CSTA Journal

Official Publication of the Canadian Society of Technical Analysts

CSTA Journal - November 2016

Dear Associates,

In July 2016 the CSTA decided to resume the publication of a Journal. I am glad I had the opportunity to help putting together this first issue and we look forward to receive and publish quality work in the coming months and years.

I want to take the chance to thank you for supporting this initiative and also reiterate the invite to all of you to contribute to the Journal with your ideas and studies. The next Journal issue will be published in March or April 2017. We look forward to receiving your contributions!

Contributions must not necessarily be original, but they can be reviews, critiques and re-examinations of the work presented by other authors. Consider it an opportunity to get in the game and test yourself: the CSTA submission committee will be available to help, discuss and address improvements on your ideas.

Associates interested in publishing their work on the Journal can write to: newsletter@csta.org

Now let us move to the introduction of the articles published in this issue.

The first paper is a research work prepared by Colin Cieszynski – experienced market strategist with CMC, professional member and CSTA Vice-President. In his very interesting and timely paper, Colin discusses the trading around and after the US elections, and what can be anticipated along with interesting patterns emerging from the analysis of monthy returns using data on past occurrences.

The second is a research paper by Giuseppe Basile (yours truly) – trader, mentor and market researcher, professional member and CSTA Board Director. The paper demonstrates a linkage between money management and trading goals using univariate Monte Carlo simulations and other statisticals techniques. Most importantly, the work offers a generic and re-usable framework to study the impact of money management techniques on trading performance, given any trading system.

Happy Reading

Giuseppe Basile
(CSTA Editor)

In this issue

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Introduction to the the CSTA

www.csta.org

The Canadian Society of Technical Analysts (CSTA) was founded in 1984 as a non-profit professional organization with the following objectives:

- Encourage the development of technical analysis.
- Provide an outlet for the exchange of information for the benefit of all members.
- Educate the financial community in Canada about the uses of technical analysis in the investment decision-making process.
- Foster among its members the practice of technical analysis in a professional and ethical manner.

As part of its educational mandate, the CSTA holds regular meetings in several major centres across Canada. Details as to when, where and at what time of day a local chapter meets is contained in CSTA web-site (www.csta.org).

In addition, there are national and/or regional conferences (usually held annually) extending over one or two days.

The CSTA also encourages its members to create informal study and peer learning groups. Several chapters hold study groups to allow individual aspects of technical analysis to be studied in depth. Individual chapter blogs have also been created in our chapter section for local members to exchange ideas or post questions for fellow technicians to consider or answer.

The CSTA recognizes outstanding contributions to the development of technical analysis with the A.J. Frost Memorial Award given out to a deserving individual at the Annual General Meeting.

CSTA Note from the President

by Jim Ivey, CSTA President

Dear Members of the Canadian Society of Technical Analysts.
It is with great pleasure to serve as president of the CSTA.

A little background on myself.
While most of my fellow board come from the investment industry side of the business, my background is more from the software and technical side of things, selling technical analysis software and data feeds, and developing trading systems.

I've been on the board over the last 6 years and held every board position, starting from Chapter Head, to Treasurer, and now President. In each position, I've clarified and streamline procedures, so things run as smoothly as possible. Then I focus on adding value.

This year as President, my plan is to focus on **increasing VALUE to our members**. We already provide quite an extensive list of services to our members. But we can do more for our members:

- Better Communicate, and make more accessible – the benefits & services we currently offer
- Focus on speakers and educational tools our members can use by supporting our Chapter Heads better, and providing more education resources in our library and at chapter meetings.

There's lots of exciting new things being worked on to provide more VALUE to our members

- MTA educational materials – towards CMT
- Establish new Chapters – North York, (interest in Barrie, and St.Catharines/Niagara Falls)
- More communication with members - Launch of the Newsletter (feedback FROM members)
- Further reach leveraging webinar technology (both live and recorded) of Chapter Meetings
- Library offerings – more online content (promote new postings)

Bring in new blood into the organization:

- Promote Corporate Memberships – expand membership services geared for professionals
- Promote Student Memberships - where students can attend chapter meetings for free
- Promote discounted memberships - Combo specials with all our events

Better Communicate how much we Value and Appreaciate the efforts of all our Volunteers
Volunteers are the lifeblood of this organization.

- Recognizing our volunteers efforts, through many more thanks, and little perks
- Better understand the WIIFM of our Volunteers, and try to facilitate those goals.
- Make sure they get value from their engagement
- Encourage and promote new ideas – and if it makes sense, let them run with it !

Succession Planning – for Chapters and the Board of Directors
Structure chapters with assistants so that they can help our chapter heads and be more involved.

So I look forward to this year.
Jim Ivey – CSTA President 2016-2017

Benefits of CSTA Memberships

Dear Member of the Canadian Society of Technical Analysts,
This section summarizes the current benefits of the CSTA Membership.

Annual conferences: usually 2 per year, plus discounts on Affiliated Association events

Local Chapter meetings monthly: 11 Chapters and growing, or via Webinar
Network with Industry Professionals: Traders, Market Analysts, Portfolio Managers

Distinguish yourself: become proficient at using Technical Analysis tools and concepts

Education: weekly **Webinars**, monthly **Chapter Meetings**, annual **Conferences**

CE Credits to Investment Industry professionals for some events

CMT Preparation material (Chartered Market Technician designation) (coming soon)

Extensive Library: Extensive list of Technical Analysis books, courses and videos

CSTA Technical Analysis Hall of Fame Awards: Nominate and vote for candidates

Affiliated associations: Access to research and discounts

- **MTA** - Market Technicians Association - New York – free Webinars and discounts
- **IFTA** - International Federation of Technical Analysts - International Org. - conferences

We are working on enhancing our website with links to all these areas to make them more accessible.

Coming Soon at the CSTA

by Colin Cieszynski, CSTA Vice-President

Dear Member,

The following initiatives will be **coming soon at the CSTA:**

Expanded use of Webinar technology

In our ongoing efforts to provide ever greater value to our CSTA members through easier access to quality Technical Analysis techniques and related content, we will be expanding the use of the simulcast technology used at the conference at select future CSTA Chapter Events. Webcasting and recording some of the many meetings we hold each month will enable members across Canada to benefit from live presentations of Technical Analysis Gurus presenting to other CSTA Chapters across Canada. We also are planning to make more of the presentation slides available on our library where possible.

New Education Programs

The CSTA is currently working with the MTA to start offering CMT preparation courses in Canada in 2017. We also are working on developing introductory level education programs in technical analysis and trading plus more education on specific topics of interest for all levels of experience.

We have other initiatives in the early stages of planning, we hope to have more to announce in the coming months.

Call for Volunteers

Are you interested in learning more about technical analysis, meeting other traders and technicians, and helping to raise the profile of technical analysis in Canada?

The CSTA is currently looking for volunteers across Canada to help with our chapter meetings plus committees including education and our Library.

If you are interested in learning more about how to get involved with the CSTA, please contact Colin Cieszynski at colin@csta.org.

CSTA Technicians Day 2016

by Jim Ivey, CSTA President

On Saturday, October 15th, we held our annual Technicians Day Conference across Canada.

Following the format from last year, it was a simulcast event to CSTA Chapter regions across Canada. Returning locations Calgary, Toronto and Winnipeg were joined by a new group in Vancouver, plus individual members in Ottawa, Montreal and remote areas of Ontario.

Our program featured a diverse group of speakers including:

- Andrea Unger (presenting from Italy), four time winner of the World Cup of Trading Championship and a speaker at this year's IFTA conference
- Sid Mokhtari (from Toronto), CIBC technical analyst and current treasurer of the MTA
- Don Vialoux (from Toronto), Canadian Technical Analysis Hall of Fame member
- Leon Tuey (from Vancouver), a special presentation by one of the founding members of the CSTA reflecting on the lessons learned in over 55 years of following the markets

Recordings of all the Webinar presentations, as well as all the PDFs of the presenters' slides, are available to CSTA members at the CSTA Library.

