

IFTA Journal 10

Inside this Issue

Wykcoff Proofs: Tests, Testing & Secondary Tests
by Hank Pruden.....page 16

How the Technical Analyst can profit by understanding Real Estate
by Phil Andersonpage 22

Volume Breadth Index (VBI)[®]:
A New Market Breadth Indicator for Analysis Of Emerging Markets
by Ayman Bayoumi, MFTA.....page 39

"If you follow the market properly, it's a slow, evolving process. And life should be the same, an evolving thing. We need to learn from our mistakes. The market will test every strength and weakness you have. If you're open to learning what your strengths and weaknesses are, you'll grow, and that's what the journey should be about."

Stan Weinstein

“E-micro Forex futures are sized right for you.”

DAN GRAMZA

President, Gramza Capital Management



CME E-equivalents is a tool that lets you stay on top of the market virtually 24 hours a day, with FREE real-time prices

Trade E-micro Forex futures:

- 1/10th the standard contract size*
- Six currency pairs quoted in Interbank terms
- World's largest regulated Forex market, with deep liquidity

Now there's a new way to trade Forex. Introducing E-micro Forex futures, which offer traders easier access to the world's largest financial market with less risk and lower margin requirements. These innovative new contracts provide the financial and regulatory safeguards found in traditional Forex contracts yet are approximately 1/10th the size. There's never been a better way to participate in one of the world's largest pools of Forex liquidity. Access educational tools, FREE daily market commentary and more at cmegroup.com/forexmicos.

 **CME Group**
A CME/Chicago Board of Trade/NYMEX Company

Platinum Sponsor of the 22nd Annual IFTA Conference • Chicago • October 8-10, 2009

*Roughly 1/10th the standard contract size with a notional value range of \$6,000 to \$16,000.

CME Group is a trademark of CME Group Inc. The Globe logo, CME, Chicago Mercantile Exchange, E-mini and Globex are trademarks of Chicago Mercantile Exchange Inc. CBOT and Chicago Board of Trade are trademarks of the Board of Trade of the City of Chicago. NYMEX, New York Mercantile Exchange and ClearPort are trademarks of New York Mercantile Exchange Inc. COMEX is a trademark of Commodity Exchange Inc. All other trademarks are the property of their respective owners. This contract is listed with, and subject to, the rules and regulations of CME. Copyright © 2009 CME Group. All rights reserved.

IFTA Journal

EDITORIAL

Regina Meani (ATAA, STA, APTA)
Editor, and Chair of the Editorial Committee
rjcmeani@idx.com.au

Roberto Vargas (STA)
Editor
roberto_vargas@sbcglobal.net

Dr. Rolf Wetzer (SAMT)
Editor
rolf.wetzer@sarasin.ch

PRODUCTION

APM Graphics Management
47 Picnic Parade
Ettalong Beach NSW 2257
Australia
+ 61 2 4344 5133

Send your queries about advertising
information and rates to admin@ifta.org

Cover Art by: *Simon Pierce*

Letter From The Editor.....page 4

In Memoriam: Mike Epstein
by Hank Pruden and Regina Meani.....page 5

Education and Comment

Language and Logical Reasoning in Technical Analysis
by Elaine Long Knuth and Irfan Polimac.....page 6

The Future of Technical Analysis
by Claude Mattern.....page 12

Papers

Wykcoff Proofs: Tests, Testing & Secondary Tests
by Hank Pruden.....page 16

How the Technical Analyst can profit by
understanding Real Estate
by Phil Anderson.....page 22

MFTA Research

Measuring Buy and Sell balance using the VB Chart
by Norinao Wakiya MFTA.....page 27

Volume Breadth Index (VBI)[®]: A New Market Breadth
Indicator for Analysis of Emerging Markets
by Ayman Bayoumi, MFTA.....page 39

In-Yo Psychological Line
by Masayoshi Noguchi, MFTA.....page 49

Technical Tools and Equity Selection: A Reward/Risk
Rating Indicator for the Stock Market Components
by Francesco Caruso, MFTA.....page 57

Book Reviews

The Heretics of Finance
Conversations with Leading Practitioners of Technical Analysis
by Andrew W. Lo and Jasmina Hasanhodzic
reviewed by Regina Meani.....page 69

Breakthroughs in Technical Analysis
New Thinking from the World's Top Minds
edited by David Keller – reviewed by Regina Meani.....page 71

Author Profiles.....page 72

IFTA Directory.....page 74

IFTA Journal is published yearly by The International Association of Technical Analysts. 9707 Key West Avenue, Suite 100, Rockville, MD 20850 USA. ©2009 The International Federation of Technical Analysts. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying for public or private use, or by any information storage or retrieval system, without prior permission of the publisher.



Letter From The Editor

by Regina Meani
STA, ATAA, APTA

Recent world events, so evocative of the 1930s and the 1970s, bring into focus the value of technical analysis. While the mixing pot of economic events may not necessarily be the same, their perceived impact on the markets have made for similar outcomes. So does technical analysis debunk the Random Walk Theory? The authors of *The Heretics of Finance*, tell us of their studies which have disproved the theory and led them to investigate technical analysis further. They have interviewed some of the pioneers in the field with some fascinating and candid insights into the realm of technical analysis for both the novice and more sophisticated among us. (See book review)

And this leads me to one of the most important issues as we experience these difficult and challenging times and that is the need for all of us to continue to learn. We must learn from our mistakes in the market and from those who mentor us, but most importantly we must continue to educate ourselves.

In this issue we present papers from those who have recently been awarded a Master in Financial Technical Analysis (MFTA). These are the high achievers within the IFTA accreditation programme, the premier internationally recognised certification for technical analysis. The award represents the culmination of years of study and research as the candidates endeavour to add to the body of knowledge being gathered for technical analysis. They are required to submit an original thesis-style research paper, applied to multiple markets.

To be considered for entry into the MFTA level, the candidates must first strive to be qualified as a Certified Financial Technician (CFTE), which requires them to sit for two successive examinations in ethics, technical skills knowledge and in market behaviour and understanding.

In a reflection of the recent global market upheaval the papers presented delve into new methods of analysing market behaviour using volume studies, a risk/reward indicator and a method which uses the psychological status of the market participants for buying and selling opportunities.

From our other contributors; Professor Hank Pruden updates his 2008 Wyckoff Laws with Wyckoff Proofs and Phil Anderson demystifies the relationship between the property and stock markets. IFTA president Elaine Long Knuth teams up with Irfan Polimac for a discussion on the use of language and IFTA Director Claude Mattern debates the future of technical analysis.

Our front cover symbolises the links between art and science (both describers of technical analysis) and between the economists, financial and technical analysts who gathered together in Paris for the 2008 IFTA "Research and Analysis of Financial Markets" Conference, where they discussed and shared their views in a lively and open atmosphere. The 22nd annual conference is to be held in Chicago USA, hosted by the American Association of Professional Technical Analysts (AAPTA) and is themed: "The International Language of Technical Analysis" and provides an opportunity to meet with like minded individuals expending their knowledge, new ideas and outlooks on the current trends in the markets.

My thanks go to my team, Dr Rolf Wetzler and Roberto Vargas, who have worked diligently over several months, reading, editing and preparing the journal for publication. I would also like to thank all those who have contributed as they have made valuable impressions on the technical analysis discipline.

And on a sadder note we farewell a great luminary in the field of technical analysis; Mike Epstein. **IFTA**

In Memoriam: Mike Epstein

by Hank Pruden and Regina Meani

I want to record a few of my own personal impressions of my friend and colleague, the late Mr. Mike Epstein of Cambridge, Mass, U.S.A. These impressions are being recorded to benefit current and future trader-technicians who wish to be guided by someone who learned his craft from the ground up on the trading floor of the last century, and who then gave generously by serving as a model and mentor to the younger, inexperienced generation and aspirants on Wall Street and at the Massachusetts Institute of Technology (MIT).

Mike was the “real deal”. He was a rough-hewn street fighter type who met or knew the major players on the Wall Street of his time and participated in most of the major market events and technical developments that took place during the final decades of the 20th century. Mike could read a tape, Mike could feel the mood of the crowd, Mike could sense when a story, trade or trader was a sham. Mike acquired those skills through direct and prolonged day-in and day-out experience on Wall Street. Mike could build a business, too. He built a trading and brokerage business and while doing so, Mike inspired younger people and structured an environment where they could learn the craft of trading. By character and inclination, Mike was not an organisation man. Nonetheless, he did assume the helms of the Market Technicians Association (MTA), The MTA Educational Foundation and the MIT Financial Engineering Laboratory.

