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Does Trend Following Work?

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The objective for any investor who wants to be active in the markets is quite simple. How does one make effective decisions in an uncertain and dynamic world? The problem is finding a generalized approach that will work effectively across a broad set of fast-paced asset markets. A realistic approach to decision-making should involve a methodology that reflects a functional world view or philosophy of how markets operate. This approach also should be replicable and tied closely to a system of management which can be structured in a variety of ways to fit a wide set of opportunities. Trend following is an efficient means of decision-making under conditions of uncertainty that reflects the peculiarities of asset markets that can be tailored to different time frames and risk profiles.

Hundreds of articles and books have been written on trend following, all of which purport to show that there are specific methods or formulas which can be used to outperform the market or at least give an investor an edge when one enters and exits trades. There may be just as many articles that show that many of these methods are ineffective. So which result is right? Most likely neither. There is no magic formula for following trends that will work for all investors all of the time. If there is no trend in the market, a trend follower cannot make money. However, many markets do have a tendency to trend, and trend following can be employed as a process for extracting the direction of markets over many time frames.

Well, There Is a Holy Grail: Having a Good Decision-Making Process

So why spend time on developing a disciplined systematic trend-following approach relative to other approaches? Because more important than the attempt to find the magic formula, trend following is an effective method for making good investment decisions. It is this process of making good decisions that in and of itself is the Holy Grail. When done effectively, a good approach will stand the test of time and allow for flexibility with a choice of decisions. This discussion concerns not the how of trend following through specific

models or formulas, but the why of trend following as a decision process for solving problems.

Why Rely on the Trend?

So, here's the question. Why should someone focus on price trends when it seems almost more sensible to employ all of the fundamental information that is available? Why should someone bind themselves to trend models for price moves when they can enjoy more flexibility through discretionary judgments? We seek to provide not a rationalization, but an explanation for why trend following is effective. To understand why disciplined, systematic trend following is a reasonable and rational approach for decision-making, a commentary is needed on how investment decisions generally are made, not how they ought to be made in a perfect world. There also has to be a clear understanding of what markets do and how prices behave.

The classic and formalistic approach to decision-making as taught in most business schools seems easy enough. Generally, the investor gathers all of the information available, formulates a set of alternatives, and weighs all possible scenarios times the probability of them occurring. An investor's forecast is just the probability-weighted average of all alternatives or one's expected best guess of market value.

Unfortunately, this approach seems problematic with how markets operate, how prices are formed and how decisions actually are made in an uncertain world. The aggregation of information in markets is more complex than what is seen in any textbook or what can be accomplished in a perfect world. Gathering all of the facts is time-intensive, laborious work if it can be done at all; and besides, an investor should assume that someone else probably will be better informed. More importantly, there is no certainty that one will be able to interpret all of the information correctly or faster than the next investor. Most information is already incorporated in prices. Perfect knowledge is not the same as having the wisdom to infer the correct market direction. This will be a loser's game especially if an investor wants to diversify over a large set of market opportunities. One cannot be an expert in everything. The individualistic approach of classic discretionary decision-making is quite difficult to employ.

There have been attempts to find expert systems or ways of explaining what experts do; however, the expected value process takes significant information

and time requirements. The methods and type of information gathering also may not be the same for all markets. There has to be a more concise way – or at least a more structured way – of making these intricate decisions. Even with all of the hard work and desire, there may be too much information for processing. An alternative to trying to beat the market with an information advantage is to simplify the problem.

Learn from Other's Actions

We have to, in the words of Nobel Prize winner Herbert Simon, "satisfice" (or learn to make good decisions with limited time and information). One must attempt to find the best possible answer given the many restrictions faced in the complex market environment. For example, though viewed by most traditionalists as controversial, following the crowd or herd is rational when there is significant uncertainty or a lack of information on a problem. We can learn from the action of others. This is especially the case when one may be at an information disadvantage relative to others. Reacting to market events through observing the buying and selling action embedded in price changes is intelligent.