I wish to express my specific gratitude to the significant efforts put in by volunteers across Canada who made this event possible:

- Colin Cieszynski – Toronto - Conference Chair – who co-ordinated many of the Speakers
- Giuseppe Basile - Toronto - Conference co-chairs – who co-ordinated most of the Toronto event
- Allen Hosey - Winnipeg
- Greg Schnell and Rick Nadon - Calgary
- Jose Cid and Peter Shenk – Vancouver and Victoria
- Jim Oliveira - CSTA Librarian in Ottawa
- Blair Carruthers (Oakville CH) and Steve Kopacki (KWGC CH) - Toronto volunteers

And I would especially like to thank our Business Manager, Reagan Yuke, for her supporting efforts before and after the conference; our speakers, who graciously gave up their Saturdays to give back to the CSTA Community; and finally, to our valued members, for your continued support of CSTA events.

We look forward to holding an even better conference next year!

CSTA Annual Meeting Review

by Colin Cieszynski, CSTA Vice-President

The CSTA held its annual meeting in June this year featuring a keynote luncheon speech from Don Vialoux. It was our best attended meeting in years with over 40 members in attendance, including seven past-presidents of the CSTA and many others who have supported the CSTA over the years.
Members came out from across Ontario plus Ron Miesels from Montreal and Greg Schnell from Calgary attended this year.

At this year's meeting, we inducted our first class into the Canadian Technical Analysis Hall of Fame, recognized prior builders who have passed away, brought back the Frost Award and introduced this year's annual award winners.

Highlights of the event included:

- Speeches from our 2016 Hall of Fame class which included Larry Berman, Ron Miesels, and Don Vialoux (Greg Schnell presented Martin Pring with his Hall of Fame plaque in the summer)
- Ron Miesels presented the Frost Award for top technical analysis work of the year to Larry Berman for his presentation "Building Efficient Tactical Portfolios Using Wilder's RSI"
- Colin Cieszynski and Jim Ivey presented the annual individual and awards:

1. Technical Analyst of the Year - 2016 - George Davis, CMT
Runner Up: Don Vialoux, CFA, CMT

2. Technical Portfolio Manager of the Year -2016 - Glen Martin, CMT
Runners Up (Tie): Hap Sneddon and Jeanine Guenther

3. Technical Journalist of the Year – 2016 – Jennifer Dowty, CFA
Runner up: Frances Horodelski

4. Technical Blogger of the Year – 2016 – Greg Schnell, CMT, MFTA
Runner Up: Donald Dony, MFTA, CFSI

5. Technical Analysis Media Organization of the Year – 2016 – BNN
Runner Up: Globe and Mail

6. Technical/Trading Educator of the Year – 2016 – Greg Schnell, CMT, MFTA
Runner Up: Larry Berman, CFA, CMT

7. Top Technician in Traditional Media – 2016 – Larry Berman, CFA, CMT
Runner up: Don Vialoux, CFA, CMT

8. Top Technician in Social Media – 2016 – David Cox, CFA, CMT, FCSI, FMA, BMath
Runner Up: Colin Cieszynski, CFA, CMT, CFTe

9. Top Charting Software or Website – 2016 – Stockcharts.com
Runner Up: Recognia

10. Top Trading Platform for Charting – 2016 – CMC Markets

11. Top Mobile App for Charting – 2016 – Stockcharts.com
Runner Up: CMC Markets

12. Top Technical Analysis Team – 2016 – Stockcharts.com
Runner up: RBC Capital Markets

13. Technical Analysis Supporter of the Year – 2016 – Stockcharts.com
Runner Up: Bloomberg

We also had a number of lively formal and informal discussions about technical analysis, the past and future of the CSTA, our relationship with the MTA and many other topics.

This year's winners were evenly split between the Toronto and Calgary chapters with the runners up broadly distributed across Canada.

Congratulations to our winners and runners-up!

Thanks to all of our members across Canada who participated in the awards nominating and voting this year and to everyone who helped in making our first Hall of Fame Luncheon and Awards Ceremony such a big success this year!

Nominating and voting for the Hall of Fame and awards is one of the benefits of being a CSTA member. When you are attending chapter meetings and presentations in the coming months, please keep an eye out for potential nominees for next year's awards so that we can make this event even better next year.

What can trading around past US Presidential elections tell us about this year's race and results?

by Colin Cieszynski, CFA, CMT, CFTe, Chief Market Strategist, CMC Markets
c.cieszynski@cmcmarkets.com

It's long been said that the stock market is a crucible where the hopes and fears of millions of people willing to put their money on the line interact with each other. Because of this, stock markets are widely considered to be strong reflection of people's attitudes of the current economic and political situation and also are forward looking, reflecting what people think the situation may be six to nine months into the future.

A study of monthly returns of stock markets in the months leading up to and following all of the Presidential elections since 1960 reveals some interesting patterns that could have significant implications for trading.

Politics and the Market: The Chicken or The Egg?

This year's presidential election campaign features a clear division between those favouring more of the same politics that has dominated the past 25 years (one of the Clintons was either President, a Senator, Secretary of State between 1993 and 2012) and a strong desire for real change (for better or for worse, Donald Trump has never before held elected office).

> In presidential election years with no incumbent the Dow Jones Industrial Average has declined 0.05% per month on average underperforming the 0.78% monthly average returns in years with an incumbent. This suggests uncertainty over who the incoming president may be and what policies they may change or introduce can weigh on markets.
>
> Presidential election years where the party in power was defeated had an average monthly return of (0.13%) underperforming the 0.85% average monthly return when the party in power was re-elected. This suggests that soft markets may reflect discontent with the direction of the country and a mood for change.

The 2000 and 2008 campaigns coincided with major bear markets and recessions. It remains unclear which came first in the minds of traders and voters or if they go hand in hand. It would seem logical, however that the economy and the markets would lead the polls. In other words, economic disruption causing markets to crash could be seen as reflecting failed government policy driving a desire for change at the ballot box.

There are numerous other examples where change at the ballot box has emerged as a delayed reaction to economic and market turmoil. For example, the 1992 election followed the 1990 Gulf War related recession and markets decline, the 1976 election came in the wake of the 1974 major bear market, recession and Watergate scandal, the 1968 election followed the peak of a bull

market in 1966, and the 1932 election followed the 1929 stock market crash which kicked off the Great Depression. The one major exception was in 1988 where the markets ignored the Crash of 1987 as a speed bump within a bigger cycle.

What could 2016 market performance so far tell us about this year's election race?

Monthly returns during Recent Presidential Election years							
	1992	2000	2008	2016	1996	2004	2012
incumbent	yes	no	no	no	yes	yes	yes
party change	yes	yes	yes	?	no	no	no
January	1.74%	(4.84%)	(4.63%)	(5.50%)	5.43%	0.33%	3.40%
February	1.37%	(7.42%)	(3.04%)	0.30%	1.67%	0.91%	2.53%
March	(0.98%)	7.83%	(0.03%)	7.08%	1.86%	(2.14%)	2.01%
April	3.83%	(1.72%)	4.55%	0.50%	(0.32%)	(1.27%)	0.01%
May	1.10%	(1.97%)	(1.42%)	0.08%	1.33%	(0.36%)	(6.21%)
June	(2.30%)	(0.71%)	(10.19%)	0.80%	0.19%	2.42%	3.93%
July	2.26%	0.72%	0.25%	2.81%	(2.23%)	(2.84%)	0.99%
August	(4.01%)	6.59%	1.45%	(0.17%)	1.59%	0.34%	0.63%
September	0.43%	(5.04%)	(6.00%)		4.74%	(0.91%)	2.65%
October	(1.38%)	3.01%	(14.06%)		2.50%	(0.53%)	(2.54%)
November	2.45%	(5.08%)	(5.32%)		8.16%	4.00%	(0.54%)
December	(0.12%)	3.57%	(0.60%)		(1.12%)	3.40%	0.61%
eight month return	3.01%	(1.53%)	(13.06%)	5.88%	9.53%	(2.61%)	7.29%
Average			(3.86%)		4.74%		

Source: CMC Markets

2016 got off to a really rocky start in January, which was a bit worse than similar non-incumbent years like 2000 and 2008. Unlike those years which continued to crumble as stocks entered major bear markets, this year, stocks rebounded in late February and March and rallied through July. August saw a small retrenchment on a combination of exhaustion and speculation the Fed could make announce an interest rate increase in September (which would be a rare event, since the Fed usually goes quiet during election campaigns).

The rocky first six weeks of this year favoured Donald Trump and the Republicans suggesting discontent with the current government. Since the middle of February, however, market expectations have been tipping toward the Democrats, as stock market gains reflect a strong economy and that general content with current economic trends and policies.

