

FRAMING THE MARKET

HOW THE WORLD'S GREATEST
TRADING PLANS ARE MADE

MATAS URBONAVIČIUS

FRAMING THE MARKET: HOW THE WORLD'S GREATEST TRADING PLANS ARE MADE

Copyright © 2024 by Matas Urbonavičius. All rights reserved.

No part of this book may be used or reproduced in any manner whatsoever without written permission, except in the case of brief quotations embodied in critical articles and reviews. For permission requests, contact the author at matas.urbonavicius@gmail.com.

FIRST EDITION

Written & Edited by Matas Urbonavičius

ISBN: 979-8-32-495505-2

CONTENTS

Foundation	1
The Modern World Of Adam Smith	3
Planes And Trading Plans	9
Defining Trading	11
Cycle	17
Design Of The Cycle	21
To Follow or Not to Follow	25
Cupcakes And Trading	27
Formatting	31
Scrap The Eiffel Tower	33
A Pro Document	37
Organization	37
Color Theory	38
Bullets And Points	40
Write Like A Banker	41
Expectation Planning	43
Expectations Disclaimer	45
Why?	47
Financial Goals	49
Technical Goals	61
The Trade Cycle	73
Trading Floor Of Horrors	75
Preparation	83
Arming The Main Gun	84
Analysis Layering	86
Idea	109

The Universe Of Strategies	110
The Big Trade	132
The Fundamental Trading Equation	134
Strategy Characteristics	139
Validation	151
Psychological risk	154
Strategic risk	158
Entry	169
Orders	170
Position Construction	179
Mathematics Of Bet Sizing	196
Bet Sizing	212
The Three Dimensions	221
Realizing Edge Through Sample Trading	222
Planned Exits	225
Management	233
The Daring Trade	233
Passive Trader	234
Active Trader	236
Exit	249
Active Exit	251
Settlement	259
Introduction	259
Journaling For The Win	260
The Cycle Overview	263
Growth Stage	265
The Obvious	267
Practice Makes Perfect	269
Trading The Trader	271
Closing Remarks	273

Preface

Historically, I haven't been the most consistent trader nor investor. I would have periods where my account balance goes nuts and periods where I would go months without any significant move. I would sometimes experience a huge balance growth yet sometimes it would come crashing down which would lead to psychological issues and disrespect of my own rules. The quest for consistency would bring me to a construction of a trading plan which always seemed to miss... Something. But there wasn't anything solid on the internet to read about construction of a trading plan, apart from one pager blogs or 10–30-page pdf's written by scholars as their “research papers”, encompassing practically nothing of value.

I started interviewing and showing my plans to the best traders I know, hedge fund managers, investors and quants to find an answer for a great trading plan, only to discover that they all had different opinions. For some, a trading plan is a small set of ultra-strict rules while for others, it is a reminder to be this or that- a psychological routine. Some treat their trading plan as a checklist while others have several pages of pictures and descriptions of what they are trying to do in the market. There was no consistency in their answers, leading me to having more troubles than where I started.

I began doing my own thinking and research which soon started to grow, first becoming a ton of notes and after a while- tens of pages. But the information was still chaotic- the notes would not connect to each other, so a more unified and thorough explanation was necessary. This is where the book started to come into life.

In the process, I read many books, spoke with countless traders and spend thousands of hours putting all the pieces together. This became not only my personal project, but what I believe to be the largest (or one of the*) and most thorough study into how the trading plans are made, creating a theoretical framework for practically any trader or strategy.

The book will not focus on proposing certain methodologies nor the golden ways of doing things, rather, it is the dive into trading conceptually, disassembling parts of it and creating a solid panorama to work with. This conceptual approach allows us to understand what trading is and it leads to the answers of how to succeed and work in the financial markets from the very foundation. The book will propose a new way of thinking about trading and investing which will point to the construction of a trading plan that is focused and aligned towards success. It will provide you with a solid high-level overview and give a strong sense of understatement.

Apart from the philosophical parts of the book, it will cover some advanced statistical concepts as well as trading mechanics and financial theory- yet the book is designed for everyone. Difficult topics will be explained in detail using simple examples and the book will build a base of knowledge before jumping into lesser understood concepts. This can be used to comprehend all kinds of strategies from simple long term investment approaches to advanced statistical trading models.

Book will start from the more commonly known theory and simpler topics mixed with real world examples and will lead towards more and more advanced topics, reaching a peak complexity incorporating mathematical, financial and philosophical concepts into

a three-dimensional space of strategy characteristics. From then on, it will be a pleasant way down connecting the dots and finishing off the big picture.

Take a note, that throughout the book I refer to traders using male pronouns, reflecting both myself and the historical skew of trading as a male-dominated profession. However, this is becoming less accurate today, as more women are achieving significant success in the markets.

Using this framework, readers will be able to create trading plans and approximate what metrics the strategy will produce without even looking or trading the market first.

Special thanks to Martynas Petrauskas for your feedback.

-

To Raquel Gabriele

Foundation

The Modern World Of Adam Smith

Amid historical events in the United States, as the Declaration of Independence was being adopted, a book named “An Inquiry into the Nature and Causes of the Wealth of Nations” was released by a Scottish economist Adam Smith, a person who was described as the one who could traverse across a city and not notice a single detail, house or a person. His contemporaries would describe him as being oblivious of his surroundings yet profoundly thoughtful and intellectual.

While the Declaration of Independence changed the course of action of the continent, the “Wealth of Nations” will later shape the entire world. In his massive two volume book, he spared no modesty and no minimalism, totaling around 1100 pages, where Adam painted the most thorough, comprehensive, and clear picture about a newly emerging society, driven by the individual venture to seek profits, defined as Capitalism. It was the first look at how the free market extends its arm into labor, land, commodities and the relationship in between- it set a foundation for the modern economy.

Adam described his world filled with individuals with self-oriented financial goals, who organize themselves into something more efficient- the market. Many years later, the market has manifested itself in a multitude of ways, one of the wildest being the public, currently done electronically via exchanges, where any market participant can meet and make a deal in a matter of a second, from any part of the world- commonly referred to as the stock market.

While in the modern world there are many markets, such as land, businesses, commodities, equities, debt, labor, and a wide range of industries that operate within them, certain ones seem to be producing more wealth than the others. An annual study by Forbes magazine estimates that the industry which generates the most billionaires in the US as of 2023 is finance and investments- the industry that directly works with the most global and free market in the world- the electronic trading system, proving that the principles of Adam Smith and his view about the free market does indeed hold and generate the largest amount of wealth, when compared to the more regulated and closed markets.

Global markets are one of the greatest inventions of humankind from the economical perspective, which brought prosperity to millions of people. While they came into life to make transacting goods and services, assets and liabilities, thus wealth, easier, it became a mechanism of transacting practically everything that can be securitized- food, income, stability, entertainment and all in between, from one party to another. But with such a large mechanism, there has become an abundance of information about them in which it is more than easy to get lost. Hundreds of markets, thousands of securities, countless strategies with each having its own methods, principles, rules- it takes many years even for a bright person to figure out a single market and become superior at it. Consequently, however, that person can use the knowledge to become quite wealthy, which is the reason why the public markets attract some of the brightest people on earth. The geniuses from all around the globe explore every single market, which makes the competition perhaps the fiercest on the earth. Trying to take money from the market geniuses is a great challenge.

The business of participating in the market with a goal of speculative profit is often referred to as trading and because each

market participant is venture, thus profits driven, it makes everyone a trader, it does not matter if some may refer to their business as investing or scalping, hedging, commercial or income generation. Traders seek to identify profitable opportunities and then by entering and exiting the market at strategic points they try to make money each time they do this. Traders can come in any shape or form- some are fast, some are slow. Some are statistical or pattern oriented, some look to the fundamentals while others only care about the price.

While one could draw a conclusion that every person who participates in the market can be called a trader, it goes against the official terminologies and thus such a definition may confuse more than clear things up. Instead, if a person engages in the market, then that person can be defined as a market participant (MP). Both a trader making trades every 5 minutes with the intention of gambling and the person who each month adds to the single security, which happens to be the index fund, and does it for 30 years until it retires are both MPs, but with a widely different strategy. MPs then can be further separated into traders, investors, quants, commercials or others.

With the possibility to fill multiple libraries the size of the US Congress building with books about the financial markets, it is obvious why this industry contracts the guts of many just when they start reading about finance- "how in the world am I going to learn all that over the single lifespan" is a common thought. When I left my hometown in Eastern Europe whose population was smaller than what an average stadium in US can accommodate and started to work in New York as an investment banker in my twenties, I had to pass a series of compliance exams by FINRA national agency, each having a book from 200 to about 500 pages of pure financial theory to learn from. For the test to be passed, a minimum of eighty out of a hundred points had to be scored and failing the exam in investment banking

pretty much means getting fired. After spending every evening of mine by these brutal books and finally passing the last exam, I was having a conversation with my managing director getting up the Brookfield escalator in NYC downtown, going for a classic salad-to-go meal, when I noted my accomplishment (that every single person in the firm had passed):

“You know it’s nuts how many different things they teach for the exams”

“That’s right”

I continued, “And the concepts themselves were pretty simple compared to the terminology”

He laughed. “So, you realized that what we do is easy, yet you get paid 6 digits for it, right?”. -“Yes, my point”

“So, if making complex words can get us less competition, why shouldn’t we invent them?”

I spoke in my head. God, that makes sense.

And while the conversation was about investment banking, which in my case, was mainly M&A deals- trading is not much different when it comes to making everything overly complex. What many do not realize is that all of these financial markets, strategies, methods, and everything in between have rather simple mechanics lying underneath them which are the building blocks both for a 60-year-old construction worker using its savings to invest in the company he works in as well as hedge funds running billions of dollars. Consequently, just like a skyscraper is built from a ton of bolts, nuts and concrete, which are very easy to understand- success in the

financial markets is built from similarly simple ideas that serve as bricks, which can be used to construct almost any winning trading strategy out there.

What unites every market is the price and the way it moves, which is up and down throughout time. The movement characteristics and what drives it, however, differ. To be fair, almost everything is different between the markets but the two dimensional and continuous price movement through time. It suggests the presence of underlying concepts that should work for continuous up and down data which can be explored.

These fundamental concepts unite each market and surprisingly, this is where most people get everything mixed up. I speculate that the reason for this is the modern world of immediate action where no one puts in the time to think about the market and trading from the fundamentals. Everyone is obsessed with winning strategies, mathematics, indicators, news and trends- but all of it is just a part of the larger picture. One can be the smartest person on earth with the greatest strategy anyone has seen, but if the person does not know how to execute the strategy, then both the person and the strategy are doomed to failure. Mathematicians are the prime example- they can solve problems that explain the universe yet there aren't that many mathematicians becoming great traders, except for a few quantitative trading leaders, such as Jim Simmons with his fund Renaissance Technologies. In an opposing example, if a person understands how to execute a simple strategy, then the bets should be on him.

Planes And Trading Plans

Going into the airport has a distinct feeling with the military-grade checkpoints, lines that go over the horizon and surprisingly expensive shops that you'd expect to be cheaper because they are duty-free, can be an experience which leaves anyone flinching their teeth, yet it still is the fastest way to reach the favorite beach across the ocean. The fact is- planes fly in a straight line and they push the air through the engines, propelling the giant tube with hundreds of passengers so fast that no other means of transportation can compete with them in terms of speed.

But even if the cars or trains were fitted with jet engines or rocket propellant, they would still be slower than the planes, due to the existence of mountains and oceans (this example, of course, excludes physics). By going straight, planes make sure passengers arrive faster than if they would go in triangles or zig zags. To go straight- pilots must first know where they are heading towards, that is, the destination.

While some paths in life will be surrounded by sky-high mountains, seas, towns or enemies and it will not be possible to go straight, having a map and a destination in mind will usually guide to discovering paths which are the closest to the straight line, that is, somewhat mimicking the planes. This shortest road, made up of many paths to the destination, is the line that one must follow to reach the goals the fastest. In the context of financial markets, a line represents the closest path to the financial goals and to draw the line in the first place, a map and a destination is necessary.

I understood the importance of maps being around 14 years old when I used to play the sport called orienteering, which is about

running around and finding the waypoints faster than anyone else, given a map. When competing, I wouldn't look at individual trees or make sure my compass is pointed directly to the waypoint with a precision of a 0.1 degree, no! The goal was not to be the most precise, rather, the goal was to reach the targets the fastest. I learned that a map is not about the hill or a building, it is about knowing the full picture from the birds' eye of view. To be fair, one of the most important parts of development to be successful at this sport is being fit and able to run long distances, therefore the best athletes are both fit and they can find the path of the shortest distance almost instantaneously which they then follow.

In trading, being fit is represented as being in a superior psychological state, focused and disciplined. The map is the deeper understanding of trading that lies inside the head. When people who want to participate in financial markets draw their maps and lay the paths, they record it on a piece of paper which can be called the trading plan. Obviously, anyone who participates in the market is looking for profit, therefore the goal of a trading plan is profitability- the most important financial goal. By combining the map together with the goals, one can paint a picture of the trading plan which then must be followed and executed- line has to be run. A well-crafted plan will make sure that financial goals are reached while a thorough map will allow construction of the plan in the first place.

Defining Trading

Eleanor Roosevelt was a first lady of the United States from 1933 to 1945 and was known to be an extraordinary figure due to her involvement in humanitarian efforts, especially during the Great Depression. She was also a prolific writer and a speaker, taking up important roles in international institutions such as the United Nations, where she worked on drafting the Universal Declaration of Human Rights, a task that certainly required understanding and defining fundamental human rights clearly and unambiguously. With such a background it is no surprise that she said, “Definition is the first step toward understanding”. She believed that once people clearly understood an issue, they were more likely to commit to meaningful action towards resolving it, thus the emphasis on thorough definitions.

But Eleanor was not the only one who knew how important the definitions are- Even Socrates told, that “The beginning of wisdom is the definition of terms”. He understood that by defining something, people set boundaries, characteristics, components and anything that they think is important which can lead to a deeper understanding which is crucial for developing skills and expertise. Clear definitions provide a foundation upon which humanity can build knowledge on-definitions are the foundation of society’s knowledge.

To comprehend such a large scale of financial markets all inside one’s head- clear definitions are the way to go. For this reason, as market participants, we shall begin the study by defining the major word- trading. The way theory puts it: trading is buying and selling financial instruments to profit from price fluctuations. But is this

really good enough? Does anyone get a deeper understanding about trading by reading such a definition? -No. One can come to a conclusion that a different definition might be more suitable

Definition should tell the whole picture and the official version does not, as it does not tell where the profit, the major component comes from, so there is a hole in the middle of that definition. In addition to it, where are the fluctuations coming from (and what are those?)? How is it possible to know what fluctuations will be, so that traders can profit from them? This sort of definition could be considered to have been made through a lens of a politician as it is vague and lacks clarity.

In practice, trading is buying and selling financial instruments to profit from something in the market that makes the price fluctuations. This is because traders can only profit from something if they can correctly predict it which causes the price to move in a favorable direction. Profiting from something traders do not understand, do not know or they think is completely random seems unlikely, at least in the long term, therefore traders should aim to have some predictability. The “something” may be referred to as the inefficiency and there is a reason for it.

A theory called “The efficient market hypothesis” states that the asset prices reflect all available information. The implication of it is that it is impossible to consistently “beat the market” since market prices only react to new information (everything else is already reflected in the market price) and because no one knows the future, no one can predict the market. People now realize that this assumption is not correct simply by the presence of insider information, all kinds of errors in the markets or simply... By the existence of traders that can

consistently beat the market. Based on the theory, the techniques that the winning traders employ which allows them to beat the market are essentially inefficiencies, because an efficient market is impossible to beat. Coming back to it- an inefficiency, under the efficient market hypothesis, is information which should be reflected in the price, but it currently isn't, or it is reflected incorrectly therefore the market should close that gap of inefficiency. One might speculate that successful traders must have found a gap which is so difficult to exploit, that no one can compete with them in exploiting it, and then they perfected and executed their system for a long time to be able to generate profits consistently.

But there is some bias to the presence of traders who have beaten the market for many years, such as Warren Buffet, Peter Lynch or Ray Dalio. Imagine a thousand people flipping a coin. Those who land it on heads lose and must stop playing. After the first flip there should be around 500 people left. After the second flip there should be 250 people left, after third- 125, then 62, then 31, 15, 7, 4, 2 and lastly there would be only a single person left. That person would have landed tails 10 times in a row!

Everyone would think that the person is extremely good at landing tails and has a special skill, while in reality it clearly is luck and probabilities. Such a case could be made about traders and money managers- in the real world there are millions of market participants, instead of a thousand, thus producing many exceptional winners by default. While this can be a superior example of taking "great" traders and their advice with a grain of salt, in reality, to be that good for many years takes a great amount of knowledge and exceptional work ethic. In addition to the few great traders, countless institutions are employing many traders, most of whom are indeed, making money by using both simple and complex strategies. If they were not- they would

be quickly fired! It implies that institutions have methods which work and once the traders are trained- they can make money consistently, so it proves that the market is not that efficient, as the theory states. Additionally, the existence of collective psychological factors like overreaction to news or loss aversion adds to the proof that there are inefficiencies in the market and are widely studied by behavioral finance practitioners.

To be fair, many of the methods that institutions are employing are quite specialized such as market making, client order execution or high frequency trading, which is about getting the transaction costs or risk premia to themselves, but it does not change the reality- there are inefficiencies in the market that traders are currently exploiting to make money. But where do these come from?

One way to answer such a question is by beginning with the definition of a trading strategy. If a strategy can be defined as a high-level concept to achieve the desired outcome, then the trading strategy can be defined as a high-level concept to achieve desired financial goals. An assumption, then, that everyone uses a different strategy to trade can also be reasonable. At some points in time, this huge number of different strategies behave similarly, almost like a single organism or in a predictable way which might create an inefficiency, which is where the traders come in. In addition to the latter example, subtle electronic problems, events, geopolitics, behavior and anything in between may be causing behavior in the market that may be predictable. For example, when the war in Ukraine (February 2022) broke out, it was rather obvious that this would lead to the European defense industry becoming busy and their stocks performing exceptionally. Such an event triggered a fundamental shift in the geopolitical environment which is not easy to price and come up with a value that this event has created or destroyed. The period between

the start of the war and the price going towards its new fair price could be called an inefficiency because the information was there but no one knew how to price the events and the magnitude of them into the stock's price.

A slightly different example can also be used. During the hypothetical analysis you have discovered that over periods of low interest rates, stocks tend to go up. It is now predictable to you what equity does during such an environment, therefore whenever you assume that the interest rates are going down or are already low- you buy risky stocks. In such a case, given you repeat this principle of owning stocks in the defined interest rates environment and the original assumption holding true (e.g. easy monetary policy inflates equity prices), you should be profitable. The only thing for you to do is repeat the same trade over and over again. This example implies that trading essentially means repetition- traders find predictability, develop a system, develop a plan of how to employ the system and then repeat the trade for as many times as they possibly can.

What may be interpreted is that it is mostly new information, and the way market participants value it is what causes the price fluctuations. Inefficiencies are what arises from the new or existing information getting mispriced or badly interpreted and it causes predictability in the market. In the definition of trading, the “something in the market that makes the price fluctuations” can be updated to “Trading is buying and selling financial instruments to profit from predictable market behavior” as it is now known that the “predictable market behavior” is the inefficiency that displays itself as predictable behavior in the market that causes its price to fluctuate.

But the definition is not ready as by buying and selling once or twice a trader is not consistent by default, so in the long-term, such trading is pretty much worth nothing. Using the hypothetical analysis of the interest rates example, the aim is to repeat the profitable action as many times as possible to profit again and again and again. Repetition is what makes the trading successful over the long term, therefore the updated definition of trading is the action of repeatedly buying and selling financial instruments to profit from predictable market behavior. By re-wording, one can arrive to such definition:

Trading is repeatedly buying and selling financial instruments to profit from predictable market behavior.

With a clear definition of the main activity, traders have more chances of succeeding because this leads them to real questions arising about the repetition part of trading, predictability or market behavior. The definition itself lights up like a lighthouse in a stormy sea.

Cycle

In the context of trading, what does the trade mean? Given that the definition of trading was a repetition of going in and out a financial instrument, then a trade, logically, is the single repetition of that. It is a single execution of the exploitation of inefficiency or in other words, it is an execution of a single prediction. To obtain an instrument, traders usually acquire it and to get rid of it, they sell (or re-buy in case of short positions) the instrument. However, a buying action and a selling action does not make a trade completely.

First, trade originates as something abstract- an idea in the head that is based on some kind of research, feelings or preparation which is aimed towards predictable market behavior. Once the idea is validated by the brain or the methods, traders go ahead and perform the technical actions of actually going into the position. Once in the position, they can modify, add or subtract the position. The exit is the action which leads to having the quantity of the position equal to 0. Lastly, the trade settles in the track record- both on paper and in the head as positive or negative reinforcement.

The trade, by this enlarged description, could be squeezed into a definition as the thought, the action and the result of buying and selling financial instruments to profit from a single predictable market behavior. Further, the thought, the action and the result may be referred to as the trade cycle which can further be divided into smaller steps. Just by the definition itself, one can assume that the thought leads to the action and the action leads to the result which points to the next trade and that creates a cycle.

Across literature, the three common stages of thought process appear- perception and input, processing and analysis, synthesis and output. As this is not that helpful in the case of trading, such terms should be converted into more understandable and related wording. Perception and input could be called the preparation and the analysis- it is everything that traders collect about the markets that is relevant to the strategy, which then can be analyzed to come up with results. The key aspect of analysis is a great idea and for this reason, an idea may be defined as the second step of thought. The output is what's left and since this is the last step before the action, it can be referred to as the validation. In this step, market participants are deciding whether the idea can go through and be executed.

An action is what traders do in the market- the execution. It can be the entry into the market, or it can be the exit from the market- it is what "buying and selling" part of the definition means! In between of those two steps lies the trade management.

The result of the trade is usually as simple as some digits settling on the accounts. As this is such a smaller part than the others, it may not need to be divided into smaller steps. The final picture of the trade cycle can be seen below:

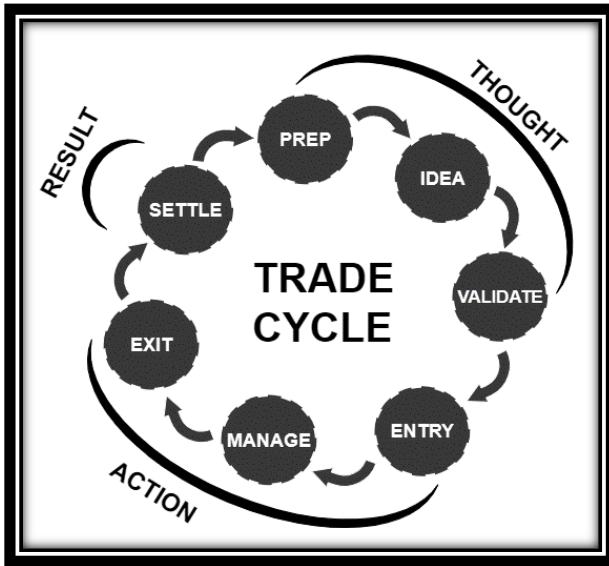


Figure: The Trade Cycle

The figure above is the thought, the action and the result of buying and selling financial instruments to profit from a single predictable market behavior- a trade. A trade which successfully exploits predictable market behavior could be called a perfect trade, simply because it does exactly what it is supposed to do by definition! In addition to this, what makes a trade perfect is that it extracts the maximum possible profit from the predictability given the circumstances.

It is natural that all traders want to repeat such a perfect trade therefore to optimize the chances of it happening repeatedly, everyone should have the guidance of it which they can follow to maximize the chances. In order to construct a proper trading plan which guides towards making of the perfect trades, a clear picture of the perfect trade must be made. The plan should be so good that it provides the path on the map together with a compass and a lighthouse which will

help getting onto the closest line to the trading goals. Execution of the plan for each trade should lead to consistent and superior trading when compared to not having a plan or having one that is not properly done. But as we will later see with the help of the fundamental trading equation- trading is by far not about a single trade, rather, it is by maximizing the chances for every single trade what will create profitability. This will point towards trading as a game of probabilities, sort of like becoming a casino, rather than “going big or go home” for every trade, which always results in an inevitable- a blowup.

Design Of The Cycle

One of the greatest trades ever made was in the midst of Napoleon's campaigns across Europe when fierce battles were raging around the continent. Additionally, there was another war, far more hidden, yet no less important. It was the battle of financial systems. In the early 1800s, the Brits had developed a strong debt market while the French had a more anarchic financial system that made lots of money by plundering colonies. The famous battle of Waterloo, which happened in 1815 and was a turning point in the war, was as much a fight between the financial systems with the vast wealth hanging in the London stock exchange. If Napoleon comes out on top, that will put France as a superpower, valuing all of London's stock exchange value practically worthless as it was based on the future debt repayments of the United Kingdom.

Nathan Rothschild, founder of a large trading firm based in London was aware of the value of early and accurate information as his fortune was made by supplying the Duke of Wellington's army in Spain and France with gold and silver coins to pay the troops. Rapid and reliable communications were crucial for his complex and risky payments, arbitrage operations, therefore he had spent years setting up a private courier system which was faster than anything else at that time.

As the sun went down at Waterloo on June 18, 1815, a courier arrived at Nathan's firm with the information of Napoleon's defeat-only 24 hours after the battle while the official messenger was still 2 days behind. Armed with such a knowledge, Nathan went into the stock market, and it is said that since he was closely followed, he first

started selling the British gilts which sent the market south which is where he started buying them heavily. Nathan sold his bonds a year later with undocumented profits, some speculating that it has been the greatest trade in all of history with some estimates saying he doubled his wealth in a single year, with a single trade. In reality, the Rothschild family was notoriously secretive about its finances, and no one knows exactly how much he has made, apart from the single quote of another famous banker referring to N. Rothschild: “you (Nathan) have done well by the early information”.

In the past, markets were powerfully inefficient, as the information has been extremely slow to spread, measured at exactly the speed of a horse. Modern markets, on the other hand, are surprisingly efficient (though not fully) when compared to the past, events and valuations are reflected into the market over a matter of seconds and markets that are related to each other move almost synchronically, leaving a small room for error! At the same time, markets may not be rational or make sense, however, they do a great job of taking the money from less patient, less smart or less organized to the ones that have it better. In such a competitive environment, the only chance of success is finding a niche within the market that is perfectly aligned with traders’ character, knowledge and tools, then creating a system to exploit that niche and executing the system to the best of their ability.

A trading plan is not a paper with rules written for people to remember. And while it indeed helps the brain to not forget some rules, the main reason is to write down, define the system, convince and show the mind that only by walking along that predetermined path, which is shown in the plan, one will arrive at the destination the earliest. If you have read a single book on trading, you must have heard the magical phrase “Trading is not a science- it’s an art”. It is true- only the artists can hope to become profitable from competing

against the smartest people on earth, often using the cheapest tools available, with little information! So, what can a single trader even do?

The advantage that a retail trader has, which increases the probability of success, is the “edge”, which is a common term used throughout the trading world. Traders must focus on creating such a trading plan, which eliminates the weaknesses that they may have, yet still preserves one of the biggest edges, that is freedom. In his book “Come Into My Trading Room”, Dr. Alexander Elder who is a well-known teacher of traders, discusses the differences between a purely systematic trader- the one who abides by the strict rules and never deviates from them and a discretionary trader who is free to make any decisions by its own mind. He mentions that “A trading system is an action plan for the market, but no plan can anticipate everything. A degree of judgment is always required, even with the best and most reliable plans” and this is true. A plan that wants to anticipate it all will span hundreds of pages and will soon become a whole book, for which reason one shouldn’t even try to make a plan that is completely perfect- it is impossible. Alexander continues his thoughts, saying “An intelligent trading system includes components that have been backtested, but the trader retains control over his actions.” , confirming the need of having freedom within a framework that is proven and known to work, at least historically or parts of it. So, while the purely systematic traders might have the most consistent results, as they truly do the same thing over and over again without ever breaking the rules, clever freedom (discretion) added on top should enhance the performance of a trader as it adds “brains” to a system. The challenge, however, is using the best of the brains- logic, rather than the negatives, namely fear and greed.

Even if you are an institutional trader, then you have the freedom within a given framework and limits, which still is freedom! But the greatest strength may soon become the weakness. Everyone is free to do harm towards their accounts and so the biggest enemy... Is our friend. It could almost be concluded that the trading plan is the risk management plan. It manages the risk of making a bad trade which is when logic takes the lead and creates an edge.

The trading plan that must be crafted has to ensure that one always trades with a clear mind and that every single detail about the trade cycle aligns perfectly with goals. By following the plan, you are not guaranteed to make profit, but you are guaranteed to become a consistent and disciplined trader. Add experience and logic on top-profits should come after.

To Follow or Not to Follow

When I was younger, the primary reason I would not stick to my trading plan was because I didn't trust it. Arguments in my mind would be something along these lines:

"Why should I look at some piece of paper when I have my head?"

"Well, yes, my head makes bad decisions from time to time, but it's pretty okay at identifying patterns."

"I have a gut feeling hidden somewhere that often gives decent signals. I could never put these "feelings" into a few rules."

When I would try creating a trading plan, what would end up happening is me developing rules that are way too narrow and strict for my own trading. What I did not know is that they would also be misaligned with each other, would try grasping too many topics at once and there wouldn't actually be logic in them, which is why they all failed. I felt like getting myself in a box, whenever I tried following any plan, I've created for myself. A proper trading plan should not build a wall around the brains. It should not try to abolish the greatest edge- the head, in exchange for static rules. No, the trading plan should establish much needed boundaries that do not allow the trader to steer too far away from the correct path.

The problem is stress. While during normal times everyone can follow their plans, procedures and so forth- it is not human nature to follow the logic in the times of high stress or danger, which trading

introduces (the monetary danger). During such environments people are often governed by their emotions. Trading is almost designed to induce stress and bring out the worst of every market participant. Superior traders must absolutely believe and understand what they do in order to follow through even during their lows.

On the other hand, having rules in the trading plan that are not fully understood or are not fully believed, will force the brain to abandon them the moment there is a slight disbelief. This abandonment will disbalance the plan and it suddenly will be of no use, therefore every single statement to the very single word, rule or principle must be logical and proven.

Cupcakes And Trading

Cupcake business is similar to trading in the sense that by simply baking cupcakes repeatedly it won't be enough to run such a business consistently and profitably over the long-term. There are the tax problems, risk management, possibly employees, software, marketing and a big furnace to worry about.

Running a bakery requires a solid business plan with detailed financials, clear goals, and well-defined processes. Keeping meticulous records is essential. Successful businesses track important events and documents carefully, and they manage their services and expenses wisely. The bottom line is that the cupcake sales need to cover all costs and generate enough profit to keep shareholders, like yourself, happy. This means optimizing every aspect of the operation to maximize profits.

Replaceability is key. Plans, processes, and routines must be well-defined so that if an employee leaves, a new person can step in without a steep learning curve. Additionally, staying ahead of the competition is crucial for long-term success, which means continuously innovating and outdoing competitors.

The heart of any business is income and costs, leading to net profit. Both income and costs are direct results of your trading activities, so this is where your focus should be. Consistent profitability keeps a business alive, and trading according to a well-thought-out plan introduces this consistency.

Risk management is also a critical aspect of the business. It's designed to slow things down when uncertainty rises. In the context of trading, risk management should be part of the trading cycle and the broader business plan. It comes in various forms. In a corporation, risk management is typically handled by a dedicated person or department, separate from the trader. They set limits based on the organization's risk profile, not the individual trader's metrics. These limits are meant to protect the trader, department, and organization, but the ultimate control lies with the risk management team. If limits are breached, positions may be exited against the trader's will.

Perry J. Kaufmann, in his book "Trading Methods and Systems," highlights that "Risk control is as much an issue of common sense as it is complex rules and mathematics." When a person is both the trader and the risk control specialist, risk management mechanisms are either imposed technically by the brokerage or trade platform or integrated into the trading plan itself. Limits are enforced by the trader. In other words, no one should skip risk management if they want to avoid business destruction.

So both trading and a bakery are similar in terms of business-like activities and it is what makes them thrive over the long term. A trading plan is not a business plan, but a business plan should incorporate the trading plan as it deals about the income- the most important metric of any business. The trading plan is not only a part of the business plan, it is the most important part. If you want to learn more about treating trading as a business, Van Tharp has written some books about it and I highly encourage you to read them.

Formatting

Scrap The Eiffel Tower

May 1925, Paris. Five of the largest scrap metal dealers in France get a mysterious and well-crafted invitation letter to the official, yet highly confidential meeting with the director of the Ministry of Post and Telegraphs which is scheduled to take place at the most luxurious Hotel in Paris- Crillon.

Once the businessmen arrived, the director himself- Monsieur Lustig, met them in the grandest suite of the hotel at the top floor with a glass of wine. Once everyone got comfortable, Lustig began the meeting by lightly tapping the wine glass with the utensil he had at hand to signal the start.

“Noble gentlemen!”

“The government has decided to discard the Eiffel Tower.” - He continues, “As you know, it was intended to be a temporary structure and its costs are becoming too large to maintain.”

Everyone listened- shocked, in silence. Lustig goes on.

“This is an urgent matter, and it requires complete secrecy due to the recent fiscal scandals. We cannot afford to spend millions fixing something that many people despise!”

Lustig kept explaining, that this monstrosity has been viewed awfully by the citizens and they will be happy to see it go.

“You gentlemen have been invited to give an offer to the government for the Eiffel Tower” - At the same time handing out the

documents with the specifications of the tower, such as the tonnage and materials.

Everyone's eyes started popping once they were starting to realize how much of the profit they could make! After the meeting was over, Lustig had a limo waiting for the businessmen, which took them all to see the Eiffel Tower from up close. He was lighting up the show by cracking jokes and sharing the future plans that the city has been discussing for the place. By the end, he gave the businessmen four days to return with the offer.

In a few days the winner was clear, it was Monsieur P. He was instructed to deliver a certified check to the same hotel of 250'000 francs which was a quarter of the whole offered price, that was the deposit- the same day he will get delivery of a check certifying his ownership of the tower.

On the day of delivery, Monsieur P. had started to suspect that something was wrong- why is it secretive, why were there no more governmental officials and why is it taking place in the hotel? However, once Monsieur had arrived, Lustig did not talk about the Eiffel tower anymore.

“My salary is quite low” He complained, “Prices are skyrocketing”

Monsieur immediately understood that Lustig was asking for a bribe! He was instantly relieved as he was now convinced that he is dealing with a governmental employee. Monsieur handed Lustig a couple of thousand of francs, left the check and they separated.

Day has passed and Monsieur has not received anything. Naturally, he started contacting the government only to realize that there was no Lustig working for them, and the Eiffel Tower is not getting sold! He has just fallen for one of the most stupid and absurd cons in history.

This story underlines several important lessons, but in the case of this book- the importance of a superior format. Lustig took the businessmen to the greatest hotel and made sure everything looked perfect. The documents, his attitude! A trader or an investor that treats his documents the same way could sell even a non-working strategy to a hedge fund manager, less to say- to his own brain.

A fresh-looking document gives pride and is pleasant to look at. An obsession with the details can often consume quite a bit of time, but it is great to stare at it, talk about it, touch it and smell the fresh ink! The trading plan must scream professionalism. A well formatted document is nice to read and thus, follow. A well-made document gives pride in one's work, raises self-accountability and it is just so much nicer to have it. Even if you are the worst person to follow plans, a document that is excellent may just trick you into disregarding your own nature.

Your trading plan should be a single page great looking document that is easy to read, pleasant to print, simple to understand and makes you want to follow it. A professional-looking document typically exhibits clear organization, consistent formatting, appropriate use of fonts and colors, proper grammar and spelling, relevant graphics or visuals and a professional tone.

A Pro Document

Organization

A document must be organized so it is not empty or overflowing with information! There is always a way to make the sentences tiny. A font size should then be chosen which would allow to fill around 70-90% of the document. This way, it still has space and feels light.

Repeating the same words or terms is unprofessional and when possible, abbreviations should be used. For example, a line could say “Efficient Market Hypothesis underlines the importance of the information flow. Under Efficient Market Hypothesis any assumptions about...” but this is not ideal due to the repetition of a large term which takes up necessary space. A common approach is putting the abbreviations in the parentheses and then double brackets, so the new text would say “Efficient Market Hypothesis (“EMH”) underlines the importance of the information flow. Under EMH any assumptions about...”.

A document such as a trading plan should also be modular which implies interchangeability. Such structure becomes useful when there is a need to change rules, paragraphs or simply some text easily without messing up the whole page. This will save time for subsequent document creations and create clear bounds between topics. Look into an example below:

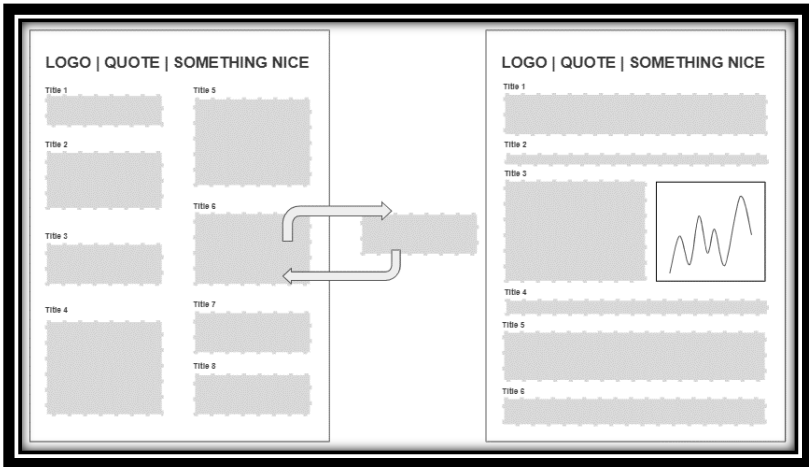


Figure: Trading Plan Design

Paragraphs take their space, each having a good-looking title. Document is easy to follow and in general, it has to look like a new Rolex under the dealer's light. Font must be the same everywhere—margins should, too. Need to insert a chart or a table? - It does not disrupt the flow of the paper. Light as a feather even if there is a ton of information. Spacings should be kept between paragraphs that are large enough. All these details will have a banger formatting structure of any trading plan.

Color Theory

Color theory is a concept used in visual arts and design that explains how colors interact with each other and how they can be combined to create certain feelings, moods, and reactions. The theory also investigates the harmony between the colors, which some simply

define as a pleasant arrangement of colors, music, poetry or even ice cream. The theory comes to various conclusions, but the main one is the assumption that colors influence human emotions. Using this knowledge traders should construct their trading plan with colors that will impact them positively or help combat negative traits.

Blue, for example, stands for trust, integrity, confidence and similar, therefore it is widely used throughout finance. Traders who struggle holding their trades and lack trust may find it easier if their trading plan has blue elements in it. Color black resembles elegance, sophistication and bravery for which reason many high-end companies like to have their logos black, such as Apple, BlackRock or LVMH. Color red shines excitement, passion and energy which is a great choice for traders that are often phlegmatic or slow. White exhibits cleanliness, coolness, freshness while the color gray stands for neutrality, intelligence, stability and authority. Any of these color choices as a primary color for the documents and self-representation will create a different feeling.

For the trading plan, one should use a shade of the color to separate paragraphs, create statements that stand out. Which meanings do you stand by, when thinking about your trading plan? But let me be clear that a plan without any color, often referred to as the black-white tone which is still a color choice- is just as fine if not better as a mix of black and white offers both sophistication and cleanliness. Additionally, mixing multiple color schemes that are not harmonized will result in a distracting paper and it is highly discouraged.

Bullets And Points

A bullet point is an item in a list, preceded by a symbol for emphasis and is a vital part of any highly structured document as it is essentially a short message, designed to be used as an item for a list. A list is a structural element for a text which is designed to be clear and easy to read, therefore for a document, whose goal is to be clear and easy to read- bullets are the friend.

Every professional-looking document must be well structured, and bullets are one way to achieve it. They make it quick and easy to follow through, which is why it is a primary choice in many documents where more than two choices are present.

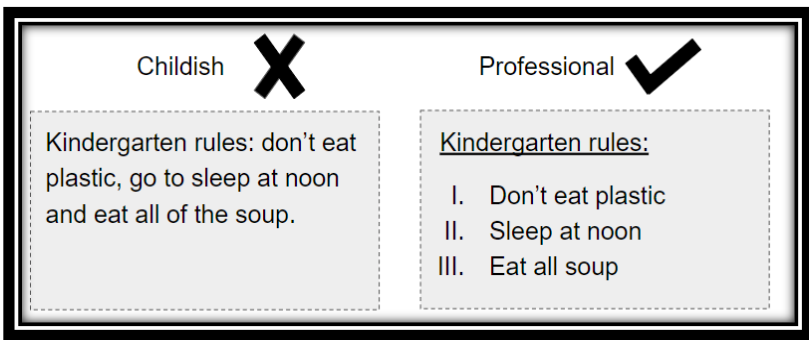


Figure: Bullets

To be fair, bullets do not tell a story and they are quite boring. Great thing is- traders do not need to tell a story with their plan- they need it to guide them with every single word towards making a perfect trade. Stories teach- bullets guide.

Write Like A Banker

The way the document is written is important too. Using as little words as possible and fitting each statement into one line can make the document look neat and clean. Usage of “I”, “We” or similar words referring to a person should be excluded as the document tells facts- it does not point fingers.

One line rule means trying to write statements so short that they never break a single line. It is often the hardest to enforce but one of the most essential to making the document fast to read. When the sentence is being extended, the structure of the bullet points breaks.

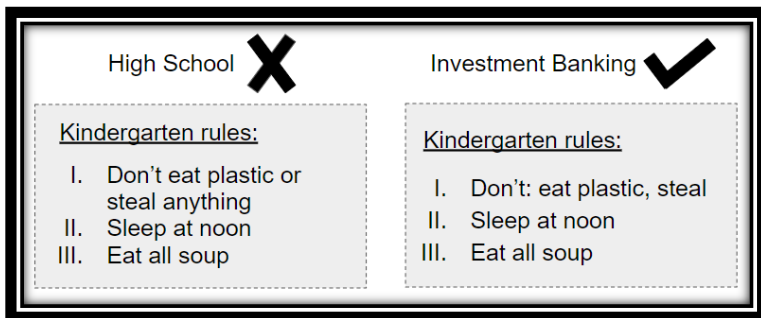


Figure: Short Bullets

Other parts to pay attention to are the spacings between the lines, centering of items. If any pictures: they must be high quality; Making sure margins, alignment, indentations are the same. Remember- you are creating a professional looking document that you will use! Make a high-quality product and be proud to use it. Put in the effort into your document and you will value it more.

Expectation Planning

Expectations Disclaimer

The probability of hitting a bullseye from a longbow without having a target to begin with is clearly zero as there is no target in the first place. Similarly, the probability of succeeding in the financial markets endeavors without having any goals is also zero. Both are the same statements with a variation.

