

Alpha Power: The Implementation

Abstract

This paper is an extension to my previous work which has finally arrived at the implementation phase. It presents in chronological order simulations performed on 3 different data sets with performance metrics. The purpose is to demonstrate that when the [Alpha Power](#) trading methods are applied to real market data, they do even better than their theoretical settings or in tests performed on randomly generated data series as developed and described in my previous papers.

$$W_{\alpha}(t) = (1 + \bar{L}_i)(1 + \bar{B}_i^{t-1})^{t-1} Q_o^i (1 + \bar{g}_i + \bar{T}_i + \bar{C}_i)^{t-1} P_o^i (1 + \bar{r})^t$$

The above equation represents my simplified mathematical model of the trading strategy. It builds on the Buy & Hold strategy to which is added enhancers and boosters to achieve higher performance under a long term controlled trading environment.

Author: Guy Roland Fleury.

e-mail: rolandfleury@sympatico.ca

web: <http://www.pimck.com/guyfleury>

Acknowledgement: Special thanks go to Murielle Gagné for her support and numerous comments while writing this paper.

Introduction

In late October 2007, I released a research paper in which I tried to explain the workings of my trading methodology for a system developed in Excel on randomly generated price series ([Alpha Power: Adding More Alpha to Portfolio Return](#)). My intention was to provide a description of the trading system without naturally giving away the code itself. All I wanted to show was that the trading methods used could way outperform the Buy & Hold strategy and to do this it was necessary to modify some old portfolio management precepts. In it was proposed an *alpha* accelerator which produced an exponential Sharpe ratio changing the very nature of the risk/reward equation.

The performance obtained on tests using random price series required some understanding of the processes in motion and a reasonable explanation that would fit within Modern Portfolio Theory. The document elaborated a theoretical framework where in order to explain obtained results there was a need to modify some basic tenets of portfolio management theory. It culminated in expressing a trading system in a single equation (equation 16) in order to explain results. In route to its conclusion, it advanced that one could generate *alpha* following trading procedures optimizing inventory holding functions.

The paper proposed to add an *alpha* accelerator to the Sharpe ratio which would transform the ratio from a linear to an exponential equation meaning that you could improve exponentially your reward to risk ratio over time. It was a minor change to a 50 some years old equation but a major improvement to modern portfolio theory, at least I thought so. The proposition was: not only there were *alpha* points but they could be gained through self-directed trading procedures. You wanted more performance; you put more pressure on your controlling functions.

In my second paper in November 2008 ([A Jensen Modified Sharpe Ratio to Improve Portfolio Performance](#)), an even more elaborate mathematical framework based on Stochastic Portfolio Theory (SPT) was presented. This paper was intended to incorporate what was elaborated in the *Alpha Power* paper into a set of stochastic differential equations which would again explain why and how the trading procedures worked. This paper also ended with a restatement of equation (16) from the original paper ([Alpha Power](#)). The focal point of the paper was a set of equations which when preset would control the trader's inventory management behavior. To explain test results, it was required to advance an increasing Sharpe ratio over time, just as in the first paper.

Both these papers made bold statements: one could increase portfolio performance without necessarily increasing risk, and one could control the inventory functions in such a way as to outperform market averages. The Jensen modified Sharpe ratio had dramatic implications requiring the restatement of equations accepted for decades by Modern Portfolio Theory advocates.

The next phase was to simply implement the trading system on real market data. But it did not go that fast. I was sidetracked by other research of importance to the trading method like trying to determine appropriate and optimum position sizing methods integrated within a total trading solution.

And then I stumbled on Schachermayer's notes (2000) and his expression of the pay-off matrix. I was very impressed with his work and had to convert to his mathematical view of trading systems. I immediately started expressing my trading methods within his mathematical formulation. The transition was very easy; all my trading formulas were simple plug-ins. It demonstrated that the holding function (stock inventory) was the central point of interest and that what was most important was how you managed your stock inventory in time. For me, in final analysis, it was all a quest for a simple answer to two questions: why it worked and how it was done.

And finally I was ready for the implementation phase: testing on real market data. The walk forward was out of the question. It would take years (for a long term system) to demonstrate that it worked as planned and by then you would have wasted all those years. What was left was simulation over past data. The trading methods described in my papers have over-diversification as a risk minimization measure. It's this over-diversification approach that can protect the portfolio against any singularity like a stock going bankrupt.

So groups of stocks were selected for testing from what WL members were viewing at the time, and the old [Wealth-Lab 4](#) site simulation platform would run the scripts directly on the WL site.

The testing environment was simple and effective for my purpose. There was no way to cheat. All you could do was provide your trading script what ever it was as long as it contained no bugs and that it could operate within the timeout delay (about 2 minutes). You could select a stock or a watch list on which your script could operate. What ever the outcome, good or bad, those were the performance results generated by the script.

What is Alpha Power?

Alpha Power is a trading methodology developed and refined over the years to become a total portfolio management solution. It was designed to meet some key objectives:

- to greatly outperform the Buy & Hold strategy,
- to accumulate shares over time while doing so,
- to trade market swings over its accumulative functions,
- and to accept other functions that can boost performance.

Its outstanding feature is that it is based on predefined trading procedures; mathematical functions that trigger entry and exit points. This is not a system responding to usual technical or market indicators. It makes no price predictions. It's a portfolio level trading system with pre-determined trading behavior. What's fascinating about this trading strategy is that instead of trying to predict future prices, it determines beforehand at the inventory level the quantity of shares to be held in the portfolio.

It's a trading methodology and a trading philosophy backed by a mathematical model. My current working model looks like this:

$$W_a(t) = (1 + \bar{L}_i)(1 + B_i^{t-1})^{t-1} Q_o^i (1 + \bar{g}_i + \bar{T}_i + \bar{C}_i)^{t-1} P_o^i (1 + \bar{r})^t$$

There is a lot of power built in the above equation which operates at the portfolio level (say 50 stocks or more). It can raise portfolio performance to new heights; way beyond the Buy & Hold strategy. It is all about compounding rates of return. The equation above is a simplified version of equation (16) from my first paper: *Alpha Power*. Let's take a closer look.

Buy & Hold Needs a Boost

The basic tenet is that the old Buy & Hold strategy of investing is not really dead; it only needs a boost. The primary objective of the *Alpha Power* trading method is to accumulate more shares over time than what would have been put in the Buy & Hold. The reasoning is simple and as a trivial example; consider that if at the end of a trading interval you have 2 times more shares than in the Buy & Hold, then you have 2 times more equity in your portfolio.

It all starts with the Buy & Hold equation: in one of its representations, an initial capital is invested in i selected stocks making up the portfolio growing at their respective compounded rate of return over a long term horizon.

$$W(t) = \sum_1^i Q_o^i P_o^i (1 + r_i)^t \quad \text{Buy \& Hold wealth equation}$$

$$W'(t) = \sum_1^i 2 Q_o^i P_o^i (1 + \bar{r}_i)^t \quad \text{Trivial Alpha Power equation}$$

The above two equations resume the situation. You can not change the price; it is the same for everyone. You can not change the time, it is just there and also the same for everyone. Ah! The rate of return can be different for everyone: yes. But Modern Portfolio Theory states that the most likely outcome for the expected long term rate of return for a diversified portfolio is simply the market average; which translates to close to the same for about everyone.

If you want twice as many shares in your portfolio twenty years from now, you will have to buy them sometime over this same investment period. To make things simple, say we start with 1,000 shares as initial stake, you would need to buy 50 shares per year to reach your goal. And you would have to compensate for the fact that those purchases are done at a different price than the initial price. Where would the money come from? Answer: from the excess equity buildup. As price rises you use the paper profits to buy more shares. For example, take \$100,000 invested in the Buy & Hold and having 10% compounded return over the 20 year investment period (the secular market average). This will grow your portfolio to: \$ 672,750; and of this total, \$ 572,750 is in paper profits that have gone unused. The *Alpha Power* methodology will use part of this excess equity to buy more shares and thereby achieve higher return than the Buy & Hold. It will even add boosters, enhancers and accelerators to improve performance even further.

The central idea in the *Alpha Power* methodology is to use the excess equity buildup instead of letting it go to waste. It proposes to use part of the paper profits in a controlled manner to boost performance.

The Original Alpha Power Paper

The original [Alpha Power](#) paper (2007) provides the basic understanding of the method in action. The first objective is to accumulate shares long term at a compounded rate using the profits generated by the rise in the stock price. The accumulation process itself can be controlled to a great extent using mathematical equations.

My first attempts at controlling functions were of the linear type. They represented an increase in performance but it was not enough. I wanted more and on the principle that if it could be done using linear equations, it was just a small step to start using quadratic or exponential equations. Going exponential was a better idea, at least in the beginning it surely sounded more profitable.

Going Exponential

From linear, I went exponential. And from there, the method progressed to the point where it became a whole trading system in itself, a process that could be controlled, automated and which could produce results that would very easily outperform the Buy & Hold. The method was generating *alpha*.

$$W''(t) = \sum_1^i Q_o^i (1 + \bar{g}_i)^{t-1} P_o^i (1 + \bar{r}_i)^t \quad \text{Original Alpha Power equation}$$

The idea was to increase the inventory on hand at a delayed growth rate: using part of the accumulating profits to acquire more shares. This way, the terminal wealth would grow as the product of two exponentials and part of the excess equity buildup would be put to more productive use. But it was not enough, more was needed.

By adding a short term trading component you could push performance higher.

$$W''(t) = \sum_1^i Q_o^i (1 + \bar{g}_i + \bar{T}_i)^{t-1} P_o^i (1 + \bar{r}_i)^t \quad + \text{short term trading}$$

And having the stock inventory building up over time, you could overlay a covered call program which would also have the ability to push returns higher.

$$W''(t) = \sum_1^i Q_o^i (1 + \bar{g}_i + \bar{T}_i + \bar{C}_i)^{t-1} P_o^i (1 + \bar{r}_i)^t \quad + \text{covered call program}$$

In this last equation, the accumulation, trading and covered call programs have been converted to their respective average rate of return contribution to the wealth function. Having a positive trading strategy coupled with a positive covered call program would clearly contribute to overall performance.

Was This The Limit?

Not at all! You could add leverage and incremental position sizing which would increase the bet size as the portfolio grew in value.

$$W_a(t) = \sum_1^i (1 + \bar{L}_i)(1 + \bar{B}_i)^{t-1} Q_o^i (1 + \bar{g}_i + \bar{T}_i + \bar{C}_i)^{t-1} P_o^i (1 + \bar{r}_i)^t$$

The above equation, my latest *Alpha Power* trading equation, has quite a few components contributing to the overall performance. All of which when taken separately can boost performance. When taken all at once, they have an exponential multiplicative effect except for the leverage factor which is linear. Setting all the enhancement parameters to zero will make the above equation revert to its origin: the Buy & Hold equation.

When looked as a whole, the last equation represents the *Alpha Power* trading method which is designed to do the following:

- Accumulate shares over the long term at an exponential rate
- Trade short to mid term market cycles over its inventory accumulation program
- Scale in and out of positions as a way to average in and out

- Run a covered call program over its increasing inventory
- Increase its incremental bet size over time according to portfolio size
- Add leverage to boost performance
- Reinvest part of the profits generated by the accumulation, short term trading and covered call programs into accumulating more shares which in turn generate more profits to be reinvested in accumulating more shares...
- The more a stock rise in price, the more all these functions will push performance higher.

Each programmed function can contribute to the overall performance as compared to the Buy & Hold. Should the price of a stock not rise, its inventory stays the same or declines. Applying all these procedures will result in having the biggest positions in the highest rising stocks in the portfolio while having the smallest bets on the worst performers. The whole process seems to act as a portfolio asset allocation function.

You still don't know what the future will bring. You still don't know which stocks will outperform. You still don't know how much profit any of the stocks will bring. But based on your preset trading behaviour, you know what you are going to do when the price of the stock triggers one of your entry or exit points. You did pre-program your whole trading behaviour from the start after all.

The Jensen Modified Sharpe

The [Jensen Modified Sharpe](#) paper (2008) provides the mathematical backdrop for the accumulation program and part of the position sizing functions. On pages 30 to 33 is provided the equation set needed to determine the required capital, the quantity that will be purchased and the profit that will be generated based on the price differential. The first derivative of the required capital equation will even give at what price the maximum requirement will be reached. It therefore provides the answer to how much capital will be needed to achieve your preset goals based on your method of play.

The method of play is predetermined as a reaction to price movements; from initial to incremental bets, all is preset. The trader's reaction to market moves is therefore determined from the start.

Based on these equations, the method starts by taking a small initial bet. If the price increases, other small bets may be triggered. Should the price not rise, no additional bets are made and should the price fall; a stop loss might be generated on the small bet.

