A SPECIAL REPORT BY

Macro Ops

Target. Deploy. Profit.

THE MACRO OPS HANDBOOK

Chapter 1: Introduction to the Macro Ops Methodology

In order to meet our educational mandate at Macro Ops, we believe it is very important to thoroughly explain our investment methodology. The following pages will go into detailed explanations behind the specifics of our process. Giving members the opportunity to internalize and understand our methods will ensure that they are both confident in and comfortable with the investment decisions that we make.

With proper education, we also hope to have our members eventually contribute to our investment process. Taking an active role in the decisions we make should be the long term goal for each member. The first step to achieving this is to lay out our investment methodology. There is a lot of information in the following pages to read and digest.

Our Philosophy

As Macro Operators, there are a few core values that we operate by that can be seen throughout all our processes. Those familiar with Ray Dalio's *Principles* will understand the importance of defining values. Understanding another's values helps reveal their motivations which in turn builds a level of a trust.

With this philosophy document, we intend to explain a bit about our values with the hope that our members will gain a deeper understanding of our goals and how they affect the investment decisions we make.

Preservation of Capital

Rule No.1: Never lose money.

Rule No.2: Never forget rule No.1.

-Warren Buffett

Our number one goal at Macro Ops is to simply not lose. Investing in markets is inherently risky and there is always the potential to incur large losses. Keeping our focus primarily on avoiding losses helps ensure that at the very least the money we have invested in the markets is kept safe.

As we have said, the main reason we started this service was to more effectively assist our family and friends in their investment decisions. Our family and friends are

wholesome, hard-working people that range from doctors to lawyers to small business owners. We believe they and their families all deserve financial security and prosperity for the long-term and we want to help them achieve that.

We know how difficult it is to accumulate capital. Building a nest egg by saving over many years and making smart spending and investing decisions is not easy. The last thing we want to do is lose that hard earned capital.

Risk Management

Seeing how our number one goal at Macro Ops is to preserve capital, it only makes sense that we would make risk management our top priority.

As a team we constantly look at the downside and worst case scenario of every investment decision we make. We are cognizant of the risk of ruin or large drawdowns that take years to make up (the 2008 crash comes to mind). We have seen it happen time and time again, investment professionals become complacent in the good times and forget how much real risk is embedded within the markets. This complacency is their downfall when the good times turn to bad. The markets move in cycles, and if you are not constantly prepared, you will be caught off-guard and lose your shirt when the cycle changes.

At Macro Ops, our focus on risk and potential downside keeps us prepared for any situation. We are always on the hunt for risk-adjusted returns, the key in that phrase being risk! Our reward/risk ratio needs to be very large for any investment decision we make. Our goal is to risk a little to gain a lot.

Before we take any position in our account we always establish a price level where the position will be considered a loss and automatically liquidated. Once the position is on the books the “stop point” is executed automatically by a computer. We never make exceptions to this rule and we never negotiate with risk or exceed our max loss per our investment guidelines. We strongly encourage you to practice this same habit. You cannot take large losses and expect success in this business.

In extenuating circumstances during overnight moves in the London and Asian sessions, where it might be hard to exit a trade the next day, we may even use hedging procedures in the ES mini market, the most liquid in the world, to zero out our exposures. The point being, we do not joke around when it comes to managing risk.

This is not just something we preach for our investment strategy. This is how we live our lives. Throughout any situation, whether in investing, business, or personal lives, we look to take advantage of calculated risk. Yes, there is no way to gain anything without

risking something first, but there is also a proper way to take risks. We are experts at taking the correct types of risks.

Risk management is central to our investment strategy at Macro Ops.

All Asset Classes - Long and Short

Macro Ops is different from traditional investing services. Most strategies offered to non-professionals today are what we call allocation strategies. These funds look to always be 100% invested in something. This “something” could be large cap stocks, fixed income, annuities, small caps or some combination of the above. Additionally, these funds usually only look for long opportunities in these assets and never short sell them in the anticipation that they will fall in value.

Macro Ops takes a very different approach. Macro Ops starts with 100% cash and treats it as a position. Where most funds are 98% invested and 2% cash, The Macro Ops Core portfolio will look more like 20-40% invested and 60-80% cash. These percentages can vary depending on conviction levels, the number of positions on the book, and how much unrealized profit has been built up within a position, but in general we are a lot more comfortable sitting in cash than our competitors. If there is nothing interesting in the market, then we don’t invest. We don’t succumb to the feeling of having to reach for yield like many other professional investors. If there are no attractive risk-reward scenarios visible, we keep capital preservation in mind and stay out of the market.

Macro Ops also differentiates itself by looking for both long and short opportunities. This means we look for bull moves up as well as bear moves down. We don’t take allegiance to any particular side of the market. Instead of identifying with bears or bulls in the media, we look to be right and profit.

Macro Ops looks for these opportunities in all asset classes that have fair and liquid markets. We trade both domestic and foreign stocks, commodities, currencies, fixed income, and volatility. This level of investment diversification is an upgrade to what most non-professionals are accustomed to. Sometimes particular asset classes are not moving properly and have bad risk/reward profiles. When this occurs, our flexibility in trading multiple markets makes it easy to avoid these sour asset classes and instead focus on making good risk/reward investments in more favorable markets.

Expectations of Activity and Returns

Before beginning to invest, it is important to have expectations that are aligned with the investment strategy. If you go into a strategy expecting a 50% annualized return with 30

trades a month, but the system or method only generates 1 trade a month and targets a 10% annualized return, you will not only be disappointed, but will have to deal with constant emotional tension along the way. Knowing the true expectations, goals, and activity levels before beginning to invest will help keep you emotionally aligned along the entire investment journey.

Macro Ops Core is searching for the largest trends in the world with a broad macro approach that uses a defined set of instruments. Because of the scrutiny involved in our trade selection and the length of our holding periods, our strategy's trading activity will be relatively light compared to most swing trading standards. We can expect around 20-30 trades a year of which 5 will really make our bottom line. In the slow times, focus must be maintained so the large trends are not missed. Missing one of the big "five" can drastically affect the bottom line. Ultimately we do not know which trades will be big winners. We merely take good risk reward opportunities and manage the result.

The relatively light activity of our strategy requires members to be extremely patient throughout the process. Most investors are not able to do this. This has been the case throughout time as the legendary investor Jesse Livermore once said:

> *"The desire for constant action irrespective of underlying conditions is responsible for many losses in Wall Street even among the professionals, who feel that they must take home some money every day, as though they were working for regular wages."*

Piking around for the sake of activity goes against our mandate to find the biggest trends. It takes patience to wait for the big-trends to form. And not only that, but it takes patience to properly sit with the trend and ride it out to profit. Jesse Livermore again:

> *"After spending many years in Wall Street and after making and losing millions of dollars I want to tell you this: It never was my thinking that made big money for me. It was always my sitting."*

> *"Men who can be right and sit tight are uncommon. I found it one of the hardest things to learn."*

Clearly patience in the investment process - both in finding opportunities and sticking with them - is extremely important to be successful in the markets.

The Fusion Analysis Approach

In order to achieve our mandates of capital preservation along with superior risk-adjusted returns, our team at Macro Ops needed to create a novel approach that

combined the best aspects of various strategies we have studied and used in the past. This is how Fusion Analysis was born.

We have always been inspired by different types of investors and their unique strategies. We have looked to purely technical driven investors to those focused strictly on fundamentals and also to those making investments based on macroeconomic trends. Though we saw how each technique could be successful by itself, we always felt that combining them could produce a result that would trump any of their individual results. This is what we strived to do when creating the Fusion Analysis method.

Fusion Analysis combines the best features of technical, fundamental, and macroeconomic analysis to create a process that provides a permanent edge in the markets. These three individual pieces of the Fusion Analysis approach merge together to help us build investment narratives. Macro Ops' entire investment process is focused on building narratives for what is occurring in the markets. We want to understand how different investors are positioned and where the money is flowing. We need to understand what could happen, what is happening, and why. This is where we create the edge that helps us ride the markets' largest trends.

Combining the information gathered from each of these analysis types allows for greater clarity. For example, technicals can tell us the timing of when a certain trend is beginning in the markets, macro can tell us about the underlying market conditions and the long term potential for the trend, and fundamentals can tell us the specific factors investors are paying attention to when evaluating the trend. Combining these types of analysis together produces emergent insights that could not be developed by just using each individually. Instead of interpreting technical analysis by itself, we are interpreting it within the context of the fundamental and macro picture. This context makes all the difference.

A simple example of this type of combinatory analysis is in understanding an equity's technical price reaction to its fundamental earnings report. For example, if we have developed a momentum narrative for a particular equity, the way in which its price reacts to earnings is a huge tell for the potential continuation of that narrative. A good earnings report that results in the equity's price tanking is a giant red flag that may signal that the momentum narrative is ending. This also gives us information regarding the overall macro picture and how investors are viewing risk assets. The different forms of analysis interact with each other and combine to help us reach a deeper understanding of the investment narrative.

Understanding the narrative from each of these different angles and also through their combinations and resulting reactions gives us a meta-level view and much deeper understanding of what is going on in the markets over other investors. This in turn gives

us the ability to make the right investments to achieve our stated investment goals of preserving capital and achieving superior risk-adjusted returns.

Mental Models

We have a few philosophical beliefs at Macro Ops that help us keep our investment process in sync with our capital preservation and risk management goals. The way in which we use fallibilism and perspectivism to view the world helps us always make the best decisions in regards to our investment philosophy.

Fallibilism

From Wikipedia:

> *"**Fallibilism** (from Medieval Latin: fallibilis, "liable to err") is the philosophical principle that human beings could be wrong about their beliefs, expectations, or their understanding of the world, and yet still be justified in holding their incorrect beliefs.*
>
> *Fallibilism consists of being open to new evidence that would contradict some previously held position or belief, and in the recognition that "any claim justified today may need to be revised or withdrawn in light of new evidence, new arguments, and new experiences.""*

Staying fallible is extremely important to our investment process. When we develop an investment thesis, we are in no way married to it. We fully realize that new evidence may arise that may completely invalidate our original thesis. We also understand that we may have been "right" in holding our previous opinion with the available information at that time, even when new information comes along that proves us completely wrong. Due to our commitment to fallibilism, we have no problem discarding our original thesis and forming a new one based on new information -- in fact, this is what we constantly strive for.

There are many examples that we have seen in our experiences over the years of investors becoming unduly attached to their respective ideas. When new information comes along, instead of objectively evaluating it, they automatically skew it to fit whatever their original thesis is. Their attachment to their own ideas overpowers any form of proper, objective analysis. These investors are more worried about having their theories proved right than making actual money. At Macro Ops we could care less about having the market prove us right. Our only goal is to preserve capital and then make a solid return on that capital. We never fall into the trap of growing attached to an idea for any reason, regardless of the amount of time we have spent on developing that

idea or the amount of conviction and capital we have put behind it. The sign of a good investor is being able to turn on a dime when required. Our commitment to fallibility helps us do this. We want to develop strong opinions, weakly held.

Our belief in fallibilism also keeps us from ever being complacent by sitting on a certain thesis. Because we know we can be wrong, we are constantly looking for new information and rigorously testing it against our original theses. We want to find weaknesses in our argument and then correct them.

Macro Ops' commitment to fallibilism ensures that we focus not on trying to be right, but instead on trying preserve capital and make a decent return. We are constantly testing our ideas and have the ability to instantly switch to whichever ideas are making money.

Perspectivism

From Wikipedia:

> ***"Perspectivism*** *is the term coined by Friedrich Nietzsche in developing the philosophical view (touched upon as far back as Plato's rendition of Protagoras) that all ideations take place from particular perspectives. This means that there are many possible conceptual schemes, or perspectives in which judgment of truth or value can be made. This is often taken to imply that no way of seeing the world can be taken as definitively "true", but does not necessarily entail that all perspectives are equally valid."*

Perspectivism is another philosophical concept that we believe to be important to our investment process. Perspectivism involves accepting the possibility of various viewpoints on a specific subject while properly evaluating the validity of each.

In regards to the investment process, this requires being open-minded to multiple interpretations of the same scenario. Take the varying opinions on China for example. Due to a number of reasons, some analysts believe that China is on the verge of collapse, while for a whole different set of reasons, other analysts think they will continue their rapid growth into the future. Perspectivism states that both of these perspectives or scenarios can indeed be true because there is not one way to interpret the China situation. The caveat though, is that the way each conclusion has been reached needs to be evaluated. At Macro Ops we would thoroughly evaluate each argument and the reasoning behind their conclusions before comparing them in terms of validity.

This in turn leads to one of the pillars of our fundamental analysis process which is scenario development. The validity of each scenario's reasoning helps us place a

probability on the chances of it occurring. This also connects to our view of the proper way to use price action to either confirm or deny various scenarios. At a certain point, price action will tell us which scenario or perspective is actually correct.

Perspectivism is a foundational principle that has helped us to develop a large portion of our investment process. Our commitment to perspectivism has helped us achieve success in the past and will continue to help us in the future.

Ego and Continuous Improvement

Macro Ops' commitment to fallibilism and perspectivism makes it clear that there is no room for ego in our investment process. We are very cognizant of the probability of us being wrong and the fact that other's perspectives may be correct. To truly live by these philosophical principles, the ego must be pushed aside.

The number one reason other investors are unable to adhere to these principles is because their egos prevent them from doing so. They feel that being wrong is a bad thing. Their beliefs usually involve something along the lines of "I am smart and successful and therefore I must be correct in every instance when it comes to the markets". This statement does not compute with us. That is purely the ego talking. In our experiences we have seen the disastrous effects of ego. Making decisions with ego instead of using logic coupled with an understanding of fallibilism and perspectivism is a recipe for failure. The best investors know that they must stay humble and understand that they can be wrong at any time. They also know that being wrong is okay, as long as they can change their stance and then profit. Our lack of ego at Macro Ops enables us to stay humble while also reminding us that we are forever students of the market. We treat every failure as a learning experience and opportunity to improve ourselves and our investing process.

This reasoning has lead us to a develop commitment to continuous improvement. The investment process we present our members with is not static and is instead always evolving to improve and become more effective. At no point will we ever say that our strategy is the best that it can be. We are instead always looking for ways to improve to make our strategy safer while at the same time increasing the probability of greater returns.

This is a huge part of where our edge comes from as investors. We are never satisfied and will always be focused on relentless improvement. This mentality keeps us ahead of the curve and greatly increases the probability that we will continue to perform in the future.

Chapter 2: Psychology

"I think investment psychology is by far the most important element, followed by risk control, with the least important consideration being the question of where you buy and sell."

~Tom Basso, Market Wizard

The psychological component of investing is one of the most important, if not the most important component of successful investing. The human mind is a complex and wonderful tool but can also be a double-edged sword of sorts for those who are not trained or disciplined in its control.

It's like driving a Formula-1 race car. A skilled F-1 driver can push their racers to their theoretical limits, extracting every last bit of performance from the finely tuned machines. While a novice driver is better off driving a mini-van as far as relative performance is concerned, because they wouldn't know what to do behind the wheel of an F-1 and would likely end up careening into a crash-wall.

Macro Ops' investment methodology is the F-1 racing machine and mastering the emotional and psychological aspects of investing is where we teach you how to drive that car to its limits. As the trading legend Ed Seykota once said "Psychology motivates the quality of analysis and puts it to use. Psychology is the driver and analysis is the road map."

Psychology, or we can call it emotional strength -- the mind is a muscle you can train like any other -- are the foundations from which any high-performance skill is built upon. Doesn't matter if it's top performing traders, all-star athletes, or extreme back country skiers. When risk is on the line in a high pressure situation the mind either snaps into a flow state or crashes and burns. And the quality of actions by the performer depend on the developed emotional strength and soundness of mind. This results from consistent practice in self-reflection and building knowledge of the self. To intimately understand one's strengths and weaknesses.

It has been said that investing in the markets is the best way for a person to truly understand themselves. The markets will bring out every single character flaw, insecurity, and weakness in the investor. That is the nature of markets and is the reason why they tend to cause emotions to run wild. Fear, greed, hope, self doubt…..it takes psychological preparation to be able to manage these emotions. The failure to do so leads to bad outcomes.

Biological Wiring

It helps to understand how the mind evolved and why many of our pre-wired instincts make us naturally horrible investors.

Humans evolved over millions of years spending the majority of that time roaming the planet as tribal hunter and gatherers. The advent of cities and towns with large populations is relatively new. The Agricultural Revolution being a mere 10,000 years ago; just a tick of time in the grand scheme of the human existence. So man and his brain has developed primarily in the harsh tribal life of a hunter and gatherer. This has many implications on our psychological makeup which we'll discuss below.

Emotions

Are emotions an inherent weakness to humans? No, they are not. In fact, emotions are very useful in various situations. Let us review why they evolved in the first place.

Think back to the plains life. A tribal man could be walking back from a hunt when he is suddenly confronted by a mountain lion. As soon as the lion comes into view, the man's fight-or-flight response is triggered by the amygdala in the brain. He's instantly hit with various emotions such fear, aggression, and anxiety. At the same time, physiological changes are taking place in the body as hormones like adrenaline, testosterone, and cortisol are let loose to prep the man for either fight or flight.

This emotion and physiological response not only make him stronger and more capable to survive the encounter but also enable him to make his potentially life altering decision at the blink of an eye. In a life or death situation there is no time to sit and ponder the best course of action. The speed of the decision is key here and emotions are instrumental in fueling those decisions.

Now think of the same emotional reaction to a present day situation occurring in the markets. An investor may have his entire life savings on the line when all of a sudden there is a bout of heavy volatility. This volatility may cause the investor to have a similar type of emotional response to the fight-or-flight scenario. But in this situation, it does not benefit the investor to make a quick decision on what to do with his investments based on those emotions that have flared up. Using emotions in the investment decision process is actually the worst thing an investor can do and will likely lead to irrational choices that are detrimental to assets in the long run.

These market scenarios are not life-or-death situations that require immediate, emotional thinking. They are not the same as being attacked by a lion. In market situations, it pays to make cool-headed, rational decisions. The investor needs to

transfer the decision making from the emotional amygdala to the rational prefrontal cortex. Rationality and analytical thinking must triumph over emotions in these situations for an investor to be successful in the long-term which is why being able to properly control yourself in these situations becomes very important.

Groupthink

Another byproduct of our evolutionary past is our strong desire for acceptance and to fit in with groups. As you could imagine, this has a large impact on our decision making.

Once again think back to our African plain roaming ancestors. They used to move in small groups that would provide each other with protection and support to take care of basic needs like food and shelter. Back in the day it was vital that an individual be accepted by the tribe he was a part of. If that person did not get along with the tribe, he would be ostracized and forced to leave which was equivalent to a death sentence. Without a tribe an individual would be exposed and alone in the wild making it difficult to survive.

Over millions of years the individuals who were able to best fit in with their tribe were the ones who survived, reproduced, and passed on their genetic coding. And over time, due to these individuals being the majority who passed on their genes, we as a people developed a strong, natural inclination toward wanting to be accepted by others. Doing anything different from the group, that could potentially cause us to be rejected, goes completely against our nature.

This may have made sense in the distant past, but think about that same mentality today. Consider the extremely successful people in our society. They tend to be able to go against the crowd and think for themselves. In current times, it is not always the best decision to go with the group.

Now think of this in terms of the markets. Does it pay to always go with the crowd or does it pay to think for yourself? The answer is obvious - it pays to think for yourself. And many times, this thinking will lead you to do the exact opposite of what the crowd is doing.

As Warren Buffet once said regarding Berkshire Hathaway's success -

> *"We simply attempt to be fearful when others are greedy and to be greedy only when others are fearful."*

Take March of 2009 for example. Fear was running rampant in the markets and no one wanted to invest post-crisis. But it was at this time that valuations were ripe for the

picking and the market was just beginning to turn around. If an investor was able to go against the crowd and start heavily investing in this period - being greedy when others were fearful - he would be sitting on huge profits today. Being able to act against the group was extremely profitable in this situation.

It is important for investors to not fall into groupthink. An investor needs to make his own decisions with his own convictions supporting them. But make no mistake, this is not an easy thing to do. Every time an investor's decision goes against the group, there will be an automatic emotional reaction that fights that decision because we have evolved to want and need to be accepted by others. We feel safer and more comfortable doing what everyone else is doing. But the ability to manage the negative emotional reaction to thinking for yourself which in turn helps push you to act will lead to enormous success in the long-run.

Cognitive Biases

Along with certain emotional dispositions, our evolution has also developed within us various cognitive biases. Cognitive biases are natural human systematic tendencies that affect our decision making and influence us to make choices that are illogical. Psychologists Daniel Kahneman and his partner Amos Tversky first introduced the concept of cognitive biases back in 1972. Throughout the years they have helped define these various ways in which human decisions are not entirely rational. Many of the biases they discovered help explain a lot of the less-than-rational decisions many investors make. Understanding these biases helps our team at Macro Ops avoid them when we make our own investment decisions.

Recency Bias

Recency bias involves an individual believing what occurred in the recent past will continue to occur in the future.

An example is if an individual is flipping a coin and get heads five times in a row and then begins to believe that the sixth flip will also be heads because this seems to be the recent trend. This is recency bias. The individual's beliefs are illogical because even though heads has appeared five times in the row, the laws of probability state that the the chances of getting heads on the sixth flip are still at 50%.

Investors are constantly falling victim to recency bias. This bias is a large contributor to the complacency we see build up so often in the markets through various cycles.

For example, take the "buy the dip" mentality that has developed in the markets since 2009. This current market cycle has only lasted a few years and occurred after one of

the worst financial crises in our history, but in just this short time, investors have been trained to get rid of their risk control measures and to instead continuously buy every time the market begins to fall. It is as if they have completely forgot about the market carnage that just occurred in the most recent crisis.

It is true that “buy the dip” has worked for the past few years, but that does not mean it will continue to work. Abandoning risk control is a cardinal sin of investing and by doing so, these complacent investors are begging to blow up one day. This complacency that has built up in the markets is due to recency bias. Investors have taken the most recent market cycle and have expected it to continue indefinitely while forgetting the risk of events like those that occurred during 07’-08’. This bias makes them susceptible to the risk of ruin.