To have a slightest chance of success, market participants must define what success means, as goals. Let's be real, only a small fraction of people has their goals well defined and refined, that are at the same time logical and realistic, yet this is the very foundation upon which a person builds itself onto. Without having clear goals, it does not matter what the person will achieve, as the final goal will never be a success. It is doomed to failure.

Apart from the definition of success, goals help to set the expectations. However, as necessary as they are- having wrong expectations is worse than not having anything in the first place! When traders start expecting the market to behave one way or another it is where the rules are broken, the search of "the big one" begins and subsequently- losses together with emotional breakdowns, follow. Expectations should never be about the market- they must always be about oneself and based on facts. Setting expectations correctly is the first and a crucial part of becoming a successful trader. Often, it is what will "make it or break it".

Why?

The goal of the market participants is to earn money- it is the reason for being a trader or an investor, it is the essence of it! Without a few internet celebrities or gamblers who may do it for entertainment (still to earn money but from a different source), there is absolutely no case where the final goal of trading would be to lose money. It has always been like that.

Since the beginning of capitalism in the XVI century, which was officially marked by Adam Smith, a vast array of different goals have emerged about this free market. At first, when the land was starting to become a property free to sell, rent or buy, when compared to the pre-capitalist era, where there was no such concept of a freely tradable land, the land-owning capitalists aimed to maximize the agricultural output or collect rents, both of which were related. The goal of theirs was somewhat comparable to the income generation strategies of today- they were seeking to invest the money they already had in order to receive a stream of money every period. Similarly, industrialists who owned factories were aiming to generate large amounts of income by selling their products either domestically or to foreign nations.

Mercantile capitalists were the ones who we currently call commodity traders as they aimed to amass wealth by importing or exporting various goods and re-sell them at a greater price. It can be compared to the goals that a current-day speculator might have.

Financial capitalists, such as the infamous “Rothschilds”, who were some of the wealthiest bankers in Europe since the late 18th century, had a business of lending money with the intent of getting it

back with some interest rates on top. Their goal was a big mix between growing the capital, protecting their wealth and generating some income, comparable to the large banks of today, that have their streams of money diversified.

A few hundred years into capitalism and we have many more participants in the free market. There has been the rise of different financial capitalists other than bankers, such as hedge funds whose goals may be the maximization of statistical risk-return metrics, perhaps a Sharpe or Sortino ratios or the pension funds with the intent of long-term growth among many others. But they all share a thing in common- they all seek to grow the current amount of wealth into a larger sum- by the very least to account for inflation. No one goes into financial markets to lose money or just exclusively learn, enjoy. The final destination in the long run are always the greenbacks. Such classic trading goals include but are not limited to are:

- I. Capital preservation: Make enough money to cover inflation. Risk: as little as possible.
- II. Capital growth: Make enough money so that the balance grows faster than some index, such as S&P 500 which is a basket of the 500 largest stocks in the United States, ideally, every year. Risk could be up to around 10-30% annual. The more aggressive the strategy- the faster it aims to grow.
- III. Income: Earn a certain amount of money each month. Risk: As little as possible.

The list can go on, but the essential parts are the return and the risk. Naturally, these are measured over a period of some kind. It could be time or it could be trades. Apart from those two goals of getting a return over some risk, one could think of goals such as the education

about trading, consistency and so forth, but at the end of the day- it all plugs into the return and the risk in a given set of time, or, as we will later see, in a given number of trades.

Is your goal a 10 Rolls Royce's worth of managed capital? Several years' worth of consistently earning double digits with a single digit risk, then some business-related tasks like asking everyone who has money, to give you some. What about the goal of having fun? In this case, the return goal could be around 100% per month and the risk around 100%, too! To achieve such numbers- employ all available leverage, such as Futures, options or CFDs. The goals should match the trader and be realistic. A goal of 50% return per year with a maximum of 2% risk is unlikely to be achieved even by the best systems in the world. Such an unrealistic goal would create huge expectations and once they don't materialize- psychological pressure reduces the cognitive ability of the person even lowering the chances of success, thus a common approach is to lower the expectations. The goals described above are the financial goals, but for a trader to achieve such goals, he has to have some technical goals related to the way he trades- the goals he has to reach if he wants to achieve the financial goals.

Financial Goals

Because time is the most precious commodity, traders have a time goal on how quickly they aim to grow the digits. A 100% growth sounds great if done in one year, yet it is awful if achieved over 50 years. When the period passes, evaluates the performance. If they haven't reached the goals, there must be a quality check of the

strategies and goals themselves. It is a feedback cycle- go into the market with goals, then after a period, check how it performed and evaluate, adjust. Repeat.

With this in mind, 50 years may be too long to wait for evaluation. 2 days is a little too short, so really, the time horizon goal is something the trader needs to decide for himself. A common approach is either 1 year or 1 quarter. Plugging this into the equation: Trading or investing works by trying to grow the current amount of wealth into a larger sum in each period of time. But time has a price. For the growth of capital in the financial market we pay with risk. Risk of not reaching the targets or losing money, wasting time. Therefore, the three pillars that make up the castle of financial goals are the a) goal of return, b) goal of a period and c) goal of the risk.

Goal of return. Market Participants need growth- but how much? To save for retirement? For a house? A boat? How much is that? A calculation is a necessity. Assume you have a goal to buy a house which sells for a pleasant \$200'000 somewhere outside the luxury areas. Your current cash pile in the bank is a stack of \$100 bills totaling \$50'000 and each year you can add an additional \$10'000 to it from your full-time job. You want to buy your future residence with cash. Let's fire up a spreadsheet.

Original Balance: \$50,000							
Average growth: 25%							
Inflation 2%							
Gains Tax Rate 20%							
DATES	INVEST	INVESTED	GROWTH	BALANCE	AFTER TAX	INFLATION	LEFTOVER
2024	\$10,000	\$60,000	\$15,000	\$75,000	\$72,000	98.00%	\$70,560
2025	\$10,000	\$70,000	\$21,250	\$106,250	\$99,000	96.04%	\$95,080
2026	\$10,000	\$80,000	\$29,063	\$145,313	\$132,250	94.12%	\$124,473
2027	\$10,000	\$90,000	\$38,828	\$194,141	\$173,313	92.24%	\$159,858
2028	\$10,000	\$100,000	\$51,035	\$255,176	\$224,141	90.39%	\$202,605
2029	\$10,000	\$110,000	\$66,294	\$331,470	\$287,176	88.58%	\$254,392
2030	\$10,000	\$120,000	\$85,367	\$426,837	\$365,470	86.81%	\$317,274
2031	\$10,000	\$130,000	\$109,209	\$546,046	\$462,837	85.08%	\$393,765
2032	\$10,000	\$140,000	\$139,012	\$695,058	\$584,046	83.37%	\$486,947
2033	\$10,000	\$150,000	\$176,265	\$881,323	\$735,058	81.71%	\$600,596

Figure: Inflation Adjusted Returns

The math of this spreadsheet is simple. Balance always increases by the size of the INVEST and then the GROWTH is calculated on the latest BALANCE, meaning the first GROWTH value is calculated as the 8% * \$60’000 and the second (and all subsequent) GROWTH value is calculated as 8% * \$64’800, that is 8% multiplied by the last BALANCE. BALANCE is simply the previous BALANCE + INVEST + GROWTH. INVESTED, however, is not really doing anything- it is here for the show. Sum AFTER TAX is the BALANCE * (1 – Gains Tax Rate).

Then there is a helper column INFLATION which shows how much value did money lose due to the effects of inflation since the start- it is the buying power. It is calculated as previous value - (previous value * Inflation %). Last row, the LEFTOVER is simply AFTER TAX * (1 - INFLATION).

When considering returns, it is easy to forget that inflation does not rest and it rises exponentially, too. With a 2% of average inflation, in a matter of 20 years, it will have consumed about 30% of the

portfolio and in a matter of 35 years, cumulative inflation will have consumed about 50% yet 2% is such a small number, that only the people from the first world can enjoy. For example, in 2023, inflation in my home country Lithuania was over 20% and even so, it is considered to be the first world country- try making a chart for Turkey or Venezuela (2023) with currently over a 100% of annual inflation.

Assume putting a single \$100 paper into a high-yield savings account which can give you 8% every single year including compounding and then leave this to grow for 35 years.

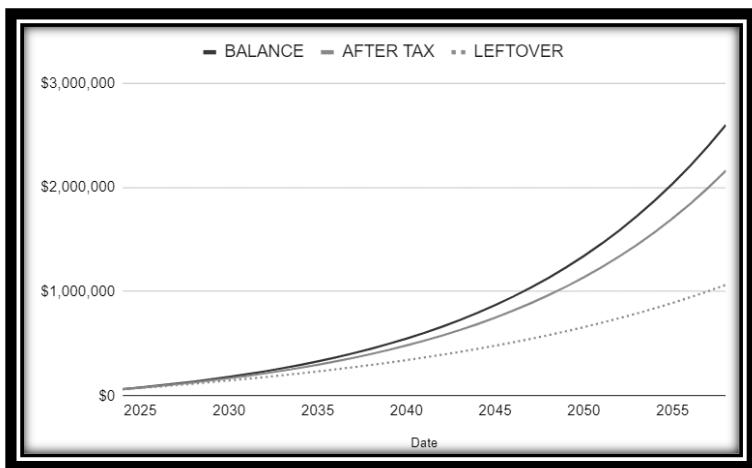


Figure: Inflation Catching Up

With taxes and inflation eating up the investment, with an average annual return of 8%, you will be able to save up for a house in 10 years. And if you notice, the amount after tax money that you will have in 10 years that is inflation adjusted, is only 35% more than the actual amount of money you have invested! In reality, the 8% average US stock market growth allows you to outgrow the inflation just by a

bit and when you factor in the crises from time- there is only a tiny room left for error!

So, what are you trying to save for? For that, how much money do you need? Create yourself a realistic calculation. Using the example above, given your situation is all the same, but you want to achieve a house in 5 years. How big of a return do you need to accomplish it? After playing with the spreadsheet, it returns an answer of 25% annual! This is your financial goal! You need 25% annually for 5 years. But is this realistic?

Lastly, the way the return is measured is important too. Due to the drawdowns and the compounding effect, arithmetic (most used) return is a misleading number. It is illustrated with a simple table, in the figure below.

Average Return	1.67%
Geometric Average	-0.57%
Market Return	Index
	100.0
10.00%	110.0
10.00%	121.0
-40.00%	72.6
10.00%	79.9
10.00%	87.8
10.00%	96.6

Figure: Geometric Average

When we investigate the index (the actual movement), it has lost 3% in those 6 periods, which, divided by 6, means that the actual

average return was something negative. That being said, if a simple formula is used to take an average of the market returns, it would yield the average return to be 1.67% which is absolutely not correct as we know that the actual return was clearly negative. The actual return is better described by the geometric average, rather than a simple average.

The geometric mean is the n th root of the product of n numbers, i.e., for a set of numbers a_1, a_2, \dots, a_n , it will be defined as:

$$\left(\prod_{i=1}^n a_i \right)^{\frac{1}{n}} = \sqrt[n]{a_1 a_2 \cdots a_n}$$

Figure: Geometric Mean Formula

For this reason, when judging a performance of a stock, portfolio or an investment, it is important to look towards the geometric average to know the full picture. The bigger the gap between simple versus geometric averages, the larger extreme returns the investment has more risk.

Before going in and setting your expectations, think about it in a logical sense. If historically the stock market has returned 8% and you need 15% to reach your goal- is it actually possible, considering you are aiming to buy a stock basket within the index? A reality check is a must.

Risk. It is the price MPs pay for the opportunity to make money. In other words, it is the chance of losing money. Risk can be measured

as the maximum loss that is occurring or has occurred in the past, which is an indication that it can occur in the future. There is a lot of ways to measure risk, the most popular one being the maximum drawdown. Max Drawdown is calculated as a maximum loss from a peak to a trough in percentage. The illustration is shown below.

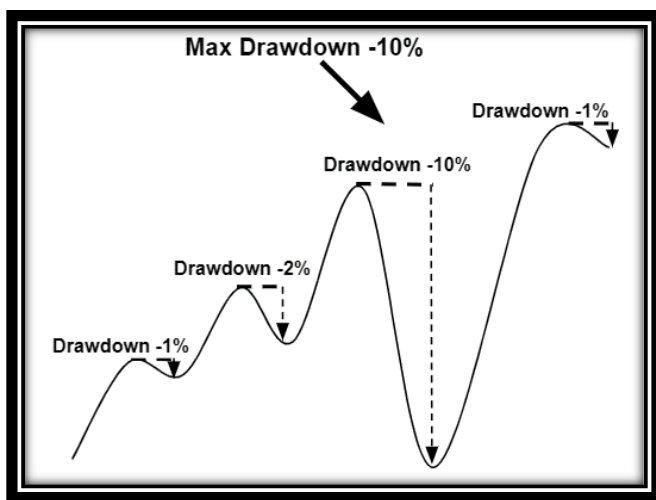


Figure: Max Drawdown

Risk, usually, has a direct relationship to the return. Normally, a seek for a higher return will make the risk higher too, and the reverse characteristic should hold true, as later chapter will discuss. There are certain risk thresholds traders may aim to have in regard to the return they aim for. For example, S&P 500 brings around 20% (with exceptions) of risk given an average of around 8% of reward annually. This is not that ideal- as traders should always aim for the risk to be smaller than the return but the S&P 500 case is okay, because it always goes (it did historically) into all-time highs at the end of the day.

Problem with risk is that a single large drawdown can mess up a portfolio beyond repair and investors will need a lot of time to recover from it. Moreover, the larger the drawdown, the harder it is to come back to the initial level. While 10% or 20% is still manageable, by 25%-30% it starts becoming increasingly hard to ever reach the initial level. The psychological effect will come into play, and it will make the job even harder. Table below demonstrates this.

Drawdown	Return To Comeback
10%	11%
20%	25%
30%	43%
40%	67%
50%	100%
60%	150%
70%	233%
80%	400%
90%	900%

Figure: Comeback Table

The return to comeback is calculated with the following formula:

$$100 / (100 * (1 - \text{Drawdown})) - 1$$

Market participants should never allow the drawdown to go beyond 20%-25% although in some cases, such as for the long-term S&P investors, it may be okay. At the end of the day, it depends on the individual preferences.

Looking into the aftermath of the 2008 global financial crisis, even index fund investors found themselves below the water with a 56% drawdown with some wiped out completely. Yet, in the midst of chaos the government came up and announced unprecedented economic measures to stabilize the economy, such as the largest money printing event in modern history which set the market for a turning point. With enormous governmental intervention, the market had to climb up almost 135% up to recover from the 56% drawdown and thus it is no wonder it took 4 years to reach the new all-time highs.

Period. Late 70s. You're trading Consolidated Edison Inc, a utility company providing services in New York. During the last several years stock has been re-bouncing from a -80% decline, rocketing up to \$6 from \$2 in a matter of 3 years. It's running profitably and New York is becoming a leading world financial center, coming out from a decline in population.

Your strategy is to buy every time a fundamentally strong stock starts climbing higher after a small decline, so you are looking towards the Edison company.

1978, January. Stock drops 13% and in a couple of months starts bouncing up which is where you enter.

1978, November. You are currently +10% but suddenly, over a matter of three weeks stock drops to your initial entry and bounces right back up to the +9% level where it stays for the next half a year. There was no real opportunity to buy, nor it ever reached a significant profit, therefore you hold.

1979, April. Stock starts dipping and in the next 3 months it declines and bounces right back up to your +10% level, doing the same as in November last year- there was no good entry for you, nor an exit.

Fast track to 1981 March 2nd and the stock is currently at 5% profit to your original price- there were no places to enter nor to exit in the last two years! It has been bouncing up and down in a tiny $\pm 5\%$ range giving no opportunities to trade for which reason you have an unchanged position and still hold.

1982, April. One year later, stock has broken out and it currently is trading at \$9.55, that is more than 60% from the 1981 March level which is where you exit with a rather strong return.

Over a matter of 3 years your strategy had no opportunity as the stock was flat, when it started to move and did 60% in a single year. If you had a time-based goal of having some returns per year, for example 20%, then for three years straight you would have missed the goal, likely exiting the position after the first year. An alternative approach, however, would be having a transactional goal, meaning your goal could have been to make the same +20% or more on that trade which you would have reached, although it took its time. For this reason, the difference between a successful trade and an unsuccessful trade can sometimes be the way its period goal is defined.

One way to make sure the reward goal is aligned with the period goal that is time based is looking historically into how instruments or strategies have performed. For example, S&P 500 has historically returned around 8% over a span of 1 year. That means that every quarter, S&P 500 has returned around 2% historically. While history

should never be trusted to predict the future, this is the only thing we often have.

A way to make sure the reward goal is aligned with transactional period goals is to either investigate how historically strategy has performed and the average trades it had or to simulate the average trade which is a more advanced and professional way of doing it and so it will be covered in the trade cycle entry chapter.

Period goals differ in trading versus investing with the line between them being unclear. For investing, most of the value lies in the appreciation of security over time, as the legendary investor W. Buffett says: “The stock market is a mechanism of transferring money from the impatient to patient”. In trading, however, time is not as important as trades are performed over a much smaller amount of time by default and they often depend on market conditions rather than time.

To understand the difference between a fast versus a slow trading approach, the topic of leverage must be understood. In simple terms, it means using more money than there currently is. The core concept behind using such a method is to amplify the returns. Assume there is \$1000 to invest. An additional \$1000 can be borrowed from the brokerage and then invested immediately. Now the portfolio holds securities worth \$2000, while the actual money it has is still \$1000 because the borrowed \$1000 will need to be returned.

Next day the price fluctuates and closes 1% up for the day. The position was \$2000, therefore the portfolio had made \$20, however, the actual amount of money the portfolio has is \$1000, meaning it had made \$20 on a \$1000 account, translating to 2%. In other words-

portfolio manager has borrowed 100% of its capital so the leverage was 1:2, or 200% (100% + 100%) doubling the fluctuations.

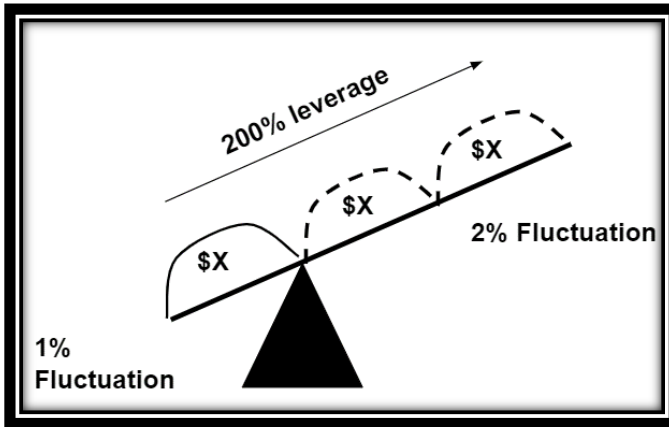


Figure: Leverage

Similarly, leverage increases the possibility of large losses if the price moves against the position. Given returns are increased- the losses will be too. In addition to that, leverage costs interest, as it is essentially a loan. Of course, derivatives such as options, which employ high leverage shouldn't really be considered a loan, but just like a loan has interest costs, options and other derivative instruments have time value costs, which could be said is somewhat close.

Given that the leverage costs are 5% annual, and a trader will hold the position for a full year, then in order to break even, the position will have to rise by at least 5%! In a situation where price is moving either for or against - leverage costs introduce an additional negative impact to your position. For this reason, using a high leverage, such as 1:10 or 1:20, a 5%, 10% or larger adverse movement in price can wipe out the whole account! On top of that, leverage costs make long-holds costly. The conclusion is due to high costs and the risks of

leverage, people tend to use less leverage with a bigger time horizon and in reverse- larger leverage for more frequent transacting.

One of the problems traders face is that the market does not give opportunities equally through time, therefore reaching time goals, such as making x amount of profit in a month, during certain market types may prove to be difficult if not impossible. Given a case, where market conditions are strongly against the expected trading conditions, traders should choose to not trade so the time goal could not possibly be achieved. They could expand the trading conditions they trade in but if they do so, it is expected that the performance will decrease because it no longer is the perfect environment for the strategy. It leads to the idea that traders should not expand their trading conditions purely by the pressure of needing to make trades and this is what the transactional goal solves.

On the other hand, a corporate traders position is expected to deliver results every month or a quarter, so the time goals are enforced. It is logical to have several different strategies which cover different market conditions, to not stumble across a trading environment without a possibility of making trades.

Technical Goals

“ After a few days I said to myself, "I can't trade this way here. The ticker doesn't help as it should!" But I let it go at that without getting down to bed rock. I kept it up, having good days and bad days, until I was cleaned out. I went to old Fullerton and got him

to stake me five hundred dollars. And I came back from St. Louis, as I told you, with money I took out of the bucket shops there, a game I could always beat.

I played more carefully and did better for a while. As soon as I was in easy circumstances I began to live pretty well. I made friends and had a good time. I was not quite twenty-three, remember; all alone in New York with easy money in my pockets and the belief in my heart that I was beginning to understand the new machine. I was making allowances for the actual execution of my orders on the floor of the Exchange, and moving more cautiously. But I was still sticking to the tape, that is, I was still ignoring general principles; and as long as I did that I could not spot the exact trouble with my game.” - A cut from a book *Reminiscences of a Stock operator* by Edwin Lefevre.

Edwin, in his book talks about neglecting the general principles and rules even though he was being careful. He acknowledges the need for a systematic approach which in the case of this book is the equivalent for a trading plan. Even though he was clearly reaching some of the financial goals, possibly without even realizing it, he later understood that it was due to the euphoric market conditions and not really his trading.

Financial goals are the final result, but there are goals to achieve, so that for an investor it is possible to reach its financial goals in the first place. Think of it this way: If you do not know how to trade, then for certain you won't reach your trading goals. Trading should be the repetition of the trade cycle and it must be described within the trading plan, so it does mean that the technical goals are really the goals of the trading plan or in other words, a good trading plan will lead to achieving the financial goals related to trading. If you think that you

can achieve your financial goals by trading some methodology, such as the Elliott Wave Theory, which is a popular theory based on the idea that collectively, humans move in several waves, then the goal of your trading plan is to guide you towards the best Elliott wave theory based trades. After you have a solid trading plan then all you have to do is execute it as often as possible and you will become an Elliott Wave practitioner with a possibility of achieving your financial goals.

A trading plan is meant to guide traders (and investors) to making a perfect trade repeatedly which implies that it must be space-grade consistent. Making a perfect trade involves having each component of the trade cycle aligned and thought off to the last detail- the final goal of the trading plan is the alignment of its each part towards the capture of the perfect trade. It is clear as day that a trading plan is worth nothing if a trader cannot keep repeating or following it- plan should not only be super-aligned, but it should help the one using it repeat it. The formatting, the wording, the rules- everything! The user of the plan is balancing between the alignment with the trade cycle and the ease and intuitiveness for himself (or others) to follow the plan. For this reason- psychological part is the most important as with a low will, no self-esteem or emotional problems it will be almost impossible for a trader to follow through during the risk events.

“Control gained by enforcing obedience or order” - Definition of discipline, by Merriam-Webster.

As the contestants in a mad and disorganized environment, where absolutely no one can consistently predict anything, traders at the very least have to control themselves, like the monks can control their

breathing! They have to enforce obedience and in the context of trading, the plan must somehow help do this because as one might well know- people are not that disciplined when it comes down to enforcing behaviors onto themselves! Most people don't even have the will power to enforce a healthy diet on themselves. As of 2024, in some US states the obesity rate is more than 40% of the population, so clearly there is a problem with both discipline and ignorance. What alignment and discipline brings, is a repetition of similar behavior, and this can also be named as consistency. Repeating the same things, in a deterministic environment will yield the same outcome. Of course, the market is not deterministic- the exact same pattern can yield wildly different results, in which case the aim of repeating something over and over again, in a market environment, should be to the aim of having a similar outcome on average. Given a trader or an investor can pull off the average outcome as a profitable trade, then the trade repetition should give him (her) a positive return.

Alignment. A key objective of a trading plan is the alignment toward the perfect trade cycle. As defined by standard dictionaries, alignment involves arranging elements along a straight line- in trading, this 'line' represents the perfect trade. Repeated execution of such trades moves the trader closer to their desired financial outcomes.

This brings up the challenge of differentiating between well-aligned and poorly aligned trading concepts. A well-aligned concept or rule, obviously, results in more profitable trading compared to a poorly aligned one. However, it is essential to acknowledge that no trader can maintain a perfect record; losses occur at varying frequencies. The goal, therefore, is to maximize gains from perfect trades and minimize losses from unsuccessful ones, thereby the trading plan should aim to optimize the average trade.

A practical approach begins with defining what constitutes a perfect trade. At this stage, without yet diving into specific strategies or types of trading, the trader should write down their picture of a perfect trade. This could involve considering price movements, fundamental information, and economic and political environments, among other factors. Initially, the trader might list 20 to 50 elements that describe their ideal trade. After reviewing these elements, they should focus on the 10 to 15 most critical aspects and refine them into actionable rules. The next step is for the trader to identify these patterns in the market and attempt to draw or conceptualize such scenarios independently. To evaluate the effectiveness of a trading rule, you can consider several questions:

- I. Does the method align with the profile of the perfect trade?
- II. How can you determine if this method fits the perfect trade profile?
- III. Is this method logical in the trader's specific context?
- IV. What are the potential drawbacks of using this method in the trading plan?
- V. What are the major advantages of this method?
- VI. What potential outcomes, both positive and negative, could result from using this method?
- VII. Will this method complement the trader's character, skills, and availability?
- VIII. Does the trader fully understand how to utilize this method?
- IX. When does this method perform best, and when is it least effective?

If the method passes all or at least many of these checks, the trader must still prepare for the inevitability of negative trades. To ensure the trading plan is aligned with the average trade, one could simulate various scenarios, including positive, negative, and neutral outcomes.

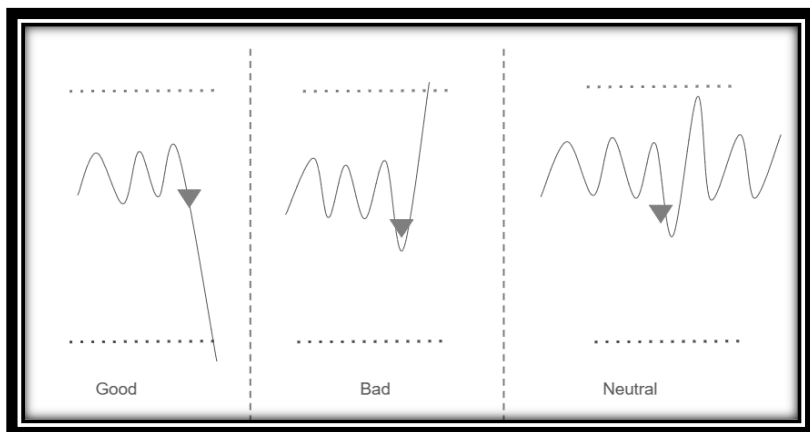


Figure: Trade Scenarios

By assessing how the rule(-s) performs across these scenarios and selecting the rule that performs best, the trader can align their strategy towards optimal results. Once the rules of the trading plan are aligned, one must follow them.

At this moment in time, you do not need to know the concepts or the methods- we will discuss it soon! Simply remember the idea of alignment and then have it in the back of your mind when reading other chapters.

Discipline. “Well, sir, in four days of successful pyramiding, Roberts' account showed him a profit of fifteen thousand dollars. Observing that he had not put in a stop-loss order I spoke to him about

it and he told me that the break hadn't fairly begun and he wasn't going to be shaken out by any one-point reaction. This was in August. Before the middle of September, he borrowed ten dollars from me for a baby carriage his fourth. He did not stick to his own proved system. That's the trouble with most of them," and the old fellow shook his head at me. - A cut from a book *Reminiscences of a Stock operator*.

Edwin knew what was going to happen. You too know what is going to happen if you do not stick to your plan. Discipline means following through your plan across all conditions, does not matter what others say or do, it does not matter the profit or loss and you should not even pay attention to the market! - You know what you have to do! Obviously, this assumes that your trading plan works.

But how do traders force discipline? As discussed, prior, they must trick (convince) the mind that only by keeping up with the trading plan can they achieve what they want together with a very powerful motivation from within.

Sometimes, due to our nature as humans, we get frustrated beyond basic self-control- how many times have there been a person breaking his monitor when his account was liquidated? During these stressful moments, humans are often guided by emotions, not logic. So how can we follow the plan when we don't want to follow anything, yet our mind insists on trading!? In reality, we shouldn't. But a rule that some traders employ is using different accounts for trading- one that allows a big leverage but has a much smaller amount of funds deposited than the regular one and then the regular, main one. High-leveraged small fund can be referred to as the gambling account- go ham on it. Max out the leverage constantly. Enter bad trades, average into the trend! Lose money! And yet it will not hurt that much, but it

will protect the main account. This is not ideal as having a gambling account allows a trader to gamble and it builds a culture of trading with no rules. At the end of the day, discipline to follow through the plan is a consequence of a multitude of positive personal emotions and a state of mind. This comes from within, and a trading plan won't really force it. The best that a trading plan can do is be crystal clear, laser focused and made by the trader with the biggest attention to detail.

Repetition. Superior traders like to say that trading is boring. Do you know why they say this? This is because trading is repetitive. All they are doing is repeating the trade cycle over and over again but what keeps every trader going is looking at their bank account afterwards. The word repetition implies consistency which trading plan must force. Consistency will bring emotions down, give trust for the process and as a side effect, consistency will create a wonderful track record which, if that's a goal, will attract investors. If a market participant can be consistent in the most inconsistent and chaotic environment- that screams professional.

A trading plan should never be written in plural form, because it is difficult to repeat many things, although everyone likes to say that they are proficient at multitasking. What every military instructor will tell, however- they are not. Instead of using "All stop losses must be..." a "Stop loss must be..." should be used. When using multiple or complex rules that cannot be simply put into a single sentence, a trading plan may refer its reader to another document or an appendix such as this sentence: "follow the XY guide for putting stop losses".

That leads towards the idea that not all the trading plans must be inside the trade cycle repetition loop. For example, goals, naturally,

don't change nor they must be repeated. When writing a plan, you should make sure to know where the repetition part is and where you should follow static statements. Ideally, of course, the trading plan should only be focused about the trade cycle, however this is your plan- personalize it. Some people, for example, may need inspiring quotes or a picture of their kid to find meaning and have a reminder of why they are doing that.

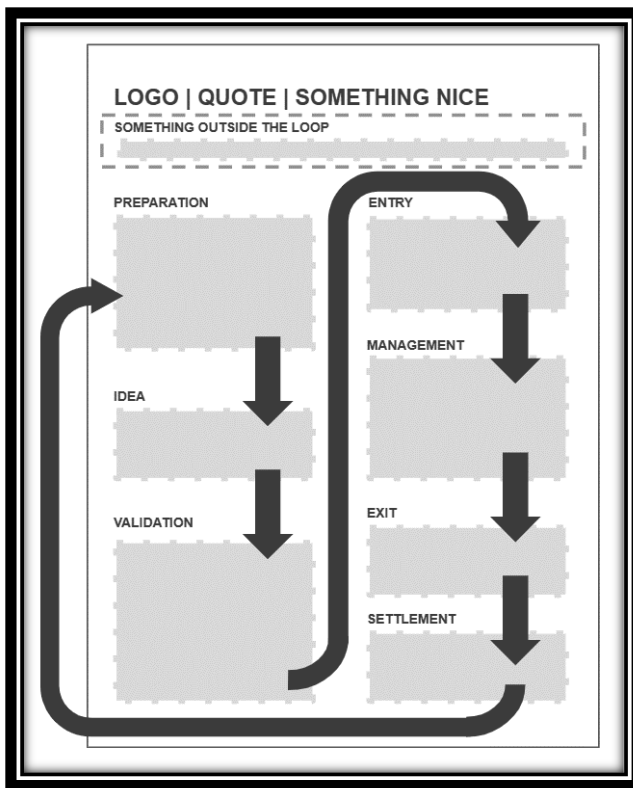


Figure: Trading Plan Outside Loop

Financial goals are the waypoints on the map and the fastest way to get to the waypoints is to follow the line of the smallest distance towards them. The goals that have been discussed throughout this

chapter have to be well thought off and discussed within yourself. At this point in time, you do not have to know exactly what your style is or even your exact goals as these are the topics of the next chapters.

The Trade Cycle

Trading Floor Of Horrors

February 2021, Friday- 7pm, I get a message on my social media from a guy I've never heard about.

“Hi, we’re searching for traders for a company XY which is related to a company YZ. Could we put in the time to discuss?”

“Hi, sure. Will next week work for you?”, I answer back without any hesitation.

“Could you do tomorrow at 3pm?”

A job meeting tomorrow- on Saturday? Is this recruiter nuts? I quickly look through the internet for the name of this guy, let's call him Jordan Ray. First article throws out that Jordan is the CEO of the largest company in the whole region: “This has to be a joke”- I mutter.

“I think we can, here's my email: xxx@gmail.com” - Yet I write without too much thought.

“Ok, thanks”

And that was it. Little did I know I was getting into one of the most unique experiences I've had for the time. Next day I talked with Jordan for a bit, then had several other calls with the team over the next couple of weeks. A billionaire with possibly the largest private capital fund in the entire Eastern Europe is building a trading shop and his right-hand man is asking me to come over to be a trader. “There has to be something wrong about this”, I thought at least 10 times-

And there was. The billionaire was impossible to work with, but I did not know this at the time.

I was 21, still going to the school which suddenly became a problem- I either go all-in to a shady trading shop with Jordan talking about 8–12-hour workdays including Saturdays, or I continue studying like the great student I was. The choice was as clear as a day as the question revolved around working as a full-time trader for a billionaire or learning some information which I forget the moment the class is over. I set up a plan to study just enough to get a passing grade. To be fair, when I got accepted into that trading shop, I barely knew anything about where I am going in, nor who exactly is funding or whose money was that- I just wanted to trade.

One month later.

Prestigious office, Monday, 11am. First ever meeting after getting accepted. I am looking through familiar faces from the job interviews when an old-looking gent enters a room, and it all goes silent within a second.

“Well,” He looks at me and scans me from my toes to the highest peaking hair on my head.

“You must be Matas”

“...Yes?”, replying more silently than I needed to

“Tell me Matas, what are 20 things you know about us?”

Oh God that I was not prepared for. And who the hell was this guy in the first place?!

“Uhm. I mean. Well, this group is the biggest one in the Baltics region”

He puts his old arm out and folds one finger off. “Nineteen more to go”

That, I can tell you, felt like a very long period of time and you can bet I did not finish listing out all the 20 facts before I started repeating myself to get out of this, what felt like a super awkward situation. Let’s call him Ned. He was the billionaire running the shop, as I later got told.

Fast forward a couple months and I am trading S&P 500 futures with a portfolio size of \$1’000’000 which, for a student, living in a \$60 dormitory is quite a significant amount of money. The problem is- I am consistently losing money. I am talking about a perfect downwards sloping chart, it’s a catastrophe.

But I was the youngest of the four traders in the shop and three of us had perfectly downwards sloping account balance graphs, so I was under no immediate big pressure. That also meant the floor was burning money as if it grew on trees, which, to be fair, for the billionaire it did, that is why the shop wasn’t getting killed in the first place. The only trader that was consistently making money was Jordan, the first guy I spoke with and as much as I knew about his trading- he had the simplest approach of us all.

Four months into the trading and I was already negative \$35'000, that is -3.5% from the portfolio. What is worse, it's during a bull market! Nasdaq made like 10% in that period of time! I get a call from Jordan:

“Hey Matas, so we need to talk about your results”

I knew this moment was going to come, it was just a matter of time and I was preparing for the worst.

“Listen, man, your timing is pretty good, but you are doing absolute nonsense most of the time. Just stop doing stupid things, like exiting and then re-entering at the same spot, that doesn't make any sense”

“I will...”, said in embarrassment.

“If you don't, we will have to say goodbye to you”

So, there was that. I didn't know what I would change or do. I just had to do less “bullshit” which I had no clue how to. Surprisingly, in a matter of the next year not only did I manage to become profitable, but the meeting was the exact spot when my balance reached the lowest point and started climbing back up. So, what happened?

Without even first realizing it- I became more systematic by trying to not do illogical things. Each day I had profit, I would stop trading and go out, meet friends, and do sports. Sometimes that meant a 30-minute workday, excluding a meeting here and there. Each day I had a loss of around \$1000, I would also quit for the day. This led me to not care about what the markets were doing in the meantime and reduced the component of stress to a level not seen since high school. In addition to this, I started implementing wider stops, operating on

higher timeframes and employing other extremely simple rules which seemed to work more often than not.

Finally, markets were rising together with my account balance. When markets would fall, because I never had any trades left overnight and I would always exit when I reached a certain small loss, I stopped having huge risk, therefore my account balance became quite steady, looking even better than the benchmark. This approach worked for me but what I was essentially doing was buying every market dip at one place or another and hoping for it to bounce back which for the 2021 bull market worked like a charm! When the 2022 came, however, the market started falling on the fears of inflation and rising rates, so buying a dip suddenly became an awful strategy. By then, our initial trading shop of 4 traders had contracted to only two- me and Jordan, so what happened to the other two?

Several months ago, a guy named Maurice who was one of the traders, decided to quit as he was making only a tiny profit for which his account balance was practically staying in one place- he was trading on breakeven. Maurice was possibly the best Elliott Wave Theory practitioner in the whole country with an incredible eye on picking up the theoretical patterns which to be fair, most of the time worked like a Swiss watch! Maurice had quite a large \$10'000'000 funded account, yet his position sizes were often as big as mine even though I had a ten times smaller balance. When we would look at the charts, he would always present his patterns on very small timeframes, looking onto very tiny moves, which I knew he also traded.

One of the tasks of mine was to do the accounting of all traders so I could actually see how all of us traded. The main difference between Jordan and Maurice that I easily noticed at that time was the position

size- Jordan would often go with large orders and stay in a market for a long time, where Maurice would go in with a tiny amount, which he would both increase or decrease, though slightly and he would do that often- matter of minutes. He seemed to lack confidence in his ideas which is similar to what I was having in the beginning, before the “no bullshit” talk. At that time, I did not understand, but looking at it now, it is obvious why Maurice was moving nowhere- his execution was incompatible with his strategy so even with the world-class ideas he couldn’t make any money.

In my case, however, I would go for a 100% in, 100% out approach as this did not require lots of focus on the market and it meant I could leave my position and go for a walk. My ideas were not better than Maurice’s by any means, but I executed them with much more trust in my decision- because I did not care about what the market was going to do as I had my targets and even if they were set horribly, I still waited for them to be taken. To be fair, any superior trader will tell that leaving a position to be on its own is a horrible idea, but it seemed to work for me. My strategy was okay-ish for a rising market, yet it would have bankrupted me and anyone who traded it during a bear or a flat market which I bumped to in 2022, but because I had a decent execution, I could win big on the bull markets and lose only a bit on the bear ones.

The last trader, which was actually the first one to drop out of our small trading shop, was called Aron. He was the oldest, most experienced and was granted the largest portfolio, around \$15’000’000. He made his analysis, primarily focused on the Nasdaq Composite index and after a couple of months of starting to trade, he became very certain that the Nasdaq is going to decrease in price due to some economic factors, in other words, he became a big bear. This is where he made a \$10million short which, to his surprise, was

already in the negative territory after an hour of the position opening. The next day market kept climbing, just like for the rest of the week and it closed around +2%, meaning Aron was around negative two hundred thousand. It is important to note that the billionaire placed a hard limit- whoever loses 5% is instantly fired which is probably the only okay-ish rule he implemented.

A week after the “big short” was opened, Jordan started the regular weekly meeting.

“Aron, your position is currently in the quarter of a million loss, do you have a plan?”

“Yes, the market is overextended” While showing a bunch of charts, “And if this week it is not going to reverse, I will have to decrease the position”

During the week, the market indeed fell back about -1.5% where his position came close to being profitable, but then quickly reverted and of course he did not sell any of his position. At the end of the week, he was again at around -\$200’000. Next week came.

“According to this news and those indicators, this week market will start going down”

Then the next week came.

“I will decrease my position when the market...”

And the next week.

“The position will...”

He reached his risk limit of -\$750’000 and had to get liquidated, then fired.

The trading shop we were running was a chaotic place with very limited risk management to begin with as it was managed by a billionaire who made his money in the supermarket business, so he had no idea about managing a trading shop. Aron, on the other hand, took it to the next level and started treating his trading as no trading at all! His idea may have been okay, but there was no execution- he did not have any rules of what to do in case of a loss and I doubt he had an idea of where to exit even if he had reached a profit, too and each week he seemed to come up with new arguments why the market is climbing and why it should fall. The arguments were quite convincing, at least to the group of novice traders, but the results spoke for themselves. What none of us realized by then, is that his idea had a wrong market environment. It would have worked extraordinarily in bear or neutral markets, but shorting with no point of exit in a strong bull atmosphere? Aron married his position. When he realized that his idea was wrong, it was already too late with no point in turning back.

All the traders were smart, but the way we executed our ideas was the factor that determined the final outcome. All this trading shop paid attention to the strategies, indicators or market news without any regard to the way those strategies were put into practice. Maurice would have been an excellent trader if he used a significant position size and waited for his actual exit, traded a more suitable timeframe. Aron may have been an excellent trader if he used his ideas to pick individual stocks based on fundamental research rather than the market and used stop losses. I came to realize that the profitability of the trader depends on the way the strategies are implemented, more than the quality of the strategies themselves.

Preparation

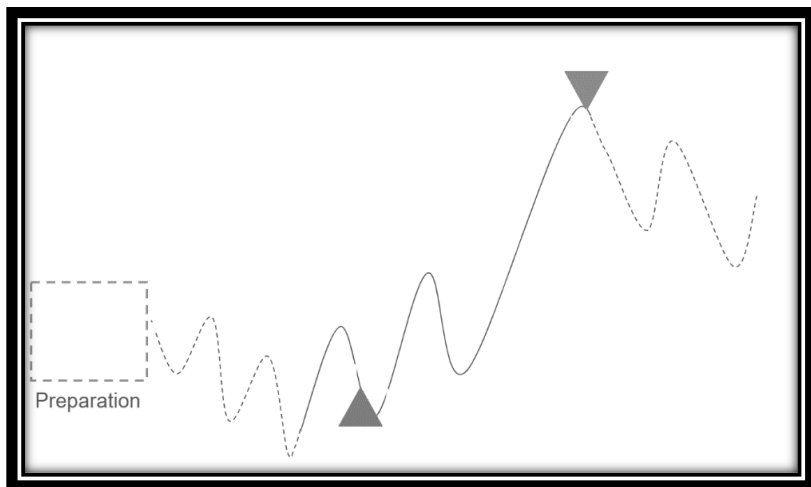


Figure: Preparation

Preparation is the first part in the trade cycle- it is what creates the environment for the idea of the trade to originate from. A strong preparation will help to generate plenty of great ideas so that the traders can only choose the best ones to proceed. It assumes that preparation means looking into charts and analyzing data and while it is a big part of it- that's not all. The analysis, interpretation, and collection of the data is done by the traders and investors, who are human and make mistakes. It is logical that firstly humans must prepare themselves psychologically and physically for the best performance, so that the preparation which leads them into the generation of ideas is maximized in efficiency. For this reason, market participants may split the preparation into two distinct parts: The technical part, often referred to as analysis or research together with the collection of data, interpretation and the psychological preparation part to make sure traders are in the best mental state for a good judgment.