In the beginning, because of the small initial bets, portfolio volatility is greatly reduced as the majority of the portfolio is still in cash. With a rising price, more

shares will be bought as the shares on hand will already show a profit. With time stocks will get to a point where the inventory on hand is the same as the initial quantity invested in the Buy & Hold strategy. At which point both methods have the same equity on hand. But the game does not stop there. While the Buy & Hold might stand still (quantity wise), the method keeps on accumulating shares as prices continue to rise. It continues to use the excess equity to acquire more shares. It even gets to a point where the added profit generated by the ongoing increasing inventory is more than enough to pay for the shares being added to the portfolio as if the market was paying for the accumulation program. Again see the [Jensen Modified Sharpe](#) paper for a more elaborate view.

Alpha Power Trading Methodology

Using the *Alpha Power* trading methodology, you preset what you want to get out of the market from the start. You put it in mathematical form, equations that govern your trading behavior. Should the price behave in such a fashion as to run the course of your preset equations then it would have been like knowing in advance the sum of profits that would have been generated. When stocks behave at a lesser price differential, they see their portfolio weight decline. The method rewards the best performers the most.

You want more profits; you raise your objective functions knowing how much more capital will be required to accomplish the task as well as how much profit might be generated. Again, the [Jensen Modified Sharpe](#) paper provides the governing equations on pages 30 to 33. The paper also suggest that the equations provided are not the only ones that will work; once one is found, whole families of such equations can also be found.

When considering all the above from the point of view of my last paper: The [Trading Game](#), any asset could be chosen to be part of the portfolio. In fact any asset at all that can be bought, that can be sold when you want to and that can appreciate in time can do the job. It's the ability to use the excess equity that seems to matter most.

A Trading Philosophy

It becomes a trading philosophy where instead of trying to predict every market move, you sit back and wait for the market to respond to your preset equations. Your participation in the market is on your terms. You have designed your own game within the game. When a price triggers a stock purchase you know it is based on your holding's increasing valuation and you know that passed a certain price, it's the market itself that will be footing the bill (see [Jensen Modified Sharpe](#) paper).

A set of equations govern the trading behavior. And as a side effect, non-performers are eliminated as they represent only small bets on losing trades. Whereas, the best portfolio performers have their positions size increase in proportion to their advance. This is not just buy low and sell high, it is buy low (no, no, no; it is just buy), buy higher and higher and higher. But let the market prove that it has reached the higher price level first.

So, how high can you push your long term portfolio return? I would say, quite high and on your own terms. I am still in the implementation phase. All the tables presented will deal with the accumulation and position sizing algorithms. In all the tests provided, there was no leverage used, all trades were for 5k and no covered call program implemented.

What follows is my continued quest of what started as the *Alpha Power* project over 4 years ago; my search to explain in mathematical terms what I was already doing in Excel. In the beginning, it was like having the answer to a problem but without knowing the reason why. In order to prove to myself that the obtained results were indeed valid, I needed to formulate the mathematical foundation that could explain what was going on inside all the trading procedures.

The Implementation Phase

After over 4 years of setting up the mathematical foundations of the *Alpha Power* methodology, it was time to start its implementation; time to test on real market data, and hopefully at the same time improve upon the trading methods.

I started my *Alpha Power* implementation phase around mid-March. It took a long time to get there. It seemed I was always sidetracked by something or other. I first wanted to prove to myself mathematically that the concept worked. After all, it worked in my randomly generated stock price series (refer to my original papers). I would at times hit a mathematical wall so to speak; not being able to express in mathematical form what I had in mind. For those that have read my papers, you simply don't get up in the morning saying: what you need is a matrix of stochastic differential equations to represent your holding functions. You first need to get use to those things. Nonetheless, the math is there to corroborate that the *Alpha Power* trading philosophy is based on a serious and solid foundation.

In plain text, the method advocates only a few simple concepts: buy and hold for the long term, but do it progressively on the way up. If you have a short term profit, take it and reinvest the proceeds to accumulate more shares. This way you will trade market cycles to your advantage over your long term holding objectives; you have for primary purpose to hold for the long term anyway. Use the paper profits (the excess equity buildup) to acquire even more shares on the way up (which can also be sold for a profit to reacquire more shares). It took over

three years to say those things in math and demonstrate that these procedures would increase overall performance way above the simple Buy & Hold strategy.

This led to the first implementation. I needed some kind of trend definition since my methods buy on the way up. The initial search on the old WL site had the *Trend Checker* script by Gyro (2004) in the list. Knowing the author's work, I thought it would be a good starting point: it had a trend definition. And all I was looking for is something saying uptrend and downtrend.

My first modifications to the script were to look for a better trend definition and then integrate my own trading methods to the existing script. The modifications made the script a totally new script with different settings and trading philosophy. I was looking for performance...

The Modified Gyro Trend Checker Script (first implementation)

Testing Period: From about July 2005 to April 20 2011 (1500 bars or 5.83 years)						
Stock #	Initial Cap	Stock	Position Profit	Annual Return	Initial Allocation	Ending Allocation
1	100,000	AAPL	726,239	43.62%	2.33%	2.01%
2	100,000	ADM	108,687	13.44%	2.33%	0.51%
3	100,000	AGQ	805,807	45.90%	2.33%	2.21%
4	100,000	AMZN	760,119	44.61%	2.33%	2.09%
5	100,000	BHH	1,073,400	52.52%	2.33%	2.86%
6	100,000	BIDU	2,345,100	72.98%	2.33%	5.95%
7	100,000	CCK	324,404	28.12%	2.33%	1.03%
8	100,000	CF	750,570	44.34%	2.33%	2.07%
9	100,000	CMG	1,048,500	51.96%	2.33%	2.80%
10	100,000	CRDN	182,635	19.50%	2.33%	0.69%
11	100,000	CSX	424,633	32.86%	2.33%	1.28%
12	100,000	DBS	501,072	36.00%	2.33%	1.46%
13	100,000	DDS	722,006	43.49%	2.33%	2.00%
14	100,000	DIT	876,697	47.80%	2.33%	2.38%
15	100,000	ERX	221,493	22.16%	2.33%	0.78%
16	100,000	GLD	305,898	27.15%	2.33%	0.99%
17	100,000	GTLS	527,310	37.00%	2.33%	1.53%
18	100,000	IBM	254,179	24.21%	2.33%	0.86%
19	100,000	IMAX	1,500,300	60.85%	2.33%	3.90%
20	100,000	IPGP	1,009,100	51.06%	2.33%	2.70%
21	100,000	JNPR	359,188	29.86%	2.33%	1.12%
22	100,000	NFLX	3,058,600	80.74%	2.33%	7.69%
23	100,000	NTES	606,041	39.80%	2.33%	1.72%
24	100,000	PAAS	251,110	24.02%	2.33%	0.85%
25	100,000	PANL	1,407,900	59.22%	2.33%	3.67%
26	100,000	PCLN	4,081,600	89.65%	2.33%	10.18%
27	100,000	SCCO	427,438	32.98%	2.33%	1.28%
28	100,000	SINA	1,568,300	62.01%	2.33%	4.06%
29	100,000	SLV	609,588	39.92%	2.33%	1.73%
30	100,000	SLW	1,092,700	52.95%	2.33%	2.90%
31	100,000	SOHU	850,295	47.11%	2.33%	2.31%
32	100,000	SRZ	453,716	34.10%	2.33%	1.35%
33	100,000	TBL	680,228	42.22%	2.33%	1.90%
34	100,000	TDSC	1,101,000	53.13%	2.33%	2.92%
35	100,000	TRMB	385,211	31.10%	2.33%	1.18%
36	100,000	TRN	238,540	23.25%	2.33%	0.82%
37	100,000	TSCO	720,606	43.45%	2.33%	2.00%
38	100,000	TZOO	1,739,400	64.74%	2.33%	4.48%
39	100,000	ULTA	808,973	45.99%	2.33%	2.21%
40	100,000	URI	505,356	36.16%	2.33%	1.47%
41	100,000	WLK	825,730	46.45%	2.33%	2.25%
42	100,000	WTW	356,464	29.73%	2.33%	1.11%
43	100,000	XOP	175,014	18.94%	2.33%	0.67%
						100.00%
Total:	4,300,000	Profits:	36,771,147			
		Init Cap:	4,300,000			
		Total Portfolio:	41,071,147	47.24%	CARG	

Test from July 2005 to April 20 2011. Presented April 21st.

The results of my first draft on the 43 stocks did just that; they were presented on the WL board on April 21st with a 47% compounded return over the 5.83 years test period (1500 bars). The next day, just to make the point, I put out another group of 43 stocks with an annualized return of 48%. Both tests were based on the *Gyro Trend Checker* script found on the old WL 4 site. Naturally, I broadly modified the script not only to include my own trading methods but to change the trend definition to better suit my purpose. You intend to accumulate shares on the way up; you need something that says the short term trend is up. It does not need to be accurate, only that somehow a stand is made; an uptrend declaration is given.

The results of both tests way outperformed the Buy & Hold to such an extent that I don't think any of the over 1800 scripts on the old WL site could even come close. The modified script was intended to seek in time full market exposure as it accumulated more shares. It also traded market swings over its accumulative process.

The Modified Gyro Trend Checker Script (second data series)

Testing Period: From about July 2005 to April 21 2011 (1500 bars or 5.83 years)										
Stock #	Initial Cap	Stock	Position Profit	Annual Return	Trades	Winners	AVG Profit	Losers	Average Loss	Buy & Hold
1	100,000	AAU	1,177,866	54.77%	128	104	11,435	24	-472	9,252
2	100,000	AKAM	291,111	26.34%	111	72	4,322	39	-515	12,233
3	100,000	ARUN	1,264,715	56.52%	67	53	24,027	14	-623	6,948
4	100,000	ASYS	893,205	48.22%	114	89	10,131	25	-339	23,707
5	100,000	ATML	1,010,447	51.09%	111	94	10,818	17	-380	25,280
6	100,000	BIDU	2,742,498	77.50%	75	62	44,377	13	-684	55,288
7	100,000	CAM	371,866	30.47%	108	86	4,424	22	-390	13,707
8	100,000	CAT	363,138	30.05%	85	68	5,410	17	-279	8,870
9	100,000	COOL	1,459,401	60.14%	148	111	13,358	37	-631	-2,717
10	100,000	ETN	311,656	27.45%	101	81	3,916	20	-278	5,442
11	100,000	FFIV	803,694	45.84%	84	61	13,339	23	-433	17,548
12	100,000	FIRE	365,345	30.16%	77	50	7,529	27	-412	2,930
13	100,000	GMC	4,042,202	89.34%	86	71	57,002	15	-329	151,350
14	100,000	HK	324,859	28.14%	132	100	3,383	32	-419	10,186
15	100,000	HNL.TO	560,373	38.21%	103	80	7,114	23	-381	1,481
16	100,000	IDCC	435,633	33.34%	136	109	4,057	27	-242	9,529
17	100,000	IGTE	787,352	45.39%	94	77	10,322	17	-436	18,729
18	100,000	LTXC	474,821	34.96%	119	43	12,917	76	-1,061	-1,211
19	100,000	LULU	1,119,394	53.53%	60	48	23,476	12	-622	12,605
20	100,000	MELI	324,554	28.13%	47	39	8,471	8	-725	10,149
21	100,000	MENT	343,952	29.11%	132	96	3,732	36	-397	2,770
22	100,000	MFL.TO	351,815	29.50%	106	83	4,360	23	-439	6,017
23	100,000	MGH	933,837	49.25%	133	109	8,691	24	-563	4,414
24	100,000	MSN	554,631	38.00%	161	88	6,941	73	-770	-284
25	100,000	NDSN	448,077	33.86%	76	62	7,314	14	-386	13,000
26	100,000	PFCB	232,742	22.89%	151	93	2,682	58	-287	-660
27	100,000	PNRA	484,775	35.36%	104	82	5,993	22	-301	6,022
28	100,000	PTI	318,703	27.82%	118	72	4,654	46	-357	-243
29	100,000	QCOR	4,378,859	91.89%	93	75	58,498	18	-468	138,559
30	100,000	QLTY	499,013	35.92%	94	57	9,134	37	-584	591
31	100,000	REDF	667,813	41.83%	120	69	10,405	51	-983	3,188
32	100,000	RVBD	802,200	45.80%	89	69	11,747	20	-416	17,017
33	100,000	SCSS	2,369,847	73.28%	125	48	50,743	77	-855	-610
34	100,000	SF	422,416	32.77%	104	81	5,308	23	-327	19,412
35	100,000	SFLY	1,123,348	53.62%	89	70	16,156	19	-397	12,117
36	100,000	SHS	1,207,091	55.37%	102	80	15,198	22	-392	10,522
37	100,000	SPRD	1,424,961	59.53%	47	39	36,622	8	-413	1,796
38	100,000	SVVS	621,231	40.31%	97	70	9,052	27	-460	20,560
39	100,000	TLEO	400,775	31.81%	94	74	5,525	20	-406	7,742
40	100,000	TPX	1,428,730	59.60%	108	85	16,969	23	-594	10,475
41	100,000	UA	510,981	36.38%	93	75	6,916	18	-427	10,317
42	100,000	UTEK	493,827	35.71%	136	106	4,734	30	-266	3,423
43	100,000	VSEA	313,273	27.54%	101	80	4,018	21	-390	8,759
Total:		4,300,000	Profits: 39,457,028						Profits:	686,209
			Init Cap: 4,300,000						Init Cap:	4,300,000
			Total Portfolio:	43,757,028	48.84%	CARG			CARG:	2.57%

Test from July 2005 to April 21 2011. Presented April 22nd.

