Book Review

PERRY KAUFMAN TRADING STRATEGY
A Guide to Creating a Successful Algorithmic Trading Strategy

Book Review & Interview by Mario Valentino Guffanti, CFTe

Algorithmic trading, a systematic method that utilizes mathematical models for making transaction decisions in the financial markets, is a global phenomenon, but the subject is a complex one[1].

Stock exchanges began transitioning from a traditional auction to computerized transactions in the early 1980s. In the late 1980s and early 1990s, Electronic Communication Networks ("ECNs") became increasingly popular for traders looking for more efficient access to the markets.

In 2001, IBM researchers published *Agent-Human Interactions in the Continuous Double Auction*[2]. The research paper found that in a Continuous Double Auction market process, simple software bidding agent-strategies were able to outperform human subjects by a clear margin, setting the stage for the high-frequency trading, an algorithmic trading approach characterized by high speeds, and widely used today in the financial markets.

In 2011 Fixnetix developed a microchip that can execute trades in nanoseconds[3].

Many academic studies have assessed the pro and the cons of Algorithmic Trading and some findings indicate that algorithmic trading improves liquidity and increases access to quotes[4].

Empirical evidence to date generally suggests that high-frequency trading has improved market quality during normal times. What is not clear is the role of high-frequency traders during episodic periods of market crashes and extreme volatility[5]. In Forex markets, scholars find a clear evidence that algorithmic trading causes an improvement in some measures of price efficiency in that market[6].

In a more complex world, where applications of technology can offer the non-institutional investor some definite advantages, knowledge of algorithmic trading can help any trader have a more disciplined and realistic approach to the market. In addition, the individual investor, as Perry Kaufman writes in his new book, and the subject of this article, can do a better job getting diversification and controlling risk than big players because it's easier to manage a small amount of capital.[7]

Perry Kaufman began his career as a "rocket scientist," first working on the Orbiting Astronomical Observatory (OAO-1), the predecessor of the Hubble Observatory, and then on the navigation for Gemini, later used for Apollo missions, and subsequently in military reconnaissance. There is a certain connection between the construction of a trading program and the world of rockets; in fact, the earliest systematic programs used exponential smoothing, a technique developed in Aerospace for estimating the path of missiles. In the early 1970s, he started trading using automated systems while the idea was demeaned by professional traders as "ridiculous", "the market just doesn't work that way", "you can't make money if you don't know the value of the stock"[8]. Now that opinion seems to have been turned upside down.
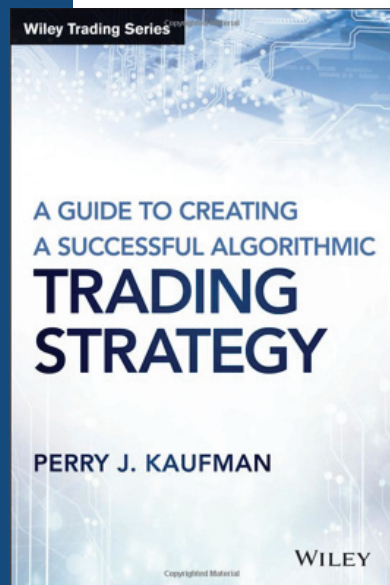
Perry Kaufman is definitely one of the scholars of reference in the field of technical analysis with regard to trading systems. One of the cornerstones of Kaufman's work has been the book, *Trading System and Methods*, first published in 1978, and considered "the most authoritative and comprehensive work" in the industry.

I reviewed the last edition of this work in our Summer 2013 Journal[9] , and I'm quoting it because this new book represents the other side of the coin: a short and quickly readable book (*Trading System and Methods* was a two kilos book with 1,212 pages, while this new book can be read in a day), that deals with the most important issues needed to develop a successful trading system.

This new book is not a summary of the previous book, and, even if in a first reading the content might seem simple, it is not simplistic. I believe that those who are not familiar with the subject of Trading Systems will find a clear process in order to understand the issue and know how to begin, but those who already have some experience will realize that the work is dense with concepts that come from years of experience and repeated field trials. So, it is true that this book can be read very quickly, but you should read it a second time in order to fix some very important concepts that derive from the author's experience and that might have been overlooked in the first reading.

Let's Look to the Structure of the Book

The first chapter contains the ground rules and the objective of the book: to deal with the most important issues of developing a successful trading system in a short and readable way, containing the critical steps that you could learn over time, often doing them wrong at the beginning. Each chapter contains, in the author's opinion, the best way to deal with the various aspects of creating a trading system.

A schematic process of developing a trading strategy with eight well-defined steps is included. The last chapter (18), the summary, contains all the items that the author thinks you should not forget and which are described in detail in chapters 2 to 17.

