.3 - The Loss-Recovery Imbalance Problem means wins have be bigger than losses (percentage-wise) in order to keep up.

The loss-recovery imbalance problem can be overcome by simply basing risk (loss size) on a fixed amount rather than a percentage that fluctuates as our account equity grows/shrinks with each trade. The way to do this is to calculate 1-2% of your equity at the beginning of a trading block, then use that amount as the size of all of your losses in the trading block. Your wins will be based on that amount along with R/R ratio.

Figure 10.4 shows how the share size is calculated. In this case, the trader has a $30,000 and choses to trade with 2% risk meaning that every loss would be $600 for the trading block. If the trader sets the stop loss at $46.60, which is $0.44 below the entry price, then the number of shares needed to fit the $600 risk is 1363 shares. In other words, if 1363 shares each lose $0.44 in value, then the trader has lost $600.

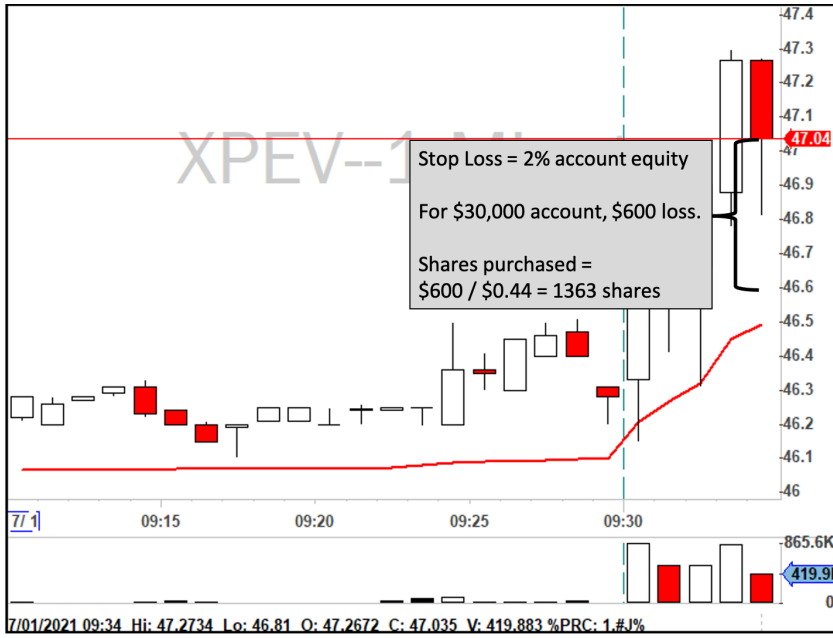


Figure 10.4 - Setting stop loss equal to a fixed dollar amount of risk.

This type of share size calculation may sound impractical when it comes to performing it in the heat of trading, but this where DAS Trader hotkeys come in. DAS Trader hotkeys do it automatically for us, which is the number one reason why I love DAS Trader.

It's worth pointing out that a 1-2% stop loss is not only good for addressing the loss-recovery imbalance problem, but it also fits perfectly into stock price behavior at the market open and the way we calculate share size per The RST Way of trading. 2% happens to be about the maximum amount you can use across all your trades without running into a lot of situations where you wouldn't be able to afford the number of shares calculated per The RST Way of trading.

As shown in Figure 10.4, share size is equal to risk amount divided by the stop loss distance. If the risk amount is large (>2%), then often times you won't be able to afford the number of shares calculated unless the stop loss distance is placed far away. That's where stock price action comes into play. There is a goldilocks region of where to place the stop loss – not too close and not too far – that traders use to foster high win rates. Stop losses too close lead to a high number of shares and inability to afford the shares and enter the trade. Stop losses too far away are affordable, but negatively impact win rate as the time

to exit will be longer and longer time scales mean greater uncertainty in trade outcome and therefore lower win rates and profitability.

In my experience, when using 2% as the size of my loss, I'm able to afford >95% of the trades I try to enter. When an order is rejected, I will either try a stop loss that is further away (if it makes sense to do so) or not take the trade. The order rejection is usually a good wake up call that the trade may not have been a good idea to begin with.

You could also program your hotkeys to enter the trade using the maximum number of shares you can afford, but that will equate to smaller risk/reward and violate The RST Way principle of keeping win/loss sizes consistent.

The Trade Improvement Process

Other day traders do a lot of things that do not fit into The RST Way of trading. You will see many "ease" into a position with small share sizes and increase it a few moments later if they believe their trading idea has been validated. Some traders also like to "partial" out of a position by selling 10-20% of the position at a time to lock in profits in case the stock changes course. Additionally, some exit at breakeven after it briefly moves in their favor before reversing. Many other traders also stop trading after reaching a daily goal, define max number of losses per day (like the stock market cares what day it is), and so on. The share size, R/R ratio, and win/loss amounts also vary trade to trade.

With so many knobs and dials as part of the trading system, how would you begin to diagnose and improve your trading in that scenario? Every trade would be different, with a unique set of parameters compared to the others. It's impossible to determine what is working or not when you have a different set of conditions for each trade.

None of that nonsense is part of The RST Way of trading, which makes it very easy to diagnose and improve one's trading.

In order to analyze your trading blocks, you need to keep a record of all your trades. I recommend using services like chartlog.com or tradervue.com.

Proper trade review is done by executing a specified number of trades (a trade "block") and then measuring the win rate and R/R ratio. If it's profitable, it becomes the trader's responsibility to maintain that

performance block-to-block. If it's not, the trader must define steps to take to either improve the win rate or R/R ratio or both.

How big should a trading block be? 1000 trades would certainly be statistically significant, but it's not practical as it would take most traders several months to make 1000 trades. It's hard to learn to trade in one lifetime waiting that long between assessments.

A smaller sample size would be better, but the smaller the sample size, the larger the margin of error, meaning the win rate is less likely to match the trader's true win rate.

The sweet spot is about 100 trades. This is a statistically significant value based on the binomial distribution. Strictly speaking, it means that a trading block of this size will be within about 5% of a trader's true win rate 80-90% of the time. In other words, 10-20% of the time it may lead you to believe you are not profitable when you really are, but this an acceptable risk for day trading in my opinion.

You will only look at your win rate at the end of a trading block, never before. (Except when it comes to the losing streak circuit breaker, which we'll discuss shortly.)

One thing I cannot stress enough is how detrimental it is for new traders to tweak their strategies after every loss. Using another restaurant analogy – prematurely tweaking your strategies after every loss is like a chef changing their recipe each time a customer doesn't like the dish. That's absurd, isn't it? A particular recipe couldn't possibly satisfy every single customer who tries it. If 98% of customers love it, why would you change the recipe and risk turning off more people than you turned on? If you tweak the recipe to suit the 2%, you will inevitably turn off others and who knows what the resulting approval rating might be. The same is true for trading – change one thing and the whole system is impacted.

If your win rate is sufficiently profitable for your R/R ratio, and you are satisfied with the account growth, then you are golden. Your job is to continue to trade exactly as you have been. Don't forget the lessons from Chapter 5 - "The Binomial Distribution and Trader Income," where we discussed the binomial distribution and the inevitability of variation in our trading results. The next trading block may not be identical to the previous as there is natural variation trading block to block. I would encourage you to revisit Chapter 5 and do your own simulations in TAGS so you can get a feel for what to expect block to block.

If you are not profitable, there are three things to consider when

trading The RST Way. (This is much better than other trading systems where you have countless other variables like number of partials, partial size, share size, easing in, when to exit for breakeven, and so on...)

1. Entries – Are you chronically buying high and selling low within the range of the price action? (Vice versa for short positions.) To correct this you simply need to get better at waiting for pull-backs so that you get a good price within the overall trend the stock is trading at.

Figure 10.5 – Avoid the beginner mistake of buying high and selling low. Perfect entries are near the bottom of the trend (or top if taking a short position).

2. Stop Losses - Putting the stop loss too close to the price action (point A in Figure 10.6) essentially means you are trading in the noise of the price action. Point B is too far as it will take too long for the price action to reach either the stop loss or your profit target (if your stop loss is far away, then that means your profit target will be correspondingly further away by the factor of your R/R ratio). When having to wait that long for a result, your strategy is essentially nullified and it is just a gamble on whether you get hit your profit target or stop loss.

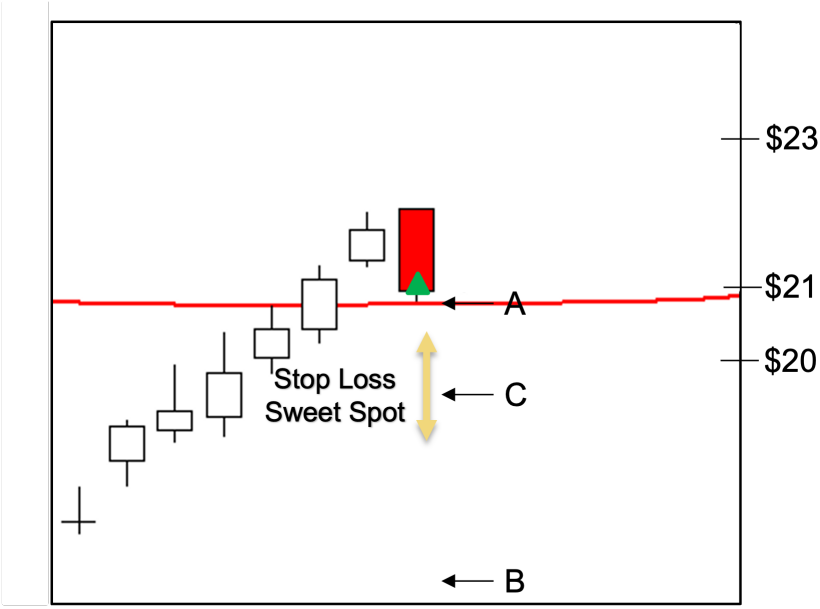


Figure 10.6 – Avoid the beginner mistake of buying high and selling low. Perfect entries are near the bottom of the trend (or top if taking a short position).