The last line of the table above shows that in the last six election campaigns, the Dow fell 3.8%% on average in the first two thirds of years where the party in power changed hands, and rose 4.7% on average in years when the incumbent party held power. This year, the Dow rose 5.9% between January and August, suggesting traders are encouraged about the US economy's prospects and don't appear to be in a hurry to kick the Democrats out.

Market action also favours the Clintons personally. The 3.25% return is most similar to 1992 when Bill Clinton was first elected President, while second quarter monthly action this year is most similar to 1996 when Bill Clinton won re-election.

Through the end of August, Hillary Clinton has been leading in the polls, so the strong stock market action may reflect speculation among traders that the Democrats may win again leading to four more years of similar policies.

That being said, markets may be getting too complacent about the election. A lot can happen between now and November, politically, economically and in the markets. The recent Brexit referendum in the UK is a reminder that the market is not a perfect predictor of politics, and the street can even be dead wrong, particularly if the race is close. If trends in polling were to change we could see significant volatility in the markets with the potential that the usual mid-August to mid-October seasonal correction could deepen or be extended. On the other hand, if the Clintons can carry their momentum through to election day, we may see less seasonal volatility than usual.

What about after the election?

General Presidential cycle thinking suggests that markets tend to underperform during the first year following an election as new presidents try to make the difficult decisions and make less popular but necessary moves early in their mandate when they have more political capital and in the hope that any voters angered by early moves will forgive and forget by the time the next election rolls around.

The table below shows that the first years following Presidential elections since 1960 have been difficult ones for trading, averaging a monthly return of (0.36%). Democrats have done better than Republicans on average returning 0.88% per month vs a 0.16% average monthly loss for the Grand Old Party. New presidents (year 1) have underperformed returning presidents (Year 5) most likely because the second time around there is less uncertainty about what the President may try to do.

Looking at more recent new president years, 1998-1989 had the best return but was a third term for the Republicans and the first President Bush was a known quantity having served as Vice President for two terms already plus other high level positions. The last two first years for Democratic Presidents 1992-93 under William Clinton and 2008-09 under Barack Obama with Hillary Clinton in cabinet, also had positive monthly returns. The worst performance came in 2000-01 under the second President Bush who presided over a major bear market and the fallout from the 9/11 attacks.

Market Performance following recent Presidential Elections									
	Average	Avg Dem	Avg Rep	Avg new president	Avg returning president	1988-89	1992-93	2000-01	2008-09
November	(1.39%)	0.88%	1.90%	0.32%	2.81%	(1.58%)	2.45%	(5.08%)	(5.32%)
December	(0.86%)	1.10%	0.63%	0.89%	0.82%	2.55%	(0.12%)	3.57%	(0.60%)
January	(1.11%)	0.92%	1.29%	(0.07%)	2.67%	8.03%	0.27%	0.94%	(8.84%)
February	1.27%	(1.03%)	(1.51%)	(2.29%)	0.09%	(3.59%)	1.81%	(3.60%)	(11.73%)
March	(0.40%)	1.12%	(0.33%)	1.49%	(1.06%)	1.55%	1.93%	(5.88%)	7.73%
April	(2.04%)	2.88%	1.20%	2.91%	0.87%	5.45%	(0.23%)	8.68%	7.36%
May	(1.42%)	1.81%	1.04%	1.11%	1.85%	2.56%	2.92%	1.64%	4.06%
June	1.29%	(0.42%)	(2.16%)	(1.81%)	(0.60%)	(1.61%)	(0.31%)	(3.75%)	(0.62%)
July	(3.10%)	4.99%	1.21%	1.21%	5.61%	9.02%	0.65%	0.19%	8.57%
August	2.16%	(2.31%)	(2.01%)	(0.25%)	(4.72%)	2.89%	3.16%	(5.45%)	3.54%
September	0.42%	0.86%	(1.71%)	(2.95%)	2.95%	(1.64%)	(2.63%)	(11.08%)	2.27%
October	(0.68%)	0.00%	1.36%	0.84%	0.47%	(1.75%)	3.52%	2.58%	0.00%
Average	(0.36%)	0.88%	(0.16%)	0.02%	0.81%	2.09%	1.11%	(1.57%)	1.24%
1989 was the last time a party won a third term with a new president									
1993 was the first time the Clintons were in power									
2001 and 2009 were the last two years with a new president									

Based on historical trading action following Presidential elections, we could see some choppiness in November and December, but there's a good chance of a positive market in 2017 should Hillary Clinton win. On the other hand, a Donald Trump victory could create significant political and economic uncertainty and cause significant upheaval in the markets following the election and into next year.

About CMC Markets

CMC Markets is Canada's leading online CFD provider and was the first company in the world to offer online FX trading. With offices in Toronto, CMC Markets has been offering CFDs and FX to Canadian traders since 2005. Since Peter Cruddas founded CMC Markets in 1989, the company now services more than 80,000 clients worldwide, who placed approximately 30 million trades last year.

For more information on CMC Markets visit http://www.cmcmarkets.ca/

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An examination of the linkages between money management and trading goals

by Giuseppe Basile, B.Sc.Eng, M.Fin, Trader, FibStalker Trading
giuseppe.basile.ca@gmail.com

Abstract

This paper is a summary of a research study whose objective was to establish a linkage between money management techniques (helping determine "how much" can be risked per trade) and trading goals. Three money management techniques were examined and applied to the profitable "Turtle Soup" trading system. Trading goals were split in three different sub-goals: downside protection, upside potential and an opportunistic outcome. A uni-variate Monte Carlo simulation method was adopted and a trading data distribution calibrated using known goodness-of-fit techniques and tests. The study not only confirms that good money management techniques are able to modify the results of a profitable trading system positively affecting trading performance, but it also demonstrates that, as a result of such capability, money management techniques can be used to control achievement of trading goals. In particular, different features of money management are able to separately affect the achievement of different sub-goals. The paper concludes that a linkage between money management techniques and trading goals exists, therefore selection of the latter is not disjoint from considerations and choices made in the area of the former. This work also offers a generic, re-usable framework to study the impact of money management techniques on trading performance, given any trading system.

Introduction

In trading two critical decisions must be made: the direction to trade (long or short) and the amount to risk, strictly related to the size of the position. It has been already shown by Lajbcygier and Lim (2007) that the "how much to risk" decision can affect trading performance. This study builds on that result and introduces the concept of trading goals into the picture. Particularly, it focuses on how money management links into, relates to and affects the achievement of trading goals, which constitutes the main research question. Since money management techniques affect trading performance intuitively they should also affect the achievement of trading goals. Formal support for such seemingly straight forward observation requires a thorough simulation as there are three aspects that must be taken into account: (1) trading goals are more complex to characterize than a simple percentage return, and require the use of event probabilities; (2) the role of the trading system in achieving goals; (3) how different money management features can affect the achievement of specific sub-goals.

This study is organized around three main sections: Methodology, Methods and Empirical Results. The methodology section presents the analytical framework created and used in the study. The methods section presents information related to trading data, identification of trading goals and sub-goals, trading system rules, a description of the money management techniques adopted, trading data distribution to feed the Monte Carlo method and setups for

the trading simulations. A description of the empirical results obtained from the simulations and related conclusions complete the study.

Methodology

Trading goals are defined by several sub-goals (or objectives) identified assuming a long-term horizon. In implementing a trading strategy the traditional asset allocation approach was not adopted, firstly because traditional strategies based on the portfolio selection theory and practice frequently do not provide results aligned with traders' goals; secondly, the intent of the study was to focus on pure money management, i.e. sizing the position in trading, and studying how it affects the achievement of traders' goals, given a fixed trading system. The approach selected in the study, similar to that found in (Lajbcygier and Lim, 2007) but employing financial simulations, allowed the analysis of the effects of money management techniques on trading performance, which can be directly linked back to traders' goals. Trading goals can directly be related to trading performance, because goals can be achieved, not achieved, or be partially achieved based on the results, i.e. value of the account, during and at the end of the trading horizon. Notice that trading goals are better defined in terms of probability of "success", i.e. the event of achieving a positive outcome, and "ruin", i.e. the event of hitting a negative, unwanted outcome. An approach that statically applies a trading system and money management techniques to historical data would fail in producing information related to the probability of meeting specific goals and would only allow gathering measures on what "has happened" in the past, but not on what "could happen" in the future. Simple simulations on past data are not capable to tackling the probability of events and not able to describe possible "alternative futures" or outcomes. This is the reason Monte Carlo (MC) simulations were adopted: they still rely on data from the past but used to dynamically generate possible future scenarios.