Mike’s intellectual curiosity, tempered by a practical bent for results, made him an early participant in the world of the “quants”. He was a champion of realistic yet sophisticated teaching of technical analysis and trading at the University level, most notably at the MIT Sloan School where he collaborated with Dr Andrew Lo in bringing the wisdom of his practical experience and common sense to the education of elite doctoral students.

Above all, Mike was a people person. My friend Mike left indelible impressions upon everyone. Mike represented the passing generation of real world traders and technicians. Remember him whenever possible and model his best traits for yourself. *HP*

In my roles as editor and director of IFTA, of which Mike was an advocate, I would like to add to Hank’s memories. I came to know Mike from various IFTA conferences over the years. One of my strongest memories came from his generosity of spirit. During one of the social dinners, Mike realised that I was by myself and immediately asked me to join his table. Drawing me into his circle, Mike regaled us with some of his legendary stories and made it an evening to remember. Mike always had a story to tell and I was honoured when he included me in his mailing list. His last email to me was on January 16, just three months before he passed, and ironically it was about the “light at the end of the tunnel”.

In our farewell to Mike it has been obligatory that we talk about his 50 year love affair with Wall Street which included working for several prestigious firms, among them Bear Stearns and Salomon Brothers. As Hank mentioned, the job he loved most was as a floor trader, which gave rise to becoming an independent member and floor trader at both the American Stock Exchange and the New York Stock Exchange.

As the love affair continued, Mike couldn’t retire when he retired. Hence his role as Research Affiliate in the Financial Engineering Laboratory at the MIT Sloan School of Management where one of the products of his mentoring and encouragement was *The Heretics of Finance* and so its dedication: “*To Mike Epstein, a tireless and eloquent champion of technical analysis, who gave this project life and supported us every step of the way.*”¹ *RM*

“...Mike surely was a champion of technical analysis.”

Regina Meani

Reference

- i AW Lo & J Hasanhodzic, *The Heretics of Finance*, Bloomberg Press, New York, 2009, dedication page.

Education and Comment

Language and Logical Reasoning in Technical Analysis

by Elaine Long Knuth and Irfan Polimac

This spring, Linda Bernetich of our offices in Rockville, Maryland received an email from a young man from Sarajavo, Bosnia and Herzegovina. Mr Irfan Polimac said he would be passing through Zürich and he wanted to know if he could meet someone from the local member society of IFTA. Linda forwarded his request to me. Always interested to meet those who share an obvious interest in the markets and technical analysis, I was happy to join Irfan for a coffee, and possible exchange about IFTA, the markets and technical analysis.

Our short meeting along the Limmat River turned into a conversation more fascinating than an exchange on the current state of markets, or what indicators we like to use in our work. Instead, I had the fortune to meet someone who has thoroughly read and thought about what seems to be almost the entire body of literature published on technical analysis. What grew out of our meeting and conversation was the idea to share our exchange and questions from that early spring morning.

Elaine Long Knuth

Our conversation led to thoughts of the use of language and how language can create an internalised “knowledge”. And how this knowledge, in turn guides or “mis-guides” our perception, our analysis and actions in the markets – sometimes blinding us to the truths in front of us. We questioned if language itself, and the filters of knowledge and perceptions internalised by language, create an entire dimension of risk that has not yet been fully explored. And if so, what could be done about it and how?

We also spoke about the limitations of language, and how language may distort not only a description of the market, perceptions and participation, but even the market itself. What happens, we thought, is that when we use inclusive or exclusive language – regardless of how precise or imprecise it might be – it may determine and even limit our understanding of the “thing” we are considering.

In our case, the “thing” is the market. Because the market is a proxy for the collective view at a particular moment in time, how does the individual market participant, analyst or trader react to it? Do we reinforce the perception, or define the perception with the language we use? Language is, after all, a factor that determines how we think about and perceive the markets. By giving something a name, a description or a label, we define. It becomes an absolute.

The “problems” arise when designations, or definitions impose limits to understanding of the very thing we are defining. The perception-denotation loops may be part of the complex “misunderstandings”, we call inefficiencies in the market. Or even self-reinforcing market behaviour, we call trends.

For example, an asset class could never be inflated to the extent of the US real estate sector in 2006, without the help of absolute-meaning colloquial metaphors like “safe as a house”, “real estate values only appreciate”, “new economy”, “digital age” and other late 90s expressions, that played similar roles in nurturing the mind-set of the dot com bubble. Here we have the persistent and recursive element in construction of both: fixating attention on something that is a language event and metaphor, but not the market reality itself.

Expanding vocabulary – Markets and Representation

Think about it like this: Language is symbolisation and the stuff of which our knowledge and awareness of the world are made. It is the very medium through which we see and understand the world. When we name something we create a symbol (the name) to the thing or condition described. And with this something happens: the thing or condition becomes or “is” the name or symbol. Our reality is then fixed and defined by the language that filters and creates our own perception. This filtering exists for all forms of representations of reality: natural (human) language, as well as symbolic (calculations, formal languages, etc.). This poses a danger for the analyst who attempts precise truth in considering the condition of a market.

Reduction of reality to a limited number of symbols that should represent it, often, leads to equating reality itself with selected symbols. To bypass this mistake we might avoid depending exclusively on tools that represent markets in the same or very similar way.

One example is price oscillators and other indicators that represent and analyse the market in approximately the same way, and give approximately the

same conclusions. Combining such tools with others, non-correlated (meaning not representing the market in exactly the same way) improves the quality of the overall analysis. The question is: can we improve representativeness of our tools or “symbols” in a more systematic way? Should we rather optimise the process of *how* and with *what* we symbolise the market reality, instead of (over) optimising symbols (indicators, oscillators, etc.)?

Semantics and the Markets

Through the processes of symbolising to represent something else, we distort a reality and lose information. The loss of information is even more obvious when we are communicating representations (proverbial misunderstandings of trend - which lengths, scale, etc). For example, discrepancy between what one side implies (e.g. long-term investment) and what the other side expects (e.g. trading opportunity) renders an exchange about trends futile. This mismatch between symbol (trend) for two or more meanings (market conditions) is an example of the root cause of this confusion. What is less apparent is that we mostly observe markets through sign-meaning relationships. And as participants, we must recognise the limitations of our observations. We must recognise not only that there is critical information we may not perceive due to the limitations of our symbolic language and thought, but also the risk this presents.

To help solve this, would it be better then – or even possible – to use more precise language instead of calculations as tools to understanding market reality? Would it be possible to substitute or complement calculation and language with something else that could use the strengths of both? One possible answer would be affirmative – with inductive logic using human language as the medium. A type of reasoning adjusted for uncertainty, where conclusions of arguments will be sure with some degree of certainty, but not necessity.¹

We then spoke in more detail about the nature of the tools of technical analysis we use to quantify and model collective price action to give it a degree of what may be a predictable structure. We agreed that with the limitations of our symbolic tools, including the language we use to define our reality, we distort reality and fall into the trap of constructing misinformation. Worse, with our limited symbolic tools, we lose new information that does not fit our model, or set internalised knowledge. With this we fall prey to disaster as our risk increases because our tools including language, customs, beliefs, rules and perceived authority conflict with the realities in front of us.

Of course we were not onto something new. As we continued this discussion we remembered that John Magee, author of the 1958 classic, *General Semantics of Wall Street* (Later republished under the predictable title, *Winning the Mental Game on Wall Street*) wrote in his preface, “Finally, as if to add further difficulties, the structure of language itself tends to contribute to misunderstanding and misevaluation unless that structure and its relation to our thinking is well understood.”

Magee expanded on the conundrum of private language of the underworld of many professions, “This avoids wasting time in fruitless debate with uninformed outsiders, but it also sometimes perpetuates a circularity of thinking that makes basic progress impossible.”ⁱⁱ

So we also agreed that language, when it is written or spoken is also a set of assertions. And assertions also distort a reality and can actually hinder thinking and understanding. And that creates a real risk in our work, one to which we must be critically and diligently on guard.

The science of semantics is the study of rules by which symbols are assigned to designates (objects, things). Yet the science of responding organisms (behaviouristics, as in behavioural finance) does not explain how we “assign” names in the first place. This may be one reason why Magee wrote that his best work, *General Semantics of Wall Street* was the most difficult to write.

The Object of our Science

Moving from thoughts of market semantics, we then asked, why should quantitative methods be favoured when we need a much wider array of tools to understand reality, if imperfectly? Is it possible for the structure of understanding (market) reality ▶▶

to follow the structure of (market) reality itself? Even without formal education in linguistics, inductive logic, or philosophy, we remember something read years ago.

Combining ideas of linguistics, philosophy and literary thought Walker Percy might have also summed it in his discussion of *The Delta Factor*:

"In the beginning was Alpha and in the end is Omega, but somewhere between occurred Delta, which was nothing less than the arrival of man himself and his breakthrough into the daylight of language and consciousness and knowing..."