3. R/R Ratio – Changing the R/R ratio takes a bit longer to understand and analyze compared to the entry and stop loss. It's easy to see for any given trade whether the entry or stop loss could have been improved, but to know whether a different R/R ratio would've been better means analyzing the entire block of 100 trades as a whole with the presumed new R/R ratio.

Looking back at the trades and assuming to have used a different R/R ratio means some losing trades will become winning trades, while some winners will become losers. Therefore, you must consider the entire block as a whole to determine whether or not a different R/R ratio would've been beneficial or not.

You can repeat this process block after block until you find the perfect R/R ratio for you. It may take several blocks (remember that discussion regarding resilience at the beginning of the book?). I recommend new traders start with an R/R ratio of 1/1 and going from there as needed. I personally still trade with R/R ratio of 1/1. Remember from our discussion on simulations and the binomial distribution that block to block variation will also occur, so you will

need a few blocks to really get a feel for how an R/R ratio and other RMP parameters are performing for you.

For example, let's say a trader starts with R/R ratio of 1/1 and nets on average $10,000 per block for the first three blocks. Then the trader changes to 1/1.5 and nets on average $9,000 per block for the next three blocks. To me, that is not enough of a difference to know which one is working better and a larger sample size would be needed. However, if the jump was from $10,000 to $15,000, I would certainly think the new R/R ratio was worth continuing with.

Losing Streak Circuit Breaker

Mathematics and the binomial distribution tells us that a losing streak of any size is possible. Even if you have a 99% win rate, a losing streak of 1000 loses in a row is theoretically possible. However, the likelihood of that happening is so small it will likely not happen after millions of years of trading.

For our trading, which is closer to 50-75% win rate, similar to the flip of a coin, losing streaks are going to be quite frequent. For a trading block of a 100 trades, you can almost certainly expect to see losing streaks of 5 or 6 trades in a row (or a couple more).

The question is, "what size losing streak is too many?" When an unexpectedly long losing streak occurs, we should halt trading and see what is going on. There may be something fundamentally wrong with the trading and it would be foolish to continue for the rest of the trading block.

You can use the TAGS software on the book's website to simulate trades and see what the losing streaks look like. That will give you a good feel for the distribution of win/loss streaks, how often big losing streaks occur, what the maximum draw-down is, and so on.

You can also calculate what a reasonably-sized losing streak should be. "Reasonably-sized" means within a certain confidence limit. We know a losing streak of a thousand trades is theoretically possible, but what is the longest streak we can expect to see in a block of 100 trades, 90% of the time? (That "90%" is our confidence interval.)

I'll spare you the arithmetic and tell you that the answer is nine trades. Less than 10% of your 100-trade sized blocks will have a losing streak nine trades or longer if your win rate is 50%.

$$S(N,K) = p^K \sum_{T=0}^{\infty} \binom{N-(T+1)K}{T} (-qp^K)^T - \sum_{T=1}^{\infty} \binom{N-TK}{T} (-qp^K)^T$$

Figure 10.7 - Probability S of getting K or more successes in a row out of N trials. p is probability of success, q is probability of failure, and T is a variable of summation.

Therefore, if you are a trader with win rate of 50-60% and you see nine losing trades in a row, I would stop trading immediately and try and figure out what's going on. Actually, I believe eight trades is also rare enough to trigger the halt since many of your win rates will be over 50%.

During your review, you should focus on:

1. Do the candlestick patterns match my setups?
2. Am I getting good prices on my entries (waiting for pull-backs)?
3. Am I setting appropriate stop losses? Are they in the sweet spot (not too close and not too far)?
4. Were the bad trades just execution errors? Did I accidentally hit the wrong hotkey or click on the wrong chart?

Streaks are carried over from day to day. If you lose the last three trades on Monday, and the first two on Tuesday, the streak is at five trades in a row.

Each win rate has a unique circuit breaker size. The higher the win rate, the smaller the circuit break will be. For someone with an 80% win rate, the circuit breaker is only four. With a win rate that high, a losing streak of four trades has about the same likelihood as a losing streak of nine losses for someone with a 50% win rate.

Daily Goals

Daily goals are not part of the Risk Management Plan when trading The RST Way. Daily goals are total nonsense in my opinion. Actually, this is not just my opinion, it is fact rooted in statistics and probability. It also goes against the principles of risk management, which are to limit losses and maximize profits. Not the other way around!

It is beyond my comprehension why many traders will define a maximum number of losses per day, thereby allowing themselves to lose 3-5 trades on any given day, and also limit the number of wins to a

number even smaller. Allowing up to three bad trades per day but then quitting after one win is also known as limiting your wins and maximizing your losses! This is the antithesis of proper risk management.

The proper approach is to treat all trades that meet your criteria equally. You trade as many as you possibly can, regardless of what your P&L for the day is. Mathematics does not care what day it is. However, do not take more trades that your playbook allows. Do not take trades for the sake of trading – only take trades that match your playbook. This may mean only 2-3 trades per day, or none at all some days.

The RST Way:

1. Trade in blocks of at least 100 trades. R/R ratio and criteria for finding trade entries stays the same for the entire block.
2. Trade blocks are only interrupted and changes made to the system when the losing streak circuit breaker is tripped. For traders with win rates of 50-60%, a losing streak of 8 trades is reasonable.
3. Keep the size of wins and losses consistent throughout a trade block. This requires using DAS Trader hotkeys with risk amount and R/R ratio as part of the hotkey script in order to calculate share size and profit target price (trader defines stop loss price by double-clicking on the chart when entering a trade).
4. Do not risk more than 2% of account equity on any trade.
5. Review entries, stop losses, and R/R ratio between trade blocks to improve profitability in the next block.

Account Size	>$25,000 at U.S. brokerages. >$7,500 at CMEG.
Loss Size	≤2% (Use fixed $ amount instead of equity %)
Risk/Reward Ratio	Beginners start at 1/1. Adjust block to block as needed.
Stop Loss	Closer generally better, but not so close as to get stopped out by noise. Use DAS Trader hotkeys so orders with capped risk/reward are automatically rejected.
Share Size	Dynamic share sizing based on fixed $ risk using DAS Trader hotkeys.
Trade Block Size	≥ 100 trades
Losing Streak Circuit Breaker	8 losing trades in a row should trigger an immediate trade review.

Table 10.1 - The RST Risk Management Plan.

Summary

- The RST Way of trading involves using a predetermined R/R ratio for every trade while controlling the size of wins and losses to be consistent trade to trade. The RST Way of trading also emphasizes removing as many variables from the trading system as possible so that the impact of the remaining variables on our trading can be more easily understood and improved.
- The goal of risk management is to minimize losses and maximize profits.
- Finding and entering trades is easy – it's how you manage that trade – and all your trades as a whole – that makes or breaks you becoming a profitable trader. This is the essence of risk management.
- Risk management is accomplished with proper stop losses, profit targets, share sizing, and trade review.
- Losing streaks are inevitable and should only be cause for alarm when of statistically significant length. This type of losing streak should act as a circuit breaker and trigger immediate review of the trading block.

CHAPTER ELEVEN
Simulator and Live Trading

Congratulations for making it this far! Now it's time to put all your new knowledge to work and start trading. The previous chapters were all focused on the theory of trading: how to find trades and profit from them. This chapter focuses on the mechanical aspects of trading and how to use your trading platform to execute your trades. We'll also discuss when it's the right time to jump from simulator to live trading.

Trading in Simulator

The first few months of your trading will be spent in simulator while you learn to trade profitably.

DAS Trader simulator can be downloaded directly from DAS Trader's website. You'll want the package with Level 2 data.

Simulator trading in DAS Trader is just like live trading – it's the same piece of software which can be linked to both your simulator account as well as live trading account. This means you'll need to be mindful of which account is selected when trading.

One big difference between simulator and live is that there is no price slippage in simulator since your orders aren't being sent to the exchanges and filled with other traders'. Therefore, in simulator, you always get the best bid/ask pricing for your trades. That's a bit unrealistic but for accounts with $50,000 or less in equity, it's still pretty close to the real thing since those smaller share sizes typically don't experience strong price slippage.

There is no reason to open a brokerage account before completing your training in simulator, as it will only cost you unnecessary inactivity fees and data package fees that you are not using. The simulator subscription includes everything you need.

30-60 minutes before the market open, you should be turning on

your trade station and logging into any trading communities that you are a part of. This is your chance to get a pulse on the markets and what the overall mood is among traders.

Next, you will check your scanners to see what symbols meet your criteria and spend a few minutes analyzing why they are big movers that day. There may be 10-50 or more Stocks in Play to consider leading up to the market open so you may need up to 30 minutes to build your personal watchlist of 3-10 symbols from these results.

With 5-10 minutes left before the market open, you should have your watchlist defined and begin entering these symbols into the DAS Trader market viewer and montage windows.

Simulator is your time to experiment and find your edge and what works for you. No two traders are going to read the markets the same way - successful trading is a very personalized experience. Due to the volatility with Stocks in Play, it's actually possible for one trader to go short and another to go long and both be profitable, so I encourage you to take thousands of trades in simulator using as many candlestick patterns as you like. Try longs, shorts, cheap stocks, expensive stocks, meme stocks, and so on. Every symbol has its own personality and price action due to the different types of investors and traders involved. The stock market is not homogenous and the make-up of the traders involved in each sector and stock varies. After a thousand or so trades you'll start to get a feel for this.