Those who have studied the complexities of decision-making also have discovered very interesting results when observing the behavior of those who face problems of significant uncertainty and complexity. Simple methods may be as effective as complex approaches when you have limited information. In particular, "fast and frugal" methods for making decisions can satisfy our competing goals. Methods that can be implemented quickly and approaches that have limited inputs, so they are easy to use in any situation, are extremely helpful for investors. There can be methods for making decisions that break away from the potential failure from trying to think of all possibilities.

Decision-Making Is Filled with Biases

Making decisions in the real world is more than just a complex problem. It is all the more difficult because most individuals are not naturally good decision-makers. The great message from extensive research in behavioral finance is not that specific market anomalies can be found which are contradictory to the efficient market hypothesis, but the fact that we do not always act rationally or behave like robotic, statistical decision-makers who follow textbook approaches. We have to admit to our own fallibility in thinking and that we are subject to biases.

We are human, which entails concerns about our ability to process information and understand probabilities. We are biased in our thinking about how to formulate a problem. We are biased with our actions of how to implement a trading strategy, and we are biased in our reflections afterwards on what was accomplished. Most certainly, we can fool ourselves with our beliefs. We generally are not good statisticians. We get emotional. We suffer from regret, which often means that we hang onto our losers and sell our winners. We are overconfident in our abilities. The list of our difficulties with making decisions is quite long.

Nevertheless, problems can be overcome with simple methods. We need to apply discipline to our behavior and learn from our mistakes by reviewing our activity. Broadly speaking, we have to employ rules to "hard wire" good behavior. We all would like to be flexible with our decisions. Our streak of individuality begs us to become discretionary traders, but the wealth of analysis suggests that the best way to beat behavioral biases is to monitor our actions and bind ourselves to good practices. The ultimate set of good practices is the use of well-defined rules for behavior or discipline.

Markets Get It Right

The most important keystone employed in the decision process of trend followers is based on some simple assumptions of markets and price. Markets usually get it right in the long-run. If markets are efficient, prices will incorporate all information and eventually move to their true value. Prices incorporate expectations and react to all public and private information that investors use to make their decisions. Markets aggregate all opinions brought to the market with the dollar votes of every participant. Consequently, prices are a complex, weighted average of all the dollar flows committed to specific opinions. Opinions are just that until committed through capital, so the best determinant to find out what the market will do is accomplished through looking at prices.

Nevertheless, saying that markets usually get it right is not the same as saying that they are always right immediately. Markets, while embedding all information from investors, are only a reflection of their actions. When a market is more uncertain, prices will adjust more slowly as a reaction to this ambiguity. When there is nothing going on, prices will not trend. When there is clarity with what new information is present, markets will react quickly with

little ambiguity.

Table 1 describes the states of the market. Unfortunately, prices in efficient markets actually may reflect too much information. The problem for the trend follower is trying to interpret prices – not raw information – in order to find the directional signal of markets. Because the markets move between different states of reflecting information, decision-making is still not easy; however, it may be more manageable than the alternatives. The focus can be placed on what prices are telling us. Interestingly, while aggregating information, markets will still surprise us and make mistakes. It may take time to find the true price, and it also may take time to get to market equilibrium.

TABLE 1: Environment for Trending and Non-Trending Price Behavior

Trending	Trendless
Time of turbulence	Time of market quiet
Divergence from mean	Convergence to mean
Period of market disequilibrium	Period of price equilibrium
Structured memory with prices	Random price action
Mean-fleeing behavior	Mean-reverting behavior

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Price = signal (trend) + noise (error around trend)

Prices can be broken down into two parts, a combination of a signal plus noise. The signal is the price trend. It represents a change in information or state of the true value for a market. The price, as a signal that incorporates information, means that we do not have to know the actual information that is driving the price. We just have to know the signal. The noise is the volatility in price around the signal. This is the movement in price that is not associated with the direction or true value of the market. Sometimes prices move to information, and sometimes they move to price pressure between buyers and sellers. The problem is not gathering new information, but decomposing what prices are telling us within the limitations of effective decision-making.