Percy continued, *"Why it is that scientists know a good deal about what it is to be an organism in an environment but very little about what it is to be a creature who names things and utters and understands sentences about things".ⁱⁱⁱ*

Percy was a Physician. He concerned himself with the tension, strain and unbalanced information that occurs when a field identifies more and more with the science and language of the science itself and not the *object* of the science. Perhaps with the tendency to identify with the language or vocabulary of our field, we lose focus with the "object". It is not unique or unexpected. Yet it is a trap for all fields of endeavour.

Language, especially its repetition also plays a role in this dynamic as well. Neural circuits are created and reinforced through repetition of a word or phrase, until they become permanent.^{iv} This permanency affects thought, perception and action, and even customs, culture and society.

For us, and back to the practical world, a possible path of study or further inquiry is a re-evaluation of all representations, filters or descriptions and symbols they are based on, on one hand, and market understanding, behaviour and ritualised actions on the other. So we asked, should any set of interpretative tools take extreme precedence over the others in an area that tries to understand such a complex and dynamic subject? And why it is that we have a need to quantify effectiveness of tools that we know are only a part of the cycle of setting premises/testing premises/ applying the premise? Again, is this a repetitive behavioural trap creating unseen risks for the trader and money manager?

Thoughts on Alternative Logic for Alternative Results in TA

Maturity of a science or field of inquiry is, among other things, indicated by constant re-examination of its foundational propositions. We then wondered if the sometimes vague ("go with the trend") and seemingly non-evolving premises of some tenants of technical analysis are a sign of under-development. And if keeping the same beliefs is appropriate.

Cementing beliefs and fundamental propositions is good if one wants to preserve established convictions, and damaging if one wants them expanded with a new angle into new knowledge and understanding. When the learned professions particularise information and knowledge then the tools of theoretical foundations tend to narrow a favouritism of ideas. This detracts from understanding the whole (markets) as they are integrated into larger systems.

Could the assumptions and knowledge built around efficient market hypothesis be nothing more than a simple and shifting riddle creating increased risk for market participants? Isn't it unreasonable to ignore this possibility and continue working without a means to identify the risks lurking outside our acquired frame of thinking about the market?

Then the question is: what are our alternatives? How to practice a re-evaluation of basic premises, develop theory, improve the tools and identify overlooked risks, while avoiding language ambiguity, circular logic and imprecision? On the grand scale of ambition, the answer is difficult, or maybe not even possible at all.

For us, and in more practical terms, the previously mentioned less-than-strictly-formal logic, applied with natural language does, indeed, have potential to be useful when considering the tenants of technical analysis. For example, what we learn from a simple case of moving average over optimisation (vainly trying to find "perfect" construction which has absolutely no real logical significance for future price action) is that even a precise and correct calculation, will be misleading without a sound

logical background or foundation. A single indicator, no matter how meticulously calculated, will never reflect entire market complexity.

For an indicator to have any truthful relevance, logical and conceptual development is essential as preceding the calculation and the testing. To illustrate what we mean, we can take a glimpse of how a broad logical and conceptual development will be useful in various segments of analysis.

Volume for instance: The adage “decreasing volume in an uptrend is bearish”TM is probably one of the oldest and widespread in TA theory (when it comes to instruments that record volume data, of course). This certainly sounds plausible. Before looking at any exceptions – significant up-trends that develop on relatively lower volume – can we first ask questions that clarify the thinking and language we use? Can we refine theory before acting on it? Is bearishness the only characteristic feature we can ascribe to a low-volume uptrend? Is such uptrend equally bearish at all the stages? Is bearishness of equal intensity along the entire route of the trend?

The premise that supply and demand depend on price levels (hence support and resistance areas) means that there is potential demand (forming support) and potential supply (forming resistance) being activated at particular levels.

Another premise that given supply and demand determine prices, implies current, and not the potential supply/demand at any given time or point in trend. And that means that as long as the supply/demand ratio stays in favour of demand, and potential supply is not activated, there can be the resumption of an uptrend, without regard to overall trading volume relative to immediate history. The conclusion is that bearishness in the described uptrend may not be immediately so. Moreover, it is not even probable once we establish a low chance of triggering potential supply.

As analysts, can we think of a possible market scenario where a low volume uptrend may happen? At the extreme low, after a sharp and deep decline, fewer (relative to the downtrend and immediate history) market participants are ready to take part, but the ratio of supply/demand changes in favour of demand. This causes prices to rise, regardless of shrunken overall volume numbers. The uptrend continues until it is met by a new shift in the supply/demand balance. In the meantime decisions are made in accordance to the insight of the trend.

It is important to notice the limitations that this short illustration contains. It consists of steps that are not fully deductive in that it uses English language as the medium of expression (not quantified variables) with many open-ended terms. Further, it relies on premises that reflect only a part of market reality – *potential* supply can be *activated* by factors external to the price. But this example illustrates the possibility of going beyond our inherited and ingrained theory. It brings us towards a greater understanding and analysis with more logical relationships, vocabulary and precision of expression.

Every action in the market is based on some sort of background reasoning, rational or impulsive, logical or not. For us, a critical re-evaluation and logical development of any part of theory, tool, system or strategy may be beneficial on its own, or as a part of the pre-empirical or pre-testing efforts.

Logical “optimising” of the foundation of our propositions is optimising technical analysis at its very core. We surmise that a logical evaluation and treatment of the tools of TAs will help make TA successful in its reflection of, and relation to market reality.

Markets and other Structures

Another thought and question: What's the basis to say that markets have less or more structure than other social processes (examples of social reforms, revolutions, trends, trend shifts, paradigm shifts, etc.). May we ignore analytic tools developed inside scientific disciplines that deal with such comparable questions? Can the same structures observed in biological or behavioural systems be quantified or observed in similar ways? With some of the same tools we use?

Can we take laws of particle physics, for example, and apply this to an understanding of the markets? Can the patterns in self-organising populations of bacteria be also seen in the expression of price data? Should we attempt to quantify this, name our observations in an attempt to create absolutes across all objects of study? ▶▶

Would that lead us down a new path of illusions or create greater understanding and insight?

Additionally, do we have reason to think about patterns as two-dimensional structures (price and time when it comes to instruments not recording volume data)? Why not multi-dimensional entities that include changes in available news, events, changes in human sentiment relative to events and relative to price? Price reflects everything market participants think, at a given time and those who act, out of necessity or conviction. Do perceived patterns resulting from price include news of change in the foundation of perception, events that might be included in the patterns? Could we then have tri- or multi-dimensional patterns? Do we even have the methods to think and act differently, in a more inclusive and systematic manner? What disciplines would help us here?

Risk: Use, Abuse, Loss and Fear of Information

Our conversation went back to thoughts about missed information: We use tools of TA or quantification of systems without the means of identification of non described and unseen information we know is there; the unknown and risk. LTCM and its meltdown is a case study of such risk – acting on perceptions that morphed into absolute assertions leads to the destruction of a portfolio. Here, a narrow selection of conditions or realities were picked (or cherry picked) to fit a (mis) understanding of a market. A perceived opportunity was identified. To this, there was taking absolute action upon the flawed, incomplete and static measurement and understanding. The risk was not only the extraordinary amount of leverage used to put the fixed assumptions to work, but in the inherent risk we have considered here: A trading model limiting itself to a static input – which is ultimately and completely counter to the very nature of the markets (read natural systems) traded.

This is one illustration of how risk management will be improved if we addressed it at the early stage of decision-making through improving our logical theoretical grounds versus later risk control to compensate wrong or limited premises. Our risk management will improve if we are on guard for premises that may be distorted by language, assumptions and tools used to quantify realities that are never static.

Like a game of Chess, which can be won or lost very early in the game, in the first few moves, risks of our game could be vastly better managed in the early stage of decision-making through improving theoretical grounds rather than later risk control measures used to try and compensate for the wrong premise.

Additionally, should we try to monitor the silent or invisible information we know is out there? For example, many scientific papers are not published because the data may have not given conclusive evidence supporting an original premise. This does not mean that valuable information was not had, but unfortunately it becomes lost. Is information rejected because it is simply preposterous or because it does not fit into our learned conclusions and understanding. We fear and reject what we do not understand or what does not fit our premise, logical or not. This is at our risk.

An example from the science of medicine: In the 1930s Dr Werner Forssman logically hypothesised that a catheter could quite safely be put into the heart. This, he thought, would be a breakthrough for imaging, drug delivery and possible future treatments. His proposal was not only ridiculed, but immediately rejected by his medical department chief as potentially fatal. It would be a waste of time and was not to be carried out on human or animal. Convinced of the possibility and safety of his hypothesis, Dr Forssman then performed a heart catheterisation upon himself. With the catheter in his heart, he X-rayed it and presented the image to his department head, where he was directly fired for self-experimentation.