Considering the context of the study and in recognition that proper money management is as important or indeed more important than the entry or exit rules provided by the trading system, the latter plays a secondary role. The minimal requirements for the adopted trading system were to: (1) be profitable on the selected market data; (2) be based on TA; and (3) easy to implement. An effective model to simulate real trading outcomes, dynamically using past data, should produce trading results similar to those obtained in actual trading. The comparison of the results of the simulation and the trading goals established in advance would then allow gathering empirical results to help addressing the target of the investigation.

The adoption of the Monte Carlo (MC) simulations avoids substantial problems which present in historical simulations, the most important being the fact they can only reflect the range of observed historical outcomes, along with the related truncation bias. MC method however is more complex and its results depend on the quality of the probability distribution used to model trading outcomes. As only one market instrument, a US stock index ETF, was referenced in the study a mono-dimensional or uni-variate distribution was adopted, considered time-invariant. This is a limitation as markets could change in the future affecting the shape or parameters of the distribution, but that could be mitigated using a different trading system, maintaining the stability of the results of this study. Another limitation, which could not be removed, was the assumption that samples drawn from the adopted distribution are uncorrelated with the statistical variable's past values. In the context of this study, this is equivalent to assuming that any trade outcome can be drawn at any time, thus negating the

evidence that the underlying market could be in a particular state, in which certain outcomes are more probable than others. One such states is a market trending for prolonged periods of time, as witnessed in the 1982-2000 bull market or, more recently, in the period between March 2009 and May 2011. The extent to which the distribution calibration, i.e. the process of deriving the probability distribution from the historical data series might, at least partially, reflect this correlation is unknown. The assumption that samples are uncorrelated over time is known to have the potential to distort the simulation to a variable extent depending on the type of asset, frequency of observations, and the historical period examined.

The quality of the distribution obtained through the calibration process is critical for the performance of the MC method and validity of results. The MC simulation method can incorporate non-normal probability distributions and allows better estimates of downside risk when compared to historical simulations. Macroeconomic indicators and related predictive variables were not part of the study and improvements of MC simulations outcomes using regression-based methods were also not considered. The analytical framework used, in Figure 1 below, presents several elements including input and output data, techniques, methods, rules,

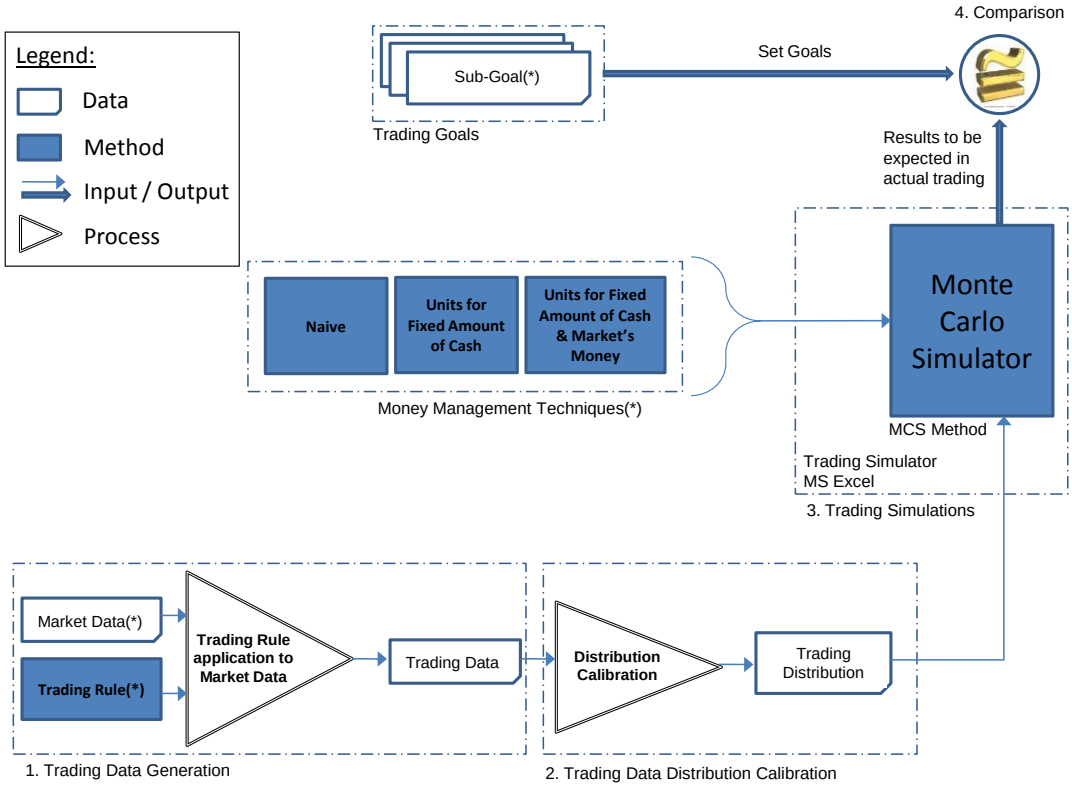

Figure 1. Adopted analytical framework

input and output flows from different components and processes. The framework is completed by a logical model referenced during the interpretation of empirical results to elicit findings throughout an iterative process (not shown).

Methods

The elements of the framework marked with an asterisk (*) in Figure 1 represent the fundamental fixed inputs to the model including: a trading instrument (SPDR S&P 500 ETF)

and related market data; a set of trading goals; a profitable trading system; and three money management techniques, to provide position sizing decisions for the trades generated by the trading system. These elements are discussed in the following along with the statistical distribution calibration and the setup for the trading simulations.

Market and Trading Data. Daily quotes of closing prices of the SPDR S&P 500 ETF fund (symbol: SPY, AMEX) from January 1998 to January 2010 were used. In the tested period the trading instrument moved within a wide range (low at $67.10 and a high at $157.52). The period tested included the latter part of the great 1982-2000 bull market, the 2001-2002 bear market, the 2003-2007 bull market, the 2008-2009 bear market and the latest market recovery started in March 2009. This ensured that a wide set of market conditions, as well as, participants' behavior is represented by the selected market data.

Trading Goals. These are a significant input in the analytical framework (Figure 1) as they are compared to the simulated trading results, i.e. the output from the MC method (Step 4). Trading goals link trader objectives to risk management constraints and trading strategies. A capital growth goal was selected and used throughout the study: this is made up of three sub-goals (A, B and C), of which the first two (A and B) are mandatory and the third one (C) is discretionary (optional). The first sub-goal A, deals with down-side protection, i.e. the maximum amount of loss accepted by the trader with a specified probability, an event defined as "ruin" with its likelihood, probability of "ruin". This has been linked to the measure of the worst final portfolio value using a 99% confidence interval, indicating a 1% probability that the portfolio value will show a loss equal or smaller than the maximum amount of loss accepted. This goal has the highest priority due to the importance of loss aversion behavioral bias showed by traders.

Sub-goal	Type	Outcome	Probability	Event
A: Down-side protection	Mandatory	20% loss	1% prob. of having a loss of 20% or greater	Ruin
B: Up-side potential (1)	Mandatory	40% mean gain	N/A	Success
B: Up-side potential (2)	Mandatory	60% gain	20% prob. of having a gain of 60% or greater	
C: Opportunistic outcome	Discretionary	355% gain	prob. greater than 0 of having a gain of 355% or greater	Multiple

Table 1. Sub-goals of targeted trading goals

The second sub-goal B deals with up-side potential, the very reason why financial resources are put at risk. This corresponds to the minimum gain that can potentially be realized to balance for the risks being taken. The event of reaching this minimum gain was defined "success" and the related likelihood, probability of "success". Sub-goal B is defined by two objectives: (1) a minimal mean return; (2) a gain equal or greater than a defined threshold, with a 20% probability of achieving it. A third, discretionary sub-goal C is related to the possibility of gaining a "multiple" of the portfolio value at the end of the period, an opportunistic outcome

which could greatly improve performance results. Sub-goals are summarized in Table 1 above.