Technical part may include firing up the computers, software, selection of instruments; various analysis, reading the news and really, everything that involves understanding the context within which the trader operates. Additionally, preparation must be linked to the strategy. For example, given that the trader is trying to catch a big reversal that day and he thinks that the catalyst could be some news, level or a pattern, then during the preparation phase he would look through the news, note the times for the important data releases. He would also use various techniques to map out the most important price levels and currently visible/possible patterns- there must be a connection towards what the market participant is aiming to find. The preparation part of the trade cycle must lead him into the idea stage. In this case, it would be a waste of the resources to go into Reddit and start reading the educational posts, because it is not aligned with the market reversal trader is aiming to catch.

The psychological part of the preparation is more generic with the goal of being in the most possible productive state of mind. Truth is, the exact routine for your psychology is completely dependent on your character and bad traits which you try to mask, good traits you want to shine the light on therefore figuring it out is mostly up to yourself. This book can only shine some light on the framework.

Arming The Main Gun

Trader psychology is a crucial, if not the very most important factor in determining whether their analysis and judgment is going to be successful. This means making sure the chances of making a great decision are maximized or in other words, it means minimizing

the probability of making a bad decision. Usually, the more focused the traders are, the better trading decisions they will make. That is, if they are focused, they will follow their procedures, be meticulous, productive, efficient and so forth leading to a positive impact on performance. Of course, the elimination of biases, fears and other dangerous emotions to trading is what matters the most but the first step to any of this is focus. A list of necessary things that make a person focused are:

- I. Setting clear goals: This is the trading plan
- II. Distraction-free environment
- III. Time management: Having breaks, scheduled time blocks
- IV. Prioritization of tasks
- V. Organization
- VI. Mindfulness: Techniques like meditation or deep breathing
- VII. Adequate sleep: Can't be focused when tired
- VIII. Hydration and healthy food
- IX. Excellent physical shape: Meaning adequate exercise
- X. Limits on the caffeine and sugar

When I was attending Jordan Peterson's, who is a world-famous clinical psychiatrist, speech last year, Jordan was emphasizing the importance of being with your shoulders back and the chin up. He also spoke about this in his book "10 rules for life" and what he tries to portray is the fact that our pose has a direct influence on our attitude and thus how we behave. What you wear is also important to how you see yourself- wear a suit and you are likely to behave differently than

if you wore something casual. If you want to act in a professional manner- keep your shoulders back, sit straight, don't be afraid to dress up even when alone at home. Such tricks will psychologically help you make better and more professional decisions!

Combine this with a good night's sleep, social life, healthy food and plenty of exercise and you are as focused as you can be. By sitting professionally, while dressed, and in a great physical shape, without distractions- you have a bigger chance of making a positive decision than by lying in bed after a party, trying to make the same choice. Ideally, such rules should find their way into the trading plan.

Analysis Layering

As I have later learned, the reason my and Jordan's strategies seemed to work, was that we were using them in the correct market environment. The strategies themselves were not refined nor advanced but simply by using them in a good context, we made them work. If we would have continued doing the same over the next year, then our profit would have been negative, so what kept us profitable was doing something that was designed to work in a certain market environment, during the certain environment.

This lesson implies that the traders must understand the environment of the market and the strategy in order to align those two aspects and become proficient, for which reason all market participants should split the analysis and preparation towards two distinct parts- analyzing the market context and analyzing the strategy

specific aspects of the market. It is often referred to as the Macro and Micro analysis.

Macro is the environment of the specific instrument or a group of instruments within which they are located- a stock's environment is usually an industry which is a part of the nation's stock market. Macro might also be a geopolitical panorama or the general feeling of the whole market, namely the sentiment. Micro preparation, however, is the instrument-specific actions, such as looking at the historical price of a stock to see patterns, valuing credit risk for a bond of the company X or analyzing the sentiment of the spot Corn market to see whether the strategy allows for any actions.

Macro preparation. During my time at the shady trading shop and later in the career, I have learned that strategies are dependent on certain market environments. This already points towards the conclusion that macro analysis holds paramount importance because to make the strategies work, one must correctly identify the market environment, which is done by the macro analysis. Therefore, the essence of macro preparation lies in discovering whether the prevailing conditions are positive to the strategy's efficacy.

One of the traders, who at that time was the head of option trading at a trading floor of around 200 people, was explaining how every single day he tries assessing the risk in the markets and simply being on top of the narrative. It was his routine for the last 10 years and this routine helped him develop a strong feeling for the market which became a part of his trading philosophy- the way he thinks about the markets. It was his daily assessment of macro environment in terms of risk, that contributed in his success.

Investors can analyze the relationship between the market and the instrument by looking, for example, into the S&P 500 versus the individual stocks and how they move together (if any). One might also investigate bond indexes or major yields such as US treasury and see how the smaller, less traded bonds move in relation to them. What traders are searching, is the relationship between the overall market and the individual component in order to test out the hypothesis that the movements of the individual component are largely dependent on the market.

To validate the hypothesis, it is important to address two key questions: First, does the instrument typically follow the same trajectory as the overall market? And lastly, is there a relationship between the speed at which the instrument moves and the market fluctuates? One answer aims to yield whether the market and the instrument exhibit analogous patterns over time, while the other seeks to determine if they share common underlying factors influencing the pace of price movements. The two primarily used metrics are correlation and beta.

Correlation is defined as any statistical relationship, whether causal or not, between the two random variables or bivariate data. Simplifying this and re-stating it in other words means that correlation refers to a connection between two sets of data, whether it is because one directly affects the other or not. The stronger the correlation coefficient- the more closely two data sets are related. Correlation coefficient can only be somewhere between -1 to 1, where -1 means that there is a perfect negative correlation, meaning if one data set moves up, then the other must move down. A 1 tells us that there is a perfect positive correlation, meaning both data sets are completely identical and 0 means there is absolutely no connection- the two data sets are random to each other. A 0.5 is called a moderate correlation.

Beta is a concept in finance that measures the expected move in a stock relative to movements in the overall market. While it is most commonly used for stocks, it may be used in bonds or crypto too. Beta measures the sensitivity of a stock's returns to changes in the overall market returns. A stock with Beta 2 is expected to move 2% if the market moves 1%. Likewise, given Beta smaller than 1, stock would be expected to move less than the market. Given a stock with Beta -2, it is expected for the stock to move -2% if the market moves 1%. By definition, the value-weighted average of all market-betas of all investable assets with respect to the value-weighted market index is 1. In more simple terms, theoretically, when averaging all betas of the stocks of the index by how much they weigh in the index, the answer be a 1, so it is expected for the average Beta to be close to 1.

Hypothesis can be validated if found that it is expected for the stock to have a significant correlation and a Beta that is around 1. The expectancy in statistics is often the average value, therefore if the average stock is expected to have a strong positive correlation to the index and a Beta similar to the index, then it may be concluded that movement of the individual security is largely dependent on the stock market. While correlation does not imply causation, it is clear to assume that if the market and the instrument inside it moves similarly, most of the time it will be the market which moves the single security, not in reverse.

To analyze the relationship, I took 23 years (2000-2023) of historical daily price data of each current (as of 2024) S&P 500 component stock and calculated the correlation and the Beta coefficients for each stock to the S&P 500.

Stock	Correlation	Beta
A	0.97	1.23
AAL	0.10	1.61
AAPL	0.96	1.13
ABBV	0.93	0.57
ABNB	0.33	1.34
ABT	0.98	0.63
ACGL	0.94	0.66
ACN	0.99	0.92

Figure: Snapshot from the Correlations & Betas

The average Correlation between the stock and the market was 0.84, meaning stocks on average exhibit a very strong positive relationship to the market! And the average Beta was 0.996, which is very close to the theoretical value.

Probability of Beta being lower than 0.71 or higher than 1.28 is only around 32% which means that 62% of stocks have a beta that is very close to 1, which is a significant majority, therefore it is expected for 62% of stocks to have pretty much the same volatility as the index. Probability of Correlation being lower than 0.58 is only 16%, so really, in the vast majority of cases, in the last 20 years, stocks have moved in a very close relationship to the index.

Having said that, it still does not validate the hypothesis, as it is widely known that stocks inside indexes have a survivorship bias, which occurs when one mistakes a visible successful subgroup as the entire group. In reality, over the 23 years of the S&P 500 there were many companies that went in and out of the index, thus by the time of this analysis, S&P only has the stocks that have performed well

enough to have been added to the index. To avoid this bias, the same analysis should be made, but for shorter periods of time- 1 year and then random years can be selected for sampling.

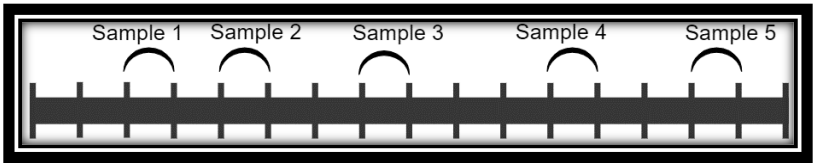


Figure: Random Period Sampling

Average:	2005-2006	2008-2009	2010-2011	2015-2016	2020-2021	2022-2023
Beta	1.05	1.02	1.07	0.97	1.09	0.94
Correlation	0.47	0.77	0.6	0.33	0.68	0.48

Figure: Random Period Sampling Results

The results are clear- there is not a single year on the sampling of 6 years, where correlation isn’t positive. As a matter of fact, it is the strongest during the 2008 crisis and the 2020 crisis, so in a period of a very significant trend in the market, it is expected for the individual stocks to follow the macro sentiment more closely and move similarly. An average stock is also expected to move at a similar amplitude to that of a market.

Value investors, on the other hand, stress the need to know the real value of a company rather than what the market says the value is. In the legendary, almost 700-page book “Security Analysis”, author Benjamin Graham mentions the irrationality of the market on several occasions. He argues that an irrational market makes it harder for the analyst to do his job and that the period when the stock fluctuates until it reaches the “fair” value is often illogical or wrong. From the standpoint of an analyst, who is extremely focused on the company and is barely paying attention to the market, price may look like it is

being irrational, when in reality, it is often that the company's price is just following the general market direction.

Benjamin's approach is to find companies which are so awesome that by holding for 10, 20 or 30 years, they outgrow all market environment cycles and still end up on top and during that process, he calls market fluctuations as manipulated and set by emotions rather than logic. With all this said, even though he is generally against the analysis of the overall market, he still dedicates a couple of chapters for it at the end of the book, proving that even the critics must admit the importance of a proper macro research.

Micro preparation. In the landscape of financial markets, success often hinges on the ability to investigate the details and construct the full picture out of them. Micro analysis could be called the art of diving into the specifics and untangling the complexities. While macro provides insights into broader market and trends, sentiments, micro analysis provides a trader with a closer look into the unique attributes that influence the price movements of individual assets. The micro is different from macro in the sense that micro is everything that's instrument-specific or strategy specific and does not apply to any other instrument.

Micro preparation seeks to collect data, analyze, look into what drives the individual component differently from the macro. In a stock, every quarter, it might be the earnings which will drive the stock's valuation and thus the price upwards, rather than the underlying environment of the S&P 500 index. In other words, if macro drivers are the "outside" influence of the instrument's value, then the micro is the "inside" influence.

Both inside and outside make up what moves the price. This can be illustrated using a mathematical method called Fourier transform, which describes that any function can be represented by a series of sinusoidal functions, which obviously is not the case in the stock market (could be used to detect market cycles), but it delivers the idea.

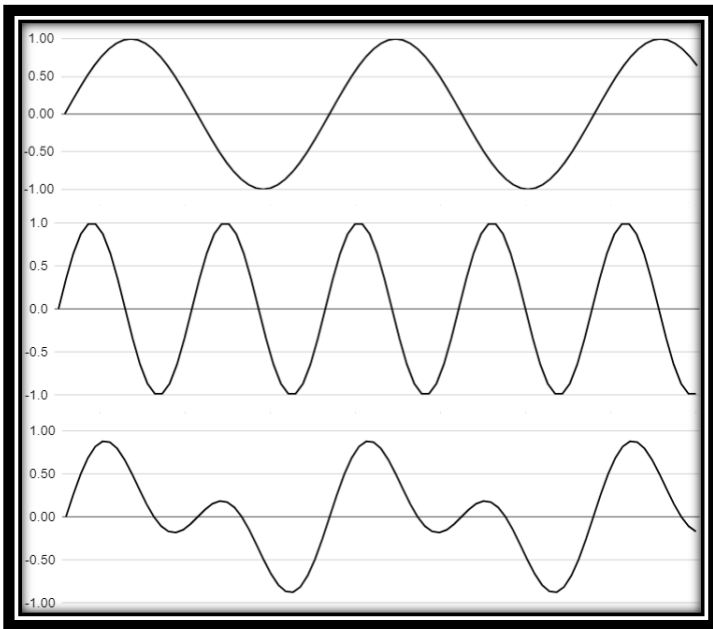


Figure: Macro (top) Plus Micro (middle) Equals Full View (low)

Both micro and macro can be divided into many other components, and it is possible to dive into any granularity in both cases. Entire books, such as the famous “Intelligent Investor” or “Security Analysis” by Benjamin Graham, spanning hundreds of pages, are dedicated to the analysis. Throughout financial literature, two main

classes of analysis can be seen- one that looks into the history of price and the other, which is everything else. The two branches of analysis are referred to as technical analysis versus fundamental analysis and the practitioners of both are highly skeptical of each other.

Technical analysis (TA). Jesse Livermore was a famous and likely one of the greatest technical analysis traders in history. He operated in the early 20th century and was renowned for his ability to understand the emotion of the market just by looking at the price and volumes. His story, however, ended up tragically with him taking his own life, which was likely fueled by several personal bankruptcies when he lost his fortune by trading too aggressively, leaving only his legacy behind.

Jesse often emphasized the importance of understanding crowd psychology and the dynamics of market sentiment in his trading strategies as he spent countless hours studying market dynamics, observing other traders and price movements which is where he came up with these words:

"There is nothing new on Wall Street or in stock speculation. What has happened in the past will happen again, and again, and again. This is because human nature does not change, and it is human emotion, solidly build into human nature, that always gets in the way of human intelligence."

Technical analysts can be thought of as individuals who focus on patterns and numerical data to uncover predictability rooted in past occurrences influenced by human behavior. Technical analysts enjoy staring at the charts for prolonged periods of time and trying to uncover market mood, trend and everything in between simply based

on the way prices have behaved in the past or is behaving currently. In practice, TA involves assuming that relationships and patterns that were visible in the past will repeat in the future and that it is possible to capitalize on such movements. It can be applied to pretty much anything that is set by the market, such as rates or stock prices thus can be used to evaluate both the macro environment (rates, volatility, etc.) and micro (price data).

Common techniques include drawing various lines on the price chart, identifying important levels, performing statistical analysis, calculating mathematical indicators and many other methods. The important distinction here is that all these actions are performed based on the price data. A general rule of thumb is that the further in time the trader forecasts, the less technical analysis is relevant, because it becomes increasingly difficult to forecast larger and larger future movements based on the historical movements to the point where it's practically impossible.

An argument could be made that because the market is made from various cycles which depend on the collective human perception of value of the instrument plus noise, the technical analysis covers the noise part, and the fundamentalists look into the perception of value part. Natural question for every TA analyst arises: what is noise? - for an investor, noise can be weekly movements up and down where for a frequent day trader, noise may be minutely movements!

Because TA can be rather simple, such as drawing lines on the chart, it is employed by millions of traders although only a few take it to the next level and develop statistical algorithms and employ proper research. A usual technical analyst will have a strong appetite for risk, be more action prone than patient and the better the analyst, the less

biased of the market direction it will be. They like to boast of being the only people who are often neutral about the company as they simply follow the price.

It is important to remember that everything works at its own time- sometimes TA will work perfectly, sometimes it will not work at all. This is mainly because various patterns, statistical methods and so forth work only for their given contexts, therefore at the end of the day, we all turn towards the understanding of the context within which the market operates in order to be better at technical analysis. The context can either be described by some price data patterns itself or more often- the fundamental analysis.

Fundamental analysis (FA). Given that technical analysts try to determine the most likely scenario based on the current price movements and what it meant historically, fundamental analysts are different in the sense that they do not care about the past- they look into the future. The goal of a fundamental analyst is to determine the intrinsic value of the instrument, then compare it to the current market price. If the intrinsic price is greater, then it is a sound investment. To determine the intrinsic value of any instrument- assumptions about its future over its lifetime must be made.

Because market price reflects current or past valuation, and the fundamental analysts care about the future- price for them is of no use. It is information that has already expired, and no one wants to make decisions on the expired information. The analysis may include exploring underlying finances of a company, their products, relationships between different instruments, event (news) data, conferences, economic, geopolitical environments and really, all what

does not involve price data yet can be important to the way the analyst values the company.

Fundamental analysts often try to value the company many years in advance with complex financial models operating on even more complex assumptions. For these reasons, proper fundamental analysis is often more difficult to master than technical analysis with a very steep learning curve. With this being said, it can provide solid expectations for the future- when any news comes out that influences the valuation, analysts may quickly adjust the targets and decide whether the news are positive, negative and how strongly.

FA becomes more and more relevant the slower market participants trade and the longer they hold. Because the market is driven by human perception about something's value, then this perception is driven by lots of factors, all of which could be defined as valuation. To value an asset, whether it's a company or a security, involves evaluating a multitude of factors to determine a valuation metric. This metric is then compared with the current market values to ascertain whether it is an opportune time to buy or sell. However, it is important to note that these valuations, based on news and market perceptions, do not change rapidly. The process aims to provide a stable and reasoned basis for investment decisions, despite the potential volatility of market prices. Results often come out quarterly and the news in between isn't every day, more like every few weeks, thus resulting in rather slow adjustments.

Possibly the most famous fundamental analysis investor is Warren Buffett. He analyzes the companies with the intent of finding one that is currently valued cheaper than Warren thinks it's worth and then

holds the company for many years until it pays off for itself with a big interest and reaches its full valuation.

Fundamental analysts possess strong analytical skills, they are patient and very disciplined. Fundamentalists will often take less risks when compared to technical analysts and will be more heavily research-oriented with a big eye for details. People go to the fundamental analysts when they seek a critical opinion with a long-term vision.

When trading the markets, the strongest possible approach is combining both the fundamental and the technical frameworks to see the full panorama. Fundamental analysis will provide a strong bias and a feel for the market, where the technicals will help to time the market and enter, exit at unique points in time, which may be optimal. By using both, market participants are not just seeing part of the picture, you're getting the whole story. This combined approach also makes a person more adaptable. They can adjust the strategies as the market changes and this is what it is all about- using the right strategy, during the right time.

But this is not the end- both types of analyses can again be split into two parts which suit different people and can help you discover your potential by aligning your character with the type of analysis you like. Some people prefer looking into numbers and coming up with mathematical explanations to why the market does one or another, while others go for the news, analyst recommendations or central bank policies. It is referred to as the quantitative versus the qualitative approaches.

Quantitative approach. One way to analyze anything is to look into the numbers. How did it perform a hundred times in the past? What are all current companies that exhibit X characteristics? The Central bank did Y in the last hundred years when faced with such a situation, what will it do now? Quantitative methods involve putting statistical techniques to come up with conclusions.

It is generally accepted that quantitative approach is mostly used with technical analysis, but this is far from the truth because statistics is such a powerful tool. Analyzing the last 10 quarters of the company's financial statements could also be called quantitative, as it is trying to make sense of numbers by relating them to statistical concepts.

Quant analysts are extremely detail oriented, mathematical and analytical. They often enjoy coding, solving equations and take pride in doing what no one else understands. The typical character of a quant analyst is the introvert with a laser focus- many scholars especially from the fields of physics, mathematics or engineering take up such an approach if they decide to switch to finance.

Qualitative approach. Logic and reasoning is what prevails in the qualitative field of research. How competent is the management? What is the market for the product? What is the geopolitical environment for the central bank decision? - they all represent questions that the qualitative analysts are trying to answer. Think of it as an art- there are often no concrete formulas to be memorized, only pure reason.

While qualitative approach is highly related with fundamental analysis, in the field of technical analysis, it would refer to the

recognition of patterns, relationships that are more easily recognized by the eye than put into formulas. Anyone that is analyzing the price data without employing mathematical reasoning, is using its own experience and logic which falls under qualitative analysis.

Qualitative analysis is much less technical (if any!) than quantitative research and because of this fact, most of the retail traders can be considered qualitative analysts- they lack knowledge and the data, equipment to go into proper quant research. Problem with the qualitative approach is that there often is no way of proving value or the idea and it is based on the “feel”. While there are accounting standards, various investment thesis and the valuation rules, formulas- they bring the learning curve way ahead of most investors, thus it is quite usual to see unprofessional traders focus on small sectors, a small number of companies and perform what they see as logical approach. Because people perceive value differently from each other, there is no unified qualitative approach logic and thus the quality becomes a very subjective topic.

People that like qualitative approaches are curious minds with lots of creativity and open mindedness. Think of an average qualitative analyst as a singer, painter and a sculptor all at once! The person may not be genius at any single one, but they have the clearest big picture and are able to adopt new techniques faster than anybody else- they are also very intuitive and trust their gut feeling.

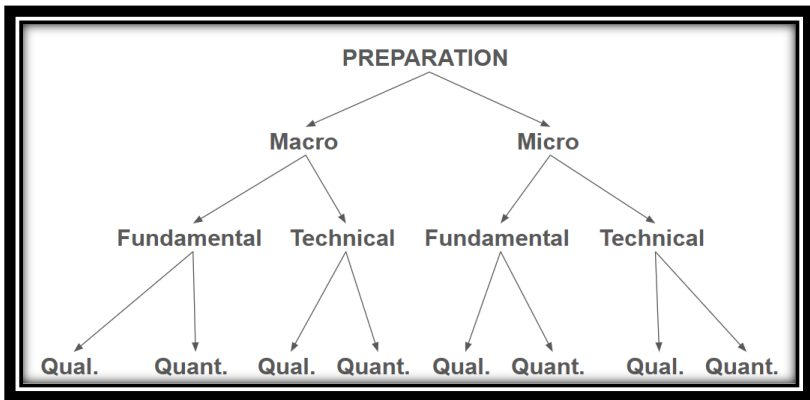


Figure: Preparation Big Picture

A total of eight paths to go forward in your preparation (analysis) can be taken with each path having various further methodologies and logic behind. While the clearest picture could be provided by employing every single approach, which is what the institutions do, it often is too time consuming for a single person and instead of going for all of the paths, a trader may choose only a couple ones of the most relatable to its character and skill set. It is important, however, to have both a Macro view and the Micro view. A common choice of a retail trader is the Macro fundamental-> qualitative and micro technical-> qualitative.

Framework. Fitting all this information into one concrete step can be a daunting task, but that is where the framework comes in. To not get lost in a large amount of research and actually be able to work one logical step after the other, a proper plan is necessary.

Throughout the scientific world, the research frameworks differ, and they can be split into multiple categories. As a matter of fact, there are entire books written about the framework of research! Generally,

they segregate the research process into distinct steps, then again into other steps until there is a tree which logically leads to the actions and thus solutions, findings.

The scholar community loves creating many steps, but traders do not seek to be the most precise simply because there is nothing certain in the markets. Traders need to be most efficient. There are five commonly used research framework steps that can be found.

- I. The first and the most important principle is to formulate clear research objectives which means defining specific and relevant questions, objectives. This is the guide of the entire analysis.
- II. Scientists then conduct a comprehensive literature review to understand the current state of knowledge of the world and themselves. They try to identify gaps, debates and other theoretical frameworks that are relevant to the research. In markets, this step is the equivalent of educating yourself and remembering what we know- this may be re-reading some notes, watching videos. The goal here is to establish an actual base of knowledge so that we can move forward with confidence.
- III. Data collection and the choice of the appropriate methods should be defined as the first step. Based on the knowledge obtained in the second step and pointing towards the goal defined in the first step, we seek out to find the best methods that could give us the answer to our questions. Data collection is quite an underestimated task since sometimes it may be costly and take lots of time. When thinking about which methods to use, think about how easy it is to collect the data.
- IV. Analysis of the data comes naturally as the fourth step, which originates from the choice of the methods, because once the method is known, we simply follow the methodologies to arrive at the results.

- V. Interpretation is the last step in any analysis, and it is by far the most important. Being unbiased, critical and considering alternative scenarios is what makes the interpretation proper.

Since research is a part of the trade cycle, there is no need to repeat some steps, such as setting the goals repeatedly for each trade as they are expected to remain the same. To be fair, the same holds for the second and possibly third step. The third step could be repeated once a day, once a week or once a trade- it depends on the strategy. Once there is a framework established, then really, only the fourth and the fifth steps must be repeated for each trade. It could be said that the framework is the first three steps, and the last steps are the execution of the research inside the trade cycle.

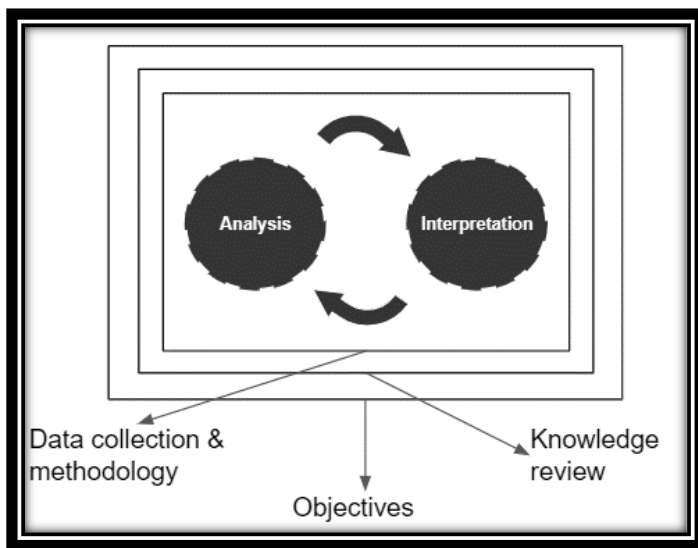


Figure: Research Framework

Such a framework needs to be constructed for every type of analysis you perform, which leads to a complete tree which is shown below:

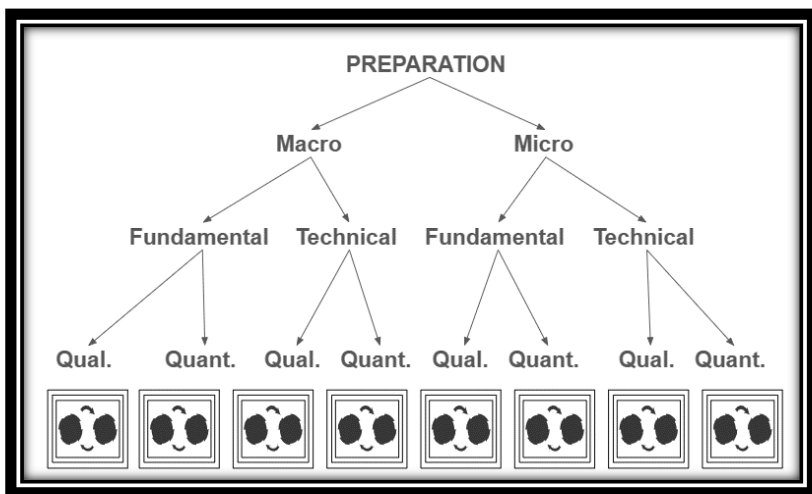


Figure: Preparation Frameworks

Each one of the eight selections has their research framework, therefore if market participants want to employ several of them, the analysis would take lots of time. For traders that are trading exceptionally fast such as scalpers, this approach becomes too slow to employ for every single trade, so they might opt in to doing research before the trading each day, only once or twice and trade depending on the outcome. You now see why this has to be efficient- traders need to earn money, not analyze the market all day. This is only a part of the trade cycle; the goal is to move towards the other step of the cycle as quickly as possible.

Because all these types of analyses try to explain what and how, why price is moving, they have been in the spotlight for years and an insane amount of information can be found surrounding all methods. The most widely accepted certifications are CFA (Chartered Financial Analyst) for fundamental analysis and really, all of finance and the CMT (Chartered Market Technician) for technical analysis. Both certifications are difficult to pass and require many hours of study

which is why the individuals having such certifications are often highly respected. Apart from these, a trader may find countless books, mentorship and everything in between that may help them do their analysis in a proper way.

Catalysts. The analysis, however, does not move the market. If that was the case- analysts would be the greatest traders! No, the market is moved by the information and the way market participants collectively react to this information and base their analysis on. When the information comes out at first, it is defined as the catalyst- such as news or events, disasters or new sales reports. These catalysts set the mood and create an influx of traders who trade in and out, creating powerful market moves. Those moves are closely followed by the technical analysts who will make their future moves based on them therefore the immediate consequence of a catalyst is the adjustment of sentiment of the technical analysts now and for the short-term future. Fundamental analysts will try to explain how the catalyst fits into their valuation and come up with new targets, thus pushing them and their clients to take new trades in the matter of the next few days. FA analysts will often have certain expectations set for the news and can immediately react to new information. The collective reaction is what drives the market, and it depends on the context within which catalysts appear. Catalysts may be segregated into three distinct categories that are categorized by the time they appear.

- I. **The catalysts that have already occurred.** They are the easiest to measure since we can clearly see whether they created any volatility or volumes; measure the size of them.
- II. **The scheduled future catalysts.** They include all the periodical events such as central bank statements, earnings reports, economic data and so forth. One might know a range of volatility that they might have created based on the

historical data of the past scheduled drivers of such. However, the volatility that the catalysts will create in the future is somewhat dependent on the context that they are in.

- III. **The unexpected future catalysts** are of course impossible to predict, as their name implies. The reaction of the market will depend on the current context and the sentiment of the market, the catalyst itself.

The problem with catalysts is that it is quite impossible to predict accurately what the market reaction will be towards them. Seasoned traders who have traded long enough, have seen that the market can react positively to the negative information and react negatively to the positive information. Other times, it will react positively towards the positive catalyst and negatively for the negative catalyst. An important notion in capital markets is the fact that the reaction to the catalyst depends on the difference between what the catalyst was and what the market expectations were. The market expectations are often set by the analysts in the big banks or by various publicly traded instruments themselves and even though market expectations allow them to forecast some of the reaction of the market, it is often not reliable.

At the end of the day, the way traders react to a catalyst depends on how well it is aligned with their analysis and whether you have expected it. The safe bet is only being in the market, which is trending in the intended way, during the time when a catalyst comes out, because this ensures a more positive reaction for any catalyst (as the general market mood is positive) and it decreases the probability of a large loss out of nowhere.

In the context of the framework, MPs are making analysis on the most recent data, therefore once the new data comes out it is logical to re-do the analysis in order to come up with new interpretations

which lead towards trading decisions. Traders should integrate micro and macro analysis, look from the fundamental and the technical perspectives using both quant and qualitative approaches and then there is going to be a story to tell. Story of what is driving the market, who is in charge and where is it moving- why.

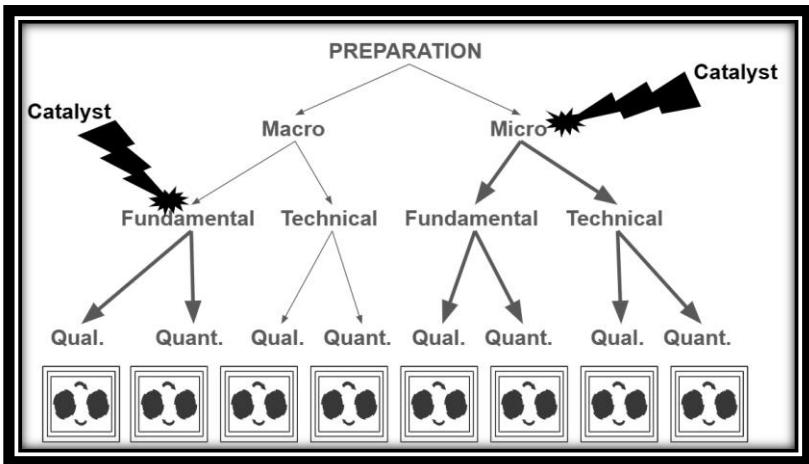


Figure: Catalysts Attacking the Framework

When the catalyst happens, the effect trickles down to every analysis below where the catalyst was oriented. It is rather important to know what the catalyst affected to analyze it properly, with correct methods. For example, a war has started in the Middle East- this would be a macro catalyst and it would have the effect on every analysis below the macro branch. With this being said, a catalyst in one place, like fundamentals, will move the price which will result in a different technical context- in the end, everything is interconnected. Ultimately, all the preparation must be aligned with the strategy so sometimes, there may not be a need to have a super-wide picture or lots of details, only what is relevant.

While the analysis is in the spotlight and is often used as a standalone strategy, it is simply one part of the trade cycle and by gaining an absurd amount of knowledge of quantitative or qualitative, technical or fundamental- it won't make you a good trader, but it will make you an analyst.

Idea

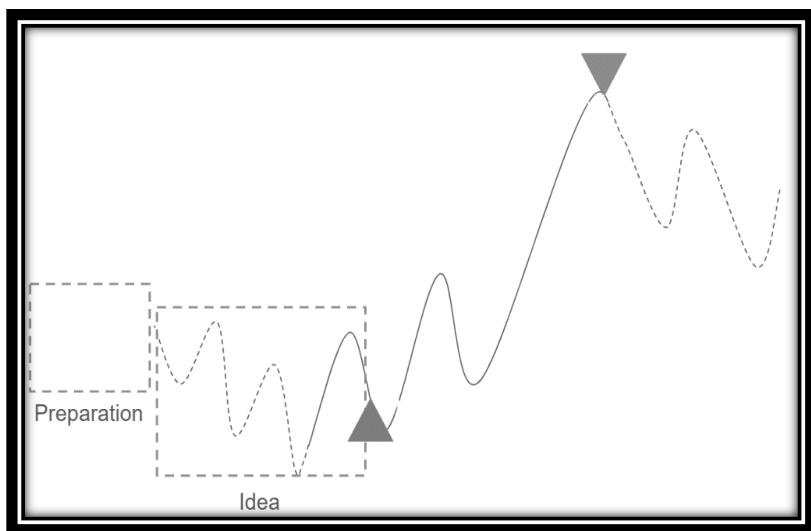


Figure: Idea

Idea is where the magic happens. It is the heart of the preparatory work as it is what gives the analysis purpose. An idea is the interpretation of the results that align with what the trader is searching for. It is when analysis shows an opportunity to capture an inefficiency in the market which is described by the strategy where profits can be made.

Because the idea must be aligned with what market participants are searching for and the analysis interpretation, then the key part is knowing the strategy, knowing what it wants from the market, when it wants it and how it looks, what the strategy is aiming for to make sure interpretation is objective.

The Universe Of Strategies

Assume that any trade is a part of a strategy (not having a strategy or not knowing the strategy can also be called a strategy!). Any strategy should be oriented towards the goals; therefore, a trade is a part of a strategy that is aligned with some goals. It can be illustrated as a pyramid.



Figure: Alignment Pyramid

So, what is a trade for the strategy? The definition which was discussed in the beginning of the book is that a trade is the thought, the action and the result of buying and selling financial instruments to profit from a single predictable market behavior while a strategy is the high-level concept to achieve the desired outcome, so in the context of trading, which is repeatedly buying and selling financial instruments to profit from predictable market behavior, the desired

outcome of the strategy is the repetition of a profitable trade, thus the definition can be further enhanced of a strategy by defining it as a high-level concept to trade profitably, because in trading, the desired outcome is the profit from one or another predictability. That was one lengthy sentence.

This definition of a strategy wouldn't suit a football team, but it does in the case of the markets, so it really is a definition of a trading strategy. It trickles down that the perfect trading is the one which adheres to the high-level concept and is obviously profitable, so the perfect trade is a profitable thought, action and the result resulting from buying and selling financial instruments which also adheres to the high-level concept, can be repeated and exploits the inefficiency to as much as it can be exploited. In other words, a perfect trade is the single profitable and complete realization of the inefficiency that the strategy is trying to catch.

Mapping the concept. Humans are connected to time- first it was the sun cycles, now hours, minutes and even seconds. Based on this fundamental fact there must be a relationship on the time and how often a trader trades- and there is. A classic approach to define the trading concept is using a two-dimensional approach. First dimension is time. How often can you trade? How often do you... like to trade? How much discipline, patience have you got? These questions ultimately lead to the type of trader a person is. Categorizing them is a very straightforward approach and can be found in all the finance theory.

- I. **Timeframe:** Seconds to minutes. **Type:** Scalping. **Description:** Aim to make small profits from very short-term price movements. Execute many trades per day.

- II. **Timeframe:** Minutes to hours. **Type:** Day trading. **Description:** Making trades throughout the day and never keeping the position open through the night.
- III. **Timeframe:** Days to weeks. **Type:** Swing trading. **Description:** Aim to capture the short-term trends, called “swings”.
- IV. **Timeframe:** Weeks to months. **Type:** Position trading. **Description:** Aim to capture significant moves, that are usually based on fundamental research and a catalyst. A common approach is the earnings (quarterly) cycle trade.
- V. **Timeframe:** Months to years. **Type:** Investing. **Description:** Investors aim to capture very significant moves, holding over an extended period of time.
- VI. **Timeframe:** Years to decades. **Type:** Buy and hold. **Description:** Believing that an instrument, such as S&P 500 will appreciate in value over a large amount of time and simply mimicking that by holding it.

The answer of the type of trader you will depend on you. Generally speaking, the shorter the time period, the harder it is to profit, which is due to the different players in the market and the transaction costs component. When scalping, traders are competing with algorithms and market makers- the most advanced market participants. Those who had the chance to participate in the active trading floors of NYSE have described the traders as a roaring crowd, giving a different feeling than anything else on the planet. When such a crowd of animals (in a good sense) starts fighting for every tick, it leaves almost nothing for the regular folks, and it makes scalping some of the most competitive trading styles to work with. While nowadays such a market is extinct- scalping still attracts the adrenaline-fueled youth ready to fight. When day trading, people are still competing with market makers, but also execution traders, other day traders and all

kinds of other institutional traders- many of whom are the best in their field. Going into swing trading and position trading you are no longer competing with market makers, scalpers nor really with algorithms. Price action that needs to be caught is dependent on the sentiment, news, cycles, earnings and the “big guys” that are building or exiting their positions. Investing, buy and hold are really the simplest of them all- entire world’s pension system is built on these strategies, and pensioners aren’t the most technical people. It is designed to grow over a large period of time therefore time is where the value lies! In his book “Trading Systems and Methods”, Perry J. Kaufman explains this relationship as “The need for a fast response to changing situations tends to exaggerate any bad trading habits; as in other fields, the shorter the response time, the greater the chance for error”, referring to how difficult it is to day trade.

So why choose a more frequent versus slow? One argument is leverage. On a frequent scale, price movements are very fast, therefore by employing a large leverage you can make a “quick buck” and with many such trades, the account balance may grow much faster than the slower strategies. A 1% move for an investor is nothing, while a trader that employs huge leverage such a move shakes the whole portfolio, possibly even doubling with enough leverage. Master the frequent trading, and with a large leverage, one can make an annual return of an investor many times over, due to a faster compound effect. Instead of making 1 trade per year yielding 10%, traders might make 10 trades yielding 2% which is more than double that of an investor. The compound effect is illustrated below.

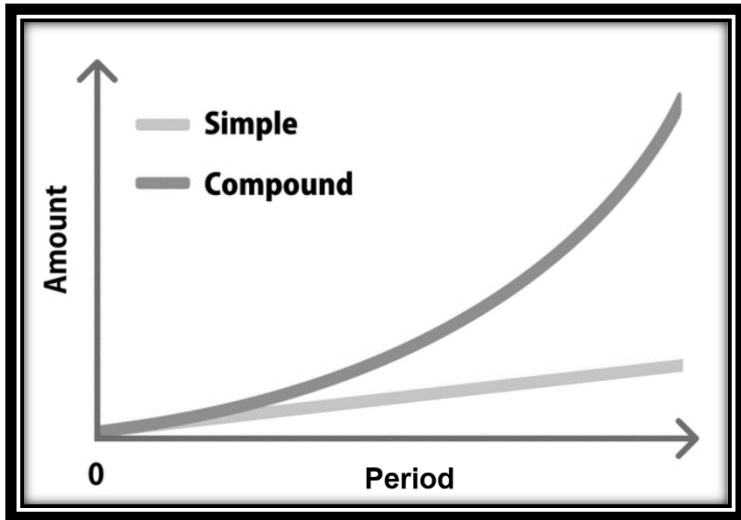


Figure: Compound Growth

The more frequent the strategy, the more leverage it can employ to boost returns. The second dimension is the strategy itself. A trading strategy plus the type of trading creates the full picture of your trading strategy. Note how I am using trading strategy to describe itself and it combined with the type. To decrease the confusion, let's agree that the trading strategy consists of a sub-strategy and the type of trading.

Throughout the years with millions of market participants, some general sub-strategies have emerged which are currently employed by millions of people and various corporations, too. Please note, that while there are tens, if not hundreds, of general sub-strategies, I list out some of the most popular ones for the type of retail/discretionary/quant/hedge fund trading. These sub-strategies will be used throughout the book as an example, but in no way, these are the only strategies the trade cycle applies to.

- I. **Momentum trading:** Capitalizing on existing price strength or speed, assuming price will continue to the same direction.

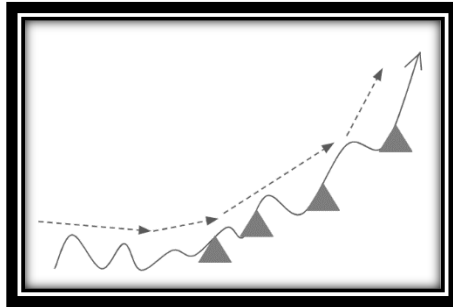


Figure: Momentum

- II. **Mean reversion trading:** Capitalizing on the fact that the market often overextends. When that happens, the trader takes a contrarian position to the existing trend.

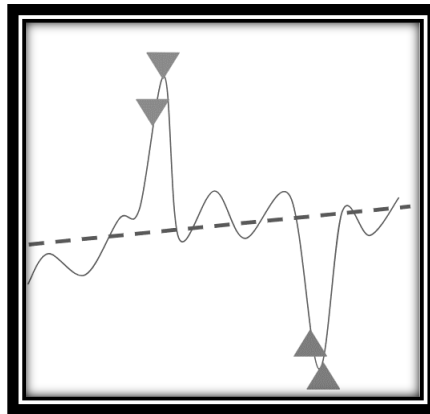


Figure: Mean Reversion

- III. **Trend trading:** Capitalizing by going in the same direction as the general market, for example: going for a reversal if price is falling, yet not enough to change the trend.