Gambler’s Fallacy

The other side of recency bias is the gambler’s fallacy which is also known as Monte Carlo fallacy. This occurs when an individual believes that because a certain result happened more frequently over a given period of time, there is a higher probability that a different result will occur in the following period.

Take the coin flipping example again. An individual who has flipped heads five times in a row may now think that the next flip has to be tails because heads has already occurred so frequently. This is once again false and illogical. The probability for tails on the next flip is 50% just like all the other flips. Thinking the probability or likelihood of tails has increased means that the individual has fallen victim to the gambler’s fallacy.

In relation to investing, the previous “buy the dip” example again shows the perils of the gambler’s fallacy. During this market cycle, there have been many fund managers that fought the “buy the dip” mentality and took huge short positions every time the market seemed to break down a bit. Their expectation was that the “buy the dip” mentality that continued for so long could not continue any longer and had to finally come to an end.

Each time they shorted the markets these managers were consequently handed heavy losses as “buy the dip” prevailed and in turn blew them out of their positions. These managers clearly fell victim to the gambler’s fallacy by thinking that just because a market cycle has lasted for what was perceived as an “extended” period of time, that it could not continue to last.

Sunk-Cost Fallacy / Loss-Aversion

The sunk-cost fallacy involves an individual's inability to cut investments in a particular area because of their attachment to previous investments in that same area that are irrecoverable.

Loss-aversion describes the natural tendency of people to feel more pain from losses than happiness from equivalent gains.

Both of these biases relate directly to investors' inability to cut losses.

The sunk-cost fallacy may cause an investor to avoid cutting losses due to the feeling that the amount of time and effort put into researching a certain investment thesis would be wasted. Cutting the investment would mean disregarding all the work that had to be done to make the initial investment. Investors become attached to their investment theses and are unable to cut losses because of this sunk-cost fallacy. This reasoning is illogical because not cutting a loss, regardless of the initial investment, has the potential to lead to an even larger total loss in the end which would be even more detrimental to the investor.

Loss-aversion is another fallacy that can lead to a lack of cutting losses because it just doesn't feel good to take a loss. Taking a loss not only means the investor has to admit he is wrong, but also results in an actual physical drawdown in his investing account. This action turns the paper loss into a real loss which is too much for some investors to handle. This fear of the pain of taking losses prevents many investors from doing so even if it is in their best interest from a risk management standpoint. This is completely illogical because taking a loss now has the potential to prevent an even larger loss in the future and therefore preventing an even larger source of pain.

Confirmation Bias / Cognitive Dissonance

Confirmation bias, also known as cognitive dissonance, occurs when an individual only seeks out specific information that supports his initial opinion while disregarding all other information.

Imagine investors who only look at the good news regarding a certain company to support their thesis while either rationalizing for or completely disregarding various other blatant warning signs against the company. This is illogical and will not lead them to the best investment decision. Instead, these investors will make an investment decision and then be surprised down the line when one of the many warning signs they disregarded ends up being the reason their investment thesis fails.

Confirmation bias is one of the huge pitfalls that needs to be avoided in order to perform proper analysis. It is important to take each individual piece of information and objectively evaluate it against an investment thesis to avoid this type of bias.

Observational Selection Bias

Somewhat related to confirmation bias, observational selection bias involves an individual suddenly noticing a particular idea and then falsely assuming that the frequency of available evidence supporting that idea has increased.

For example, imagine an investor just realized there is a persuasive bullish thesis for solar stocks. Soon after, the investor starts noticing various news stories and data that appears to support this thesis. The investor then falsely begins to believe that these stories were not previously present and only recently started coming about in a higher frequency. This fact makes the investor think that the solar thesis that he just discovered is even stronger than before.

This is somewhat similar to confirmation bias because the investor has been tuned to look for certain information. As he begins to look for and find it, he starts to believe that it it is arriving in a greater frequency than before. This is an illogical assumption that prevents the investor from being objective about incoming information and may lead him to make a poor investment decision. Believing the frequency of evidence supporting the solar thesis has increased, when in fact the investor has just started paying more attention, proves he has fallen for the observational selection bias.

Plan Your Trades and Trade Your Plan

Now that we understand a little bit about how our biology and biases can negatively impact our investing decisions, how do we overcome these hurdles? How do we transcend our evolutionary dispositions to prepare our psychology for the investing journey?

At Macro Ops we have found that the best way to keep our psychology and emotions in check is to have a solid plan and then to properly execute on that plan. Basically, we plan our trades and then trade our plan.

The first step to successful investing is to create a good strategy and investing plan. When creating this strategy, an investor must consider various future market scenarios and the appropriate response to each. That way there are no surprises. Take the volatility example we previously used. An investor should have some type of playbook available that will tell him exactly what to do in the case of a highly volatile period. The

volatility should not surprise the investor and lead him to make unplanned, subpar decisions.

The more detailed the trading strategy the better. The less room for discretion in the heat of the moment the better. Think of a general going to war. A good general will not only have a broad based military plan, but he will also plan for various contingencies regardless of how small their probability. A good general will want to enable himself to respond rationally to every situation he is presented with. This is exactly what we want a trading strategy to help us do.

The second step to successful investing is to properly execute on the investing strategy. A plan is only useful if it is followed. The purpose of a detailed investment strategy is to simplify execution in the presence of various situations. The key is following that plan. The execution is essential.

This may sound simple and it is, but that does not mean it is easy. Execution becomes difficult because this is where we tend to clash with our evolved biological wiring which means fighting against with our emotions and biases.

The truth is, emotional flare-ups will not cease to occur just because you have planned for various situations. The fight-or-flight emotions previously discussed will still trigger. Taking the volatility example again, when a period like that occurs, you will still feel all the same emotions and be tempted to react based on them. The only difference is that you will have a plan that you can follow instead of succumbing to those emotions and making a subpar decision on the spot.

Your natural human biases will also add to the difficulty of executing your plan. If your plan is good, it will likely tell you to do the opposite of all these biases. Going against these biases will again give you the emotional reaction that you will have to fight in order to make the correct decision. Logically you know your plan is leading you to the right decision, but emotionally it still may feel wrong.

Execution also becomes difficult when the correct decision according to your plan goes against the herd. When it feels like the entire market is doing one thing, and your trading plan says to do another, it becomes very difficult to actually execute on that plan. It will feel wrong because of you are naturally wired to follow the herd.

The trick to dealing with this is to first acknowledge and accept that emotional reactions will occur, but then to consciously refuse to immediately react to them when they finally trigger. The process of stopping to acknowledge and analyze these emotions automatically switches your brain from using the emotional amygdala to using the rational prefrontal cortex. This puts you in the correct frame of mind to make the correct decision.

Again, the trick is to experience the emotion, but not immediately react to it. Instead an investor needs to pause and objectively analyze that emotion. That analysis will make it clear that the right choice is to follow the previously established plan instead of succumbing to the present emotional flare-up. This is how successful execution can be accomplished.

As the legendary trader Peter Brandt once said:

"Trading [is] an upstream swim against human emotions."

Combining both planning and execution will enable an investor to transcend their emotions and become a profitable investor.

What do you want out of the market?

"Everybody gets what they want out of the market." - Ed Seykota

This famous quote by the legendary investor and trend follower Ed Seykota is extremely important to the team at Macro Ops.

One of the most vital things an investor can do for his psychology is to truly dig deep and understand the real reason he is in the markets.

Is it to impress others? Is the investor trying to show off by proving he can be a successful player in the markets?

Is the investor trying to use the markets as a means to easily get rich quick?

Is the investor trying to prove his theories on how the markets work? Does he want to be right or does he want to be profitable?

Is this just a hobby for the investor to escape his day job?

In our experiences we have seen all sorts of reasons for investors to jump into the markets. Some reasons seem flat out crazy, while others are just ill-thought out, but most of the time investors themselves never realize their deeper reasoning for getting into the markets. Their inability to understand themselves in turns holds them back from ever being profitable. They create their own mental blocks because they don't realize their own true intentions.

The ironic part is, regardless of whether they realize it or not, all these investors end up getting exactly what they want. For the hobbyists, they get the escape they wanted.

They lose money, but they get to avoid thinking about their day job while also still deluding themselves with hope. To the investor trying to impress others, he gains the ability to brag at cocktail parties about his investments, while carefully glossing over the fact that he continues to lose. Others want the continual thrill of betting big and running an account up fast, but then wonder why they continue to lose in the long run. They never end up realizing that they weren't in the markets to make long term profits in the first place….

The moral of the story is just as Seykota says, that everyone gets what they want out of the markets. That is why it is important to dig deep to understand the true reasons you want to invest in the market before you begin. Is your goal truly the preservation of capital and superior risk-adjusted returns? Or are you possibly looking for something else?

Chapter 3: Expected Value and Win Rate

Making money in markets does not require a PhD in physics or math. Although, a certain level of mathematical competency in statistics and probability theory is needed for success.

Investing is a game of probability and not certainties. The market is designed in such a way that unless an investor has nonpublic information, he will have to accept that not all his investments will be successful. Therefore each investment should not be considered “right or wrong”, but instead should be thought of as having a probability of winning and a probability of losing.

Over time, a track record of trades will be created and that record will have a win rate associated with it.

That win rate could be 10%, 30%, or 80%. It is very important to understand that win rate alone is not sufficient enough to determine whether or not a process is profitable. The magnitude of losses and wins must be counted in as well. In fact, the ratio of how much you win when right to how much you lose when wrong is often a better measure of long term profitability than the win/loss rate. Yes we want to win as much as possible, but more importantly when we do win we want to win BIG and when we lose we want to lose SMALL.

This concept is expressed mathematically through something called Expected Value (EV). EV is a measurement of how much money an investor makes over time on his investments based on his win/loss percentage, the average dollar amount gained on a winning trade, and the average dollar amount lost on a losing trade. The equation is shown below:

EV = (Win Percentage)(Average Winner) - (Loss percentage)(Average Loser)

Viewing the win rate alone would be misleading, but plugging that win rate into the EV equation provides a much better evaluation of how a strategy is actually working.

Refer to the string of investments below:

Investment 1: Loss of $800

Investment 2: Loss of $1,000

Investment 3: Win of $3,000

Net profit: $1,200

The sequence above shows that a win rate of just 33% (1 out of every 3 investments) can still produce a profitable strategy. This profitability can be mathematically expressed through the EV equation.

If we take the simplified string of trades above we get:

EV= (.33)(3,000) - (.67)(900)

EV = 387

$387 is the “Expected Value” that the investment method generates per investment over time. If this number is 0 or negative, then the investment operation will be unprofitable in the long run.

The reason EV is helpful is because it cuts through the misconception that an investor needs all of his investments to work out in order to make money over time. That is far from the truth. The EV equation mathematically expresses that a win rate of less than 50% can still indeed be consistently profitable. There have even been very successful trend following investors who have made consistent money with win rates below 30%.

The win rate on strategies can vary greatly depending on the approach used. Some investors like to shoot for higher win rates. Usually with a high win rate strategy, you will see a lot of small to medium sized winners and a few large losers.

This type of investing can still be profitable as long as the investor wins enough, but there have been many funds who have bragged about their 80% win rates only to blow up with one huge loser. These funds with their high win rate strategies usually end up giving back everything they made over the years plus more. Our strategy at Macro Ops will avoid foolish disasters such as these because we always keep our losing trades small via forced stop out.

High win rate strategies are alluring because they come with more psychological ease than low win rate strategies. We have found that what is mentally “easy” is usually not the most profitable. The style of investing that Macro Ops Core embraces has a win rate often below 50%. But the strategy in total is profitable because our winners are much larger than our losers!

Knowing that the Macro Ops approach involves a low win rate is important for the sake of staying aligned and keeping congruent expectations among the community. There will be stretches of losing trades in a row, and staying grounded with the EV equation instead of being misled by the percentage of winners and losers helps us take these

losses in stride. Always remember that we may not always win often, but when we do win, we will win big. It is not uncommon to see the best winning investments earn 5-10x the amount originally risked.

Chapter 4: Fundamentals

Webster defines “fundamentals” as “forming or relating to the most important part of something; or relating to the basic structure or function of something”. What are market fundamentals then; are they the basic structure of the market or the most important piece of investing? We hear investors talk about them all the time as being a critical piece of the analysis puzzle.

When investors remark on the fundamentals of xyz they are often referring to earnings, revenue growth, customer numbers etcetera. Or in reference to macro perhaps its job numbers, GDP growth, or retail sales to name only a few. The point is, that though everybody talks about the “fundamentals” of this or that, they don’t really know what it is they are talking about -- it’s a vague blanket statement.

For most, “fundamentals” are more of a feeling than a quantifiable concept. Ask them and they’ll spout out metrics and growth rates to try and substantiate this feeling. The problem with this is that an investor can find “fundamental data” to back up nearly any viewpoint, no matter how wrong that view may end up being.

Fundamentals in itself is a misleading word. It implies a certain concreteness, a kind of hard reality or a right and wrong in the markets. But at Macro Ops we know that absolutes do not exist, only possible and reflexive scenarios in which we can assign probabilities. Markets are always in flux. There are always more unknown than known variables at work and concepts like “good fundamentals” and “fair value” are simply a matter of arbitrary opinion.

How does Macro Ops view fundamentals? To us, fundamentals are the metrics that the largest groups of buyers/sellers are concerned with during a specific duration and driven by overall macro conditions. They are fluid and dynamic and their significance is completely contextually and temporally dependent.

Information Discounting

“Fundamentals that you read about typically are useless as the market has already discounted the price, and I call them ‘funny-mentals.’ However, if you catch on early, before others believe, then you might have valuable ‘surprise-a-mentals.’

~Ed Seykota

We’ve always found it amusing how retail investors and even fund managers will cite things like increasing analyst growth expectations for a particular stock or maybe a new

product launch as a reason to buy. Think about this. This is not just public information, but it is common knowledge and the dominant viewpoint.

You don't make money investing off of information that everybody else is looking at. We don't believe in the Efficient Market Hypothesis (EMH) by any means, but the market is fairly efficient in immediately pricing in the information that everybody else is looking at.

An important distinction to note is that it's not just the information that everybody is looking at but how they are interpreting the information that is important. The market efficiently reflects the average or mainstream consensus interpretation of information -- this is only logical, as average supply and demand will naturally reflect the dominant interpretation.

So buying a stock because the street's average growth recommendation for it has gone up is superficial analysis. The stock could very well go up but the connection between analysis and outcome is correlation and not causation.

Lucky for us, the market is generally focused on the wrong information and/or the wrong interpretation of information. And this is what leads to opportunities to capture alpha. Like the Palindrome (George Soros) said "The prevailing wisdom is that markets are always right. I take the opposite position. I assume that markets are always wrong. Even if my assumption is occasionally wrong, I use it as a working hypothesis." We approach every analysis, like Soros, with the assumption that the market is wrong and that it is not pricing in critical information correctly.

You need to play on a higher plane than the rest of the market if you want to win. This means that you have to learn to look at things differently than the herd. You need to become comfortable with being a contrarian. It's like Keynes observed in his beauty contest analogy:

> *"It is not a case of choosing [faces] that, to the best one's judgement, are really the prettiest, nor even those that average opinion genuinely thinks the prettiest. We have reached the third degree where we devote our intelligences to anticipating what average opinion expects the average opinion to be. And there are some, I believe, who practice fourth, fifth and higher degrees."*

We have to get inside the minds of the market movers and shakers – we need to operate at that higher level of thinking. Sun Tzu showed his understanding of this concept when he said:

> *"If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every*

victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle."

We employ a framework, a unique mental model that allows us to paint a picture of the most probable supply/demand dynamics. Market Ops fundamentals are centered around three concepts: Developing Market Narratives, Seeking Narrative Divergence, and Bayesian Probability Analysis.

Market Narratives

Fundamentals are just a larger part of the narrative that each investor develops to give them the confidence to put their money at risk. If you understand the key parts of this narrative, you can develop probabilistic weighted scenarios of future market actions should the key fundamentals of the narrative change. The movements of the market will give you real-time feedback on the quality of your thinking and the probability of your narrative being correct.

Narratives are powerful, primarily because storytelling is central to the human existence; just as the mind instinctively searches for visual patterns in nature, it also seeks to detect and derive patterns and meaning from information flow.

The first step in our process is to identify the primary drivers of the dominant narrative. What is the pillar of this narrative? Why does it drive people to buy and sell? And under what conditions would it cause this buying and selling behavior to change?

In any investment thesis there are usually only a few of these drivers that investors focus on and these are what make prices move. Good fundamental analysis starts with identifying these drivers.

So first, establish what the narrative of the stock is. Put yourself in the head of the big money investors you think are moving the stock. Figure out why they are in it. When you understand why, you can figure out the ‘what’. The ‘what’ is the foundation of the narrative and also the wrecking ball that can come and demolish that narrative.

There are many examples of investment scenarios where only a few drivers mattered to investors.

Take Netflix. What is the main metric investors look at when evaluating Netflix? They look at the number of subscribers. Sure Netflix can be evaluated in terms of debt, margins, and even future acquisition potential, but in reality investors focus mostly on the number of subscribers when evaluating Netflix. The number of subscribers coming in each quarter lets investors reevaluate Netflix’s growth potential and therefore

reevaluate its stock price. When subscriber numbers are better than expected, the stock price sores. When numbers come in worse than expected, the price drops.

This is not to say other fundamental metrics don't matter at all. It is only to say that in any investment scenario, investors will generally pay attention to few main fundamental drivers. These core drivers will outweigh and overshadow any other metric.

A great example of this is the dot.com bubble. In that era there were many companies that were evaluated solely on the number of "clicks" or "eyeballs" their websites were receiving. It didn't matter that they had no profits or extremely high debt. All that mattered to investors during their price run-up was the amount of attention their websites were garnering and how that could be a sign for future growth. There was only one metric that really mattered to investors.

Another way to look at identifying the core drivers of an investment thesis is to imagine that you had to give a 3-sentence pitch for that thesis. Which are the main points you would hit on? Those are likely the core drivers.

The ability to identify the core drivers in an investment thesis enables an investor to understand why a security's price is moving and also evaluate the security's potential for future movement. At Macro Ops we are looking for the large trends. We are looking for large waves that we can safely ride to achieve superior risk-adjusted returns. Isolating and identifying the core drivers in a thesis helps us find these trends, evaluate them and have the conviction to hold on for the entire ride.

Narrative Divergence

At Macro Ops we focus on identifying what we call "Narrative Divergence". The gap between the market's interpretation of information and our perceived most likely reality - the larger the gap the greater the profit opportunity.

This is where we use price-action as a tool to gain insight into the dominant market (asset) narrative and compare it to our own hypothesis of reality. If the narrative of the asset aligns with our hypothesis or we don't have strong conviction on either then we move on - there is no trade to be made. We are not only looking for large narrative divergences but also for price action that signals that the market may be realizing that the dominant narrative that has been the driving force behind its price has been wrong.

These market turning points often have repeating characteristics, which makes sense because this is when emotions start to really come into play as traders and investors become more reactionary. This is especially true the larger the divergence between narrative and reality. Volatility generally begins to increase as the old narrative combats

the new narrative for dominance. These are moments where the back and forth between fear and hope are highest as traders position themselves according to their interpretation of information.

These transition points in an asset that have a high narrative-to-reality divergence spread are what we as traders and investors seek. This is where the risk-to-reward aspects are greatest and as traders our main concern is finding trades where we risk little for the chance to gain much. The increase in emotional trading during these transition periods is what creates greater transparency into the minds of the other traders providing us more insight into their positioning.

Scenario Development and Bayesian Probability Analysis

Once the core drivers of an investment thesis are identified and isolated, the analysis must continue to constantly update the strength and validity of those drivers.

Take the previous dot.com example. Those internet stocks took off when investors were focused on the “eyeball” metric, but eventually they crashed. Why did they crash? They crashed because eventually investors decided to focus on those companies’ debt and lack of profits. Those with the worst profits and debt crashed the hardest. The core drivers of the investment thesis changed as investors shifted their attention to different metrics.

As an investor, if you did not realize the change in core drivers of the investment thesis, you could have lost a lot of money. This is why constantly reevaluating the core drivers is so important. The way to do this is through scenario development and Bayesian probability analysis.

Scenario development involves the creation of various plausible scenarios that include both changes to and the continuation of the core drivers’ effect on price. Bayesian probability analysis involves placing probabilities on the likelihood of each scenario occurring and constantly updating those probabilities based on new information that becomes available.

Doing both of these types of analysis in tandem will prepare you for any large changes in the value of a security. Crafting various scenarios and attaching probabilities to them which are frequently updated will either help validate or invalidate current drivers while alerting you to potential changes in drivers.

Let’s take the example of the global currency wars currently occurring. The background of this situation involves various countries attempting to export their deflationary pressures to each other by devaluing their currencies. Let’s say you identify one the

main drivers of this global currency war thesis as the China slowdown. You believe that China is a mammoth whose slowdown is forcing them to devalue which is in turn the biggest factor affecting the devaluation actions of every other country.

Once this driver is identified you begin to create plausible scenarios for various outcomes. Let's take two simplified scenarios. The first, China's economy starts to recover and they stop devaluing their currency which causes the global devaluation war to cease. The second, China's economy continues to decline which forces them to devalue more which has a domino effect on other countries as they continue to devalue along with China. You believe the higher probability scenario is that China

continues to slow down. Out of the two scenarios, you believe this is most likely and you have therefore placed a higher probability on that scenario occurring.

Now say that China's PMI data comes out and is worse than expected. This new information needs to be incorporated into the scenarios and probabilities you have developed. Does this new piece of information strengthen or weaken the scenario where China continues to decline and will be forced to devalue further? This data strengthens this scenario. You therefore increase the probability of this scenario playing out. This is how Bayesian probability analysis is done. As new information becomes apparent, that information can either strengthen or weaken a scenario.

There could also be information that comes out that may force you to reevaluate what the core drivers of a thesis are. For example there may be data that comes out of Japan that has a large effect on markets. Taking this information, you would need to reevaluate whether China is still the main driver of this thesis and then create new scenarios where Japan is the new driver while placing probability expectations on these scenarios.