Sub-goals could not be defined without taking into account the efficiency of the trading system, as well as, the actual opportunity represented by the intermediate-term price moves in the selected market, during the referenced period of time. This information should only be based on trading and market data, before any simulation is made. The 40% mean gain objective of sub-goal B was arbitrarily set as double the amount risked, i.e. 20% of the initial account size, as mentioned in sub-goal A. This is the expected outcome and a related probability was not defined. The 60% upside potential sub-goal was also arbitrarily set to three times the amount risked, along with an associated 20% probability. The opportunistic outcome has been defined examining the "price potential" offered by the SPY market in the tested period, looking at the monthly highs and lows. Table 2 below shows monthly low and high prices during the testing period (January 1998 to January 2010) along with the returns of an hypothetical, "hindsight" trading system capable of extracting the full potential of price moves in the selected market. The total non-compound return is in the region of 355% and for its calculation a basic money management (one share) was used, while transaction and tax costs were not taken into consideration.

Date	Low/High	Price ($)	Trade	Return
Jan-98	low	90.91	LONG	71.32%
Mar-00	high	155.75	SHORT	50.52%
Oct-02	low	77.07	LONG	104.39%
Oct-07	high	157.52	SHORT	57.40%
Mar-09	low	67.1	LONG	71.59%
Jan-10	high	115.14		
			Total	355.22%

Table 2. Returns of a trading system capturing full SPY price potential

The ideal return of 355%, which it was assumed could potentially present in the future, has been used to define the sub-goal C, the opportunistic outcome. Its probability of occurrence is greater than zero, meaning that the goal is met if at least one trading simulation generates or exceeds the ideal return.

Trading System. The "Turtle Soup" trading rule (Raschke and Connors, 1995), which trades against the widely known Donchian 20-day channel breakout and aims at profiting from false price breakouts, was adopted in the study. The trading system is simple and profitable on the selected market data, it has only three rules, two entry rules and a timed exit rule; it generates a sufficiently high number of trades, a requirement for the distribution calibration process; it implements an effective, contrarian approach to a widely known system which has possibly "stopped working" because of its diffusion among traders.

Figure 2 below provides the detailed rules of the "Turtle Soup" trading strategy, which take trades both long and short. The strategy opens a long position if today's closing price (CPt=0) is below the minimum of low prices (LPi) of the last 20 days. Similarly, the strategy sells short if today's closing price is above the maximum of high prices (HPi) of the last 20 days. Entries are always the next day, at market open price.

Trading Rule: NON-PYRAMIDING "TURTLE SOUP" WITH TIMED STOPS (20/10/NoP)

Long Entry: If $CP_{t=0} < Min (LP_{t-20}, \ldots, LP_{t-1})$: Buy* tomorrow at market open

Short Entry: If $CP_{t=0} > Max (HP_{t-20}, \ldots, HP_{t-1})$: Sell short* tomorrow at market open

Timed exit: If opened at t-9, exit current position today at market close

(*) Position size, i.e. number of shares,is established by the money management method

Figure 2. Entry and Exit rules of the "Turtle Soup" strategy

The number of shares, i.e. the position size (*), is always defined by the money management technique that is "overlaid" on the trading strategy. The decision on "how much" is completely independent from the decision on when to enter long/short or exit the market. To further simplify the system, a timed exit rule was adopted which exits the current position at the close of the 9th day after it is initiated, to complete a total of 10 days of duration. The two main parameters are: (1) the channel days, `cd=20`; (2) the trade duration, `td=10`. The trading strategy was not optimized in order to avoid data snooping.

	All Trades	Long Trades	Short Trades
Total Net Profit	$ 71,294	$ 52,590	$ 18,704
Total Number of Trades	178	75	103
Percent Profitable	49.44%	56.00%	44.66%
Return on Initial Capital	71.29%		
Annual Rate of Return	4.46%		
Buy and Hold Return	10.35%		

Table 3. "Turtle Soup" strategy results on SPY market data

As showed by the report in the above Table 3, the trading strategy behaved well when tested on the SPY market data, for the period January 1998 to January 2010, greatly outperforming the buy and hold strategy. The strategy generated 178 trades (an average of 14.83 trades/year), had an overall reliability of 49.44%, an annual rate of return of 4.46% over the 12-year period, with a return on capital of 71.29% outperforming the buy-and-hold return of only 10.35%.

Money Management Techniques. Two main money management techniques, plus a variation of the second one, were used: (1) Fixed Amount of Shares, a reference, naïve technique trading a constant number of shares; (2) Units for Fixed Amount of Cash technique, suggested in Tharp (2008), is based on the rule that one share is traded for every fixed amount of dollars in the account; (3) Units for Fixed Amount of Cash and use of Market's Money technique. "Market's money" is basically the profit extracted from the market at any moment, i.e. the difference between the current account size and the initial account size, when positive or zero, if negative. The idea is to use profits, when present, to proportionally increase risk. Making reference to the Units for Fixed Amount of Cash technique, two different cash amounts can be used in relation to the trading capital (own initial capital) and the market's money (profits). In this case, a smaller amount of cash per unit would be used with relation to profits, thus

increasing the position size (leveraging effect) by risking more than with technique (2), but only in presence of profits. In absence of a profit the market's money technique reverts to the Units for Fixed Amount of Cash with no leverage effect. Although more complex money management techniques could be used, including Optimal-f or LEED and others, imposing even more emphasis on position sizing, simpler methods able to dynamically change the trade size were deemed enough to show the linkages between money management and trading goals.

Trading Data Distribution Calibration. The Monte Carlo (MC) simulation of trading requires finding the statistical distribution from which trades outcomes would be drawn. This was obtained by finding the best fit for the sample of trades generated by the trading system on the selected SPY ETF's market data. The process to generate the data sample (called trading data) for further calibration is represented by Step 1 (Trading Data Generation) in Figure 3 below.

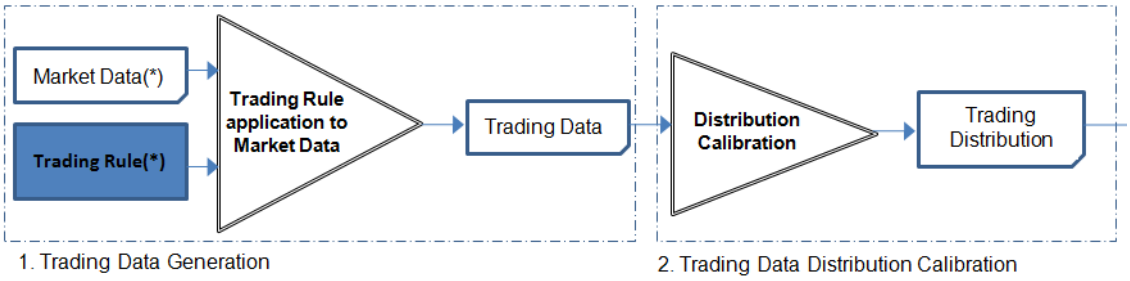

Figure 3. Portion of the analytical framework for distribution calibration

Step 1 of the process applied the trading system rules to market data to obtain a sequence of 178 trades outcomes, expressed in positive (profits) and negative (losses) dollar amounts, the trading data. Subsequently a technique known as distribution calibration (Step 2) was employed to identify the statistical distribution that would best fit the trading data. Three statistical tests called Chi-square goodness-of-fit, the Anderson-Darling and the Kolmogorov-Smirnov tests were used. The Chi-square tests if the trading data comes from a population with a specific univariate distribution (e.g. Normal, Logistic, Exponential, Triangular, Weibull, Uniform, ect.), while the other two methods are employed to obtain confirmation. The outcome of the calibration process is showed in Figure 4 below. A Normal distribution with parameters `mean=0.43253` and `stddev=3.814` was the best fit for the trading data sample and the tests confirmed the choice of the distribution shape with a 95% level of confidence, overall indicating a model that would be wrong less than 25% of the times. Further confirmation was provided by the study of the probability plot (Chambers et al., 1983), a graphical technique (not shown) for visually assessing whether or not a data set follows a given distribution such as, for instance, the Normal distribution. Samples withdrawn from the distribution identified represent trade outcomes for one share traded, expressed in positive (gains) and negative (losses) dollar amounts.

Trading Simulations Setup. Three models where created to simulate sequences of 178 trades, the outcomes of a trading period 12 years long, represented by profits/losses figures withdrawn from the calibrated Normal distribution. Results were obtained executing 100 runs of 10,000 simulations each, for each sequence of 178 trades. An initial account size of $100,000 was assumed. Several simulation runs were executed with different techniques and parameters relating to money management. Such parameters included the *Fixed Number of Shares* in the

naïve technique, the *Fixed Amount of Cash/share* in the Units per Fixed Amount of Cash technique and the additional *multiplier parameter* for the Market's Money variation.