Later while labouring away as a prisoner in a prisoner of war camp, the obscure paper he published on his own was read at the Columbia University College of Physicians. The readers immediately recognised the risk of ignoring Forssman's extraordinary observations and report. His work was further examined and in 1956 Forssman won the Nobel Prize for Medicine.

Risk is also increased due to banalisation of information. This is a common feature in many economic and market situations – with logically fallacious background

ranging from euphoria over a new-good-for-all-indicator to high complexity bust-outs involving complex networks of algorithms or compositions of insured "riskless" portfolios, such as those built on the scale of a Potemkin Village of Mortgage backed securities and insurances. An excellent and current example of how an isolated set of determinants or "facts" built on fallacious reasoning, a disregard of information that does not fit basic assumptions, and ignoring changes in conditions, put risk at a scale beyond the imagination of most market participants.

Thinking to new challenges for technical analysis and without more discussion we concluded that language and the symbolic language of market representation creates a perception of the markets. These perceptions and absolute tools may limit our understanding of the markets. With our conditioned beliefs and fixed perception, we run the danger of ignoring or disregarding information. This further limits our understanding and introduces an inherent and additional set of risks. Our challenge, we agreed, is to think far beyond the limitations of our current tools of TA and to improve and expand its logical foundation in relation with market reality. **IFTA**

References

- i J Hall, *Tools of Thinking: Understanding World through Reason and Experience*, The Teaching Company, 2005, pp. 4–11.
- ii J Magee, *Winning the mental game on Wall Street: the psychology and philosophy of successful investing*, in WHC Bassetti (ed.) CRC Press LLC, 2000, pp. xv & xvii.
- iii W Percy, 'The Delta Factor', *The Southern Review*, 11th edn, January 1975, pp. 29-64.
- iv G Lakoff, *Whose Freedom?*, Farrar, Stratus and Girox, New York, 2006, p. 10.
- v HM Gartley, *Profits in the Stock Market*, Lambert Gann Publishing, 1981, p. 300.

Education and Comment

The Future of Technical Analysis

by Claude Mattern

The growth of the financial sector during the last two decades has allowed technical analysis to become more widely recognised by the community, and especially in the academic world. Recognition of our discipline remains behind financial analysis or quantitative analysis, even if the distance is reducing. It might be our duty to try to fill the gap. Mandelbrot mentions that “[technical analysis] methods are subtle, but rarely describe precisely to allow checking”. This is indeed our biggest challenge, but an answer is not obvious.

Technicalⁱ analysis is tightly connected to markets, i.e. free financial markets and to trading. It is a particular way to analyse the evolution of the market action, with the purpose of helping traders or investors in their decisions, but unfortunately it is not considered a necessary tool. To fully understand our methods, I propose a vision of the links between technical analysis and markets and between technical analysis and trading. The way we understand those links will affect our decisionsⁱⁱ.

Before focusing on those links, it is of interest to look at the history of technical analysis, even if this part of our common knowledge is still weak. Based on history, the future of technical analysis might also depend on our understanding of the common points with other methods which analyse the market action, such as cycle analysis, intermarket and quantitative analysis.

The first appearance of technical analysis, as far as we know, was on the trading floors of the futures markets for trading rice in Osaka, Japan, and cotton in New Orleans, USA. It is worthwhile to notice the use of charts was done independently at both locations, giving a universality to the method.

The contribution of Charles Dow should be revisited. He brought a new way of looking at the market, but his motivation wasn't technically based. His purpose was to anticipate the evolution of the economy, or the business cycle, by analysing the dynamic of the market average (DJIA). He mentioned that the average belongs to three movements at the same timeⁱⁱⁱ. The most important trend to anticipate the economy was the primary one. The shift from anticipating the economy to the price action itself was proposed by Hamilton and developed by Rhea.

Looking forward, the great leap for technical analysis can be dated in the thirties, as a reaction to the stock market collapse. Most of the books were printed during that decade: Rhea in 1932, Schabacker in 1932, De Villiers and Taylor in 1933, Elliott in 1938^{iv}... giving us a fruitful period. One may assume that the shock of the crash led people to reconsider their former practices^v.

A third step forward can be dated in the seventies, when the stock market went flat for a long period (and declined sharply in real value). The use of indicators, the first derivative of the price action, was developed^{vi}.

Since 2000, stock markets have entered a new corrective wave that might, by analogy to the previous periods, lead to new developments in technical analysis. The question is in which direction. As mentioned before, two directions could be proposed: a development in breadth through a connection to other forms of analysis (cycle, intermarkets or quantitative), and a development in depth, based on a better understanding of markets and trading.

To dig deeper into our practice, it seems clear that a better understanding of the relationship between technical analysis and markets is necessary. The use of “trend analysis” and “strength analysis” has been popular for some time. These tools are already well developed and depend on the market action. They allow us to understand or interpret it. We might develop new tools or indicators to add to the already strong

arsenal. A new field might open up with a focus on the market itself, which would allow us to better adjust our current tools to the market action.

The first important point is that the market is a human activity. Adam Smith, in 1776, mentioned that “Nobody ever saw a dog make a fair and deliberate exchange of one bone for another with another dog^{viii}”. A market is a cultural way to exchange goods and communicate information. Nature has nothing to do with it^x. This means there is no external determination of the price action. The latter is based on human decisions and human behaviour using free-will. This leads to another observation by Richard Thaler^x which states that behavioural is redundant when added to finance. It is clearer today than a few years ago. Finance is based on trust and beliefs, individuals and the collective. It suggests that a lot of phenomena are self-fulfilling, positive or negative.

A financial market involves the process of transforming information into price, based on exchanges between different opinions. Each investor’s opinion about the future value of an asset is reflected in today’s price. The market is an aggregator of individual decisions. Price, which is the major input for technical analysis, is the measure of a collective opinion. Another feature of the market is its anonymity and we should talk about the market as a sociological phenomenon^{xi}, not a psychological one. The big issue is to understand how individual decisions working through uncertainty match up to produce a public opinion^{xii}. Furthermore, individual decisions are based on a projection into the future adding another dimension to markets. Considering the future, two different visions can be proposed. The first point of view is to consider that the future is predetermined. We don’t know why, but the course of events can repeatedly bring us to a “*déjà vu*” situation within a cyclical path. Another view is that we are, collectively, building the future by trial and error, to determine the best path. The sole problem is that there is no target in this trendy path.

The public opinion reflected in the price is poised between a trend and a cycle. But as Charles Dow said, about the three movements at the same time (Elliott raised it to nine), the price action is a mix between cycle (action/reaction) and trends which leads to a huge debate. I favour the trend, as a technician, but this is a personal view. It is based on the assumption that, as John Murphy wrote “A trend in motion is more likely to continue than to reverse”^{xiii}. This view goes beyond technical analysis. Keynes talks about the convention in business as “the existing state of affairs will continue indefinitely, except in so far as we have specific reasons to expect a change”^{xiv}.

Financial markets transform information into price^{xv} and this was the intuition of Charles Dow. Then Hamilton and Rhea shifted anticipation about economics towards price action. The second big debate is how far we can anticipate price action into the future, based on immediate market action. This debate is also important as the answer would affect our action in the market and forms another side in the use of technical analysis.

Trading *per se* has nothing to do with technical analysis, but they are intricately intertwined. Trading decisions affect market action and have input into technical analysis. On the other hand technical analysis, by providing a guide to those decisions has an input to the trading. For instance, when measuring the technical analysis performance, it is very difficult to distinguish technical analysis from the trading decision.

As a trader, I may choose to be a trend follower or a “contrarian”. The decision is not based on technical analysis. My study of the market action would not be affected by my strategy. But my tactic according to the price action could be opposite. A deeper research on the link between technical analysis and trading remains open.

Technical analysis can be opposed to Fundamental analysis (or financial analysis). It could be a short term position as the different styles of analysis look from diverging view points and do not answer the same questions. Technical analysis is concerned with signals and timing based on the action of the market, while fundamental analysis is concerned with evaluations.