Alpha points are very expensive and very hard to get. Most of the current literature on portfolio management can demonstrate mathematically that *alpha* points, if there are any, will tend to zero long term. And yet, there they were; *alpha* points gained by trading skills alone; by a set of mathematical stock holding functions. The literature on Modern Portfolio Theory, has demonstrated again and again that what ever holding function you wish to design, in the long run, its difference from the Buy & Hold will be minimal, meaning tending to zero. I've opted to jump over that limited view of the game.

After having transformed the script for my first implementation iteration; I realized that I needed to run the original script, as is, for the record; saving a copy of the results and all the charts produced. How could I compare performance without having the results of the original script? How could I show that the modifications I made to the script were the reason for the outperformance? So the same data set as my first implementation was used on the original version of the Gyro Trend Checker script.

The Original Gyro Trend Checker Script

Testing Period: From about July 2005 to April 22 2011 (1500 bars or 5.83 years)										
Stock #	Initial Cap	Stock	Position	Annual	Trades	Winners	Average	Losers	Average	Buy & Hold
			Profit	Return			Profit		Loss	
1	100,000	AAPI	14,487	2.35%	12	5	4,204	7	-505	43,214
2	100,000	ADM	6,375	1.07%	15	7	1,205	8	-258	5,283
3	100,000	AGQ	23,677	3.71%	7	3	8,427	4	-401	69,827
4	100,000	AMZN	18,025	2.88%	11	6	3,259	5	-306	22,122
5	100,000	BHH	3,565	0.60%	20	7	1,298	13	-425	11,679
6	100,000	BIDU	58,397	8.20%	12	5	13,221	7	-1,101	55,019
7	100,000	CCK	4,556	0.77%	17	6	1,309	11	-300	7,254
8	100,000	CF	49,236	7.10%	8	6	8,483	2	-830	38,721
9	100,000	CMG	15,570	2.51%	13	6	3,217	7	-533	26,253
10	100,000	CRDN	7,576	1.26%	19	5	2,901	14	-495	6,101
11	100,000	CSX	8,012	1.33%	14	7	1,615	7	-470	14,977
12	100,000	DBS	7,876	1.31%	13	5	2,119	8	-340	12,452
13	100,000	DDS	22,908	3.60%	15	4	7,216	11	-541	5,083
14	100,000	DIT	11,652	1.91%	18	3	6,778	15	-579	11,104
15	100,000	ERX	6,491	1.08%	8	3	3,831	5	-1,000	7,162
16	100,000	GLD	4,611	0.78%	14	7	852	7	-194	12,180
17	100,000	GTLS	21,514	3.40%	10	5	5,182	5	-879	11,290
18	100,000	IBM	4,119	0.69%	17	7	883	10	-206	7,474
19	100,000	IMAX	21,194	3.39%	13	5	5,356	8	-661	14,928
20	100,000	IPGP	16,595	2.67%	12	4	5,034	8	-443	8,075
21	100,000	JNPR	4,306	0.73%	19	5	2,173	14	-469	3,675
22	100,000	NFLX	20,405	3.23%	15	7	3,510	8	-521	103,719
23	100,000	NTFS	2,127	0.36%	22	7	1,348	15	-487	15,660
24	100,000	PAAS	2,158	0.37%	20	9	835	11	-487	8,418
25	100,000	PANL	19,698	3.13%	17	6	4,195	11	-498	25,526
26	100,000	PCLN	31,746	4.84%	10	4	8,770	6	-555	108,171
27	100,000	SCCO	11,698	1.91%	16	6	3,156	10	-724	26,922
28	100,000	SINA	10,859	1.78%	23	6	3,286	17	-521	18,414
29	100,000	SLV	9,398	1.55%	13	6	1,973	7	-349	11,436
30	100,000	SLW	15,734	2.64%	16	8	2,451	7	-654	62,724
31	100,000	SOHU	9,842	1.62%	17	5	3,200	12	-513	23,341
32	100,000	SRZ	13,427	2.18%	15	7	2,917	8	-874	-2,951
33	100,000	TBL	4,045	0.68%	22	6	1,758	16	-406	1,318
34	100,000	TOSC	11,686	1.91%	19	4	5,691	15	-738	10,480
35	100,000	TRMB	7,118	1.19%	15	7	1,642	8	-547	8,854
36	100,000	TRN	9,336	1.54%	18	7	2,237	11	-575	5,960
37	100,000	TSCO	5,450	0.91%	18	9	1,102	9	-496	9,733
38	100,000	TZOO	27,954	4.32%	20	4	9,417	16	-607	11,867
39	100,000	ULTA	15,523	2.50%	6	2	8,954	4	-597	3,863
40	100,000	URI	10,830	1.78%	15	6	2,962	9	-771	3,108
41	100,000	WLK	9,923	1.64%	20	6	2,597	14	-404	7,923
42	100,000	WTW	9,943	1.64%	14	6	2,127	8	-352	4,411
43	100,000	XOP	3,011	0.51%	14	8	1,114	8	-459	4,000
Total:	4,300,000	Profits:	592,954		551	247		406	Profits:	866,766
		Init Cap:	4,300,000						Init Cap:	4,300,000
		Total Portfolio:	4,892,954	2.24% CAGR					CAGR:	3.20%

Test from July 2005 to April 22 2011. Presented April 22nd.

Using the original script as is, the performance for the group of selected stocks was not enough to even beat the Buy & Hold strategy. It had a 38% hit rate and a 62% stop loss execution rate. However, one positive point was that it had a profit on every stock on the list which should be considered better than most but still not enough to warrant its use as a trading vehicle. Why work when a money market fund can outperform all the time spent developing your trading strategy which can not even beat the Buy & Hold?

More Improvements

It took only a few days of added modifications to push performance higher. At these levels, *alpha* points are even harder to get. But nonetheless on the same two data sets, performance rose to 55% and 54% respectively.

Improved Version Gyro Trend Checker Script (second data set)

Testing Period: From about July 2005 to April 21 2011 (1500 bars or 5.83 years)									
Stock #	Initial Cap	Stock	Position Profit	Annual Return	Trades	Winners	AVG Profit	Losers	Buy & Hold
1	100,000	AAU	1,542,193	61.57%	160	136	9,638	24	8,823
2	100,000	AKAM	326,655	28.24%	135	88	3,998	47	12,423
3	100,000	ARUN	1,909,675	67.26%	93	79	20,534	14	7,159
4	100,000	ASYS	1,103,877	53.19%	130	104	10,697	26	24,721
5	100,000	ATML	1,348,884	58.14%	130	113	11,994	17	27,196
6	100,000	BIDU	3,736,430	86.87%	88	75	49,938	13	55,019
7	100,000	CAM	456,047	34.19%	139	117	3,971	22	13,749
8	100,000	CAT	536,798	37.35%	111	94	5,761	17	9,103
9	100,000	COOL	1,964,221	68.03%	183	147	13,503	36	-2,648
10	100,000	ETN	417,760	32.56%	125	105	4,032	20	5,471
11	100,000	FFIV	1,066,601	52.37%	96	76	14,149	20	19,466
12	100,000	FIRE	518,874	36.68%	99	70	7,574	29	3,010
13	100,000	GMCR	5,612,001	100.06%	110	95	59,126	15	154,299
14	100,000	HK	459,304	34.33%	158	126	3,751	32	10,709
15	100,000	HNL.TO	692,369	42.59%	124	101	6,942	23	1,552
16	100,000	IDCC	571,094	38.59%	162	136	4,246	26	10,103
17	100,000	IGTE	898,914	48.37%	107	90	10,070	17	18,843
18	100,000	LTXC	653,816	41.38%	148	57	13,212	91	-1,135
19	100,000	LULU	1,448,654	59.95%	76	64	23,377	12	13,039
20	100,000	MELI	481,634	35.23%	62	54	9,027	8	10,275
21	100,000	MENT	459,550	34.34%	162	125	3,795	37	2,876
22	100,000	MFL.TO	458,453	34.29%	133	110	4,260	23	5,638
23	100,000	MGH	1,173,493	54.68%	155	131	9,061	24	4,450
24	100,000	MSN	557,231	38.10%	187	100	6,256	87	-523
25	100,000	NDSN	603,588	39.72%	93	79	7,709	14	13,457
26	100,000	PFCB	297,797	26.71%	187	117	2,724	70	-676
27	100,000	PNRA	668,274	41.84%	135	113	5,972	22	5,866
28	100,000	PTI	380,151	30.86%	144	77	5,234	67	-436
29	100,000	QCOR	5,151,204	97.20%	105	87	59,306	18	151,996
30	100,000	QLTY	690,908	42.55%	114	73	9,783	41	958
31	100,000	REDF	958,816	49.86%	147	93	10,912	54	3,727
32	100,000	RVBD	993,445	50.69%	103	87	11,511	16	18,369
33	100,000	SCSS	3,856,912	87.86%	159	94	41,366	65	770
34	100,000	SF	494,862	35.76%	120	97	5,179	23	20,032
35	100,000	SFLY	1,424,751	59.53%	106	87	16,463	19	12,461
36	100,000	SHS	1,607,580	62.65%	127	105	15,392	22	10,578
37	100,000	SPRD	1,785,407	65.44%	59	51	35,073	8	1,855
38	100,000	SVVS	771,252	44.93%	114	87	8,996	27	21,143
39	100,000	TLEO	540,365	37.48%	115	95	5,773	20	8,042
40	100,000	TPX	1,871,451	66.71%	129	106	17,785	23	10,860
41	100,000	UA	597,654	39.52%	110	92	6,580	18	10,333
42	100,000	UTEK	797,798	45.68%	176	146	5,519	30	4,137
43	100,000	VSEA	368,092	30.29%	124	96	3,934	28	8,586
Total:		4,300,000	Profits: 52,254,836		5,440	4,175		1,265	Profits: 715,678
			Init Cap: 4,300,000						Init Cap: 4,300,000
			Total Portfolio: 56,554,836	55.54%	CAGR				CAGR: 2.67%

Test from July 2005 to April 21 2011. Presented April 23rd.

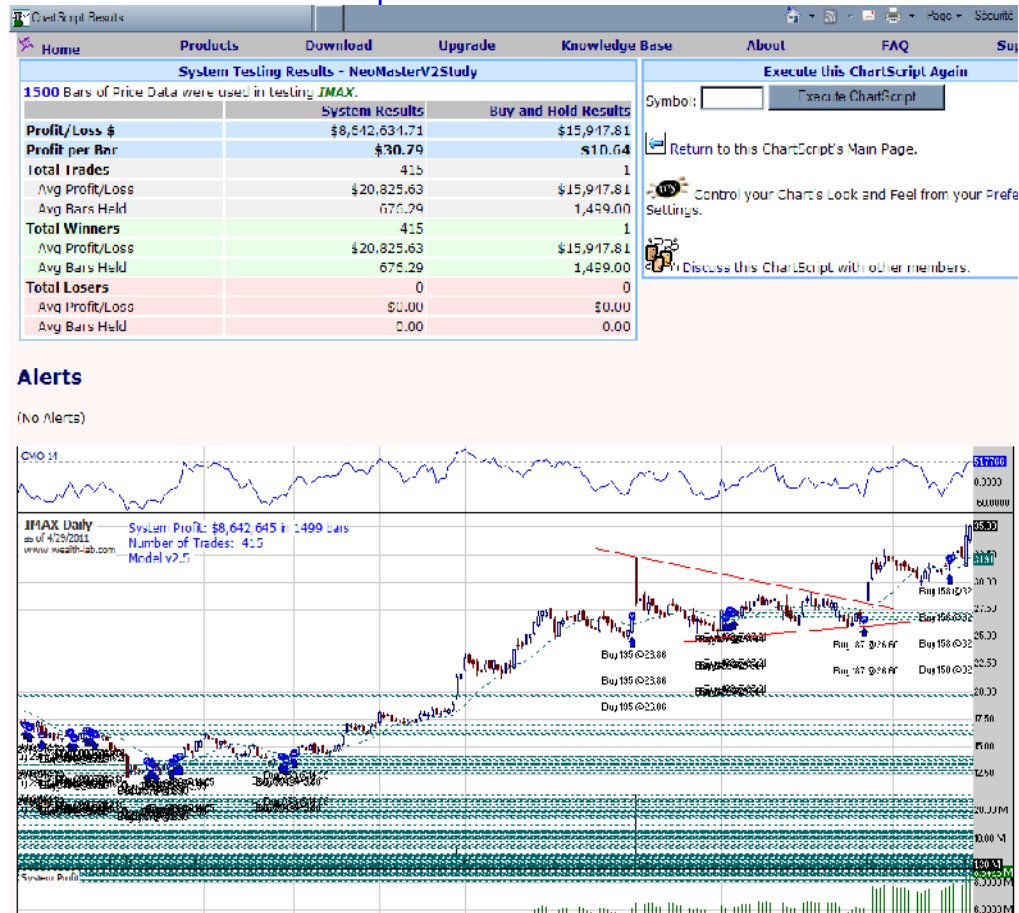
Improved Version Gyro Trend Checker Script (first data set)

