

PERRY KAUFMAN

SMARTER TRADING

Improving
Performance
in Changing
Markets



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Changing Markets

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Preface

You can't dig a new hole by making the old one deeper

Trading is a difficult business. Finding a way to build steady profits takes long, hard work or very good luck. Sometimes the effort fails; no matter how much energy is applied, there is no answer to be found. Other times, a successful program has only a short lifespan before the market changes. *Smarter Trading* tries to be realistic about how to find broad-based trading strategies that can survive change. It uses a *lateral* solution rather than a *vertical* one.

Vertical and Lateral Solutions

A *vertical solution* is where each new part reinforces the previous work. A *lateral solution* is where the parts fit side by side, resting on their own foundation. Think of searching for buried treasure. You know it's in the back yard. You can dig one hole deeper and deeper or dig a series of holes in different places.

An 50-floor skyscraper is a vertical solution to living space. Building on the same foundation makes the final result dependent on all the previous work. But markets change causing some assumptions to fail. The top of the building becomes very fragile when you start removing bricks from the middle.

The *lateral solution* builds a wide base by taking the pieces, each one of which can stand on its own and combining them side-by-side into a single structure. None of the parts are complicated and none of them duplicate another piece. If one part fails, the others continue to work.

A Lesson from Supercomputers

At one time, the biggest “supercomputers,” used only for high-powered research, were the creation of a few brilliant engineers. They became so sophisticated that each wire and connection between parts needed to be as short as possible to enable the electric current to travel at maximum speed. The main processing units were designed as a sphere so that each wire was an equal distance from the center.

Faster computers are now built with a lot of slower, off-the-shelf parts. In this design, called “parallel processing,” the slower components operate on different parts of the problem at the same time. The computer companies that had invested tremendous resources in building complex systems were put out of business by someone who simply divided the problem into many little pieces and solved them using inexpensive, ready-made parts.

Not all problems can be divided into many small parts, but most can be divided. This book will teach the most important lessons about different aspects of trading, including profit-taking, trends, stops, risk and return, and testing methods. Using any one will improve results; using all of them will improve performance even more.

Looking for What Is Not There

Omissions cause the biggest problems, and they are the hardest to find because they are not there. The mind’s eye often fills the empty spaces with what it *expects* to be there. In the same way that we fill these omissions, we often overlook repeated, small events. We do not hear the ticking of a clock that once seemed too loud.

We will try to understand what to expect, then question the results that are either much better or worse than expected. We are always fast to look for ways to fix losses, but slow to question profits.

Learning is the result of experience. You do the best you can to analyze the problem, find a solution, and see if it works. Most often it

does not work the first time because you failed to see the complete picture, underrated the importance of some factors, or missed an important part altogether. That is the normal way things work. Do not assume that anyone comes up with the perfect answer without trial and error. The process is not glamorous, but it is necessary. Being successful means being tenacious.

Wandering from the Path

Lateral thinking benefits from not following one path. It may take the best from each area, applying those parts in which we have great confidence, rather than developing the “ultimate” indicator. As we get more complicated, the benefits derived from the effort become questionable, and the solution may not be as lasting. Making very small improvements takes much more time and effort once you have extracted the essence of an idea. It is often a good time to switch to another approach when you feel that your efforts are becoming unproductive.

One approach to lateral thinking is to reverse an idea. For example, baby Jane—by playing with the ball of wool—is annoying Grandma, who is trying to knit. A likely solution would be to put baby Jane into her playpen where she cannot reach the wool. Another solution would be to put Grandma and the wool into the playpen to protect them from baby Jane. Either solution could work although most people would not consider asking Grandma to get in the playpen. Later in the book, we look at using the worst test results rather than the best.

Lateral thinking is results oriented. The goal is to get the best answer. A lateral solution often develops from a stumbling block, a point where you can no longer go forward. You shift to another area where there is a possible solution. In doing this, you may discover that parts of each direction can work together to create a better result.

Generalists

We will try to keep our perspective about the value of the techniques used to build a robust trading strategy. We will be generalists, rather than specialists. We want to know, “Should we take profits or should we wait for a trend reversal?” We could always find one case where taking profits is better than staying with the trend. Our objective is to find out if it is a good rule in most cases.