As mentioned before technical analysis has connections with other disciplines. Notably, cycle analysis, intermarket and quantitative analyses which share a common point through the approach to price behaviour, they are all concerned with market ►►

References

- i B Mandelbrot, *Fractales, Hasard et Finance, 1959-1997*, Flammarion, 1998.
- ii Technical seems to refer to the technical position in the market, with the assumption that those unknown positions are reflected within the price dynamic.
- iii After the quote: R Frydman & MD Goldberg, *Macroeconomic Theory For a World of Imperfect Knowledge*, Center on Capitalism and Society at Columbia University, Working Paper No. 24, May 2008.
- iv Schumpeter developed his theory for business cycles incorporating the principles of Kondratiev, Juglar and Kitchin. JA Schumpeter, *Theory of Economic Development*, 2nd edn, Duncker & Humblot, Leipzig 1926
- v Many others should be added, such as Gann, Wyckoff, Angas, ...
- vi Keynes revolutionised the economic thought with *The General Theory of Employment, Interest and Money*, in 1936, Hicks followed in 1939. Graham and Dodd wrote the first *Security Analysis* in 1934.
- vii A Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, W. Strahan and T. Cadell, London, 1776, Book 1, Chapter 2.
- viii Adam Smith *The Wealth of Nations*, 1776.
- ix Except to say that humans belong to nature.
- x R Thaler, ‘The End of Behavioural Finance’, *Financial Analysts Journal*, 1999.
- xi Prechter mentions the “sociometric”, following Elliott, with his socio-economy.
- xii The gap between microeconomics and macroeconomics. From another field, our understanding is still limited between quantum theory and universal gravitation.
- xiii JJ Murphy, *Technical Analysis of the Futures Markets*, New York Institute of Finance, Prentice-Hall, 1986, p. 3.
- xiv JM Keynes, *The General Theory of Employment, Interest and Money*, for the Royal Economic Society, Macmillan Cambridge University Press, 1936, p. 152.

References

- xv “The price system as such (is) a mechanism for communicating information”, F Hayek, ‘The Use of Knowledge in Society’, *The American Economic Review*, XXXV, No. 4, September, 1945, pp. 519–30.
- xvi “The third move is the great swing covering from four to six years” CH Dow, ‘Swings within Swings’, *The Wall Street Journal*, January 4, 1902.
- xvii Keynes, p. 162.

Bibliography

Dow, CH, ‘Swings within Swings’, *The Wall Street Journal*, January 4, 1902.

Frydman R & MD Goldberg, *Macroeconomic Theory For a World of Imperfect Knowledge*, Center on Capitalism and Society at Columbia University, Working Paper No. 24, May 2008.

Hayek, F ‘The Use of Knowledge in Society’, *The American Economic Review*, XXXV, No. 4, September, 1945.

Keynes, JM, *The General Theory of Employment, Interest and Money*, for the Royal Economic Society, Macmillan Cambridge University Press, 1936.

Mandelbrot, B, *Fractales, Hasard et Finance, 1959-1997*, Flammarion, 1998.

Murphy, JJ, *Technical Analysis of the Futures Markets*, New York Institute of Finance, Prentice-Hall, 1986.

Schumpeter, JA, *Theory of Economic Development*, 2nd edn, Duncker & Humblot, Leipzig, 1926.

Smith, A, *An Inquiry into the Nature and Causes of the Wealth of Nations*, W. Strahan and T. Cadell, London, 1776, Book One, chapter two.

Thaler, R, ‘The End of Behavioural Finance’, *Financial Analysts Journal*, 1999.

action, and they all attempt to project into the future.

Cycle analysis assumes that economics and/or behaviours tend to repeat their progression in time. One can empirically observe the nearly constant repetition of “crisis” every ten years or so. This has been noticed by Jevons and by Juglar. The big issue is to give an explanation for those repetitions. Jevons conjectured that sun spots have a ten-year cycle which influences harvests. Juglar highlighted the commercial crisis. Further works have examined these “business cycles”, due to investment. On the same vein, an inventory cycle has been recognised by Kitchin (the four-year cycle). Long secular cycles, such as Kondratieff, have been speculated. All these cycles are linked to human behaviour, where one must anticipate the future to make a decision about opening a position today (the investment cycle is the result of the accumulation of capital based on the expectation of higher return due to speculation of a higher demand). Charles Dow took into account the ten-year cycle when he indicated that the primary movement could last four to six years^{xvi}: an upward and a downward primary move would last ten years, on average. Hamilton criticised Dow’s counting, suggesting that a primary movement would last up to two years, which implies a four-year cycle. Going lower, the secondary and minor movements, used by Dow, were links to market behaviour, and were disregarded as major phenomena. The secondary movement he linked to investors while the minor movements were due to traders. Shorter cycles or movements can be observed, even to as short as the tick by tick. So the “nature” of the price action is cyclical. This can be empirically observed. Economists tend to have an explanation, a theory for “longer” cycles. Technicians don’t: we tend to follow the trend, until it reverses. That is the reason why we postulate that history repeats itself, but irregularly (a two years shift in a ten-year cycle might be devastating if one shorts the market too soon).

Within a motion, for example, in a ten-year cycle, most indicators are moving in the same direction, but not at the same velocity and not constantly. Some indicators (price or volume) might change direction before or after the peak or the trough. It depends on the quality of the movement with the asset prices current. It is quite logical that if the stock market anticipates the business activity, other asset markets are also providing information about the future. They might be correlated, not together, but each one to the economic cycle. This could mean that if the features of the economic cycle change, then the correlation between two assets could disappear.

Another field where technicians are sharing a border is with quantitative analysis, especially when they both work on discretionary trading models. The common point is the use of technical indicators but the assumptions concerning the price behaviour are different. The quantitative analyst assumes that the price is following a probabilistic law, which might be simple (such as the Normal Density) or more complicated (such as Lévy-Pareto distribution). They base their model on calculations extrapolating the price into the future. Technicians, implicitly, argue that the future is uncertain, in the sense that there is no probabilistic law that would explain price behaviour. In keeping with this, we need to constantly adapt ourselves to the market. Keynes states that “human decisions affecting the future ... cannot depend on strict mathematical expectation, since the basis for making such calculations does not exist^{xvii}”.

Technical analysis is at a new bifurcation, in terms of promises. IFTA and Local Societies shall have further challenges, mainly in education, as technical analysis is more widely recognised.

New tools shall certainly be developed in the near future, directly linked to price action or indirectly related to price velocity. My intuition is also that the future of technical analysis shall be based on a deeper knowledge of our way to understand market behaviour, and how to use that knowledge to invest in the market. That future shall also challenge our methodology alongside other ways to analyse market action through cycle analysis, intermarket and quantitative analysis.

Those are just some directions. But in the end, the future of technical analysis shall belong to all technicians who wish to add their work to our body of knowledge. **IFTA**

130% long, 30% short, 100% ETF.

INTRODUCING PROSHARES CREDIT SUISSE 130/30 CSM

The nation's first 130/30 ETF marks a striking departure from other 130/30s. It seeks to track the Credit Suisse 130/30 Large-Cap Index* developed by two thought leaders in the field, Andrew Lo from MIT and Pankaj Patel from Credit Suisse. This innovative ETF represents the first of our new Alpha ProShares, designed to provide advanced investment strategies. To learn more, call **866.776.5125** or visit **www.13030ETF.com**.



*Before fees and expenses

This fund may not be suitable for all investors. Investing involves risk, including the possible loss of principal. This ETF may involve certain costs and risks, including aggressive investment techniques (futures contracts, options, forward contracts, swap agreements, and similar instruments), correlation, and market price variance risks. Short positions lose value as security prices increase. Leverage can increase market exposure and magnify investment risk. This fund is non-diversified. Please see the prospectus for a more complete description of risks. There is no guarantee this ProShares ETF will achieve its investment objective. It is not possible to invest in an index. **Carefully consider the investment objectives, risks, and charges and expenses of ProShares before investing. Our prospectus covers this and other information and should be read carefully before investing. To obtain one, please visit www.proshares.com and seek advice from your financial adviser or broker/dealer representative.**



PROFUNDS
GROUP

"Credit Suisse" and "Credit Suisse 130/30 Large-Cap Index™" are trademarks of Credit Suisse Securities (USA) LLC or one of its affiliates and have been licensed for use by ProShares. ProShares have not been passed on by Credit Suisse or its affiliates as to their legality or suitability. ProShares are not sponsored, endorsed, sold, or promoted by Credit Suisse or its affiliates, and they make no representation regarding the advisability of investing in ProShares. CREDIT SUISSE AND ITS AFFILIATES MAKE NO WARRANTIES AND BEAR NO LIABILITY WITH RESPECT TO PROSHARES.

ProShares are brought to you by ProFunds Group and distributed by SEI Investments Distribution Co., which is not affiliated with ProFunds Group, Credit Suisse, or their affiliates.

2009-3291

Wyckoff Proofs: Tests, Testing & Secondary Tests

by Hank Pruden

In the 2004 edition of the Journal “Market Test A” initiated the real time tests of the Wyckoff Method and in the 2008 issue “Market Test B” followed up on the predictions and investigated what actually happened in the market. Those articles examined the prediction and the results of a natural laboratory experiment of the Wyckoff Law of Cause and Effect. The expectation in 2003 was a rise to DJIA 14,400; the results recorded in 2007 revealed that at around 14,000 the DJIA had effectively satisfied or confirmed that prediction. By the precedents and standards of Mr R.D. Wyckoff and his associates it was concluded that “... the Wyckoff Methods Law of Cause and Effect had passed a critical market test...”