Testing Period: From about July 2005 to April 22 2011 (1500 bars or 5.83 years)											
Stock #	Initial Cap	Stock	Position	Profit	Return	Trades	Winners	AVG Profit	Losers	Average	Buy & Hold
1	100,000	AAPL		942,023	49.45%	83	72	11,350	11	-355	43,214
2	100,000	ADM		149,562	16.97%	141	110	1,426	31	-236	5,283
3	100,000	AGQ		1,108,353	53.29%	48	42	23,091	6	-444	69,827
4	100,000	AMZN		1,019,572	51.30%	113	98	10,449	15	-293	22,122
5	100,000	BHH		1,455,862	60.08%	177	151	9,730	26	-515	11,679
6	100,000	BIDU		3,605,518	85.76%	91	78	39,621	13	-684	55,019
7	100,000	CCK		374,801	30.61%	109	91	4,172	18	-271	7,254
8	100,000	CF		943,567	49.49%	87	72	13,184	15	-379	38,721
9	100,000	CMG		1,261,334	56.46%	99	83	15,270	16	-381	26,253
10	100,000	CRDN		259,378	24.52%	116	74	3,841	42	-591	6,101
11	100,000	CSX		559,541	38.18%	123	104	5,444	19	-350	14,977
12	100,000	DBS		662,587	41.66%	77	66	10,082	11	-261	12,452
13	100,000	DDS		877,620	47.82%	112	95	9,309	17	-395	5,083
14	100,000	DIT		932,374	49.21%	100	77	12,233	23	-417	11,104
15	100,000	ERX		362,737	30.03%	44	38	9,647	6	-645	7,162
16	100,000	GLD		404,737	31.99%	104	92	4,415	12	-123	12,180
17	100,000	GTL		685,229	42.37%	73	60	11,529	13	-501	11,290
18	100,000	IBM		350,926	29.46%	103	88	4,023	15	-207	7,474
19	100,000	IMAX		2,016,356	68.75%	117	96	21,083	21	-364	14,928
20	100,000	IPGP		1,500,143	60.85%	113	93	16,201	20	-328	8,075
21	100,000	JNPR		511,693	36.41%	153	125	4,172	28	-352	3,675
22	100,000	NFLX		4,033,866	89.27%	122	102	39,621	20	-375	103,719
23	100,000	NTES		719,551	43.42%	133	113	6,434	20	-373	15,660
24	100,000	PAA		336,306	28.73%	107	92	3,718	15	-385	8,418
25	100,000	PANL		2,001,083	68.54%	135	114	17,617	21	-344	25,526
26	100,000	PCLN		4,792,235	94.82%	96	79	60,734	17	-340	108,171
27	100,000	SCCO		431,768	33.17%	90	68	6,513	22	-506	26,922
28	100,000	SINA		1,822,388	65.99%	137	113	16,203	24	-357	18,414
29	100,000	SLV		821,718	46.34%	85	73	11,301	12	-273	11,436
30	100,000	SLW		1,362,221	58.39%	96	85	16,115	11	-687	62,724
31	100,000	SOHU		1,068,718	52.42%	144	118	9,127	26	-317	23,341
32	100,000	SRZ		867,253	47.55%	126	46	23,152	80	-2,472	-2,951
33	100,000	TBL		892,465	48.21%	176	143	6,309	33	-293	1,318
34	100,000	TDSC		1,638,773	63.16%	130	107	15,413	23	-453	10,480
35	100,000	TRMB		466,699	34.63%	88	73	6,476	15	-402	8,854
36	100,000	TRN		314,346	27.60%	116	94	3,449	22	-450	5,960
37	100,000	TSCO		912,597	48.72%	130	109	8,429	21	-296	9,733
38	100,000	TZOO		3,272,981	82.79%	137	113	29,055	24	-426	11,867
39	100,000	ULTA		1,001,367	50.87%	72	60	16,811	12	-608	3,863
40	100,000	URI		595,634	39.45%	112	85	7,152	27	-455	3,108
41	100,000	WLK		1,089,916	52.89%	150	122	9,005	28	-310	7,923
42	100,000	WTW		532,687	37.20%	119	101	5,312	18	-214	4,411
43	100,000	XOP		253,101	24.14%	106	90	2,888	16	-426	4,000
Total:	4,300,000	Profits:	49,211,585			4,790	3,905		885	Profits:	866,766
		Init Cap:	4,300,000							Init Cap:	4,300,000
		Total Portfolio:	53,511,585	54.07%	CAGR					CAGR:	3.20%

Test from July 2005 to April 22 2011. Presented April 23rd.

From this level of performance, I tried to modify other scripts, even with looser trend definitions; it seemed I did not need much. One that showed promise was the *Neo Master* version 2 script. After many modifications, I did release on the WL board one performance chart (IMAX) which operated at over 100% compounded return. The script was put aside as a not ready to show. But it raised the bar anyway.

Neo Master version 2 Script

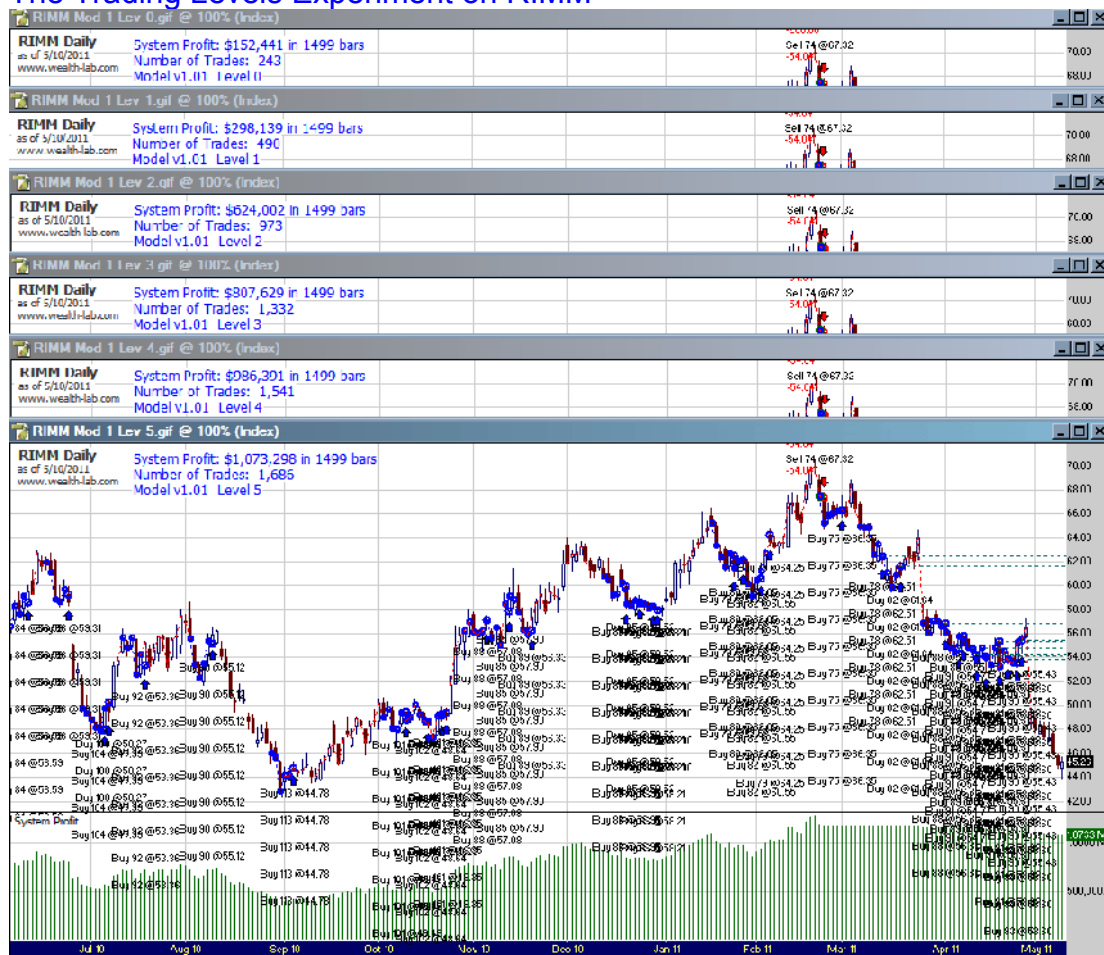


Test from July 2005 to April 29 2011. Presented April 30th.

My next step was to show that the preset functions could be regulated in an attempt to extract performance. In early May a test on RIMM using trading levels was presented. You wanted more performance; then you reached (meaning pre-programmed) for a higher level. RIMM was not the best of candidates, over its almost 6 years test; the price went from a high of about \$140 down to \$45 at test time. But still, performance levels could be preset as shown in the Jensen Modified Sharpe paper.

You wanted more performance; you could simply apply more pressure to your set of objective functions. The trading process ended with the obvious: trade more profitable trades over the stock's price swings and you will make more profits.

The Trading Levels Experiment on RIMM



Test from Aug 2005 to May 10th 2011. Presented May 12th.

Improving the Trading Methods

In the last few days of May, I converted the *QQQ and QID Trader* script to my trading philosophy. Just as with the *Neo Master* version 2 script (not shown except for the IMAX chart), performance levels were way high. The first table was in at a 91% annual rate of return for the first data set. Same data set using a different trend definition system and with full utilization of the excess equity buildup.

This was like reaching a new plateau. Trading over the accumulation process and reinvesting the proceeds in more trading was pushing performance higher. As the number of trades grew, so did the annual return. Also, the average hit rate was in excess of 90%. Stop losses were relatively small and in small numbers. All of which are desirable characteristics for a trading system with an accumulative stance or for any system for that matter.

QQQ and QID Trader Script (after modifications)

Testing Period: From Aug 2005 to May 27 2011 (1500 bars or 5.83 years)										QQQID Trader V2	
Stock	Initial	Stock	Position	Annual	Trades	Winners	AVG	Losers	Average	Buy	
#	Cap		Profit	Return					Loss	& Hold	
1	100,000	AAPL	4,182,445	90.42%	950	898	4,689	52	-550	40,219	
2	100,000	ADM	3,254,789	82.62%	1,030	826	4,634	204	-2,808	3,365	
3	100,000	AGQ	1,672,508	63.70%	359	351	4,883	8	-5,181	39,176	
4	100,000	AMZN	5,107,806	96.92%	984	976	5,237	8	-417	22,399	
5	100,000	BHH	6,157,715	103.22%	1,021	1,012	6,090	9	-574	11,919	
6	100,000	BIDU	4,454,660	92.45%	913	893	5,011	20	-996	49,013	
7	100,000	CCK	4,972,852	96.03%	1,053	1,048	4,746	5	-178	8,570	
8	100,000	CF	4,318,167	91.44%	924	919	4,700	5	-307	43,873	
9	100,000	CMG	4,447,990	92.40%	922	922	4,824	0	0	28,021	
10	100,000	CRDN	3,608,283	85.78%	1,055	879	4,870	176	-3,822	5,081	
11	100,000	CSX	4,599,560	93.48%	976	968	4,753	8	-170	14,940	
12	100,000	DBS	3,333,696	83.35%	696	684	4,914	12	-2,296	9,163	
13	100,000	DDS	5,309,854	98.21%	1,059	1,059	5,014	0	0	6,974	
14	100,000	DIT	4,620,153	93.63%	1,096	985	4,868	111	-1,579	10,346	
15	100,000	ERX	1,760,565	65.06%	402	375	4,797	27	-1,419	5,746	
16	100,000	GLD	4,652,451	93.85%	1,005	1,004	4,634	1	-61	12,332	
17	100,000	GTLS	3,588,430	85.61%	782	766	4,707	16	-1,080	10,634	
18	100,000	IBM	4,922,700	95.70%	1,077	1,059	4,652	18	-237	7,055	
19	100,000	IMAX	5,296,125	98.12%	1,008	1,008	5,254	0	0	12,349	
20	100,000	IPGP	3,879,366	88.04%	790	790	4,911	0	0	9,284	
21	100,000	JNPR	5,057,355	96.59%	1,102	1,036	4,950	66	-1,081	2,240	
22	100,000	NFLX	5,047,475	96.52%	1,027	1,027	4,915	0	0	71,957	
23	100,000	NTES	4,946,232	95.86%	1,045	1,018	4,888	27	-1,108	11,216	
24	100,000	PAAS	4,302,148	91.32%	1,029	914	4,898	115	-1,518	6,405	
25	100,000	PANL	4,824,488	95.04%	1,013	995	4,890	18	-2,295	19,616	
26	100,000	PCLN	4,606,353	93.53%	965	933	4,962	32	-737	102,801	
27	100,000	SCCO	3,940,416	88.53%	962	871	4,798	91	-2,620	31,568	
28	100,000	SINA	4,837,389	95.13%	997	983	4,941	14	-1,381	14,945	
29	100,000	SLV	3,877,038	88.02%	807	797	4,890	10	-1,991	8,356	
30	100,000	SLW	4,603,090	93.51%	984	947	4,934	37	-1,867	53,385	
31	100,000	SOHU	4,936,232	95.79%	1,029	1,006	4,957	23	-2,184	13,773	
32	100,000	SRZ	-2,053,454	-269.25%	1,113	671	4,935	442	-12,137	-3,246	
33	100,000	TBL	5,237,735	97.75%	1,119	1,065	5,084	54	-3,275	-838	
34	100,000	TDSC	5,043,410	96.50%	1,062	1,029	5,018	33	-3,625	3,165	
35	100,000	TRMB	4,515,106	92.88%	990	946	4,858	44	-1,826	6,435	
36	100,000	TRN	3,600,839	85.72%	1,045	869	4,621	176	-2,357	3,165	
37	100,000	TSCO	5,361,084	98.53%	1,086	1,083	4,951	3	-183	7,761	
38	100,000	TZOO	5,523,333	99.53%	1,084	1,069	5,194	15	-1,902	4,732	
39	100,000	ULTA	2,994,390	80.11%	626	626	4,783	0	0	4,259	
40	100,000	URI	3,115,451	81.29%	1,035	804	4,981	231	-3,851	1,050	
41	100,000	WLK	5,179,714	97.38%	1,078	1,061	4,902	17	-1,254	6,313	
42	100,000	WTW	6,241,012	103.68%	1,116	1,109	5,633	7	-792	3,886	
43	100,000	XOP	3,621,949	85.90%	833	783	4,687	50	-954	3,677	
				Sum:	41,249	39,064			2,185		
				Avg:	959	908	4,927	51	Profits:	727,077	
Total:			4,300,000	Profits:	183,498,895				Init Cap:	4,300,000	
			Init Cap:	4,300,000							
Total Portfolio:			187,798,895	91.07%	CAGR				CAGR:	2.71%	