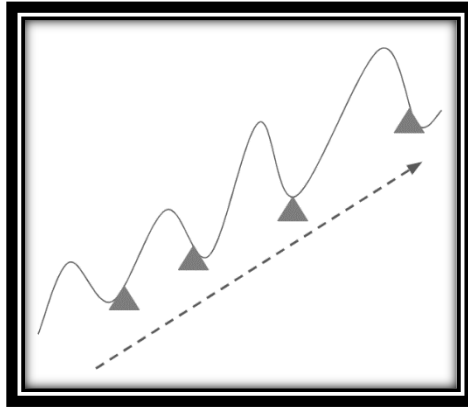


Figure: Trend Trading

- IV. **Breakouts trading:** Capitalizing on price starting to trend after a period of stability.

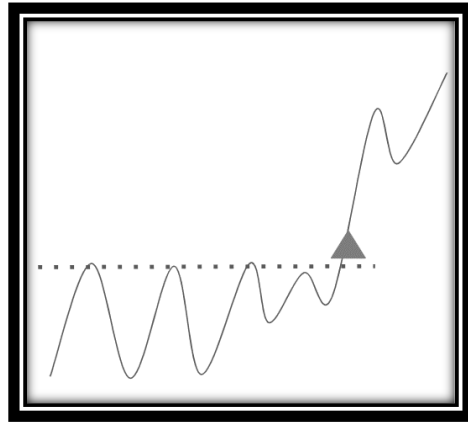


Figure: Breakouts

- V. **Cyclical trading:** Capitalizing on price movements that seem to occur consistently.

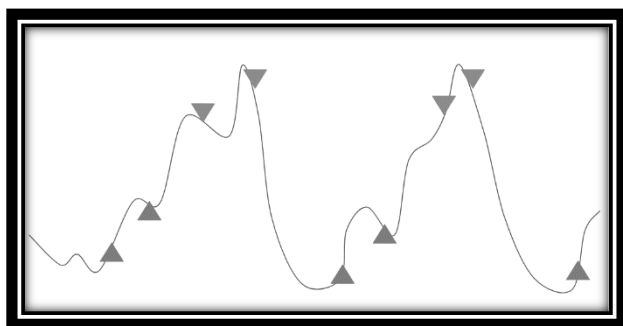


Figure: Cyclicals

Similarly to the frequency choice- the type of strategy traders use mostly depends on their preferences, character and skill level, interests. Mean reversion trading always goes against the market. The type of person that would trade it should be rather aggressive- it would love risk during entries, yet the person can very quickly say goodbye to the position if price shows strength against it, without getting stressed out. In momentum trading, however, they must be more patient, waiting for the price to show the first signs of strength or weakness. They wait for it to reach the critical speed and enter, then try riding as long as possible. The best way to find out what you like is to try them all.

Combining both, the frequency and general strategy is what defines a full trading strategy, however some combinations on the slow type of trading are a little weird, such as Mean reversion Buy and hold. Most of them, however, match up well. One can easily be a breakouts day trader or a mean reversion swing trader! One can easily trade momentum as a position trader or be a cyclical scalper (time cycles).

Choices that you make are going to lead you to every single step of the trading and will define you as a trader. This is who you are! It will lead you to reading different blogs and articles, watching different videos and exploring different instruments. Do that for several years and even your career will look differently than it would have, if you chose a different strategy and type. Over time, skills and character needed for the strategy and type will find themselves into you and you will change as a person. It cannot be stressed enough how important it is to align yourself with the right strategy and the right trading type for you. The most important aspect is whether it fits you, your personality, your interests and your availability, skills.

Personality fit. How do the traders know if the type of trading and the strategy fit their personality? One way to do it is think about it logically with some help from various literature or the internet. Consider each type and strategy again, but this time focusing on the general personality that from the logical side, seems to fit the description.

Types:

- I. **Scalping:** It fits the quick thinkers, individuals who thrive on fast decision making, have a high stress tolerance and enjoy the fast pace
- II. **Day trading:** Focus is the word here. It fits the energetic people who can remain disciplined, and laser focused throughout the whole, being able to adapt to changing market conditions.
- III. **Swing trading:** Patience is the key. Traders are still looking into rather small price action, yet holding their position for days, even weeks sometimes. It fits the analyzers of

sentiment, trends and favors the analytical person with a solid decision-making trait.

- IV. **Position trading:** It fits the fundamentalist person, who prefers a more relaxed approach, through deep research into the market, products and financials. Decisions are rather slow, yet they are based on plenty of research.
- V. **Investing:** A person with a high conviction and a long-term perspective is the one to come on top. The personality has a tolerance to withstand big fluctuations without losing the conviction in its analysis.
- VI. **Buy and hold:** An optimist! It fits those who believe in the long-term prosperity of the market, have a high risk tolerance, and are patient.

Strategies:

- I. **Momentum trading:** The trader has to be aggressive, have a high-risk tolerance. It usually is early in the newly forming trend therefore to ride it all, patience and discipline is the key.
- II. **Mean reversion trading:** These are the contrarians who like challenging the market norms, have the guts to go against everyone and are okay seeing their positions in red immediately after entering the trade, riding the fluctuations.
- III. **Trend trading:** Followers is the right word. The personality of such a trader is the one who likes to identify the trend and follow, go together with it. It is an agreeable person yet an analytic with an eye of identifying true shifts in the market, separating them from short-term fluctuations.
- IV. **Breakouts trading:** Such a trader is a fast decision maker, enjoys looking for patterns.
- V. **Cyclical person:** This is a pattern and statistics-oriented person who recognizes recurring market cycles. Trader enjoys

analyzing historical data and is okay with having its conviction by the past data.

Finding the right trading type and strategy that fits the person is crucial. Whether you're a quick thinker who thrives on fast decision-making, an energetic individual who can remain disciplined and focused, or someone who prefers a more patient and analytical approach, there is a trading style that suits you which is where you have the highest chances of success. By aligning your personality traits with the appropriate trading type and strategy, you can increase your chances of achieving your financial goals, so take the time to understand yourself and choose the approach that fits best for you.

Inefficiencies they exploit. The next step is continuing to move towards the actual definition of a perfect trade and as discussed, the perfect trade is the single profitable and complete realization of the inefficiency that the strategy is trying to catch. Let's explore the inefficiencies that each strategy seeks to exploit.

- I. **Momentum trading.** It is based on the belief that securities which have performed well in the past will continue to perform well in the future, and those that have performed poorly will continue to perform poorly. It aims to exploit the inefficiency where securities may not be fully reflecting their true value due to inertia in price movements. Momentum strategy seeks to exploit the inefficiency of delayed price adjustments by capitalizing on the continuation of existing trends. It assumes that the market may not fully and immediately reflect all available information, leading to profit opportunities based on persistence of the newly formed trend.
- II. **Mean reversion trading.** This strategy aims to exploit the inefficiency in the market where asset prices revert to their historical average or mean over time. The core idea behind mean reversion is that after a period of significant price

deviation from the historical average, there is a tendency for prices to move back towards that average. It really is related to the market's tendency to experience periods of overreaction or underreaction to various factors, leading to temporary mispricing.

- III. **Breakouts trading.** The strategy is based on the idea that when an asset's price moves beyond a certain level, a significant price movement is likely to follow. This movement that is likely to follow is the market's failure to quickly and accurately incorporate new information or developments. Prices may lag behind relevant news or changes in market sentiment, creating an opportunity. Therefore, the breakout strategy defines an inefficiency related to the delayed recognition and reaction of the market to new information or shifts in sentiment, allowing traders to exploit potential price movements that can result from these delayed reactions.
- IV. **Trend trading.** Trend traders aim to exploit the inefficiency in the market where assets tend to persist in their direction over time. The core idea behind trend trading is to identify and follow prevailing trends, with the expectation that prices will continue in the same direction, therefore the inefficiency being targeted is related to the market's tendency to underreact to new information or developments, allowing trends to develop and persist. Additionally, the larger the trend, the more people notice it and it attracts additional traders who extend the life of a trend. Trend traders assume that over a short term without strong catalysts, price should not change its direction.
- V. **Cyclical trading.** This strategy aims to capitalize on the various cycles related to business, time, economics, weather and so forth. The core idea behind it is to identify trends or patterns in asset prices that are influenced by the different phases of these cycles. This strategy aims to capitalize on the inefficiencies in the market by aligning the market with the cycle and searching for a mispricing.

- VI. **Bonus strategy: Value investing.** It is a strategy where investors look for stocks that are trading at a price lower than their intrinsic value. Value investors believe that the market sometimes gets it wrong and prices stocks below what they're worth (in their opinion). They look for companies with strong fundamentals, like a solid balance sheet, steady earnings, and good management. The idea is to buy these undervalued stocks and hold onto them until the market recognizes their true worth, allowing investors to profit from the price increase. Value investing is about patience and sticking to your guns, even when others might be selling.

Inefficiencies are the target, it is the absolute essence of the trading, strategy and where every individual trade is aimed towards. Traders must absolutely find an inefficiency in the market for any strategy it is aiming to trade. Without it there literally is no reason to be profitable.

But it doesn't have to be something abstract like market breaking through an imaginary range. Often, it is the simple things, like being more patient than other, is also an inefficiency (an edge) than can be used to exploit the market. Or having put more hours into a single stock and knowing how it moves better than almost anyone else can also be an inefficiency- you create an information asymmetry this way, having more knowledge about the stock than others. The inefficiency can also simply being more risk tolerant than others and going into the markets when everyone else is leaving or risk averse- being the first one to leave.

When I was interviewing a big quant-driven hedge fund manager in Copenhagen, Denmark, I asked him where and how he seeks to find the edge in the market. His answer was downright simple.

“Often we just learn about the instruments we trade really well, try understanding what the price is made from and whether there is a risk premium in the price” He then continues “Think of implied versus realized volatility. Historically, realized volatility is almost always smaller, so there is a risk premium there, except for market meltdowns when the volatility skyrockets and introduces drawdowns in the strategies that try to capture the risk premia.”

He explained that what they do is simply try to understand the fundamental idea of what makes the price of an instrument and whether one of the components has some sort of a premia which can be consistently taken. Of course, this premia will sometimes go against, therefore they will monitor the events and try anticipating whether anything will have a direct and adverse impact on such strategy. This wouldn't really compare well with any of the strategies listed- these types of strategies are one of their own. Importantly, they have a clear and well-defined inefficiency that can be exploited.

By constructing the proper trading plan that is completely aligned with your goals, has logical ideas and then is followed, a simple edge is introduced in just that- trader is already more organized than the majority of other market participants. This organization will sometimes allow to not lose, to keep one's cool when the market conditions are intense or allow to profit in other scenarios, which over a large period of time will manifest as a small edge and result in increased profitability.

Combining types and strategies. The strategies can be combined on a time level for more complex and advanced strategies. Two hypothetical traders- Steve and John can be considered. Both buy a bond at the same time. Steve exits the next day with a profit and John

exits in two days with a loss. Both have adhered to their strategies and both of their trades are correct, just that for John, market conditions were not right, and the price of the bond didn't reach its target before reverting down. This example implies that the different time scales offer a different market environment so because of that, traders may use a different strategy for a different timeframe or even so, they may diversify their strategy by using the same strategy but on multiple timeframes. An alternative approach is to combine several strategies into one and use them as a single strategy that is now more powerful. An example can be the trend trading for a big timeframe and breakouts on a smaller one- traders can only enter a breakout when it is in the direction of a trend, so this hybrid trend-breakouts strategy should prove to be stronger than if done as a standalone. Additionally, an advantage of using several timeframes is that the patterns can be discovered sooner. A daily pattern may need to wait till the end of day to be discovered while if used with a conjunction with, let's say, 1 hour timeframe, it could be noticed way before the market closes.

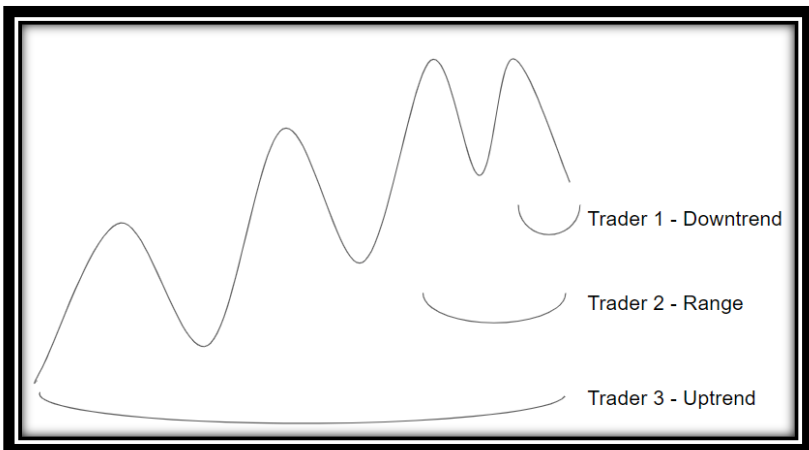


Figure: Timeframes And Perceived Market

Timeframes And Perceived Market figure illustrates how three traders can perceive the market differently simply by looking into a different time scale. Ideally, by exploring more time scales, one should get a wider picture and thus, more profitable trading due to better-quality analysis. The relationship between the timeframes has been studied by a multitude of people but one of the more well-known traders, Robert Krausz, has developed a six-rule system to using the multiple timeframes at once:

- I. Every timeframe has its own structure.
- II. The higher time frames overrule the lower time frames.
- III. Prices in the lower time frame structure tend to respect the energy points of the higher time frame structure.
- IV. The support/resistance created by the higher time frame's prices can be validated by the action of the lower time periods.
- V. The trend created by the next time period enables us to define the tradable trend.
- VI. What appears to be chaos in one time period can be order in another time period.

Multi-dimensional strategies, however, involve using multiple charts or factors to make trading decisions. Instead of using a single chart, traders consider several to determine if a trade is excellent. For example, in pairs trading, traders analyze two different stocks simultaneously and the relationship between them. If the prices of the two stocks usually move together but suddenly diverge, the trader might decide to buy one and sell the other, anticipating that they will eventually move back into sync. This strategy involves considering both the individual charts of the stocks and the relationship between them, adding extra dimensions to the trading decision. We can also use hedging as an example, too. A trader that has a position in illiquid stock may choose to offset the risk by shorting the index, connecting different instruments into a single strategy. Yet another example is trading derivatives, such as options. The price of a position can be

dependent on multiple factors such as the Greeks- Delta, Gamma, Vega, Theta, and Rho at the same time! An institutional trader can have many different books all with different derivative positions which is incredibly technical and there are only a handful of people capable of managing such complexity in a given market. In these cases, there are so many variables that it is almost impossible to squeeze those into a trading plan. The solution is to de-complexify the trading plan by searching for principles that work for every position. The rules may simply be all about money management or psychology, preparation, and nothing more, as there is nothing more that unites all these other positions. Often, institutional derivative traders won't have any plan in the first place and will trade based on their knowledge that's embedded into their brains through many hours of being in the market and just doing their job- there is nothing wrong with it. Some of these traders will be client driven, meaning they take the other side of the client's orders so they can't even control the position sizes, not to mention timing the market! Often, the most important thing for such traders is to keep the relationship between the institution and the client by executing client orders. They play a whole different game! But for all other discretionary traders who aim to generate profits from the market using their own decisions, a trading plan is the way to go.

In the case of when multiple criteria or charts must be analyzed, the trading plan may have rules outside the trade cycle or even document itself which refer to the principles of the way a strategy is managed. Those principles could point towards some larger documents which describe goals, targets and other. Some rules for the trades, like the divergence between stocks, can be set in different parts of the trade cycle, like idea or validation. A basic visual example of how complex trading plans might look is shown below.

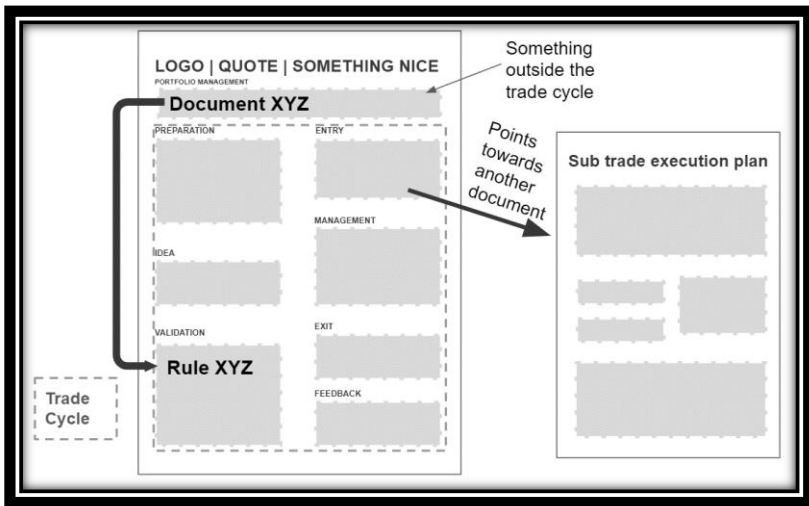


Figure: Multi-dimensional trading plan

Such complex strategies would require having several documents that are related and point to each other. In the pairs trading example, while the main trade cycle can be based on the difference of two stocks, the entrances and the trade management of each position can be documented in, for example, a sub trade execution plan. When having such a setup, however, even complex strategy trades can be treated rather simply because it is possible to get them down to a single trade cycle, meaning a single sheet of paper. With enough practice, the “sub plans” and other documents, guides will be memorized and at the end of the day, a complex strategy will simply be defined in a single, clean piece of paper.

Portfolio of strategies. While finding the right strategy is a big part of a successful trader- combining multiple strategies can yield even better results. A single trading plan will cover a certain market or a certain inefficiency, market pattern, but it will, however, not work at some times. For example, a trend trading strategy will simply not

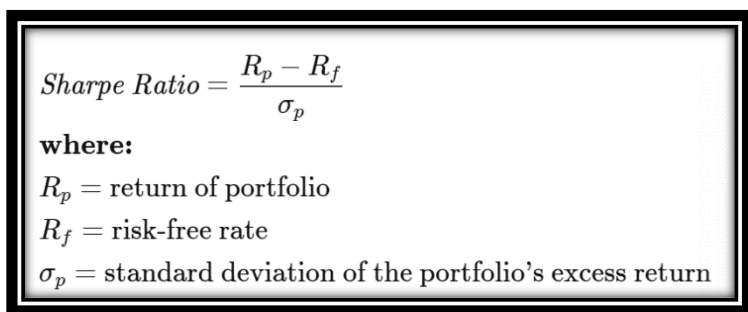
work if there is a range in the market. In such times, it would be better to avoid the trend trading strategy all together or to have another strategy that will work best when the range happens, to counter the losses of the trend trading strategy, so how does one decide when to turn the strategy off/on or add in a completely new strategy into the portfolio?

One way to turn on/off the existing strategy is to use another strategy or a market pattern which is purely focused on finding the adverse conditions for the primary strategy and then once they come-turning it off. The problem with this, seemingly obvious approach is that the on/off strategy will generate some false signals, meaning it would have been better to not listen to the on/off strategy as the primary strategy would have made a good trade. It presents an opportunity cost. But what if the on/off strategy is super powerful and it can correctly anticipate the market conditions and accurately turn off the primary strategy? That means that the on/off strategy is better than the primary one- meaning the money should actually be fully in the on/off strategy and none to the primary. It implies that in order to increase the performance of the first strategy, one needs an even better strategy which can control the first strategy. The problem is, if the primary strategy is already good, then finding even a better one can be super difficult.

Then how about the other approach? One could try using both strategies- the primary and the on/off strategy by allocating money to both at the same time. The logic is that when one strategy makes money, the other loses and vice versa. Of course- the winning strategy in certain market conditions has to earn more than the other one loses, in order for the portfolio to be more attractive. To understand the logic, mathematics and the implications of it, Sharpe ratio, which is one of

the most popular metrics when valuing a strategy in finance, can be used.

Sharpe Ratio is a metric developed by William F. Sharpe and it describes how good was the return after it has been adjusted for risk, officially defined as “A measure of the performance of an investment compared to a risk-free asset, after adjusting for its risk”. A Sharpe ratio of 1 is often considered acceptable where 2 is very good and 3 excelled. Sharpe ratio can be used to evaluate the performance of the trader- simply calculate it on the returns of last month, year or x amount of trades to get a trailing measure. If the trader trades several strategies, then each trade can be tagged and when calculating the Sharpe, only the tag X or tag Y can be used to calculate the Sharpe of the individual strategy. The formula of Sharpe ratio is:


$$\text{Sharpe Ratio} = \frac{R_p - R_f}{\sigma_p}$$

where:

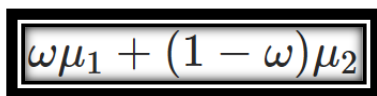
R_p = return of portfolio

R_f = risk-free rate

σ_p = standard deviation of the portfolio's excess return

Figure: Sharpe Formula

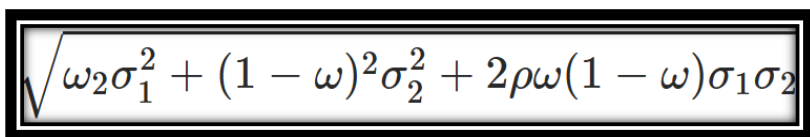
What we want is to calculate the Sharpe Ratio of two strategies- the aggregate Sharpe. This is not a mathematical book so I will not go through the derivation of the formulas, I will simply present them. The denominator $R_p - R_f$ is expressed as the Excess Return and the formula for combining two strategies to calculate the Excess Return is:



$$\omega\mu_1 + (1 - \omega)\mu_2$$

Figure: Combined Excess Return Formula

Where the ω is weight given to the first strategy (from 0 to 1) and μ are the excess returns of each strategy. The formula for calculating the aggregate standard deviation, which is a measure to show how much does the strategy move up and down (volatility) and is a little more complicated:



$$\sqrt{\omega^2\sigma_1^2 + (1 - \omega)^2\sigma_2^2 + 2\rho\omega(1 - \omega)\sigma_1\sigma_2}$$

Figure: Combined Standard Deviation Formula

It includes the variable ρ which stands for correlation between the two strategies. It makes sense, because the more uncorrelated the strategies are, the more they counteract each other's volatility, thus reducing the volatility and vice versa. The sigma σ is Standard Deviation of the strategy.

Suppose there are 2 strategies. One has a Sharpe Ratio of 3, thus is an excellent strategy and the other one has a Sharpe of 2- a worse performing one. Without knowing anything else- trader should only trade the first strategy with all the money and trash the second one, but it is known that the two strategies work in different markets and are completely uncorrelated- they have nothing in common. Plugging such numbers into the formula yields that by combining both strategies, in this case using 50%/50% weights, the resulting Sharpe Ratio will be better than that of the first one, superior strategy!

Primary Strategy	
Excess Return	45%
St. Deviation	15%
Sharpe	3.00
Secondary Strategy	
Excess Return	30%
St. Deviation	15%
Sharpe	2.00
Combined	Use As Separate
Primary Strategy Weight	50%
Correlation of Strategies	0
Excess Return	38%
St. Deviation	11%
Combined Sharpe	3.54

Figure: Aggregate Sharpe Calculated

But how does adding a worse strategy to a portfolio, make a portfolio better? The logic is that while it does decrease the excess return, which is simply a weighted average of both, it also decreases the volatility- the standard deviation, by much more, as those two strategies will often counter each other and reduce the overall risk of the portfolio, resulting in a larger Sharpe Ratio. As a matter of fact, many hedge funds do exactly that. They create a large portfolio of strategies, only adding those strategies that are not correlated with the portfolio and will increase the Sharpe. Lesson from it is that the more uncorrelated strategies a trader can efficiently manage- the better the results will be. This can be achieved rather simply- have multiple trading plans and go through them all during the trading hours.

The Big Trade

2008. Subprime mortgage crisis- the entire world is getting shocked by the global financial crisis except for a handful of individuals who were smart enough to foresee and bold enough to try profiting from the upcoming crisis. Michael Burry, a Scion Capital manager is returning almost 500% for his investors this year- he was one of those, what we now call legends, that was able to anticipate the crisis. Michael bet hard on the crash of US housing market and against all odds came out on top with even a movie made about his trade. But he wasn't the only trader to make a legendary return from a single trade. In 1992, George Soros went heavily against the British Pound and pocketed \$1 billion from a single trade, earning him the nickname "The Man Who Broke the Bank of England". But even 5 years back, Paul Tudor Jones correctly anticipated Black Monday, going short using leveraged instruments on the US stock market. His fund returned almost 70% that year when many others crashed. Way before Paul was even born, Jesse Livermore took a stand against the U.S. market in 1929 and correctly caught the crisis, similarly to all the other guys mentioned, earning hundreds of millions. His legend still endures, inspiring authors like me to write about him and study his actions. But he wasn't the first one to make a great trade either. In 1869, Jay Gould and his partner James Fisk managed to corner the gold market, earning a fortune until the U.S. government intervened. Even before them, we had the Rothschild trade in the British bond market during the Napoleon wars but there were big trades on an international scale even before the Jesus was born! In 48 BC Cleopatra, who was a Queen of the Ptolemaic Kingdom of Egypt, hoarded a big position in grain and by releasing or withholding the supply she would influence the Rome's economy which was somewhat dependent by the price of grains. History of the great trades dates thousands of years- almost since the very dawn of time. Trading

is shaped by the great trades; legends are made this way, but even on a more realistic scale- sometimes traders have ideas with such high conviction that it simply seems wasteful to treat them with the same rules as all others. Nowadays, many floor traders agree that to meet their annual budget, they must have at least a few big winners throughout the year. So, how do these big and definitely not average yet exceptional trades fit into a trading plan designed to produce consistency and avoid irregularity- essentially do the opposite as the “greats” did at their peak?

“The big one” can mainly differ from “the regular one” in its risk-reward ratio, win rate or the position size. Because these metrics are strictly regulated by the trading plan, with the exception of the win rate which is a consequence of the plan, “the big one” does not actually fit within the plan as it simply is... not like the trading plan suggests. If a trader starts disregarding the trading plan for “high conviction” ideas, it leads to inconsistency, undermining the major goal of the trading plan. The plan becomes irrelevant!

Instead, a separate plan must be made for “The Big Ones”, “The Perfect Trades” or whatever people call trades that are more powerful than the others. This separate strategy should have its own rules and execution, becoming an additional, highly discretionary strategy to add to a portfolio of strategies. It comes with the added benefit of being able to track how this “high conviction” strategy performs. Perhaps it is not as effective as it seems, especially if there are only a handful of big trades a year compared to a more consistent strategy with smaller bet sizes and more defined rules. Truth is, Michael Bury or George Soros, others, all had a framework in place even for their oversized bets. Michael’s fund first endured a drawdown south of 20% until returning him a fortune when everything crashed. If he hadn’t calculated his risk correctly and had over-betted, perhaps he would

have gotten a margin call before his trade could have materialized. Similarly, a trading plan for “the big ones” should cover the same trade cycle steps, but with more freedom to act within in- the consistency may not be in terms of the strategy, but rather in execution which ensures a trade is managed well.

The Fundamental Trading Equation

A billion-dollar hedge fund manager and the author of a famous book “Art of Execution: How the World’s Best Investors Get it Wrong and Still Make Millions” Lee Freeman-Shor demonstrates his absolute lack of not having a clue of the key dynamic of trading with a sentence in the 9th page that reads:

“Even more shocking was that some of these legendary investors were only successful 30% of the time”

He then continues:

“I had employed some of the greatest investment minds on the planet and asked them to invest in only their very best, highest-conviction, money-making ideas. And yet the chances of them making money were worse than tossing a coin...”

If you do not know what is wrong with these sentences, you are not alone. Recently I have seen one of those short “educational”

videos surfacing on the internet with what I believe was 3 million views. The trading “professional” in the video explained:

“Stop focusing on your win rate!” He yells “Start focusing on how much you win when you’re right and how much you lose when you’re wrong”

He was so close, yet so far.

Before the discussion about the most important relationship in trading, some definitions must be clarified. When the trade is being made, a worst-case scenario is assumed- that is, an adverse price reaction. A stop loss (SL) is the price at which the trader will exit regardless of anything with a loss. On the contrary, if the trade goes well- trader will earn money and this growth of capital is defined as a return. The price at which a trader decides to exit with a win is a take profit (TP). Given trader wins 6 trades of 10 trades, his win rate is 60%. The formula is elementary- Total Winners / Total Trades. A risk-return (RR) is a metric, describing how far from the price of the position (cost basis) is the stop loss versus the take profit. A RR ratio of 1:2 means that for the trade, trader is expected to earn 2 times the amount of risked capital and can also be written as RR 2. By betting \$5 on a basketball game for the underdogs where in case of a win you would get paid \$20- the RR is 4 in such a case.

To discover the fundamental trading equation, consider a hypothetical scenario. Every single day at 1pm a buy position in a random instrument is placed. For this experiment, two accounts are set up- one account which aims to earn RR 1 for every trade while the other is trying to get a RR 10, meaning in the first account it is expected to earn the same amount when trade is successful than when

the trade is a loser where in the second account it is expected to earn ten times the amount of a loser, given trade is successful. Question- over a matter of 100 random trades, which account, first or second should have a bigger win rate, meaning more successful trades?

The first one, obviously. No one should expect to earn 10 times more for every trade without losing the success rate even a little bit! This implies that there must be some relationship between the win rate and the risk-return ratio. Perhaps the bigger the RR, the smaller the win rate? Logically, given the law of large numbers and the unpredictable nature of the stock market, if one makes enough random trades with a 1:1 risk return ratio, meaning they expect to win or lose the same amount, the win rate should approach 50% - a coin flip. The next important assumption that comes afterwards is that simply by changing the RR there should be no profit to be made in the markets. For this reason, just by varying the RR ratio, the win rate should adjust to still reflect the coin toss probability. In other words- the bigger the RR, the smaller the win rate. The smaller the RR, the bigger the win rate.

One way to calculate this relationship is to start with the average profitability of the next trade, which across the financial literature is defined as the expected value (EV), and is calculated using the formula below:

$$EV = (\text{win rate} * \text{average win}) - (\text{loss rate} * \text{average loss})$$

In the formula, the loss rate is 100% - win rate. An average win and an average loss is the risk-return but in monetary terms, rather than a ratio. A 1:2 risk-return ratio could mean risking \$10 to gain \$20, on average. Note, however, that the EV requires average values,

revealing a sample of past trades is needed. But it also points towards the fact that the actual data will have some deviation from the EV, which should become smaller the more trades are done. The bigger the sample- the more accurate the measure will be. Calculation of the expectancy of a strategy that has a 50%-win rate and a risk-return rate of 1:1 given risk is \$10 is shown below:

$$EV = (50\% * \$10) - (50\% * \$10) = 0$$

The expected return of such a strategy is zero. This is aligned with the prediction that there should not be any expectations to earn any money given we win 50% of the time and every time win the same as we lose. Assuming that simply by changing the RR there is no profit to be made means that the win rate must change for the EV to always remain 0.

This formula, however, does not include transaction costs. Assume that the margin fees, slippage, commission and all other fees add up to 5% of the risk size, meaning if the risk is \$10, then really, risk becomes \$10.5, including the transaction costs. Modification of the formula is straightforward:

$$EV = (Win\ rate * Average\ Win * 0.95) - (Loss\ rate * Average\ Loss * 1.05) = (\$0.5)$$

In this scenario, the formula suggests that the system is expected to lose \$0.50 on each trade, aligning with logical expectations. From this, we can derive a formula that, given the fees rate and the risk-reward (RR) ratio, calculates the win rate needed to achieve a breakeven expected return (or any other specified EV). Let's define it

as the breakeven win rate. This benchmark is crucial, as it indicates that any strategy lacking a market edge will, in the long run, have a win rate equivalent to a coin flip, shown by the formula. Derivation of the formula is shown below:

$$EV = (Win\ Rate\ \% * \$\ Average\ Win * (1 - Fees\ \%)) - ((1 - Win\ Rate\ \% * \$\ Average\ Loss * (1 + Fees\ \%))$$

Rename the variables & rewrite it:

$$E = RW (1 - F) - (1 - R) L (1 + F)$$

Switch sides & re-arrange:

$$WR (1 - F) - L(1 - R) (1 + F) = E$$

Expand WR (1 - F):

$$WR - WRF - L (1 - R)(1 + F) = E$$

Expand L (1 - R)(1 + F):

$$WR - WRF - L - LF + LR + LRF = E$$

Move L and LF to the right side:

$$WR - WRF + LR + LRF = E + L + LF$$

Factor R from the left side:

$$R (W - WF + L + LF) = E + L + LF$$

Divide both sides by $(W - WF + L + LF)$:

$$R = (E + L + LF) / (W - WF + L + LF)$$

Re-introduce names:

$$\text{Win Rate \%} = (EV + \text{Average Loss} + \text{Average Loss} * \text{Fees \%}) / (\text{Average Win} - \text{Average Win} * \text{Fees \%} + \text{Average Loss} + \text{Average Loss} * \text{Fees \%})$$

Strategy Characteristics

Plugging the $EV = 0$, $RR = 1$ and a 5% fees rate into the derived formula results in a win rate of 52.5%. The conclusion is clear-to not lose any money, traders have to beat the market to get the transaction fees back by the very least! This formula can produce a table of the win rates required to achieve an EV of 0 given various RR ratios which can be further graphed.

EV	0
Fees Rate	5%
Trade risk	10\$

Average Win	Average Loss	Risk/Return	Win Rate
\$10	\$0.50	20.00	5.24%
\$10	\$1	10.00	9.95%
\$10	\$2	5.00	18.10%
\$10	\$4	2.50	30.66%
\$10	\$6	1.67	39.87%
\$10	\$8	1.25	46.93%
\$10	\$10	1.00	52.50%
\$10	\$12	0.83	57.01%
\$10	\$14	0.71	60.74%
\$10	\$16	0.63	63.88%

Figure: Win Rates Given RR

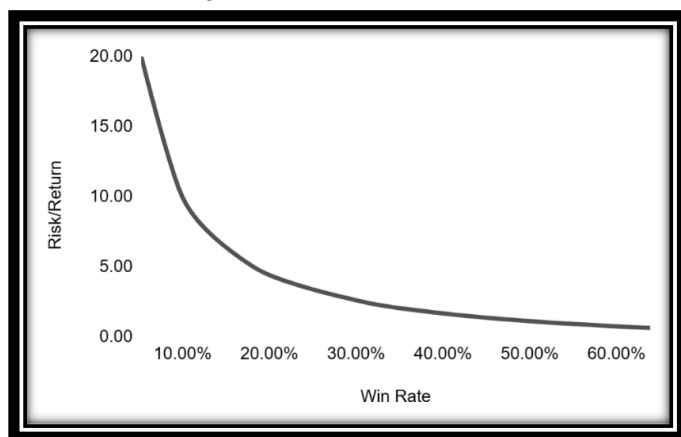


Figure: The Breakeven Frontier

The relationship is crystal clear- the larger the risk return, the smaller the win rate. This can be defined as the breakeven frontier and is a fundamental relationship when trading which will hold true as long as the markets are random. Any strategy that is below this line is unprofitable while any strategy above it is profitable, assuming that the position size and the win rate is always fixed, therefore it is natural for traders to search for a system that is as north-east as possible.

While this formula is based on the idea that markets are purely random and there is no edge to be made simply by playing around with the RR- behavioral finance advocates will argue that the market is not random. This is actually confirmed by the fat tails on the distribution of returns and many other signs which we have discussed in the efficient market hypothesis section in the beginning of the book. With that said, the efficient market hypothesis might just be the best assumption we have. After all, “it takes only one other trader to negate what you believe about what is high or what is low”- Mark Douglas, who, in his book “Trading in the Zone” argued that since trading is a zero-sum game, every time the trader sells or buys, it does so from another market participant who might be just as convinced about the market moving the other way. If that wasn’t the case- trader couldn’t enter into position in the first place as there is no one to trade with. It builds this idea of truly believing in a market which is efficient and random, free from expectations. This idea supports the breakeven frontier which is why the win rate should come closer and closer to the fundamental rate that is defined by the RR, over enough trades for a strategy which has no edge. A trader that can consistently pull a higher win rate than the breakeven rate is considered to be beating the market.

It is important to understand that all strategies have their general characteristics regarding the average risk-return ratio they are trying to catch and the subsequent win rate. Approach this from the logical perspective- a mean reversion strategy will almost never have a long running, big return trade, simply because such a system should exit once the price reaches the mean, while a momentum or a breakout trade might pick up steam, form a new trend and return a big multiple of risk. This translates to the fact that the strategies have a different win rate from the very fundamentals to work from.

The mean reversion will have a large win rate, simply because it aims to profit from rather small movements towards the mean. If the trader has done his homework and he knows the statistics of price returning to its mean of the given instrument, chances are, the trader can achieve a 70%-90% of a win rate but most of this win rate may actually come from the fact that the mean reversion strategy has a tiny RR. The analysis is supposed to help achieve a larger win rate than the benchmark and this is the only and a single reason what analysis is for- the granular increase in win rate over the breakeven win rate for a given risk-return ratio which generates the positive expectancy of the system.

Because the fees are a major component of the EV calculation, they should be optimized for every strategy. The examples above have shown how the risk-reward together with the win rate are the main statistics describing how the strategy will behave profit wise in the long term. The transaction costs, on the other hand, is what will bring down the expectancy of the systems. For this reason, trader must increase the win rate, thus his edge, to account for the negative effect of costs. The lower the costs- the easier it is for the trader. It is what every market participant should aim to minimize and have a solid system in place for this reason alone. Simply by optimizing the transaction costs, one can “get” a win rate boost of a few percent which over the long-term results in a significantly increased profitability. In other words, a trader who has his costs optimized already has an edge over other market participants that do not have it figured out.

Spread. While brokerage fees matter, they are usually quite static and there isn't much you can do about them, such as the commission or the margin fees- it does not depend on the trading style nor frequency. What does depend on the frequency of trading is the

spread. It is the difference between the price one can buy the security (Bid) and the price they can sell the security (Ask). It is calculated as the Bid price - Ask price.

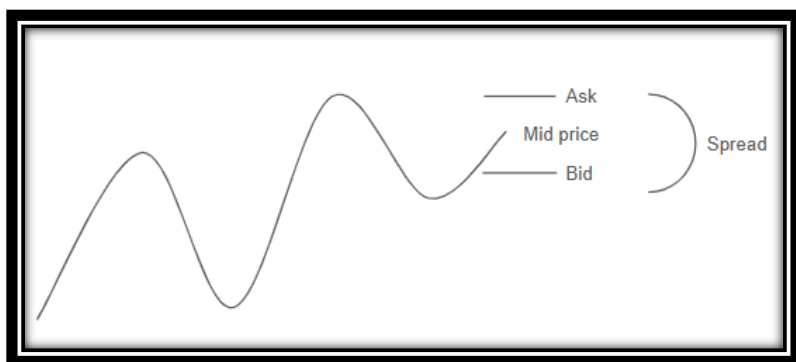


Figure: Spread

To illustrate a real-world example, I selected the most widely traded derivative instrument in the world- ES Continuous Futures (S&P futures). The last price as of writing is \$Bid: 5094.25, Ask: \$5094.75, therefore the spread is \$0.5.

The smaller the move trader aims to catch, the larger the \$0.5 becomes in proportion to the trade. For example, if market participants are aiming to catch a \$50 move, then the \$0.5 is only 1% of the trade size, however, if they aim to catch small moves, such as \$5, then the \$0.5 spread is 10% of the trade size! In other words, the spread component alone of the transaction fees becomes 10%! Together with the other fees, that might put the transaction costs up to 12% or even 15%!

One way to estimate the costs of the spread to the trading is by dividing the spread by the average size of a daily, hourly, minutely,

weekly, etc. candle- related to the type of trading. A day trader might realistically aim to catch a big 1-hour candle, or a strong 4-hour candle if he is lucky or that's the goal. If you are a position trader, then really, monthly sized candles is where you are looking at.

The Average True Range (ATR) indicator helps find the typical size of price changes in trading. It looks at how much prices move from the highest point to the lowest point in a period. ATR then averages these movements over a set time, like the last 20 periods. It shows the average volatility and is considered to be one of the most essential indicators- it allows traders to calculate the market noise, volatility, risk and more. The formula is as follows:

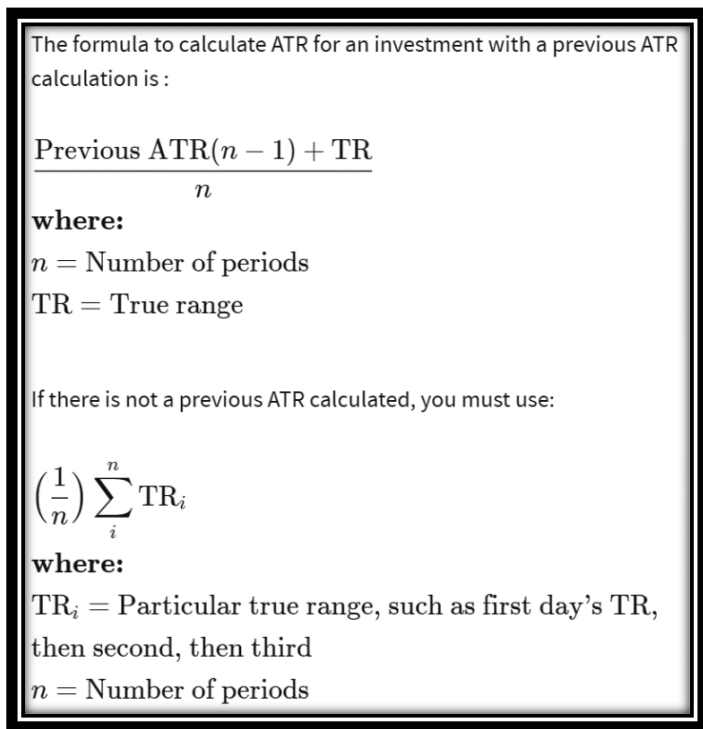


Figure: ATR

A table can be created showcasing the relationship between the spread costs on ES futures and the candle sizes, related to the trading type.

Spread		\$0.50	
Trading Type	Candle	ATR	Spread Costs
Scalping	5 min	\$2.64	18.94%
Day Trading	4 hour	\$18.85	2.65%
Swing Trading	1 week	\$120.14	0.42%
Position Trading	1 month	\$316.97	0.16%
Investing	1 year	\$600.17	0.08%

Figure: Spread Costs

This is one of the problems with frequent trading. Given that you are scalping and trying to catch small moves- costs become a massive anchor stopping you. Add to this the commission costs and we might be looking at a 20% transaction costs component to your trading. Given you are going for RR 1.5, then with a 20% fees component, 50% win rate is where you are looking only to break even! The spread, however, is not itself fixed. Below is the spread of the BTC/USD for the first minute of 2020-09-22. It ranged from 0 to \$2.5.