The foregoing notion of “passed” or “passed the test” has been expressed in the Wyckoff literature as “Proof” of the validity of a certain market action by not disproving the market action and the rejection of the hypothesis it implied. For example, an upside breakout that failed to follow through because the “Secondary Test” fell to low ground would disprove the sign-of-strength implicit in the upside breakout above a trading range. On the other hand, a pullback or “Secondary Test” that held at or above the breakout level would be considered to “prove” the “sign-of-strength”, indicative of a rising trend to follow what was implicit in the upside “breakout.”

Wyckoff’s insistence upon the passage of a “Secondary Test” to “prove up” a market action is in keeping with the canons of the scientific method. Furthermore, it is a practical, common sense way to evaluate the prospects of a rewarding trade and reduce the probability of a losing trade.

The Wyckoff usage of “proof” is also in keeping with the following definitions of proof that can be found in

Webster’s dictionary: “Proof” 1. Evidence that establishes the truth or validity of something... 3. The act of testing the truth or validity of something by experiment or trial.¹ Moreover, Webster’s use of the word “test” fits the Wyckoff Method: “Test: 1. A means of examining or evaluating something².”

Proof: A Many Splendored Thing

Unfortunately, the use of the word “test” by Wyckoff adherents has come to specify different aspects of market behaviour. The intent to “prove” or “disprove” something remains true, but the nuance of usage is sufficiently disparate that confusion often results. Definition, illustrations and classification can aid all market technicians and traders, not just devotees of the Wyckoff Method.

Three distinct types of “tests” exist in Wyckoff to provide “proof” or to disprove a provisional market action:

Tests, Testing and Secondary Tests can be interspersed and combined to add “Proof” to market based indications of the probable future direction of market price. Figure 1 spotlights two zones during an idealised market cycle

Table 1

Three Types Of Wyckoff Tests

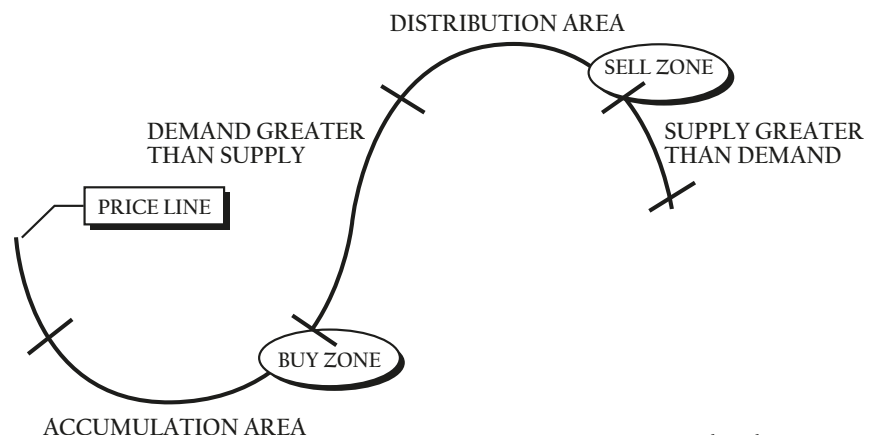
- **TESTS** as DECISION RULES... e.g. The Nine Buying Tests for Establishing a Long Position.
- **TESTING** as a PHASE in a TRADING RANGE... e.g. PHASE C of a Trading Range as seen on Schematics of Accumulation or Distribution.
- **SECONDARY TESTS** illustrated by the Behavior of Old Time Traders and Refined by Wyckoff into a COMPOUND PROCEDURE of ACTION, then TEST, or SECONDARY TEST.

where these “Proofs” can most fruitfully join forces. To be more efficient the focus has been directed to the “BUY ZONE” with the belief that the principles established there apply equally well to the “SELL ZONE” (See Figure 1).

Testing

The next three figures (2, 3, and 4) can be seen as operating within the “Buy Zone”: Figure 2 is the classic Wyckoff schematic for the various stages of

Figure 1
Wyckoff – Supply and Demand – Idealised Cycle



Source: Stock Market Institute

accumulation within a structure of accumulation. Phase A stops the downward trend by a SC (Selling Climax) action that is subsequently proven by a Secondary Test (ST) on a range of price and volume that are considerably diminished compared to the preceding selling climax. The AR (Automatic Rally) following the climax sets the upward

boundary of the Trading Range while the SC and ST help to define the level of the lower boundary of the trading range.

The actual "Buying Zone" can be found in Phases C and D of the accumulation schematic. In those phases, the "smart money", exemplified by the Wyckoff Composite Man is testing the market to determine whether or not the

floating supply coming into the market has been fully absorbed and exhausted (Figure 3). An exhaustion of the supply (sellers) would set the stage for leaving the accumulation phase and entering the markup phase of the cycle.

ACTION and SECONDARY TEST

The readiness of the market to move to the upside is ascertained by the Composite Operator via two key stratagems or set ups. The first stratagem is that of the Wyckoff "Spring and Test"; the second stratagem is that of the "Jump and Backup".

Both stratagems are composed of a compound of two adjacent waves of market behaviour. First there is an "action" indicated by a relative increase in price spread and volume. That "action" shows demand expressing dominance (large relative price spread and volume compared to recent preceding waves of buying and selling). This is labeled a "sign of strength"; SOS.

But this action can only be a provisional or tentative sign of strength until it is "proven" or "disproven" on the next wave(s) in the opposite direction that "proves" or "disproves" the intentions of price trend direction implied by the sign of strength. The truth is discovered by the Secondary Test.

The "Spring Pattern: Action-Test." A spring is a price move below the support level of a trading range that quickly reverses and moves back into the range. A spring is an example of a "bear trap" because the drop below support appears to signal resumption of the downtrend. In reality the drop marks the end of the downtrend, "trapping" the late sellers, or bears. The extent of supply, or the strength of the sellers, can be judged by the depth of the price move to new lows and the relative level of volume on that penetration.

Table 2 defines three types of Springs and Secondary Tests. These stratagems are known as springs number 1, number 2 and number 3.

Number 3 Springs are very rare. The majority of tradable springs are either Number 1 for a short sale or a Number 2 spring for a buy following a successful secondary test. Stock CSCO in Figure 4 demonstrates the case of a Number 2 Spring.

The action of rising back into >>>

Figure 2

Accumulation

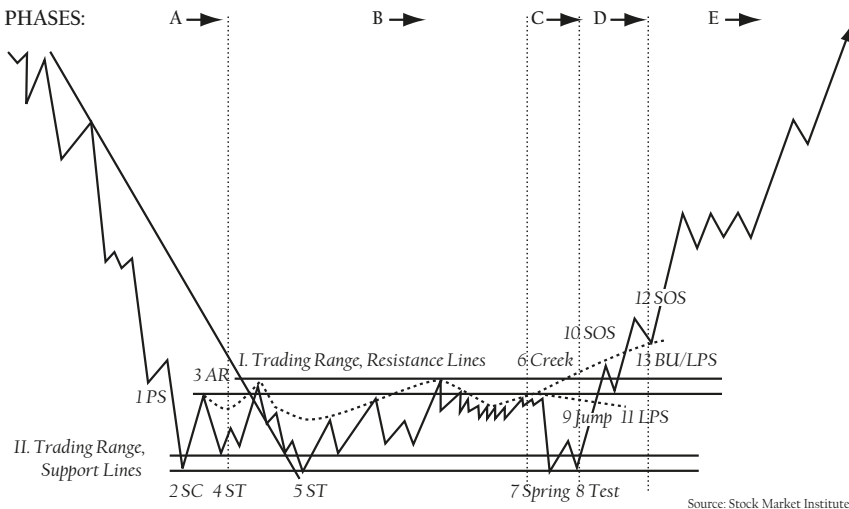


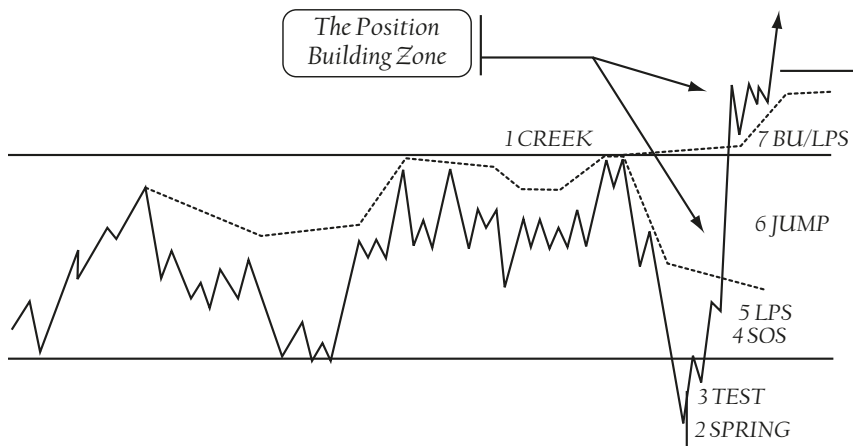
Figure 3

Wyckoff Set-ups for Taking a Position

WYCKOFF SET-UPS FOR TAKING A POSITION:

TAKING ACTION

- PHASES OF TESTING
- THE READINESS TO MOVE



Source: Institute for Technical Market Analysis at Golden Gate University

the trading range on comparatively wide price spread and volume was “proven” to be a valid bullish sign by the subsequent Secondary Test on relatively diminished volume and narrowing price spread: BUY!