Test from Aug 2005 to May 27th 2011.

There you had a trading system that could easily be automated with high performance levels, high hit rate, low stop losses and that prevailed over different data sets. It was remarkable.

Usually, the simple fact of changing data sets would prove to be disastrous to performance levels. As if a trading system trained and optimized for a particular data set; when confronted with a different data set would crumble.

It was understandable why the *Alpha Power* methodology would prevail across board on different data sets. It was playing equations, preset equations and not market or technical indicators. It needed a loose trend definition and from the few that were used in the above tests it seems that maybe almost anything would do.

The Livermore Master Key Challenge

Then on June 1st, I presented this great idea on the WL forum after seeing on the old WL 4 someone displaying a chart with the *Livermore Master Key* script (2005). I issued a challenge to all to improve the script to a tradable level, and all members starting from the same point.

To start the ball rolling, using the first data set in the series, I presented the performance results using the original Livermore script as is. Performance was dismal, barely making any money, a mere 0.21% over the 5.83 years of test; almost undistinguishable from a 50/50 random game.

The Livermore Master Key Challenge (original script)

Testing Period: From about Aug 2005 to May 31 2011 (1500 bars or 5.83 years) LivermoreMKey orig.														
Stock	Initial	Position	Annual				AVG		Average		Buy			
#	Cap	Stock	Profit	Return	Trades	Winners	Profit	Losers	Loss	& Hold				
1	100,000	AAPL	4,115	0.69%	76	25	502	51	-165	40,516				
2	100,000	ADM	2,272	0.39%	24	3	1,956	21	-171	3,364				
3	100,000	AGQ	-2,914	-0.51%	57	10	842	47	-241	40,533				
4	100,000	AMZN	3,233	0.55%	77	18	732	59	-168	22,502				
5	100,000	BHH	-5,917	-1.04%	84	15	890	69	-279	12,250				
6	100,000	BIDU	-2,025	-0.35%	109	19	885	90	-209	49,739				
7	100,000	CCK	-3,855	-0.67%	73	17	322	56	-166	8,550				
8	100,000	CF	8,139	1.35%	67	21	824	46	-199	43,429				
9	100,000	CMG	4,489	0.76%	80	22	677	58	-179	27,583				
10	100,000	CRDN	1,763	0.30%	55	17	544	38	-197	5,248				
11	100,000	CSX	-1,237	-0.21%	75	18	460	57	-167	14,937				
12	100,000	DBS	3,960	0.67%	49	17	540	32	-163	9,384				
13	100,000	DDS	8,271	1.37%	75	16	1,283	59	-208	6,917				
14	100,000	DIT	-4,633	-0.81%	109	23	509	86	-190	10,156				
15	100,000	ERX	-4,168	-0.73%	43	7	671	36	-246	6,062				
16	100,000	GLD	-1,210	-0.21%	55	17	252	38	-145	12,164				
17	100,000	GTLS	9,684	1.60%	70	17	1,130	53	-180	10,929				
18	100,000	IBM	77	0.01%	49	17	262	32	-137	6,975				
19	100,000	IMAX	3,684	0.62%	60	20	518	40	-167	12,701				
20	100,000	IPGP	3,295	0.56%	60	15	701	45	-160	9,641				
21	100,000	JNPR	2,584	0.44%	66	22	452	44	-167	1,957				
22	100,000	NFLX	1,685	0.29%	79	18	791	61	-206	71,631				
23	100,000	NTES	-9,116	-1.63%	96	16	424	80	-199	10,581				
24	100,000	PAAS	-2,806	-0.49%	96	19	578	77	-179	5,983				
25	100,000	PANL	-3,415	-0.59%	111	25	504	86	-186	19,965				
26	100,000	PCLN	5,468	0.92%	68	21	672	47	-184	105,776				
27	100,000	SCCO	4,423	0.74%	71	22	627	49	-191	28,924				
28	100,000	SINA	-1,667	-0.29%	95	18	646	77	-173	14,897				
29	100,000	SLV	658	0.11%	65	15	611	50	-170	8,562				
30	100,000	SLW	-2,197	-0.38%	104	25	578	79	-211	53,737				
31	100,000	SOHU	-1,076	-0.19%	84	17	689	67	-191	13,493				
32	100,000	SRZ	6,445	1.08%	72	21	809	51	-207	-3,175				
33	100,000	TBL	-3,650	-0.64%	74	15	679	59	-235	-820				
34	100,000	TDSC	-104	-0.02%	89	19	713	70	-195	3,165				
35	100,000	TRMB	808	0.14%	57	18	469	39	-196	6,624				
36	100,000	TRN	6,940	1.16%	68	22	680	46	-174	3,392				
37	100,000	TSCO	638	0.11%	52	16	428	36	-172	7,913				
38	100,000	TZOO	11,195	1.84%	84	17	1,443	67	-199	5,325				
39	100,000	ULTA	2,720	0.46%	55	10	1,118	45	-188	4,380				
40	100,000	URI	6,575	1.10%	65	16	991	49	-189	1,444				
41	100,000	WLK	-997	-0.17%	90	19	632	71	-183	6,424				
42	100,000	WTW	4,885	0.82%	39	15	605	24	-175	3,600				
43	100,000	XOP	-3,954	-0.69%	67	14	298	53	-153	3,779				
				Sum:	3,094	754	2,340							
Total:				4,300,000	Profits:	53,065	Avg:	72	18	696	54	Profits:	731,139	
				Init Cap:	4,300,000							Init Cap:	4,300,000	
				Total Portfolio:	4,353,065	0.21%	CAGR						CAGR:	2.73%

Test from Aug 2005 to May 31st 2011.

At first view, the method has little value. It could not even beat the Buy & Hold strategy or a money market fund for that matter. I found its trend definition unusable, and its performance using the script as is, to be more than sub-par. It resulted, in my opinion, in a totally worthless script. Based on the above table, the data seems to corroborate this view. It's simply a 10 day moving average channel system disguised as a main trend with pullbacks, reactions and rallies which might have worked in Livermore's time; but I really doubt it. Technically it is a simple system and where most of the trades are of the stop loss variety. Livermore in his time did not have the use of computers or sophisticated software programs to do the job for him; all was done by hand, back testing facilities very limited or non-existent. I think he more relied on his experience, convictions and knowledge of the game than on this specific trading strategy because if he did, he was not making any money or otherwise he was very lucky.

The Livermore Master Key Challenge (after first modifications)

Testing Period: From about Aug 2005 to May 31 2011 (1500 bars or 5.83 years)										LivemoreMKey M03L0
Stock	Initial	Position	Annual	Trades	Winners	AVG	Losers	Average	Buy	
#	Cap	Stock	Profit	Return		Profit		Loss	& Hold	
1	100,000	AAPL	3,696,453	86.53%	452	369	10,027	83	-40 39,986	
2	100,000	ADM	182,664	19.50%	475	270	1,012	205	-442 3,011	
3	100,000	AGQ	1,374,328	58.61%	175	124	11,120	51	-90 40,533	
4	100,000	AMZN	4,219,507	90.70%	503	425	9,936	78	-42 22,176	
5	100,000	BHH	4,208,952	90.62%	525	469	8,981	56	-60 11,471	
6	100,000	BIDU	12,800,949	130.05%	446	371	34,521	75	-85 49,739	
7	100,000	CCK	1,395,754	59.00%	462	389	3,595	73	-37 8,296	
8	100,000	CF	5,295,706	98.12%	457	379	13,982	78	-45 43,429	
9	100,000	CMG	4,113,986	89.90%	430	367	11,217	63	-40 27,583	
10	100,000	CRDN	846,353	47.00%	480	277	3,509	203	-620 4,752	
11	100,000	CSX	1,973,865	68.16%	480	394	5,020	86	-45 14,035	
12	100,000	DBS	1,489,391	60.67%	294	223	6,701	71	-69 9,384	
13	100,000	DDS	6,621,225	105.72%	492	428	15,479	65	-58 6,920	
14	100,000	DIT	2,879,079	78.94%	422	305	9,487	117	-123 11,327	
15	100,000	ERX	1,026,017	51.45%	205	165	6,243	40	-101 6,062	
16	100,000	GLD	1,043,918	51.86%	330	256	4,087	74	-31 12,164	
17	100,000	GTL S	2,555,922	75.45%	391	334	7,671	57	-109 10,929	
18	100,000	IBM	998,231	50.80%	368	310	3,226	56	-31 7,012	
19	100,000	IMAX	10,121,338	121.05%	534	462	21,914	72	-41 12,566	
20	100,000	IPGP	5,088,166	96.79%	367	318	16,009	49	-58 9,641	
21	100,000	JNPR	997,008	50.77%	481	367	2,816	114	-319 1,314	
22	100,000	NFLX	13,467,890	132.05%	514	412	32,697	102	-33 72,565	
23	100,000	NTES	1,973,192	68.15%	508	426	4,652	82	-103 10,759	
24	100,000	PAAS	818,814	46.26%	491	335	2,534	156	-196 5,805	
25	100,000	PANL	4,795,886	94.84%	527	418	11,506	109	-124 18,752	
26	100,000	PCLN	14,057,919	133.75%	486	410	34,296	76	-43 105,064	
27	100,000	SCCO	1,554,281	61.77%	466	322	4,972	144	-324 27,515	
28	100,000	SINA	5,181,125	97.39%	495	409	12,680	86	-58 15,534	
29	100,000	SLV	1,937,050	67.65%	369	285	6,813	84	-57 7,892	
30	100,000	SLW	4,792,427	94.82%	484	379	12,681	105	-129 52,423	
31	100,000	SOHU	2,463,228	74.38%	486	393	6,304	93	-155 12,833	
32	100,000	SRZ	2,635,257	76.34%	536	218	15,863	318	-2,588 -3,244	
33	100,000	TBL	1,318,018	57.55%	498	389	3,458	109	-249 -882	
34	100,000	TDSC	3,968,704	88.76%	520	451	8,833	69	-219 3,165	
35	100,000	TRMB	1,464,416	60.23%	498	407	3,630	91	-141 6,122	
36	100,000	TRN	857,218	47.29%	478	296	3,109	182	-346 2,917	
37	100,000	TSCO	3,368,687	83.67%	516	436	7,736	80	-53 7,704	
38	100,000	TZOO	9,581,188	119.00%	558	468	20,491	90	-94 4,936	
39	100,000	ULTA	3,893,874	88.16%	327	282	13,815	45	-42 4,070	
40	100,000	URI	2,278,990	72.17%	469	349	6,717	120	-543 1,031	
41	100,000	WLK	2,921,325	79.37%	516	425	6,888	91	-69 6,205	
42	100,000	WTW	2,470,305	74.47%	406	367	6,736	39	-45 3,607	
43	100,000	XOP	690,372	42.53%	358	279	2,513	79	-137 3,480	
			Sum:		19,275	15,158		4,116		
Total:	4,300,000	Profits:	159,418,977	Avg:	448	353	10,127	96	Profits:	720,585
		Init Cap:	4,300,000						Init Cap:	4,300,000
		Total Portfolio:	163,718,977	86.62%	CAGR				CAGR:	2.69%

Test from Aug 2005 to May 31st 2011.