While conducting scenario analysis there is also the potential for identifying specific catalysts that may serve as inflection points that greatly increase the likelihood of one scenario over another. For example there may be an event in the near term, such an earnings report or central bank meeting, whose results serve as the probable catalyst for a certain scenario to take place. The effect of this catalyst will cause the investor to reevaluate the drivers and other parts of the investment thesis including the probabilities weighted to each of the other potential scenarios. Preparing for these catalysts is important because they are usually the triggers that greatly increase the odds of a specific scenario occurring.

Keeping track of the strengthening and weakening of scenarios along with their catalysts alerts you to the potential of a trend continuing and also the validity of the main drivers of that trend.

Expectations

An important qualifier to all fundamental analysis is that the market always prices in future expectations for securities, not the present or past expectations. The way to interpret information is through the lens of how investors' expectations of the future are changing.

In the global currency wars thesis for example, investors aren't worried about what the new Chinese PMI data means right now, they are more concerned about what it means for the future of China. That is what is being priced into the market. Those expectations are being reflected in the markets pricing.

Take growth stocks as another example. There are many times when an earnings report comes out for a hot growth stock that shows earnings and sales crushing all estimates, yet the stock price tanks anyway. Why did it tank? It tanked because even though from an objective viewpoint the quarterly results may have been stellar, the results were still not good enough to meet the expectations investors had for the company. If investors were expecting even better results which the company did not achieve, these investors are then forced to reevaluate the premium they place on that company. That is why we see a massive drop in the stock price.

In summary, fundamentals are fluid and each metric's significance changes in relation to the overall macro environment. To identify the right metrics we develop narratives of the driving forces behind the dominant buying and selling of an asset. The most profitable investments are the ones where the

presiding narrative has diverged from what we believe to be reality -- the wider this margin, the greater the profit opportunity. We continuously use Bayesian analysis and scenario development to update and properly weight these narratives. This is how Macro Ops does fundamentals.

This approach is best learned through practice. The Macro Ops Facebook Group is a perfect place for cultivating this skill. We will be discussing in real time the various market narratives at play and how we can package them into profitable investments.

Chapter 5: Macro

Macro-liquidity

"Frankly, even today, many analysts still don't know what makes their stocks go up or down."

"(talking about his first mentor) The other thing he taught me is earnings don't move the overall market; it's the Federal Reserve Board. And whatever I do, I focus on central banks and focus on the movement of liquidity, while most people in the market are looking for earnings and conventional measures. It's liquidity that moves markets."

~Stanley Druckenmiller

When the “Druck” speaks, you should listen, because the guy knows what he is talking about. He has averaged 30% compounded returns over the last 30 years, he was the brains behind Soros’s bet against the pound that broke the Bank of England, and he is one of the greatest money managers to have ever lived -- so it’s safe to say he knows a thing or two about markets. There is a wealth of wisdom in the above quotes and the investor who can fully understand what Druckenmiller is saying will find himself fighting the currents of the market a lot less.

One of the most important concepts an investor can understand is macro-liquidity. We aren’t talking about individual asset liquidity, like the ability to get in and out of shares easily at a tight spread, we are talking about the global flows of money, both paper and credit, that traverse the world in search of safety and return. That is what Druck means by liquidity, and it is the single most important concept other than risk management that an investor needs to understand.

Most market participants tend to focus mainly on micro-fundamentals; earnings, revenue growth, margin expansion etc. These are important of course, but they are small pieces of the puzzle when compared to the primary driver of markets.

"40 percent of a stock's price movement is due to the market, 30 percent to the sector, and only 30 percent to the stock itself, which is something that I believe is true. I don't know if the percentages are exactly correct, but conceptually the idea makes sense."

~Steve Cohen

We agree with Hedge Fund Manager Steve Cohen's remarks stating that the majority (up to 70%) of a stock's move is due to conditions in the overall market and the specific sector in which the stock resides. As the old adage goes - "a rising tide lifts all boats", or in this case - "a bullish market / sector lifts all stocks". Understanding this concept should have big implications for how an investor conducts his analysis. Identifying the macro-drivers (the liquidity events) of bull and bear markets needs to be a central part of an investor's analysis, since these will be the biggest drivers of most securities.

If macro-liquidity expansions and contractions are the biggest drivers of markets, then we need to understand how to define and identify these liquidity regimes, as well as understand their first principles in order to better determine possible transition points. The best place to begin is with understanding the absolute foundation of how an economy and market works. Our views on this, which differ in key fundamental areas from what is taught in economics and business school, have largely evolved from the work of Ray Dalio and his firm Bridgewater, as well as from George Soros' ideas on the economy and market relationship dynamics.

Reflexivity

To begin, we will share the concept of *Reflexivity* which was developed by Soros and is absolutely fundamental in understanding key relational dynamics between economies, markets, and market participants.

The theory of *Reflexivity* - which Soros applies to all areas of human input i.e. politics, economics, finance etc… - is so revolutionary and groundbreaking that it amazes us that it has been largely ignored by academia, while the "Efficient Market Hypothesis" somehow still stands as the idea du-jour. Yet this concept is so glaringly evident that when we were first introduced to it, we knew it was true because the logic was sound to the point that the concept was axiomatic. Those of you familiar with the ideas of Karl Popper and Friedrich Hayek will likely notice the influence of their work on Soros' philosophy. Soros himself admits to greatly admiring these two renowned thinkers. Here is the theory of *Reflexivity*, as told by Soros himself:

> *"The main idea is that our understanding of the world in which we live is inherently imperfect. The situations we need to understand in order to reach our decisions are actually affected by those decisions. There is an innate divergence between the expectations of the people taking part in events and the actual outcome of those events. Sometimes the divergence is so small that it can be disregarded, but at other times it is so large that it becomes an important factor in determining the course of events."*

Take some time and let that sink in. It really is a radical notion isn't it? That we as participants affect the fundamentals -- or reality -- of the situation we are attempting to understand just through the process of trying to understand it. It essentially leaves us shooting at a moving target. Variables that we once believed were isolated are in fact tied to us in a two way causative feedback loop where the observer affects the observed while the observed affects the observer. Using the lens of *Reflexivity,* we can start to view and understand instances of this two-way interaction occurring constantly in our reality.

The two-way interaction caused by *Reflexivity* forms divergences between the fundamental reality of a situation and investor's expectations of it. This in turn temporarily affects the outcome of the situation. Generally the divergence is small and imperceptible, but occasionally the divergence grows quite large and the disequilibrium will have to noticeably correct itself. Soros refers to this divergence and resulting correction as the "boom/bust process". We will discuss and return to the concept of reflexivity often as it is fundamental to our understanding of market dynamics and also to our ability to assess narrative divergences.

An example of a reflexive situation, though they come in many different flavors and to varying extremes, is one shared by Soro's himself in his book *Alchemy of Finance*. He wrote how in 1969 he learned about new investment vehicles called REIT's (real estate investment trusts) and described how these investments would play out in a "four act" boom/bust process due to *Reflexivity*.

In act one, because of the high interest rate environment of the time, Soros believed REIT's would provide an attractive alternative to traditional sources of mortgage investments. As these investment vehicles caught on and grew in popularity he foresaw an increasing number of them with additional shares being brought to the market.

In act two he predicted that the flow of money into these investment vehicles would pour into the mortgage market and in turn cause a housing boom. He understood that this boom would not be caused by organic demand growth for housing, but instead by investors' demand for REITs. He also understood that this process would be reflexive and form a positive feedback loop. As REIT investors caused the housing boom with their investments, the housing boom would in turn increase the profitability of the REIT's and send their shares soaring higher which would cause investors to pile even more money into them. As this process continued a significant divergence would form between the actual underlying fundamentals of the housing market and its pricing. It is this divergence that would eventually need to correct itself through the bust process.

In act three the boom process would continue until the REIT's captured a significant share of the mortgage market. Eventually though the housing boom would slacken and prices would begin to fall. The REIT's, who would then own a large amount of

uncollected mortgages due to the weak underlying housing market conditions, would be asked by panicking banks to pay off their loans. This is how the bust process would begin and the divergence would correct itself.

In act four a positive feedback loop would form in the opposite direction as home prices fell and REIT earnings in turn collapsed. The divergence between the fundamentals of the housing market and investors' expectations would finally close, resulting in a shakeout of the industry.

To note, this scenario ended up playing out nearly exactly as Soros foretold and he made a handsome profit on his investments.

Reflexivity is anywhere and everywhere, yet some divergences it causes are larger than others. Investors need to look for and understand the reflexive nature of important variables when constructing their hypotheses of various scenarios.

Complex Systems

Along with understanding *Reflexivity* and its effect on the economy and markets, it is also important to acknowledge that both the economy and markets are complex systems. To quickly summarize, complex systems are those in which small changes to inputs have a drastic impact on outcomes. This effect usually has the consequence of making results appear to be random because of the difficulty involved in predicting outcomes from the miniscule changes in inputs. We won't go much deeper into exploring this concept here, but it is an important one for an investor to understand. If you know you're dealing with a complex system with very low predictability, then you will always remain humble and fluid in your beliefs and manage your risks above all else.

Though it's true the economic system is complex and has low predictability, it does not mean we can't make valuable forecasts to more effectively gauge the environment we're in. The way we do this is by breaking down the system into its most fundamental and logical components and then using our knowledge of the basic drivers and bimodal relationships between variables to derive meaningful forecasts. These forecasts may not be 100% accurate or enable us to predict the future, but that is just fine. As investors we don't need to know these things with absolute certainty, we just want to be able to place probabilistically weighted bets on the environment we're in now and the one we are potentially moving into.

The Economic Machine

Now that we understand *Reflexivity* and complex systems, we can dive into the workings of the economic machine. Learning how the economic machine functions will help us understand a large part of what drives macro-liquidity movements.

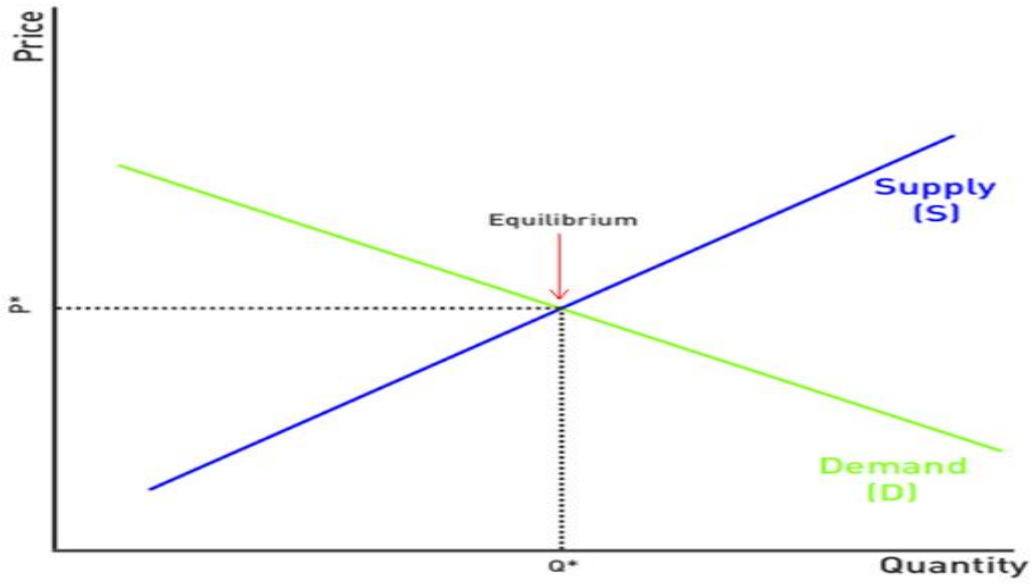
First, we need to start with a simple question: what is an economy?

At its most basic level an economy is simply the sum of the transactions that comprise it. Here are a few key definitions:

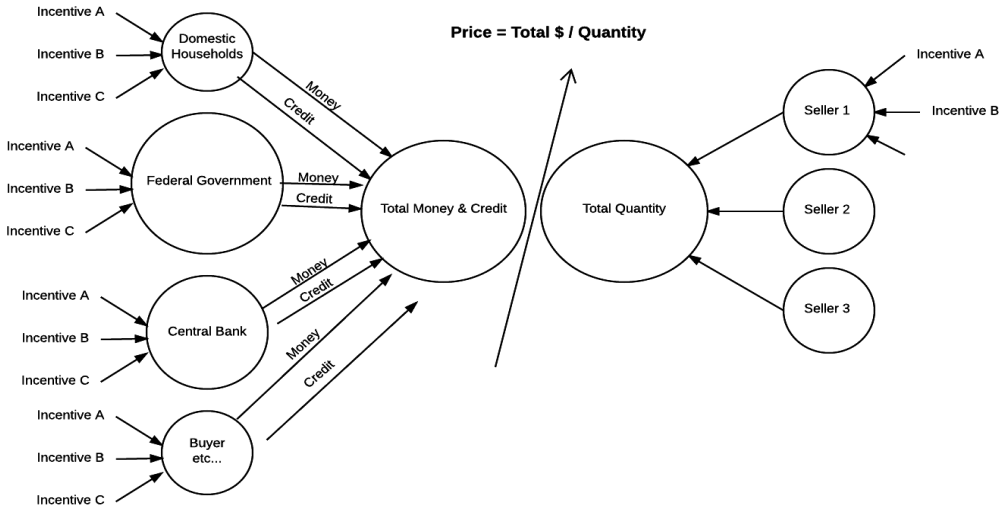
- Transactions: when a buyer exchanges money (real + credit) with a seller for a service, good, or financial asset
- Markets: an exchange where buyers and sellers conduct transactions for similar goods
- Economies: includes all the markets made up of all the transactions in a defined area

To understand an economy, all you have to know is the total spending (money + credit) and the entire quantity of goods, services, and financial assets sold. Divide the total spending by the total quantity of goods sold and you get the market price. In setting that market price, there are a number of different buyers and sellers who make exchanges for varying reasons. It is impossible to identify all of these, but the motivations of the biggest buyers (largest drivers of demand) are easy to figure out. A big reason it's easy to identify buyers' motivations (as opposed to sellers) is because a lot of what makes up their demand is directly affected by central banks and how much credit and money they are currently allowing in the system. More credit and money leads to more demand, while less credit and money leads to less demand. This will be discussed further, but for now it is important to know that the effect of money creation makes demand the more important variable to identify compared to supply. Understanding these largest drivers of demand, coupled with market price, helps us achieve our goal of understanding the economy from the transaction level up.

But this is not what standard economics teaches. They don't attempt to view the economy through the lens of transactions. Below is a chart depicting the classical economic supply and demand curve at equilibrium. In this perspective, quantity is measured along the x-axis and price along the y-axis. Demand, as measured by "quantity of demand", slopes downwards showing that the quantity of demand increases as price decreases. And supply, as measured by "quantity of supply", slopes upwards showing that the quantity of supply increases as price increases. The intersection where these two lines meet is said to be the equilibrium for the market.



The issue with this classical perspective is that it violates Einstein's axiom of "everything should be made as simple as possible, but no simpler." This model would be considered "simpler" and therefore inadequate due to two key failures. The first failure is regarding how total demand is viewed as a single quantity instead of disaggregated into multiple quantities. The second is in the lack of distinction between the way demand is paid for - with money or credit. These are extremely important pieces of the puzzle that deeply impact the relationship between the quantities being exchanged and the resulting change in price. The Bridgewater supply/demand model created by Dalio includes these important factors and therefore provides a far more logical understanding of the same dynamic.



The Bridgewater model above disaggregates buyers and sellers unlike the classical model that views supply and demand each as single entities. The reason this is important is because not all buyers and sellers are created equal. The motivations of the various participants can differ greatly and can even result in some entities being price-blind, like we see with central banks that purchase financial assets. If we are indeed trying to understand the economy and gather insights into where it's headed, then it behooves us to disaggregate the buyers and sellers in order to gain a more granular understanding of what is truly going on at the transactional level. It is usually not too difficult to deduce who these large buyers and sellers in the market are. With that information we can form assumptions regarding their motivations and in turn model how these buyers and sellers will react in different circumstances.

For example, let's cluster the standard groups of buyers in any economy into a few big categories. Demand originates from either the private sector or the public sector. The private sector can be broken down into households and businesses, both foreign and domestic. The public sector consists of the Federal Government, which spends money on goods and services, and also the central bank which is the only entity that can create money and generally spends that money on financial assets as a means to enact its monetary policy. From this simplified grouping of demand we can make logical assumptions about who is buying what and why.

Unlike the classical model, we can also make a distinction between what form this demand is exchanged in - either money or credit. Mainstream economics does not put nearly enough importance on the difference between the two and generally views credit as the same as money. As we will show, this view is wrong, and in fact credit plays a significant individual role in the economic system that has an overall impact much greater than that of money.

Going back to our view of the economic machine as being the grand total of all its various markets, which in turn is just a sum of simple transactions, we can make the following inferences:

- All changes in market prices and as a result, economic activity, are due to the total amount of spending (money + credit) in exchange for the total number of items sold (total quantity Q).
- Demand is the more important variable in this equation because it is the easiest to affect by either increasing or decreasing the amount of money and credit (total spending).

Money vs Credit

So what is the big difference between money and credit? Well, when you exchange money for a good the transaction is closed. The seller has the money and you have the good. Yet when you buy something on credit the transaction is not closed because for every credit there is a debit. Though the seller may have received payment from your bank or lender, you still owe your lender money for the good. You now have a liability which you will have to pay off sometime in the future. When people, companies, or governments buy things with credit they are essentially borrowing from their future selves. They will not only have to pay that debt back, but they will also have to pay the interest (the charge for lenders risks) to the lender on that debt.

Okay, great, but what does this have to do with overall economics and the markets? This matters because the monetary base composed of both money and credit is far more impacted by credit than by the printing of dollars. This is true because there is a lot more credit in the system than there is money. Currently, there are roughly $60 trillion dollars in credit in the U.S. and only $4 trillion of actual dollars. The reason for this is that credit does not need to be printed or created by the central bank - it can be created out of thin air by any two willing parties. The amount of credit also dwarfs the number of dollars because of “current moment bias”. This bias is the natural human tendency to want to experience pleasure in the current moment and assume that the future will work out. This drives us to spend beyond our means because we want to buy things now. We then make overly optimistic assumptions about the future to rationalize this spending.

As we will explain in further detail below, long term credit growth and its effect on overall spending, along with the credit and debt fluctuations caused by central bank policy, drive the swings in the economy and markets. We refer to these swings as recessions and depressions. Add all these swings up, and you get the debt cycle.

Debt Cycles

A lot of people consider the idea of debt cycles as some sort of conspiracy or voodoo. But in reality, debt cycles are just logical sequences of events that tend to play out again and again throughout economic history. This is not to say that each cycle is exactly like the one prior, it’s just that they follow logical laws and progressions and tend to repeat in a predictable manner. These cycles can be viewed and examined going back through time all the way to when the concept of credit was first introduced.

There are three components to the cyclical nature of the economic machine. The first is the 2% productivity growth trendline. This is a fairly constant variable throughout history. Productivity is the result of our continuous increase in knowledge which allows us to produce more per unit of effort and increase efficiency gains.

Around the 2% productivity growth trendline swings the long-term debt cycle - the second component of the economic machine. This is a powerful force that affects all aspects of the economy, but is also the least understood by economists and policy makers. This is because long-term debt cycle durations are extremely lengthy, usually occurring only once a generation at the most. This causes most people to not even acknowledge that they exist, which unfortunately leads to a lot of disastrous economic policy.

The third component of the economic machine - the short-term debt cycle - swings around the cyclic line of the longer-term debt cycle. This cycle is the better understood of the two because it tends to occur every 5-8 years and is often referred to as the business cycle. Yet even though it is thought to be fully understood, there are still many misconceptions as to what causes the short-term cycle. We will discuss these below.

Short-Term Debt Cycle (Business Cycle)

The short-term debt cycle (commonly referred to as the business cycle) is the result of central bank policy through its control of short-term interest rates. When a central bank lowers or raises rates, it has three direct impacts:

1. It makes debt servicing costs higher/lower which decreases/increases demand.
2. It raises/lowers the discount rate at which investments are valued. Every investment is a lump sum payment in exchange for a future cash flow. These future cash flows are discounted at the current discount rate to get the present value.
3. Lower/higher rates lead to more/less lending which raises/lowers overall spending (demand).

The central bank adjusts its interest rate policy according to how it believes it can best fulfill its statutory mandate. That mandate is to keep long-term price stability by holding the inflation rate near the target of 2%, ensure moderate long-term interest rates, and to strive for maximum employment. If there is slack in the economy, such as when unemployment is high and/or inflation is low, the Federal Reserve will lower interest rates in an attempt to boost demand. When the economy is running “hot” and inflation is increasing, the Federal Reserve will raise interest rates in an attempt to “cool” the economy and keep inflation from running away. This creates the business cycle which lasts on average from 5-8 years.

The economy can be thought of as a perpetual motion machine that moves cyclically. Normally, the central bank keeps short-term interest rates lower than the returns on other asset classes. This drives people to borrow cash cheaply and invest that money into higher yielding, longer duration assets such as equities, businesses, and real

estate. This is the process of capital formation. People also borrow to increase their present consumption. Both of these together create the boom or expansion part of the business cycle.

In general, people tend to overestimate their future earnings and wealth. This overestimation causes them to increase their borrowing in the present (which is really just pulling their future spending forward). A feedback loop is thus formed where increased borrowing in turn increases spending which has the effect of increasing income (because one person's spending is another's income). This leads to asset prices rising which improves individual's credit profiles and therefore allows even more borrowing. This cycle continues and creates a temporary wealth effect that leads to people increasing their leverage. These people essentially develop leveraged long positions that bet on the continuation of the current boom cycle. This occurs not just in the markets, but also in businesses and households (for instance people in the housing bubble pulling equity from their homes to buy other real estate properties as investments).
It's only logical for people to borrow cash and invest in longer duration assets when the short-term rates are lower than their expected return (when the spreads are positive, spreads being the difference in yields between short duration and long duration). Everybody does this until lots of leverage builds up in the system and the risk-premiums of the longer duration assets are pulled down the yield curve - meaning the expected returns on those assets become more similar to the short-term interest rates. When this occurs, investors receive little premium for taking on more duration (risk).