One thing you should not experiment with is your risk management plan. If you choose to trade The RST Way with fixed R/R ratio, controlled win/loss sizes, trade blocks of at least 100 trades, and so on, then you should enforce those in simulator as well. It's actually imperative that you do so. But when it comes to which stocks, sectors, industries, or candlestick patterns you trade, that is up to you.

All aspects of your simulator trading should match your plans for live trading. This includes equity, margin, buying power, R/R ratio, and win/loss size. Your DAS Trader settings should also be identical including chart style, color, window layout, and hotkeys.

DAS Trader has a "replay" mode that allows you to practice trades after the fact using historical data. This is great on the weekends, but replay mode is not a substitute for trading in simulator during normal trading hours. It's also not applicable to some strategies like ORBs. Trading an ORB during replay mode cannot compare to the pressure you feel during the real market open!

DAS Trader Configuration

For new traders planning to use DAS Trader, I consider this to be one of the more important sections in the book as there aren't many great one-stop-shop DAS Trader overviews out there. You need to become intimately familiar with DAS Trader's features and customizations. It's not a huge piece of software – it's much more manageable than something like Adobe Photoshop, so there's no excuse for not learning it inside and out.

Hopefully this section will make it clear what the most important features and settings are, and get you more comfortable with how you'll use the different types of windows during trading. I've also uploaded my DAS Trader settings and config files to the book's website, which also includes a link to the official DAS Trader manual. If you're serious about trading, you can't skip reading it. I would recommend reading this chapter first and playing around in simulator for at least a couple hours before reading the official manual as you'll get much more out of it that way.

If you have any questions regarding installing or configuring DAS Trader, don't hesitate to reach out for help on the RST Discord server.

Installing DAS Trader

If you're installing DAS Trader simulator, the software comes directly from DAS Trader. When you are trading with a live account, your broker will provide their own link to the software which has some additional settings and configurations to work with their brokerage. Installation is a straightforward process similar to any other Windows software. It does not take up much hard disk space and does not require much RAM. I believe one of DAS Trader's strengths is its simplicity, which ensures it runs reliably and fast. You really feel like you're directly plugged into the markets trading with it.

Positioning Your Windows

If you're like most traders using 4-plus monitors to trade, you're going to have a lot of montages and chart windows open. At first, I just winged it and resized and positioned all my chart windows manually, but eventually it began to bug me when the 1m chart for one symbol was showing more candles than the 1m charts for other symbols.

Seems like an insignificant detail, but I was much happier once I sized everything equally. As professional traders, the trading platform is as important to us as a paintbrush is to Rembrandt or golf club is to Tiger Woods. When your livelihood is at stake, it pays to be a little OCD.

A popular tool used by traders to effortlessly size and manage their chart windows is Microsoft PowerToys, a free utility that makes it much easier to position and align your charts and other windows.

Example DAS Trader Desktop

Figure 11.1 - Sample DAS Trader desktop.

Figure 11.1 shows one screen of a multiple-screen DAS Trader desktop. Figure 11.1 includes a montage, Market View, Time & Sales, and candlestick charts. There are many other windows that did not fit on this screen, which is why traders often use at least three screens.

In the following sections we'll go over the various windows available to you in DAS Trader and how to effectively use them while you're trading.

Trade Montage

The montage window (Figure 11.2) is the heart of DAS Trader. You'll spend just as much time looking at the montage window as you will candlestick charts. The montage window includes: 1) the symbol, 2) level 1 data (best bid and ask), 3) security symbol status (including SSR indicator), 4) fields for creating and submitting an order, 5) Level 2 order book, 6) link/anchor icon.

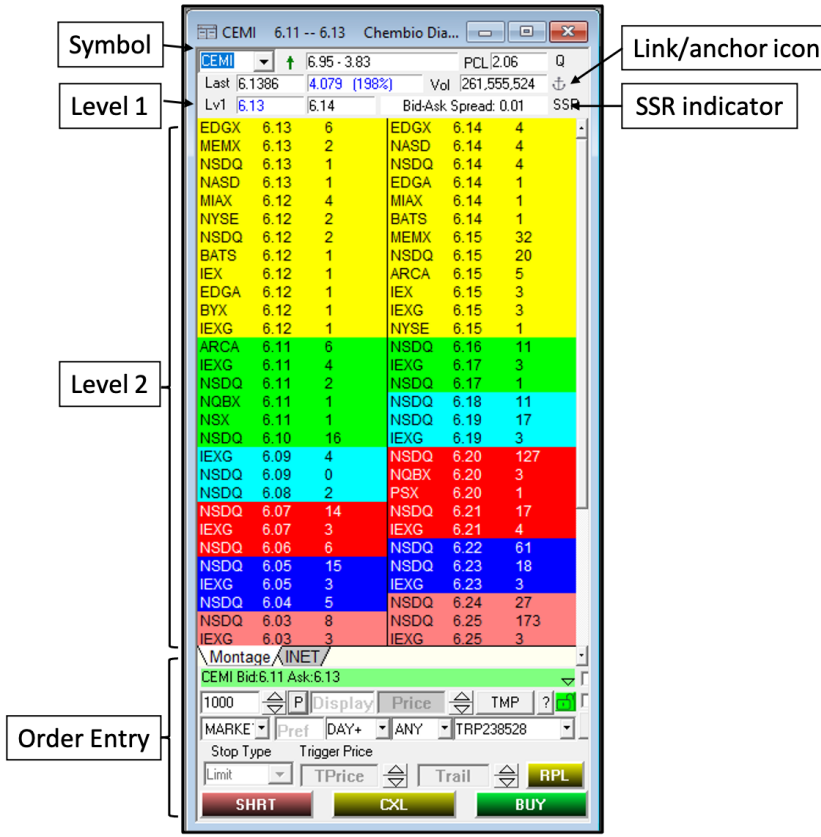


Figure 11.2 - DAS Trader trade montage window.

You cannot make a trade without a montage window. You could live without every other window in the application, but you always need a trade montage to place an order. Even if you are using hotkeys to place orders, you'll need to have a montage opened and a symbol defined for it in order to trade. If you have multiple trade montages open, your hotkeys will be tied to whatever montage has "focus" in the application. When you click on a montage window, it will become the one in focus and your hotkeys will execute an order for the symbol in that montage. When you are trading with multiple screens and montages, you'll need to quickly click on the montage for the symbol you want to trade before hitting your trade hotkey.

After typing the desired stock ticker symbol, the montage window shows all the data for that symbol. The maximum number of montage windows you can open in DAS Trader is 10. If you think you're going

to have 20 monitors with 40 montages, you need to rethink your setup.

Right-clicking in the bottom order-entry portion of the montage window will bring up the style menu. The style must be Stop Order or the montage will throw an error when trading with stop loss orders. The style shown in Figures 11.1 and 11.2 is the Stop Order style.

You can (and should) link your candlestick charts and Time & Sales to a montage window. The typical setup is to have a montage, Time & Sales, and 1-5 candlestick charts for each symbol you are watching. You could have 1-2 of these groups on each monitor (see Figure 11.3). Linking a montage to other windows is done by clicking on the anchor icon and dragging it to other windows.

With my four monitors, I fill three monitors with this pattern, which gives me six montages and associated charts. Then I add a seventh montage and charts to my main monitor along with other account and position windows. You can also skip the montages and just use one montage for trading all symbols you're watching, thus freeing up screen real estate for more candlestick charts if you wanted. (You don't need a montage window to setup candlestick charts; you can change the chart's symbol by right-clicking on the chart and going into the Data Config settings.)

The montage window is quite busy with many things crammed into a small area, but when I'm trading my eyes are focused on just three things: 1) the top bid, 2) the top ask, 3) any large block bids or asks. If the candlestick charts are setting up for a long position, then I'm really just looking at the top of the asks, which is the price I'll pay when entering a long position. If the charts and indicators setup how I like them for a trade, then I'll also glance at the bid-ask spread field. I used to have a terrible habit of getting into stocks with huge bid-ask spreads making it much more difficult to turn a profit.

Figure 11.3 - Common window pattern used in DAS Trader: a montage, Time & Sales, and three candlestick charts for a single symbol. All windows linked to the montage via the anchor icon.

Candlestick Charts

Figure 11.4 shows the style of the candlestick charts that I use; however, the colors, fonts, and indicators you see in your DAS Trader may all be different. Once you have configured them the way you like, you can right-click on the chart and select "Save Settings." This will create a settings file that you can load on the rest of your charts. You can store as many chart settings files as you wish and revert to old configurations later if needed. You can also load the chart settings file that I use from the book website.

There are two different places where the look and behavior of chart windows is configured. Both are found by right-clicking on the chart window. The first configuration window is under "Configuration" and the other is under "Chart Area → Config Area."