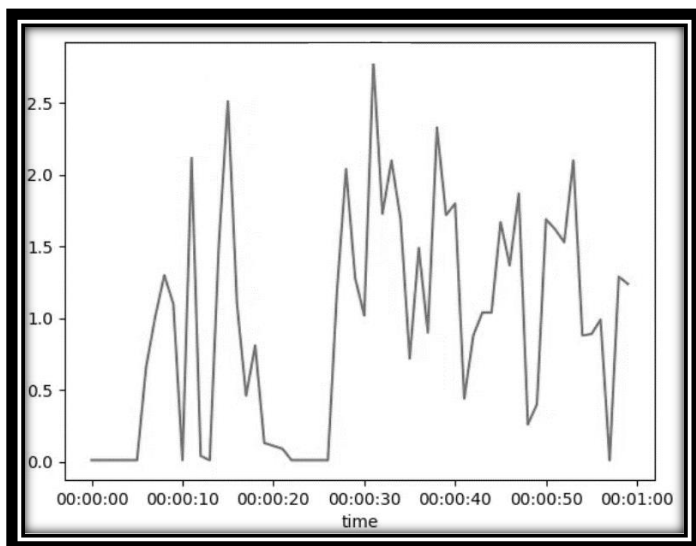


Figure: Historical Spread

And the spread is dependent on various factors, but the most important is liquidity together with volatility. Volatility refers to the ease with which an asset or security can be converted into cash without affecting its market price. In other terms- liquidity is the degree to which the security can be traded without it affecting the market price significantly.

For a retail trader who trades with a \$1000 account, an AAPL stock is very liquid- a trader can easily buy and sell the stock without influencing a tick. But for Warren Buffet, who, as of 2024, has an AAPL position of \$174 Billion which is about 6% of the whole company, AAPL is not liquid, because if he wanted to sell his shares quickly, he would push the share prices down by many percentage points hence liquidity is rather relative.

That being said, securities such as AAPL are generally speaking very liquid. An investor can easily acquire a position worth millions! But a stock that trades in Norwegian or Australian exchanges is much less liquid, it is many times more difficult to buy or sell positions that are worth millions. The prevailing illiquidity allows bigger traders to affect the market price using less money resulting in an increase of risk as a big trade might shake the market significantly.

Both liquidity and volatility have major influence on how risky people perceive the instrument to be, which will manifest itself in wider spreads. Note that the reasoning will be explored in the upcoming chapters but the widening of spreads on less and less liquid instruments can be directly observed in ES futures. As of writing, the closest to expiration had a spread of \$0.5 where the second closest had a spread of \$1.25 and for a future which expires in more than half a year, spread is currently at \$2.75. It is practically impossible to have a scalping strategy on a future which is far from expiration as the transaction costs component becomes massive. Additionally, events will have a huge impact on volatility, and this will increase the spread. Any trader who wants to minimize the transaction costs has to aim for a liquid and a calm, event-less market, but it poses yet another brainteaser- trader has to see some volatility to make trades. A market that is 100% relaxed and does not move creates little opportunity to execute the strategies- a judgement between the right amount of volatility versus the cost of participating in market, the spread, has to be made.

Each instrument will have its own breakeven frontier due to the change in transaction costs in order to trade them. The relationship between transaction costs (types of trading) and the breakeven frontier is illustrated below.

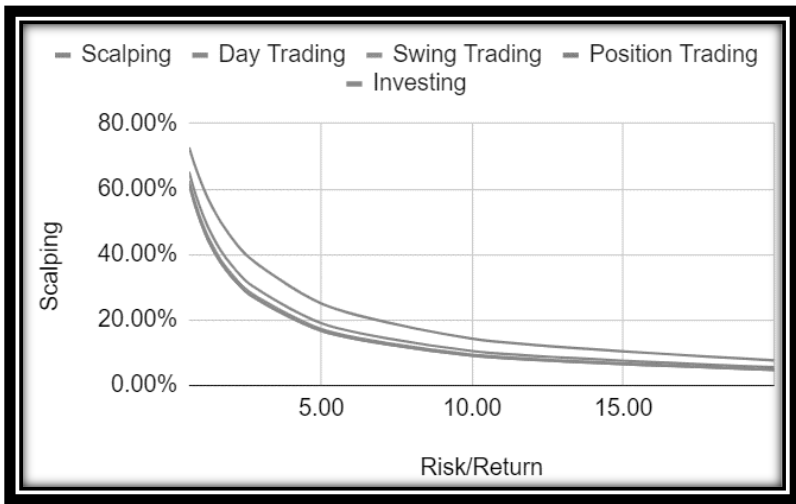


Figure: Breakeven Frontiers

The scalping is the one that's the furthest out, because its transaction costs are the greatest. For this reason, the benefits of scalping which are the quick cumulative growth comes with a high cost illustrated in a significantly shifted breakeven frontier, making it extra difficult to beat the market, on top of competing with a hungry crowd of algorithms and young floor traders. It is important to note that the strategies will also have a direct effect on the costs. Trend traders, for example, will tend to have higher transaction costs as they are always buying into a rising market and shorting into a falling one—similarly to the breakout traders, whereas mean reversion traders will incur smaller transaction costs as they are essentially doing the reverse. There is a small premium in going with the market.

Getting All Together. The risk-return ratio and the win rate relationship is an extremely important aspect when designing any trading strategy. It describes the behavior of the strategy and the trader itself. This relationship provides a solid frontier which is the

benchmark traders have to beat. Knowing the characteristics of the strategy allows the market participants to set probabilistic expectations for their trading. Then, with excellent analysis, experience and execution, the win rate has to be optimized to make the trader profitable.

Before going in for a trade, the trader has to determine the market points where he will exit- the stop loss and the take profit which not only acts as a risk and consistency management tool- it also allows the exact calculation of RR, thus the breakeven win rate. Knowing where the exit points lay, one can use volatility or technical analysis, other tools to make assumptions whether price can possibly reach the levels in the first place, during the given timeframe.

The idea part of the trading cycle is really just restating the strategy goal in a more technical way. Trend trading: identify trends and go along with them. In this case, the idea stage of the trade cycle is directly connected in finding a pattern or a trend that displays a higher than a coin flip probability that the market is going to go with the trend within your context of the RR ratio. For the trend trading, it can be the fact that there was no catalyst, but price is experiencing a dip during a major trend. Your idea can be to buy at a certain Fibonacci or a pivot level.

Ask yourself- when does the market exhibit higher than a coin flip probability of price moving one way or another within your risk-return range. The answer must be directly connected to the inefficiency you are trying to exploit with your strategy, your type and has to originate from your analysis.

In many cases, the answer lies in the strategy and the way strategy is intended to exploit the inefficiency itself. Make your idea generation process centered around it and it will be the waypoint guiding you. You might want to play with your ideas, you might want to read some books, attend courses in order to familiarize yourself to the market patterns, fundamental shifts, sentiment changes, news reactions and so much more! Focus on your strategy and define what it is exactly that you are trying to catch. Make more definitions and repeat defining until you have a very clear theoretical understanding of what you would treat as your perfect trade and where does it originate from. What's the RR? How can you find the first beginnings of an epic trade? Where do you search for them? What can you see?... With the idea in place, it has to be evaluated and if passed- put into practice. The evaluation step is called validation and is the next part of the trade cycle.

Validation

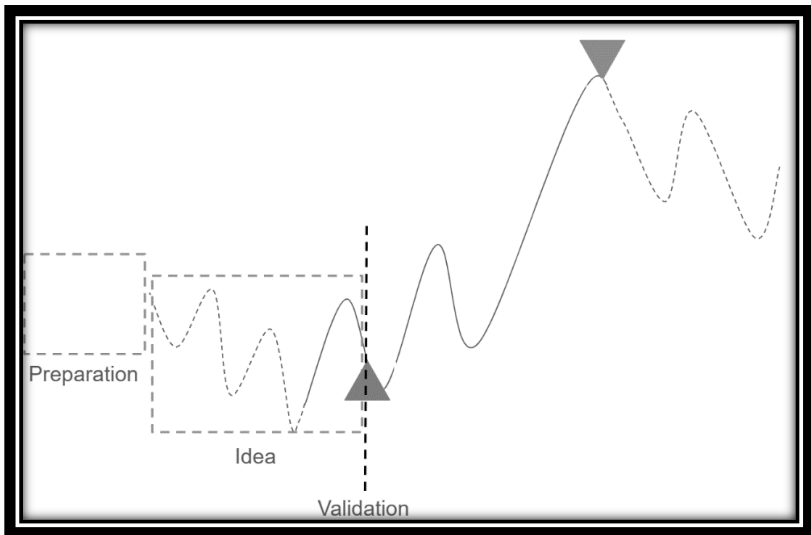


Figure: Validation

1 872. Ashbury Harpening, a famous US banker receives a message from William Ralston, owner of the bank of California, which is describing a massive diamond mine found in the American West, Wyoming. At first, he thought about it as a joke, but with some talk with his friends he soon became so intrigued, that the first ship going back to the States had him accommodated in the cabins.

When he reached San Francisco, the excitement was similar to that of the gold rush days. Two guys named Philip Arnold and John Slack were the ones to have found the mine and while they had not made the site's information public, they led a highly respected mining expert to it a few weeks back, where the expert watched the miners dig up the diamonds, one of whom was worth north of \$1 million. Bankers asked

the prospectors to come with them to New York to verify the diamonds where indeed, the diamonds were verified. The financiers could barely hold their excitement and were reluctant to invest massively into the mines, but before that, they decided to lead the best jeweler they could find into the mine to verify the claims the last time.

Louis Janin, the best expert in the country met with the group in San Francisco from where they embarked on the journey to the mines. After arriving to the site, they stayed there for 8 days and the bankers looked amazed when the expert mined everything- emeralds, diamonds, sapphires, pulling those seemingly out of nowhere- below rocks, randomly shoveling them from the dirt and various caves. The expert was convinced that it was the richest field in the history of mining.

The next step for the financiers was to get rid of Arnold and Slack, to whom they offered \$700'000- an enormous sum at that time! After discussions, they came to an agreement and a private corporation was formed. News spread across the country and soon after, the first trip to begin mining was being led only to find out there was not a single diamond to be found! Bankers fell for the biggest scam of the century.

Truth was, Arnold and Slack had bought gems from their savings and a loan, which they then hid across the mine tricking the experts into thinking this was all true. They knew that only by allowing the bankers to validate the mine by themselves, they would trust the correctness of it! What the Arnold and Slack had to do now was make sure financiers validate their opinions see what they wanted to see.

In trading, market participants are usually like the financiers, seeing what they want to see and trying to validate their ideas as soon

as possible with the smallest amount of work. The market, however, acts like Arnold and Slack, always giving the opportunities and often looking dumb- problem is, some of those opportunities are fake and market participants have to look through the surface to spot the catches.

A validation stage of the trade cycle is responsible for taking the trade idea and making sure the idea is valid. The first thing, of course, is making sure the idea adheres to its fundamental principles- the strategy goal of exploiting the inefficiency. Then confirmation is needed whether the characteristics of the trade are valid- that is if the risk-return is realistic, and the probability of a winner is in line with our expectations. In essence, the idea and the preparation stages of the trade cycle is like a generator while the validation stage is the filter for the bad ideas.

Since this is the last step before making the trade, it must be overlooked by the risk management principles. Additionally, as this requires judgment, a crucial step for the traders or investors is to validate their cognitive ability, to avoid the situations that bankers got themselves into. Risk management, during this step, has a goal of either letting the trade through or not, so it can be said that validation is just a part of it.

During this step of the trade cycle, traders first validate whether they can make the trade in the first place- does it adhere to the principles of the strategy? Then, they validate the trade technically- the place (or the general zone) of the stop loss and the take profit- do they align with what the great trade looks like, are they realistic? The first step, however, is validating ourselves.

Psychological risk

Before traders and investors even begin considering whether the idea is aligned to the strategy, they must determine whether they are in the right psychological state to make this trade, even if it looks like a perfect setup. The reason for it is because they have to prevent psychological biases which may have decreased cognitive ability and thus the quality of the analysis from the prior steps. While this may seem like a rather simple problem to solve, countless genius-level traders have failed due to the psychological effects of trading. One of the more popular and specialized books, which I absolutely recommend, about the psychology of top traders was written by Mark Douglas as the “Trading in the Zone”. He goes into great lengths explaining what problems traders face and how to solve those. He argues “Because unlimited possibilities coupled with the unlimited freedom to take advantage of those possibilities present the individual with unique and specialized psychological challenges, challenges that very few people are properly equipped to deal with”. While his book is not necessarily lengthy- it is full of knowledge and a definite read for those who want to learn about the psychology of trading in detail.

Psychology risk validation is the place where the stop sign is put to prevent trading if there is a high likelihood of being in a wrong state of mind. Psychological validation is the cognitive ability filter- don’t pass, don’t trade.

Almost every problem that traders have, which reduces their cognitive ability, is related to the psychology and in particular-

emotional state. During trading, when the capital is on the table, making a mistake based on psychology is easy as trading induces tons of negative feelings, even hormones. Once MPs identify if any of the major emotions problems are present- a step back should be taken. That being said, in reality, for some people it is much harder to control themselves than it may look. Some of the largest psychological problems, that human face during trading environment, are listed below:

- I. **Fear.** Fear of missing out (FOMO) or fear of losses creates anxiety which affects your ability to make rational decisions.
- II. **Greed.** Desire to take profits too quickly or the desire to earn too much by expecting the price to go too much will lead to many missed opportunities.
- III. **Overconfidence.** Happens after a series of winning trades. Traders increase their position size and not for long- come down crashing. The largest losses often come after the biggest gainers!
- IV. **Confirmation bias.** Having a bias for the market (e.g. It sure is going down today!) and then making sure the analysis confirms this bias.
- V. **Lack of discipline.** Not keeping up to your own rules
- VI. **Self-doubt.** Prevents from making any decisions or making decisions without confidence, which will destroy you as a trader in the long run.
- VII. **Gambling addiction towards the markets.** Usually comes after making trades with a position size that is too big.
- VIII. **Stress or burnout.** Sometimes taking a step back is the way to go.

- IX. **Overcomplicating and overthinking.** Trading is simple! Not easy. But simple! By overcomplicating things our mind gets entangled, and we start losing our focus which leads to worse decision making.
- X. **Boredom!** A symptom of a position size that is too small or without having clear goals. By being bored we seek excitement and push ourselves to make irrational decisions like jumping into the market prematurely or increasing the trade size, not paying attention to the market.
- XI. **Revengefulness.** You can try revenge on the market after losing or after exiting too soon and the market still moving in your direction. In the first one, you avenge your loss. In the second one, you revenge your impatience, or the opportunity costs.

Developing positive habits is crucial in trading, but aiming for perfection and eliminating all issues is unrealistic. Instead, focus should be on reducing some of the key problems that are the most relevant to you. For instance, if you sometimes feel the urge to engage in risky trading, direct that energy towards non-harmful activities like managing an undercapitalized gambling account instead of your main one. Taking breaks after consecutive unsuccessful trades can also be beneficial as it helps reset your mindset, prevents overtrading, revenge trading, fear-based decisions, and greed. Incorporating this rule into your trading plan can reinforce discipline and manage psychological risks effectively.

The elite traders that are consistent and highly profitable are often the ones that have figured out their emotions better than anyone else. The market does not influence them because the market is simply a flow of information- numbers moving up and down. The market has no emotion, rather it is the expectations about the market that cause negative emotions once the market doesn't fulfill them. They

understand that trading is a risk-taking activity, meaning there must be losers in order to get winners. Losing becomes a part of the game and has no direct or indirect impact on the performance. It is crucial to understand and get the mind straight about the importance of the psychological aspect as it **will** be the final variable which will differentiate a loser versus a pro.

A while ago, a European hedge fund manager whose assets under management were more than \$3 Billion, that put him as one of the largest hedge fund managers in Europe, has said to me that the reason which kept him running his fund profitably 18 years from the 20 years he has had the fund open, was the ability to keep his calm and take stop losses- which he did two times. Those stop losses, meaning admitting in being wrong, even though were painful (20% and 25% drawdown), has kept his fund alive, when others have blown up- the 2008 and 2020 stock market crashes.

“But what has helped you to keep your calm in those 20 years?” I asked.

“Having fundamentals behind your back”.

So, these two principles, according to him, have allowed him to run one of the most successful hedge funds in Europe. Both principles serve as risk management. You win by not losing and the biggest losses come when the person is unable to admit his wrong.

A trading plan also serves as a risk management tool to protect from bad trades and a guide by addressing key issues such as lack of discipline, forgetfulness, greed, fear, self-doubt, and boredom. By

setting realistic expectations and knowing each step of your trading cycle you will mitigate most of those successfully. Risk breaches in trading primarily comes from disregarding established rules—following your trading plan diligently throughout the trade cycle should eliminate the risks and for such reason specific risk management rules should not be in a trading plan unless they are above the trading, such as rules that are directed towards the overall portfolio, which might limit your trading as part as the larger risk management framework. While validating the cognitive ability prior to starting the trade is possibly the most crucial part— the alignment towards the strategy and ensuring the idea fits is no less important.

Strategic risk

The statement "Yellow box is the winner!" seems meaningless without any more context. However, when placed in the setting of a TV show where contestants choose between recently shuffled colored boxes, its significance becomes clear. Each contestant selects a box they believe contains a car as a prize, waiting for the big screen reveal. When the screen finally displays "Yellow box is the winner!" it becomes evident that this seemingly simple statement holds great value—it signifies the winning of a car.

Similarly, a trade idea that isn't connected to a strategy is meaningless, it needs context. At the validation stage, MPs should already have an idea that came from the analysis which implies the existence of the context for the idea— both the analysis and idea have been focused on the strategy therefore when trying to validate the idea,

they should look at it from the other side- invalidation. The idea is already based on some underlying preparation focused on the strategy, so during the validation step one should only make sure to not let through ideas that completely, for a 100%, invalidates the idea. In other words- what should happen for the idea to be fundamentally wrong?

For some, because the idea itself is based on the premise that it is aligned with the strategy, it might seem like this step is sort of redundant, however, it is not the case. While the idea is an abstract form, validation is a technical rule. It should be a strict rule or a set of rules which if breached, negates the idea completely.

Consider trading mean reversion. Price has risen substantially over a period of 2 weeks. You are day trading. Yesterday, the price retraced and it is currently touching the mean of a day trading scale. Looking into larger candles, the price is still very high and so your idea is to short today too, expecting the price to continue further down.

It might seem like a proper mean reversion trade, however the mistake here is that you are day trading but looking into the swing trading price scale. A simple validation rule to prevent that could be to never go into the trade if price is less than 2x ATR from the daily scale moving average. It may be a very simple rule, however if breached, it completely negates the whole trade idea because first-price is already too close to the mean, so no mean reversion is needed and second- even if the trade might be aligned with the strategy, it might not be aligned with your trading type. Experiment and come up with your own one-liner rules to check the alignment. The rules should be:

- I. One line.
- II. Easy to follow.
- III. Completely negates the idea if breached.

Once confirmed that the trade idea is aligned towards the strategy and the trading type, a risk-return characteristic has to be confirmed as a last step. This involves testing if the stop loss zone is okay and if the take profit is correct.

Risk characteristic. “Each strategy has same initial starting point: minimizing risk first, looking to maximize gains only after risk has been defined and controlled” – a quote from the book “Street Smarts” by Laurence A. Connors and Linda Bradford Raschke. They argue that the “No 1 guiding belief is that you must, above all, find setups and entries which minimize exposure. the profit come on their own terms”. Warren Buffet also shares the same philosophy having once said “Rule No. 1: Never lose money...”. The priority for setting and validating the risk before the reward is due to many reasons, but one of them being the fact that money management is controlled through risk and as the book will later discuss- money management is by far the most influential when it comes to the returns of the trading.

The concept of the stop loss, that is the risk, is the protection of the capital, assuming that if the stop loss is reached, then price is likely to continue moving adversely and it would have been worse for the portfolio if there had not been a stop loss in the first place. It means that the worst thing that can happen is price reaching the stop loss and then bouncing back towards the take profit level. In the validation step we have to ensure this happens as rarely as possible and the safest way to do so is to make sure the trade idea is invalidated if the stop loss is

reached. Not only does this give a fundamental reason to trust the stop loss, but it is also psychologically easier to accept the loss, too.

What can make your idea invalid given the price does something? If you are a value investor and the price of your stock falls 20%, then I think it's safe to assume you made a mistake and the best course of action is to exit. If you are a momentum trader and the price goes lower than where the momentum move started, it might be a clear signal that the idea is now invalid. In other words, if the stop loss is breached-trade idea was wrong.

In addition to the price level where the logic behind the idea would be breached, it has to be accounted for the fact of market noise- just because price has traveled this far towards the zone where there is no logic behind the trade anymore, it still is possible for price to make a quick turnaround as the movement towards the stop loss was simply due to the market moving up and down as a consequence of its chaotic nature. One of such events is referred to as a stop hunt, liquidity grab, fake move, spring- all of them refer to the same market phenomenon when before a large move, price makes a quick and a short-lived adverse move from which it quickly retraces into a true move.

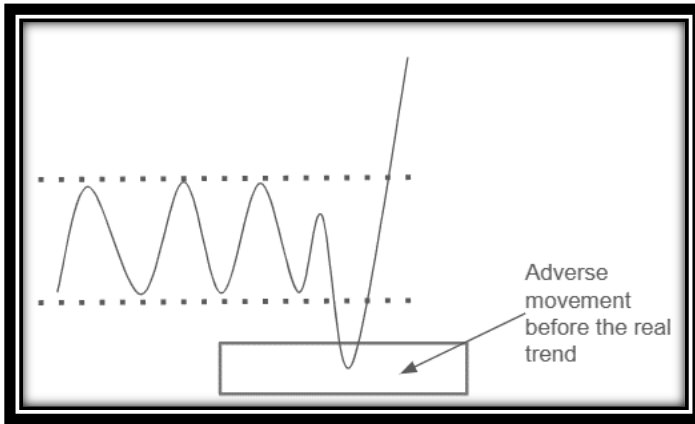


Figure: Stop Hunt

There are various techniques to account for such market behavior but most of them revolve around calculating the size of a probable “noise” movement, then adding that below the idea negation level. This might be some average of volatility. Problem is, when accounting for the negation levels and noise, distance to the stop loss gets bigger, which requires a larger take profit to keep the required risk-return ratio. Assuming that risk management-not losing money- is valued more than the prospect of return, traders should prioritize the verification of the stop loss, even if that means that the take profit zone will have to stretch.

The price moving against the position is what is called market risk, but an often-overlooked risk can come as a liquidity issue. That is-inability to transact without incurring substantial price movements or in extreme cases, inability to enter or exit the position due to the lack of sellers or buyers! It can be very harmful if the price is moving against the position and it is not possible to exit from it at the stop loss zone, which frequently happens in illiquid markets. In general, an illiquid market will raise the transaction costs significantly, therefore

either the win rate or the risk-return characteristic must increase just to account for the increase of transaction costs, not even mentioning the larger risk.

A simple retail trader might be trading with a small position but if the market is illiquid and a big player comes in, it can move the market back and forth, leaving big gaps along the way. A gap is a sudden price jump which makes it impossible to transact in the price which was inside the gap.

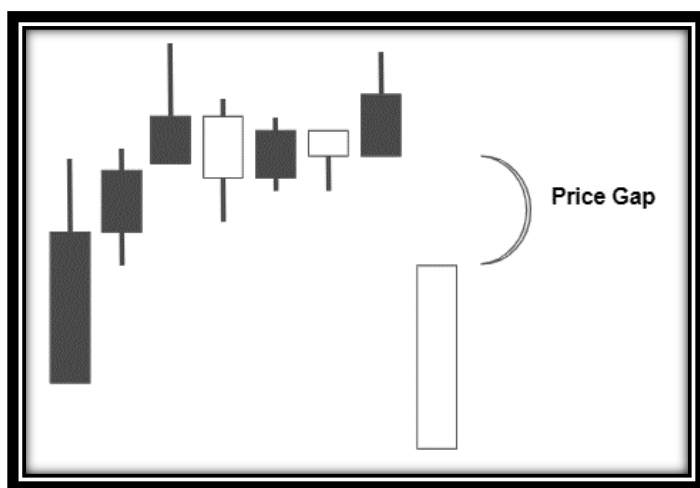


Figure: Gap

That means if the stop loss, in the case shown in Figure: Gap, was below the last candle, then the exit would have been a long way down, at the big red candle- risk was uncontrolled in the duration of the gap. The illiquidity can be present even in the most liquid instruments during times of large uncertainty. Events, macro shifts or company news could be so strong that for a few moments there are no or are only few active market participants and the market becomes prone to illiquidity problems. This may happen if there are too many players in

the market and prices jump so fast it skips certain levels, leaving gaps behind. A premarket or aftermarket, even for the most heavily traded stocks is also considered to be illiquid, therefore before getting exposed to it, traders or investors should be aware of the implications this may have. It is important to make sure that the trade will account for possible gaps and the increase of transaction costs if there is a likelihood for it to run into illiquidity issues. Stop loss that is validated on the liquidity, noise, strategy and other aspects that are important has to lead towards the verification of the return, that is the take profit level.

Return characteristic. Because the priority is the stop loss, in order to keep the required risk-return characteristic, it is simple to calculate where exactly the take profit should be. Given risk-return is 1:2, then if the stop loss level is \$5 down, the take profit should be \$10 up. The goal of validation is to filter out bad trades as much as possible yet leave room for the great ideas to flow through. In the case of a take profit, an idea with an already validated strategy alignment and risk has everything that is needed for the setup of a wonderful trade. Next step is to simply make sure it is actually possible to reach the take profit given the strategy and the trading type.

To see if return is aligned with the strategy, think in terms of where in the market the take profit should be in order to fulfill the inefficiency. Now if your stop loss is \$5 so your practical take profit has to be \$10 away from the price, will the market level set by our inefficiency take profit be closer or further from the \$10 movement size?

What the market participants are essentially trying to answer is whether the place they want to exit matches the expectations of the

strategy and if the exit point is realistic to reach given the type of trader they are. To be fair, each strategy will have its own characteristics and little details therefore a deep understanding about what the strategy is trying to achieve in the market and a definition of how it is possible to know whether the market has realized the edge of the strategy is necessary. That definition should be converted into a check and then validated.

It is crucial to make sure it is possible for the market to reach the take profit according to the type of a trading. A scalper, an investor? Because the type is based purely on the time, then the possibility whether price can travel the required trade distance depends on how much price usually travels in such a period of time. It is the average volatility! As a matter of fact, the indicator ATR is the definition of it- average true range, where true range is the distance of a price from its highs to lows of a given period. Because ATR is by far not the only volatility indicator, think in terms of how the price usually behaves in terms of movement sizes. Maybe you will come to the implied volatility charts, statistical metrics such as standard deviations, beta, market indexes such as VIX or MOVE or maybe you will stay with indicators like ATR or Bollinger Bands. Consider the following example.

You are day trading. You set the stop loss to be \$15 below the current price and you are aiming to earn \$30, thus a risk-return of 1:2. However, the daily ATR is \$28. So, this trade is quite a big stretch as you are aiming to get more than the market moves during its normal day- while day trading. Even if the stop loss is set correctly, the take profit is too far away and given you have to keep the risk-return characteristic- take profit level is not validated. You need to wait for a better price so that the stop loss becomes closer, and our practical

take profit becomes realistic. Explore a similar scenario in the illustration below for a better understanding:

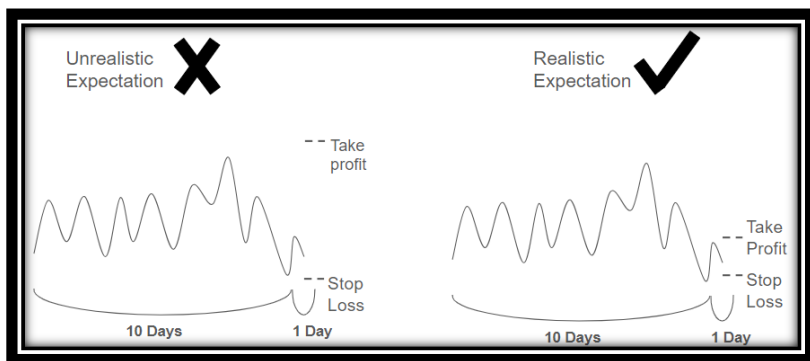


Figure: Expectations Normal Market

In the Figure: Expectations Normal Market you should not expect to earn the full range of your traded timeframe as the whole range was set in 10 days and now you are expecting to smash through it in one day! Don't get me wrong- during big events the market may move more in one day than it moved in one month. At the end of the day, it depends on what you are aiming to catch. For a news trader, very large daily movements are actually quite common. It might be a realistic goal of catching such a massive return, but large volatility introduces a need of having the stops further which will decrease the risk-return characteristic to a more realistic ratio therefore it is a self-stabilizing system.



Figure: Expectations During Events

An okay rule of thumb could be to expect 30%-70% of an average volatility that the market participant trades within, movement. This way the MP leaves some space for the market and increases the possibility of price reaching the targets.

If the idea looks fine, the stop loss is set according to all standards and the take profit is realistic- guns should be loaded and the idea shall continue to the next step of the trade cycle- it is time to start executing the trade and enter into the position. The validation part of the trade cycle took care in rejecting all ideas that are not aligned with what the system is trying to achieve. It is a filter and while it indeed will sometimes block excellent trades from happening as a false positive error, the main concept of it is to block more bad trades than the good ones! The worse trades, when compared to the good trades it blocks, the bigger the win rate is going to be! Having said this, validation

should be optimized to still allow flexibility, because if it is not, then no trades are going to pass at all.

Entry

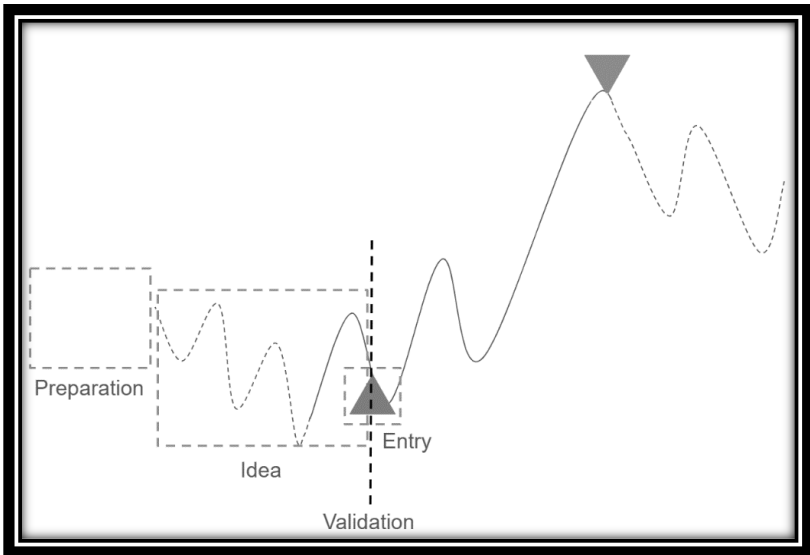


Figure: Entry

In his book "Trading and Exchanges: Market Microstructure for Practitioners", Larry Harris discusses how understanding market structure and its impact on traders is crucial for comprehending the origins of market liquidity, price efficiency, volatility, and trading profits. He stresses out the importance of optimizing the strategies "Traders who optimize their trading strategies will have lower transaction costs and higher portfolio returns" and continues to mention that "Order submission strategy is the most important determinant of execution quality that traders control". This translates, that the way market participants place orders is by far the most important aspect of the execution of a strategy- the way an idea is put into the practice is what determines its outcome.

In the book “The Art of Execution: How the world's best investors get it wrong and still make millions”, even though author Lee Freeman-Shor didn’t seem to understand the risk-return and win rate relationship, he does come to a conclusion “I have come to understand that if successful property investing is all about ‘location, location, location’, success in equity investing is all about ‘execution, execution, execution’” which is rather compatible to that of the Larry’s and while Larry talked about the order submission strategies and how they impact the transaction costs which leads to differences in returns, Lee, in his study, observed that the greatest investors are the ones who seemed to focus on execution of the strategy, rather than individual orders.

Truth is, both Larry and Lee observed parts of a successful implementation of a strategy. In reality, the greatest investors and traders first focus on the execution of their strategy and then optimization of the order submission to deal with the transaction fees.

Orders

In the context of trading, the entry is widely regarded as the acquisition of a security (can be an acquisition of a short position or a Greek position such as Vega, Theta), and the acquisition can only be done with orders- an integral part of the markets, therefore the entry part of the trading plan, defines the method of placing orders the way, which is optimal towards capturing your perfect trade. Let’s begin the entry chapter with some dry-theory about the market microstructure and how it influences one’s trading.

Order types. To understand how the optimal execution of the acquisition of a security is done, traders must know how the orders work.

I. Market Order:

Description: A market order is an order to buy or sell a stock at the best available price, meaning the market order will always buy or sell for the Bid or Ask price, thus introducing the costs of spread. Generally, this type of order will be executed immediately therefore we could define the cost of spread as the price of instant execution. However, the price at which a market order will be executed is not guaranteed as the Bid Ask prices may change frequently. It is important for investors to remember that the last-traded price is not necessarily the price at which a market order will be executed. In fast-moving markets, the price at which a market order will execute often deviates from the last-traded price or “real time” quote.

When to Use: Market orders are used when you want to buy or sell a security immediately at the best available price in the market. They are suitable for highly liquid assets and in situations where the speed of execution is more critical than the price.

II. Limit Order:

Description: A limit order is an order to buy or sell a stock at a specific price or better, meaning limit orders are the ones

that set the Bid Ask prices and thus do not incur the spread costs. A buy limit order can only be executed at the limit price or lower, and a sell limit order can only be executed at the limit price or higher. A limit order, however, is not guaranteed to execute, which is why we do not pay the price of immediate execution, the spread. A limit order can only be filled if the stock's market price reaches the limit price.

When to Use: Used to control the price at which you buy or sell, avoid spread costs. It is a primary choice for fast trading, like scalping or even day trading.

III. Stop Order:

Description: A stop order, also referred to as a stop-loss order, is an order to buy or sell a stock once the price of the stock reaches a specified price, known as the stop price. When the stop price is reached, a stop order becomes a market order, thus inducing the spread costs, immediacy and the randomness of the price this order will be filled on. A buy stop order is entered at a stop price above the current market price. A sell stop order is entered at a stop price below the current market price. Because the stop order is converted into the market order once reached, it is important to stress the fact that the execution price an investor receives for this market order can deviate significantly from the stop price in a fast-moving market where prices change rapidly.

When to Use: They are commonly used to limit losses or protect profits, referred to as the stop losses.

IV. Stop-Limit Order:

Description: A stop-limit order is an order to buy or sell a stock that combines the features of a stop order and a limit order. Once the stop price is reached, a stop-limit order becomes a limit order that will be executed at a specified price (or better). The benefit of a stop-limit order is that the investor can control the price at which the order can be executed whereas it cannot do that with a stop order. As with all limit orders, however, a stop-limit order may not be executed if the stock's price moves away from the specified limit price. The stop price and the limit price for a stop-limit order do not have to be the same price- for example, a sell stop limit order with a stop price of \$3.00 may have a limit price of \$2.50. Such an order would become an active limit order if market prices reach \$3.00, however the order can only be executed at a price of \$2.50 or better.

When to Use: Stop-limit orders combine features of stop orders and limit orders. They are used to specify a stop price at which a market order should be triggered, and a limit price at which the order should be filled.

V. Trailing Stop Order:

Description: A trailing stop order is a stop or stop limit order in which the stop price is not a specific price. Instead, the stop price is either a defined percentage or dollar amount, above or below the current market price of the security ("trailing stop price"). As the price of the security moves in a favorable direction the trailing stop price adjusts or "trails" the market

price of the security by the specified amount. However, if the security's price moves in an unfavorable direction the trailing stop price remains fixed, and the order will be triggered if the security's price reaches the trailing stop price. Depending on whether trailing stop becomes limit or market order once triggered, defines the way it behaves and the transaction costs it incurs.

When to Use: Trailing stop orders are used to protect profits by adjusting the stop price as the market price moves in a favorable direction.

Order timing restrictions. In addition to the different types of orders- each order may be placed for a certain amount of time or at a given time.

- I. **Day:** Order stays till the end of day
- II. **Good-Til-Canceled (GTC):** Order stays until canceled.
- III. **Immediate-Or-Cancel (IOC):** Any portion of trade that is not filled immediately is canceled.
- IV. **Fill-Or-Kill (FOK):** Order is immediately filled or canceled.
- V. **All-Or-None (AON):** Order is 100% filled or canceled.
- VI. **On Open:** Order filled only when the market opens.
- VII. **On Close:** Order filled only when the market closes.

Order book. "The trading floor of the New York Stock Exchange is a room filled with people who believe that tomorrow the world will be fundamentally different than it is today. The same could be said of

any other trading floor in the world, but the New York Stock Exchange is louder than most; the noise of the floor itself, of people shouting, papers rustling, the ticking of the old, slow clocks mounted high on the walls, can turn into a roar." - Michael Lewis describing the trading floor in his book "Liar's Poker".

Today, there are no roaring trading floors on exchanges left with men screaming their lungs out. No, everything is transacted electronically using order books- it is where the market orders meet the limit orders, and the market comes alive. The order book is defined as an electronic list of buy and sell orders for a security or other instrument organized by price.

To understand how the market works, begin with the concept of a limit order. When trader chooses a market order, he knows the price, but does not know if he will trade. Assume you place a limit order to buy some shares for \$10. This limit order will be a price you are willing to pay (asking) for the stock. If no one else is in the market but you, then your asking price of \$10 is the only quote one can sell the stock for- there are no more buyers. However, considering you aren't alone in the market and the stock is currently at \$11- it must fall to \$10 for you to trade. You will only trade once the price reaches \$10. Naturally, if someone else has a limit order placed at \$10.5, then this person would trade before you.

But the market is large and at any given point in time there are traders willing to buy the stock for \$10, \$10.1, \$10.2, \$10.3 and so forth. The first ones to trade, if price starts falling, will be the ones with the most closely to the current price priced limit orders- this is called aggressive pricing. Similarly, there always are people that are willing to sell the stock if it reaches \$12, or \$13! In a big market with

thousands of participants, people would be willing to sell the stock for \$11.1, \$11.2, \$11.3 and so on. But in such popular markets, many people can have their limit order on the same price, like exactly \$11. In this case, the first orders to fill will be the ones placed earlier, even by a millisecond. Each seller and each buyer have their own number of the amount of shares they want to trade so the price levels have different liquidity. All of these buyers and sellers with their limit orders make up the order book and they are organized by which limit order comes closest to the current price. From this example, a small limit book can be created and is shown below:

Volume (Shares)	Price	
5	\$11.30	
10	\$11.20	
6	\$11.10	<- Closest Asking Price
	\$11.00	<- Average of \$11.1 and \$10.9
7	\$10.90	<- Closest Bidding Price
15	\$10.80	
3	\$10.70	

Sellers willing to sell for a price. They are the supply

Buyers willing to buy for a price. They are the demand

Figure: Order Book

The limit orders, for which people are willing to buy and sell, make up the bid and the ask prices. An average of the closest Ask and Bid limit orders from the buyers and the sellers is the current price of a security. In other words, price exists only because there are people placing limit orders, therefore limit orders make the market- they are the liquidity. The more limit orders are on the book, the bigger liquidity of the instrument, meaning it is easier to buy large quantities without affecting the market price too much. An important player in the market is the market maker. It is usually large institutions whose primary goal is to place the limit orders for both the Ask and the Bid price in order to make the price more liquid and attractive to market

participants. Generally- the wider the distance between the bid and the ask prices, the less players are in the market (so quotes don't have to be that competitive) or the risk in the market is high. The movement of the bid-ask spread tells about the behavior of the market makers, the current liquidity and risk- it is an important part of the analysis.

By executing a market order, traders know that they will get the security, but they do not know the price. Why? This is because a market order buys or sells from the closest bid or ask price. If you want to buy 15 shares of the stock in our hypothetical order book, then you will buy all of the closest 6 shares for the price of \$11.1 that someone wants to sell and you will buy 9 shares for the price of \$11.2, so your average price will end up being \$11.16, even though the current market price is \$11, a difference of 1.4%. Given enough volatility- your market order might get a price which is significantly different from the current price.

Institutions like banks, hedge funds or people who trade blocks (large amounts) can be unwilling to use market orders because they may move the market which will create large additional costs. For this case, a limit order is the preferred method. The problem is that while they know the price that they want to trade- they don't know if the market will ever reach that price. It presents an opportunity cost in the cases where they have guessed the direction of the market correctly yet couldn't participate as their orders weren't filled. In addition to the latter, if a large market participant wants to enter or exit and it chooses a limit order, then the order goes into the order book and is visible by other traders who can try taking advantage of the order. A simple example of taking advantage of large orders is entering into the direction of the block and placing the stop loss beyond the limit price. This ensures that the stop loss is somewhat "protected" by the block trade, allows to understand the power dynamic of the market and also,

pushes the price away from the limit order itself, increasing the chances of it not getting taken on a correctly anticipated market direction. For these reasons, algorithms are usually employed to simulate the block limit order using many market orders or actively placing smaller yet aggressive limit orders- they offer the advantages of knowing the price one trades as well as anonymity. Other times, a large order may be split into smaller pieces and executed one by one.

With all that said, such order books are present in the exchange traded instruments but not the over-the-counter (OTC) markets, like bonds, where orders are executed using phone calls and emails! Decentralized markets like bonds, forex, certain derivatives, physical commodities offer completely different market microstructure, thus different costs and a different way of trading. Larry Harris spent hundreds of pages explaining every single detail of the market microstructure so this tiny chapter can't do as great of a job of showing exactly how to optimize the order submission strategy, but it underlines an important lesson- you should understand in depth what implications the market structure has and how it affects one's trading- the order placement during the entry stage of the trade must be optimized to suit the style of trading for the market. Such optimization will decrease the transaction costs by a small margin which in the long run will add on top of the edge that the trader has. In other words, simply by optimizing the order submission you will get a small edge over the other market participants that don't have that figured out.

Position Construction

Selecting a correct order, such as limit versus market is extremely important from the perspective of the transaction costs. A scalper should ideally never use a market order due to the large spread costs, but in the fast-moving markets it may sometimes be okay to take the cost instead of losing the opportunity. An investor, however, does not usually have to worry about the market/limit order for a liquid instrument simply because the spread may make up an insignificant fraction of costs.

Constructing the position to execute the strategy is also made from orders, however, the focus becomes the way traders place the orders, not what kind of orders are used. One can choose to create a single or a bunch of orders and with all of them executed, it must become a full position that the MP is intended to hold. When splitting the position in more than one order, the choice becomes whether the next order after the first one is placed will try capturing a positive or a negative price movement. See a comparison between a single order versus two orders placed differently.