JUMP and BACK UP = ACTION and SECONDARY TEST

A jump is a relatively wider price-spread move made on comparatively higher volume that penetrates outer levels of resistance or support. A backup is a test that immediately follows the jump – it is a relatively narrower price-spread reaction or rally on comparatively lighter volume that tests and confirms the legitimacy of the preceding jump action.

The Wyckoff method instructs you to buy after a backup following an upward jump (a sign of strength) or to sell short after a backup following a downward jump (a sign of weakness). Also according to Wyckoff, one should not

**Table 2
Springs Defined**

- **No. 1 springs** are wholesale breakdowns below support on volume that is much larger than that of prior downswings within the trading range. It is not advised to buy No. 1 springs; look to sell short if the subsequent rally stops at or below the prior support (now resistance) level, especially if the move back to this level occurs on approximately half the volume of the initial breakdown.
- **No. 2 springs** penetrate more deeply below support with greater comparative volume than No. 1 springs. This indicates sellers are still abundant during the break. Therefore, a test or secondary test of support is necessary before a “buy” can be signaled. After the initial break below support, the price should move back about one-third into the trading range. Ideally, the volume for this up move should be higher than during the immediately preceding downswing, and also greater than the volume of previous rallies within the trading range. The secondary test consists of a down move that, on comparatively light volume, usually retraces less than half the rally off the low established on the first downside penetration.
- A **No. 3 spring** occurs during a modest penetration of support and is accompanied by volume that is relatively light compared to the volume of prior down moves. The shallow price penetration and low volume indicate sellers are exhausted. No. 3 springs should be bought immediately.

Figure 4: Number 2 Spring



buy breakouts because of the potential for swift moves in the opposite direction if the breakout turned out to be false, leaving the position vulnerable. At first glance, the Wyckoff method appears to be advising to buy into weakness and sell into strength, but there needs to be a sign of strength to signal a “buy”.

The term “jump” was first coined by Robert G. Evans, a penetrating observer of market behaviour and a brilliant teacher who piloted the Wyckoff Associates educational enterprise for numerous years after the death of Richard D. Wyckoff. Evans was noted for his use of analogies as a tool for conveying principles of market behaviour in an understandable and memorable fashion.

One of his more captivating analogies was the “jump across the creek” (JAC) story he used to explain how a market would break out of a trading range. In the story, the market is symbolised by

a boy scout, and the trading range by a meandering stream of water or a creek, with its “upper resistance line” defined by the rally peaks within the range. After probing the edge of the creek and discovering that the flow of supply was starting to dry up the boy scout would retreat in order to get a running start to “jump across the creek”. The power of the movement by the boy scout would be measured by price spread and volume.

A normal correction of any price advance in a bullish direction is halfway back toward the preceding low. A backup of 50 percent could also return the price level to the prior resistance line. If that pullback occurs on volume less than the jump, the conditions are set for a successful backup. And if the last day(s) of the backup are on relatively diminishing price range (showing that the downward velocity is slowing), then one should be ready to enter a long position immediately.

As illustrated in Figure 5 the Jump and Backup are actions and secondary tests that “prove” a favourable set up for taking a high-reward/low risk long position.

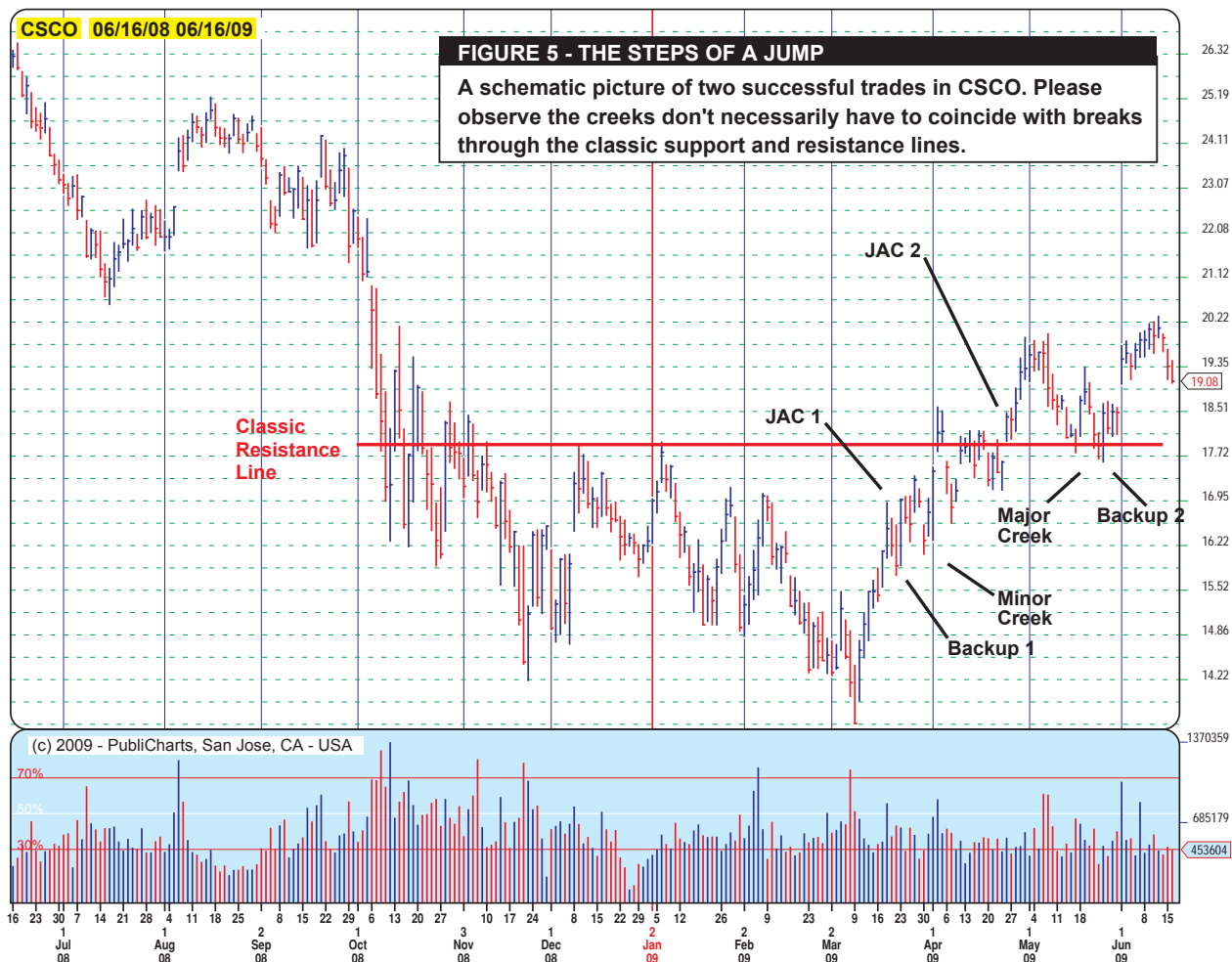
The jump across the major creek and their corresponding backups typically coincide with the passage of the Nine Wyckoff Buying Tests, giving still another layer of “Proof” in favour of entering a long position on the pull back.

Tests – The nine Classic Critical Wyckoff Tests are shown in Table 3.

First, let us revisit the year 2003 in order to observe the nine tests at work. The first IFTA article focused upon the test of the three Wyckoff laws, with special attention on the test of the Law of Cause and Effect. Principally, that first article dealt with the projection of DJIA to 14,400 using a point-and-figure chart.