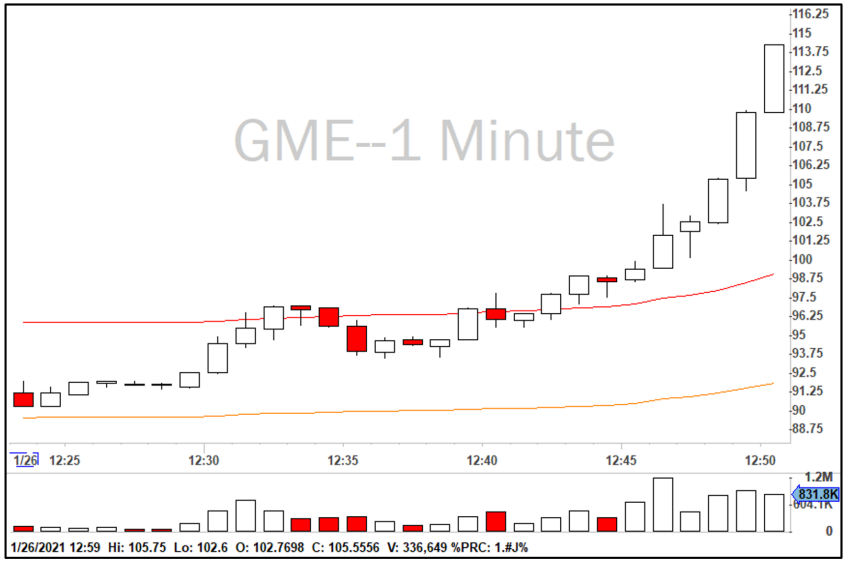


Figure 11.4 - A 1-minute candlestick chart for GME.

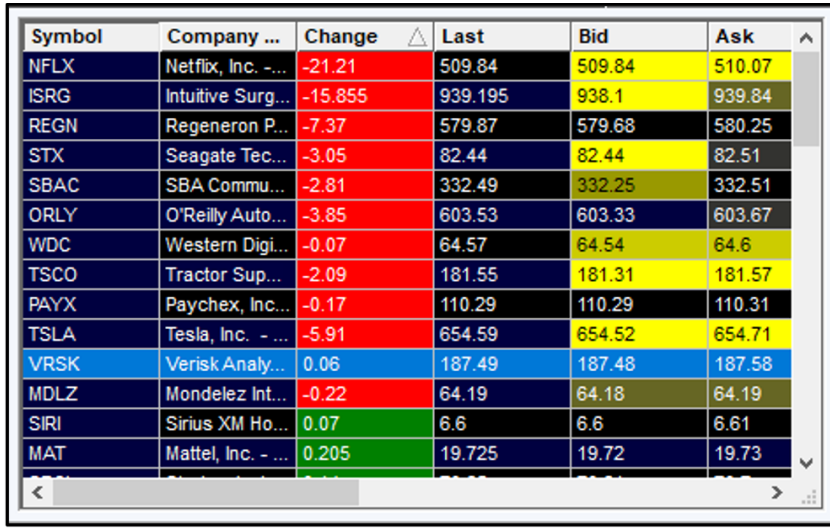
Time & Sales

As discussed in Chapter 8 - "Trade Playbook", Time & Sales is part of the trifecta of stock price information along with candlestick charts and Level 2. There is not much configuration needed except to add a filter for minimum sales quantity if the order volume is too fast to see. You can add that filter by right-clicking on the window and selecting Config.

Figure 11.5 - DAS Trader Time & Sales.

Market Viewer

The Market Viewer window allows you to see various pieces of data and information for a list of stocks you are interested in. I enter my watchlist here every morning before the market opens. I also link Market Viewer to the montage on my main monitor, so I have the ability to trade any symbol in my Market Viewer from that montage.



Symbol	Company ...	Change	Last	Bid	Ask
NFLX	Netflix, Inc. -...	-21.21	509.84	509.84	510.07
ISRG	Intuitive Surg...	-15.855	939.195	938.1	939.84
REGN	Regeneron P...	-7.37	579.87	579.68	580.25
STX	Seagate Tec...	-3.05	82.44	82.44	82.51
SBAC	SBA Commu...	-2.81	332.49	332.25	332.51
ORLY	O'Reilly Auto...	-3.85	603.53	603.33	603.67
WDC	Western Digi...	-0.07	64.57	64.54	64.6
TSCO	Tractor Sup...	-2.09	181.55	181.31	181.57
PAYX	Paychex, Inc...	-0.17	110.29	110.29	110.31
TSLA	Tesla, Inc. - ...	-5.91	654.59	654.52	654.71
VRSK	Verisk Analy...	0.06	187.49	187.48	187.58
MDLZ	Mondelez Int...	-0.22	64.19	64.18	64.19
SIRI	Sirius XM Ho...	0.07	6.6	6.6	6.61
MAT	Mattel, Inc. - ...	0.205	19.725	19.72	19.73

Figure 11.6 - DAS Trader Market Viewer.

Top List

The Top List is the top 20 stocks for the following six categories: 1) NASActive, 2) NASGain, 3) NASLost, 4) LSTActive, 5) LSTGain, 6) LSTLost. "NAS" is for NASDAQ listed securities and "LST" is for other listed exchanges. "Active" means the highest volume of the day, "Gain" means biggest gain since yesterday's closing price, and "Lost" means biggest drop since yesterday's closing price. I use so many other scanners for trading that I personally do not use Top List for finding trades, but it's sometimes useful to know what the day's most active and biggest movers are.

This window does not support any configuration beyond appearance.

	NASActive	NASGain	NASLost	LSTActive	LSTGain	LSTLost
1	CEMI	CEMI	STAF	AMC	MSC	NRGD
2	SNDL	NURO	OEG	CCL	NMG	AFI
3	NURO	LEXXW	NVFY	NIO	AHT	DRIP
4	LEXX	LEXX	NRBO	GE	NM	HIBS
5	XELA	FWP	SNBR	XLF	BTU	ERY
6	MMAT	MEDS	GLG	F	RIG	DUG
7	MEDS	XPDIW	HCSG	SPY	NRGU	ATHM
8	AAPL	MMAT	JUPW	BAC	DQ	SCO
9	AAL	SAVA	IMNM	SPCE	SOS	HOG
10	SQQQ	TCBC	CRTD	NOK	IPG	FOUR
11	NAKD	WISA	GMVD	EDU	AMPY	SOXS
12	WISH	JZXN	WORX	XLE	CMG	UVXY
13	ARDX	BBIG	NESRW	RIG	GUSH	OIBR.C
14	NVDA	RNAZ	MGTA	NCLH	SNMP	FAZ
15	APRE	NSPR	CELU	XTNT	FI	SRTY
16	MRNA	LE	ALEC	SOS	UUUU	XFLT
17	QQQ	SGMA	RCAT	IWM	PUMP	TZA
18	AMD	XAIR	SGOC	BBD	PBF	VIXY
19	UAL	AVPT	VRPX	WFC	GENI	TMF
20	BBIG	BMRA	IPWR	CLF	URG	NAPA

Figure 11.7 - DAS Trader Top List.

Account Window

This window shows all the trading accounts you have at your brokerage, both simulator and real. The available buying power will change in real-time as you enter and exit trades. You can change/reset simulator account balances by right-clicking on the window.

Trade Log

This window is a record of all transactions you have made on the platform for the day. I rarely use this window and probably should consider closing it and using the screen real estate for something else.

While we're on the subject of trade logs, you should open "Other Configuration" under the "Setup" menu and check the "Log debug message" box. With this checked, the trade logs shown in this window will also be written to a text file inside your DAS Trader installation folder. This is useful if you want to import these logs into a third-party chart review application.

Positions (With Closed Positions) Window

This window shows you the performance of your trades for the day. It's important to note that this window shows gross profit before commissions and fees. Being in the green according to this window does not necessarily mean a green day after commissions and fees. There are some other windows in DAS Trader that calculate net profit/loss, but they may not accurately reflect the commissions and fees for your specific brokerage account.

I suggest ignoring net profit in DAS Trader and only paying attention to the gross profit, and then use the rules-of-thumb from Chapter 7 - "Broker Commissions and Transaction Fees" to estimate your commissions and fees.

Positions Window

This window shows your open positions and their performance in real-time. There are two schools of thought with respect to watching your P&L live while you trade. Some traders shun it and even claim that by ignoring it, they were able to become more profitable traders.

This discussion is not applicable to RST traders trading with fixed R/R ratio since both exits for profit and loss are determined at the time of entry, so watching the live P&L cannot influence the outcome of the trade. However, it's not a bad idea to keep an eye on it - if you see a value larger than the expected win or loss size, that is a good time to hit your panic hotkey and close out all positions as there is something wrong with your hotkeys.

Orders Window

When you use the Trade Montage window or a hotkey to execute a trade, you should see it appear in the position window almost immediately. If it doesn't, this could mean a problem with the parameters of the trade you submitted, or the stock could be halted, etc. If you're having trouble submitting orders, the Orders window can give you status on them. Double clicking any legs in the Orders window will bring up more details.

The Trading Process

By the time the market opens at 9:30, you should have your montages, candlestick charts, and market viewer setup for your

specific watchlist of 3-10 symbols. Those symbols should all be in the market viewer, with all of your montage widows populated with your top picks from those 5-10.

Some days, you may only be watching one or two symbols. Not every day in the market is extremely volatile with dozens of options for traders to consider.

Once the market opens, you'll be watching the candlestick charts for your setups, and the Level 2 and Time & Sales for your entries. If a setup arises that matches your trade playbook, then you can take the trade using your hotkey for a long or short position (or your third hotkey for short under SSR).

Don't feel like you *have* to make a trade every day. Some days there will be no obvious setups on the symbols you watch. It's better to skip trading that day than to bend the rules of your playbook by taking those trades, which will ultimately only hurt your win rate and profitability.

Placing Orders in the Trade Montage

The most basic way of submitting orders is to fill out the fields provided to you in the montage window. You can also add custom buttons to the montage window and link them to your hotkeys. This way, instead of filling out all the fields yourself, which can be quite cumbersome, you can click on the custom button instead. I've seen some trader montage windows with over 20 custom buttons! Personally, I prefer to link my hotkeys to key combinations on my keyboard (actually, my X-keys macropad), and use that monitor real estate for something else besides buttons.