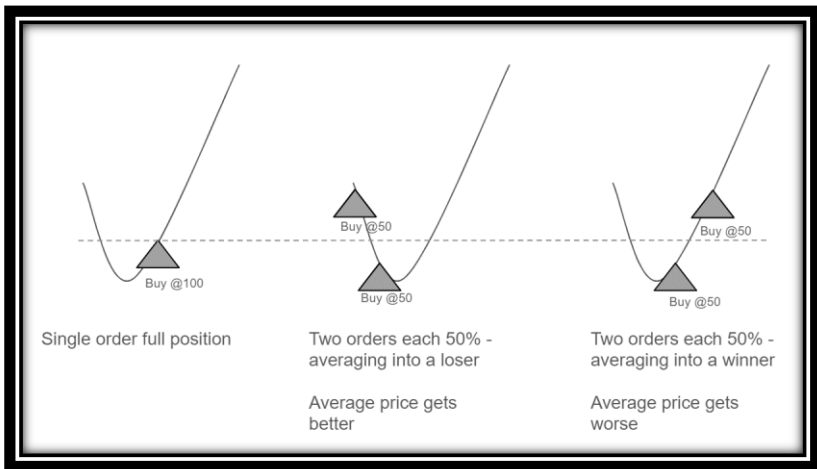


Figure: Entries

The line represents the average price of a position. In each three types of entries, the average price was the same, even though the entry method was different. However, while a single order case is easy, the second and the third cases are a little bit more advanced as they have two completely separate principles. In the middle case, at the moment the 2nd order is being bought, the first order is currently in the market and is negative. This is the opposite in the third scenario- at the moment when the second order is being bought, the first order is currently profitable.

This means that in the second case, position is being built into a loser where in the third case it is being built into a winner. This clearly looks better for the third case, but let's mix up some definitions- In the second case, average price got better while in the third case, average price got worse. There are more ways of entering into a position and an example is to split the orders and then execute them at various time intervals without regard to price movements. This is often referred to as time weighted averaging.

In other cases, however, the approach can be more technical, requiring more care and focus, as the position size may be reduced before continuing to enter into the position. This may sound a little confusing at first because why would anyone want to exit from a position before even finishing to enter into it?- The reason is to actively manage the average price and it will be discussed later. Let's begin by analyzing the simple approaches which will lead towards the technical case.

- I. A single full order. It shows traders' confidence in the timing of the trade, committing the entire intended capital at once. It is a great entry when having a strong conviction about the direction of the market and belief that the current time is optimal for entry, due to the expectations that the price will move immediately in the trader's favor.

- II. Averaging into a loser. It is often defined as averaging down (or up, depending on whether the position expects the price to rise or fall) and it involves dividing the position into separate orders and executing them into a better price, meaning that the orders prior, are currently losing money. This way the average price becomes better and given the reversal- the profit potential is larger than if you would have entered in full right away. It is beneficial in volatile markets where prices fluctuate significantly. It can help to reduce the impact of a short-term volatility by capturing the best possible price with at least a portion of the trade. It is often used in long term investing, markets with high degree of uncertainty or when the trader is not entirely convinced that the price will immediately move into its favor. The position may be split into two, three or many orders. It should be noted, however, that the more orders are done, the higher the transaction costs!

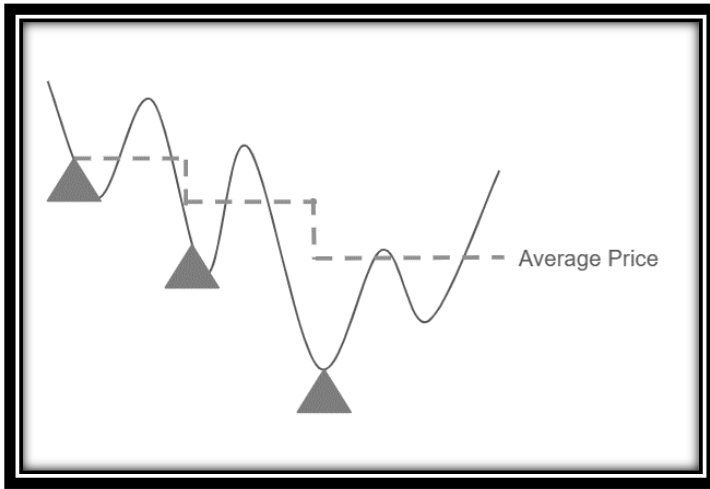


Figure: Better Average Price

- III. Averaging into a winner. It, similarly to averaging into a loser means splitting the position size into several orders and executing them at a different price, but this is done by executing the orders at a price which is better than the price of the prior orders, meaning that all prior orders are currently making money, but this way is worsening the average price. It is beneficial to use such an entry strategy when there is strong confidence that the price will continue moving in the intended direction and incrementally increase the position size and maximize profits.

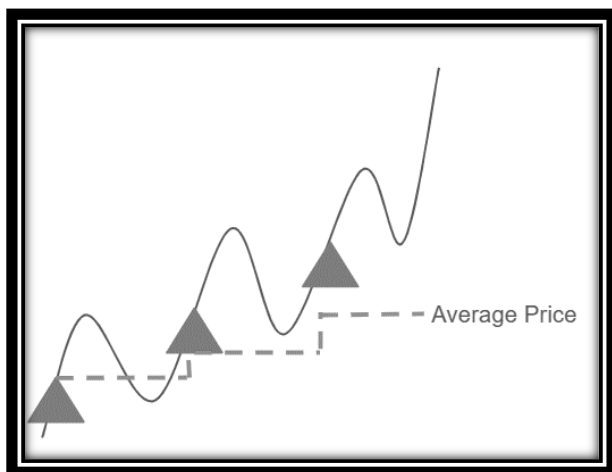


Figure: Worse Average Price

- IV. Time weighted averaging. This is often defined as dollar cost averaging (“DCA”), involves spreading the entry across a specific period of time and it does not depend if the current positions are winning or losing. It is a great choice when the trader wants to avoid making a single decisive entry. This method captures the prevailing market conditions over the life of the execution, therefore it may get a better or a worse average price. While this approach is mostly used with the long term trading strategies, some traders may find it suitable to their character to use it for the short term strategies. Time weighted averaging, however, introduces a lot of new variables and with the aim to develop a plan that can execute a perfect trade, knowing nor the exact price nor even the direction of the price, thus not knowing the risk-return of the trade while entering goes against the idea of defining the way traders want the trade to look in terms of RR. People will, however, find it valuable while employing this method for their investing or buy & hold activities, but given they want to plan the trade- this may not be the right choice.

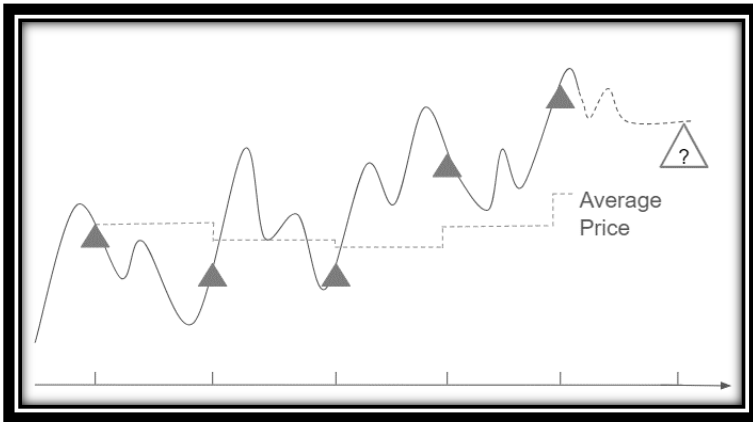


Figure: Time Weighted Averaging

- V. Technical entries. A technical entry is entering the position while also partly exiting before continuing to enter. This sounds odd but it really isn't. It may be looked at from another perspective. The entry and the management parts of the trade cycle have a fine line separating them and that is the position size. When the position size of the trade reaches the maximum point, then trade management begins. In other words, as long as the position size is being increased, then the entry part of the trade holds.

Consider buying into a position and you think that price might retrace down a little before continuing. In such a case, you could sell some of your position, getting a little profit, with the intent of re-buying even a larger part if price either falls down or negates your pattern and continues climbing. Here, even though you sold some, the intent and the plan is to rebuy a larger sum so that the position size will increase at the end. Because of that, it is still an entry part of the trade cycle- position is increasing even with momentary decreases!

Logically, a decision to sell all of the position with the intent of re-entering does not count as an entry anymore- that's exit, because it involves exiting the position in full. Additionally, exiting 90% or 80% of the position would also be quite a stretch, therefore while there is no concrete rule, an exit in the stage of the entry should not be larger than 50% if the technical approach is being employed, but again, this number is rather arbitrary.

So, what should a technical entry achieve? Given the repetition of buys and sells, the aim is to do something with the average position price and fortunately, there are only two alternatives to choose from! Aim to average the price down or up as there is no other dimension. The comparison between the regular order split and the technical one is shown below.

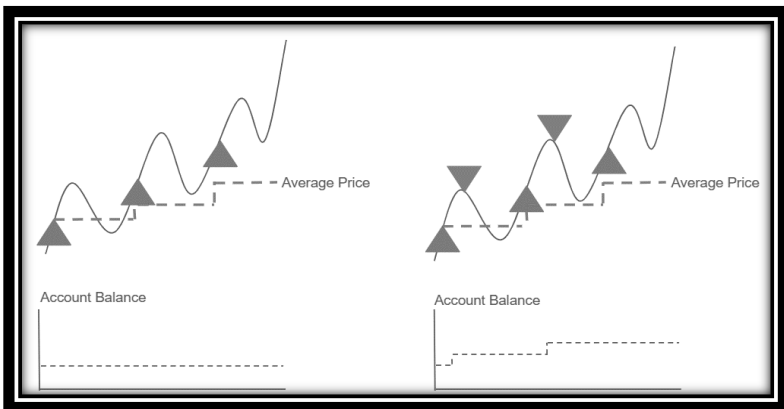


Figure: Simple vs Technical Entry Up

The important distinction here is the fact that during the entry stage, account balance grows as the system is fixing some profits. In the case provided above, the average price actually gets a little worse than in the regular entry as trades are entered above to a smaller

position (because some of it was sold) and therefore the weighted average (average price) gets closer to the last re-entry when compared to the regular entry. Take a note, that we will discuss the principles of technical setups and the relationship with account balance in chapter: Exit, where we will dive into the methods such as FIFO and LIFO which helps with controlling the account balance and the average price relationship with technical entries, management and exits. For now, let's continue building an understanding of different possibilities to enter the trade and the general ideas behind them.

A technical entry has two dimensions- the adjustment of average price and the adjustment of account balance. It is known that the "worsening" of an average price is okay when buying into a trend, but why would anyone want to decrease the account balance during entry- why do they want a loss without even first finishing to enter into the trade? Truth is, no one ever wants to decrease their account balance but sometimes this is the way to go.

Consider an example of buying into the currently losing trade, thus making the average price better. The second buy order price has increased a bit, but we suspect that it can go against us again. It has not reached our average price yet, but it is close, therefore we decide to sell some of the position and try re-entering with a better price, if it moves against us. In this case, we would sell into a loss thus reducing our account balance, but that being said, if we re-enter at a better price, we will make our average price much better than we would have had if we had not sold! So a technical entry can help us achieve the best possible price, if done correctly. Because each dimension has choices of either up or down, then we have a total of 4 combinations possible:

- I. **Average price better, account balance worse.** This happens when prices are moving relatively strongly against the position and the trader catches every bounce to exit a part of the position. It will decrease the account balance, but it will make the average price great. It makes sense to do it in directional markets, ends of the range and really, in scenarios where the trader has a strong conviction that the price is about to reverse and currently it is taking some players out. It does not make sense to do it if the aim is to have a big risk-return from each trade, because the win rate is low, and traders will end up averaging into a losing trade so many times. Strategies with a higher than 50% win rate can benefit from such an approach as in most cases, such an entry will achieve a superior average price if the market is moving against you. Such entry is illustrated in Figure: APB, ABB (stands for Average Price Better, Account Balance Worse)

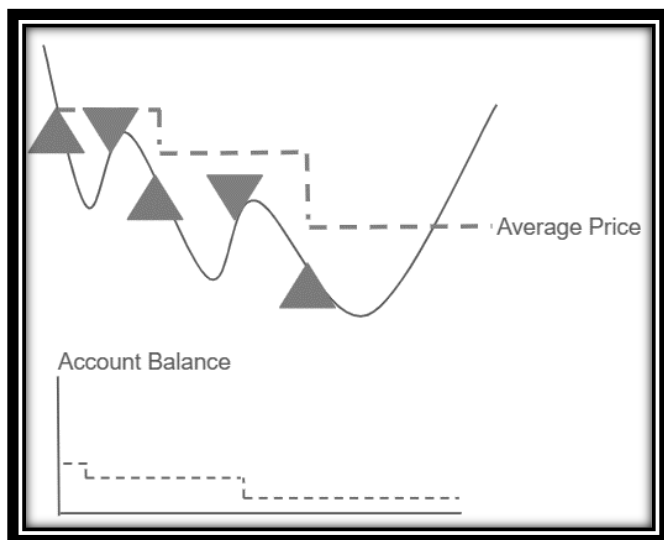


Figure: APB, ABW

- II. **Average price better, account balance better.** Similarly to the latter, a trader might try getting the average price better as well as to grow the account balance if price is moving against him and this is the ideal variant, but growing account balance at the same time the price is moving against requires very choppy markets, ranges and skill. Market needs to go above the price entries were bought (considering a long position)-then a partial exit (increasing account balance by selling into some profit), then market retraces downwards, and a re-entry is done, thus making the average price much better and at the same time increasing the account balance! This is the superior level of entry execution. Graphically, it will look like the one below.

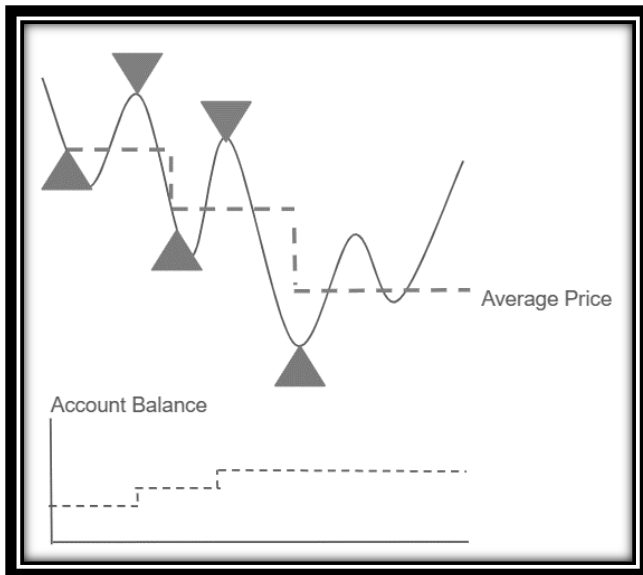


Figure: APB, ABB

- III. **Average price worse, account balance worse.** This time, the market is moving in the direction of the trade, yet the trader

still manages to lose money. To be fair, not only this sounds horrible- but it absolutely is. It can be achieved by being profitable, then adding on to the position and selling that second part of the position which was just added with a loss. It really makes no sense however lots of retail traders do exactly this. Once the price starts going the right direction they enter and with some loss they exit, just to enter at a worse price later, due to fear of missing out.

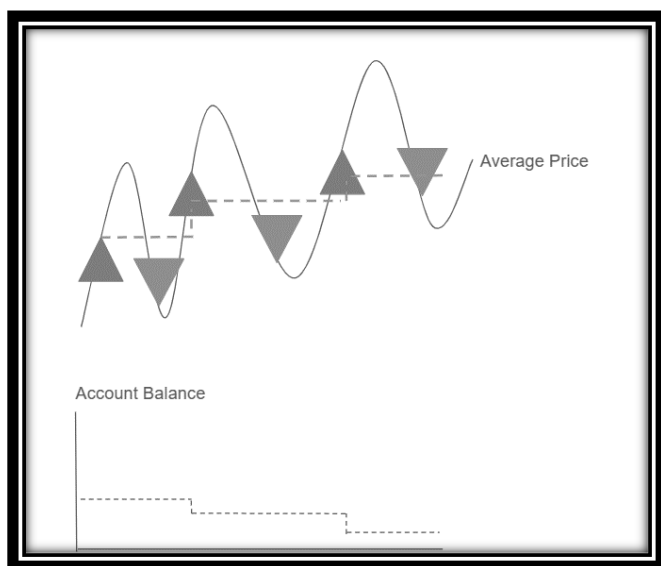


Figure: APW, ABW

- IV. **Average price worse, account balance better.** When the market is moving in the intended direction of the trade, some traders prefer to take some profits when they feel like price might stop and move against them a little with the intent of re-entering with a better price than they sold, yet still with the overall trade being in the profit zone. It makes sense for momentum or trend traders or in the calm trending markets.

This was illustrated in the Figure: Technical Entry Up, chart on the right. For some people, it might be the most preferred approach since both the account balance grows and the trade is always in the positive territory.

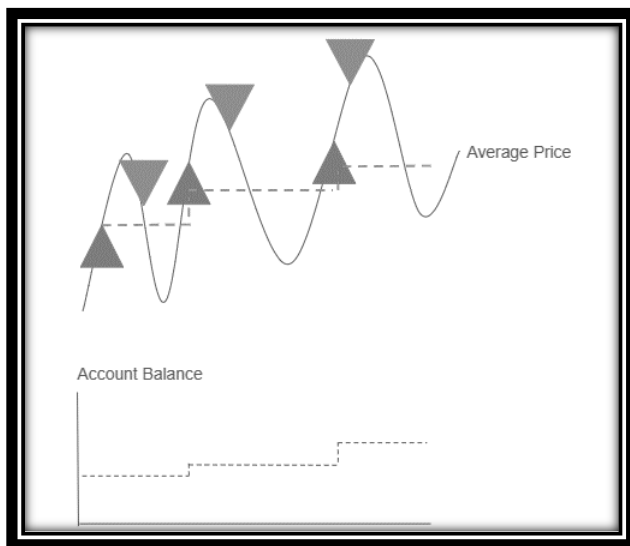


Figure: APW, ABB

Entry type arguments. All of these entry methods can also be mixed with each other creating even more complex structures but remember- complex is not better. Simple solutions are often the most genius! Connecting the order submission strategies, timing restrictions and the entry tactics can seem like a daunting task, but it can be taken systematically. Start should be the decision on the type of order that should be taken for a strategy. For entries, it is either now or at a certain price, considering the transaction costs. Usually, one would wait for the right time and create an order, when they believe

that the right time has come. That, by definition, implies a market order or a very aggressively placed limit order. Other traders will prefer to wait for the right price, rather than time. In this case- the trader can set a limit order at that price and wait. If the entry tactic used is a single order full position, then the entry is completed. Given that multiple orders method is used the next order might again be chosen from a market or a limit, depending on if the trader is waiting for the right time or the right price.

One way to think about splitting the orders is knowing the expected average price for the position, given that all orders have executed. An average price is simply a weighted average, whose formula is shown below:

$$W = \frac{\sum_{i=1}^n w_i X_i}{\sum_{i=1}^n w_i}$$

W = weighted average
 n = number of terms to be averaged
 w_i = weights applied to x values
 X_i = data values to be averaged

Figure: Weighted Average

By knowing where the average price would be, a trader can calculate the risk-return characteristic much better than not knowing it.

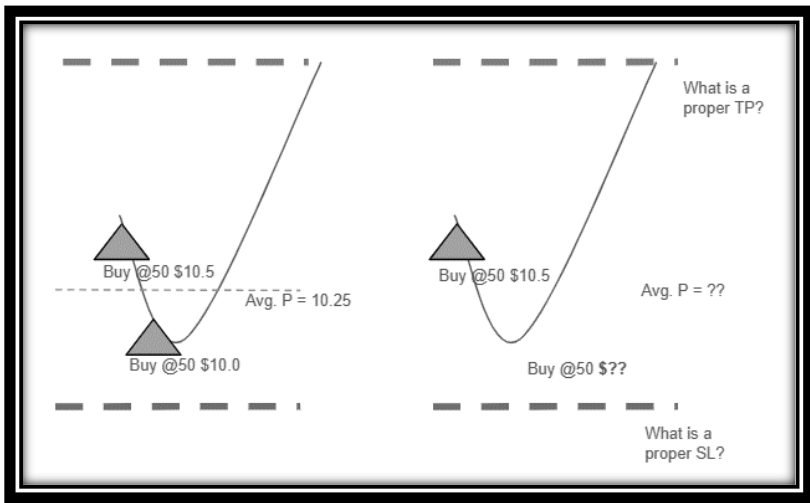


Figure: Random Entry

As a matter of fact, not knowing where the next trade will be introduces a lot of new variables and inconsistency in the trading, therefore it is only suitable for the technical entry as this is the most active approach requiring a constant monitoring of the markets and a fast decision making. For all other cases, the limit order is generally a good way to go as it allows an easy calculation of an average price.

Now which entry tactic should be chosen given a risk-return characteristic? It has to be remembered that the better the risk-return, the lower the win rate will generally be. For a strategy such as momentum, which is trying to catch large risk-return trades, the win rate will generally be small, meaning most of the times it is losing. Logically thinking, averaging into a loser does not make sense, because a trader is increasing the position in a loser for a system that is designed to lose most of the time! An obviously better approach is to average into a winner, because the winner runs big and so there is quite a bit of space to add new trades.

On the contrary, for strategies like mean reversion, risk-return is usually rather small, such as 1:1 and that means that the win rate is large. In that case, it makes sense to average into a loser to make the average price better. More often traders will win than not!

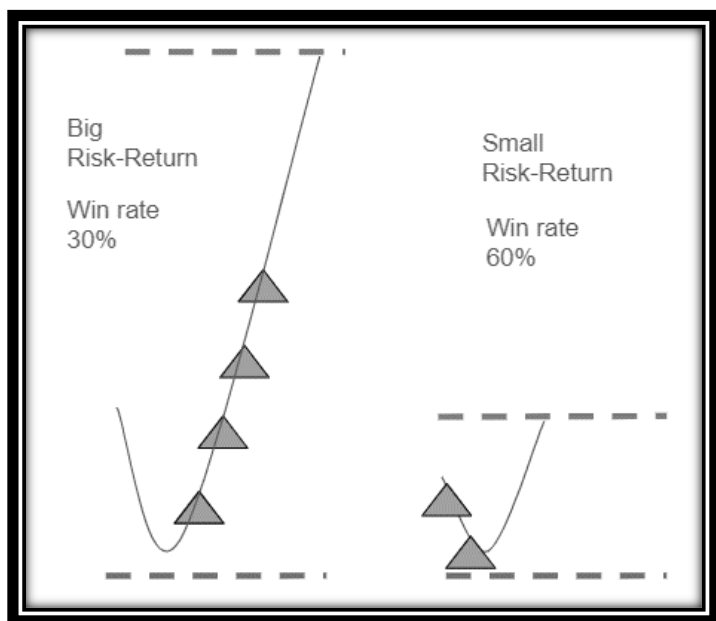


Figure: Risk Return Difference

For a small risk return, there isn't even much space for acting, therefore if you decide to go with one order or you split it into several parts, the question might be is it worthy of inducing additional costs for a somewhat limited RR gain.

Control. An argument for splitting the position into several trades is keeping the control. An example can be illustrated by hypothetically splitting the position into 3 parts, 33% each order. After the first order, there is still 66% of the allocated money for the position to spend.

Realistically speaking, one can always decide not to commit the capital or delay the commitment until the market does something, and it is by definition more control than if the trader has committed 100%. This argument is a strong case for having multiple orders because trading, essentially, breaks down to controlling yourself and the positions.

Gains maximization. The control part being stated, however, once the trader becomes better and the trader can time the market better, splitting the order becomes quite redundant, simply because assuming the trader can capture a price after which the market immediately moves towards the profit zone, then the single 100% entry makes the most sense. Trying to average into a loser in such cases results in trade getting entered only partially and the gains being only partial. Averaging into a winner means worse average price thus less profit. Once the trader becomes a good timing “machine”, the best way to enter is a full-scale single order.

Rule of thumb is- if you do not feel comfortable as a trader, then take control. If you do- maximize. In the scenario of three 33% trades, a superior trader might decide otherwise and go 66% with the first trade and 17% with the other two, putting more emphasis on maximization than control. The tree of choices can be illustrated as below.

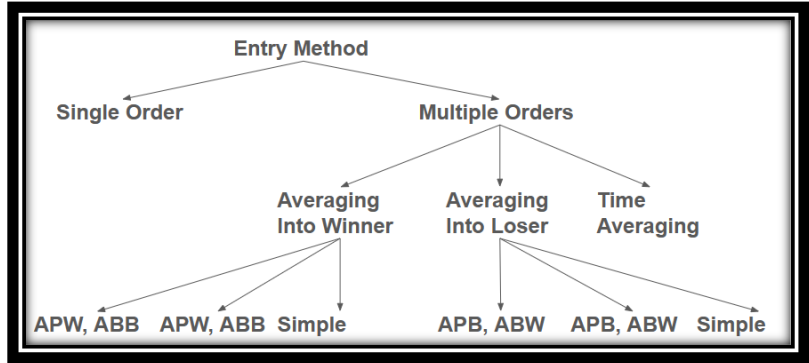


Figure: Entry Tree

Each strategy could be assigned a path that should work the best for it. We can make a small table of the strategies we are using as the example in this book, which generally describes the risk-return profile to continue mapping the execution to the strategy.

	Momentum	Mean Reversion	Trend Trading	Breakouts	Cyclicals
Risk-Return	Big	Small	Medium-Big	Big	Medium-Big
Win rate	Small	Big	Medium-Small	Medium-Small	Medium-Small

Figure: Strategy Characteristics

Based on the characteristics, we can come up with a very general table for the way we should enter into the trade.

	Momentum	Mean Reversion	Trend Trading	Breakouts	Cyclical Trading
Single Order	No	Yes	Perhaps	No / Perhaps	Perhaps
Averaging into a winner	Yes	No / Perhaps	Yes / Perhaps	Yes	No / Perhaps
Averaging into a loser	Strong No	Yes	No / Perhaps	No	Yes
Time Averaging	Yes / Perhaps	No	Yes / Perhaps	No	Yes
Technical Entry	Perhaps	Perhaps	Perhaps	Perhaps	Perhaps

Figure: Entry Method by Strategy

At the end of the day, splitting the entries and going into technical territory introduces additional risks, complexities and for traders who do not wish to monitor the markets all the time and want to avoid the advanced methods or for traders whose skill level might not be sufficient, splitting the order is not recommended. It all comes down to the preferences and skills of the trader.

Mathematics Of Bet Sizing

Johan Ginyard is a psychologist who did an interesting experiment called “Position-sizing Effects on Trader Performance: An experimental analysis” in 2001 as his master thesis in Stockholm School of Economics. In the experiment, he gave various traders accounts to trade, but the only variable they could control was the position size for each trade. He found that bankrupt traders all had an average risk size of around 23% while the winning traders had an average risk size of around 6% from their portfolio value. He concluded “Further, to be able to increase one’s account over the long run and actually make money by trading the simulated market, one should not risk much more than 6% as the winning traders did on an average”. The largest winner saw an increase of 8500% which means that the only difference between a super-performer and a bankrupt trader was the position size.

On the other end of the spectrum, book authors and traders with one example being Van Tharp and his book “Super Trader”, has also been pointing out the importance of position sizing. As a matter of fact, it is the primary focus of the entire book since a large part of it

discusses the objectives of a trader before he states: “Its (position sizing) purpose is to help you meet your objectives”. He then gives a practical example that “You could have the world’s best system, and you still could go bankrupt if you risked 100% on one of the losing trades”, making it clear that the importance of position size cannot be understated. Knowing the implications of position size and its effects will make trading much more predictable.

This predictability can be achieved by having some sort of a calculation to come up with an optimal bet size given the trading strategy. A bet size that maximizes the returns! Solid base to start with is a game of a coin flip. If it lands on heads, you get \$100. If it lands on tails, you lose \$50. An EV calculation indicates that you should play this game- the expectancy is positive $((0.5 * 100) - (0.5 * 50) = \$25)$. But what if we can choose the amount of money we can bet? A \$100, a \$1000? Assuming there is a total of \$1000 in the pocket, what should you bet for each flip to maximize the gains over time? By betting 100% of the money, there is a 50% probability of losing everything each flip which will absolutely lead to bankruptcy over the matter of a couple flips. If you bet 50%, then there is a 25% chance of landing tails two times in a row, meaning we lose everything every 4 flips. Using the same approach, we can calculate that by betting 25% we would end up losing everything every 16 flips and by betting 12.5%, every 250 flips! The probability of ruin for a coin flip is calculated as:

$$P(\text{lose } n \text{ times in a row}) = (0.5)^n$$

Reducing the amount one bets lowers the risk of ruin, but it also means that potential winnings are decreased if the bet is successful. The key is finding a healthy balance where the bet size is large enough

to maximize potential returns without having a significant risk of going bust at the same time. In a coin flip, "going bust" means losing all one's money, while in trading, it refers to hitting one's risk limit. You can see how the size of the bet directly influences both the risk and the potential return of the player.

Many methods have been developed for finding an optimal bet size with possibly the most famous being the Kelly Criterion. Mathematically, it maximizes the expected value of the logarithm of the final wealth. In other words- it optimizes the bet size for long-term growth. Betting less than Kelly leads to a suboptimal growth rate, while betting more can exponentially increase the risk of ruin. It is calculated with a simple formula and results in an optimal fraction of portfolio to bet.

$$\text{Kelly Fraction} = (RR * \text{Win Rate} - \text{Loss Rate}) / RR$$

Kelly Fraction for a coin flip game where one expects to win \$20 but lose \$10 is $((2 * 0.5) - 0.5) / 2 = 0.25 = 25\%$. It suggests that to maximize the long-term returns of such coin flip, gamblers should always bet 25%. It also means that the betting strategy is expected to go bust every 16 trades! The expectancy of such system is $(50\% * \$500) - (50\% * \$250) = \$125$ so over a matter of 16 trades this player should earn $\$125 * 16 = \2000 before going bust. By decreasing the bet size away from Kelly, number of trades before ruin increases exponentially while risk decreases arithmetically, meaning more and more trades are needed to pay the same marginal decrease in risk.

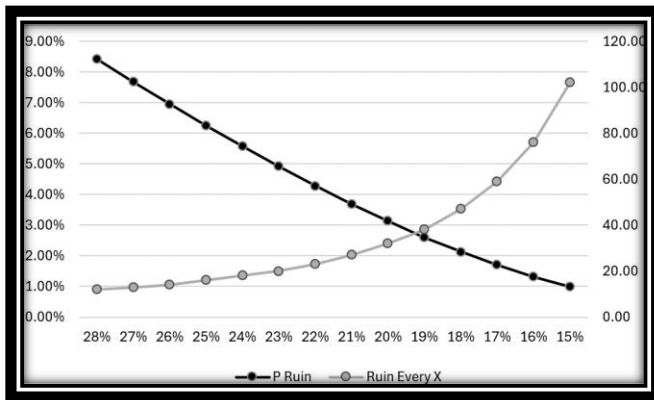


Figure: Kelly Criterion

Kelly formula assumes that the game can be played infinite amount of times therefore playing it over and over again will yield the best results. In trading, however, once a trader or an investor goes bust—there is no more money to play with! The main assumption of Kelly Criterion does not really hold true. Many traders like to use a fraction of Kelly—half or a third of it. Others, to simulate the assumption of infinite games will use only a fraction of their portfolio to trade and once it goes bust, will deposit new money and trade again. Problems with such approaches is the lack of risk management and consistency—the drawdowns with Kelly’s fraction for each trade will be huge even when using half of it. If one tries to control the fraction and decrease it to a quarter or a third, that really isn’t Kelly anymore, only an arbitrary number. One can easily simulate Kelly by betting more when they are doing well and betting less when they are doing worse. While Kelly might work for “the big ones” and high-conviction strategy, a consistent trader might need to double think before using such an approach. A trader who wants to plan their financial goals must know exactly what risk his trading might introduce, how many trades he is expected to make and how big of a return he is aiming to get. Kelly

nor other simple formulas can give such a deep description- a more advanced method is required.

In finance and many other quantitative fields, a statistical concept known as the Monte Carlo simulation is often used for such a task where one needs to discover various relationships and compare multiple scenarios under a probabilistic umbrella. Influential British scientist had a word for it “Monte Carlo simulations are to statistics what flight simulators are to aeronautics; they provide a controlled environment for testing ideas and concepts under a variety of conditions”. So, what is the Monte Carlo simulation?

To build the knowledge ground up, consider an example using our friend Steve. Let’s blindfold Steve and make him walk in a straight line for a hundred meters. The first time Steve will walk, he is probably going to go anywhere but in a straight line. Once he is finished, draw Steve’s path.

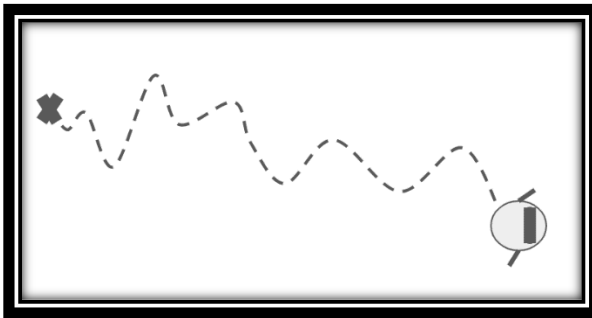


Figure: Steve Walks

Now, let’s get Steve into the starting line and again ask him to do the same routine. Chances are- his path is going to be completely different!

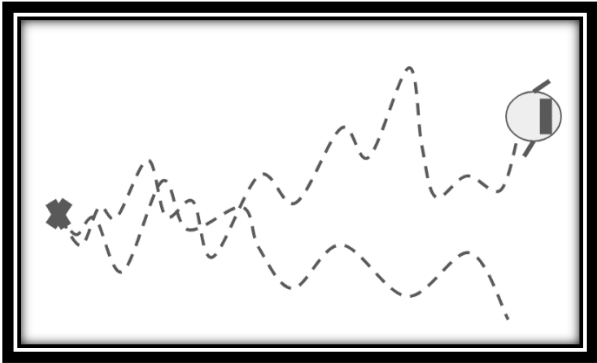


Figure: Steve Walks Again

Next step is to make Steve walk 10 times and each time draw his path. At the end of exercise, we mark all of his points where he ended up after each walk.

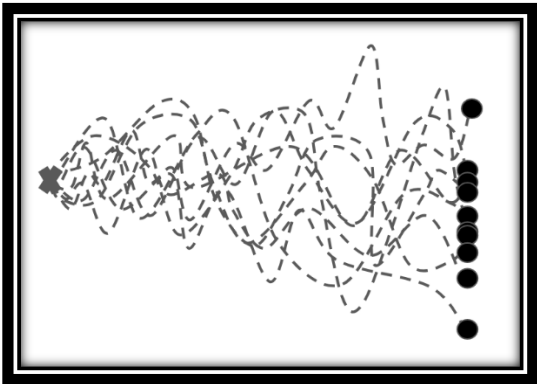


Figure: Steve Walked a Lot

Lastly, let’s create a histogram from his end points. Think of a histogram as a stack of bricks for a given interval. The more bricks you put on top, the taller the stack becomes. It is also referred to as the distribution. A distribution in statistics is a function that displays values for a variable and how often they occur. In Steve’s case, we

split his walks in the middle and then some from the middle to the left and right. Then we count how many paths ended in each interval.

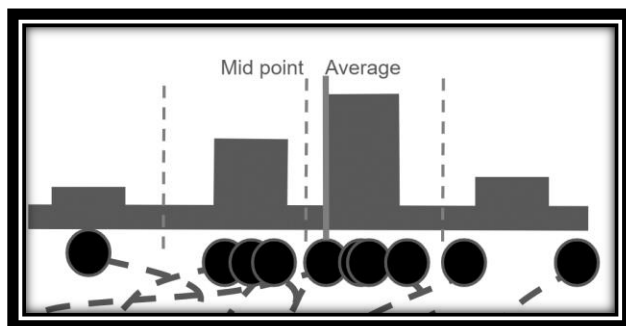


Figure: Steve's Histogram

If you notice, Steve has a little higher tower on the right part of his trips, therefore we could assume that his left leg is somewhat longer than the right one and he is likely to end up slightly to the right for all of his trips in the future. This can be double checked by dropping an average of all his paths, which in Steve's case is also on the right side from the midpoint. The actual Monte Carlo simulation does the exact same thing, but instead of ten times, it may repeat the path ten thousand times. After the path is done and the histogram is constructed, the probabilities can be calculated as well as the general dynamic of how the average path behaves. It is super-descriptive and useful.

To apply this simulation in trading, we have to come back to the characteristics of a trade, which is the risk-reward ratio together with a win rate. Consider a basic risk-return ratio of 1:2 and a win rate of 50%. For each trade, we will risk 2% of the portfolio value and throw the coin. Heads=win, tails=lose which will produce a win rate of

around 50%. Lastly, let's draw a path for 10 such trades (steps) where after each trade we make a new coin flip

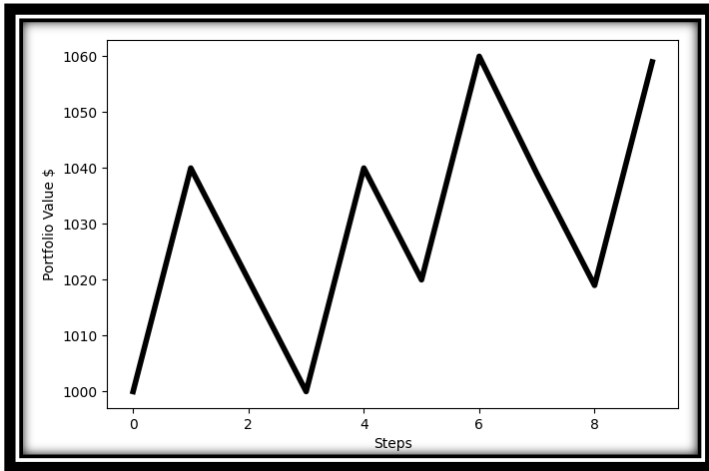


Figure: Path

Now, to repeat it 1000 times, by hand, would be absurd, therefore Python or any other programming language can be used to simulate the random paths. If the reader wants to implement and play around with such simulation- internet is full of codes for it and generative AI can easily create one for you. Note (For the picture below) that the black line in the middle is the average path, made by averaging the values of each step. This black line is the expected path- the most likely outcome.

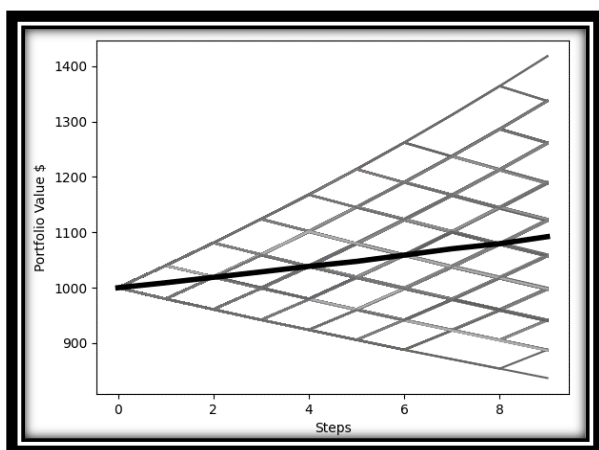


Figure: Many Paths

If we take the last value, the 10th step of the average return, we see that the black line is at 1090- that is a 9% growth from the starting balance meaning the expectancy of a 50% win rate, 1:2 risk-return characteristic strategy with no transaction costs is 9% for 10 coin flips. Additionally, we can calculate the risk with the metric Max Drawdown for every path and then take an average of that- in the case above, the result is 5% producing a theoretical strategy expectancy of 5% risk and a 9% return every 10 trades. Consider that US Treasuries have a rate of around 5% annual, therefore if the trading strategy is making 10 trades per year, the annualized Sharpe Ratio of such strategy is $9\% - 5\% / 5\% = 0.8$, not a good Sharpe- money should be put somewhere else. But if one can repeat a 100 of such trades each year, the return becomes 167% and risk 13%, making Sharpe Ratio in the double digits- so good it's not even realistic. For this reason, when having an edge- the more often it can be realized, the better the strategy becomes.

For an additional picture, consider a trader that on average makes 3 trades per week. A year has 52 weeks, but let's use 50 to account for

some holidays. That means that annually, such a trader is expected to make 150 trades. Let's create the same RR 1:2 and a win rate of 50% simulation, but instead of 10 trades, use 150.

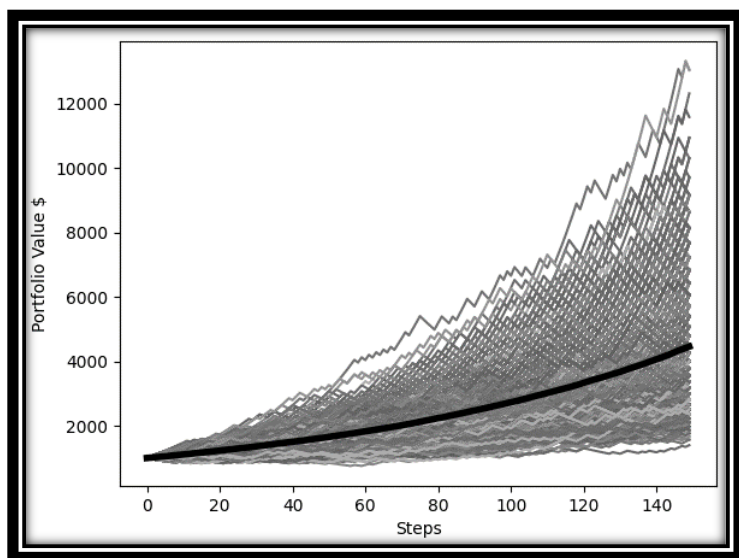


Figure: Monte Carlo

The result- an expected 346% return with a 10% risk. The risk, however, is too big for our financial goal of 5%. Let's redo the simulation, but instead of risking 2% for each trade, we risk 1%. Now the result is 109% with a 7% risk. Decrease that to 0.5% risk and we have an expected result of 45% return with a 3% risk.

It looks excellent- even too good to be true and that is because it is as we are still not seeing the big picture. First- this simulation does not include any transaction costs. To account for it, a 5% fees estimate can be a realistic approach. Factoring this in, risking 0.5% from the portfolio risk size gives us a 41% return and a 3% risk estimate annually, for a trader that does 150 trades consistently.