Trend following as a decision process ties our three views or market assumption together to form an operational model:

• Decision-making is difficult, especially in the face of uncertainty;
• We are fallible and subject to behavioral biases; and

• Markets reflect opinions and information.

The objective of the trend follower is to employ discipline to offset biases in order to extract signals from prices to the exclusion of other information. In fact, this has greater similarity to a statistical or engineering problem than to a finance problem. Because prices are surrounded by or filled with noise, trend following is a form of price smoothing. You eliminate the noise to obtain a clearer signal. It also can be thought of as a filtering problem. You throw out the excess information that may be associated with trades that are not driving the trend signal.

When put in these terms, all trend following tries to smooth or filter noisy prices to decipher the direction of the market over different timeframes using different methods. Most of these well-known models employ some form of measuring the trend signal relative to the noise to determine risk positioning. All of the information is in prices, so it is just a matter of trying to find or filter what is relevant.

J. P. Morgan, when asked what the markets will do, answered, "They will fluctuate." The goal of the trend follower is to find which of those fluctuations are meaningful. However, trend following is more than just modeling or finding the signal. Markets move between periods of convergence or mean-reverting behavior and divergence or mean-fleeing behavior; consequently, there is need for risk management to attempt to limit the downside from false signals. Because markets are not always moving in transition and eventually all trends will end, the importance of risk management can not be underestimated to the process. Risk management tries to limit the losses during the non-trending periods in order for all the models to continue their signal analysis until new dislocations arise and are detected. The form of risk management is a choice based on how prices are filtered relative to noise. When more filtering or smoothing is conducted to prices, it is possible that there is the risk of losing the signal. More information is eliminated, and there will be greater differences between the smoothed price and the actual prices.

Avoid Behavioral Biases

But trend following is more than price smoothing with risk management. It follows a disciplined approach in order to offset the behavioral biases. By stopping out losses on the downside, problems of regret or overconfidence are

minimized. Holding positions as long as trends continue eliminates other biases. Being systematic allows for repetitive success and can eliminate the behavioral biases that could overtake a discretionary trader who too often will have ego and overconfidence attached to his or her decisions.

When combined in a complete system of signal extraction and risk management, the decision process employed by trend followers can look very much like a portfolio of call and put options. There is limited downside through the use of stops. Yet, there is the opportunity to gain from prices diverging or moving away from the mean. Observers have noted that trend following is like being long a straddle or a long volatility trade. Profits will be generated when markets move to extremes. The resulting portfolio will create a distribution which has positive skew or a higher probability of a significant upside return relative to a normal distribution.

What Markets Are Better for Trend Following?

Not all markets will be good for trend following. Some markets are more efficient than others, and some markets have noisy behavior that makes it difficult to implement an effective trend-following strategy. Nevertheless, we have found certain principles for where market trends are more likely. Overall, those markets that have greater uncertainty will more likely have trends because it is harder for investors to decipher what information is telling us about price. This environment creates greater risk aversion. Markets that have fewer substitutes also generally will trend because demand or supply shocks cannot be offset easily. Markets that have fewer analysts or less information also will be more likely to trend. Markets that have more liquidity-based trading associated with hedging or indexing also will have a tendency to trend. By picking these markets on which to focus one's activity, the chances for success in trend following will increase.

Why Follow Trends?

When combined in a systematic fashion with disciplined risk management, it is an effective decision process in an uncertain world. This does not mean that trend following is any easier than discretionary trading. In fact, the discipline required for repetitive success may be harder to develop than the trader who wants to live by his wits. However, as a process, these models can be very effective. It is simple. It can be implemented quickly and can employ a limited number of inputs. It can offset many of the behavioral biases found with any decision-making. It also can take advantage of market efficiencies

through focusing on prices where opinions are aggregated. Trend following is not the solution to all decision-making, but for those who are willing to commit to a disciplined and systematic approach, it can serve as an effective foundation for finding the right directional signals.

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