The absolute simplest trade would involve these items: symbol, number of shares, market order type, time in force, and a press of the red "SHRT" button or green "BUY" button. If your DAS Trader is connected to more than one account, like a simulator account and your live account, then you should make sure the right account is selected in the drop-down menu.

You can also define the default account by opening "Order Templates" under the Setup menu. Whenever you open a new montage window, it will default to the account specified in Order Templates.

The official DAS Trader manual has complete definitions for all the

order entry fields shown in the montage. The ones you'll be using most of the time are:

- Share size
- Price (if placing a limit or marketable limit order)
- Route (usually limit or market)
- Time in Force (usually DAY+)
- Account
- AON/ANY/N Hold Box (usually ANY)

That's all you need to place buy, sell, short, and cover orders. If you want to place a stop order, you can change route to Stop and then fill-in the necessary fields like Stop Type, Trigger Price, and Trail Price.

Placing Orders With Hotkeys

When trading The RST Way, you will not be submitting orders through the montage window. All trades need to be executed through hotkeys in order to get the right share size, create automatic stop loss and exit orders, and enforce other aspects of The RST Way of trading.

A hotkey is simply a string of order-related commands that tells DAS Trader how you want your order submitted to the market. It includes share size, order type, price, time in force, and all the other parameters allowed by the exchanges when placing an order.

You can trigger hotkeys by clicking custom buttons you've added to the montage window, or you can assign key combinations on your keyboard. It can be something simple like "F1" or more complex like "CTRL + SHIFT + B."

I prefer triggering hotkeys from the keyboard, and I also like to take it a step further by using a device called X-keys, which is just another keyboard with customizable keys. Sometimes these keyboards are called macropads, since the software that comes with them allows you to program the keys to do just about anything you want with them.

I tried other macropads like StreamDeck, but I eventually stuck with X-keys for its design and reliability. My experience with StreamDeck included many accidental double-presses and some presses that didn't register at all. I also didn't like the spacing of buttons on StreamDeck and preferred the no-gap spacing of the X-keys.

Appendix D has a detailed walk-through of the commands behind

these hotkeys and how they can do complicated functions like automatic share size calculations and setting up our exit orders. I encourage all traders to learn how to program hotkeys and to never simply adopt a hotkey from another trader without understanding how it works. There are many "experts" out there distributing hotkeys full of bugs. In one case, I found a bug in someone else's hotkey that caused the risk to be off by a factor of 2. Imagine being given a hotkey for $500 risk and it was actually $1000!

If you're not comfortable developing hotkeys on your own, the book's website has a DAS Trader hotkey generator to get your started. Even when using our hotkey generator, it's critical that you test it extensively to ensure it does what you expect it to do.

Going Live

Some traders may be profitable in their very first block, while others may need a few blocks to improve their trading before becoming profitable. Either way, the jump from simulator to live should not happen before at least three consecutive green "in family" blocks.

As long as your trade blocks are profitable and "within family," then I would call those "successful" trading blocks. "Within family" would mean within the expectations dictated by the binomial distribution and the simulations we ran in Chapter 5. I would encourage you to download the TAGS software used in Chapter 5 and run some simulations of your own to get a feel for what your own version of "in family" trading blocks may look like. If your first three trading blocks yield net profits of $2000, $2500, and $1500, then I would say those are in family and indicative of consistent trading. If instead the results were $4000, $200, and $400, then I would be a little worried and recommend trading more blocks in simulator.

Summary

- Opening a brokerage account can wait until after completing training in simulator. An unused brokerage account will incur expensive inactivity and data package subscription fees.
- When trading in simulator, you should treat it like live trading with real money. The process, routine, software settings,

account equity, R/R ratio, and other aspects of your trading should be identical.

- Simulator is your time to experiment and find your edge. No two traders are going to read the markets the same way – trading is a very personalized experience.
- The biggest attraction in DAS Trader is its hotkeys. When trading The RST Way, all orders are submitted using hotkeys.
- It's recommended to stay in simulator until you have at least three consecutive successful trading blocks before going live.

Appendix A - Top 12 Rules for New Traders

This book may overwhelm new traders at first. If you feel like you've lost the forest for the trees, I hope this list can help you focus on what's most important.

1. Stocks in Play have higher than average volume and volatility and have a fundamental reason for their recent volatility.
2. New traders should avoid using partials to enter or exit a trade.
3. New traders should not risk more than 2% equity on any single trade.
4. New traders should define a trade playbook and risk management plan before trading in simulator.
5. Trade playbook and risk management plan must remain unaltered for the entire trading block. Losing streaks are expected to happen and should not cause the trader to modify the playbook or risk management plan.
6. The only time the trade playbook or risk management plan can be altered mid-block is when the losing streak circuit breaker has been triggered.
7. Variation in profitability from one month to the next is natural and to be expected. Profit can double or be cut in half at no fault of the trader. The variation is caused by unavoidable sampling error.
8. New traders should define a stop loss and profit target before entering a trade, and they should always fully exit the trade when one of those two prices is reached.
9. Share sizes should be large enough to avoid minimum broker commissions.
10. Everything about simulator trading – from daily routine to risk management plan – should be the same as it will be in live trading.
11. New traders should trade in simulator until at least three successful trading blocks in a row have been achieved.
12. New day traders should join a trading community. Having daily discussions with other traders is crucial to your development as a trader.

Appendix B - Chapter Summaries

This appendix contains all the chapter summaries in one place for easy reference.

Chapter 1: Introduction

- This book covers everything beginners need to know to trade stocks and ETFs on the U.S. markets using The RST Way of trading.
- We use statistics and probability theory to develop a model of trader performance, which we will use to develop a straightforward risk management plan that any new trader can follow.
- The most common mistake traders make is prematurely tweaking their strategies. This leads to throwing away winning strategies and prolonging the time it takes to become profitable. We use simple statistics and probability concepts to avoid this.
- Book resources can be found at RocketScienceTrading.com/book.
- Feel free to email me at jason@rocketsciencetrading.com with any questions you may have. (Or if you find a typo please!)
- LearnToDayTrade.com is where you can find the online video course version of this book teaching "The RST Way" of day trading.

Chapter 2: Day Trading 101

- Succeeding in any business is difficult with most dropping out within a few years, which is also true for day trading.
- Successful traders have the dedication, execution, and resilience that unsuccessful traders do not.
- Day trading involves technical analysis of charts and price action and is not considered "investing," which focuses on fundamental analysis of companies and markets.
- Day traders hope that their more active approach to trading

volatile stocks will lead to higher returns, whereas long-term investors aim to make smaller returns with less effort.

Chapter 3: Stock Market Basics

- The stock market operates as a double auction, with buyers and sellers trading on two separate sides of an order book.
- The market open at 9:30 a.m. EST is the busiest period of the day with the highest volume and volatility and is prime time for day trading.
- *Market* orders are filled at whatever the current best price is on the order book. Traders are vulnerable to wild price swings when using market orders but are more likely to have their orders accepted and executed by the exchange.
- To protect themselves from getting bad pricing, traders use *limit* orders to define the price they are willing to trade at. This control comes at the risk of not having an order filled if the price moves away from the limit order price.
- With *marketable limit* orders, traders get the best of both worlds with high likelihood of order fulfillment as well as some control over price slippage.
- Stop losses are used to limit losses on a trade and are critical to day trading success. Real stop loss orders at a specified price are recommended over mental stop losses.
- Most day traders trade on margin accounts which provide leverage and amplification of buying power.
- The Pattern Day Trader (PDT) Rule prohibits traders at U.S. brokerages from day trading on margin accounts without maintaining a $25,000 minimum equity balance. Offshore brokerages such as CMEG provide up to 6:1 margin and are not subject to the PDT Rule.

Chapter 4: Stocks in Play

- There are more than 5,000 stocks on NYSE and NASDAQ available to trade.
- Day traders use scanners to filter these stocks based on volume, float, price, overnight gap, and other parameters in

order to identify Stocks in Play for the day.
- There are typically dozens of Stocks in Play each day, depending on the scanner criteria used. Traders then use news and pre-market price action to identify which 3-8 symbols they want to include in their personal watchlist, which they enter into DAS Trader and monitor for trade setups.

Chapter 5: The Binomial Distribution and Trader Income

- Every trade is a sample from a binomial distribution, the most important piece of mathematics in day trading.
- The binomial distribution tells traders the likelihoods of certain events occurring in their trading. It describes the number of red days versus green days, the amount of variation in monthly income, the size of expected losing streaks, and so on.
- Due to sampling error and the natural variation in trader performance that occurs, changes in monthly income can be quite dramatic for certain trader profiles. Traders should be aware of this so that they are not caught off-guard and begin altering their strategies, which may have detrimental effects on their trading and forever alter the course of what may have been a million-dollar playbook.

Chapter 6: Brokerages and Trading Platforms

- Commission-free trading apps like Robinhood and Webull are not recommended for serious day trading.
- Direct access platforms and brokers are preferred by professional day traders.
- DAS Trader is the only trading platform that supports the type of hotkeys needed to execute The RST Way of trading.
- Traders at U.S. brokers are subject to Pattern Day Trader (PDT) restrictions. The PDT legislation requires a $25,000 minimum account equity to day trade on margin.
- U.S.-based CenterPoint and Interactive Brokers are my recommended brokers for traders with $25,000 or more in

capital to start a trading account.
- CMEG is an overseas option, where the PDT minimum equity requirement of $25,000 does not apply and you only need $500 to open a margin account.