It is unproductive to try to prove that an exponentially weighted trend is better than a simple moving average. Does the accuracy of one approach really make a difference to the direction of prices? If a system worked using an exponential calculation but did not work with a simple moving average, one would be forced to question the validity of the "trend." As a realistic analyst, I can say that all techniques are imperfect but many have value. When you are estimating answers, you should not calculate them to the 10th decimal place.

Realists

In dealing with a market problem, we must ask if we are looking at the real cause of the price move. Patterns may be coincidental. Even if we know the cause, can we predict the result? Throughout this book, we will return to the need for a logical solution, rather than one that is computer-generated.

Trading programs cannot be perfect, but we need to know what to expect. Is a stop-loss a good way to control risk, or does it only give us unfounded confidence? It is not important whether a stop-loss is good or bad, only that we know the right answer.

This book will also present some new ideas, such as an adaptive, or self-adjusting, moving average and a detailed plan for creating a robust trading program. In the spirit of a lateral solution, it will take a new look at simple ways to improve most trading models, extracting the essential aspects from each idea. Examples will use forex, futures, stock, and stock index markets to show how readily these techniques apply to all markets, and trading in general.

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P.J.K.

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PART 1

How Changing Markets and Technology Affect Results

1

The Impact of Change on Markets and Trading

This book is about how to improve your trading in the stock, foreign exchange and futures markets. Although many technical solutions and spreadsheet applications appear in these pages, *Smarter Trading* is really about making decisions and solving problems. It will identify why many trading strategies and forecasts fail and will show how to improve results and create more lasting solutions.

The approach taken here tries to be realistic; trading systems have limitations, as do the tools and the traders. The techniques for improving profits and assessing risk focus on those areas that offer the greatest improvement, rather than the subtleties of fine tuning. Most of the more difficult topics are concerned with risk. Experienced traders usually know what to do with profits; even for novice traders, profits often take care of themselves. It is an unreasonably optimistic attitude toward risk that gets many traders into trouble; therefore, sections of this book keep returning to risk evaluation and control. We're in this for the long term.

Changing Factors Affecting Markets and Prices

Recent years have seen political and economic changes of large proportion. The emergence of China, the instability of the European Monetary System, and the faltering of Russia are all poised to produce massive changes in trade. At the same time, technology has made immense

advances. More powerful computers come in smaller packages. Prices can be displayed for any time period in an array of multicolored windows.

Methods that once worked do not work anymore. IBM stumbles, patterns change, markets are more volatile than ever, and even seasons are not the same. Program trading has been declared “disruptive” all over the world. Traders sit behind screens in massive bank trading rooms, surrounded by high-powered displays, looking for arbitrage opportunities between any two markets in any two countries. All this continues 24 hours each day.

This evolution of markets is a structural change that moves in only one direction. The introduction of the automated exchanges in the United States and United Kingdom aren’t anomalies, but a trend. Eventually, the floor traders will disappear—not all at one time, but edged out by automated exchanges that will surround them and slowly infringe on the sanctity of even the largest trading floors. Adapting may take more effort than simply retesting a program, adjusting for inflation, or changing the value of a stop-loss, but it cannot be ignored.

Along with increasing complexity is additional competition. Floor traders once had the advantage of being aware of every price tick. Now we can recall prices and volume instantly, and catch up on market action even when we have been away from the picture for hours or days. It requires more to compete successfully. This book will help identify the problems. It will provide solutions and an understanding of new tools and how to use them.