I thought the challenge would be fun for a few weeks at least, it's a complex script, had a legendary trader's trading method as backdrop so everyone should be interested. It would be like improving the design of a master trader. Sure...

Well, that was a very short challenge. Only a few hours later, my own modifications to the original script had pushed performance to 86% per year. At which point, it became useless to continue the challenge as already the bar was much too high for anyone on the WL board.

Personally, I was in modification mode, so I continued to improve the script not only on the model itself but I also jumped to level 1 where I knew performance would increase further. Putting more pressure on the accumulative functions would be sufficient to raise the bar higher.

Livermore Challenge. First Data Set (Model 0.5 Level 1)

Testing Period: From about Aug 2005 to June 1 2011 (1500 bars or 5.83 years)										
Livermorekey M05L1										
Stock	Initial	Position	Annual	AVG	Average	Buy				
#	Cap	Stock	Profit	Return	Trades	Winners	Profit	Losers	Loss	& Hold
1	100,000	AAPL	7,035,049	107.84%	435	353	19,949	82	-86	39,986
2	100,000	ADM	409,035	32.18%	470	296	1,925	174	-923	3,011
3	100,000	AGQ	2,422,498	73.91%	180	136	17,913	44	-311	36,136
4	100,000	AMZN	8,502,685	114.61%	500	427	19,925	73	-70	22,176
5	100,000	BHH	8,319,604	113.82%	518	473	17,600	45	-116	11,471
6	100,000	BIDU	26,301,421	160.10%	459	383	68,686	76	-122	48,418
7	100,000	CCK	2,750,079	77.58%	446	394	6,990	52	-76	8,296
8	100,000	CF	10,049,912	120.78%	455	412	24,411	43	-169	41,640
9	100,000	CMG	9,383,722	118.23%	454	387	24,255	67	-44	27,187
10	100,000	CRDN	1,513,756	61.09%	485	273	6,574	212	-1,325	4,752
11	100,000	CSX	3,606,532	85.77%	445	366	9,872	79	-85	14,035
12	100,000	DBS	2,923,747	79.39%	307	236	12,425	71	-121	8,675
13	100,000	DDS	12,160,783	128.05%	493	425	28,626	68	-76	6,920
14	100,000	DIT	6,162,893	103.24%	442	334	18,534	108	-255	11,327
15	100,000	ERX	1,803,545	65.71%	204	158	11,521	46	-366	5,326
16	100,000	GLD	2,159,349	70.65%	356	288	7,510	68	-53	12,071
17	100,000	GTLS	5,410,827	98.84%	408	346	15,676	62	-213	10,496
18	100,000	IBM	1,857,599	66.51%	357	293	6,353	64	-60	7,012
19	100,000	IMAX	18,095,843	144.02%	506	445	40,670	61	-38	12,566
20	100,000	IPGP	11,248,650	125.05%	380	353	31,870	27	-56	9,395
21	100,000	JNPR	1,999,916	68.52%	499	396	5,170	103	-460	1,314
22	100,000	NFLX	25,183,757	158.18%	487	383	65,774	104	-72	72,565
23	100,000	NTES	4,046,373	89.37%	502	434	9,346	68	-147	10,759
24	100,000	PAAS	1,729,451	64.59%	466	336	5,304	130	-405	5,805
25	100,000	PANL	10,527,150	122.53%	537	450	23,425	87	-164	18,752
26	100,000	PCLN	29,702,987	165.56%	505	440	67,517	65	-71	105,064
27	100,000	SCCO	3,287,401	82.92%	472	351	9,528	121	-470	27,515
28	100,000	SINA	10,950,367	124.02%	515	440	24,903	75	-93	15,534
29	100,000	SLV	3,589,670	85.62%	311	258	13,939	53	-125	7,892
30	100,000	SLW	10,183,464	121.28%	475	380	26,858	95	-236	52,423
31	100,000	SOHU	5,121,929	97.01%	496	429	11,987	67	-303	12,833
32	100,000	SRZ	4,764,584	94.63%	521	217	29,244	304	-5,202	-3,244
33	100,000	TBL	3,072,271	80.87%	495	403	7,790	92	-731	-882
34	100,000	TDSC	8,751,102	115.66%	539	477	18,404	62	-447	3,165
35	100,000	TRMB	2,619,164	76.16%	439	357	7,397	82	-263	6,122
36	100,000	TRN	2,105,311	69.95%	502	311	7,075	191	-498	2,893
37	100,000	TSCO	6,217,255	103.55%	501	429	14,500	72	-42	7,704
38	100,000	TZOO	18,386,336	144.68%	560	478	38,493	82	-163	4,936
39	100,000	ULTA	8,114,735	112.92%	317	294	27,606	23	-59	4,070
40	100,000	URI	4,541,418	93.07%	467	349	13,420	118	-1,206	1,031
41	100,000	WLK	6,120,895	103.01%	495	430	14,249	65	-97	6,211
42	100,000	WTW	4,951,151	95.89%	417	376	13,179	41	-101	3,607
43	100,000	XOP	1,368,842	58.51%	346	273	5,086	73	-268	3,480
			Sum:		19,164	15,469			3,695	
Total:			4,300,000	Profits:	319,453,060	Avg:	446	360	19,802	86
			Init Cap:	4,300,000					Profits:	710,445
			Total Portfolio:	323,753,060	109.76%	CAGR			Init Cap:	4,300,000
									CAGR:	2.66%

Test from Aug 2005 to June 1st 2011.

Thereafter, I presented the 3 data sets in succession with 109%, 117% and 103% annual return respectively. Even after a 5 week market decline, all 3 data sets exceeded 100% compounded return. They had suffered the financial crisis and nonetheless, they not only survived, they thrived. The performance metrics remained about the same for the 3 data sets: high hit rate, low stop losses and highly profitable. As expected, according to the Jensen Modified Sharpe paper, the stocks having the highest price differentials were also the highest performers with the highest portfolio weights.

Livermore Challenge. Second Data Set (Model 0.5 Level 1)

Testing Period: From about Aug 2005 to June 2 2011 (1500 bars or 5.83 years)										
LivermoreMKey M05L1										
Stock #	Initial Cap	Stock	Position Profit	Annual Return	Trades	Winners	AVG Profit	Losers	Average Loss	Buy & Hold
1	100,000	AAU	6,999,800	107.66%	514	421	16,759	93	-598	5,695
2	100,000	AKAM	1,308,353	57.37%	495	280	5,809	215	-1,479	6,937
3	100,000	ARUN	9,416,298	118.36%	377	315	29,979	62	-435	4,812
4	100,000	ASYS	7,653,144	110.82%	554	449	17,131	105	-368	14,402
5	100,000	ATML	10,459,317	122.28%	526	455	23,001	71	-85	21,933
6	100,000	BIDU	29,170,867	164.74%	456	380	76,792	76	-132	50,874
7	100,000	CAM	1,847,923	66.37%	477	337	5,679	140	-491	9,591
8	100,000	CAT	3,357,491	83.56%	430	379	8,883	51	-179	6,658
9	100,000	COOL	11,095,415	124.52%	620	559	19,875	61	-238	-3,052
10	100,000	ETN	2,143,587	70.45%	417	360	5,980	57	-161	4,564
11	100,000	FFIV	10,721,513	123.22%	525	453	23,753	72	-538	18,985
12	100,000	FIRE	5,123,473	97.02%	379	318	16,171	61	-307	3,355
13	100,000	GMCR	41,510,109	181.19%	489	416	99,799	73	-87	148,461
14	100,000	HK	2,393,856	73.57%	514	429	5,690	85	-554	7,470
15	100,000	HNL.TO	5,117,506	96.98%	427	374	13,697	53	-98	1,382
16	100,000	IDCC	1,992,515	68.42%	462	362	5,591	100	-315	6,275
17	100,000	IGTE	7,818,957	111.59%	539	438	17,897	101	-198	22,082
18	100,000	LTXC	5,467,428	99.18%	576	304	20,128	272	-2,396	-2,024
19	100,000	LULU	9,548,249	118.87%	328	289	33,057	39	-137	10,396
20	100,000	MELI	5,607,388	100.03%	349	301	18,637	48	-46	10,233
21	100,000	MENT	1,975,725	68.19%	498	367	5,736	131	-986	1,206
22	100,000	MFL.TO	1,958,539	67.95%	526	442	4,474	84	-212	4,074
23	100,000	MGH	4,499,051	92.77%	559	415	11,102	144	-753	1,896
24	100,000	MSN	3,164,473	81.77%	583	306	12,003	277	-1,836	-1,021
25	100,000	NDSN	4,767,392	94.65%	484	398	12,011	86	-149	12,248
26	100,000	PFCB	1,043,210	51.84%	545	335	3,783	210	-1,067	-1,660
27	100,000	PNRA	4,575,012	93.31%	481	414	11,062	67	-72	4,165
28	100,000	PTI	887,339	48.07%	433	192	7,365	241	-2,186	-1,496
29	100,000	QCOR	68,900,089	206.66%	585	522	132,001	63	-69	179,978
30	100,000	QLTY	7,106,424	108.19%	559	437	16,570	122	-1,105	1,336
31	100,000	REDF	7,022,646	107.78%	591	343	22,154	248	-2,324	2,036
32	100,000	RVBD	7,586,279	110.51%	384	335	22,679	49	-231	19,753
33	100,000	SCSS	27,052,143	161.35%	514	342	79,714	172	-1,221	709
34	100,000	SF	2,525,890	75.11%	480	379	6,786	101	-456	12,844
35	100,000	SFLY	9,564,940	118.94%	427	365	26,220	62	-89	13,584
36	100,000	SHS	11,570,713	126.13%	490	418	27,710	72	-170	9,016
37	100,000	SPRD	12,500,151	129.12%	361	293	42,756	68	-402	882
38	100,000	SVVS	7,172,708	108.52%	508	427	16,925	81	-670	9,264
39	100,000	TLEO	5,361,910	98.53%	500	437	12,280	63	-71	8,445
40	100,000	TPX	12,713,632	129.78%	509	455	27,955	54	-106	8,039
41	100,000	UA	4,004,870	89.05%	474	408	9,834	66	-111	7,896
42	100,000	UTEK	5,292,770	98.10%	533	473	11,197	60	-55	2,516
43	100,000	VSEA	4,827,586	95.06%	487	416	11,621	71	-93	12,523
Sum:					20,965	16,538	4,427			
Avg:					488	385	23,215	103		
Total:	4,300,000	Profits:	394,826,681							657,264
			Init Cap:	4,300,000						4,300,000
			Total Portfolio:	399,126,681	117.43%	CAGR				2.47%

Test from Aug 2005 to June 2nd 2011.

I should point out the value of having a script perform well on 3 different unseen data sets. This implies that the trading methods used can be viewed in a general sense; and that they can be applied with about the same results on other data

sets. The 3 tests were done in succession with no search for improvements or optimizations.