Chapter 7: Broker Commissions and Transaction Fees

- The profitability of your trading is largely driven by the broker commissions and transaction fees assessed on each trade.
- With per-share pricing at Interactive Brokers and CenterPoint, commissions and fees are dominated by number of shares traded. Trading higher priced stocks means fewer shares and smaller commissions and fees. Trading higher priced stocks at CMEG also lowers the ECN fees, but does not impact the per-order commission prices.
- IBKR Pro Per-share Fixed is the cheapest commission structure for new, low-volume traders. This is recommended for new traders who can meet the $25,000 minimum equity requirement in the U.S.
- CMEG is an off-shore option with no PDT rule and minimum equity requirement of only $500 for a margin account.

Chapter 8: Scanners

- Day traders use software called scanners to find Stocks in Play based on price, overnight gap, float, pre-market volume, and other criteria.
- DAS Trader has three built-in scanners, but most traders will use third-party software to find most of the symbols they trade.
- Trade Ideas is the de facto scanner for day traders.
- Not all results found by the scanners are suitable for day trading. News and clean price action can be used as discriminators to ensure the right symbols make it to your daily watchlist.

Chapter 9: Trade Playbook

- Candlestick charts, Time & Sales, and Level 2 are the trifecta of stock price information and allow traders to see into the past, present, and future of a stock's price.
- Candlestick charts provide a graphical representation of a stock's historical price and provides traders with a look into the stock price's past.
- Time & Sales shows traders a stock's order flow and provides information about what is happening to a stock in the moment.
- The Level 2 order book can often act as a leading indicator and help traders see into the future of a stock's price when informed traders place large orders on the order book signaling a trend in that direction.
- Mass psychology drives stocks to make predictable moves near support and resistance levels.
- ORBs, ABCD patterns, and Reversals are three great candlestick patterns for beginner traders.

Chapter 10: Risk Management, The RST Way

- The RST Way of trading involves using a predetermined R/R ratio for every trade while controlling the size of wins and losses to be consistent trade to trade. The RST Way of trading also emphasizes removing as many variables from the trading system as possible so that the impact of the remaining variables on our trading can be more easily understood and improved.
- The goal of risk management is to minimize losses and maximize profits.
- Finding and entering trades is easy – it's how you manage that trade – and all your trades as a whole – that makes or breaks you becoming a profitable trader. This is the essence of risk management.
- Risk management is accomplished with proper stop losses, profit targets, share sizing, and trade review.
- Losing streaks are inevitable and should only be cause for

alarm when of statistically significant length. This type of losing streak should act as a circuit breaker and trigger immediate review of the trading block.

Chapter 11: Simulator and Live Trading

- Opening a brokerage account can wait until after completing training in simulator. An unused brokerage account will incur expensive inactivity and data package subscription fees.
- When trading in simulator, you should treat it like live trading with real money. The process, routine, software settings, account equity, R/R ratio, and other aspects of your trading should be identical.
- Simulator is your time to experiment and find your edge. No two traders are going to read the markets the same way – trading is a very personalized experience.
- The biggest attraction in DAS Trader is its hotkeys. When trading The RST Way, all orders are submitted using hotkeys.
- It's recommended to stay in simulator until you have at least three consecutive successful trading blocks before going live.

Appendix C - Stock Market Analysis with Python

There are over 500 programming languages listed on Wikipedia. Some are more than 60 years old and many have been developed just in the last couple of years. One language that has been around for a while (first developed in the 80s) but has just recently risen to the top is Python. The PopularitY of Programming Language Index (PYPL) is based on how often programming language tutorials are searched on Google. The top 10 languages at PYPL are in Table C.1 with Python in the #1 spot by a significant margin.

Rank	Language	Share (%)
1	Python	30.3
2	Java	17.2
3	JavaScript	8.7
4	C#	6.4
5	C/C++	6.1
6	PHP	5.9
7	R	3.8
8	Objective-C	3.8
9	Swift	2.2
10	Matlab	1.8

Table C.1 - Top 10 programming languages listed by PopularitY of Programming Language Index.

Python is the beloved programming language of data scientists, researchers, and analysts around the world. When I first got into day trading, there was no question Python was going to be my choice for learning more about the stock market.

I had many questions that I couldn't find answers to: How many stocks/ETFs are there? How many trade between $5 and $150? How many trade with more than 100,000 shares pre-market? How many trade with more than 10M volume daily? How many gap more than 2% overnight? What will my equity curve look like if I have a 70% win rate with 1/2 R/R ratio? Using historical price data, which type of ORB is better? 1m, 5m, or other? And so on.

There is an ocean of historical stock market data, tools, and platforms available for exploring these topics in Python.

To analyze these types of problems you need two things: a good development platform and access to historical stock market data.

Over the last few years, I've grown accustomed to using JupyterLab for the majority of my data analysis projects. Like virtually everything in the Python ecosystem, JupyterLab is completely free. There are several ways to get JupyterLab installed on your computer, but I recommend using Anaconda. Anaconda bills itself as "the world's most popular data science platform," and it makes it very easy to install Python and JupyterLab on your computer. Anaconda's website has several tutorials to help you install it on your computer, and it runs on PC, Mac, and Linux.

After you've installed Anaconda, there will be an Anaconda Navigator application on your computer. Launching this app gives you a window similar to Figure C.1. Clicking on JupyterLab will launch a new JupyterLab notebook for you.

If you're like me, then all of your stock market data analysis will take place in JupyterLab. A blank JupyterLab notebook is shown in Figure C.2. What's great about JupyterLab (and its predecessor Jupyter Notebook) is that it allows for a modular style of programming, where you can see the output of each block of code inline with the code itself. It makes data analysis, visualization, and debugging very intuitive and easy. It also makes programming ten times more fun!

Figure C.3 is a few cells from a JupyterLab notebook with outputs. JupyterLab output cells can contain variable values, tables, print statements, even charts and graphs! If you want to tweak one parameter of a cell, you can do that freely without having to rerun the entire notebook. See the table of information for symbol RKT in Figure C.3? If we wanted the information for AMD instead all we have to do is change "RKT" to "AMD" in the cell above and hit "SHIFT+ENTER" to rerun that cell and table will be replaced with data for AMD.

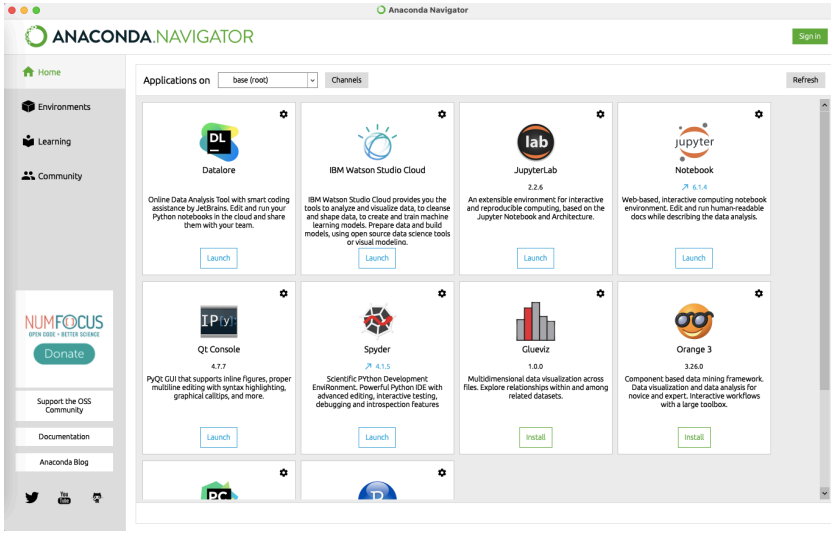


Figure C.1 - Anaconda Navigator window.

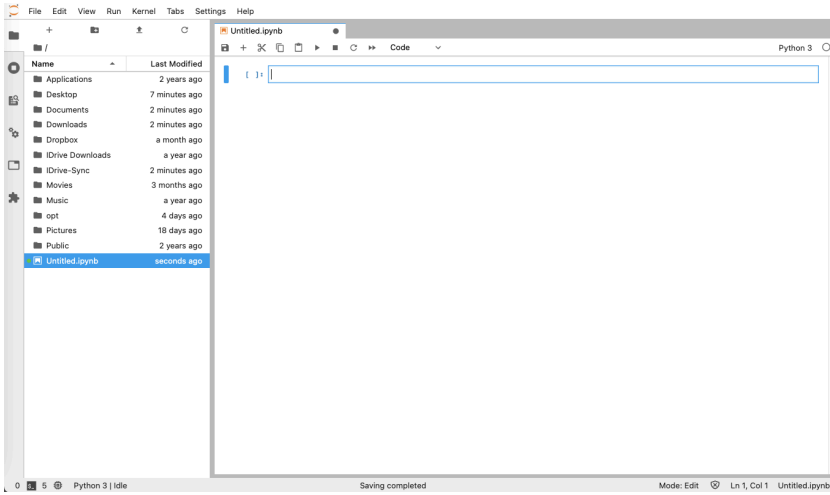


Figure C.2 - Blank JupyterLab notebook.

```
[5]: iexc_symbols = requests.get(iexc_base + '/ref-data/symbols?token=' + iexc_key).json()
     len(iexc_symbols)

[5]: 9357

[9]: df = pd.DataFrame(iexc_symbols)

[10]: df[df.symbol=='RKT']
```

[10]:

	symbol	exchange	exchangeSuffix	exchangeName	name	date	type	
7161	RKT	NYS	UN	NEW YORK STOCK EXCHANGE, INC.	Rocket Companies Inc Class A	2020-12-26	cs	IEX_575646574651

```
[6]: # Keep only 'common stock' symbols (i.e. ignore ETF, preferred stock, REIT, etc.)
     cs_symbols = [x for x in iexc_symbols if x['type'] in ['cs','ad','gdr']]

     # Simplify to list of symbols and remove other data
     symbols_list = []
     for item in cs_symbols:
         symbols_list.append(item['symbol'])

     len(symbols_list)

[6]: 5609

[7]: # Check if a specific symbol is in the symbols_list
     'RKT' in symbols_list

[7]: True
```

Figure C.3 - JupyterLab code cells and inline output.