THE INTERVIEW

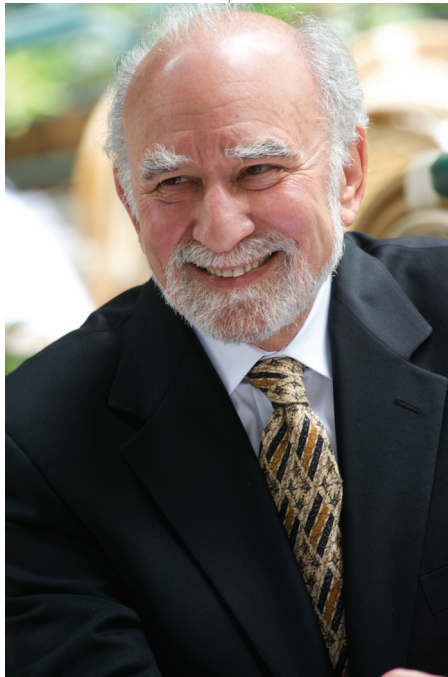Let's explore now some concepts of the book with the author:

Mario V. Guffanti (MVG): "Hi Perry, it's a great pleasure having you again for an interview about your new book "A Guide to Creating a Successful Algorithmic Trading Strategy".

Perry J. Kaufman (PJK): Thank you, Mario. It's always my pleasure to speak with you.

MVG: "You wrote in your book that in the early 1970s, you started trading using automated systems and the idea was demeaned by professional traders as "ridiculous". Now the opinion has changed but also the situation of the financial markets is no longer the same: however, what has remained unchanged in the use of trading systems?"

PJK: There are two extremes in algorithmic trading that haven't changed, long-term trend following and arbitrage. We always knew that arbitrage was well-suited to automation. You can quickly calculate the difference between two similar products trading in different physical locations and place an order to exploit any large anomalies. On the other end of the spectrum, we understand the logic behind macrotrends, that is, tracking interest rate policy, but the proof of it needed time. Now we can look back over 40 years and see that it not only worked, but it was a robust solution.

MVG: "What is the reason that brought you to write this new book?"

PJK: I give presentations to groups of investors, academics, and financial associations, often about a specific trading method, portfolio management, or just risk. I was always surprised that, during the question session at the end, I would get questions that were not related to the presentation, such as how do you size a position, and how do you decide if a system is robust? I also get questions from readers of my books. I decided that I needed to write a book specifically dealing with just those questions. Of course, they all related to developing a trading system, which is what I do. So this is my attempt to give back to all those traders who want to know the answers, but don't want to first get an MBA in Finance to understand them.

MVG: "I like your quote that the idea to build a trading system must match your trading personality, your way of trading. In the chapters where you explain how to construct a Trend Strategy and an Intraday Trading Strategy there are a lot of little steps left out of the examples for the sake of simplicity. Your declared goal was to give an outline to follow, and review the most important points: if I gave more than that, I would be creating a system for you, which is contrary to the principle of "teaching a man to fish". From the other side I read in the last times some books about trading systems that use the opposite approach, that is to describe in detail a complete trading system and explain in the meanwhile all the theoretical process: does not it could be in some way misleading for a novice player?"

PJK: I feel strongly that you should not trade a system that you don't fully understand and you have proved its validity yourself. Yes, that takes time. But if you don't do that, you won't have confidence in what you're trading and you'll run after the first serious loss.

I have also found that systems that are given in detail (some that you need to buy) don't work. When I listen to a seminar about a new trading system, then program it myself, I can never get the returns that are advertised. Often, I can't even get a profit. It may be that the system only works on one market, and I need it to work on a minimum of other similar markets, and I am constantly disappointed. But to be a realist, people don't give away a successful trading system. The best you can hope for is to understand the idea behind the method, then put it in your own terms and test it. So I listen to webinars seeking ideas, not specifics. From my view, ideas are the valuable commodity for a developer or trader.

MVG: "You wrote that short-term trading systems can be more complex than trend following: can you explain why?"

PJK: You can make money with the simplest long-term trend following method, either a moving average, a breakout, or a linear regression. The only difficult part is accepting the risk of holding the same position while it moves up, then down, then up, and down again. Basically, no matter what features you add, it's simply a long-term trend.

With a short-term system you're dealing with a different dynamic. There are no trends, just noise and various short-term bursts of momentum. And those bursts are erratic in length. Even the simplest short-term system requires that you have good entry timing, because the trade isn't held long, and profit-taking, because market noise means that you don't have confidence that prices will keep going in the same direction.