It is generally around these times that central banks raise the short-term rates due to growing inflation expectations. This is how they slowly move the economy into the bust or contraction part of the business cycle. Inflation usually occurs when demand growth rises faster than the growth in the capacity to produce. The amount of unused capacity (or GDP gap) becomes tight. A quick note on what the GDP/output gap is: it's simply the difference between real GDP (output) and potential GDP. When real output exceeds potential output it is believed we are in an environment conducive to inflation because demand is outpacing supply capacity. When demand outpaces supply there is more money chasing fewer goods thereby pushing the price of these goods higher and creating inflation. This normally occurs in the late stage of the boom part of the business cycle when many leveraged investors are chasing fewer available assets. When this happens, central banks raise short-term rates which in turn causes long-term expected returns to fall. This makes it no longer profitable to hold longer duration (riskier) assets. The people who leveraged up in these assets (holding a lot of credit/debt) do poorly because the spreads between the long and short rates narrow and risk

premiums fall to the point they no longer justify the duration risks. The change in interest rates affects investors' future actions as they invest less and demand begins to shrink.

The central bank is able to “cool” the economy with its interest rate adjustments and move it towards the contraction phase.

When the GDP gap becomes too wide once again the central bank returns to lowering short-term interest rates. This encourages people to borrow and bid up longer duration (riskier) assets yet again. This cyclic movement from boom to bust to boom again is what creates the business cycle.

Where Does Inflation Come From?

Inflation is measured by the purchasing power of the dollar (or any currency) against a basket of goods and services. When inflation is high that means the purchasing power, or value, of the dollar is being chiseled (inflated) away. A dollar tomorrow will buy less than a dollar today. There are three types of inflation in our view: demand-pull, cost-push, and monetary expansion.

Demand-pull inflation occurs during the normal business cycle when the growth in demand is higher than the growth in the capacity to produce goods. This means there is more money chasing a smaller quantity of goods which in turn drives prices higher and causes inflation. The reason demand is able to grow faster than supply capacity is because of credit creation. Credit can be created faster than supply can be made to keep up with it. This inflation is generally healthy inflation and is easily regulated by the central bank through the adjustment of interest rates.

Cost-push inflation is caused by a supply shock that reduces the total quantity of goods available in the market. This drives prices higher and causes inflation because demand is not met and too much money is left to go after too few goods. The impact of cost-push inflation is felt the most in commodities, especially in those that are used in many different parts of the economy. The oil embargo during the 70’s, for example, drastically drove up energy prices and thereby greatly increased inflation. The higher prices for oil made production costs higher for a variety of goods, which in turn raised the price that was passed on to the consumer. The price increases led to heavy inflation.

Monetary expansion inflation is the result of the central bank printing money at a faster rate than the economy can absorb it. This is the most dangerous type of inflation, most notably because it’s not area specific like the first two, and instead impacts the currency directly. Monetary inflation generally occurs during deleveragings as a way to monetize debt (a concept that will be discussed further below). This is a dangerous time because the central bank needs to produce inflation to match the deflation caused by deleveraging -- a task that becomes very difficult. They have to produce just the *right* amount of inflation. Not too little, and not too much. Walking that line is not easy as there is a high probability of overshooting in either direction.

The other source of monetary inflation is artificial wage growth. This is what we believe was the primary driver behind the era of massive inflation during the 70's, although there were other contributing factors such as higher energy prices too. It was during this time that the labor force had a lot of political power and forced wage increases through union negotiations and federal and state law. These higher costs were then passed on to consumers which in turn raised the cost of living and drove the labor force to demand even higher wages. This continued in a reflexive loop and spurred on inflation as the prices of various goods skyrocketed.

The big problem that arose with this wage/price hiking cycle was that prices would rise faster than wages. So even though the labor force was successfully increasing their wages, they ironically couldn't keep up with the price increases that they themselves were causing. This became a large drag on the economy as people were not able to afford various goods. The economy slowed while inflation continued on.

This is the type of environment where the Fed is forced to step in and where inflation can get out of control. Artificial wage growth not naturally prompted by increases in market demand causes inflation while also causing the economy to slow down due to high prices. Normally the Fed will tighten to help control the rising inflation, but because the economy is struggling at the same time, the Fed is forced to loosen monetary policy to try and help the economy -- and consequently causes even more inflation. This double dose of inflation becomes very difficult to control due to all the second and third order effects it causes. This scenario is exactly what helped cause the high levels of inflation in the 70's. It's in these types of situations where we run the risk of recreating an economy like Weimar Germany's in the 30's -- where hyperinflation ran rampant causing the currency to become worthless.

Inflation in Leveraging / Deleveraging Cycles

Understanding inflation's role in the context of the larger debt cycles is critical because long-term interest rate trends are set by inflation expectations. The forces that produce and counteract inflation can be very abundant and complex, but we will simplify some of the larger ones here.

A leveraging cycle begins when long-term interest rates start to trend lower. In this period there is usually little debt relative to income. This comes after interest rates were raised in the previous deleveraging cycle to clamp down on the inflation that originally helped devalue the debt in that cycle. As interest rates trend lower, the new debt cycle begins, and people start accumulating more and more debt.

During a leveraging cycle we generally experience supply and demand inflation (demand-pull and cost-push). These occur in the latter stages of the short-term debt cycle and in response, interest rates are temporarily raised to cool the economy and

temper inflation. Why doesn't the monetary type of bad inflation occur during this time? It's because during a leveraging cycle people are borrowing and spending more as they accumulate more and more debt. Credit continues to get cheaper and easier for people to access thereby creating a general wealth effect. Due to this, there is little demand by the labor force for artificial wage increases. Also, the ease of credit helps boost output as companies borrow cheaply to invest in production. This causes supply and demand to stay relatively balanced. The central bank does not have to monetize debt or print money to help grease the wheels of the economy because it can just lower interest rates to achieve the same effect. Therefore, bad inflation doesn't show its face.

In a deleveraging cycle, there are natural deflationary forces working against the economy. Debt is a deflationary force and its impact increases the larger it grows relative to income. The point at which debt-servicing costs relative to income become unsustainable, and the debt itself needs to be repaid, is when demand starts to drop off. Spending that was going to buy things now goes to pay off debts. This starts the reflexive loop: spending drops, causing incomes to fall, resulting in debt payments relative to incomes to grow even larger, which causes spending to drop even further. This loop continues and finally forces prices to fall due to a general loss of demand. Just as demand rose faster than production capacity on the way up in a leveraging cycle, it also falls faster on the way down in a deleveraging cycle.

It is because of these large deflationary forces in a deleveraging that we eventually get the bad monetary inflation. To prevent the economy from going into a deflationary deleveraging, also known as a depression, the central bank prints money to ease the overall debt burden - it monetizes the debt. It is towards the later stages of the deleveraging that artificial wage increases are imposed on the market. This is generally necessary to uphold social order because bad economies cause social unrest. These wage increases result in higher prices for consumer goods which causes the central bank to ease even more to grease the economic wheels so as to negate the negative impact of these wage increases. As a result of the bad inflation, interest rates eventually reverse their long-term trend to the zero-bound and trend upward in an attempt to quell the inflation.

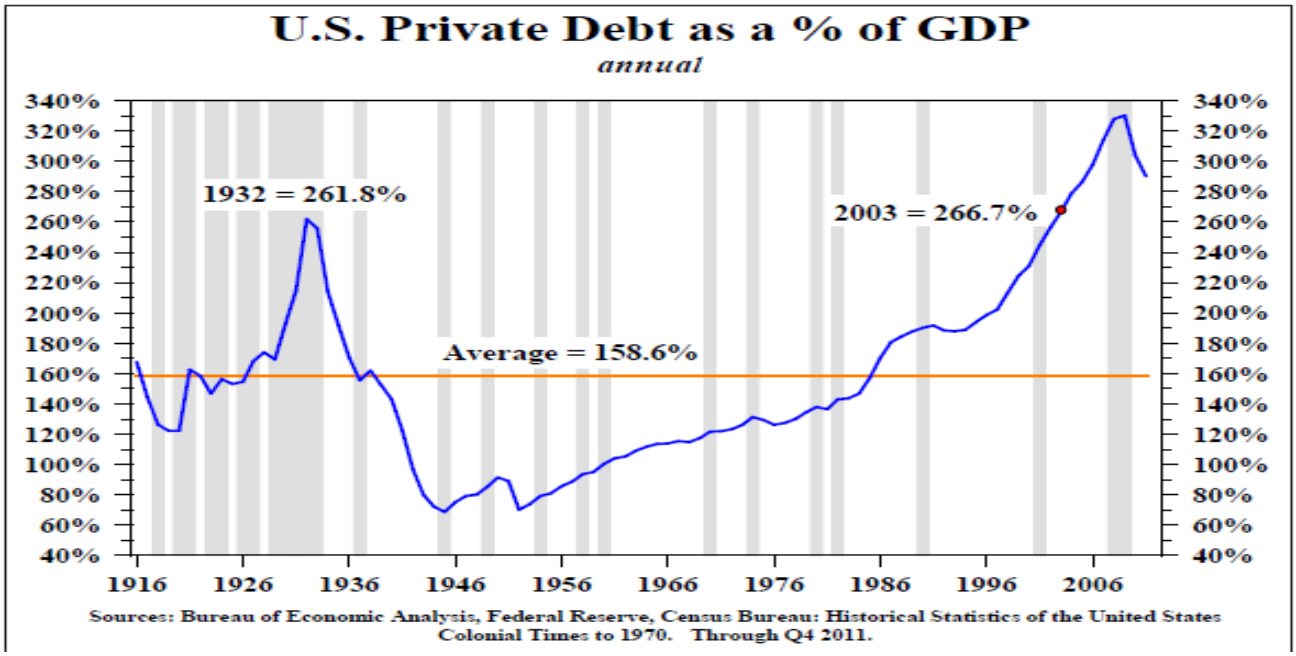
Long-Term Debt Cycle

The long-term debt cycle is formed from multiple short-term debt cycles playing out over an extended period of time. Within the long-term cycle, during the leveraging period, economic activity and asset prices trend higher by taking several steps forward for each step back. Each step forward is the expansion phase of the short-term debt cycle and each step backward is the contraction (recession) phase of the short-term debt cycle.

The human bias for increasing debt (because it's easier and more desirable than decreasing debt) prevails in driving these short-term debt cycles. This causes debt on a net basis to increase between each short-term expansion and contraction, thereby creating a longer term debt cycle.

During the long-term debt cycle leveraging period, the central bank decreases interest rates on a net basis. The lower highs and lower lows in the long-term downward interest rate trend extends the long-term debt cycle. The declining rates make it more affordable to borrow and also cause asset prices to rise (the lower discount-rate applied to future investment cash flows make these investments more attractive). The lower rates also reduce the interest costs of servicing debt (lower monthly payments).

The chart below shows how this cyclical relationship has played out over the last 100 years. This chart depicting the total debt as a percentage of GDP shows the peak of the current long-term debt cycle, as well as the last one which of course ended in 1929.



Long-term debt cycles last on average 50-75 years and are called leveraging processes. They continue until interest rates hit zero and the central bank can't ease any further.

When central banks can't lower rates any further they turn to quantitative easing. They print money to buy financial assets with the hope that the sellers of those assets will use the profits to buy riskier assets. This tightens the interest rate spread and spurs a

temporary wealth effect. Yet quantitative easing is not as effective as lowering interest rates and eventually loses its usefulness as risk premiums are also lowered to their limit.

It is at this point where the leveraging (the building up of credit/debt) has reached it's peak. Debt can't continue to be added to the system because:

a. Debt servicing costs have risen faster than incomes and are now so large that spending on goods is cut in order to pay off debt.
b. This drop in demand results in falling incomes and therefore lowers the ability of consumers to borrow because of their lower creditworthiness due to those smaller incomes.
c. In order to still make their debt servicing payments even as their incomes fall, people are forced to sell their assets. This depresses the prices of equities, homes, and everything else.
d. Assets are now not only hit by an increased supply (people selling to make debt payments due to falling income) but also by net negative credit creation and lower demand. This creates a swift downward feedback loop and often leads to a liquidity trap as fire-sales increase.
e. Defaults rise which lowers overall debt, but remember - one man's debt (liability) is another man's asset. This causes the wealth that people once thought was real to evaporate.

The positive feedback loop continues as the economy adjusts. This is a logical sequence since buying on credit is just the spending of future earnings. When we are going through a credit expansion we are effectively pulling future spending forward to today. This means that eventually spending in the future will have to drop off to the same amount in which it was created, since debt growth can't outpace productivity growth (2% average) in perpetuity.

This is the deleveraging process that typically lasts 10-25 years. There are numerous ways in which these can play out, but they always consist of a mixture of the following:

1. Debt reduction: This can happen in three ways: the extension of time on which the debt needs to be repaid, an actual reduction in the debt where 50 cents on the dollar or something similar is repaid, or interest payments on the debt are kept artificially low. These are all deflationary forces.
2. Austerity: Spending is cut and debt is paid down. This is a deflationary force.
3. Redistribution of wealth: There is a transfer of payments from the haves to the have nots, generally through fiscal policy (taxation of the rich and payments to poor).

4. Debt is monetized: This occurs through quantitative easing to devalue the currency and essentially inflate the debt away to a more manageable level.

Using Debt Cycles in Investment Analysis

Now that we understand how the economic machine works and the vital role that debt plays in the long and short-term fluctuations of markets and economies, how do we apply all this to investing? Well, remember at the beginning of this chapter when we were discussing Druckenmiller's comment on liquidity moving markets? With this information we now know where that liquidity comes from - it comes from the central bank lowering its interest rates in a leveraging cycle! Bull markets are born from interest rate cuts, pure and simple. These cuts lower discount rates, boost credit demand, drive earnings, inflate incomes and so on, all causing prices to rise.

With this understanding of debt cycles we can more aptly deduce where we are in both the short and long-term cycles. Knowing this we can increase the probability of successful investing because we can invest with the flow by keeping aligned with the larger debt cycles at work.

Look at the last correction - the Great Financial Crisis of 2008. The market was in free fall until the Fed had its final rate cut from 200 bps in late 2008 down to zero. The market bottomed shortly after. During this time, while most investors thought the end of the world was coming, somebody who understood this perspective of the larger forces of debt cycles knew that we were just starting the beginning phases of a deleveraging. They would have understood that this rate cut that brought rates to the zero bound for the first time in the leveraging cycle would lower the discount rate at which equities were valued. At the same time that the discount rate was brought to its lower bound, the average equity had also fallen over 40% in value. A lower discount rate coupled with a lower market value greatly raised equities' future expected returns. This made equities in early 2009 a great place to put money to work knowing the above information.

Bonds have probably been the most confusing asset class over the last six years to the majority of investors both professional and amateur. This is because when the Fed started printing money and buying bonds (QE) in late 2008, people started screaming about inflation. As a result, investors finally started saying that the 30-year bull market for bonds was dead because inflation scares away demand for fixed income. Yet it has been 7 years and counting now since ZIRP and we have had 6 years of QE, but we still haven't seen consistently strong inflation, let alone run-away inflation. The Fed is truly baffled. But with the knowledge of debt cycle dynamics we know that there are larger deflationary forces at work because we have entered into a long-term deleveraging period. Even though QE was an inflationary force, it was barely enough to counteract

the deflationary forces caused by deleveraging. Investors understanding this were able to go long bonds and receive a handsome return.

Commodities are a true global asset in the sense that their demand and price are dependent on the supply/demand fundamentals of the world. We know that demand (spending) is largely a function of credit creation and therefore commodity bull markets generally accompany larger leveraging cycles and periods of credit expansion.

This last commodity super-cycle is a perfect example. For a few decades commodities traded mostly within a specific range, oscillating up and down due to supply and demand. Beginning in the early 2000's, commodities started to go parabolic.

Why? Well there were a number of factors. One is that the U.S. and other developed countries were moving into the later stages of a massive leveraging cycle which is often when most of the demand is created and excess reigns. The real kicker though was China. In the early 90's China began implementing some major market reforms and also started taking on a lot of debt as the government began spending historic amounts on infrastructure. Infrastructure is of course heavily commodity dependent. This huge demand growth for commodities which was fueled by a massive leveraging cycle spawned a commodity super-cycle that lasted over 20-years. This cycle is just now returning to equilibrium as you can see with the large sell off in crude oil and many other commodities this past year.

As seen from these examples, investing and economics have everything to do with credit/debt creation and understanding where we are in the debt cycle. When we at Macro Ops consider investing in any asset, we have to answer these four questions:

1. In the next three months are interest rates going to be lowered, raised, or unchanged? (Are we in a liquidity expansion or contraction regime?)
2. Are we in a leveraging cycle or a deleveraging cycle? (Is demand rising or falling?)
3. In regards to the two questions above, is inflation likely to increase, decrease, or remain stable? (What type of inflation - supply & demand or monetary?)
4. What are investor's expectations of the above 3 items?

Using this macro framework, we are able to more successfully invest in the largest trends around the world.

Chapter 6: Theory of Technical Analysis

The Importance of Theory

In its most basic form, technical analysis (TA) is the study of past market price action and volume activity to help gain insight into future price movements. Though this seems simple, it is very important to understand exactly what TA is and isn't capable of. A complete understanding of the theory behind this concept helps ensure that an investor doesn't fall into the various traps others are susceptible to when using technical analysis. TA needs to be used in a specific way in order to be effective.

The Failures of Technical Analysis

There is a lot of controversy regarding the use of technical analysis in the investing process. Like many trading approaches, there tends to be some strong viewpoints from both sides of the table on the effectiveness of incorporating charting or even considering price action at all in the investing process.

The largest proponents against TA are those who only concern themselves with fundamentals. This group views technical analysis as akin to trying to discern messages from chicken bones dropped onto a table - complete unsophisticated nonsense.

This perspective can indeed be true in cases where TA is used the wrong way. Identifying some of the ways in which technical analysis is abused will help us understand this viewpoint and will also help us avoid using TA improperly.

Technical Analysis Should Not Be Used to Try and Predict The Future

A majority of the reason why technical analysis has a bad reputation is because of practitioners that claim they can predict the future. That is bogus. At Macro Ops we understand that the purpose of TA is NOT to predict the future. This is impossible with the infinite variables and extreme complexity embedded in the market. We instead use technical analysis to help us better determine the probability of an investment being profitable and also to show us a place where we can enter into a potential large trend with little risk.

We are able to identify certain chart patterns and evaluate them based on past successful patterns and their psychological implications. We then take this evaluation along with the other analysis required by our methodology to better determine the probability of certain investment theses working out.

Technical analysis is just one more input into the total machine. It's not some holy grail that gives us predictive power over the future. It instead gives us more information to help determine the risk/reward ratio of investments which thereby helps to ensure that we are truly optimizing for risk adjusted returns.

The investors that believe the false notion that TA can predict the future end up developing a false sense of confidence that severely hurts them. These investors tend to invest solely based off price patterns and become distressed when their investments are unprofitable. This in turn negatively affects their psychology and therefore damages their whole process.

Understanding that the goal of technical analysis is not to give 100% certain predictions helps investors avoid many pitfalls.

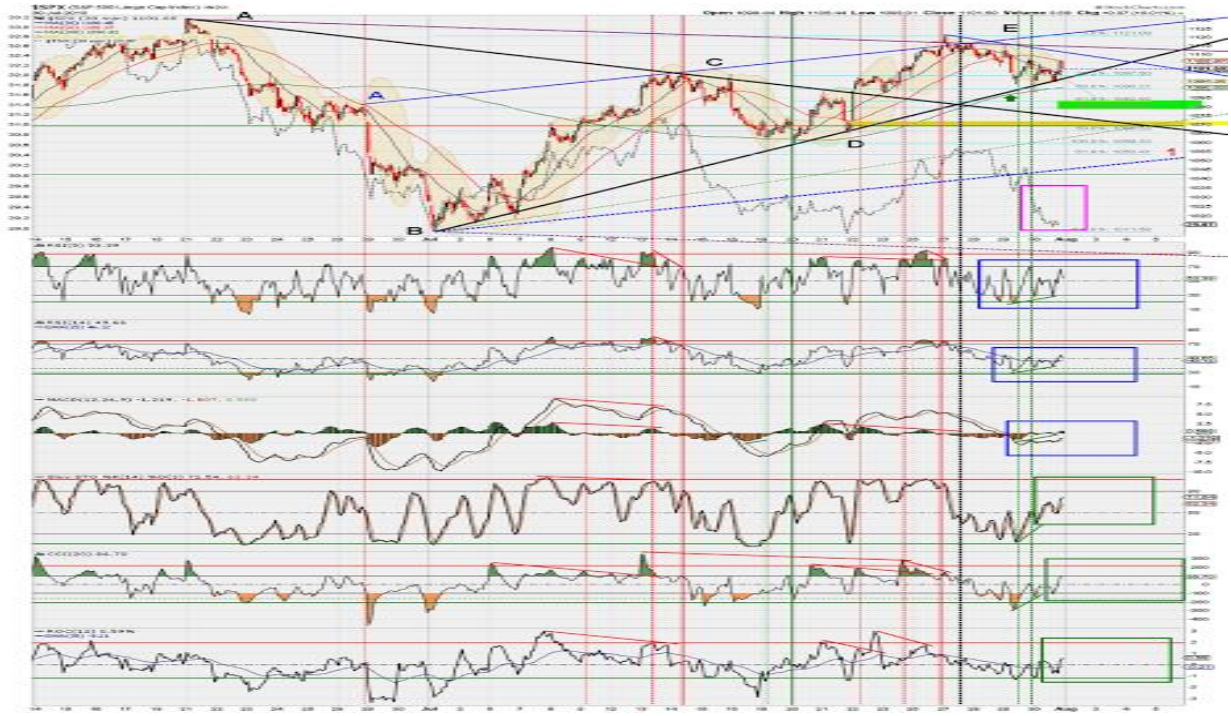
Technical Analysis Should Help Simplify, Not Complicate

At Macro Ops we view a price chart as a simple two-dimensional representation of a very complex process of accumulation and distribution (buying and selling). Inherent to the accumulation / distribution process is the driving force of mass human psychology; the prevalent fears, hopes, and common interpretations of information that are embedded in market participants' actions and thus the price movements of assets.