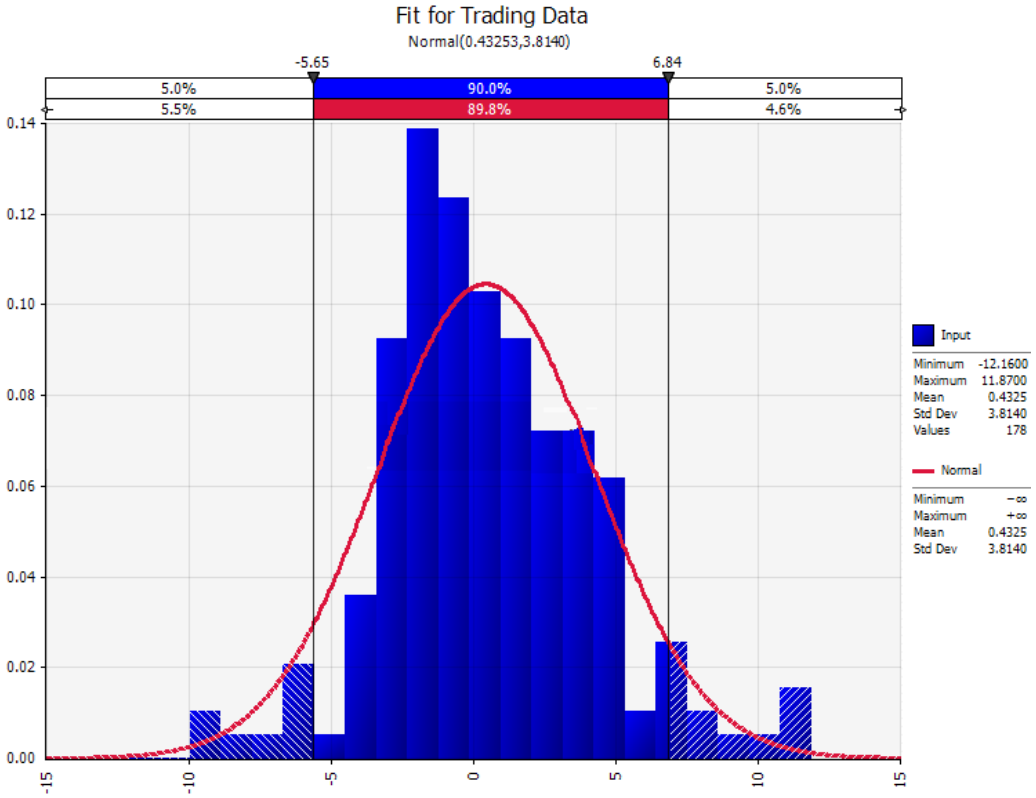

Figure 4. Fit comparison between sample data (Input) and distribution (Normal)

In each simulation run the following measurements were produced and recorded: minimum account value, mean account value, maximum account value, 1% percentile account value and 80% percentile account value. As each simulation produced 100 sets of results, one for each run, two functions were applied to such sets to extract a meaningful figure for the account value associated to the simulation: low(est) and high(est), chosen to correlate the simulation outcomes with the trading goals. As a result the following measures were observed and recorded: lowest minimum account value, lowest mean account value, highest maximum account value, lowest 1% percentile account value and lowest 80% percentile account value. Note that the lowest 1% percentile account value relates to the downside protection sub-goal A; the lowest mean account value and the lowest 80% percentile account value (corresponding to the 20% probability) relates to the two objectives of the upside potential sub-goal B; and, finally, the highest maximum account value relates to the opportunistic outcome sub-goal C. Only trading costs ($0.006 / share) and slippage ($0.01 /share) were considered in the simulations, while taxes were not considered.

Empirical Results

In this section the results of the simulations are discussed. For the naïve money management techniques only a summary of the results is provided due to its simplicity and straightforwardness of related, expected outcomes.

Results of Fixed Amount of Shares technique (naïve technique). The parameter corresponding to the Fixed Amount of Shares used in this trading simulation was iteratively increased from 350 to 450, in increments of 10. Simulation showed that 420 shares is the highest value offering the highest value for the mean and 80% percentile account value, while guaranteeing a 1% percentile account value above $80,000 (thus satisfying sub-goal A). When increasing the number of shares, however, observed results do not satisfy the downside protection goal, producing a 1% percentile account value smaller than $80,000. As it can be easily imagined, the naïve money management technique allows for a mild protection from downside but it does not allow achieving the mandatory upside potential sub-goal B, and the discretionary sub-goal C. On the upside, no simulation was able to reach the $250,000 mark. Therefore it can be concluded that the use of this money management technique offered a maximum return below 150%.

Results of Units for Fixed Amount of Cash technique. The parameter corresponding to the Fixed Amount of Cash/unit used in this trading simulation was iteratively increased from $190 to $270, with $10 increments (meaning one share traded for every x dollars, with x being the value of the parameter). In table 4 below that summarizes simulation's results , $240/share was the lowest figure offering the highest value for the mean and 80% percentile account value, while guaranteeing a 1% percentile account value above $80,000 (thus satisfying sub-goal A). Above $240/share, the money management technique facilitates meeting the downside protection sub-goal A but does not satisfy either of the other two sub-goals (B and C). At $230/share, the technique produces an 80% percentile account value above $160,000, partially satisfying sub-goal B (i.e. gain 60% with a probability of 20%). Below $230 / share the technique always achieves both objectives of sub-goal B (upside potential) and, below $220/share also the discretionary sub-goal C. It is noteworthy that at $200/share the highest account value generated was very close to meeting Sub-goal C. This is considered a simulation run anomaly as Sub-goal C was satisfied with parameters of $210/share and $190/share.

Fixed Cash / unit ($)	190	200	210	220	230	240	250	260	270
Lowest Minimum account Value	38,092	41,581	46,532	48,789	51,649	52,172	48,582	56,252	58,297
Lowest Mean account Value	148,591	145,385	142,586	140,836	138,530	136,609	134,910	133,127	131,686
Highest Maximum account Value	477,447	453,385	482,858	388,195	359,377	348,895	334,052	326,952	296,505
Lowest 1% percentile account value	76,063	76,951	78,509	79,131	79,324	81,346	81,087	82,943	83,226
Lowest 80% percentile account value	178,989	173,945	169,553	165,840	162,271	158,672	156,944	153,910	151,464
Sub-Goal A (downside protection)	no	no	no	no	no	yes	yes	yes	yes
Sub-Goal B (upside potential)	yes	yes	yes	yes	partial	no	no	no	no
Sub-Goal C (discretionary)	yes	no	yes	no	no	no	no	no	no

Table 4. Simulation results for the Units for Fixed Amount of Cash technique

This money management technique can easily generate returns satisfying sub-goals B and C, but it can only do it at the expense of risk management. When the downside protection sub-goal A is enforced, the technique cannot generate the gains expected by the trader. The chart in Figure 5 below shows the same data in Table 4 allowing a visual appreciation of the trend in the main measures observed. As expected there is a negative relation between mean account value, maximum account value, 80% percentile account value and the Fixed Amount of Cash parameter, which is inversely related to the number of shares traded. As the amount of cash increases, however, the drawdown decreases, as demonstrated by the increasing 1% percentile and minimum account value lines.