The above code uses IEX Cloud for historical stock data. Different data services have different types of data and access features. Learning about what data each service provides and its limitations can be quite time consuming. Writing code with the least number of data services involved and doing it at the lowest data cost is quite a challenge. I've tried to do that here. Data services utilized include:

- IEX Cloud
- Polygon.io
- Alpha Vantage
- Finnhub
- Yahoo Finance

Some JupyterLab notebooks on the RST site may use multiple data services. All the code on our website is clearly documented with the data services it connects to and the limitations of the code with regards to whether a paid account is required. I've tried to use free services wherever possible, but some data can only be obtained with paid plans. You will need your own account at each of the data services

except Yahoo, which provides a public API for anyone to consume as they wish.

If you're new to Python, I highly recommend the following:

- *Head First Python*, Paul Barry.
- *Pandas for Everyone*, Daniel Chen.
- Stone River Learning courses:
  - *Python Programming for Beginners*
  - *Data Analysis with Python and Pandas*
  - *Making Graphs in Python Using Matplotlib for Beginners*
  - *Python SciPy: The Open Source Python Library*
  - *Python NumPy: Scientific Computing with Python*
- Stack Skills courses:
  - Many Jupiter Notebook courses
  - *Learn Data Science with Python - Part 1: Python Basics, Anaconda Installation & Jupyter Notebooks*

There are endless educational resources for learning Python and its libraries. The ones commonly used in data analysis similar to analyzing stock market data include: JupyterLab, Pandas, SciPy, NumPy, and Matplotlib. The one you need to focus on is Pandas. Everything in data analysis in Python goes through Pandas data frames.

The approach I follow for stock market analysis is pretty straightforward. The following is a high-level overview of a JupyterLab notebook that generates historical gapper watchlists. It identifies what the Stocks in Play were for a specified trading day. First, the necessary libraries are imported as shown in Figure C.4:

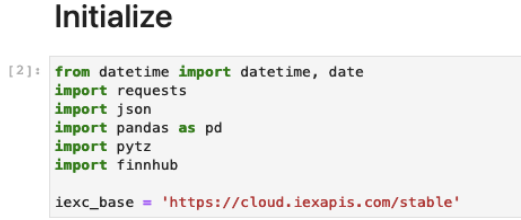


Figure C.4 - Import libraries required for the JupyterLab notebook.

Then the historical stock price data is imported from data providers like IEX Cloud or Polygon.io, which is then stored in a Pandas DataFrame as shown in Figure C.5:

```
[5]: iexc_symbols = requests.get(iexc_base + '/ref-data/symbols?token=' + iexc_key).json()
     len(iexc_symbols)

[5]: 9357

[9]: df = pd.DataFrame(iexc_symbols)
```

Figure C.5 - Data imported from IEX Cloud and stored in Pandas DataFrame object.

Next, the imported data usually requires some form of massaging or housekeeping:

```
[6]: # Keep only 'common stock' symbols (i.e. ignore ETF, preferred stock, REIT, etc.)
     cs_symbols = [x for x in iexc_symbols if x['type'] in ['cs','ad','gdr']]

     # Simplify to list of symbols and remove other data
     symbols_list = []
     for item in cs_symbols:
         symbols_list.append(item['symbol'])

     len(symbols_list)

[6]: 5609

[7]: # Check if a specific symbol is in the symbols_list
     'RKT' in symbols_list

[7]: True

[8]: # Break up into chunks of 100 symbols since that is the max supported by IEX Cloud batch mode
     n=100
     symbols_chunks = [symbols_list[i * n:(i + 1) * n] for i in range((len(symbols_list) + n - 1) // n )]
     len(symbols_chunks)

[8]: 57
```

Figure C.6 - Data housekeeping and preparation for analysis.

Then the meat of the JupyterLab notebook is for analyzing the data. In this example historical price data is used to determine which stocks on a specific date met certain criteria for daily volume, premarket volume, price, float, and overnight change:

```
print('Start: ' + str(datetime.now()) )

watchlist = []
for this_chunk in symbols_chunks:

    this_batch = ','.join(this_chunk) # string for batch API call

    # Get date of previous trading day (this is needed so we can calculate overnight % change to find overnight gappers)
    res = requests.get(iexc_base+'/ref-data/us/dates/trade/last/1/'+watchlist_date.strftime('%Y%m%d')+'?token='+iexc_key)

    # Get prev_date charts
    URL = iexc_base+prev_date_URL
    res = requests.get(URL)

    # Get watchlist_date charts
    URL = iexc_base+watchlist_date_URL
    res = requests.get(URL)

    # loop through symbols, add to watchlist if they meet the criteria
    for symbol in prev_date_charts:

        if (len(prev_date_charts[symbol]['chart']) == 0) or (len(watchlist_date_charts[symbol]['chart']) == 0) :
            continue

        ### Filters for price, volume, float, overnight change, etc. ###

        run_gapper_filters()

        # add symbols to watchlist that survive all criteria
        print('adding', symbol, 'to watchlist')
        watchlist.append([symbol, prev_day_close, watchlist_day_price, overnight_change, symbol_float, premarket_volume])

df = pd.DataFrame(watchlist, columns=['Symbol','PDC','Open','Overnight Change', 'Float', 'Premarket Vol'])
df = df.sort_values('Overnight Change', ascending=False)
df.to_excel(watchlist_date.strftime('%Y%m%d')+'_gappers.xlsx')

print('End: ' + str(datetime.now()) )
```

Figure C.7 - Code creating historical gapper watchlists. (Code has been simplified for display purposes.)

The last operation performed by the notebook is to store the gapper watchlist in an Excel file, which concludes the typical data analysis process: initialization, data import, data housekeeping, data analysis, and storing results.

Appendix D - DAS Trader Hotkey Tutorial

One of the things that sets DAS Trader apart from other trading platforms is its hotkey feature. A hotkey is "a key or a combination of keys providing quick access to a particular function within a program" (Oxford Dictionary). With one click or press of a button, you can send complex orders to the market tailored exactly to your needs. Sometimes day traders have a window of only a few seconds to enter a trade. By the time the trader has calculated the share size they need and entered all the necessary order information, the opportunity could be ancient history. Plus, manually entering orders in the heat of the moment will inevitably lead to mistakes. Hotkeys solve all these problems.

DAS Trader hotkeys and The RST Way of trading were made for each other. Other trading platforms have hotkey features, but they can't hold a candle to DAS Trader's. The RST Way of trading (sending range orders based on your R/R ratio with automatic share sizing based on risk) is not possible with other platforms' hotkeys.

Hotkey scripts are very flexible and you can create very complex orders and even submit multiple orders at one time. The best resources for learning about the hotkey commands is the hotkey script builder window itself (Figure D.1) and the examples on DAS Trader's website. Also, feel free to ask for help in the RST Discord server.

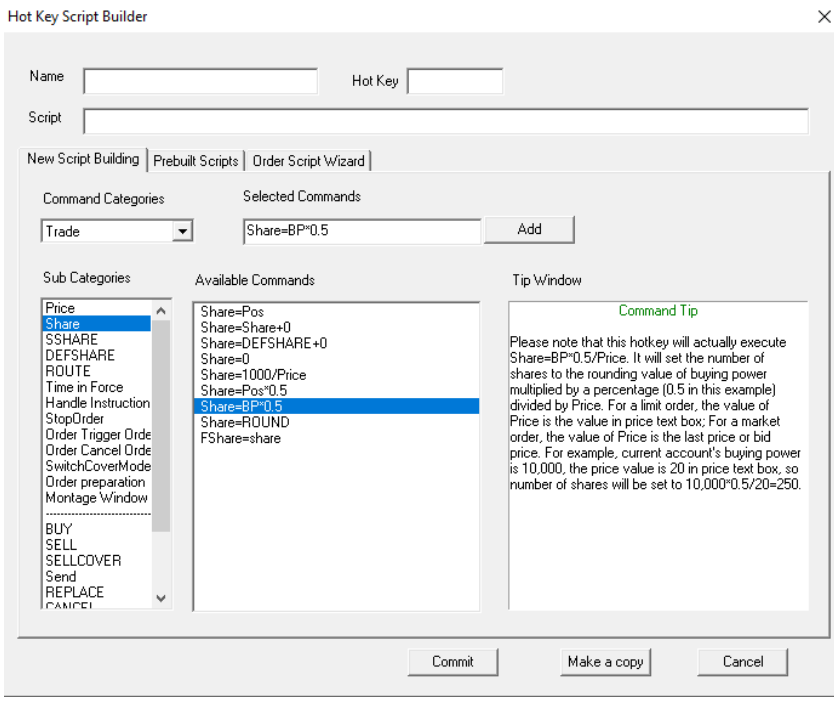


Figure D.1 - DAS Trader Hot Key Script Builder window with command categories and explanations.

In this appendix we'll cover hotkey basics as well as go step-by-step creating the hotkey used for The RST Way of trading. You can download my DAS Trader hotkey configuration from the book's website. Also on the website is a hotkey generator that can create these kinds of scripts for you based on your R/R ratio and win/loss size.