Price is a direct mechanism showing the aggregate beliefs of all market participants at a single-moment. It provides insight into the emotional state of the biggest movers and shakers, reveals how information is being interpreted in real-time, and gives hints as to what price levels or values are viewed as major buying / selling points by dominant actors.

Price is able to take all the variables and information inherent to the market and boil it down into a simple, digestible chart. That simplicity provided by price is why it is the most valuable indicator to an investor and also explains why technical analysis is so important.

Though technical analysis is supposed to make the complex market simple, there are investors out there who use technical analysis to instead make everything complicated! In their search for a holy grail, these investors tend to lay every indicator imaginable on their charts. The image below is a good example of this.



There are so many different colored lines and shapes on the above image that it is tough to know whether it's a stock chart we're looking at or a Jackson Pollock painting!

This is a great example of how many investors get lost in the usefulness of technical analysis. The chart above provides no analytical benefit to the investor. Rather it impedes proper analysis because the investor ends up substituting honest logical inquiry for the overuse of indicators. He uses this as a way to instill a "false confidence" in his investing. The investor tries to find value where there is none and goes about it in a most perfunctory way.

It is important to note that all these technical indicators are in fact just derivatives of an asset's price and nothing more. They are simply price series thrown into math equations. There is no magic here, just slightly different ways to interpret price. Many investors miss this point and fall into the trap of using a million different indicators that they don't understand in attempt to increase their returns. This leads to flawed approaches. They completely miss the higher purpose of TA and in the process give all technical analysis a bad name.

We do things differently at Macro Ops. At the core of our analysis is logic. Every tool we utilize not only has to prove itself as contributing to our goal of superior risk-adjusted returns, but we also need to understand the why and the how behind it. Our deep understanding of the technical tools we use simplifies the limitless information the

market provides and helps us better understand what is going on. That is the true purpose of technical analysis.

The Benefits of Technical Analysis

Now that we understand how not to use technical analysis, we can delve deeper into its proper utilization. At Macro Ops, the two most important ways in which studying price action helps us are:

1. As a signaling mechanism.
2. As a way to define risk.

Technical Analysis is a Signaling Mechanism

As previously discussed, technical analysis simplifies the complexity embedded within markets. Since price is the value assigned to an asset by the market itself, embedded in that price are a multitude of beliefs and interpretations about the future. Knowing this, an informed investor can harness the movement of price as a signal to alert him to new trends. At Macro Ops, we focus on a particular investing strategy that involves searching for price breakouts in various assets. In basic terms, price breakouts are significant advances in price in a specific direction. These breakouts serve as the signals we need to tell us a new trend may be forming.

A market is always in one of two states. It's either consolidating or trending. Areas of consolidation are lengths of time where price oscillates within a range, never decisively advancing in any single direction. A trend on the other hand is when price moves predominantly in one direction, either higher or lower over a length of time, exhibiting a sequence of higher highs and higher lows or lower highs and lower lows. At Macro Ops, as long-term investors focused on riding the biggest trends, we strive to look for lengthy consolidation periods that lead to the largest and most powerful moves. Typically, the longer the consolidation, the more potential energy that's embedded in the price for the next leg up or down. A breakout serves as a robust signal that the consolidation period is likely over and that a new trend is potentially beginning.

Coupled with the other two pillars of our analysis process, macro and fundamentals, we can use the completion and breakout from patterns as a signal to enter a position. Throughout the investing process we are constantly forming multiple hypotheses and giving them probabilistic weightings. Price action serves as a means to continually test these hypotheses in real-time. Breakouts act as inflection points, where a resultant breakout or failure in a certain price area signifies investor sentiment shifting to either confirm or disconfirm a particular thesis. This is extremely useful and helps put us on the correct side of the market at all times.

For example, say all our hypotheses are focused around different bearish scenarios for the dollar. Then imagine that the dollar breaks out of a meaningful consolidation pattern and begins to rally in a move contrary to those stated theses. This breakout would serve as a vital signal that we may have been missing significant pieces of the puzzle in our analysis. We would then try to understand why prices were rallying and in the process possibly completely change our fundamental view of the driving dynamics of the scenario. Once we developed a new set of theses, we could potentially flip from bearish to bullish and jump on the dollar trend higher.

It's always important to stay cognizant of how much we don't know as investors. Even after extensive research into the fundamentals and macro backdrop of a situation, there will still be at least 30% of information we don't know and can't know. Markets are so complex that it is impossible to know everything. Heeding price action as a signal is a way to accept the uncertainty involved and yet still be successful in the investing process.

Identifying breakout signals is also very valuable to investors because it can help protect from making dead-money investments. Dead-money investments are positions that are taken that then proceeds to just oscillate in a range, up and down, for months or years. Not only do we not profit from these investments, but we also lose in terms of the time value and opportunity costs of allocating capital to them - not to mention the mental drain of sitting with long-term oscillating investments. We also increase our total risk by keeping a position on our book that is not moving and making profit. We are leaving our capital exposed to the inherently risky market while not receiving any return for that risk. This extra risk is not warranted and is one of the reasons these dead-money investments are so useless. It is much better to wait for a breakout to invest. In this regard, price breakouts serve a timing signal that help investors invest at the right moment to earn the most amount of profits with the least amount of risk.

The breakout method helps us avoid trying to catch falling knives as well - a favorite pastime of many value investors. Value is subjective and the market is often irrational. Jumping in front of speeding trains is usually not a smart idea. It makes no sense to try to go long in a security that is plummeting in price just because of a subjective value evaluation. Paying attention to what state the market is in, consolidation or trending, allows us to make sure we're aligned with the market as much as possible. We never want to be swimming upstream by fighting a consolidation. We always want to be following the trend that forms after the consolidation. The best way to do this is to wait for a breakout signal.

Technical Analysis is a Risk Management Tool

Along with being a good signaling mechanism, technical analysis also serves as a great risk management tool. TA allows an investor to successfully identify risk points, or price areas where an investment thesis is much less likely to succeed if reached. These risk points can be used to draw a line in the sand where an investor will exit his position. Using technical analysis in this regard makes it a very powerful risk management tool.

Breakout investing again becomes very useful because of the very clear risk management it provides. As previously described, inflection points are used as defining moments in an investment thesis. In the breakout system, the result of these inflection points are determined by whether a breakout succeeds or fails. This makes things very simple in terms of risk management. If a position is placed on a breakout and it succeeds, then the position is profitable and does not need to be exited right away. On the other hand, if a position is entered on the breakout and starts to fail and go back into consolidation, the position should be exited immediately. This failure means that either the original investment thesis is incorrect or that it is currently not the correct time to enter into the position. This methodology gives legitimate and simple reasons for exiting any investment. It also makes it very easy to define risk points based on breakout areas. This in turn allows for the proper measurement of the amount of risk being taken on each investment.

It can be argued that risk management is actually the most important benefit of technical analysis. As we discussed earlier, many investors use a variety technical indicators from Gann lines to Elliot waves to pivot-points and more, but without a true understanding of where their edge comes from. These TA schools like to claim that the supposed predictive ability of these forms of analysis is the most important quality they offer. They provide the evidence of this value in the form of profitable track records, but even so, they are mistaken as to where the value of these indicators actually stems from. The value has nothing to do with the practitioners' ability to predict future price movements and instead has everything to do with the controlled discipline of risk management that is fundamental to the technical systems themselves.

Legendary investor Paul Tudor Jones credits Elliott Wave Theory for a lot of his success in markets, yet at the same time admits that he doesn't fully understand how the theory works. What he does understand is that this technical tool gives him a way to quantify and strictly control his risk while maintaining a positively skewed risk to reward ratio. Jones is known for using technicals to help identify opportunities where he can risk one dollar to make five.

Technical analysis helps investors preserve capital where others lose it. The ability to lose less each time you are wrong compared to another investor who does not have tight risk control is where massive edge and outperformance come from. This pays off in

spades when a crisis comes along that blows investors out of the market. While they lose everything, those investors that heed price action and have strict risk management are able to survive these exoduses and avoid the risk of ruin.

Not only that, but rare opportunities to massively profit usually appear after the dust settles. While other investors are out of the market with no more capital to invest, those that managed their risk have the dry powder available to plow into the market and take advantage of these opportunities. The ability to heed the exit signals provided by technical analysis creates an extremely effective and robust risk management system.

At Macro Ops, we preach that our number one goal is capital preservation and we understand that the way to preserve capital is through extensive risk management. Evaluating price action tends to the most effective way to keep losses to a minimum. It becomes very simple and robust too. If the price is not going in the expected direction to provide a profit, an investor should exit. There should be no argument, the trade just needs to be exited. This system works in any market situation and will ensure an investor is safe and in cash at the worst times. No two crises are exactly the same, but price does indeed always tell you to get out of the market each time. Not heeding price action is akin to saying that you know better than the market itself, which is impossible. The most logical thing to do is accept the market's evaluation and exit an investment that is not working in your favor.

Chapter 7: Technical Analysis in Practice

Using Technical Analysis

Now that we understand a bit of the theory behind technical analysis, let's jump into its practical use. Please remember to digest the information below within the context of what we learned in the theory section. Combining the two will help you develop a deeper understanding of the analysis techniques we describe.

Timeframes

Noise vs Signal

As previously discussed, one of the main benefits of technical analysis is the signals it provides to alert investors of when to take action. But while this is true, it is important to note that not all these signals are equally useful. Each requires a level of interpretation to evaluate how actionable it truly is.

This becomes one of the most difficult aspects of technical analysis -- understanding which price movements constitute valuable signals and which are just noise. A valuable signal is a price movement that alerts an investor to a real change in market sentiment to either confirm or disconfirm an investment thesis. Noise is when price fluctuates for no real reason at all, or at least no discernable reason, and does not signal a real move in the market. It is important to be able to distinguish between the two.

The best filter for distinguishing between signals and noise is time. The further you drop down in timeframes -- viewing hourly and 15 minute movements of price -- the more noise you encounter. This is why we find it so humorous the way financial media attempts to attach so much meaning to the day-to-day movements of markets. The truth is…. they have no clue! It's just noise.

To increase the signal to noise ratio we have to invert the scale and move to higher timeframes. The daily, weekly, and monthly timeframes provide us with a clearer picture of supply and demand forces. At the higher timeframes, price is not as affected by the short-term positioning of a small number of money managers. From the 30,000 foot view we can see the direction of the big trends -- the exact type we want to ride.

There is also a psychological benefit to focusing on larger timeframes. We protect ourselves from allowing the often meaningless daily movements of the markets to affect us, which in turn helps us avoid making poor, emotional investing decisions. We're our

own worst enemy when it comes to investing because we're mentally wired to fall into emotional downward spirals. Any tool that helps to curb poor reactionary investing is a valuable one. Not to mention the peace of mind that comes from not being glued to the daily movements of price and the anxiety it causes.

Due to the improved noise to signal ratio on higher timeframes, we at Macro Ops mostly use weekly and monthly charts to make our investment decisions. These longer-term charts help us see the larger trends as they form. We still view set-ups and entries on the daily timeframe, but as a rule, we do not take positions on smaller timeframes that contradict their own larger timeframes.

The Fractal Nature of Chart Patterns

Within different timeframes, chart patterns become fractal in their nature. This means that the same chart patterns can and will occur repeatedly on different timeframes. If we were to show you a chart of a head and shoulders pattern without a time or price scale, it would be impossible to determine whether or not it came from a 3-minute or monthly chart.

Though they occur on different timeframes, these patterns are by no means individual and separate. Instead, the patterns on smaller timeframes either break down or complete to merge together to form the patterns seen on larger timeframes. This process is known as pattern redefinition. Smaller timeframe patterns become the building blocks of larger patterns.

A key concept to understand is that higher timeframe patterns have more control and influence over larger market movements and trends than smaller timeframe patterns. Smaller timeframe patterns are more noisy and tend to fail much more often because they are both a part of, and influenced by, the higher timeframes.

It is for this reason that Macro Ops focuses on the very largest timeframes to generate investing signals. The largest timeframes have the least amount of noise and the highest completion rates. The tradeoff we face for these requirements are less signals over the course of the year, but Macro Ops Core targets a less active approach designed to preserve capital and grow it modestly over the long term. Fewer signals fits right in with that investment strategy.

While our primary focus remains on the higher timeframe patterns such as those found in the weekly and monthly charts, before entering an investment we also drop down to the daily chart level to view potential pattern formations. There are opportune times when the completion of a smaller daily pattern coincides with the completion of a larger

weekly pattern. The confluence of signals provided by pattern completions on multiple timescales increases the conviction we have in a particular investment.

The Fundamentals of Charting

Identifying Patterns and Drawing Lines

Trendlines, significance levels, and pattern lines are somewhat of a self-fulfilling prophecy. They have a tendency to work because people believe they will work. Market participants place stops and limit orders around certain areas thinking they are significant and in turn wind up making them significant because of all the orders they place there. It's a reflexive process.

But even though these subjective areas may have a short term effect on the market, they do not change or affect the fundamental drivers -- in the end, true supply and demand always win out over any "significant areas". The action in these areas just serve as signals to help us better determine which way the market will move.

The true value of these technical methods comes from their ability to help us create a sense of order within the complexity. As investors we have to establish buy and sell points, and it is important to be methodical in this process. With trend and pattern lines we can mark areas where we think our hypothesis will be confirmed and at what point we think we'll be proven wrong. It's far from a perfect system, but investing is not a game of perfection.

When we're drawing the lines of a rectangle or triangle continuation pattern on a chart, we don't need to be extremely scientific to try and ensure that our lines perfectly connect the various bars. A line simply begins with two points. We are not looking to make a perfect fit, but instead just a best estimate of where potential demand and supply exist. Expecting anything more than that would be distracting to the real value of the process. At Macro Ops, we use "thick" lines to draw in our charts and we'll often draw straight through bars in areas we believe to be significant levels assigned by the market. Charting is much more an art than a science. Think of significant areas as "zones" rather than exact price levels.

The 2 Types of Patterns

Classic chart patterns fall into one of two categories -- either continuation patterns or reversal patterns.

Continuation patterns indicate that the primary trend is pausing and going through a consolidation period after which the initial trend will resume.

Reversal patterns indicate that the primary trend is consolidating and that an important reversal is possibly taking place.

Reversal patterns generally display the following characteristics:

- The greater the duration of the pattern, the greater the subsequent move tends to be.
- Reversal tops are generally shorter in duration and higher in volatility than bottoms.
- A prerequisite for a reversal pattern is the existence of a prior trend.
- Reversal bottoms usually are much longer in duration and less volatile than tops.
- The first signal of a potential reversal is often the violation of an important trendline.

Fundamental Points on Charting

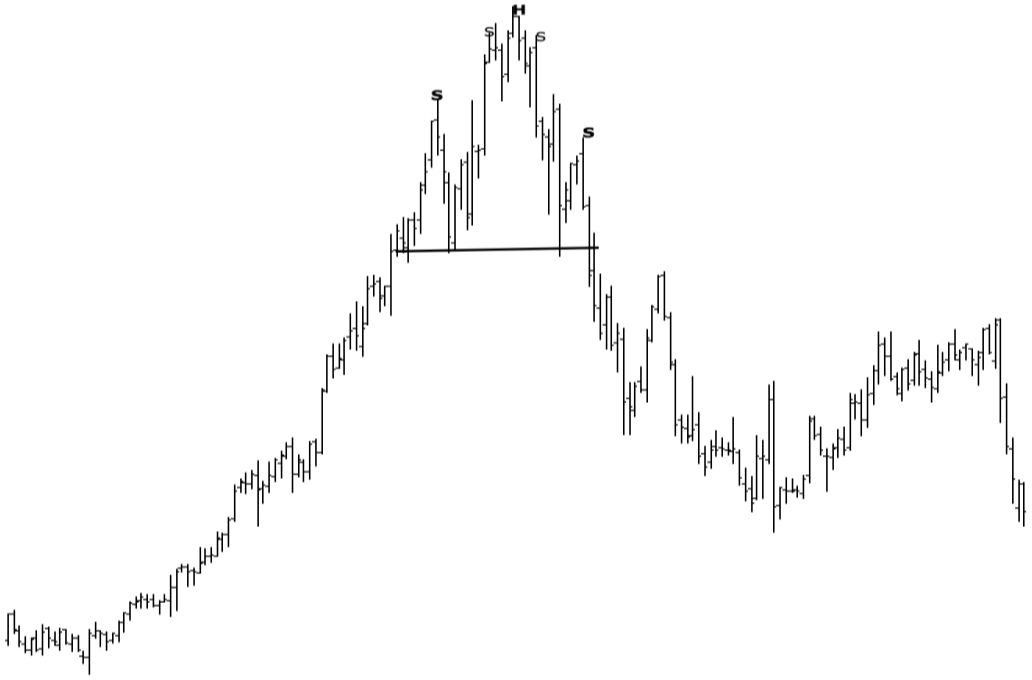
While reviewing classical pattern formations, it is important to remember the following fundamental points regarding charting:

1. Most chart formations fail and morph into other patterns, which in turn fail and morph again.
2. Charting cannot be used to understand a given market all the time.
3. Major moves can occur without any clue from the charts.
4. Charts are not predictive. They are a map of where markets have been, not a map of where they are going.
5. Charts are a trading tool – and when used as a trading tool charts serve a wonderful purpose.

Classic Chart Patterns

Head and Shoulders (H&S)

Perhaps the most common and well known of the major reversal patterns is the Head and Shoulders (H&S) Top and Inverted H&S Bottom. Looking at the picture below: the S's mark the shoulders and the H the head of the pattern. We can also see that there is a H&S pattern within a H&S pattern. This is a fairly common occurrence and is generally a positive sign for the likelihood of seeing the pattern successfully complete.



The pattern in the above chart is easy to discern, but this may not always be the case as sometimes the price action is not so clear. The following are the essential requirements to designate a H&S reversal:

- A prior trend from which to reverse from -- a large uptrend for a H&S Top and a downtrend for a H&S Bottom.
- Overlap between the two shoulders -- the more overlap between them, the stronger the pattern.
- Symmetry between shoulders -- they should be somewhat alike in their duration, height, and/or time.

Other common characteristics but not requirements of a H&S pattern are:

- A left shoulder formed on heavier volume.
- A rally into new highs but on lighter volume for the head or middle peak.
- A decline that moves below the previous peak and approaches near the low of the left shoulder.
- A third rally on lighter volume that fails to break the highs at the top of the head, establishing the right shoulder.
- A close below the neckline which is established by the low's of the left and right shoulder.
- The pattern is valid as long as there is not a close over the appropriate timeframe above the neckline.

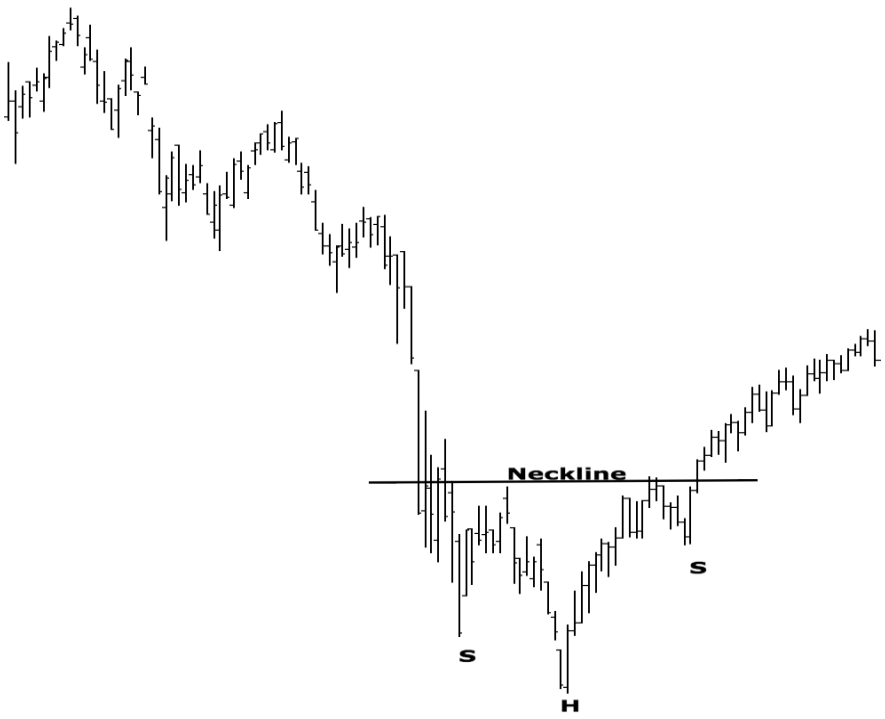
In addition to being able to identify a H&S pattern, the psychology and logic behind why the pattern forms and why it works must also be understood. The following steps explain the H&S action in the above chart more thoroughly:

1. First it can be seen that price action leading up to the H&S top had very little volatility, especially to the downside. It was primarily a slow and steady grind up. This steady price movement could be interpreted as a signal of increased hope and greed in investor sentiment resulting in growing complacency and higher leverage being taken on.
2. Greater leverage leads to even faster movement of the trend and the narrative therefore shifts to a momentum trade. At this point the rest of the investors not already in the investment take notice of the money being made and the “fear of missing out” causes them to also start heavily buying. A positive feedback loop is formed and the orgy of buying pushes the price to the high point of the left shoulder in the pattern on high volume.
3. Eventually demand is satisfied and there are no more buyers. At this point, which is the high point of the left shoulder, the selling begins as investors start taking profits. This causes volatility to increase. The stock sells off quickly, experiencing its largest selloff in quite a long time as investors experience fear and pain for the first time in this investment.
4. The price then hits a low where the neckline of the pattern is established. There the stock quickly rebounds because the momentum narrative is indeed still alive and investors believe the recent drop in price is a great buying opportunity. They rush in and push the price far enough to overcome the previous high established by the left shoulder.
5. At this point even more investors pile into the stock because they believe that the new high is signaling that the price has now cleared any overhead resistance and is free to run even further. The investors push the price to the high found at the head of the H&S pattern. The stock reaches this new high on max margin, poor positioning, and horrible risk control in an environment of max greed.
6. It is at this high where the smart money recognizes that the price has diverged too far from the current momentum narrative and cannot be further supported. They begin to sell which pushes the price lower once again.
7. The price again falls the neckline established by the previous shoulder at the point where the price is considered a “value”. The price is once again supported at this level. This move completes the formation of the head of the pattern.
8. At this point the momentum narrative is bruised and bloody. Another narrative, reality, has crept into the collective investors’ conscious and there is an increasing sense that they were all playing a game of greater fool theory. Yet there are still buyers left who believe in the momentum narrative and they attempt to push the price higher yet again. They push the price back to the height of the previous shoulder.