Livermore Challenge. Third Data Set (Model 0.5 Level 1)

Testing Period: From about Aug 2005 to June 3 2011 (1500 bars or 5.83 years)										
LivermoreMKey M05L1										
Stock #	Initial Cap	Stock	Position Profit	Annual Return	Trades	Winners	AVG Profit	Losers	Average Loss	Buy & Hold
1	100,000	ACTG	19,187,940	146.47%	581	515	37,276	66	-141	33,770
2	100,000	ALLT	12,672,413	129.65%	446	399	31,771	47	-92	377
3	100,000	ASNA	4,627,406	93.68%	544	498	9,302	46	-107	9,417
4	100,000	BGC	1,044,363	51.87%	481	268	5,652	213	-2,209	7,958
5	100,000	BGU	1,657,734	63.46%	197	144	11,607	53	-257	4,232
6	100,000	BKE	4,176,454	90.38%	482	391	10,705	91	-100	9,307
7	100,000	CAB	2,643,843	76.43%	518	418	6,399	100	-308	333
8	100,000	CERN	4,995,817	96.18%	484	408	12,256	76	-61	12,975
9	100,000	DECK	12,328,615	128.58%	481	418	29,508	63	-91	47,238
10	100,000	DGIT	6,712,722	106.20%	536	424	15,927	112	-359	10,456
11	100,000	DIOD	2,272,164	72.08%	509	374	6,236	135	-445	4,783
12	100,000	DKS	3,094,612	81.09%	510	419	7,425	91	-180	4,950
13	100,000	DNDN	24,200,174	156.43%	556	485	49,911	71	-92	31,995
14	100,000	DSW	5,971,467	102.17%	520	457	13,083	63	-120	4,747
15	100,000	EXXI	8,467,486	114.46%	361	303	27,987	58	-216	442
16	100,000	HANS	5,499,428	99.38%	464	426	12,926	38	-181	28,789
17	100,000	IDT	21,251,094	150.80%	531	370	58,005	161	-1,310	-1,118
18	100,000	INTL	2,512,770	74.96%	481	364	7,068	117	-512	14,226
19	100,000	IRBT	4,140,577	90.10%	489	402	10,331	87	-143	-347
20	100,000	ITMN	5,492,462	99.34%	536	434	12,786	102	-557	9,182
21	100,000	JOSB	4,243,120	90.88%	489	402	10,584	87	-133	5,644
22	100,000	KAMN	2,405,716	73.71%	471	413	5,853	58	-200	5,726
23	100,000	LANC	2,070,765	69.49%	448	408	5,092	40	-170	2,537
24	100,000	MERC	14,416,426	134.75%	537	458	31,520	79	-249	3,490
25	100,000	NILE	684,313	42.34%	532	302	3,206	230	-1,234	2,276
26	100,000	NVLS	2,433,201	74.03%	492	429	5,698	63	-181	1,726
27	100,000	NVO	4,900,833	95.55%	371	319	15,373	52	-58	22,039
28	100,000	PCP	3,052,163	80.68%	475	410	7,456	65	-72	14,578
29	100,000	PRXL	2,289,273	72.30%	498	396	5,907	102	-490	7,592
30	100,000	PSMT	7,392,126	109.59%	491	437	16,929	54	-106	24,948
31	100,000	QSII	4,710,568	94.26%	484	414	11,406	70	-164	15,589
32	100,000	RNOW	5,475,497	99.23%	502	434	12,637	68	-133	8,770
33	100,000	ROK	2,903,754	79.19%	430	361	8,087	69	-225	4,534
34	100,000	ROVI	6,608,829	105.66%	518	435	15,226	83	-176	6,687
35	100,000	SIMO	3,280,890	82.86%	521	251	15,600	270	-2,350	166
36	100,000	TTMI	2,362,476	73.19%	540	450	5,327	90	-386	5,104
37	100,000	VECO	9,989,513	120.56%	516	443	22,560	73	-63	10,906
38	100,000	VICR	2,734,198	77.41%	565	434	6,413	131	-374	1,097
39	100,000	WAVX	5,323,020	98.29%	575	395	14,038	180	-1,233	257
40	100,000	WRC	2,666,131	76.68%	471	372	7,244	99	-288	5,807
41	100,000	ZAGG	14,921,967	136.13%	331	287	52,008	44	-101	47,314
42	100,000	ZOLL	6,747,802	106.38%	485	424	15,927	61	-88	17,070
43	100,000	ZUMZ	1,690,463	63.98%	514	277	7,422	237	-1,542	3,115
Sum:					20,963	16,868		4,095		
Total:					488	392	15,760	95		
Total Profits:			266,252,587	Avg:					Profits:	450,686
Init Cap:			4,300,000						Init Cap:	4,300,000
Total Portfolio:			270,552,587	103.41%	CAGR				CAGR:	1.72%

Test from Aug 2005 to June 2nd 2011.

An astonishing performance even if I have to say so myself. Performing at over 100% compounded return over an almost 6 years period and over 3 different data sets should be considered more that outstanding or remarkable, it should be viewed as phenomenal, good for the Guinness book of world records.

At one point, you realize that by increasing the trading component you accelerated overall performance. More trades in the price swings, more profits that could be reinvested in the next swing. It formed a feedback loop reinforcing a desirable characteristic of your trading functions. The *Livermore Master Key* challenge may not have lasted very long, but it had worthwhile lessons and a few

tricks to teach. But then all the modifications applied to the *Livermore Master Key* script were in accordance with my trading philosophy and therefore I should not be surprised that the performance increased to those levels as they were pre-programmed to do so.

Three variables in the *Alpha Power* equation as used in the above tests have significance at the portfolio level. First, increasing the inventory growth rate will increase performance. Second, on the closed long positions, it is preferable to seek higher profits on an increasing number of trades. And third, increasing the number of such trades can have a major impact on portfolio performance.

Based on previous test results, I tried to explain the achieved performance in light of the *Alpha* wealth formulation. What ever the performance achieved you need a reasonable explanation for the results. It is easy to find explanations when your script loses but when your performance exceeds the seemingly reasonable, what then?

Alpha Wealth Generation Formula

This is my attempt at providing an answer in light of my trading philosophy and its mathematical framework. The table below starts with the same initial capital as in the three tested data sets. My methods are scalable up or down; so view the initial capital just as an odd comparison point. Here is the wealth formula again:

$$W_a(t) = (1 + \bar{L}_i)(1 + B_i^{t-1})^{t-1} Q_o^i (1 + \bar{g}_i + \bar{T}_i + \bar{C}_i)^{t-1} P_o^i (1 + \bar{r})^t$$

The objective is to set the value of the variables in such a way that the performance result can be reached and that they can provide a reasonable account for these same results.

Starting with the improved version of the *Gyro Trend Checker* script, the idea is to adjust the parameters to obtain about the same final results (see table below).

First, since no leverage was used and no covered call program was in force, both these controlling variables are set to zero (no influence on the outcome in the aforementioned tests).

The inventory growth rate variable (g) was set to 1 meaning full utilization of the excess equity buildup. The bet sizing variable has for mission to increase bet size as portfolio value grows. It was set to a reasonable value since after all the primary objective of the method is to accumulate shares long term when feasible. This accumulation only occurs if there is a sufficient equity reserve to add to the existing inventory buildup.

Equity Infusion Trading Method

There is only one variable left: the trading method equity infusion. For the numbers to approach test values it was required to set that the short term trading method was providing the equivalent of 110% increase to the inventory accumulation formula. The short term trading method alone was generating enough cash to acquire more shares; practically feeding the inventory accumulation process to a large extent. And since this was a controllable function parameter, it implied that it was sufficient to increase profitable trading to increase performance.

When view in graphical form, as in the charts below, the accumulation rates start to show their power. Over a six year period it is easy to view the impact of the *Alpha Power* components. However, when looked from a 20 year perspective, the first six year seem to be undistinguishable one from the other. And there lies the importance of the *Alpha Power* methodology: to get to the 20 year results you have to follow the procedures over the whole 20 year period to get there. And when extrapolating to 25 years at the same performance levels, one has a sense of awe at the numbers generated.

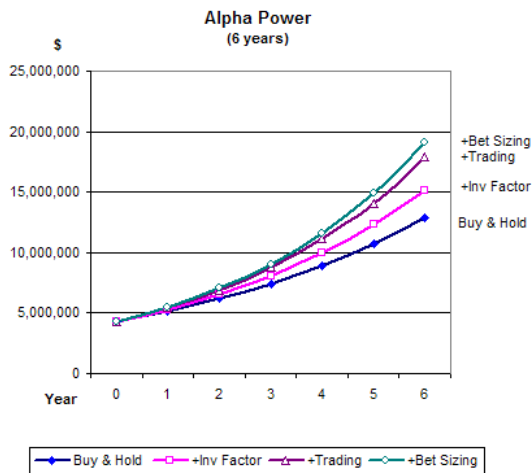
Improved Gyro Trend Checker

Initial Capital:	4,300,000		Governing Equations			
Buy & Hold:	0.20	r	$Q_o P_o (1+r)^t$			
Inv. Factor:	1.00	g	$(1+g)^{t-1} Q_o P_o (1+r)^t$			
Trading:	1.10	T	$(1+g+T)^{t-1} Q_o P_o (1+r)^t$			
Covered Call:	0.00	C	$(1+g+T+C)^{t-1} Q_o P_o (1+r)^t$			
Bet Sizing:	0.30	B	$(1+B)^{t-1} (1+g+T+C)^{t-1} Q_o P_o (1+r)^t$			
Leverage:	0.00	L	$(1+L)(1+B)^{t-1} (1+g+T+C)^{t-1} Q_o P_o (1+r)^t$			
Year	Buy & Hold	+ Inv. Factor	+ Trading	+ Covered Call	+ Bet Sizing	+ Leverage
0	4,300,000	4,300,000	4,300,000	4,300,000	4,300,000	4,300,000
1	5,160,000	6,020,000	8,385,000	8,385,000	10,900,500	10,900,500
2	6,192,000	8,084,000	14,878,000	14,878,000	19,341,400	19,341,400
3	7,430,400	10,560,800	19,831,600	19,831,600	25,781,080	25,781,080
4	8,916,480	13,532,960	25,775,920	25,775,920	33,508,696	33,508,696
5	10,699,776	17,099,552	32,909,104	32,909,104	42,781,835	42,781,835
6	12,839,731	21,379,462	41,468,925	41,468,925	53,909,602	53,909,602

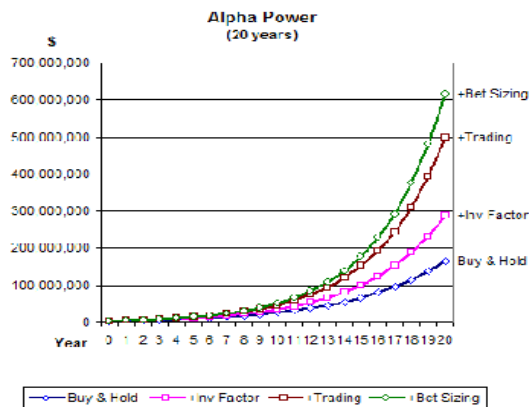
Alpha Power wealth equation.

Improved Gyro Trend Checker

Graphic representation (6 years)

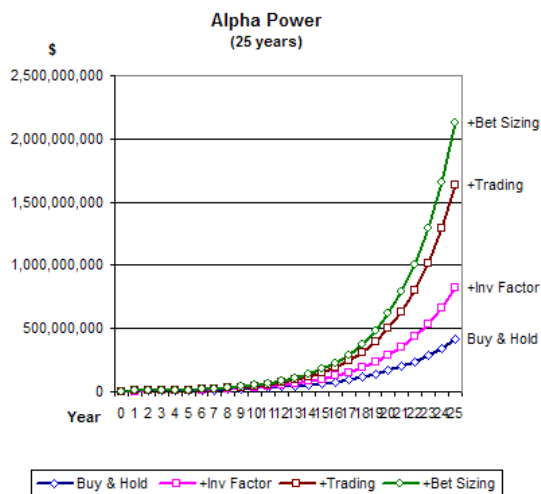


Graphic representation (20 years)



Alpha Power wealth equation.

Improved Gyro Trend Checker (25 years)



Alpha Power wealth equation.

The *Alpha Power* trading method feeds on itself; it generates profits that are reinvested to generate even more profits. It is its long term view of the game that enables it to slowly acquire more and more shares of the best performers while starving non-performers. In the first few years, it is hard to distinguish which component is contributing to the total; but in the end, it is very easy to see what each trading function brought to the plate.

A Reasonable View of the Numbers

These are the most reasonable numbers and explanation I have that can explain the results for the three separate tests provided (over 120 stocks in all). Note that I have set the rate of return at 20% even if the long term market average is closer to 10% than anything else; therefore the Buy & Hold column may be divided by two. Why I used 20% return was simply that the stocks that were included in these tests were all survivors and I thought that it would more than reflect the inherent upside bias. Setting a lower value for the rate of return would force to increase the bet sizing algorithm and/or the trading component contribution rate to overall performance (see table below).