Changing Technology for Market Analysis

Advances in technology have caused great changes in the trading industry. New tools and techniques are absorbed quickly. The goal of improving returns by a fraction of a point has tremendous rewards,

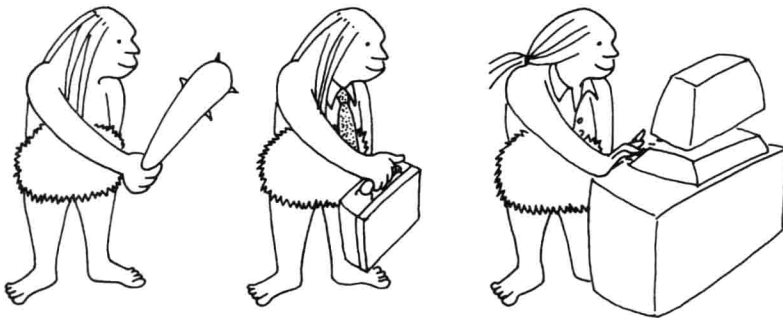


Figure 1-1. Technology evolves, markets evolve.....

enough to motivate and finance major research projects. And as machines increase in their ability to process more of everything, pushing those limits becomes a compulsion.

There is also a fascination with the new tools and the ability to display graphics and analyze prices. Real-time data from all over the world is being processed at speeds measured in nanoseconds. We can do more faster and cheaper, even when we're not always sure what we are doing.

Fundamentals at the Root

"Fundamentals" will always be the reason for price change. Fundamental analysis is the study of information that can influence corporate earnings, dividends, and interest rates, resulting in a price change. In both stock and commodity markets, forecasts are the result of comparing current and past economic data, and determining the effects of government policy on interest rates and growth. Unexpected events introduce volatility and uncertainty.

In general, the direction of stock prices is related to the health of business, which might include data on the Gross National Product (GNP), Consumer Price Index (CPI), retail sales, employment, and interest rates. If the economy is expanding, you can expect equity markets to rise. It is still a challenge to look further for the industries and sectors that will perform independently, or without correlation, to the market as a whole.

Supply and demand determine the price of goods and materials: how much there is versus how much is wanted. The more material, the lower the price; the more that is wanted, the higher the price. The fundamentals of price change are clear. It is the changes in those factors or the anticipation of change that causes prices to move.

One of the first computer applications for price forecasting used a technique called *multiple regression* (Box 1-1). Data on imports, exports, production, consumption, interest rates, inflation, technology, and other essentials could be analyzed in conjunction with the price. Fundamental analysis *explains* what has happened in the past by assigning "weighting factors" to the information put into the computer. If you don't put in the right data, you don't get a good answer. Putting in too much data isn't as bad, but it takes a longer time to process. Sometimes, too much data allows the computer to find answers that are only coincidental, which we call "overfit."

The answer to a regression analysis is assigned a *confidence* level, which indicates its accuracy. It is stated as "plus or minus" an error factor (e.g., interest rates will drop to 5½ percent \pm 1 percent by May).

Box 1-1. DETERMINING A COMMODITY PRICE WITH FUNDAMENTALS

A simple regression model calculates a commodity price from the history of fundamental factors. In this example, the price of soybeans is simply the weighting of supply and demand:

$$\text{Est_Price} = \text{constant} + (\text{weightS} \times \text{supply}) + (\text{weightD} \times \text{demand}) \pm \text{error}$$

where Est_Price is the current estimated value

supply is the total production

demand is the total distribution

error is the error reflecting the accuracy of the results

and constant, weightS, and weightD are calculated using a regression program.

Data from 1964 to 1975 gives constant = -1.64, weightS = 3.97 and weightD = 0.81, indicating that changes in the supply of soybeans, represented by the much larger value of weightS, are much more important than demand. The error factor would be large because only a few years were used in the calculation.

A regression analysis of fundamental data tells where prices *should* be, in the same sense as an option fair value calculation. It is very structured and provides only a single price range, which is considered “normal.” It may not include data that cause the market to anticipate changes.

In general, this classic approach is not helpful to a trader because it says nothing about risk. If the current price level is below the calculated one, but prices start to fall instead of rise, when do you say that something is wrong? The forecast only shows where the price should be; it does not tell anything about how it will get there.

Fundamental analysis still makes sense, but it remains the domain of institutions and long-term traders. It requires a well-capitalized investor to absorb fairly large equity swings during periods when less important factors cause market volatility. For others, the risk is too high, the analysis takes too much time and effort, and the profits are too far off.

This method of econometric analysis can be applied to the stock index, but not to individual shares; however, results are still very general.