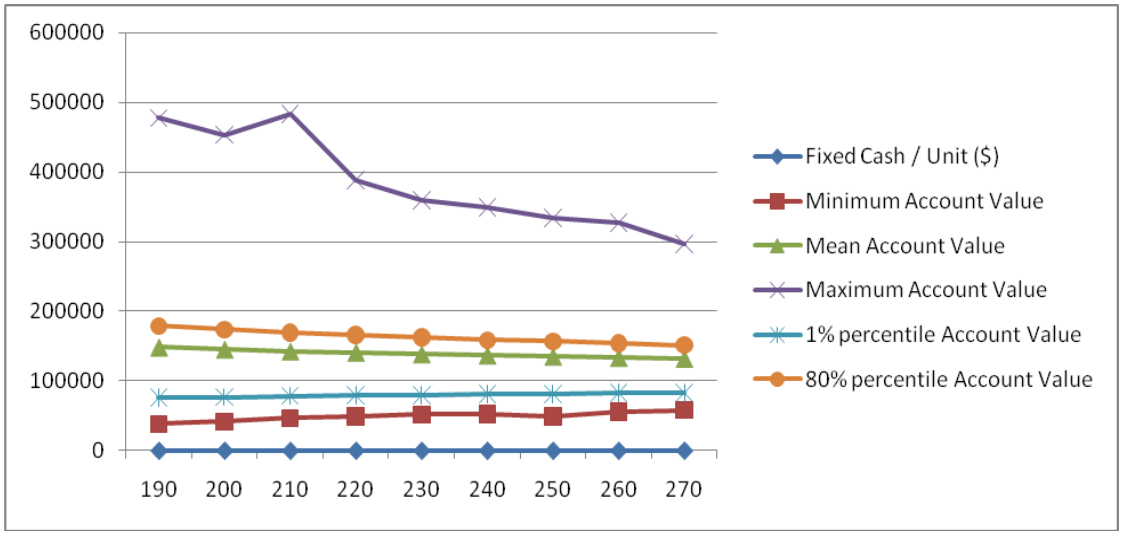

Figure 5. Units for Fixed Amount of Cash technique: trends of main measures

Figure 6 below shows a summary trend chart for the trading scenario (178 trades) setting the parameter to the $240/share value. The summary trend chart shows, in one place, the collective outcomes of all 100 simulations.

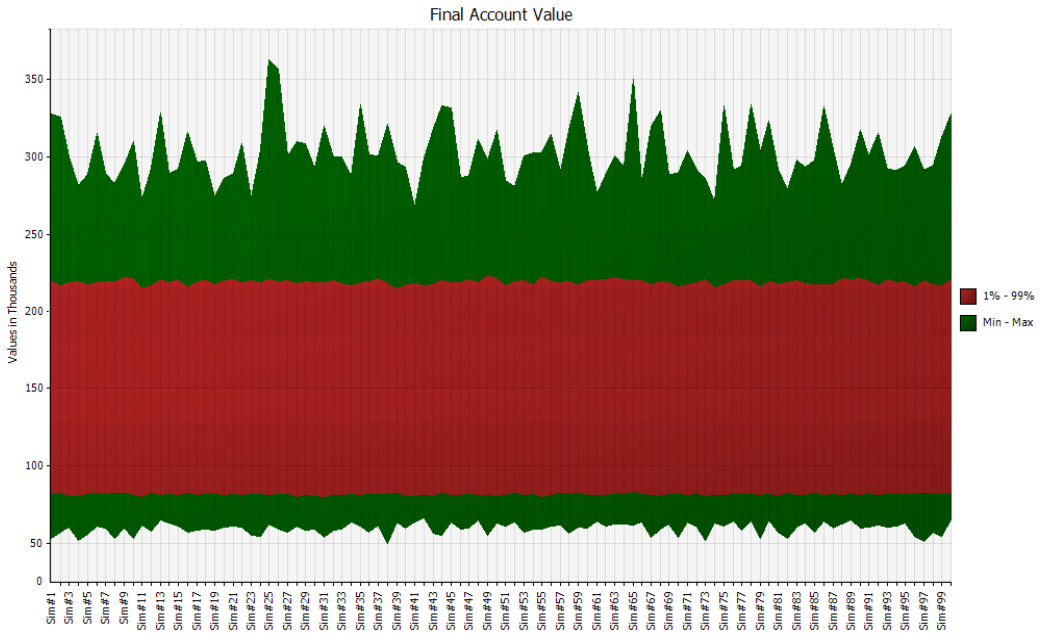

Figure 6. Units for Fixed Amount of Cash technique: summary trend chart

For each simulation, the chart shows the lowest and highest account values (Min-Max, green area) and the 1% and 99% percentile account values (1% - 99%, red area). The inner red area (1% - 99%) shows that each simulation outcome respected the constraint imposed by sub-goal A (downside protection), i.e. not generating 1% percentile account value smaller than $80,000. The outer green area (Min-Max) shows potential minimum and maximum values for the final account size. Notice that, on the downside, the final account value was never below $50,000. On the upside, more than one simulation was able to exceed the $350,000 level and, generally, all the simulations had a highest ending account value above $270,000, thus generating a minimal return of 170%.

Results of Units for Fixed Amount of Cash and Market's Money technique. The parameter corresponding to the Fixed Amount of Cash/unit used in this trading simulation was arbitrarily set to $240, the lowest value that guarantees sub-goal A (downside protection) in the previous trading simulation. The second parameter, the *shares multiplier*, was iteratively increased from 0.9 to 1.9, with 0.1 increments. This parameter represents the amount of "leverage" allowed by the presence of market's money (i.e. profits), and it was used to calculate the overall number of shares traded employing the formula: `TRUNC{(account value/$240) x shares multiplier}`. Table 5 below shows the simulation observed results. It also shows that values existed for the multiplier parameter enabling all the sub-goals (A, B and C) to be met, the lowest of such values being 1.7.

Multiplier value	0.9	1.0	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9
Lowest Minimum account Value	51,226	53,914	49,895	48,934	53,140	55,178	50,349	52,235	52,158	53,220
Lowest Mean account Value	135,951	136,612	137,236	138,336	139,324	139,981	140,517	140,914	142,160	142,822
Highest Maximum account Value	323,288	321,951	345,663	407,951	447,989	410,587	444,121	481,057	505,188	622,196
Lowest 1% percentile account value	80,942	80,912	80,901	80,055	80,941	80,404	80,753	80,023	80,971	80,437
Lowest 80% percentile account value	157,767	159,434	160,043	162,266	164,117	165,323	166,287	167,058	169,030	170,629
Sub-Goal A (downside protection)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Sub-Goal B (upside potential)	no	no	no	partial	partial	partial	yes	yes	yes	yes
Sub-Goal C (discretionary)	no	no	no	no	no	no	no	yes	yes	yes

Table 5. Simulation results: Units for Fixed Cash and Market's Money technique

Values below 1.7 did not enable reaching the discretionary sub-goal C. Sub-goal B (upside potential) could also be met for values equal or greater than 1.6. For values between 1.3 and 1.5 sub-goal B could only be partially met, with a probability of 20% of returns above 60%, i.e. an 80% percentile account value above $160,000. Thus the Units for Fixed Account of Cash and Market's Money technique was able to generate returns satisfying all the sub-goals, without overlooking risk management.

The chart in Figure 7 below shows the data in Table 5 providing a way to visualize the trend of the main measures for different values of the multiplier parameter. As expected there is a positive relation between mean account value, maximum account value and 80% percentile account value and the multiplier parameter, also positively related to the number of shares traded. As the multiplier increases, however, the drawdown remains stable below the 20% threshold, as demonstrated by the flat 1% percentile and minimum account value lines. This is the result of having set a Fixed Amount of Cash parameter to $240, observed from the previous

simulation.

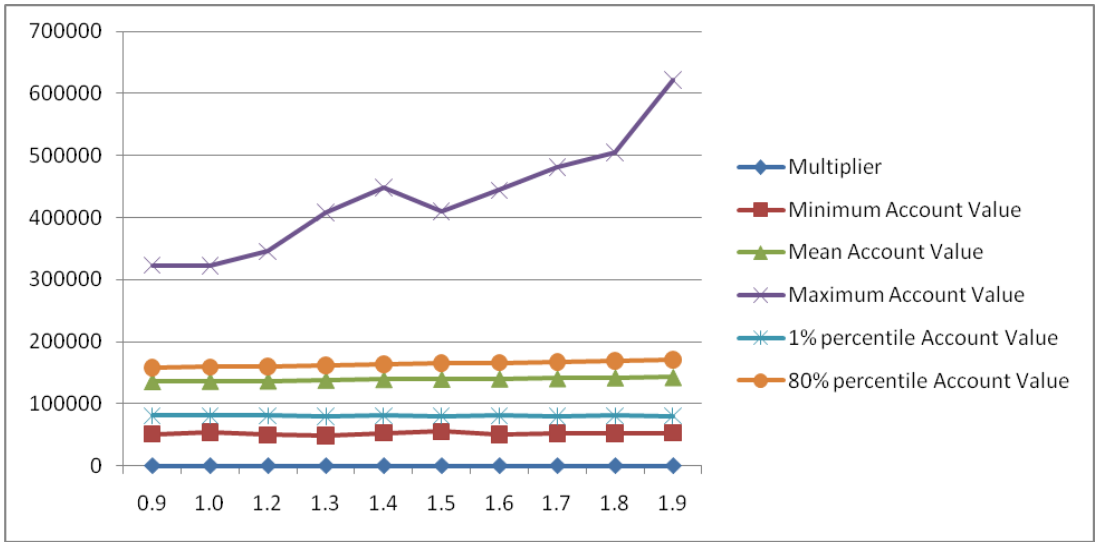

Figure 7. Units for Fixed Amount of Cash and Market's Money: observed trends

Figure 8 below shows a summary trend chart for all 100 simulations in the trading scenario using $240 for the Fixed Amount of Cash parameter and 1.7 for the multiplier parameter.