Yet, this result is also by far not guaranteed. The result of return and risk are the expected values, the average of all the possibilities, where the probability is the highest, however, what is guaranteed is a deviation from the expected returns. The deviation is what you can expect your actual return to be, with a given probability from the expected return. The most common method is to describe it using the standard deviation formula. Be aware that I am touching the surface and trying to give you a very high-level understanding, rather than in-depth knowledge about the statistics of it. Probability theory is an extremely large subject and it would be impossible to cover it in a matter of several pages within this book. The goal of the reader is to try understanding the concept, rather than the methodology. Once you get the concept, research on your own to develop a sense for the mathematics of it.

Probability function. Do you remember the histogram of all the paths Steve took? A probability function is a formula that would smooth out the distribution and make sure that the area below the curve is equal to 1. The higher the curve- the more likely the value is to occur at that spot and all possible values must lie below it.

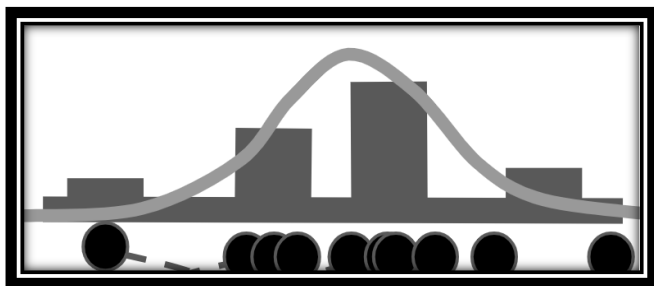


Figure: Steve's Probability Curve

A normal probability distribution, which we see a lot in nature, is like Steve's curve. Most values are around the average (mean), and the chances of values being further from the mean drop quickly

The standard deviation is a statistical measure that quantifies the amount of variation or dispersion from the expected value within a data set assuming the data is distributed normally. It describes how widely the values are spread around the mean, providing a probability-based expectation of their deviation. The chart below shows a normal distribution. The μ is defined as a mean (average) and the σ is the standard deviation, defined as the sigma. It shows that within one standard deviation to the positive and negative away from the mean, one will find 68.2% amount of values, meaning the probability of ending up between -1 and +1 standard deviation from the mean, is 68.2%. A -2 to +2 standard deviations gives a probability of 95%. Ending up more than 2 standard deviations only on one side is given as a 2.1% probability with +3, +4 St. Deviations becoming increasingly small.

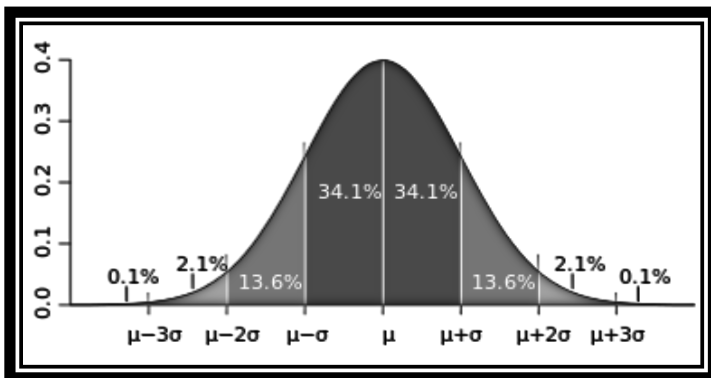


Figure: Bell Curve

In the context of finance, when a maximum risk threshold is set at 5%, a 95% probability that this threshold will not be exceeded is generally considered sufficient. Applying this principle to a Monte Carlo simulation involving 150 trades, a 50% win rate, a 1:2 risk-return ratio, and a position size of 0.05% of the portfolio, the simulation predicts a return of 42% with a risk of 3%. The standard deviation of these returns is approximately 12%, and the standard deviation of maximum drawdowns is about 1%. They can be calculated very easily with the help of generative AI or the most standard libraries in programming languages, even Excel.

Given the objective of maintaining a maximum annual risk of 5%, with an observed average risk of 3% and a standard deviation of 1%, a move of two standard deviations below the average risk yields a value of 2%. This calculation of two standard deviations suggests a 98.1% probability that the risk will not exceed 5% ($3\% + 2\%$). Moreover, it implies around a 95% probability that the annual returns will range between 18% ($42\% - 12\% \times 2$) and 66% ($42\% + 12\% \times 2$), accounting for two standard deviations. In other words, our strategy with expected return of 41% and risk of 3% have a 5% chance of returning less than 18% with a risk of over 5%.

But RR of 1:2 and a win rate of 50% might be difficult to achieve for any trader- a more realistic simulation is needed. A table of RR's where each RR strategy has a benchmark win rate which it has to beat to achieve a positive EV shows what any trader can achieve blindfolded.

EV	0
Fees Rate	5%
Trade risk	10\$

Average Win	Average Loss	Risk/Return	Win Rate
\$10	\$0.50	20.00	5.24%
\$10	\$1	10.00	9.95%
\$10	\$2	5.00	18.10%
\$10	\$4	2.50	30.66%
\$10	\$5	2.00	35.59%
\$10	\$8	1.25	46.93%
\$10	\$10	1.00	52.50%
\$10	\$12	0.83	57.01%
\$10	\$14	0.71	60.74%
\$10	\$16	0.63	63.88%

Figure: Benchmark Characteristics

Because the strategies, patterns and other analysis simply aims to increase the win rate for the given risk-return ratio, it can be assumed that with practice, a solid plan and plenty of work, traders can achieve a 10%, 20% or even higher win rate for their breakeven rate.

Strategy characteristics. A strategy with RR of 2.5 with a win rate of 31% and a strategy with RR of 1 with a win rate of 53% produce nearly identical, a tiny bit positive, practically zero EV (expected trade) but will they behave the same? After simulating thousands of paths for 150 steps for the RR of 2.5, the result comes out as 5% return and a 9% drawdown, while the result for the RR of 1 come out as a return of -2% and a 7% drawdown for the same position size of 0.5%, so the two strategies that are supposed to have an identical reward, yields a different result. In order to understand the reason for it, one needs to compare the distribution of returns for the simulations.

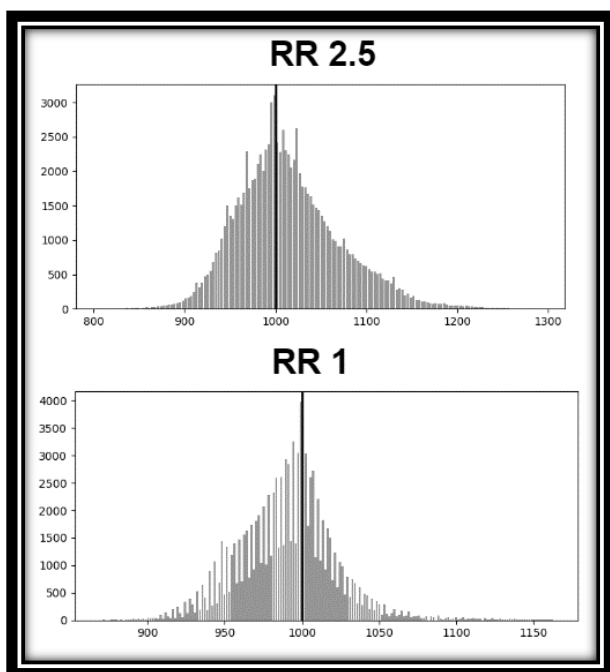


Figure: Monte Carlo Distributions RR 2.5 vs RR 1

The first thing to note is that the RR 1 distribution has clear spikes, and this is because every winner wins the same as a loser, therefore the returns move in a predictable manner, but this is not why the returns differ. More importantly, RR 1 returns are centered around the mean more than the returns for RR 2, which shows the lack of extreme values and thus, smaller risk. A strategy with a larger RR will tend to have plenty of consecutive losers due to a smaller win rate thus increasing its risk. This can be seen on the lower tails of the distributions. There are many simulations in the RR 2.5 that have crossed below the \$900 mark while only a few in the case of the RR 1. This stretches the possibility of incurring larger losses for the lower win rate strategies.

On the other hand, returns for the RR 2.5 are stretched, too, because the gains per trade are significantly higher which means that successful trades contribute disproportionately to the overall return. A consecutive winning spree or in general, periods of more luck in the markets will push the RR 2.5 strategy much higher than the successful periods for the RR 1 strategy resulting in much more profitable results which can be seen in the histogram. The upper histogram easily crosses the \$1100 mark with many paths lying even above that, while the lower RR histogram barely touches it.

Both the increase in risk and the increase of returns for the higher RR strategies lead to more extreme outcomes so the answer why the two strategies with the same expected trade exhibit different results boils down to the fundamental concept in finance best described Peter Lynch, the famous investor who recognized this relationship: “Investors must understand that the pursuit of higher returns inevitably involves accepting higher levels of risk” and truly, not only Peter, but the entire finance community knows the absence of free lunch. The pioneer of this idea was Harry Markowitz who created a theory called “The Efficient Frontier” which is focused on finding the best return for a given risk. He argues that for every expected return there is a given risk and the best relationship between those two is described by the Efficient Frontier. A strategy with more risk must give better returns for it to hold true- it is fundamental. Additionally, an RR of 2.5 that resulted in a 5% return and a 9% drawdown has a risk-return of 0.56 for a position size of 0.5% so naturally the question is, will the risk-return of the strategy change only by changing the position size?

Fees	5%
RR	2.5
Win Rate	31%

Position Size	Return	Risk	Return/Risk
0.50%	5.00%	9.00%	0.6
2%	14.00%	34.00%	0.4
5%	33.00%	66.00%	0.5
10%	69.00%	Bankrupt	-
20%	47.00%	Bankrupt	-
50%	Bankrupt	Bankrupt	-

Figure: Bankruptcy

While return/risk is changing a little, the big lesson is that the larger the position size, the higher chances of going bankrupt- the probability of bust, discussed in the Kelly Criterion example. Even at the 5% risk for each trade, this strategy would have a standard deviation of the drawdown of 14%, meaning there is a high chance of the strategy falling beyond 80% (66% - 14%) and needing to declare bankruptcy. It is what Johan indirectly discovered in his experimental analysis- winning traders never crossed the bankruptcy mark.

Bet Sizing

Many traders have tried creating optimal position sizing techniques that push the boundaries of how big they can bet without a significant risk of going bankrupt and one of the most famous methods has been described by Ralph Vince as a the optimal-f. It is the optimal fraction of the account balance to risk in any given trade for maximum long-term result- the formula is a modified Kelly Criterion, but with an

additional optimization towards reducing the volatility. While his books are mathematically demanding, the optimal-f concept essentially gives a fraction- anything less than that and the risk decreases arithmetically while the profit geometrically- not ideal. If one keeps betting more, then it is guaranteed to get a margin call at some point. Because the optimal-f is calculated on trailing data, it keeps changing, the formula is rather complex and while it promises to achieve the highest return while minimizing the volatility- trader can still experience absurd drawdowns, over 90%, so it is discussable, where ! The true lessons, as discussed by the Dr. Elder himself, from the optimal-f are to never average down, never meet the margin call and to liquidate the worst positions first. The biggest lesson by far, however, is that there is always a limit to how big one can bet until it is guaranteed to go broke. This will hold for every strategy, although strategies with different characteristics will have a different size of the maximum bet before being guaranteed to go broke. Laurence and Linda in their book “Street Smarts” described this relationship in simple yet effective words: “Every trading strategy in this manual is absolutely 100 percent useless without proper money management. We can tell you story after story of very talented traders who blew up because of one or two bad trades.”

A smaller risk, so a bigger bet size can be achieved with a low RR and thus a high win rate which traders can use to increase their bet sizes. This is demonstrated by graphing and comparing the drawdown ranges for two strategies, an RR 2 versus an RR 1 given a different position size. By using the expected max drawdown and adding, subtracting one standard deviation, a range of the most possible outcomes is calculated. Repeating this for position sizes of 1%-15% allows painting the big picture.

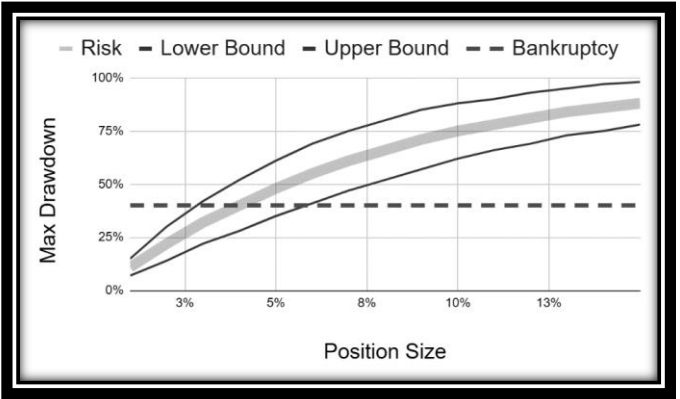


Figure: Risk of RR 2 WR 39% Strategy

A 2 RR strategy with a 39% win rate, that is expected to generate \$1 (EV) when risking \$10 from each trade, has a high chance of reaching a 40% drawdown using a position size of around 3% for each trade. From a 40% drawdown, strategy would need to grow almost 70% to get out of the drawdown which can be very damaging psychologically- a bankruptcy. For a higher win rate strategy, however, position size may be larger as the risk is smaller.

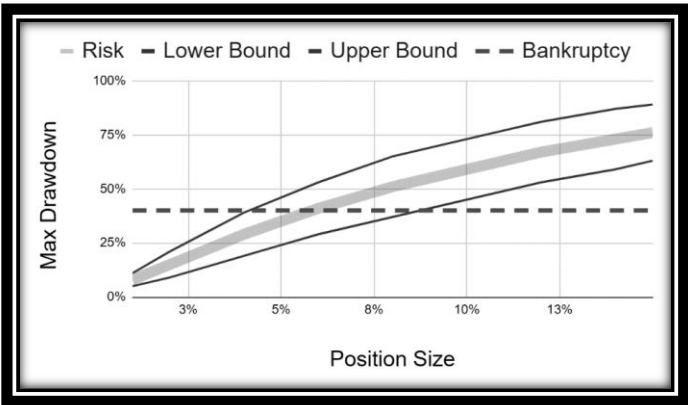


Figure: Risk of RR 1 WR 57.5% Strategy

For a RR 1 strategy, the range of risk crosses the 40% expected drawdown, the bankruptcy benchmark, when the position size is around 4% when compared to 3% for the RR 2 strategy.

While we know that it does not make sense to give such systems or traders bigger than 3%-4% risk from the portfolio value, the return optimization formulas like Kelly suggest risking 8.5% for the RR 2 and 15% for the RR 1 strategies, practically guaranteeing the bankruptcy. With this being said, this example provides yet an additional perspective how the “optimal” bet size is different even for the same EV strategies.

Position sizing strategies. The differences between a gambler and a money manager or a trader are consistency, planning and a systematic approach. Financial goals are one of the major influences on how the trader will strategize and behave, whereas a gambler usually doesn't look that far. With this in mind, it is natural for traders to optimize their position sizing algorithms to suit their goals, rather than minimize volatility, maximize returns or work on other metrics. It's the alignment with one's goals what matters the most.

While people have discovered many position sizing strategies to use when trying to achieve financial goals, they are all made up of several simple components, which when broken down, look as clear as the day and what the meaning behind them is. To understand it, start from the basics: An instrument can be traded by its price which is the value of a single unit therefore a position can be constructed by obtaining units of the instrument. The position size refers to the number of units of the instrument that a trader buys or sells in a single trade. The first category to break the position sizing strategies is

whether each trade has a fixed-predetermined or a dynamic, some calculation-based number of units.

Traders who prefer to maintain a fixed position size often seek a straightforward approach, believing that complexity is not always necessary. A fixed position size could mean buying a set number of stocks, such as 10 stocks per trade, until the portfolio value changes by 10%, after which the position size is re-evaluated. This method is essentially static between adjustments and appeals to market participants who desire simplicity in tracking trades, consistency in execution, and ease in managing emotions.

However, the concept of a fixed position size can be broadened to include a fixed monetary amount for each trade. This means that while the dollar amount remains constant, the number of units purchased can vary depending on the price of the securities. For example, \$100 might buy 20 stocks at \$5 each, but only 10 stocks if the price doubles. This demonstrates that a fixed dollar amount leads to a dynamically changing unit amount, and vice versa. This again points to an expansion of this definition, where some traders use a fixed proportion of their portfolio for each trade, such as risking 2% of the portfolio value per trade. As the portfolio grows, the monetary value allocated for each trade increases, thus altering the position size. While the unit and monetary amounts change, the proportion remains constant. This approach, however, could lead to more complex strategies based on fixed volatility, Sharpe ratio, or the Kelly Criterion, which soon becomes a mess and barely represents anything that is fixed. It is for this reason that the definition of the fixed position amount should not float away from the fundamentals- the fact that a position size is by definition, expressed in units of security. In some cases, employing a fixed position size is not merely a choice but a necessity, particularly when a trader lacks the funds for more dynamic strategies. For many

retail traders, fixed position sizing is an accessible and straightforward solution.

The opposite of fixed position size is the dynamic approach, which involves changing the units of the security for each trade. Such systems can be classified in numerous ways—discrete versus continuous, deterministic versus stochastic, or linear versus non-linear strategies, among others. These classifications underscore the difficulty in categorizing dynamic strategies, and there is no universally accepted framework for them as of writing. A dynamic strategy inherently adjusts the unit amount per trade based on current market conditions, account performance or any other metric which may involve increasing or decreasing the position size. Because market conditions are difficult to quantify, traders performance, expressed as the account balance, is often the variable which controls the position sizing algorithm. A trader might choose to increase the position size when portfolio balance are rising or falling or reduce it when the portfolio is declining or again, rising, creating four different dynamics. By understanding these cases and the conditions under which they operate, traders can better comprehend how any position sizing strategy will behave, enabling more informed decisions in their trading practices. Let's begin by listing them out.

- I. **Position size up, portfolio balance up:** Increase of risk when doing well in the market is often called scaling up and the logic behind scaling up is to achieve cumulative growth as fast as possible. Nonaggressive scaling up strategies include the proportion from the portfolio while aggressive scaling up can use profits from the past trades or an increase of the proportion to increase the risk size and thus try to achieve exponential returns as quickly as possible. One of such aggressive strategies is anti-martingale which involves increasing position exponentially (doubling the position size, for example) after every winning trade. The problem with

such strategies is that the more winners appear, the larger the position size and thus, the larger the risk. Such strategies will have the highest volatility when they are doing the best.

- II. **Position size up, portfolio balance down:** This approach involves increasing the size of new trades when the overall portfolio's performance is declining and is known as buying the dip. One of the ideas is to increase the risk so that portfolio performance bounces back up as quickly as possible. An obvious problem is running into many consecutive losses while increasing the position size which will lead to very significant drawdowns. One of such strategies is called Martingale and it involves doubling the trade size after every loss, so that when the winner comes, it will earn more than all of the previous losses, making the portfolio positive again. The problem with such strategies is that on the "unlucky" moments with many consecutive losses, due to position size getting larger and larger, the drawdowns can be so big, it may reach bankruptcy levels with a single period of consecutive losses!
- III. **Position size down, portfolio balance up:** Decreasing a position size during great performance locks in the gains and reduces the risk of future losses if the trader systems break down. Logic behind such an approach could be the fact that some of the biggest losses come after the greatest wins, as the euphoria inflates the ego and that causes the trader to lose all of its risk management, resulting in inevitable drawdown. Problem with it is the sub-optimal capital allocation when doing well, leading to smaller returns.
- IV. **Position size down, portfolio balance down:** Decreasing the position size when the portfolio balance decreases is the most straightforward risk management technique. The primary goal is to preserve capital by limiting exposure. Simple approach is a good old proportion from the portfolio, like a 2% risk while a more unique case was demonstrated by the legendary experiment "Turtles" where traders would decrease the proportion of their risk from the portfolio during the drawdowns exponentially. For example, if they are losing -

10%, they would trade as if they had a -20% drawdown. Problem with such an approach is the fact that traders usually re-bounce from their bad periods, assuming correct procedures are in place. The rebound then becomes a more difficult task as the trader has to make more good trades to get out of the drawdown.

It is obvious that when we are doing well, we want to increase the position size and when we are losing to decrease, but having static rules might now always be the best decision. By then, conditional rules come into play whose goal is to optimally select the correct strategy at any given point of time and this is the playground for the traders, quant analysts, mathematicians, portfolio managers and so forth. A strategy may want to size into portfolio balance going up but then quickly size down if the probability of winners decreases- the possibilities are barely with limits.

In an actual trading floor, for example, heads of trading always help the traders out and teach, mentor them. When the traders are doing really well, the head will often come to the trader and put him down a little, ask to trade less, with smaller position sizes or even take a break, because after the greatest periods of trading, people get overconfident and that is where the biggest losses are introduced. During a period of losses, however, heads will try lifting the trader up by giving some advice, asking to take a break and pushing the trader to risk normally, trust his processes.

Extra dimensions: The position size, however, does not have to depend on static measures such as the account balance- it might be set on the looser measures, like how much the trader believes in the idea. When the conviction of the single trade is more than average (even though it is difficult to measure)- one should be stupid to not take

advantage of it, does not matter if the account balance is north of south. In the book “Inside The Black Box” Rishi K. Narang was discussing one of the methods of working with position size as stretchable bands. The more confidence the idea has- the bigger the position size is allowed- but only in a range. If let’s say, the normal position size is 2% but conviction is really big, then a 3% or 4% trade is allowed. But just like the stretchable band has limits before breaking- position size too. An example could be a limit of 5% of risk per top conviction trade. Any less conviction and the position size, like the stretchable band, quickly contracts to the default size. The higher position size- the progressively larger conviction is needed. This, of course, excludes the idea of a “Big One” which we discussed in the prior chapters- the truly “Big One” requires its own trading plan! There is great freedom in how the traders work but it is for you to discover what suits you the best.

A thing for sure- the position sizing algorithm is what will determine the results. Because strategies behave differently- there is no optimal algorithm that works great for all. A mean reversion strategy with a high win rate might benefit from a increase-when-losing, almost a martingale type strategy, as the probability of many consecutive losses is very small, whereas a breakouts trader with a smaller win rate could be looking towards decreasing its position size after a period of successive trades. One should arrive at its own conclusions.

The Three Dimensions

In summary, there are three dimensions on which the behavior of the strategy depends- risk-return, win rate and position size.

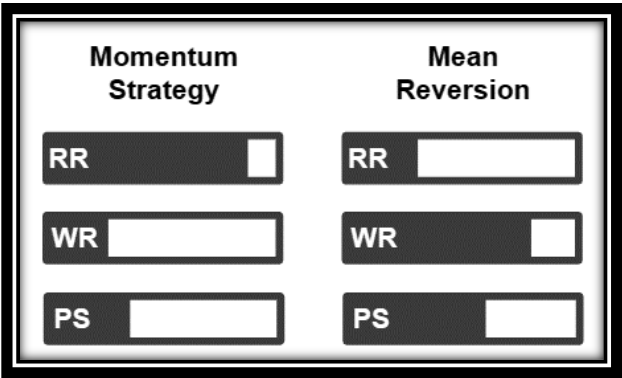


Figure: Strategy Stats

By playing with these stats traders can achieve various characteristics of how the final result will look like. While the RR and position size is set by the strategy, the win rate is what the market will give plus any edge there is in the strategy. A strategy with no edge will always give a benchmark win rate and over enough trades, the losses will be equal to the transaction costs. Any Position size (PS) that is too big for the strategy will lead to bankruptcy and any PS that is too small will lead to underperformance.

Realizing Edge Through Sample Trading

This three-dimensional view points to an extremely important topic of edge. The edge, as was just shown, is a marginal increase of win rate for a given RR, which could be, let's say, 5% over the breakeven rate. It means that over a hundred trades, this trader will achieve 5 more successful trades than any other strategy with the same RR and no market edge, meaning the difference between a random-useless strategy and a winning strategy is one additional winner every 20 trades! Obviously, this may not seem like a good strategy, but find a way to repeat those 20 trades every day and in a matter of a year you will have over 200 of such profitable trades. It leads towards thinking about each trade of it being a part of a series of trades rather than an individual action. This also builds the idea that a perfect or a great trade inside the trading plan does not exist- only a series of trades that have at least an average win rate but a better than average RR, which can be defined as a perfect trade sample, as it is better than others exist.

We can never know if a single trade that has returned positively was due to luck or an actual edge, without knowing the win rate, which requires a series of trades to calculate.

A trade sample might be five, ten, twenty or even a hundred trades that may be treated as a single big trade, in order to assess whether the strategy truly has an edge. In a more popularized scenario, a trader treats every trade somewhat as its own and then at the end of the month, day or week he will calculate the statistics of all the trades that have happened such as the return, average win, average loss and so

forth. It is essentially trading the samples but separating them by time periods rather than the number of trades. While it may seem convenient, it is not related to the win rate of the system, and it pushes the person to prioritize time rather than trades- away from the concept of playing the probabilities. In other words, it pushes the person further from trading. This also allows the treatment of a single trade as an individual trade, which helps to forget the fact that it is only a small part of the trading system. An individual trade will not make any use of the edge that a strategy has- the win rate- as one needs at least several trades to calculate the win rate (it is possible to calculate the win rate of a single trade, either 0% or a 100%, but it has no use) which is why it does not make sense to treat a single trade any differently than other trades- they are all part of the same system. Additionally, treating all trades individually leads to a never-ending search of the big trade- the mentality of go big or go home is being developed and it will guide to disregarding the plan, an increase of position size beyond the bankruptcy rate and thus an inevitable blowup of the account.

There is a psychological effect when trading samples, too. It disconnects the trader from the emotional attachment of the prior trade. Mark Douglas went to great lengths explaining the negative effect when treating all trades individually- “If it (last trade) was a winner, he'll gladly go to the next trade; if it wasn't, he'll start questioning the viability of his edge”. The “normal” trading usually brings out a fluctuation in the conviction of the trading plan or a system, which will ultimately kill it. Trading with samples, however, should not only allow to see whether the edge has manifested itself in those x number of trades, it will create a much more stable conviction in the trading system, as it will be re-evaluated mentally every x number of trades rather than after every single trade- a reduction of mental volatility! It will make the person think about probabilities,

like the casinos do, instead of a gut feeling each trade. The losses will become easier to accept, the vision will become long-term and this mentality itself will create an edge for the trader.

Trading with samples can be compared to how quant trading systems operate- they do a lot of trades and then evaluate itself based on the statistics of those. Not a single quant judges a system based on a single trade! They do so by testing the strategy through years of data until they are confident it works. The lesson for discretionary traders is that by using a quant approach of judging one's trading using a sample, rather than a single trade, he can reduce the psychological impact of trading and become more consistent and disciplined. A single trade will never show whether the strategy is winning or losing, whether trader is good or bad. If we believe that the market is random, then there should be no expectations for a single trade in the first place, only the expectations for the whole strategy and it can manifest itself when looking at the RR and the win rate of the trade sample.

When I was working for a hedge fund in Luxembourg there was one programmer who at one point decided to try out trading as a discretionary trader after practicing in a demo, his own account and reading some books. He was given a relatively small portfolio and the first trade he did was to short the Nasdaq futures right before US market opened- a counter trend trade based on his opinion about the news that have just happened. I remember it well because it was a spectacular trade- market turned seconds after his entry and continued to go for almost a full 1% in minutes with him being leveraged. That single trade made everyone raise their eyebrows. A perfect trade! But... After that he went ahead and pushed through what seemed like 10 losing trades in a row that week- what a disaster! Not only did he lose all the profit of the first trade, but his account balance got underwater by almost 4% and his portfolio, involuntarily, got a

downgrade by subtracting a zero. Not just him, but other traders congratulated him from the first trade which set the stage for overconfidence and all the other emotional baddies. This could have been easily prevented by trading the sample. First trade done- 9 more to go. Focus. Only by trading the samples one can be sure it is realizing the edge, rather than evaluating all based on the recent trades, which creates psychological cycles.

Planned Exits

A risk-return of the trade means that there are boundaries on the downside and on the upside of the trade after which are reached, actions will be taken. It implies that traders have to know the boundaries before entering into the trade, so placing and deciding the boundaries should be decided in the entry stage of the trade cycle because this is the only way to estimate the RR of the trade! The actions that can be taken are all about the orders. Traders can adjust the prices of orders, can create new orders, cancel orders or execute the current ones. In the context of the entry stage of the trade cycle, the exit orders can only be placed- there is nothing yet to be adjusted. Reasons to place an order are:

- I. For stop loss
- II. For take profit

While some traders prefer having stop loss and take profit as “soft” meaning that they will monitor the trade and decide when to enter or

when to exit, there should still be a level for guidance. Without it, there is no risk-return relationship, thus no practical way to optimize the position size that leads to trading with no system and is indifferent from gambling.

A “soft” level can be expressed as a limit or a stop order simply because there will (must) be a level at some place, where the decision will be made to adjust the size of a position either by increasing it or decreasing (perhaps to zero- full exit). This level is essentially “hard”, meaning a limit or a stop order- stop loss or a profit zone. For this reason, the “hard” principles will apply for the “soft” levels. The three reasons to create orders are for entry, risk and return. Because we have already covered the entry orders, let’s discuss the stop loss and the take profit.

Stop Loss. The core idea of a Stop loss is to prevent losses that are too big. They are meant to introduce control to the trading. With stop losses traders can achieve the risk-return ratio as they allow us to calculate the risk part of the ratio. Because the biggest downside of having a hard stop loss are whipsaws, a soft stop loss aims to prevent this from happening. An example of a stop loss would be a rule “if price stays below the stop level for more than 5 minutes- exit”. This will prevent some whipsaws, but trader will need to monitor the market more closely and also sometimes, when market is moving sharply, over a period of those 5 minutes, it may move significantly and extend the losses, therefore a soft stop loss should only be used in relatively safe conditions to minimize the chance of price destroying the PnL (Profit and Loss) in a short amount of time. Both the hard and soft stop losses may be single or split to achieve some desired outcomes. By splitting the stop loss, one can place the levels further away with the idea being that even if some position was exited with a

loss and market bounced off, there is still some position left to give profit. The types of the stop losses are shown visually in Figure: Stop Losses. Take a look below:

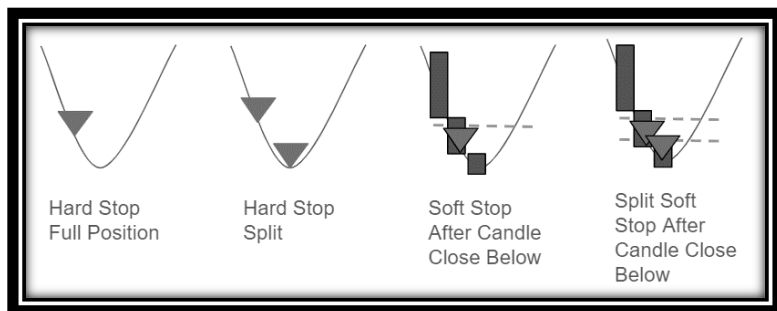


Figure: Stop Losses

- I. **A hard stop full** position is used when the breach of the price fully negates the idea of the trade. There is simply no more use to be in the position longer! A real-world example would be the breakouts. Traders that are aiming to capture a breakout from the range, but it turns against them and breaks out to the other direction- this is a clear point that the idea has been negated and a hard stop is a must! It provides a concrete exit point and gives no headaches.
- II. **A hard stop split** is used when you do not fully know where the idea-negation level is and choose to be a little more careful. Additionally, by splitting one is trying to minimize the chances of getting whipsawed by having parts of the exit further away from the current price. This strategy might be used for mean reversion or momentum. It is often challenging to pinpoint the exact level where the price would negate the idea, therefore stop loss might be split into several parts to allow flexibility yet control the risk.
- III. **A soft stop** (exit once the candle closes below your level) is used during large volatility, when it is rather likely that the level will be reached, however the probability of a re-bounce is big too. This might work for trend trading- during periods

of volatility, usually found at the dip, price may move down to capture liquidity before bouncing back up to go with the trend. For these cases, a soft stop loss can protect from fake movements. In addition to it, since one is going in the direction of a trend, a massive move against is rather unlikely, therefore in majority of cases, even when the stop loss will be breached, one should not have a risk, which is too large. Market participants should be aware of the tail risk, however. They might want to have a soft stop loss at one point, yet a hard stop loss much lower, just in case.

- IV. **A split soft stop** is very similar to the hard stop split but is soft. For such a method, the market should be rather calm to make sure there is no trouble.

In short, the stop loss can be split if there is no clear level but having a stop loss is necessary from the standpoint of risk management and the planning of trade. MPs have to consider their strategy and the type of trade they aim to catch. For some strategies, on the other hand, stop loss is actually not needed at all as the stop loss can be a timing restriction or so. An example is buy and hold where no stop losses are needed, simply because one does not aim to sell in the next 5 or 10 years! As a rule of thumb, the more frequently and with higher leverage one trades, the more important the stop losses become.

Take profit. It is all about the last part of the RR, the return. The first thought may be that the take profit should be discussed at the exit part of the trade cycle, however, in the cases where traders know exactly where they need or want to exit from the trade- the most common method of doing it is by placing the limit orders. In such a case, it really does not make any sense to wait out for the price to move towards the targets and only then place the order- it could have been done much sooner and now there is a new risk of price touching the

level only so quickly and slightly that the trader misses the exit! For this reason, limit orders should be placed in the entry stage.

Because investors value the risk part of the trade more than the opportunity to earn, then risk is set firstly and take profit secondarily. Due to the risk-return goals, the profit must satisfy the minimum criteria for it. During the validation step we covered the process of validating the risk-return zones. Given the scenario, when due to a sudden increase of noise, stop loss level has widened and a take profit level has to be further, you should ideally come back to the validation step to re-evaluate whether the take profit can still be achieved.

Just like the stop losses, we can either go out with a single order or by splitting it, softly or hardly and the logic behind them is really the same.

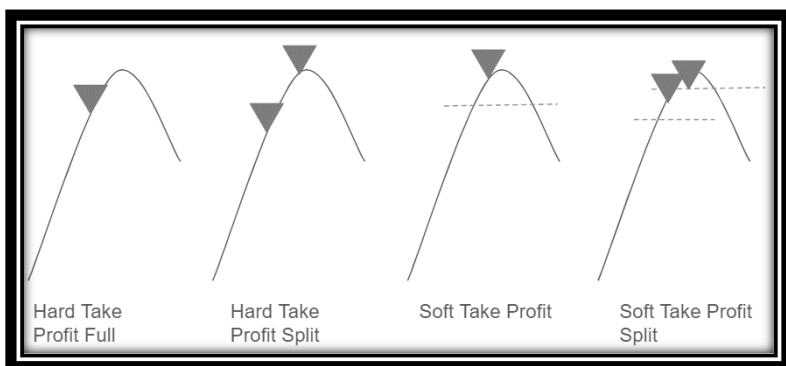


Figure: Take Profits

- I. **A hard take profit.** This is employed once the trade idea has been fully realized. It involves leaving the position completely without any room for further fluctuations. It can be used for mean reversion or cyclical strategies. Once the

price reaches the mean, the idea has fully materialized, and the exit is complete.

- II. **A hard take profit split** is used when there is no one concrete level- for example momentum or trend trading strategies. If a position is being held for longer periods of time, then several take profit zones might be set to maximize the returns and take profits once some checkpoints have been reached. Given the market won't reach the furthest - at least you took some profits earlier. This extends the risk-return characteristic in a predictable way but of course, will decrease the win rate unless smart conditional rules are applied.
- III. **A soft take profit.** While the practice of reaching a target and then waiting for the candle to close may seem illogical (and often is), it may be used when price movements are sharp, and the inertia might carry the price beyond the set take profit, potentially enhancing the risk-return profile. However, theoretically, there is minimal advantage at the profit-taking zone that guarantees price will consistently extend further. In reality, the likelihood of the price continuing to move or reversing after hitting the target is probably 50%. From this perspective, the risk-return ratio of a soft take profit may not justify the effort or the risk.
- IV. **A soft take profit split** is generally similar to a soft take profit, but even more complex and less predictable therefore one might question if it has any value at all.

Given the various possibilities, the goal is to select a method that is most compatible with one's trading strategy. It is important to note that the methods discussed pertain to how limit or stop orders are managed, and the exit aspect of the trade cycle will be covered in much greater detail in the exit chapter. Having solid levels for exiting trades provides a clear approach to risk-return management and may

be the preferred approach for less experienced traders or those who prefer not to monitor the markets excessively.

In conclusion, the entry part of the trade cycle is one of the most technical aspects of trading, where orders are placed and market engagement begins. The most crucial element here is position size and the planning of trade. Ensuring trade aligns with one's goals is vital for either achieving these goals or at least not breaching risk limits. Combining it with the correct entry method for one's strategy and type, and determining the exact rules within a trading plan, is absolutely essential. This ensures that traders are directly advancing towards their goals from the first order, every trade.

Management

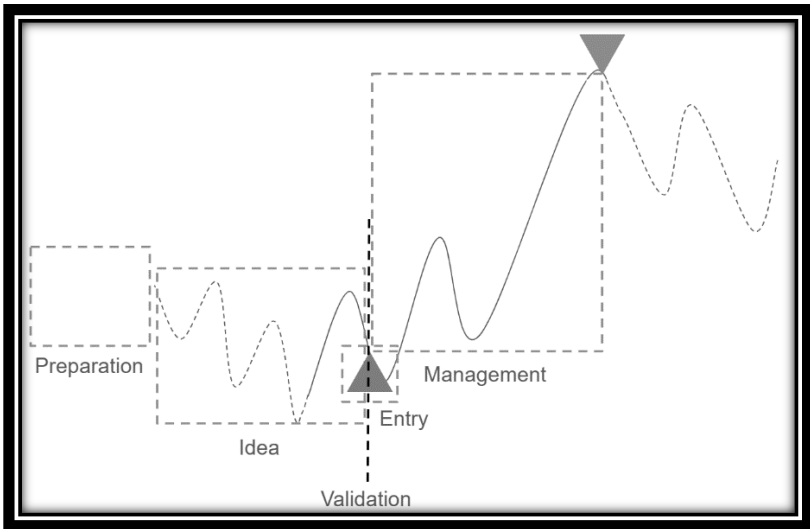


Figure: Management

The Daring Trade

After the stock market crash in October 1987 known as Black Monday, a trader in a major American bank “Bankers Trust” named Andrew Krieger was looking through the currencies of the world he believed to be overvalued. After a thorough scan, he noticed that the New Zealand Dollar (NZD), also known as “Kiwi” was vastly overvalued and not only that, it seemed to Andrew that the Kiwi was quite vulnerable, too.

In the following weeks Krieger opened a short position against the NZD using options and leveraged it to an absurd scale- the position was so large it exceeded the entire money supply of New Zealand! It put tremendous pressure on New Zealand’s financial system. His view

was that the NZD will have to be devalued which indeed happened and the currency fell sharply. This single trade earned Bankers Trust profits of about \$300 million and Krieger himself netted \$3 million in bonuses.

This trade is notable not just for its daring and the gigantic profit, but also for the way it was managed. From the perspective of Andrew, he had to look after the options, constantly monitor the risk and adjust the position as needed under the pressure of upper management and even international backlash.

Position management is the period between the entry and the exit of a position. A lot can be done, as this stage of the cycle may take the longest- it is the lifetime, the duration of the trade. Once a trader is in a position, it has to do something with it. The first question is whether, the trader wants to do something with the position or if he just wants to leave it alone- let's call it a passive versus an active approach.

Passive Trader

In many cases, if during the entry trader has placed the stop and the take profit orders, and waiting is all that's there- then there is nothing to manage. This logic is adopted by many traders, including Ed Seykota, who was a commodity trader and became rather famous after publishing his book "The Trading Tribe". He mentioned: "Cut your losses quickly, let your winners run, and always have a defined take profit and stop loss in place." - In Ed's quote, defined exit bounds are necessary for success. To be fair, many traders share the same

approach, such as Jesse Livermore, who said that "Implementing a solid risk management plan with clear take profit and stop loss levels is the key to consistent profitability in trading."

This is the community of traders who want to have control and are unwilling to negotiate. Passive position management is as simple as waiting for the Take Profit or the Stop Loss to be hit and then performing actions, such as the full or partial position exit, maybe something in between which leads us to reducing the trade size, thus entering the exit stage of the trade cycle. Such actions of "waiting" are officially referred to as monitoring.

So why use this? Well, the most apparent reason is that it is easy! With passive position management, it is simple to know the expected risk-return characteristic of a trade as it does not change throughout the trade. It also is fast – scalpers prefer monitoring as they usually don't have enough time to manage their trade, whose lifetime can be less than a minute.

Passive position management might work for the less technical or less experienced traders, who do not want or do not know how to follow every move of the market. The added benefit is more time for personal life, different instruments, different strategies and so on. Additionally, passive position management might sometimes be the only choice. It might not be possible, logical or profitable to engage in active position management during calm markets because there are no price fluctuations to take advantage of.

On top of that, emotional discipline is easier to enforce in passive position management. For some traders, it is difficult to keep the emotions in hand when trading actively, therefore a passive approach

can be employed. Setting predetermined exit points helps avoid impulsive decisions driven by fear or greed and it promotes a more systematic trading approach.

Active Trader

An alternative to doing nothing is doing something. It is highlighted by many famous traders such as the billionaire hedge fund manager Paul Tudor Jones who said that "Successful trading is not about being right all the time; it's about managing risk effectively and adapting your exit levels dynamically to market conditions.". Even Jesse, who said "...clear take profit and stop loss levels is the key to consistent profitability in trading." also discussed that "A successful trader knows when to hold, when to fold, and when to adjust their exit levels based on changing market conditions."

This is the tribe of traders who do not care about being right or wrong- they take what the market gives. In the context of active trade management, the "something that traders can do" are trade execution actions, and an important distinction between management and exit is the fact that position size does not decrease in the management stage of the trade cycle, meaning active position management involves adjusting and executing trade actions, always coming back to the original position size.

Adjustment axes. An active position management could mean adjusting the stop loss once price has traveled a certain distance, or adjusting the take profit if market conditions change. This could also

mean playing around with orders with the intention of reducing/increasing the average price along the way.

Before diving into each of the approaches one by one, let's establish what are the dimensions of active position management. For this, one has to remember that trading is about the repetition of a trade and a trade is characterized by the risk-return profile, which is what can be adjusted. Three components make up the RR- Average price, take profit and stop loss. Every one of these can be managed to achieve desired results in terms of RR.