Hotkey Introduction

Figure D.1 shows the hotkey configuration window in DAS Trader. Each item/row in the window is a different hotkey, which has three elements: Name, Key, and Command(s). "Name" is the user-defined description of what the hotkey does. "Key" is optional, and I remove the key from hotkeys I'm no longer using. I have buttons on my X-keys macropad configured to execute the key combinations in the Key field. By using X-keys, I can press just one button on the macropad labeled "Long" or "Short" instead of trying to remember the what key

combination I used. "Was it CTRL+SHIFT+1 or CTRL-SHIFT+2??..." Finally, the "Command(s)" are the actual hotkey scripts.

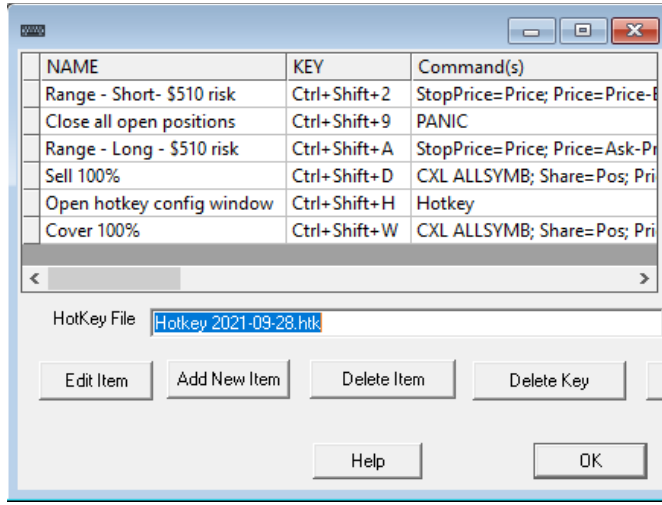


Figure D.2 - DAS Trader hotkey configuration window.

Figure D.3 - X-keys macropad used to execute hotkeys with one button.

Simple Hotkey Example: Long Order Using 50% Buying Power

Consider the following hotkey script which I've called "Long 50% Equity":

ROUTE=LIMIT; Price=Ask+.10; Share=BP*.50; TIF=DAY+; BUY;

Here's what the commands are doing:

- ROUTE=LIMIT
  - Defining the order type.
- Price=Ask+.10
  - Since the hotkey is creating a limit order, the maximum price must be defined, which is Ask + .10 in this case. By placing the cap on slippage, we've created a "marketable limit" order.
- Share=BP*.50
  - This command defines the number of shares equal the maximum number of shares that can be purchased with 50% of the trader's buying power.
- TIF=DAY+
  - TIF = Time in Force. DAY+ = order is good for regular plus extended hours trading. (Although I would cancel my order if it wasn't filled within a few seconds and try again.)
- BUY
  - This command sends a BUY (long position) order to the market. The other acceptable parameter is "SELL", which would be used to sell some or all of an open long position, or go short in a new position.

Advanced Hotkey Tutorial: Range Order with Share Size Based on Risk Amount

Recall from Chapter 10 that The RST Way of trading involves using

the same R/R ratio for every trade in a block and also the same win/loss size for each trade. For example, if your R/R ratio is 1/1, then every loss might be $500 and every win $500. As shown in Figure D.4, we kick this off by double-clicking on the candlestick chart where we want the stop loss price to be. This is all the information DAS Trader needs to setup the rest of the trade for us.

After we double-click on the candlestick chart to set the stop loss price and hit our hotkey button to start the trade, the DAS Trader hotkey script does the following for us:

1. Calculates the number of shares needed to fit the risk. Inside the hotkey script is the amount of risk you want to take (e.g. $500). DAS Trader takes the risk amount and divides it by the stop loss distance. Let's say the stop loss distance in Figure D.4 is exactly $5. $500/$5 is 100 shares.
2. Opens a long/short position with that number of shares.
3. Creates a range order for the two possible exit prices: one for the stop loss and one for the profit taking.
4. Places the range order's stop order at the price where the trader double-clicked on the chart to set the stop loss.
5. Places the range order's profit taking order at the price equivalent to the stop distance times the R/R ratio. If the trader's R/R ratio is 1/1, then the distance to the exit for a profit will be the same as the distance to the stop loss.

Therefore, after hitting the hotkey, the trader gets three orders: one for the entry and two standby orders for the stop loss and profit taking. Every trade will have the same R/R ratio and win/loss size – perfectly controlled trading.

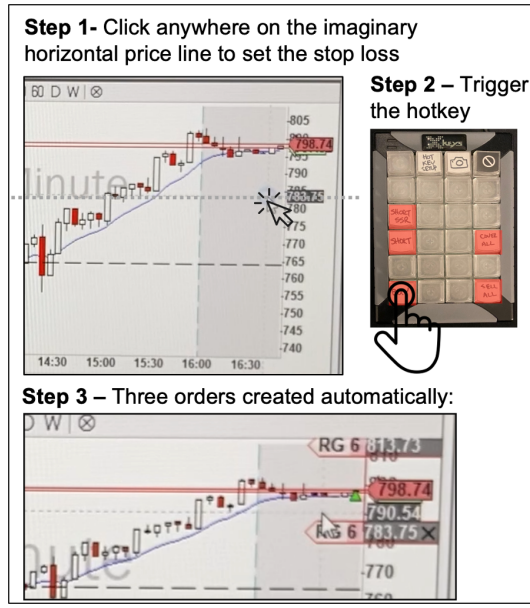


Figure D.4 - The RST Way: "Fixed R/R Ratio" or "One-button" Trading.

Below is hotkey script for a long position, which uses risk amount of $500 and R/R ratio of 1/1. If other R/R ratios are needed, please refer to the RST DAS Trader Hotkey Generator webpage.

StopPrice=Price; Price=Ask-Price; Share=500/Price; Price=Ask+0.10; Route=Limit; TIF=DAY; BUY=SEND; DefShare=1; Price=Ask-StopPrice+Ask;
TriggerOrder=RT:STOP STOPTYPE:RANGE LowPrice: StopPrice HighPrice:Price ACT:SELL QTY:POS TIF:DAY;

The first command is:

StopPrice=Price;

"Price" is the price where the trader double-clicked on the candlestick chart prior to hitting their hotkey. The first command stores this price as the StopPrice.

Price=Ask-Price;

With the stop price safely stored in StopPrice, Price now gets replaced

with the *distance* between the purchase price (the Ask price since we're taking a long position) and the stop price. This value is needed to calculate share size that fits the trader's risk.

Share=500/Price;

Next, the number of shares needed to fit the trader's risk is calculated by dividing the trader's risk amount of $500 by the stop distance. Referring to the example in Figure D.2, the number of shares would be $500/$5=100 shares.

Price=Ask+0.10;

In order to send a marketable limit order to enter the long position, the price slippage must be defined. This command allows the purchase price to be as high as Ask+0.10.

For marketable limit orders we use the "Limit" route:

Route=Limit;

By the way, for Route, the only two options are "Market" and "Limit." "Marketable limit" is a construct that lives inside DAS Trader and is not recognized by the exchange. A marketable limit order is essentially a limit order with really bad pricing allowed.

Usually with a limit order, the trader is attempting to get a price *better* than where the current bid/ask prices are. The trader then waits for the market to move in that direction at which point the order is filled at the limit price specified by the trader.

However, with a marketable limit order, the limit price set by the trader is *worse* than the current best bid/ask price. This means the trader is willing to take a market order, but only accept slippage equal to the amount specified, in this example $0.10. In other words, for a traditional limit order, the trader would specify the price to be "Ask-0.10," thus giving the trader a great entry price on the trade if the market moves to that value. However, with marketable limit orders, the price is specified as "Ask+0.10" thus accepting a market order with up to $0.10 of price slippage.

Of course if the trader were taking short positions, the price would be based on Bid instead of Ask.

The last item we need to define for the order to enter the trade is

time in force, which is set to regular market hours only with the "DAY" value:

TIF=DAY;

Finally, the order is sent to the exchange with:

BUY=SEND;

The only options are "BUY" and "SELL." There is no "COVER" or "CLOSE." The meaning of "BUY" and "SELL" depends on the context in which they are used. If "BUY" is sent with no open short positions for the symbol, then a long position is opened. If a short position is already open, then "BUY" closes it. The opposite is true for "SELL."

Now that we've sent our order to the exchange to enter the trade, the rest of the hotkey script is designed to create two standby orders to exit the trade when either the stop price or profit price have been hit.

The next command is for housekeeping purposes and resets the default shares field in the montage window to be equal to 1 share:

DefShare=1;

Then the price at which the trade is exited for a profit is defined using:

Price=Ask-StopPrice+Ask;

"Ask-StopPrice" is the distance from the entry to the stop price. Therefore, this command is adding that amount to the Ask, which, for an R/R ratio of 1/1, gets you to the price at which you would exit for a profit. We now have both exit prices, one for a loss and one for a win. Now we can create orders for those two outcomes.

The last segment of the script is one long command setting up a range order, which is really two orders, each triggered by different prices:

TriggerOrder=RT:STOP STOPTYPE:RANGE LowPrice:StopPrice HighPrice:Price ACT:SELL QTY:POS TIF:DAY;

In this case, the order will be exited at either the StopPrice or Price, which we previously specified to be the price we want to exit for a win

while adhering to our R/R ratio of 1/1.

It's important to note how "ACT:SELL" works. When the order is triggered by LowPrice, it will become a Market Order; if it is triggered by HighPrice, it will become a Limit Order. The opposite is true when using "ACT:BUY." The market order type is ideal since it exits the position immediately. The limit order type is a hindrance in my opinion and I'm hopeful DAS Trader can expand the functionality of their range orders to allow market orders at both ends of the range.

RocketScienceTrading.com

rocketsciencetrading.com/book

LearnToDayTrade.com