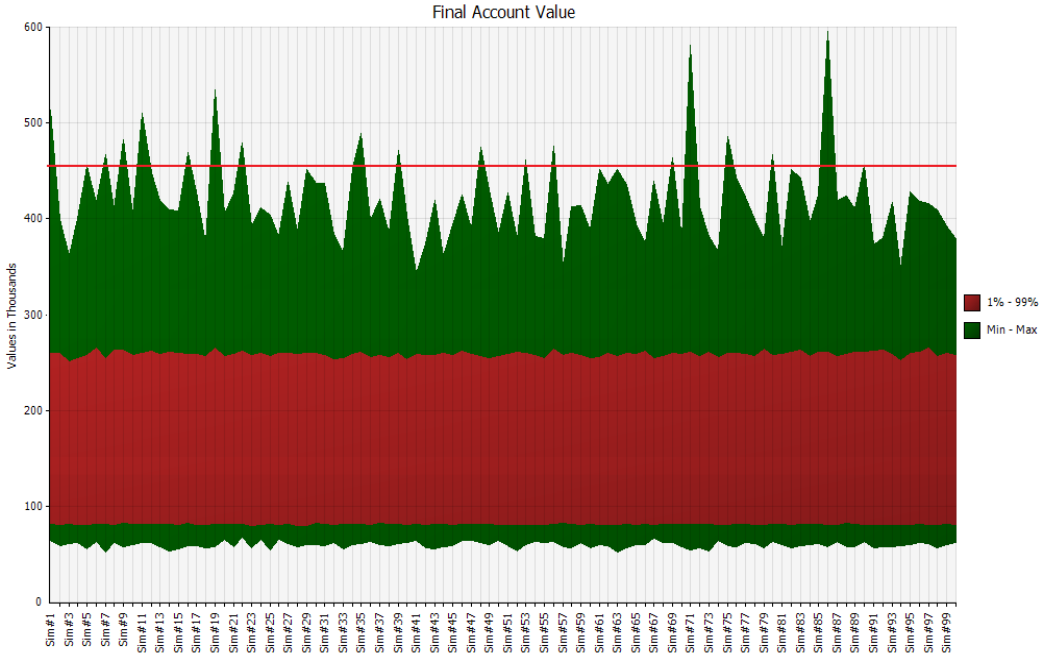

Figure 8. Units for Fixed Cash method and Market's Money: summary trend chart

The inner red area (1% - 99%) shows that each simulation outcome respected the constraint

posed by the sub-goal A (downside protection), i.e. not generating 1% percentile account values smaller than $80,000. The outer green area (Min-Max) shows potential minimum and maximum values for the final account size. Notice that, on the downside, the final account value was never below $60,000, similar to the case without use of market's money. On the upside several simulations showed results exceeding the $455,000 threshold (represented by the red line in Figure 8), corresponding to the 355% opportunistic return related to sub-goal C. Generally all the simulations had an ending account value above $350,000, thus generating a minimal return of 250%.

Conclusions

The results show how different money management techniques are capable of affecting trading performance, a confirmation of the findings of Laibcygier and Lim (2007). The choice of the money management technique could greatly enhance the trading system performance characteristics. Money management techniques could be used to control whether trading goals were achieved, therefore a linkage between money management and trading goals could be established, allowing a positive answer to the research question. In relation to the achievement of trading goals, the study of the results of financial simulations provided evidence as to the limitations of some of the money management techniques. This was despite the possibility to partially modify their behavior using different values for their parameters. The study also showed that some peculiar features of money management techniques were able to improve the achievement of some of the sub-goals.

The first simulation showed that a simple money management technique was able to meet the downside protection sub-goal A, related to the loss aversion behavioral trait (downside protection), while it was unable to generate enough profits to reach the mandatory upside potential B and the discretionary opportunistic outcome C sub-goals. Notice that, however, such poor performance in achieving most of the goals is as indicative as the ability of achieving all the goals, when establishing the existence of a link between the choice of the money management technique and a set of trading goals. The second financial simulation showed that using a variable position size (i.e. a variable number of shares) brought two main improvements: firstly, it allowed the generation of much higher profits to meet the mandatory upside potential B and the discretionary opportunistic outcome C sub-goals; secondly, it raised the minimum account value obtained in the simulations, accomodating for better risk management. However, increasing too much the number of shares traded would not allow satisfying the all important downside protection sub-goal A. The study showed that when adding the "market's money" feature, accomodating for a variable, proportionally higher or lower risk based on the portion of profits realized, the full set of trading goals could be achieved. In particular, this feature allowed increasing the position size much more quickly than it would have been possible with the basic technique. Trading this feature with a fixed amount of cash/share able to meet the mandatory downside protection sub-goal A always allowed the identification of an adequate multiplier parameter which would also help achieving the upside potential B and the opportunistic outcome C sub-goals.

This study formally indicates that some relation does exist between the achievement of trading goals and the money management technique and related parameters selected. In particular, different features of the money management techniques are able to separately affect the achievement of different sub-goals. For instance, a variable number of shares increasing or

decreasing with the size of the account can significantly boost performance while reducing risk. Good money management techniques are able to modify the results of a profitable trading system in order to positively affect trading performance. This implies that proper money management is as important or even more important than the trading system itself, as also demonstrated in other studies and practitioner's works, including Laibcygier and Lim (2007), Rayome and Jain (2008) and Tharp (2008).

Despite the assumptions and limitations illustrated in the work (assumptions on Monte Carlo simulations, time-invariance, distribution calibration, trading goals definition, trading system selection, ect.) some mitigations are believed to help preserving the validity of the study's results. Those include the use of a uni-variate distribution, absence of leverage – as the use of margin was never assumed – that mitigates extreme negative outcomes (losing trades) due to "fatter tails" reflected by empirical distributions or the inability of the trading system to adapt to changing market conditions. The trading system can be considered a secondary aspect to this study, not only because of the pursued objective, but especially in light of the evidence that money management techniques can be considered more important than the system itself. Finally, concerning the definition of some of the trading goals adopted, it could be safely assumed that they sit somewhere in the broad spectrum of goals which can be linked back to the variety of traders' risk tolerances. Within the context of such a stronger assumption we can conclude that a linkage between money management techniques and trading goals exists.

This study gives a different perspective to the importance of money management by linking it directly to trading goals. Not a new perspective, in fact, but one investigated more by practitioners than in the academic environment as highlighted by the limited work focusing on the area of money management, also confirmed by Laibcygier and Lim (2007). The results can be of interest to portfolio and wealth managers, professional and retail traders, brokers. Results push for a better understanding of proper money management techniques, in conjunction with the trading strategy adopted to meet established goals. The study might also be of interest to financial planners who have the responsibility to explain to clients when their expectations exceed the effectiveness of known trading strategies in the context of current market conditions, or whereas they are not compatible with implied risk probabilities as evidenced by financial simulations.

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Giuseppe Basile – BIO.

A technical analyst, trader, mentor, active market researcher and Professional Member and Board Director of CSTA. In the markets since 2001, with over 20,000 hours of market exposure, he studied with several mentors and successful traders around the world. Giuseppe speaks regularly at international shows and is a Premium Contributor at FXStreet where he hosts webinars and weekly shows.

Giuseppe's trading approach is rooted in observable effects of classes of modern algorithms on price. He combines the use of traditional Technical Analysis with innovative methods to identify low-risk, reversal entries well before the fact. He is the creator of the Winning with Algos Community, the FibStalker Methods Coaching Program and in 2012 he introduced a unique, proprietary and procedural timing technique called *FibStalking*, along with multi-tiered risk protection techniques.

Website: www.fibstalkertrading.com