Then you need to pick the markets to trade. The best ones tend to be the equity index markets because they have the most noise; the worst are the short-term interest rates, which are trending. So there are more moving parts in a short-term system just to get started.

MVG: "Speaking about trends, you say that trends exists because there is no consensus among investors and also that it's getting harder to find a trend. How can Algorithmic trading help us with these topics?"

PJK: It's harder to find the trend because most markets are getting noisier. If you are a quant, extracting the "signal" in a noisy price series takes more data. So we need to wait longer to tell whether the trend has really started. The same is true at the end of the trend. It needs to make a bigger turn in the opposite direction to tell that it's over. If you use a longer-term trend, say 80 days or more, you'll still find it successful, but the net return will be smaller than it was 20 or 30 years ago. If it takes you longer to get in and longer to get out, the net gain is smaller, but it's still a gain. In my opinion, trying to identify a trend using a chart and ruler is going to be a much more uncertain process.

MVG: "Why did you dedicate an entire chapter to Futures?"

PJK: I love futures! That's where I started. And it has leverage, which makes it easier to manage risk. I also like

them because they represent entire industries -- soybeans, interest rates, equity index. Futures have very different price moves than stocks because they move on significant events, such as supply disruptions, Fed announcements, and economic reports. Stocks are more difficult because any company can vary from the industry due to margins, management, legal costs, and scandals. That makes price movement less certain, not something you can anticipate. My recommendation is that an investor should participate in both markets because they offer important diversification.

MVG: "You think that anxiety is more important than potential gain. You'll never realize the gain if you can't stay with the program. A great part of the book is dedicated to the topic of managing the risk and there is a chapter entitled "I don't want no stinkin' risk". What is your forma mentis on this topic?"

PJK: I think there is an evolution in the way investors see risk. When they are young they don't care much, but as they age and get experience, risk takes on a much bigger role. The most important concept is that you can't eliminate risk. If you have a trading system that has great gain and very low risk, look again. The risk has to be proportional to the gains. Of course, some will be better and some worse, but "no risk" is not one of the combinations. You can also move risk around, remove it in 2008 and it shows up in 2010. My advice here is "don't trade a system until you have seen the risk." For example, a system that returns 8% annualized will probably have a drawdown of at least 16% over its history. If you don't see that, the history isn't long enough. It's only when you know the risk that you are prepared to trade a system and stay with it.

MVG: "You dedicated your 5th edition of "Trading Systems and Methods" to your wife Barbara, and in the preface you thank Barbara for her everlasting support that is only enhanced by rolling her eyes whenever you say that "this is my last book, ever." Any comments about that?

PJK: Mario, if I make a comment about that, she won't talk to me for a week.

1 Algorithmic Trading could be related to decision making strategies, the topic of this article, but involve also other techniques as algos to working large orders to minimize market impact or strategies which are more specific with High Frequency Trading, like monitoring a flow of quotes to identify information not yet published in the news, or sending millions of quotes to an exchange, but getting executions only on 1% or less.

2 *Agent-Human Interactions in the Continuous Double Auction* - Rajarshi Das, James E. Hanson, Jeffrey O. Kephart and Gerald Tesauro, Institute for Advanced Commerce, IBM T.J. Watson Research Center - The Proceedings of the International Joint Conferences on Artificial Intelligence (IJCAI), Seattle, USA (August, 2001);

3 http://blogs.wsj.com/marketbeat/2011/06/14/wall-streets- need-for- trading-speed- the-nanosecond- age/

4 *Does Algorithmic Trading Improve Liquidity?* - Terrence Hendershott, Charles M. Jones, And Albert J. Menkveld - August 30, 2010 - Journal of Finance, Vol. 66, pp. 1-33;

5 *High-Frequency Trading: Review of the Literature and Regulatory Initiatives Around the World* – K. Chung, A. Lee - December 1, 2015 - Asia-Pacific Journal of Financial Studies;

6 *Rise of the Machines: Algorithmic Trading in the Foreign Exchange Market* - Alain Chaboud, Benjamin Chiquoine, Erik Hjalmarsson, Clara Vega - July 5, 2013;

7 P. J. Kaufman – *A Guide to Creating a Successful Algorithmic Trading Strategy* – Wiley – 2016 – p. 65;

8 P. Kaufman, op. cit. p. 2;

9 M. V. Guffanti - A Book Review & Interview with Perry Kaufman – The Swiss Technical Analysis Journal – Summer 2013 ed. – pp. 11-15;

Mario Valentino Guffanti, CFTe is a Financial Advisor, Certified Financial Technician and Researcher and also a lecturer in Technical Analysis. He is the Vice President of the Swiss Italian Chapter of the Swiss Association of Market Technicians (SAMT).