9. At this high it becomes apparent that enough hope has been dashed. Investors who bought into the forming of the head are in the red and use this opportunity to sell into this rally with the hope of cutting some of their losses (fear has crept in). The right shoulder begins to sell off but at this point does not stop at the neckline. The narrative is broken and investors are not interested in holding on any longer.
10. The neckline now becomes a resistance instead of a support. Hope has been entirely dashed and fear is just starting to wrap its cold grip around the necks of these investors who got in late and are over-leveraged with owning their shares on margin. They are now underwater and sinking faster. The threat of margin calls force them to sell at an increasing rate. There is no compelling narrative to buy now. There are a large amount of investors in pain who are increasingly scrambling for the exits but there is no one to sell to. This creates the positive feedback loop in the other direction that plays out until selling is exhausted and the stock eventually bottoms out.

This thought exercise can and should be done for all significant patterns being established in the market. It is a good way to try and understand the psychological drivers of price action.

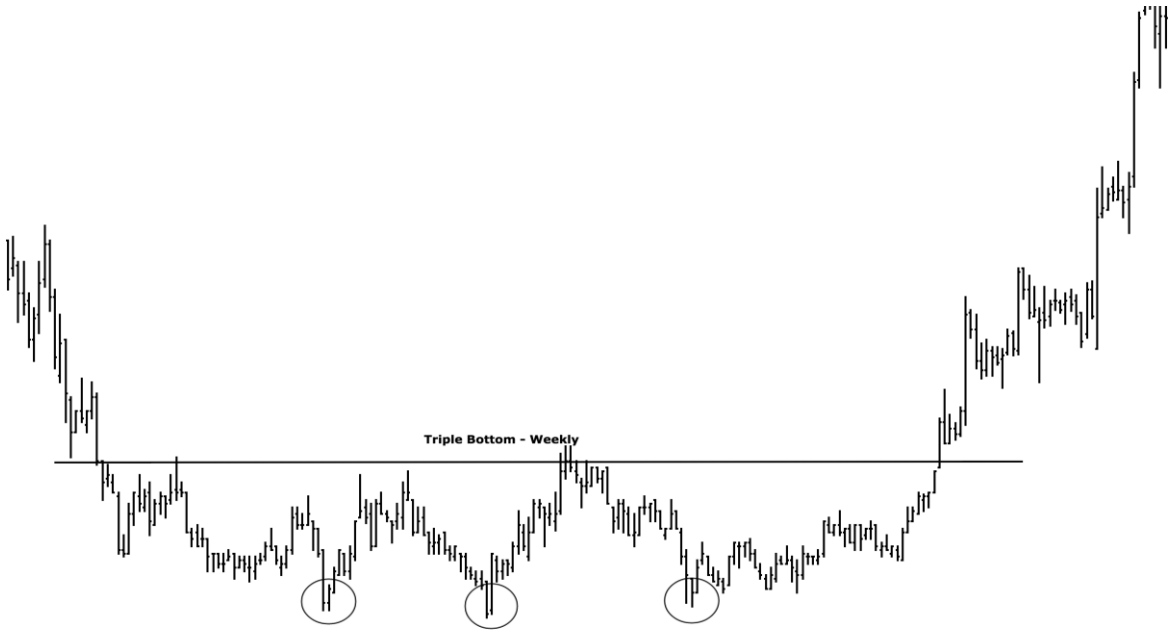
The head and shoulders reversal pattern is not only a common marker of tops, but also frequently occurs at the bottoms of major moves and acts as a sign that selling has exhausted itself. The example below is of the S&P 500 index, shown here on a weekly timeframe. The head of the pattern marks the market low of the financial crisis which occurred in March 2009. Once the index broke the neckline, it never looked back and is still in the process of carrying out a historic bull run six years later.

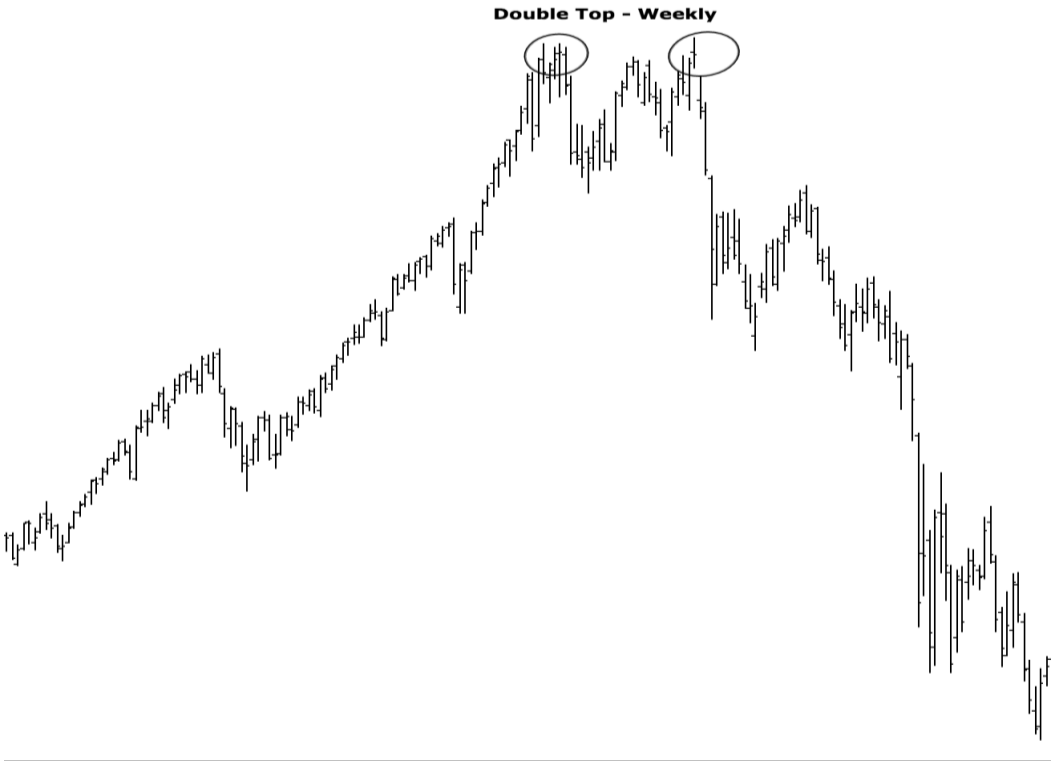


The requirements for determining a classic H&S bottom are just the inverse of a H&S top with one primary difference - the volume profile. Volume plays a more significant role in marking a bottom than it does a top, a fact generally true for all bottoming patterns. At tops markets tend to collapse under their own weight; a lack of buying to drive the price higher is enough for the price to start to fall. This does not apply to bottoming patterns where a lack of selling will not cause the price to rise. For prices to rise, fresh demand needs to come into the market and push the price. These actions will show up as volume spikes in the chart. The volume spikes indicate buying pressure which is necessary to signal a higher probability that price has indeed bottomed and is beginning a new bull market.

Double and Triple Tops/Bottoms - Reversals

Next to the H&S reversal pattern, the double and triple tops/bottoms are the next most frequent and recognizable reversal patterns you will come across in studying charts. These patterns look just like the name implies, the tops will look like the letter M and bottoms will look similar to a W for the double top/bottom while the triple will just have an additional equal length peak or trough. Generally speaking the more pronounced these patterns are, the greater the likelihood of them successfully completing.





The first peak in these types of patterns should mark the highest point of the total pattern. Each follow on peak should be either met or fall slightly below the primary high. The volume on the way back down from the first peak should be lighter and the low of the first peak will establish the support for the entire pattern. Before forming the second or third peak, there will usually be some low volume action that establishes a trough between the two peaks. This trough period will have various moves up that will not quite reach previous highs while also having down moves that respect the support. This same light volume should finally carry over into the move up to establishment of the secondary or tertiary peak. But on the last peak of the pattern when the price is ready to come down again, the volume on the downside should expand and the move down should accelerate. This accelerated move down can clue an investor into whether a pattern will be double or triple top. The acceleration is a signal that the pattern has a greater likelihood of completing. Once the support of the pattern defined by the first peak is broken, the pattern is completed.

Triangles – Continuation

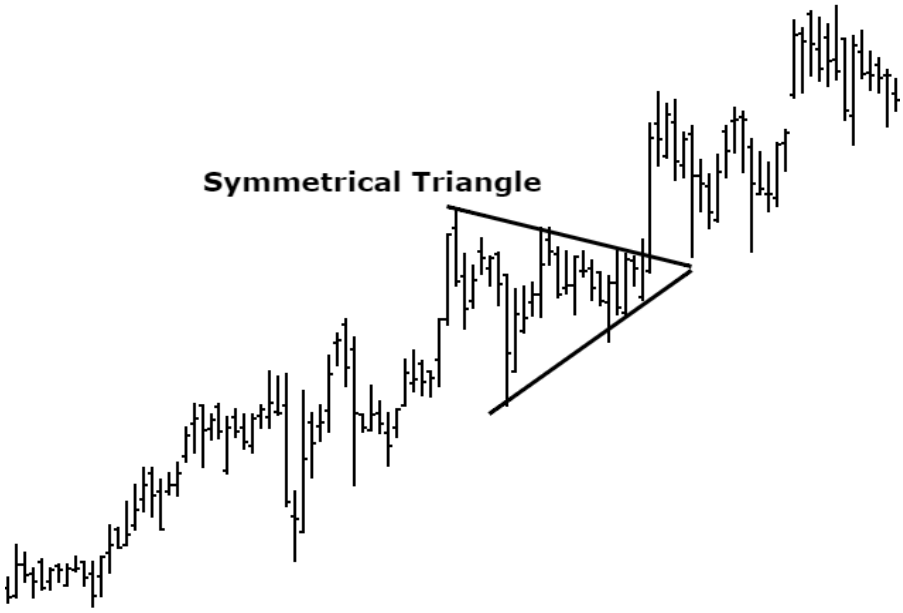
There are various different triangle patterns that we look at including right angles that are ascending/descending and symmetrical triangles.

Ascending triangles are normally considered bullish and are found in uptrends. They can be considered continuation patterns. The top of the triangle is a horizontal, flat line while the bottom is a line that slopes upward.

Normally in ascending triangles, price begins to consolidate once it reaches an overbought condition. Prices are sent lower but turn higher again as more buyers step in. These buyers bring the price back to the recent high where it is again turned way. This pattern continues to occur, but each time with buyers stepping in and supporting the price at a higher level. This is a bullish sign because it shows buyers are willing to pay up higher each time the price begins to fall. It shows accumulation of the asset. Eventually the pattern is completed when the horizontal high is broken and price moves above it. This break usually occurs on higher volume while the rest of the pattern tends to form on lower volume.

A descending triangle can be thought of in the same way as an ascending triangle, but in reverse. It is a bearish continuation pattern. The horizontal line is on the bottom instead of the top, with the top line serving as the diagonal, downward sloping part of the triangle.

A symmetrical triangle forms when price creates lower highs and higher lows following two sloping trend lines that eventually intersect. These triangles represent areas of indecision where buyers and sellers are battling over establishing the price of the asset.



Normally, symmetrical triangles resolve with the trend. They can be treated as continuation patterns. But the pattern must be completed to truly signal whether the trend will resume or not. The side that is breached is the direction of the breakout. If the top trend line is breached, price is expected to move up. If the bottom trend line is breached price, is expected to move down. Volume tends to decrease during the pattern formation and then drastically increase at the breakout.

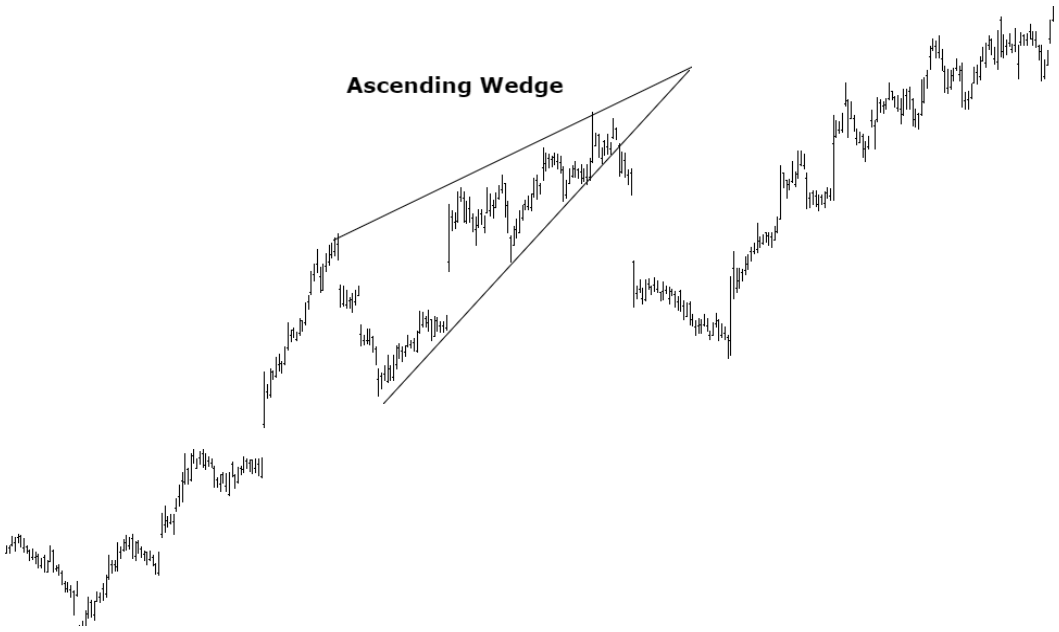
Like all the other patterns it is important to look for candle closes below or above the lines. Symmetrical triangles often get “false” moves out of each side where price peeks above or below and then returns back in. Waiting for the closes is key.

Wedges - Continuations and Reversals

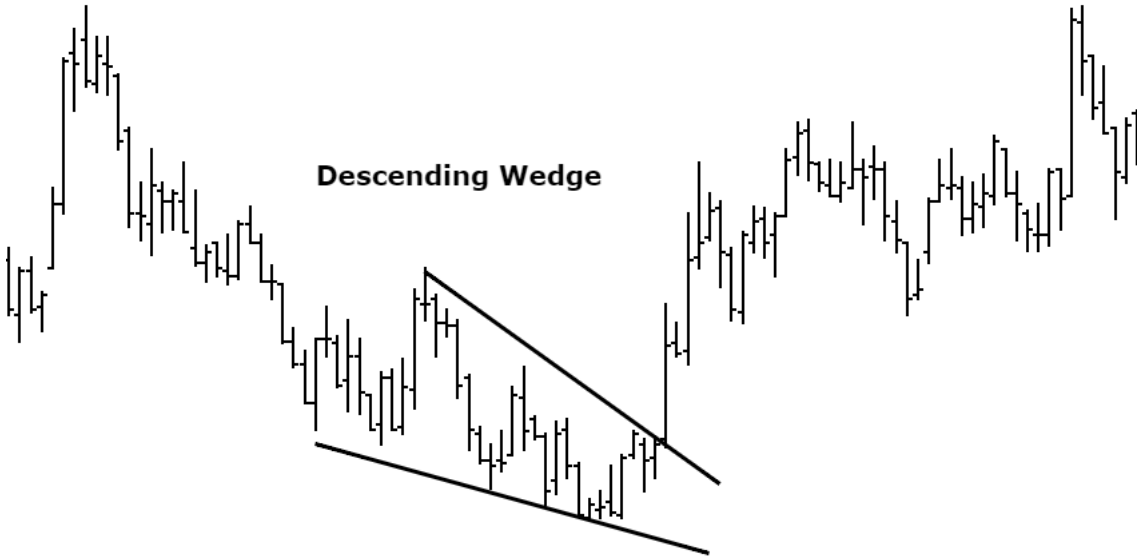
Wedges are very similar to triangle formations in that they have converging trend lines that come together at an apex. The difference is that wedges have a noticeable upward or downward slant. An upward sloping wedge is called an ascending wedge and a downward sloping wedge is called a descending wedge.

An ascending wedge is considered bearish and can be found in both uptrends and downtrends. If spotted within a bull trend it is a reversal pattern. A break of the ascending wedge to the downside is a signal to get short. If spotted within a bear trend it is a continuation pattern. Price will coil within

the ascending wedge and float higher. When the bottom trend line is broken it is a signal to get short.

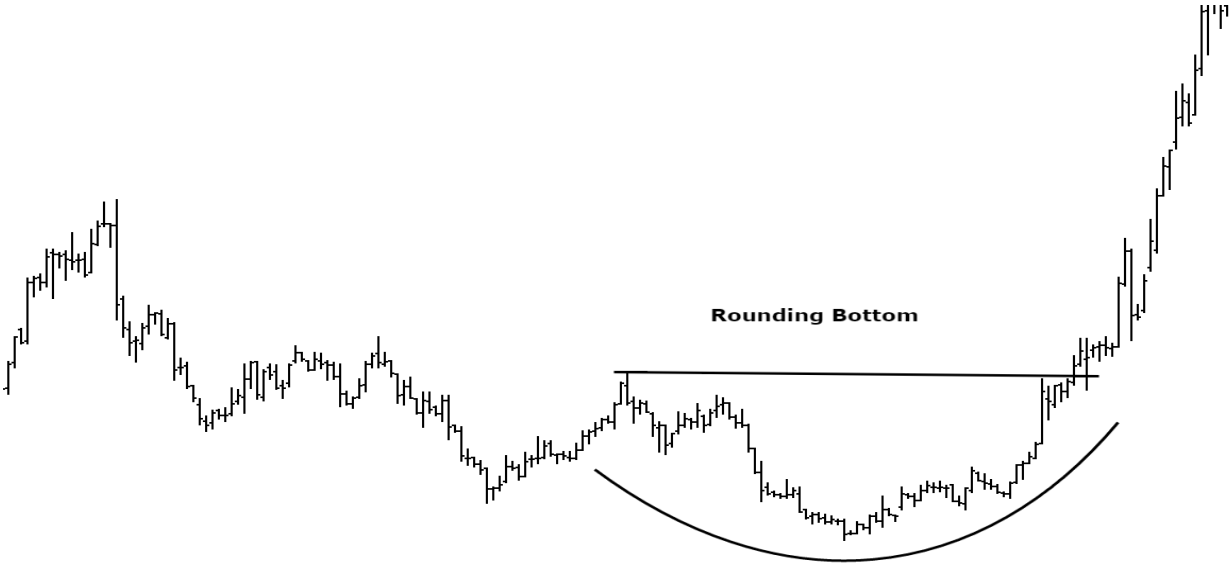


A descending wedge is considered bullish and can be found in both uptrends and downtrends as well. If spotted within a bear trend it is considered a reversal pattern. A break of the descending triangle to the upside is a signal to get long. If spotted within a bull trend it is a continuation pattern. Price coils and slowly goes down. Once the upper trend line is broken it is a signal to get long



Rounding Bottom / Saucer - Reversals

The rounding bottom, also known as a saucer, is a reversal pattern that usually signals the end of the downtrend and the beginning of a new uptrend.



The first half of the rounding bottom involves the price falling until it settles at a low point. This low point is then tested for an extended period of time as the price consolidates near the low. The consolidation at the bottom of the pattern should not be a “V” bottom that dips quickly, it needs to take time to consolidate and form the saucer shape. During this time is when the weak hands are shaken out and the strong hands take over. That is a healthier consolidation that will lead to the completion of the pattern.

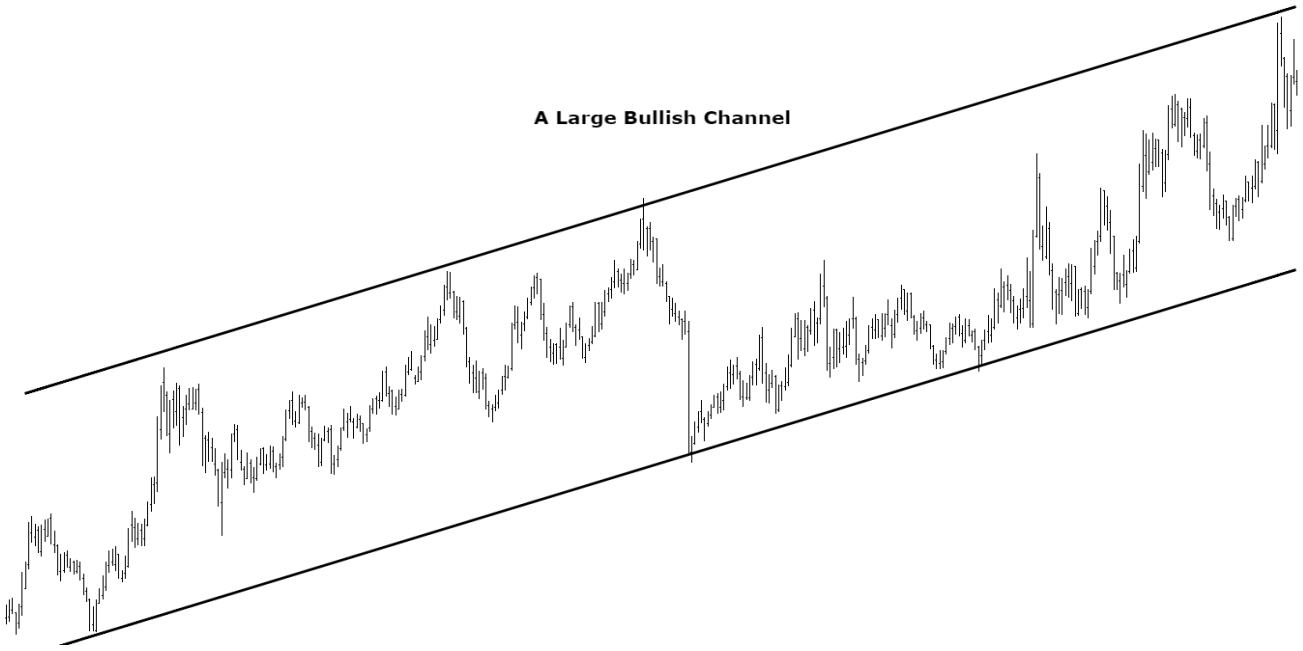
Eventually the price begins to move higher again as buyers take over. This advance should take about the same amount of time as the decline did. The pattern should look somewhat symmetrical. The price will eventually reach the previous high where it will face a bit of resistance. But if it breaks that point, that pattern will then be considered completed and worth a breakout trade.