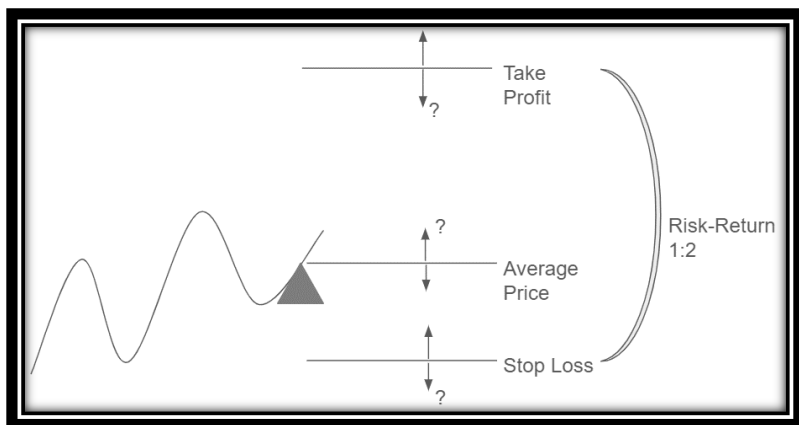


Figure: Risk-return adjustment

Logically, everyone wants to make the risk-return better, therefore in a case shown in the figure “Risk-return adjustment”, one would seek to adjust the take profit upwards, stop loss upwards and average price downwards. It would be very questionable to adjust the stop loss downwards, take profit downwards or average price upwards as any of these moves would make the risk return characteristic of the trade worse. That being said, the relationship between the win rate and the risk return will still hold, if the risk return profile is adjusted- with one

exception. For example, if the stop loss is increased, there are more chances of it getting taken, as it is closer to the price, which should happen with take profit too.

A common methodology for managing stop losses worth discussing involves adjusting the stop loss zone to the average price of the position, known as a breakeven. This strategy ensures that if the price moves adversely and triggers the stop loss, the trader exits the position without a loss. However, this approach must be approached with caution as price often comes back to the previous levels and there is a high likelihood it may return to the average price, causing the trader to exit at no profit. This represents an opportunity cost because the trader misses potential gains by being out of the market. Ideally, the breakeven should only be set after a price retest has occurred but because it gets the stop loss closer to the price, the probability of price touching the limit still increases and this timing will still result in a lower win rate. Critics of this method argue that setting a breakeven is ineffective because it abandons the originally established stop loss level, which was determined based on rigorous criteria. Instead, the breakeven stop loss is placed at an arbitrary point where many traders' orders lay. This concentration of orders can increase the likelihood of the price coming back and the breakeven being triggered- reducing the effectiveness of it.

Average price adjustment. Adjusting the stop loss or take profit levels is straightforward- making them better should get a smaller win rate as a result. It is the skill of the trader to understand the context and the market environment, patterns to know when the adjustments make sense and when they should do more good than harm. But playing with the average price, however, is different. Once traders have entered into the position with stop loss and take profit zones, the

risk return characteristic of the trade is fixed, until they adjust the zones. However, during the trade, traders may make multiple smaller trades which could either make the average price worse or better. This will change the risk return characteristic of the trade, but it will not affect the win rate. Let's explore this idea.

Win rate is a direct consequence of the price swings the trader is trying to catch plus edge- the bigger the swings, the smaller the win rate. After the position is entered and the exit zones have been set, the price will go up and down until it reaches either of the zones. Assuming that the market is efficient and it is impossible to make profits in the long run, then over a large amount of trades, price will tend to go more often to the zone which is the closer.

If the zones are set and price fluctuates and one either increases or decreases the average price, the price will still go towards the zone which is closer, because one's trading does not influence the market, unless he sits on a giant stockpile of money. By making trades and adjusting the average price, traders won't have any impact on the fact that price goes towards one level or another.

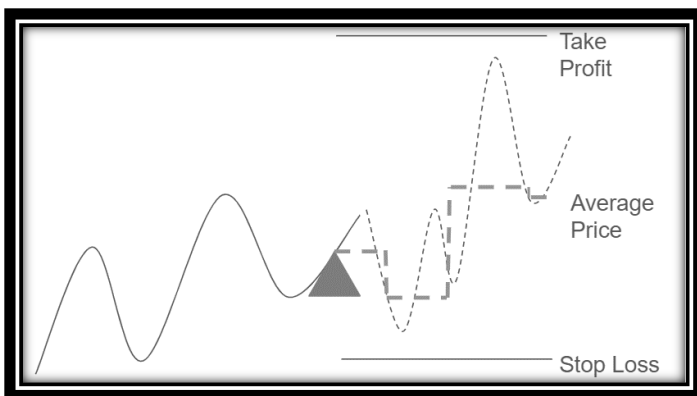


Figure: Levels And the Price

For this reason, while the take profit and stop loss levels do have a direct consequence to the win rate, as well as the initial price that was entered, the modification of the average price does not.

Let's explore an example. A trader has shorted 10 contracts two times on a different price. The total position is 20 contracts. The trader wants to buy 10 contracts and then re-short them at a better price. He can first sell the first position of 10 contracts or sell the second position of 10 contracts or sell 5 contracts from each position. Additionally, Trader might do a split, such as selling 7 contracts of the first position and 3 contracts of the second before re-shortng it. So, which ones to be exited from first?

In accounting, FIFO (First In, First Out) and LIFO (Last In, First Out) are methods used to determine the order in which assets are bought and sold. In trading, there is one more- SISO (Some In Some Out).

- I. FIFO. Under FIFO, the assets, shares or securities that are acquired first are the ones that are considered to be sold first. It follows the principle of selling the oldest inventory first. Assume that for the last 10 days you have been consistently buying AAPL shares. It has risen and now you want to start selling, to take some profit. You decide that over a period of 5 days, all shares have to be sold. Under FIFO, the first day you will sell the oldest shares that have been sitting for 10 and 9 days. The second day you will sell the shares that have been sitting for 8 and 7 days and so on.

This creates some capital gains implications and if the trader is less frequent, like an investor, then it might result in fixing

the biggest profits first and therefore would generate the largest tax implications.

In the context of trading, such a method has mostly a psychological impact. Assume you shorted a stock, but it has risen and you shorted it again. Now your trade has two positions, one better than the other. After some time, the price has indeed fallen, leaving a second trade in the profit level, so you want to close one of those two trades to reduce your risk. Selling the oldest order with FIFO method would result in fixing a loss, but it would leave you with a position that is currently profitable and this might give you more confidence.

- II. LIFO. It operates on the principle that the most recently acquired assets or shares are the ones sold first. It assumes that the newest inventory is used or sold before the older inventory, so in principle- it is the opposite of the FIFO. Using our 10 day AAPL example, on the first day you would sell the stocks of 1 and 2 days old, then on the second day you would sell the stocks of 3 and 4 days old and so forth.

The capital gains implications are also the opposite. For an investor, if markets were rising and he has been buying stocks, and now wants to get some profits, then LIFO method may result in lower taxes,

In the context of trading, it is also mostly about the psychological effect. Under a scenario where you have shorted a stock two times and but currently only the second position is profitable, with the LIFO method you would realize the profitable position first. This would result in

holding the most losing (or winning) positions for longer and have a psychological effect of clinging onto losers yet riding the winners.

- III. SISO. The order of selling under SISO involves selling from multiple orders at the same time. One way is to sell from all currently open trades a proportional amount, so that it would be equal to selling from the average price. In other words, by employing this approach, a trader does not work from one order to another but works from the average price.

When discussing the average price of investments, the terms “better” or “worse” are often used. However, the term “worse” should not cause alarm as it simply means that currently the overall investment portfolio is showing positive returns to which the trader adds, and it makes the average price a little worse. The reverse holds for a “better” average price adjustment, which suggests that the trades are currently underwater.

So, how do the traders do this? Because the trade management allows for a decrease in position with the assumption that the position will increase to its original size, the trade management means a partial exit and re-entry. This, however, introduces a clear problem: If traders sell some of their position and it goes in the direction of the take profit, then they have reduced their position size for a positive trade, meaning they do not get the full intended profit. It is an opportunity cost- every time market participants exit partly from the position, they risk losing profits, therefore the trader must have high conviction and high skill to make the sale of the position result in something better, rather than a mess. While the take profit and the stop loss have a direct impact on the win rate- average price adjustment has an impact on the

opportunity cost. Logically, the average price adjustment sub-strategy should be better than the main strategy, in order to increase its profitability- a challenging task. The active management example is illustrated below:

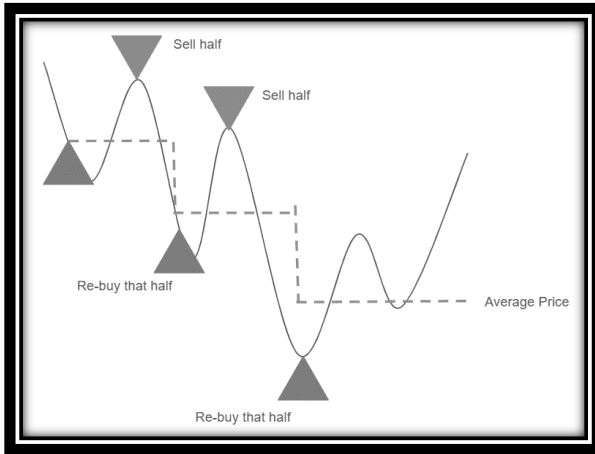


Figure: Active Management

In a perfect scenario, traders would sell some at a better price, re-buy at a better price, this way making the average price better. When the trader is done with that, the average price is very solid, and the trader rides the price movement. Having said this, traders might open more positions without first selling and only then getting rid of them one by one. Under FIFO, it would look something like this.

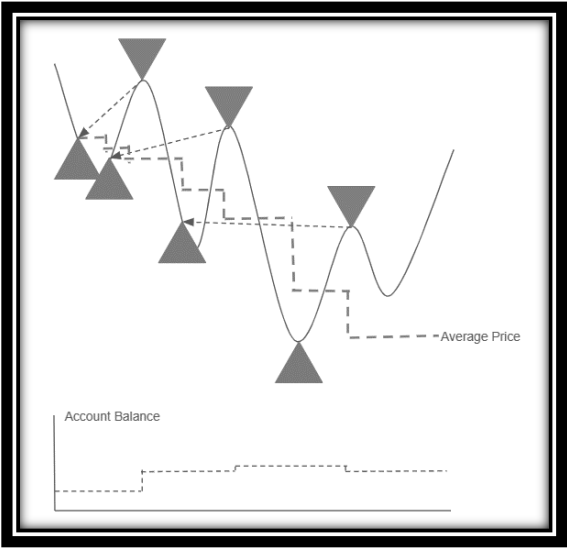


Figure: Average Price Under FIFO

While under LIFO, it would look like this:

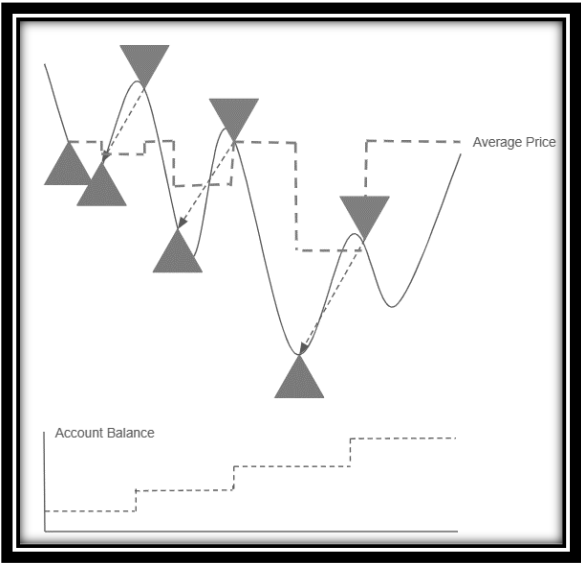


Figure: Average Price Under LIFO

The SISO method is the most complex as traders are playing with the average price rather than the orders. One example could be to sell some from all of the positions so that the average price does not change due to the sale. See an illustration below.

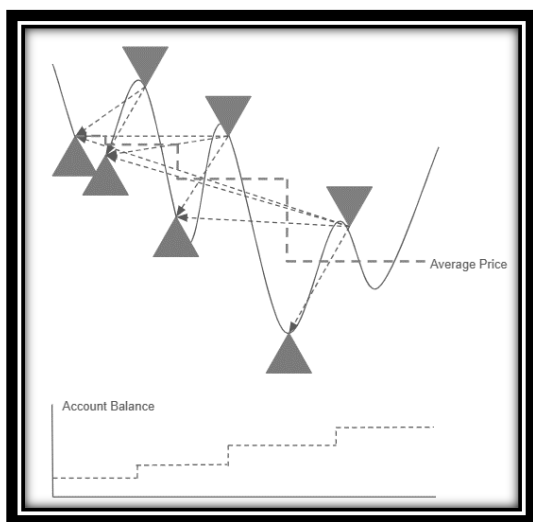


Figure: SISO

These methodologies can be done in all types of market conditions and at the end of the day, if you make the same trades but use a different accounting method- the sum of the account balance and trade PnL will be exactly the same. It boils down to the psychological and the tax aspects- whether the trader likes holding the most losing/winning positions to clearly see a big picture or the reflection of results in the account balance with the smaller open positions visible.

So, when should traders go for the average price adjustment? Forth and foremost- the market must fluctuate, in order to be able to buy and sell at great levels. Assuming the market is static or very directional,

there simply is no room to play and therefore such management will not work. Ranging market is a perfect atmosphere for it- a good trader's goal is to determine whether the current market situation is suitable for the active management of the average price. One can think of the adjustment methodology as a separate strategy. This should follow the logic where $1 + 1$ equals more than two.

So, how does the position management fit into the strategy profile? First, the dimensions of trade management can be classified into:

- I. **First dimension:** Take Profit Adjustment
- II. **Second dimension:** Stop Loss Adjustment
- III. **Third dimension:** Average Price Adjustment

Because every dimension provides 2 directions of adjustment (up or down), there is a total of a 3-dimensional space for the adjustment of RR inside the trade management part of the trade cycle.

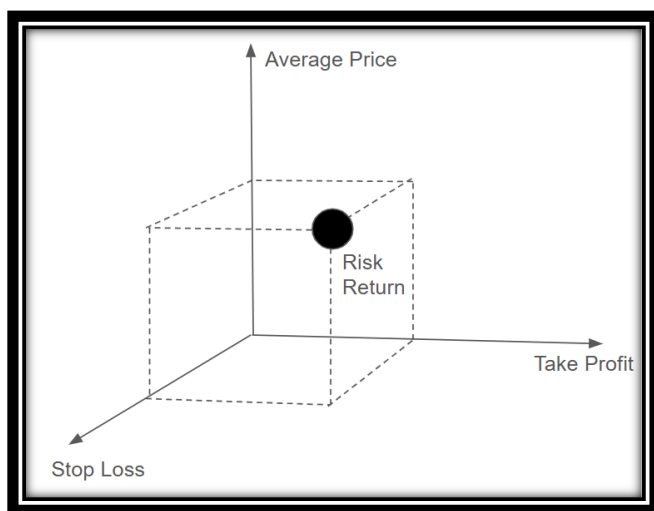


Figure: 3D Risk Return Space

This means that there are 8 different combinations to adjust the risk return of the trade ($2 * 2 * 2$). It can be mapped out in a tree diagram. To understand it, let's analyze a momentum strategy- because it is trying to catch a large movement, the win rate is small, therefore it makes sense to pocket some profits when price rises and re-enter again when the price declines a little as a part of average price adjustment. Additionally, after the price moves to positive direction, it makes sense to adjust the stop loss to a better price and lastly, because the momentum strategy aims to catch large movements, given a scenario where a strong trend begins, traders might want to raise the take profit.

Because market conditions can vary and sometimes it makes more sense to use a passive position management, rather than active, the first dimension should be a selection between active versus passive and thus it would make the tree with 9 branches total.

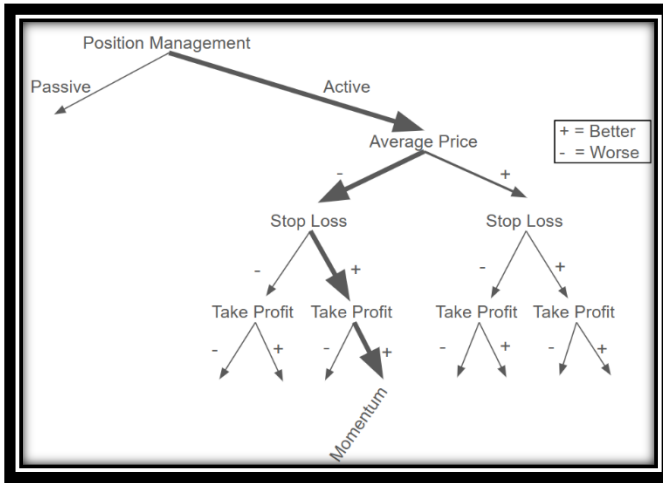


Figure: Momentum Tree

This momentum tree assumes that during position management one needs to push around average price, stop losses and take profits but in reality, one can skip some steps or go for a passive approach. If, for one or another reason, the trader does not want to move the take profit around, which could be the case for a mean reversion strategy, then the trader would leave the take profit alone and only work with adjusting the stop loss, average price.

Additionally, there is no clear methodology or general principles on how to exactly manage the position correctly- one may use indicators, others support/resistance levels, some their gut feeling or fundamental data, news- anything! At the end of the day it all comes down to the strategy, character and skills.

Exit

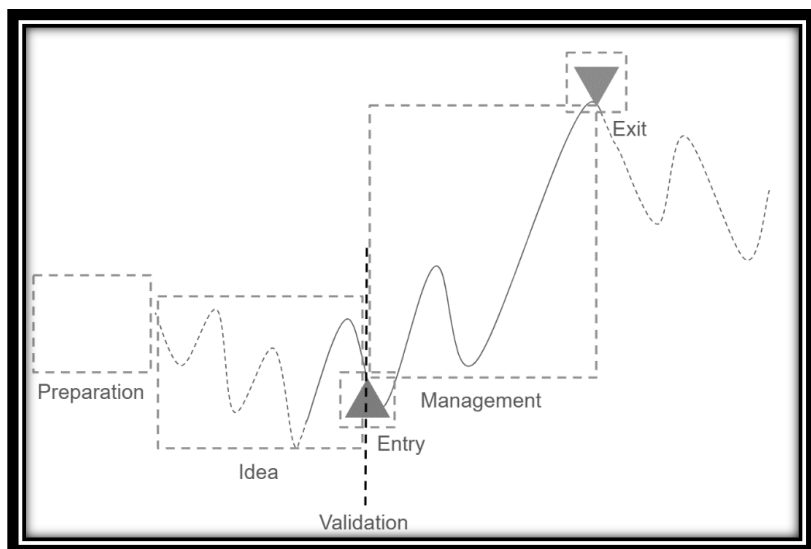


Figure: Exit

The exit is what locks in the trade- it practically is the end of it. It is the closest action towards the results and therefore, the one that has the most direct impact. For this reason, many traders put emphasis on an exit as they believe that the exit is what truly determines the result. This, in fact, has lots of truth to it. Two traders might have the same entry, similar management yet exit with a completely different result because they sold 10 minutes from each other.

Because every strategy has its RR characteristic which it sets in the entry stage of the cycle- it does not make sense to deviate from it during the exit. This could lead to the conclusion that the exit is simply the execution of what was planned beforehand and that there is no room for improvisation. While this holds true for systems where the

stop loss and take profit are static, it does not have to be the case when the trader desires discretion over at the exit of the trade.

First, it is important to differentiate management from the exit, as this distinction might not be immediately clear. If an entry can buy and sell with each re-entry increasing the position, the exit can buy and sell with each re-entry decreasing the position. What separates the exit is whether the actions lead to a permanent decrease in the position size for the life of a trade. Take a note- if for one reason or another one decides to start increasing the size of the trade mid-exit, it puts the trade back into the entry stage and the cycle continues.

Let's revisit the two types previously discussed: the exit that is simply the execution of previously planned actions- the take profit and the stop loss limit order, and the exit that is directed by the trader's discretion. Additionally, there is a third type, termed the unplanned exit. This type includes emergencies, unforeseen events, and the randomness of life that may necessitate abandoning a trade. Let's explore these three types: Passive, Active, and Emergency case by case.

- I. **Passive.** A passive exit simply means performing actions that have been planned in the previous stages of the trade cycle. A trader could have set limit orders, which he adjusted in the management part and so the job for the exit is to wait for the market to reach the order. It might also be a time exit, like the day traders have- exit from all positions at the end of day. A passive exit strategy means looking into the trade until some action is needed- may be the pending orders, may be a set of rules. Similarly to passive position management, a passive exit can also be referred to as monitoring.

- II. **Active.** An active approach of the exit is essentially the opposite of the passive approach. Everything that is not planned in advance, except for emergencies, falls under this category. The goal is to exit with the best possible price that the market gives. Conceptually, this exit is reducing the position through trading with each re-entry being smaller. FIFO, LIFO and SISO come into play with similar implications described in the management chapter.
- III. **Emergency.** It is defined as a serious, unexpected, and often dangerous situation requiring immediate action. When an emergency happens, and a trader must get away from the computer or simply cannot focus anymore- it means that trading cannot be done anymore and the best course of action is exiting the trade to go and do more important things as trades should not pass the psychology validation step anymore. An example could be unexpected news for which one is totally unprepared, therefore the best course of action is to exit the trade and re-do analysis to determine what is going on and the implications it may have. Having said that, if a trader is trading a liquid instrument, then leaving stop and limit orders should provide the trader with expectancy (either a take profit taken, or a stop loss taken) and is a valid option in terms of emergency, to simply leave the trade open.

Active Exit

Premature vs delayed. While the passive approach is straightforward, active exits require significant consideration. The first assumption about the active exit is that the sole objective is to maximize profits or minimize losses on the trade. Given that stop loss and take profit zones have already been established to define the risk-return characteristics before entering into the trade, active exits

could either occur prematurely, or be delayed relative to the planned exit levels. A premature exit at the take profit zone would indicate a lack of confidence in the trade's further potential, whereas a delayed exit at this zone suggests an intention to ride the market for a greater profit. In the case of a stop loss, a premature exit would aim to secure a smaller loss than initially planned, while a delayed exit aims to abandon the SL in hopes of a price recovery. Graphically, both the delayed and premature exits are depicted below:

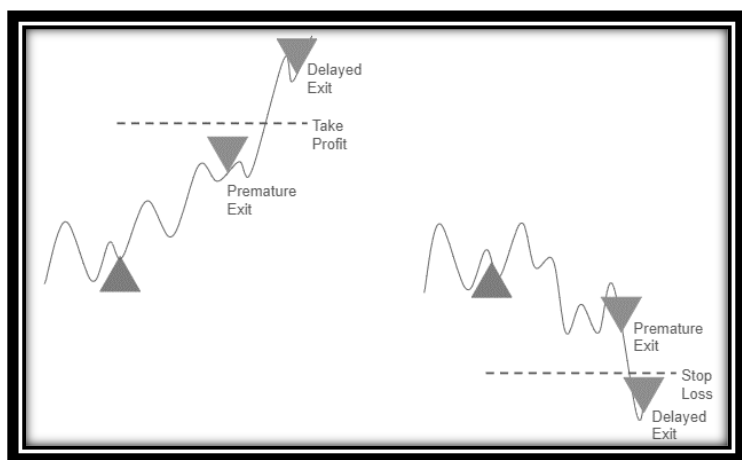


Figure: Premature And Delayed Exits

It is clear, that in the above cases, the preferred method is to delay the take profit and premature the stop loss but this, however, creates new problems arising from the possibility of price reversing below the original take profit, forcing one to exit prematurely or in the case of the stop loss, price bouncing back into the profit zone after trade was exited prematurely. There must be a clear strategy with an edge in place for deciding when to delay or premature the exit.

Remember that by delaying or going prematurely and repeating such actions for each or many trades, market participants will have influence on the win rate, as they are adjusting the risk-return characteristic. Because of this, they should only play with premature or delayed exits if they believe they will not worsen the win rate too much by extending the risk-return of the trade. In other words, the premature versus delayed strategy should complement the main strategy in order to produce better results. In the case of the take profit, a delay can be decided if certain momentum indicators are showing positive signs with exit made once the indicators turn negative.

Order splitting. Additionally, just like in the entry, orders may be split into several parts and this, again, is for the sake of control. Picture this- price has reached the take profit zone and you exit in full. In such a case, you are not participating in the market anymore and the result is locked. If price keeps going up, then this introduces all kinds of psychological problems such as greed and revenge trading which can result in overtrading on top of opportunity cost. By splitting the order and exiting for a fraction once price has reached the target, then exiting with another fraction once price has further advanced will not only make it easier psychologically- it will also create a better risk-return characteristic of the trade. That being said, splitting the trade into several parts requires attention and time. Lastly, it introduces risk of price reversing away from the profit zone with one having sold only a fraction of the position.

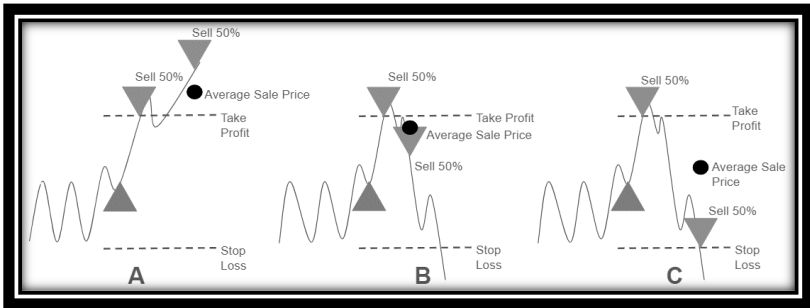


Figure: Split Exit Cases

With orders being split there are essentially two outcomes—position exits at a better price than the take profit or at a worse price. The worse price could continue to be split into the B and C cases where one might exit as soon as there is price reverting or once the stop loss is hit. In both cases, however, one will still be in profit, so a method of splitting exits works for strategies that target a large risk return such as momentum, trend trading, breakouts.

Technical exits. Lastly, similarly to the trade management part, traders might re-enter, with a smaller amount, after they have sold some of their positions. This approach is the most technical and requires the most skill, however it might maximize the profits if done correctly.

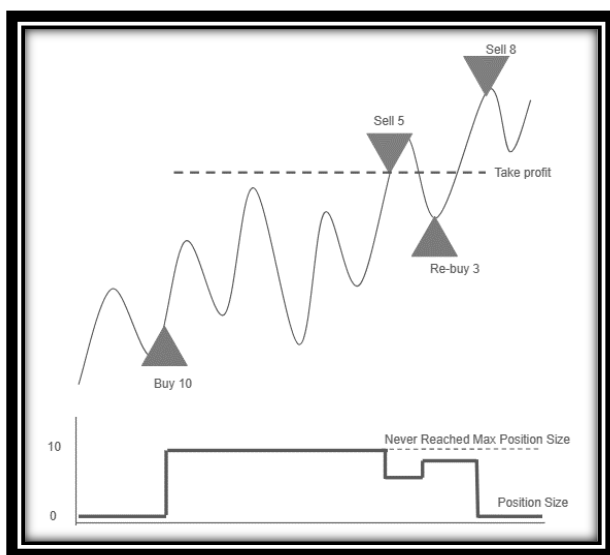


Figure: Technical Exit

The technical exit has a philosophical problem- if price reaches the profit target, then strategy has exploited the inefficiency and there is nothing left to profit from. But this is rookie thinking. In reality no one ever knows if there is no more room left for profit. Even a mean reversion strategy will sometimes catch moves that not only revert to the mean, but it will smash through it and start a new trend! The goal of a technical exit is to catch as much of the price movement into a positive direction as possible.

The re-buy might be treated as a separate position, with its own risk-return characteristic. Ideally, for this scenario the re-entry might be employing a completely different strategy but acting as a part of the bigger trade! Of course, the technical approach, if done without the required skill or strategy, will result in destroying the trade because once it is done, the average price is made worse, and it will take a short period of adverse price movement for the trade to become negative.

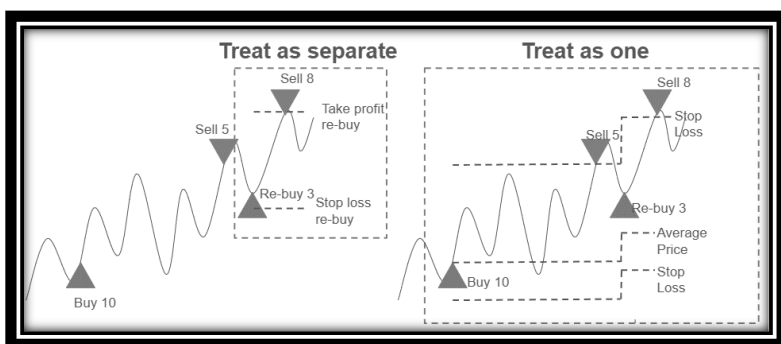


Figure: Re-Entry Treatment

During the technical exit, the re-entries can be treated as trades of their own or as a part of the larger, ongoing trade.

- I. **Separate Treatment.** Given the trade is treated separately, it must have its own strategy, trading plan and additionally, the primary trade has to have a plan of what to do with the remaining position if the re-entry has been stopped out. For such reasons, this approach is the most advanced method as essentially, one trade has to have multiple strategies within, working to create a unified exit which makes sense. For this case, there has to be an underlying inefficiency or a strategy for the separate trade. If the primary trade is mean reversal, then the separate trade could operate on a lower type and be, for example, a momentum trade. It could also be a mean reversal trade but on a higher scale! Notice, how the same could apply for the entry or even management stage. The separate versus combined treatment as a sub-strategy works for entry, management and exit stages. In reality, one trade could have 3 sub-strategies, making it multi-dimensional and very advanced.
- II. **Combined Treatment.** This involves reentering to the primary trade and if needed, adjusting the risk-return characteristic of it. The re-entry can be done at a better or worse price which was sold previously, and it depends on what the trader is trying to capture. An example could be the

price moving slowly yet directionally in the direction of your trade after you took some profits. This might indicate that an extension of the price is possible therefore you would reenter into the trade again. For this, you might raise the stop loss, take profit levels, because your average price rose. Such an approach, while still being technically complex, is more simple than the separate trade approach as you do not need to involve a different new strategy- it is part of the primary strategy and trade.

The technical approach works well if the markets are choppy, yet directional and not too volatile (some is needed) as no one wants their stop losses taken. The problem with the technical approaches is that the planned risk-return characteristic of the trade gets messed up- perhaps RR of 2 was planned, but due to the technical exit trader managed to achieve a RR of 2.2 or 1.8. Unless there is a proof that by technically exiting, one can achieve a better risk return without decreasing the win rate, it should not be used as it's a waste of time and an increase in transaction costs.

Exits from trades can be classified as passive, active, or emergency, with the active exit being the most technically challenging. This demands a high level of skill from traders to determine how and when to apply various methodologies. Ultimately, certain strategies may benefit more from one method of exit than another. To appropriately match the exit method with the strategy, one can employ logical thinking. Typically, the larger the moves a trader aims to capture, the greater the margin for error in the exit strategy. By allowing for a larger error, traders might choose to delay their exits to maximize the potential move. This is particularly useful in situations such as capturing a strong trend or a directional move that might extend beyond initial expectations, where active exits can be strategically utilized to maximize profits. A scalper or a mean

reversion trader on the other hand, who only holds a trade for a few minutes, may find it challenging to manage an active exit, thus opting for a passive approach. Conversely, an investor with more time to analyze and make decisions might prefer to split the order to capture as much of the price movement as possible, choosing either simple or technical approaches depending on their character, skill level, and availability.

Settlement

Introduction

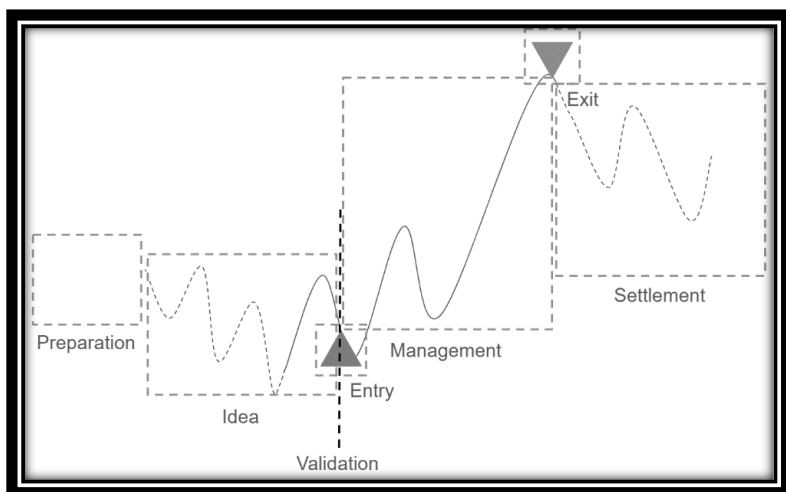


Figure: Settlement

Once the trade is closed, it settles. In the official terms, settlement means that the instrument finally switches hands and ends up on one another's accounts. In the stock market it takes 1-2 days; In the crypto market it takes a minute. Different markets have different speeds of how the instrument settles, however, in the context of the trade cycle, a trade, once finished, settles in the records, such as the trading journal (if any), account balance, track record. Based on the information on what the trade returned, how it looked, traders analyze the trade and take the lessons that were learned, apply them to the analysis or execution of the next trade and the cycle continues, therefore a vital part of settlement is feedback. What did the trade teach that one can use for the next trade?

Journaling For The Win

A trading journal is simply a tool to help traders or investors keep track of their trades. It should be aligned towards the trading plan and prove to be a helpful tool in building discipline and experience. Some traders like to keep a trading journal entirely for trades and then have another document called the action plan, which is where they will record their analysis, plan for the day or week, take notes and so forth. Most, however, will keep those two documents as one and call it the trading journal as it offers centralized record-keeping and less paperwork. Just like the trading plan, it must:

- I. **Be Professionally formatted.** A trading journal, just like the trading plan, has to have the same standards- beautifully crafted proportions, margins, etc. It must be easy to print and understandable once it is done. There should be a solid structure, harmonic colors and consistency...
- II. **Has to refer to the trading plan.** When traders are preparing for the trade, that is, making routine analysis- they must write it down somewhere, at least in the beginning, and the trading journal should be that place. Traders should write down everything that they are looking at: the levels, patterns, sentiment, trend, notes and so forth which are directly connected to the ideas of the trading plan.
- III. **Has to keep track of all important information** about the trade, so the question is, what is this important information? The time of open/close? The price? risk return? Traders need to ask themselves- what is the reason for having trades in the journal? - To fine tune trading? To learn? To get disciplined?
- IV. **Should be visual.** Pictures or screenshots of the trades that are included for every single trade will prove to be some of the most valuable information in the journey of every trader.

It will make the journal “pop” and feel alive, full of lessons that can be revisited any time.

Trading journal is like a diary and there have been more than plenty of traders that have recognized the power of it- one of them is the Van Tharp, who said, “Successful traders know that a consistent and systematic review of their daily trading activities is the direct path to growing and improving.” and he does not share the same view alone. Other highly viewed traders and writers share the same approach: “Trading without a diary is like shaving without a mirror.” Dr. Alexander Elder as well as “As a professional trader and managing partner of a trading firm, I cannot take you seriously as a trader if you do not journal. To me this would be like a football player not lifting weights.” Mike Bellafiore – SMB Capital Partner. While journaling is essential, there is not much to say about it as it would be difficult to pinpoint the principles of a good diary, too. At the end of the day, it has to lead towards advancement in market participation activities.

The action plan part of the trading journal should be the lighthouse for the intended period. It is very true to the swing or position traders, while less relevant for scalpers or day traders who must react to new information throughout the day. Often, the time it takes to make a final decision can lead to missing a great trade, therefore the action plan is possibly the best way to prevent such accidents happening and it, logically, should be done either before the trading begins. While keeping the trading plan, trading journal and perhaps the action plan increases the amount of work necessary, it might help to treat trading as a business, make it more structured.

In conclusion of this small chapter, the settlement is the part where traders have the least control as actually, there is no trade to control anymore. The alignment to the plan should come in the way of helping

the next trade be more aligned and better, which means education, optimization and effectiveness.

The Cycle Overview

With the conclusion of the settlement chapter, it can be said that every step of the trade cycle has been thoroughly explored- the components and the logic behind them have been examined in detail. A great trading plan will have every spot of the trade cycle covered, as seen in the picture below.

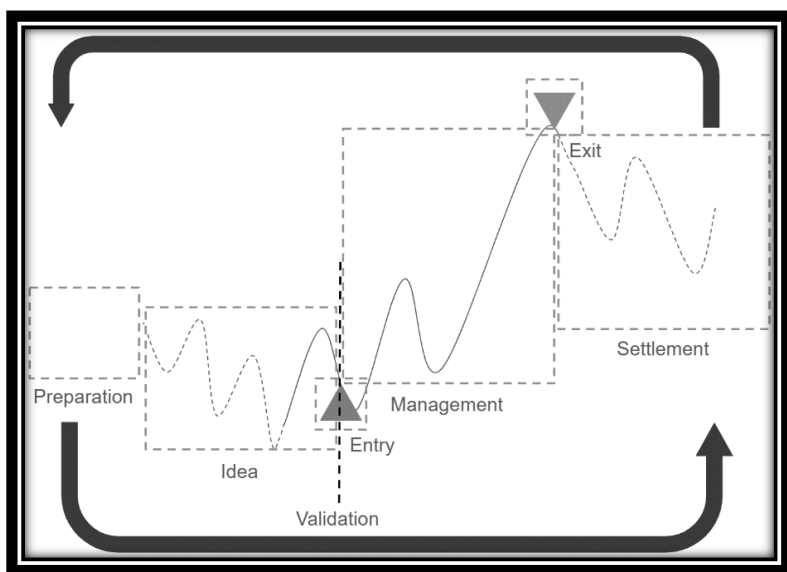


Figure: Trade Cycle

This should serve as a map and guide one towards the path that is closest to achieving one's goals. Even if the traders fail from time to time, they will be able to write off the paths that did not work. Ultimately, there will only be one path left, indicating it is the way to go! With the knowledge in mind, the next step is to start constructing the trading plan and put it into practice. With that said, even if one has

a killer trading plan, it will not work given the trader does not know how to trade it! For such a reason, practice is yet another, absolutely vital step towards top-notch trading.

Growth Stage

The Obvious

“ We don't rise to the level of our expectations, we fall to the level of our training.” The number of quotes that have been said about the power of practice is immeasurable. This quote was made around 7th Century BC, almost 3000 years ago by ancient Greek poet Archilochus. It was always known that nothing prepares a person better than... Preparation!

A map in your head, that is, theoretical and conceptual knowledge which this book has displayed, is the first step to success, but this, however, is not all by any means. In the context of trading, you should ideally put your trading in for a ride until you can trade with real or a significant amount money with confidence! It should be very clear, but so many people are making or did this mistake before trading real (me including). It is obvious that first comes practice and then the game, but also- how does one know when the game begins? To answer such question, begin by the question “how do the traders train?”

Practice Makes Perfect

The answer, obviously, is using fake money or a very little amount of real money to simulate trades. It is referred to as the demo trading, where the market goes at its normal speed and traders simply trade as if they would. It has both positives and negatives. A positive is the fact that real-time demo trading is a perfect simulation of actual trading while a negative is the time consumption- a trader that is testing out a new strategy may spend weeks trying it just to find out it is of no use. Older traders approve only of this kind of training as it is time-consuming, slow, does not allow the testing of hundreds of strategies nor markets, yet it is the only way to prepare one for trading as it simulates the trading perfectly. It also doesn't, however, simulate the emotions which one experiences when betting the real or significant amount of money, therefore the other camp of traders- the quants- dare to ask a crucial question: "If this "perfect" way of practicing trading does not simulate the actual emotion, it tests the signals. Why shouldn't we either speed the market up or just test the signals and the strategy with a computer for faster results? Both of these- manual/slow and computational/fast methods do the same job!". As an answer to this question (statement) they use historical data that is sped so they can simulate trading much faster than the real time, allowing to test many strategies in a short period of time. This of course, while much faster, will not have the exact same psychological effect as the "slow" trading would have. That being said, if only the static rules are being tested, then the fast-forward approach sounds like the more logical solution. At the end of the day- both camps are correct! Manual-slow kind of trading will improve the ability to think, recognize patterns and act in real time, while the quantitative approach is there to answer the statistics. One way to do it is mix them up- narrow down the strategies with computerized

testing and sandpaper them using manual approach. This way, the best of two worlds are used.

Trading The Trader

Problem with testing of one's trading begins when deciding when to start trading with real money or increase the account balance, perhaps risk size. Regular and generic answers include "profitability for over a month", "profitability over 50 trades" and so on but they do not address the main problems of real trading versus the practice. Let's come back to the beginning of this book where Dr. Alexander Elder was quoted saying that while the most consistent traders are systematic- what takes a step further is adding smart discretion to the approach. Building on this logic, the practice account should by the very least show consistency. This can be achieved by plotting the account balance and after several periods adding a moving average. The goal is to see a steady account balance growth that is above the moving average. Once this is done, a simple approach is to begin adding to the portfolio once the account balance falls to around the moving average- it simulates trend following, but on yourself! More or less experienced traders might choose to increase their risk size on such events and even so- adding indicators like RSI or MACD on the account balance allows the creation of rules to dynamically increase or decrease the portfolio size or the risk size due to the presence of various psychological or unseen market cycles.

The mastery of discretion, however, is achieved with experience and it is widely known that to master the gut feeling for trading it will take many years, therefore realistically, you should not try to learn to become a market wizard in the demo account- this will be done throughout years of exposure to the market and should come naturally after.

Closing Remarks

Book has come to an end. We have covered the most important aspects of trading, discussed how different parts of the trade cycle have to be completely aligned with the strategy and the type of trader you are. The strategy and the type of trader you are must be aligned with your character and of course everything has to align to the financial goals of your, which can be achieved with the position sizing algorithm. Such a structured approach will create an extremely organized trader, which is already an edge over the other players in the market.

The plan proposed in this book, of the trading plan as a single trade plan is a more efficient and narrowed down approach to trading. We are essentially trying to repeat the same trade over and over again, while also thinking about the win rate of the sample- the trading plan must ensure throughout every step that you are consistently working towards the goal of the ideal trade repetition as often as possible. Only when everything within the plan aligns with the way the perfect trade has to look like, then the hunt starts, moving from one step of the trade cycle to another, when the market matches the criteria.

The goal of this book was to give you a theoretical high-level overview of the world of trading, then connect it all into a unified framework. It also tried showing the way to look into trading from a more philosophical perspective, discover the relationships between different parts of trading and building a solid map in your subconscious. Your next steps are to start thinking from the ground

up. What are your goals? What type of trading and what strategies fit your character? And moving up.

It also tried showing the power of consistency. There is nothing worse than switching strategies, plans, whenever they start to not work. No strategy always works! They all have drawdowns! Being down 5% or 10% might seem like your plan is not working anymore, but if this aligns with your expectations then have patience, focus more and you will get there. That being said, sometimes traders have a feeling like what they do is not right or not. Maybe they are trading with too much money, maybe too little- traders should try to go through every step of this book and try discovering what is currently misaligned. Once found- dive into the topic, find the solution.

Lastly, knowledge about the overall framework and a high-level view can be more important than the detailed knowledge in one part of the trading. Connecting the dots of simple concepts is more powerful than deep knowledge on some subject but inability to paint the bigger picture of how the subjects fit into the overall context.

Alexander Elder: "The goal of a successful trader is to make the best trades. Money is secondary"