Improved Gyro Trend Checker (the 10% case)

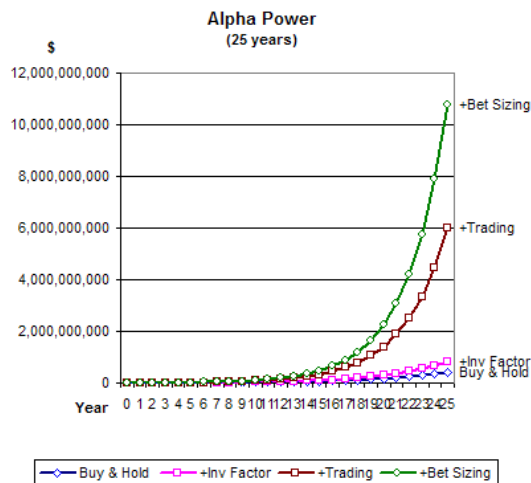
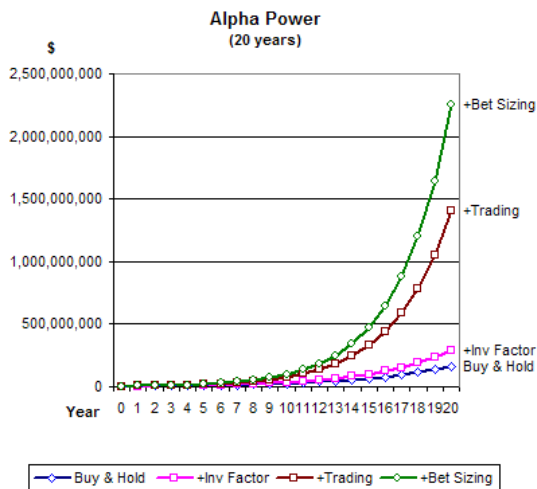
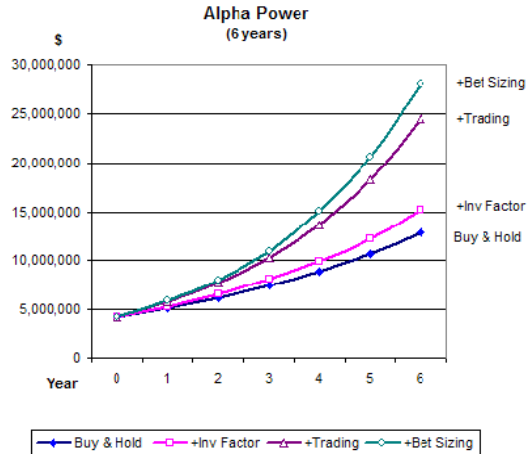
Initial Capital:	4,300,000		Governing Equations			
Buy & Hold:	0.10	r	$Q_o P_o (1+r)^t$			
Inv. Factor:	1.00	g	$(1+g)^{t-1} Q_o P_o (1+r)^t$			
Trading:	2.50	T	$(1+g+T)^{t-1} Q_o P_o (1+r)^t$			
Covered Call:	0.00	C	$(1+g+T+C)^{t-1} Q_o P_o (1+r)^t$			
Bet Sizing:	0.55	B	$(1+B)^{t-1} (1+g+T+C)^{t-1} Q_o P_o (1+r)^t$			
Leverage:	0.00	L	$(1+L)(1+B)^{t-1} (1+g+T+C)^{t-1} Q_o P_o (1+r)^t$			
Year	Buy & Hold	+ Inv. Factor	+ Trading	+ Covered Call	+ Bet Sizing	+ Leverage
0	4,300,000	4,300,000	4,300,000	4,300,000	4,300,000	4,300,000
1	4,730,000	5,160,000	10,535,000	10,535,000	16,329,250	16,329,250
2	5,203,000	6,106,000	19,049,000	19,049,000	29,525,950	29,525,950
3	5,723,300	7,146,600	22,501,900	22,501,900	34,877,945	34,877,945
4	6,295,630	8,291,260	26,300,090	26,300,090	40,765,140	40,765,140
5	6,925,193	9,550,386	30,478,099	30,478,099	47,241,053	47,241,053
6	7,617,712	10,935,425	35,073,909	35,073,909	54,364,559	54,364,559

Alpha Power wealth equation (10% case).

To obtain about the same result as the first table, it was required to increase the Bet Sizing rate to 0.55 and the Trading component to 2.50. This implies that the trading algorithm would have to have been even more efficient at extracting profits from market swings than first suspected.

When considering the performance results from the Livermore challenge data, the trading and bet sizing parameters would have to be set much higher to reach their goals.

Livermore Challenge. Third Data Set (Model 0.5 Level 1)



Alpha Power wealth equation.

Livermore Challenge. Third Data Set (Model 0.5 Level 1)

	4,300,000					
Initial Capital:	4,300,000		Governing Equations			
Buy & Hold:	0.20	r	$Q_o P_o (1+r)^t$			
Inv. Factor:	1.00	g	$(1+g)^{t-1} Q_o P_o (1+r)^t$			
Trading:	7.50	T	$(1+g+T)^{t-1} Q_o P_o (1+r)^t$			
Covered Call:	0.00	C	$(1+g+T+C)^{t-1} Q_o P_o (1+r)^t$			
Bet Sizing:	0.80	B	$(1+B)^{t-1} (1+g+T+C)^{t-1} Q_o P_o (1+r)^t$			
Leverage:	0.00	L	$(1+L)(1+B)^{t-1} (1+g+T+C)^{t-1} Q_o P_o (1+r)^t$			
				+ Covered		
Year	Buy & Hold	+Inv Factor	+Trading	Call	+Bet Sizing	+ Leverage
0	4,300,000	4,300,000	4,300,000	4,300,000	4,300,000	4,300,000
1	5,160,000	6,020,000	22,145,000	22,145,000	39,861,000	39,861,000
2	6,192,000	8,084,000	53,406,000	53,406,000	96,130,800	96,130,800
3	7,430,400	10,560,800	71,569,200	71,569,200	128,824,560	128,824,560
4	8,916,480	13,532,960	93,365,040	93,365,040	168,057,072	168,057,072
5	10,699,776	17,099,552	119,520,048	119,520,048	215,136,086	215,136,086
6	12,839,731	21,379,462	150,906,058	150,906,058	271,630,904	271,630,904

Alpha Power wealth equation.

To achieve about the same performance as in the 3rd Livermore Challenge data set (see above table) required to push the bet sizing contribution to 0.8 and the trading function contribution rate to 7.50 all the while maintaining full excess equity utilization. The added trading volume was proving itself to be most rewarding. This also meant that there was a greater stock accumulation process in action as well as a more efficient trading method extracting more profits from market swings.

Increasing the trading algorithm, the bet sizing function, implementing a covered call program or adding leverage would all have for effect to increase performance. Another way to increase performance would be to have a better stock selection process, but that is another quest all by itself.

It was shown that setting trading levels higher increased the number of profitable trades over the trading interval which led to increased overall performance. The reasoning is understandable in light of the preceding explanations for the overperformance.

The *Alpha Power* trading methodology presets mathematically the trader's desired and acceptable trading behavior to future market fluctuations. As a method, it allocates more funds to the higher performers while at the same time reducing and starving non-performers. In hindsight, the method ends up making its big bets on big winners and only small bets on losers. It is really a Darwinian approach to playing the game.

A Darwinian Play

Based on the *Alpha Power* trading philosophy, I will try to explain the evolution of a typical *Alpha* based portfolio; a kind of Darwinian look at how the stock market game is played following this methodology.

First, a stock selection is made. In the three tests shown, I took the lazy way out. I selected stocks that were being analyzed at the time by other Wealth-Lab (WL) members on the old WL4 site. The selection method could be considered close to random in the sense that you did not know in advance what members would pick to analyze. The method had an inherent survivorship bias; only survivors were viewed. Literature on survivorship bias estimates the overvaluation at about 3 percentage points. So, let's be over cautious and take off 10 points from the above results to compensate for survivorship bias.

However, there are better selection methods available and since *Alpha Power* has a long term view of markets one should also select his/her portfolio within the same long term view. Doing this will greatly reduce the survivorship bias.

The trading methodology is based on over-diversification and plays averages not necessarily single positions. The purpose of over-diversification is to spread the risk so that no single adverse position can damage significantly the whole portfolio.

The first trading step is to take a small initial position in all the stocks. In the tests, again as the lazy way out, an initial 5k was put in each stock. Thereby, the whole portfolio started with 5% invested and 95% in cash. With 43 stocks in a test, each initial bet was about 0.12% of total portfolio equity. The relative weight of each 5k bet will decline as the portfolio grows in value. Each new 5k bet will see its portfolio weight reduce as the portfolio gains value. A 0.12% of equity in a single trade is not the conventional asset allocation method. This is like risking 12 cents per hundred dollars should your initial bet go bankrupt and less if your stop loss is hit first.

In the beginning, even a 50% drop in the DOW would represent a mere 2.5% drop in the portfolio. The method buys on the way up so no new positions would be taken on the way down. This makes the method highly risk adverse from the very start. The philosophy being that it is preferable to have 2% interest from the bank on 95% of your capital than to suffer a 50% drop in equity. However, starting with only a 5% market exposure, the portfolio will underperform until it has played catch up by accumulating shares on the way up.

Starting with a low equity stake and low exposure in the market means that the method will have to compensate first to reach the Buy & Hold performance level; and then to exceed it. This is where the *Alpha Power* wealth appreciation function comes in.

In the real world, we thrive to conform like stay lean, be moderate or avoid obesity; but in the stock market you would like to have all your positions grow big and fat, as big as they want and as fat as they can (big inventory, big spreads between buy and sell prices). But on your portfolio's "fat" farm, not all stocks are created equal. Some will thrive and others will underperform. It is your trading method, your "feeding" method that should reward the best performers (with more buys), those stocks growing the most and the fastest. That is why you have an accumulation program set to acquire more shares of the stocks going up. That is also why your program has a flat out exit procedure on parabolic stocks and a trailing stop exit for stocks that start to underperform from any level.

Based on the calculations you know that the accumulation process is not enough to produce big performance results. Adding a trading program to piggyback over the accumulation process gives the ability to generate more profits, thereby accelerating the accumulation process. The method has for credo: profits are good.

Since you are buying on the way up for the long term you soon realize that most of your positions have accumulated profits that you stand ready to convert to a more short term process: collecting part of the profits. The sale proceeds can be used to re-establish positions with higher accumulative functions. This way, every significant stock cycle can bring you profits that can be re-injected in the ongoing accumulation process. You even have in your design a scale out function for stocks that want to go parabolic. Again to take the profits and re-start the process with still higher objective functions.

The non-performers are part of your "out" watch list. If they keep under-performing, you tighten the exit functions and can even eliminate them, recuperating the left-over cash to start a new position on a new stock or feed the accumulation program of other stocks.

Using a system like this changes your view of the market. On the one hand, you trade using equations; a total trading system that presets what you are going to do in the future what ever the prices may be, even twenty years from now. And on the other hand, you have a market that you can not control, that follows its own path without even the notion of your presence. You follow your equations, turn the volume up or down, control the addition to the list of tradable stocks and follow your attrition program for non-performers. The result is a portfolio that can grow at a higher rate than the Buy & Hold with just a little added work to accomplish the task. And since the method can be automated, maybe the added work is not that considerable after all and might be well worth the efforts.

Conclusion

I was advised not to present any higher performance levels. I've listened to the arguments and decided to comply. It might be a lost opportunity to show what my trading methods can do but on the other hand there is a credibility factor that has to be addressed. Already with the improved Livermore script I am showing results that way exceed all the over 1800 scripts on the old Wealth-Lab 4 site. For that matter, I have never seen any mutual fund or hedge fund present numbers as provided above. I can put the metal to the floor so to speak but I am really uncomfortable at presenting higher performance results.

All the tests mentioned in this paper were done on the old Wealth-Lab 4 site using the simulation platform provided. There is no cheating possible using that venue, no fixing the numbers to look good. For one, you can only supply your script. And you can only provide a stock symbol or a watch list of stocks ready to have your script execute the list. Whatever the outcome of the simulation, it is the answer; that you make a profit or not. There is no other possible outcome to your data input. The results of tests as provided above could not be tricked, manipulated or distorted. What you have is what was provided as simulation results on the old Wealth-Lab site. All the number crunching and chart generation was done remotely. I kept a copy of all the charts produced by all the tests shown. All the charts are dated and with the Wealth-Lab logo.

All the equations needed to perform the above are explicitly given in my papers. Anybody could decipher or reverse engineer all my equations to arrive at an equivalent trading method or even, as I suspect, better ones.

You are trading based on your own objective functions, your game within the game. A stock performs in such a way as to trigger your entry and exits points and you benefit from the process. You made no price prediction except that long term you expect the average stock to survive and prosper. Should your opinion change; then start constricting your trading functions for an orderly exit. Otherwise, let your equations govern your trading environment. Based on what has been presented here, it might not be that bad a solution.

In the abstract, it is mentioned that performance results of simulations on real market data exceeded the theoretical settings and the simulation tests on randomly generated stock prices. Throughout the text, the question has been left un-answered as to why. The reason is simple: the real market data is more volatile than the simulated randomly generated prices series used in my previous work. The *Alpha Power* trading methodology is path dependent; will trade every significant price cycles and feed the proceeds to the next swing in price. And therefore, the short to mid-term trading component of the method will contribute more than anticipated to the overall *alpha* wealth generation formula (see pages 24, 26 and 28 of present document).

This leaves the door open to design even better short to mid-term trading methods. Maybe adapt the *Alpha Power* governing equations to real-time market data instead of presetting all the trading behavior from day one. Allow the equations to fluctuate alongside market sentiments. Based on my most recent simulations on market data, I know I can push performance levels higher and that *alpha* points can easily be generated.

The simple fact that the simulations presented in this paper worked along the lines of the *Alpha Power* wealth generation formula would tend to give credence to the theoretical framework presented in my papers. And thereby reinforces the statements made concerning *alpha* generation: contrary to academic beliefs, *alpha* points exist, do not necessarily tend to zero long term, and can have the property of producing exponential Sharpe ratios as presented in my papers. The consequence being the ability to generate returns much higher than the Buy & Hold.

List of my papers and articles (related to the Alpha Power project):

[Alpha Power: Adding More Alpha to Portfolio Return](#) (2007)

[Jensen Modified Sharpe Ratio](#) (2008)

[New Formula](#) (2008)

[Total Solution](#) (2009)

[Questions and Comments](#) (2009)

[Another Trading Model](#) (2009)

[Position Sizing](#) (2009)

[Pay Off Matrix](#) (2009)

[Trading Game](#) (2010)