Volume should generally be low on the decline and continue to stay low at the bottom of the pattern. It should then increase as the price moves up the right side of the pattern. The breakout itself should also occur on larger than average volume.

Often times you will see the right side of this pattern form a flag right before the big move. This is commonly referred to as a cup and handle.

Channels - Continuation or Reversals

A price channel occurs when the support and resistance trend lines are parallel to each other but also have a positive or negative slope. An upward sloping channel has a bullish bias and a downward sloping channel has a bearish bias.



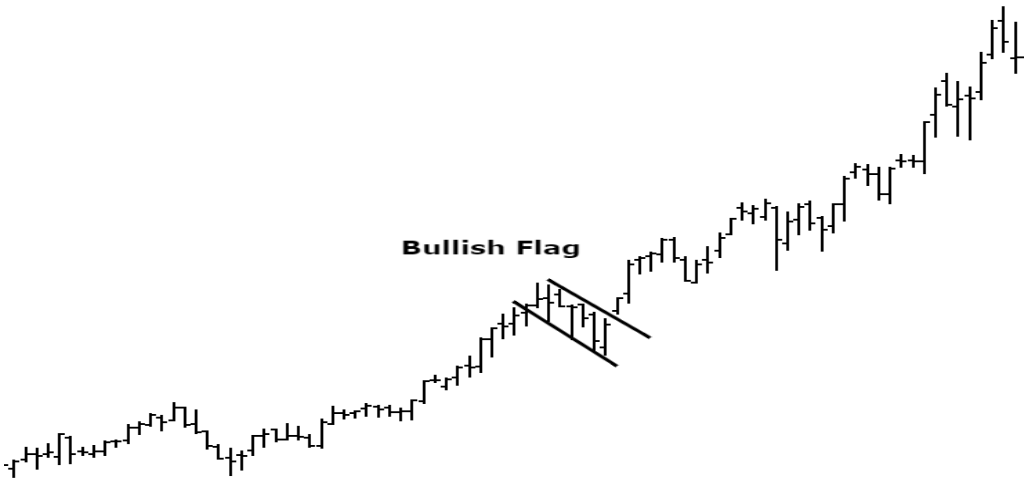
Usually price forms triangle formations but in some cases the two opposing lines are perfectly parallel to each other and we get the price channel. Price channels are usually continuation patterns. Look for the break out to the upside in an upward sloping channel for a long signal. Look for the break out to the downside in a downward sloping channel for a short signal. Sometimes it is possible to fade each side of the channel if a smaller break out failure pattern forms near the extreme of each channel.

It is possible for price to reverse the trend from a channel consolidation. Make sure you are attentive to what side of the channel break out occurs on. Is it in the direction of the predominant trend or against it?

Flags and pennants - Continuation/Confirmation

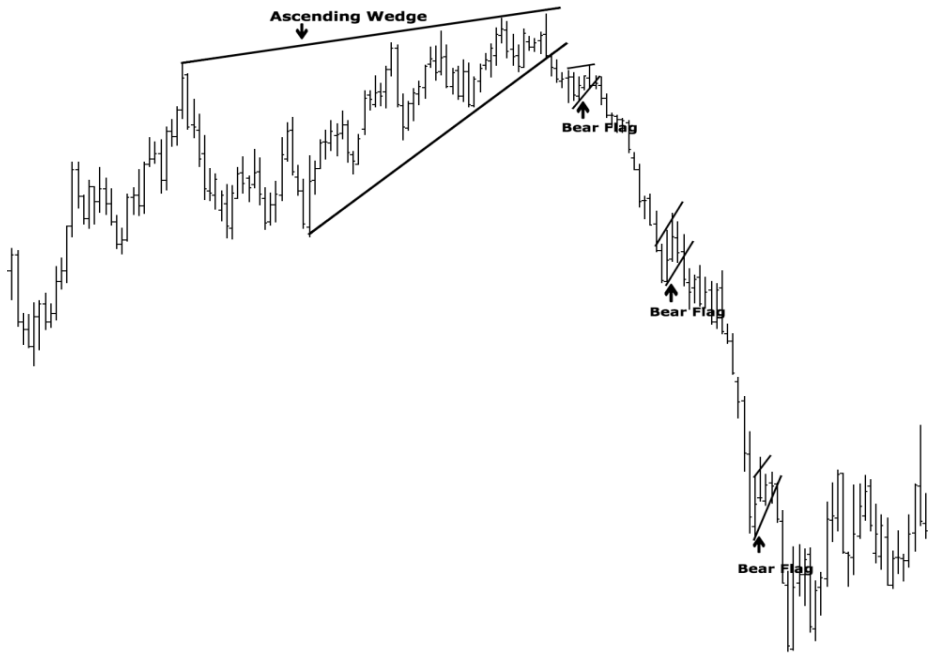
Flags and pennants can be thought of as mini price channels, wedges and triangles. They are shorter continuation patterns that are very reliable to confirm a trend and also serve as an area to potentially add to a winning trade. They also slope in the opposite way of the predominant trend. It is important to understand that flags and pennants are almost always COUNTER-trend moves but do not let them scare you!

A flag is a mini price channel that occurs after an impulse move higher or lower. After an impulse move up, a flag will look like a downward sloping rectangle. Once price breaches the top of the downward rectangle price usually continues on in the direction of the main trend.



After an impulse move down, a flag will look like an upward sloping rectangle. Once price breaks the bottom of the upward sloping rectangle price usually continues on in the direction of the main trend. Clear as mud?

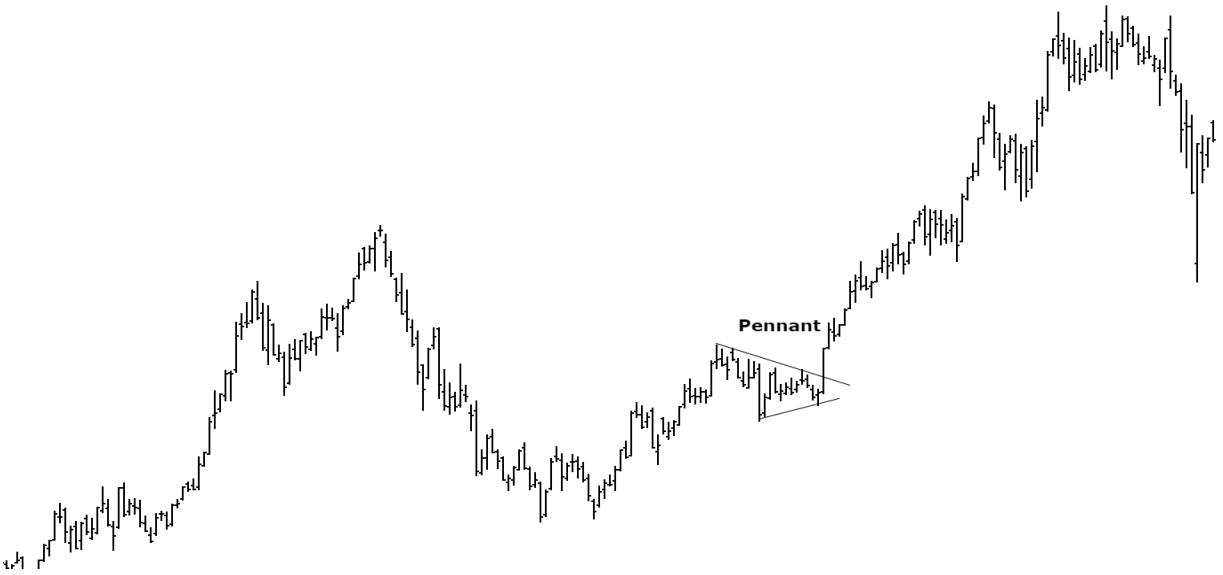
Pictures are worth 1000 words when it comes to chart patterns.



A pennant is a mini triangle pattern that occurs often in the middle of a trend. Like a flag, it is a continuation pattern and it moves COUNTER to the predominant trend. The two opposing lines are not parallel though. They converge on each other forming an apex, coiling the price in preparation for the next leg of the move.

Just like flags, a downward sloping pennant after an uptrend is bullish. Once the top trend line is breached it is a signal to go long and play for a continuation of the bull move. An upward sloping pennant after a downtrend is bearish. Once the bottom trend line is breached it is a signal to go short and play for a continuation of the bear move.

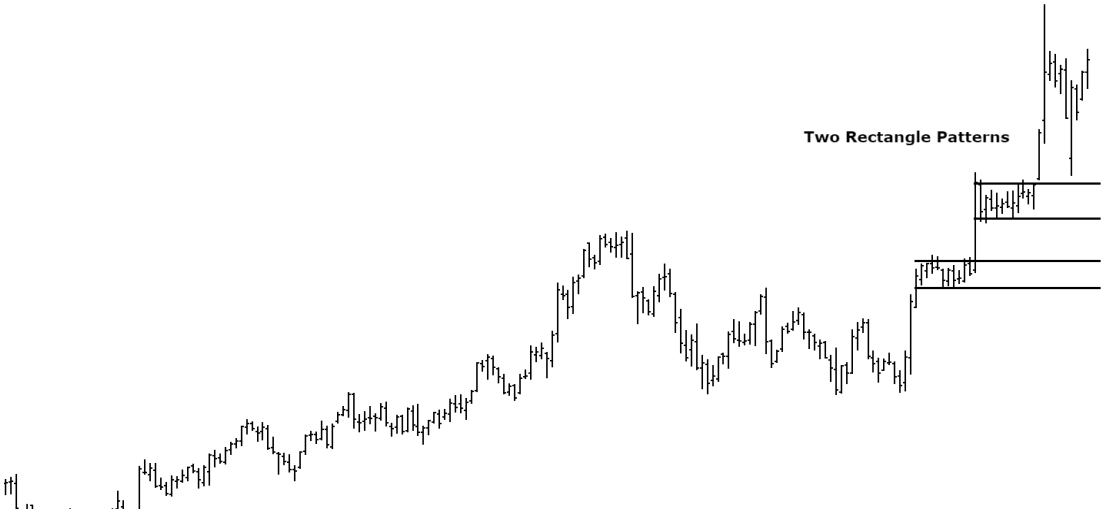
Again, always watch for the CLOSE of the bars or candles. Wicks are usually fake outs.



Rectangles / Flat Bases

A rectangle or flat base is a continuation pattern that consolidates horizontally for a period of time. In this consolidation, the price fluctuates in a trading range between an established support and resistance. Buyers and sellers battle over the correct price of the asset while the weak hands are shaken out.

The pattern is complete once the high or low of the pattern is broken. This breakout usually occurs on high volume while most of the rest of the consolidation occurs on lower volume.



Profit Targets of Patterns

Another benefit of using these chart patterns is their ability to provide estimated profit targets through pattern height calculations.

In classical charting, profit targets are created by calculating the distance between the highest and lowest points of the pattern. This distance is added to a breakout area for a long-side target and subtracted from a breakdown area for a short-side target.

A larger pattern will provide a larger target. This conceptually makes sense because a larger consolidation will result in a larger move. We go into more depth on pattern targeting in our Trade Management chapter.

Volume

In many of our chart pattern explanations we included descriptions of how volume should behave. It should be noted that volume is an indicator we use solely for equities and indices. When it comes to futures and currencies, we do not use volume to help in the investing process.

The price action and chart patterns themselves stay the same regardless of the asset class, but with equities and indices we find value in having a volume overlay.

Horizontal vs Diagonal Lines

It is also important to note how we view differences between horizontal and diagonal lines in various chart patterns. As a general rule, we believe that a break of a horizontal line is a lot stronger signal than a break of a diagonal line. For example, we would rate a breakout from a rectangle pattern as stronger than a breakout from a symmetrical triangle. The breakout from the rectangle pattern is a break of a horizontal line while a breakout from the symmetrical triangle is a break of a diagonal line.

The reason we prefer breakouts from horizontal lines is because they represent actual places of transactions with active demand or supply. The horizontal line remains unchanged regardless of the passing of time. For example a horizontal line signaling a resistance area will take into account all the overhead supply that has built up in that area. When the price moves to that area, it will have to deal with sellers concentrated there.

The slanting nature of diagonal lines adds a time component which is more or less arbitrary and measures momentum rather than the area where investors get interested on the buy or sell side. The diagonal line and its attached time component provides a measurement of the most recent highs and lows of the pattern instead of absolute highs and lows of the pattern like the horizontal lines. This follows the belief that a breach of the recent highs or lows represents a change in trend. The problem with this methodology is that many times price will breach a recent high or low but be stopped at the absolute high or low of a pattern that would have been signaled by the horizontal line. For example a breakout from downward sloping diagonal line would not account for the overhead resistance provided from the absolute high of the pattern. It is therefore not as strong a breakout signal.

Support/Resistance Lines

Our views on horizontal lines also support our ideas regarding support and resistance lines. Many large patterns' horizontal lines make up the support/resistance lines we view before making an investment. These support/resistance lines are also made by past highs and lows in price.

The theory is the same, these horizontal support/resistance lines represent actual places of transactions with active demand or supply that are not affected by time. But there is a slight caveat to that statement when looking at past market highs/lows as opposed to the highs/lows of a chart pattern. Time does tend to decay support/resistance lines established by previous highs/lows. Many times we will use a 52 week new high/low as a signal that almost all supports/resistances are cleared. In some cases, previous highs/lows from over a year ago will have a strong effect on current action, but in most cases after a year those lines do not have as much influence as the support/resistance areas developed more recently. We evaluate this on a case by case basis, but it is something we keep in the back of our minds.

An important rule regarding support/resistance lines is that broken supports becomes resistances and broken resistances becomes supports. It is also common for markets breaking out from one of these lines to turn around and retest it before moving further. Though this is a common occurrence, it is important to note that the best market moves will never retest their breakouts.

Candlesticks

At Macro Ops, we prefer to use candlestick charts. More specifically, we like to use the trending version of candlestick charts. We believe these types of charts provide a lot more information than the standard bar chart and are especially helpful when evaluating breakouts.

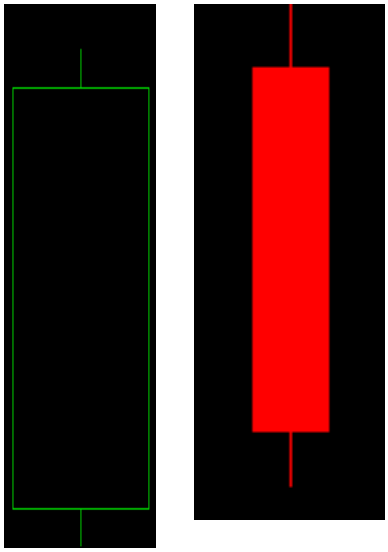
If you are already familiar with candlestick charting, you know the topic is rabbit hole in regards to all the different labels of formations from rickshaws to dojis and everything in-between. We like to avoid all that complexity. We keep our candlestick charting pretty simple.

The main purpose in our use of candlesticks is to evaluate breakouts. When a certain pattern completes and a breakout occurs, we want to evaluate how strong that particular breakout is. The stronger the breakout, the stronger the potential move that results.

As we frequently mention, we are only concerned with closing prices, not intraperiod movements. Candlesticks help put the closing price into the context of a total period's price action. We say "period" because a candlestick can represent any time period from a few hours to a week and beyond.

Before we get into how we evaluate these breakout candles, a quick review of how candlesticks are interpreted will help.

Over on the right is an example of two types of candles. The green unfilled candle represents a move higher and the red filled candle represents a move lower.

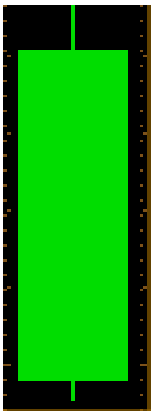


The wicks of each candle are the highs and lows for the period. The high is the highest point of the top wick and the low is the lowest point of the bottom wick.

The length of the body of the actual candle between the wicks along with whether it's filled or not represents the open, close, and directional movement for that period. When a candle is unfilled, it means that the price closed higher than where it opened for that period. This a bullish signal. When a candle is filled, it means that the price closed lower than where it opened for that period. This is a bearish signal.

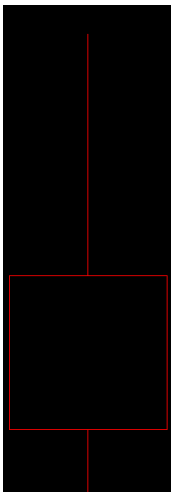
When reading an unfilled candle it can be understood that the bottom of the body is the opening price and the top of the body is the closing price. When reading a filled candle, it can be understood that the top the body is the opening price and the bottom of the body is the closing price.

Apart from the candles above, there can be situations where the total price move contradicts the fill of the candle. For example, as seen to the right, we may see a green candle representing in total a move higher, but is filled at the same time, which means it closed lower than it where it opened.



The move higher is bullish, but the candle being filled weakens the move. The fill is a bearish sign. The market opened higher, but selling pushed the close lower which means the buying was not as powerful as it could have been. Sellers still had some control. This is not an optimal candle.

The opposite can happen with moves lower. Refer to the unfilled red candle.

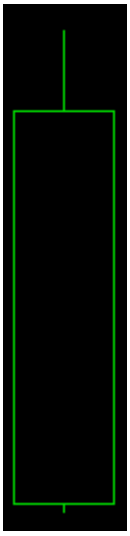


In this example, the market moved lower in total which is bearish, but the market opened lower than where it ended up closing. This means that buyers rushed in and bought to push the price higher from the open. This is a bullish sign and reduces the strength of the bearish move.

These examples help explain how we can evaluate a breakouts price action and close with candlesticks.

When we see a breakout to either side, we want to see either the most bullish or most bearish candle possible.

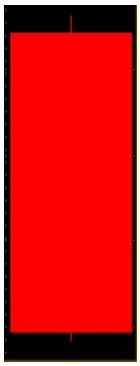
On a breakout to the upside we would want to see something as pictured to right.



The open is very close to the low for the period and then for the rest of the period the price is pushed straight up. It then closes very close to the high. This is extremely bullish and is the type of pattern we want to see in a breakout.

A candle like this on a breakout increase the probability of a strong trend taking place. If we instead saw a filled green candle, we would be more hesitant to take a position or we would at least reduce the size of our position. A filled candle would increase the probability of this being a false breakout and the trend failing.

On a breakout to the downside we would want to see the same thing except in reverse:



The candle opens near the high for the period and then proceeds to drop continuously from heavy selling until it closes near the low. This is very bearish and is great to see for a downside breakout.

The way in which we use candlesticks helps protect us from getting tossed around by false breakouts and other games played in the market. This extra edge helps us stay patient and allows us to get in and stay in the big trends that we are looking for.

Chapter 8: Trade Expression

We explained in detail the three areas of market analysis we use to evaluate ideas. To reiterate, the three areas of market analysis we care about are:

- Macro- What is the overall macro picture (tighten or expansion)?
- Fundamentals- Is there a narrative divergence present?
- Technicals - Is there an attractive long term chart pattern?

Remember, we want investment ideas that scream profit potential to us. As a good rule of thumb, as you dig deeper into an idea you want your conviction to strengthen and not weaken from its initial level.

Our job, apart from controlling risk, is to filter through each hypothesis to find the ones that excite us the most.

Okay, so say we have an idea that clears the three categories. Time to place it on the book right? No, not exactly. We need to execute the idea. We need to convert the hard work into cold hard cash, a gain in the portfolio.

The way a trade idea is executed in the market is a source of edge and alpha in it of itself.

In finance, there is often many ways to “express” the same idea or hypothesis. Sometimes, upon deeper reflection and thinking, you will find a way to express an assumption more effectively than before. The difference in expression may allow you to take less risk, or gain more if correct. Maybe the correct expression also has a 2nd or 3rd order benefit to the overall portfolio. Liquidity and slippage come to mind as well.

Let’s dig deeper.

We are after alpha, and alpha generation comes not only from technical, fundamental and macro analysis but trade expression as well.

For example, say you are bearish on China’s economy. There are many different ways to express this opinion. You can short the large cap ETF FXI, or perhaps short an individual Asian large cap equity that is highly correlated with the broad market movement. It would even be possible to express “short China” by shorting the Aussie dollar because that currency’s strength is dictated by the large amount of exports Australia makes to China.

When choosing an expression we analyze a couple key factors (emphasis on key no need to overanalyze):

1. What vehicle has the most liquidity?
2. What vehicle will move the most for me if my idea is correct?
3. What vehicle will move against me the least if my idea is incorrect?

Usually in trading the more liquid the underlying the better. This allows you to get in and out of larger positions without moving the market and taking a large loss due to the width of the bid ask spread. Also, the more liquid a product the less likely you get hit by slippage on the stop out. Slippage, is the difference between the stop price set into the computer and the price filled at exit.

As longer term traders we are less concerned with this but it is still something to consider. In ultra-volatile situations, the market can become unbelievably illiquid and can slip a stop by a wide amount, something that would impact the bottom line. The more liquid the product, the less likely this happens.

Successful investors know that they need to get PAID when they are right. Only gaining a small amount when your analysis was spot on is almost as bad as losing. You can't afford to miss out on massive gains when the stars align because true fat pitch opportunities only come around a couple of times a year. Part of this, is looking for something that will give you nice movement your way if right. You want to find a vehicle that is very sensitive to your hypothesis if it is proven to be correct.

The flip side of this is to have a vehicle that is very insensitive to an incorrect hypothesis, something that moves against you only a little bit. This will make life easier when it comes to exit the trade with a loss and stay within risk controls.

If you select a vehicle correctly, the underlying will give you a large and fast favorable excursion when you are right and a slow small adverse excursion when you are wrong.

If this concept of expression seems unimportant to the core analysis process, you are right, it comes secondary to the three areas of market analysis but small edges accumulated in this area add up over time and separate the good from the great.

Chapter 9: Trade Management

At Macro Ops, our number one focus is the preservation of capital. Proper trade and risk management is vital to preserving this focus. We are fanatical about this, it is everything. The average trader/investor has the false assumption that successful trading is about picking winning trades. If only they could find a five-bagger they tell themselves, everything would be okay - this is beyond nonsense, it's dangerous.

Trading is a game of probabilities, not certainties. Risk and trade management are the tools that allow you to stay alive long enough to take advantage of these probabilities. Just as the eighth wonder of the world "compounding" works wonders in growing your profits, so too, does it exacerbate your losses. This is why your capital is your life's blood. It is everything, and you need to protect it with your life (or the airtight risk management tools that we'll teach you).

Trade management includes not only how we enter positions, but how we manage these positions once they are on. It covers pyramiding; when and how to build on winners. And also when to take profits and how to exit losers while keeping losses small.

Entries, Close Rule

The first part of any trade is the entry. These are the hard-rules we use to enter positions, giving us the highest probability of success while keeping in-line with our risks-management.

At Macro Ops we don't place trades based on intraday price-action. We base our trading decisions off of prices at the close.

The reason being that closing prices are a much more valid signal, while intraday tends to be mostly noise. Think about it, the closing price is the price at which investors are willing to carry through the night or weekend into the next trading day, while intraday prices can result from just positioning and short-term trading and algos. Take for example a breakout, there are many instances where the price of a security will break the support/resistance line intraday, only to pullback and close within it -- this is called a false breakout. Depending on volatility, an investor can be whipsawed back and forth by these noisy intraday movements.

The best way to avoid this, is to wait for the close to make a trading decisions. This is why we wait for a potential breakout to hold the move by the end of the day and enter at market close. We don't try to predict whether a breakout will be real or not. We wait for

confirmation from price that the close is going to occur in our trigger zone and then we put on the trade.

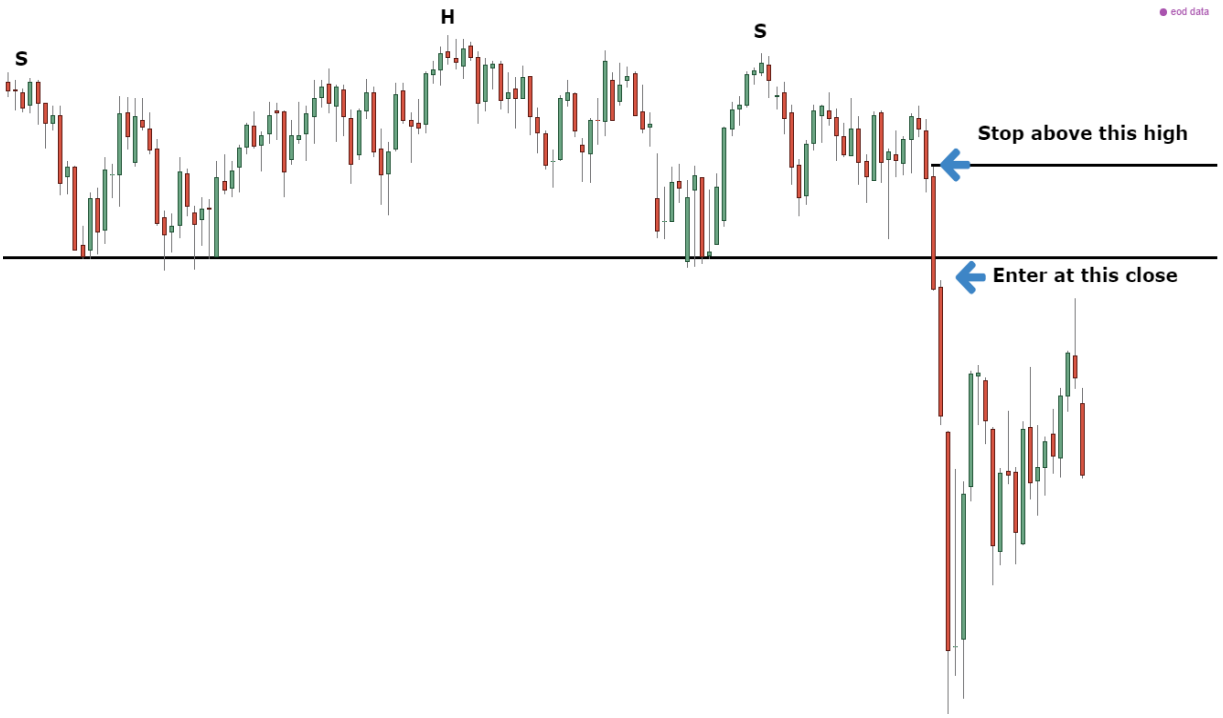
It is important to note that the best trades tend to immediately run after breaking out. False breakouts and retracements are usually indicative of a losing trade. This is why we have no problem buying high on the day of the breakout or selling low.

Risk Points, Stops and the Last Day Rule

Since the best breakouts never look back, we find it a good practice to place our stop at the opposite end of the breakout bar. So, if we enter a trade based on daily price-action, then we'll place the stop at the opposite end of that daily candle/bar. And if we get our entry on a weekly chart the stop would be placed at the opposite end of the breakout of the weekly candle/bar. This is a simple rule but an effective one which we have found gets us out of losing trades quickly and keeps our losses small.

If we feel the breakout bar's low does not give us enough protection behind the breakout line, we will use the low of bar before the actual breakout bar. This is rarely the case, but the discretionary call is made on a spot basis.

To quickly review, we look for breakouts from particular patterns as discussed in our Technical Analysis chapter. When a breakout occurs, a bar will cross the breakout line and close across it. This is what we mean when we refer to the “breakout bar”. We then place the risk point or stop point at the opposite end of the breakout bar.



There are a number of reasons we use the Last Day/Week Rule.

The first is that we have found that many trades tend to flirt with the breakout line after they have broken out. They may retrace and float around that area. Keeping our cutoff point right at the breakout line leaves us too susceptible to being shaken out of a position. Market players (and especially now algos) love to play games and push traders out of their stops by driving price right to the breakout line for a retest of the breakout zone. By implementing the last-day rule, we are being more conservative with our stops and are less susceptible to be knocked out of good trades by meaningless price-action driven by algo stop hunters. The low of the breakout bar or the previous day’s bar helps us establish a spot to put our cutoff point to help protect us from these games.

Profit Taking

When to take profits is one of the hardest problems to tackle in trading. Even seasoned veteran traders struggle with this. A profitable position is one that is obviously going for

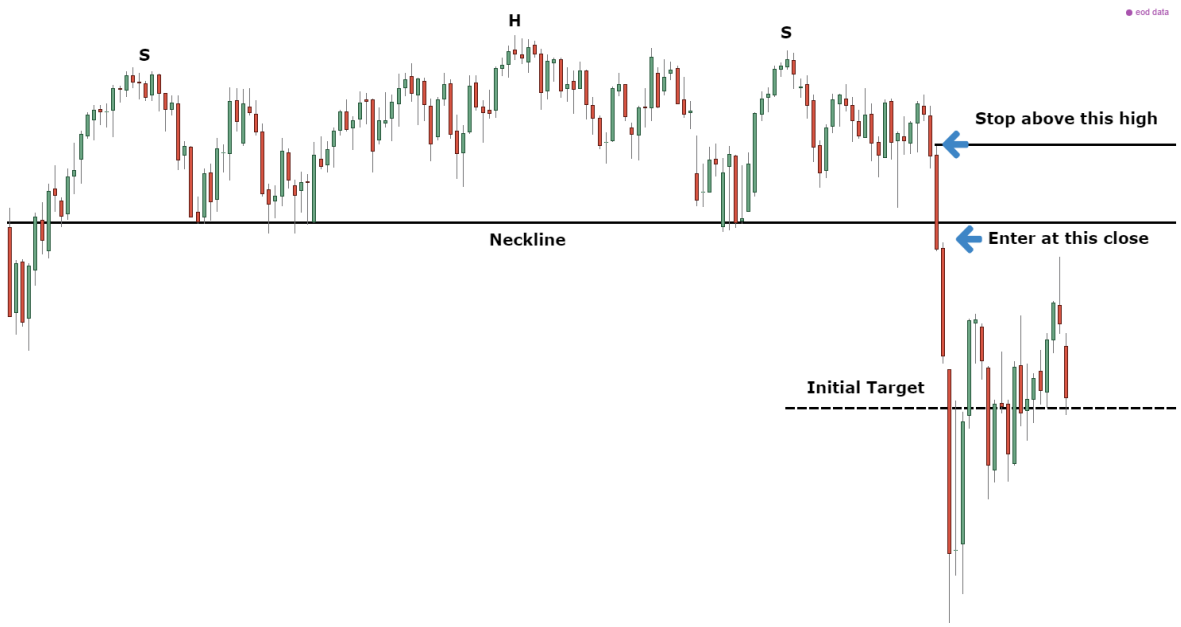
you and generating positive feedback. Usually when a position is in the green, that is a signal to add size or keep holding. Our goal is to be Zen Monk patient with winners and ruthlessly impatient with losers. At some point though, one must book the paper gain into hard cash. Assets don't go up forever or down forever. Eventually the market will move to your forecasted area or state of stability and there will not be anymore edge in holding and being patient -- you have already extracted the alpha.

The best way to approach profit taking is similar to how you would approach entering a trade. At entry we look for a confluence of favorable technicals and fundamentals. The same thing goes for trade exit. There are both fundamental and technical signals and indications that can alert you to the fact that the prevailing trend is likely to end and go sideways, retrace, or simply change direction altogether.

Technical Considerations and Macro Ops' Profit Taking Rules

In the field of technical analysis, price targets are generated by pattern projections or various mathematically defined "oversold" or "overbought" conditions. In classic pattern based technical analysis each price pattern projects a move of where price is likely to resolve and settle.

Markets move in thrusts and consolidations. The size and length of the consolidation is often a measurement of the potential energy of the next thrust. At Macro Ops we use this pattern projection measurement to generate our initial target. Once the initial target is hit we mechanically take half the position off and book half the profits.



In the example above, the distance from the top of the head to the neckline is measured. That distance is subtracted then from the neckline to determine the short trade target. At that point there is a mechanical removal of half the position to book some profits.

Markets are known to move in retracements, similar to waves on the way to price equilibrium. They hardly go straight down or straight up. This is just the natural function of market participants disagreeing on price, so buyers and sellers battle each other which moves prices in an oscillating wave like motion. If a market moves a large distance in a short amount of time it is likely to correct and do some more price discovery in areas which had little time spent trading. This is why taking partial profits at target areas can save the trader or investor a lot of emotional turmoil as he watches price retrace 50% or more before completing the next leg.

Macro Ops strives to stay in good trades for as long as possible and this is why the second half of a position never has a profit target. The second half of each position is held open endedly until a trailing stop is hit.

We use a 20-day new hi or low trailing stop rule. If we're short in a downtrend, we will exit when price makes a new 20-day high. If long, we exit when price makes a new 20-day low. This is a classic trend following rule which we find is a robust way to stay on a trend for as long as possible. Just like entry signals the price candle needs to close at a new 20-day high or low to qualify as an official signal to exit. The close is always the most important part of the candle.

To summarize:

- First half of position taken off at the projection target from the price pattern that generated the trade signal
- Second half of the position taken off at a new 20 day closing low if long or new 20 day closing high if short.

Keep in mind that every once in a while, price will hit our first target and then retrace all the way back to the original stop out point for a loss on the second half of the position. This is a reality in trading that is to be expected.

Fundamental Considerations

Although Macro Ops uses technical rules to generate profit taking points there are certain times where those rules are manually overridden. Here is a brief introduction to fundamental price targeting and how we may use this in certain scenarios.

Fundamentalists are able to generate price targets, more so from a valuation perspective than a price action perspective. Your classic value investor buys things that are “undervalued” given the quantitative and qualitative variables available. Once price moves to a spot where the investor deems the price of the asset at ‘fair value” that is a signal to exit the trade.

Fundamental analysis that does not involve a strict valuation is often looking for a dominant narrative or key drivers that the market is looking at to move price. If the key drivers or situation changes and adversely affects the dominant narrative the position has grounds to be reduced or taken off. Additionally, if the forecasted scenario plays out as expected there are grounds to remove exposure because there is less potential in the trade, because the market has already “made its move” and corrected the divergences previously present.

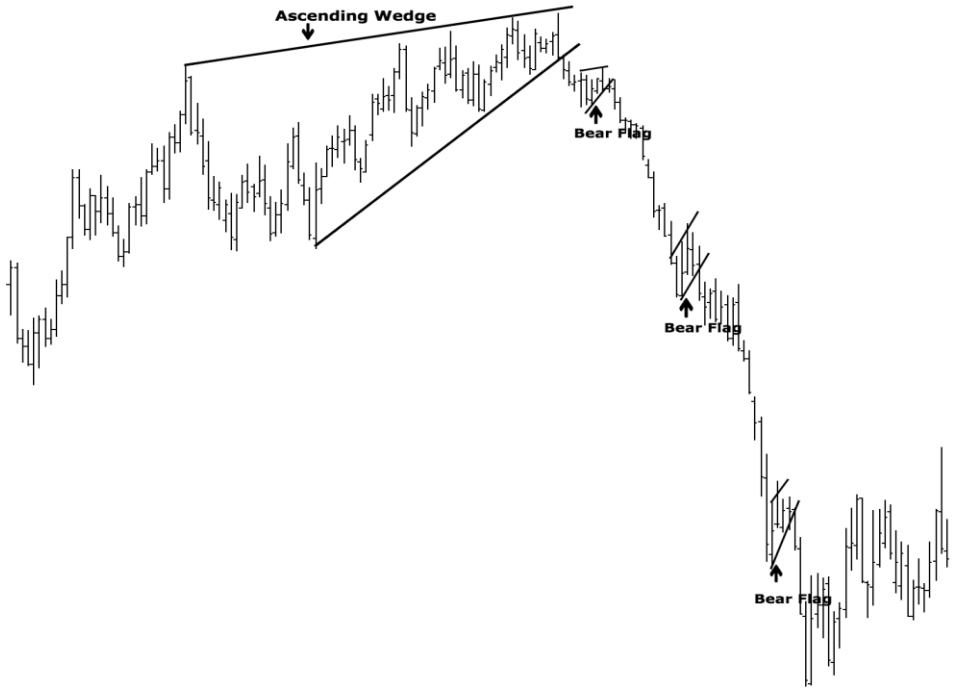
Again, Macro Ops will use technical strategies to manage profit taking but in some circumstances we will discretionarily take profits if there is a big change to the fundamental picture.

Pyramiding

A primary component to profitable trading is learning how to ride the “Big Trends” and to hit all of the “fat pitches” when they come along, taking advantage when opportunity comes knocking is key to superior returns. Since you never want to go and put your whole nut on at entry because that violates our risk-management rules and is a surefire way to end up at the poorhouse, the way to put on large trades is through pyramiding. The proper way to do this is by taking advantage of continuation patterns within a larger trend.

As described in our chapter on technical analysis; continuation patterns are consolidation periods that resolve within the trend. These consolidation periods give the trend a little bit of time to breathe before more buyers/sellers come in and drive price further. During these periods, investors are given an opportunity to build onto their positions. Continuation patterns serve as small inflection points that actually boost the trend when they resolve in the same direction. The flag or pennant is the most common continuation pattern.

The nature of continuation patterns makes them a perfect place to pyramid a profitable position. The risk/reward on these continuation patterns act much like the risk/reward on a normal breakout. We treat each of these continuation patterns as a new position and use the same entry and exit rules as a brand new position. Position sizing is slightly different as the amount of risk is typically smaller or half the size of the original position, but otherwise we keep everything the same in terms of entry, risk points, and exits.



The chart above provides a perfect example of three bear flag continuation patterns that occurred during the downtrend. The original short entry would be at the break of the ascending wedge. An option to pyramid would be appropriate at the breakout to the downside of each bear flag formation.

Chapter 10: Position Sizing

By the time we arrive to position sizing, the idea is very close to execution. It has traveled through each area of market analysis (macro, fundamentals, technicals) and the best expression of the idea has been identified.

We know at this point we want to go short or long asset X but how much of it? 1000 shares? 5000 shares?

Position sizing ranks up with there with the least understood parts of the trading and investing process yet it is not possible to be profitable in the long term without correct position sizing. Position size has drastic effects on bottom line results, causing profitable systems to fail. It also is a key driver of an investor's emotions and psychology. For example, betting too large can cause a fund with a positive EV process to go belly up if they hit a bad string of losers. It is a mathematical certainty that betting too large causes bankruptcy, even for a system that has positive edge.

At Macro Ops, we have adopted bet size parameters from proven veteran managers to ensure we never bet too large, ever. We ensure our longevity and preservation through position sizing. Let that sink in. The most important factor contributing to longevity and preservation is NOT the analysis but the position sizing. This is not an opinion either, this is cold hard math proving the fact. Longevity and preservation CANNOT be achieved without adopting, utilizing, and executing a trading process with sound position sizing rules.

Macro Ops has simple mechanical rules to ensure proper sizing.

- We never risk more than 1% on any given trade. (Always fine to bet less.)
- We only add more exposure to winning trades, and the add is always on less size than the original position.

Before we get into determining exactly how to calculate the share size or lot size (with varying conviction levels) we must elaborate on what exactly "risking no more than 1% of assets" means.

Risk and position sizing at Macro Ops differs drastically from traditional passive money management.

To illustrate this fact let's start with the following statement, "I want to risk 1% of my capital on going long Apple stock. My account size is $100,000."

In traditional money management, the manager would buy $1,000 or 1% of assets worth of Apple stock for the portfolio. This is a classical allocation approach. This is NOT what we do at Macro Ops.

When we risk 1%, it means that if the trade were to hit the pre-planned risk point and stop out we would lose 1% of assets. In this case, we would take a $1,000 loss.

How does this look in practice?

First we determine the breakout entry from the chart. For this example, let's say the entry on Apple is at $98. Next, according to the chart, we determine the risk point via the last day/week rule as discussed in previous sections of this methodology book. In this hypothetical situation let's say the risk point is at $97.

So the math problem to solve is as follows: How many shares of Apple should I purchase so that if my entry at $98 is exited at $97 I lose $1,000?

The correct answer is of course 1,000 shares. A loss of $1 on 1000 shares will create an $1,000 loss or 1% of assets.

Buying 1000 shares of Apple at $98 costs has a notional value of $98,000. In traditional money management terms we are "allocating" 98% of the portfolio to Apple stock, but this is not how we think about risk. The notional value of the position is of secondary importance to the planned risk on the trade. In this particular trade, the planned risk was $1,000 and that is what we are looking to size off of.

So to properly size a position using the Macro Ops method you need to know

- Account size
- Planned entry area
- Planned exit area
- Bet size in percent terms (i.e. 0.5%, 0.75%, 1% etc.)

As you encounter more and more examples of this concept it will start to click and become second nature. For the purpose of convenience to our members, we have created a proprietary position sizing model for our members to use. This model is embedded on the Macro Ops in the members only area and is available for download as well. The online version of the model allows members to enter in their own account size, entry, exits, and other nuances associated with whether or not the trade is exercised with stock, futures, or forex.

Pyramid Sizing

In the case of a pyramid position, one that is an add to an existing winning position, we take the advice from the famous Market Wizard Ed Seykota:

> *"Pyramiding instructions appear on dollar bills. Add smaller and smaller amounts on the way up. Keep your eye open at the top"*

Our first add is always half the size of the original position. The second add is half the size of the first add. Adding smaller amounts ensures that a winning position does not turn into a net loser. We want to avoid having a winner where we pyramid a large amount and then the pyramid stops out creating a net loss by erasing gains already made in the first tranche.

Chapter 11: Post Mortem Analysis

Post Mortem Analysis or Post Trade Analysis is a critical component of any successful trading operation.

Peter Drucker, one of the most famous management consultants of all time is famous for saying:

"What gets measured gets managed."

This exact same principle from the corporate world carries over to the trading and investing business. Tracking and journaling trades is the key to discovering when a process or part of a process is breaking down. The markets are dynamic in nature and it is important to find out what types of trades are having a negative impact on the bottom line and what types of trades and are having a positive impact on the bottom line. With this information, an outdated or faulty process can be identified and quickly fixed.

A novice trader or investor tries to micro analyze each trade. This is the wrong way to go about it. On a per trade basis there is almost no valuable information. Statistically significant information only surfaces when a string of trades is analyzed together. We want to find out kinks or problems in the overall process and adjust from there. Because of the quasi-random nature of the markets the outcome of a single trade will not be a reliable enough data point. You need multiple data points over many months to start creating conclusions that can be used to improve and refine the overall process.

Common metrics we like to look at in post trade breakdowns are:

- Win percentage
- The magnitude of the winner or loser
- EV (Expected Value) over a number of trades
- MAE vs MFE (how much heat versus how much profit the trades took before exit)
- Holding periods for losers and winners
- % 1st target reached
- % 2nd target or aggressive target reached
- Type of setup (wedge versus rectangle versus head and shoulders etc..)
- Asset Class
- Max portfolio drawdown
- Portfolio return
- Accuracy of fundamental assumptions were they mainly proven True or False?
- Accuracy of macro assumptions
- Correlated losses and wins among the portfolio
- Psychological state of the portfolio manager

- Overall level of volatility in markets

It is important to look for patterns and not single instances. The more occurrences, the more statistically significant the information is. Trying to jump to conclusions too prematurely can cause problems because a process can be considered faulty even though it may be going through a normal drawdown period due to tough market conditions.

The more detail in the trade logs the better. Without professionally kept records, it is nearly impossible to improve. Part of keeping a trading edge is the willingness to constantly tweak and improve the investment process. At Macro Ops we do monthly reviews, quarterly reviews, and yearly reviews.

Conclusion

Thanks for taking the time to check out our investment handbook. If you have any questions or comments, please don't hesitate to email us at:

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