During the process of establishing its base the Dow passed the nine ▶▶

Figure 5: The Steps of a Jump



classic buying tests of the Wyckoff Method. By May of 2003 all nine tests had checked in positive. This can be seen at the LPS at 9,000 on the chart of the DJIA. The line-of-least-resistance was clearly defined as being up or being a bull market. (See Figure 6)

In a quest for unity and economy, numerous principles of the Wyckoff Method were distilled into “Nine Classic Buying Tests”.

The set of “Nine Classic Buying Tests” was designed to diagnose significant reversal formations. A new bull trend emerges out of a base that forms after a significant price decline. (The “Nine Selling Tests” help define the onset of a bear trend, following a significant advance and top formation.) These nine classic tests of Wyckoff are logical, time-tested and reliable.

“Therefore, the thing to determine is the speculative line of least resistance at the moment of trading; and that he should wait for the moment when that

Table 3
Wyckoff Buying Tests: Nine Classic Tests for Accumulationⁱⁱⁱ

Indication	Determined Form
1 Downside price objective accomplished	Figure chart
2 Preliminary support, selling climax, secondary test	Vertical and figure charts
3 Activity bullish (volume increases on rallies and diminishes during reactions)*	Vertical chart
4 Downward stride broken (that is, supply line penetrated)	Vertical or figure charts
5 Higher supports	Vertical or figure charts
6 Higher tops	Vertical or figure charts
7 Stock stronger than the market (that is, stock more responsive on rallies and more resistant to reactions than the market index)	Vertical chart
8 Base forming (horizontal price line)	Figure chart
9 Estimated upside profit potential is at least three times the loss if protective stop is hit	Figure chart for profit objective

* Applied to an average or a stock after a decline.

Figure 6
Dow Jones Industrial 100 Point box – Point and Figure Chart



line defines itself; because that is his signal to get busy.”^{iv}

Passing the nine buying tests “proves” that the line of least resistance is upward or bullish.

Passage of the nine classic Wyckoff tests gave compelling, irrefutable evidence for all traders adhering to the Wyckoff Method to act and “get long” the market in 2003. The rest is part of American history as the Dow persisted upward until it reached DJIA 14,000 in mid 2007.

The next set of Wyckoff tests were the “Nine Classic Selling Tests” that evolved during late 2007 at the onset of the last primary bear market in equities.

A resolution of the sideways battle between the bulls and the bears has been a major topic for Wyckoff analysis during 2009. Will the “proofs” substantiate a continuation of the primary bear market that started in 2007, or will the market by its own action “prove”, according to the various Wyckoff tests, that a new bull market has emerged?

IFTA

References

- i *Webster's II new Riverside Dictionary*, rev edn, Houghton Mifflin Company, 1996, p. 549.
- ii *Webster's*, rev edn, 1996, p. 695.
- iii JK Hutson, DH Weis & CF Schroeder, *Charting the Market: The Wyckoff Method*, Technical Analysis Inc, Seattle Washington, 1986, p. 87.
- iv E Lefevre, *Reminiscences of a Stock Operator*, John Wiley & Sons Inc, 1994, p. 122.

Bibliography

Lefevre, E, *Reminiscences of a Stock Operator*, John Wiley & Sons Inc., 1994.

Pruden, H, *The Three Skills of Top Trading*, John Wiley & Sons, 2007.

Pruden, H & B Belletante, ‘Wyckoff Laws: A Market Test (Part A)’, *IFTA Journal*, 2004, pp. 34-36.

Pruden, H & B Belletante, ‘Wyckoff Laws: A Market Test (Part B) – What has actually happened’, *IFTA Journal* 2008, pp. 13-15.

Pruden, H, ‘Trading the Wyckoff Way: Buying Springs and Selling Upthrusts’, *Active Trader Magazine*, August 2000, pp. 40-44.

Pruden, H, ‘Wyckoff Axioms: Jumps and Backups’, *Active Trader Magazine*, January–February 2001, pp. 46-51.

Volume in Wyckoff Proofs: Tests, Testing and Secondary Tests, Power Point Presentations, *Hank Pruden*, Denver Trading Group, Denver Co., 2 May 2009 and The Association of Technical Analysis, Dallas, Texas, 16 May 2009.

Charts and data courtesy of the *IFTA Journal* and from Publiccharts.com, San Jose, California, USA.

Charts and Data

Courtesy:

The International Association of Technical Analysts, *IFTA Journal 2008*, The International Federation of Technical Analysts, New York, 2007.

The International Association of Technical Analysts, *IFTA Journal 2009*, The International Federation of Technical Analysts, New York, 2008.

Publiccharts.com, San Jose, California, USA, 2009.

How the Technical Analyst can profit by understanding Real Estate

by Phil Anderson

Abstract

A study of US history reveals a very clear (average) eighteen-year cycle in US real estate prices, measured from trough to trough or peak to peak. Stock market investors and traders should be aware of this because towards the end of every real estate cycle, the US stock market has broken into all time new highs and formed a major top, then, shortly thereafter, has collapsed. And into every real estate cycle trough lost a minimum 50% of its value, but usually more. This seems to catch everybody by surprise, despite the fact that the event is as regular as clockwork. The stock market recovery from the eventual bottom is always slow and drawn out. Every eighteen years, since 1800.

Introduction

The real estate influences can be helpful to know, since:

- There is actually very little information around to show traders how to recognise a major market top, but even more important, how to exit before the dramatic fall which inevitably follows. Identifying a major stock market top can therefore help traders/investors to avoid large capital losses, or, indeed, short almost any stock on the way down, especially banks,
- It may help investors 'time' the market better, both at the top and at the ultimate final (higher) low before the new bull market, and
- Present a way for traders to have the strength to actually do the opposite to the herd, always so thunderous at momentous market peaks, like the one recently seen in 2007/8.

Every eighteen years...

The US began selling off its real estate,

officially, under a set legal structure, on May 10, 1800. After that, here is what happened:

1818, a peak in land sales, followed by a downturn; in 1836, sales peaked again, ending in a depression; the next peak, in 1854, was followed by a depression; the 1869 peak was also followed by depression, likewise in 1888. The downturn following the 1908 peak was cut short by the build-up to the First World War, and real estate peaked again in 1926, followed five years later by what is today judged the world's worst ever depression. A construction-led boom (mainly government financed) peaked in 1944; the ensuing downturn was cut short by rebuilding after the destruction of the Second World War.

In other words, for the first 144 years of real estate enclosure in the US, land sales and/or real estate construction peaked almost consistently, every eighteen years.

Since the Second World War, and once the US economy finally shrugged off the distorting affects of all the dislocation wrought by the war, the rough eighteen-year cycle reasserted itself with some vigour. The final years of this first decade of the 21st century will mark the passage of another cycle, eighteen years from the trough of the previous one in 1992. History repeating itself will see the next real estate low point in 2010.

Today's economists delight in recalling the Dutch tulip mania of 1636, the South Sea bubble of the 1720s, and in more recent times the internet investment bubble of the 1990s, because it involved rogue characters in what turned out to be awesome booms that turned eventually to bust, random events, responses to either luck (the discovery of gold) or new invention. They could not have been predicted using the standard tools of the economist.

The economy does actually have a scientific foundation. It is based on the 'economic rent'.

Figure 1
Public land sales, 1800-1923



The financial crisis that broke in 2007 is different. This crisis was pre-determined by the structure of the economy. The present crash is NOT a market failure: it is actually proof that the (monopoly) capitalist system is working, and working well. The instability of the capitalist system is inbuilt into the DNA of the economy. This DNA is the economic rent, or, more particularly, the enclosure of the economic rent, a concept first formalised by English economist, David Ricardo in 1810. The economic rent is to economics, what gravity is to science. Very few economists today understand this, and it is a concept you will not find being taught at universities currently. A trader's effort to understand the concept will be well rewarded. You will know you have come to understand it when you realise why it isn't taught.

Ricardo's Law of Rent states, simply, that the economic rent is not a cost of production. A house costs pretty much the same to build, wherever you build it – wages are the same, and materials costs are the same. But the selling price will depend on the location. So builders, for example, will bid more for the best locations. That money doesn't go to the workers building the house, and nor is it spent on improving the materials used. It purely benefits the owner of the land. This bid is what Ricardo was first to identify as a 'surplus': the economic rent. Property investors know it today as locational value.

Wherever a price is put on this locational value of land, a property cycle will (must) develop as speculators and companies chase land prices higher and higher, reducing the proportion of wealth being invested in either creating jobs or productive businesses. This cycle is beyond the control of central banks and beyond the control of government. The enormous credit created by banks based upon this value now gives us the violence of the property boom, then bust. The real estate cycle is the most important market cycle.

Why should such fundamentals interest a technical analyst?

In the land market itself, the cycle has so far manifest in a clearly definable

fourteen years of rising prices, then four years declining. For stock market traders, this is where it starts to get interesting. At the top of the cycle, land prices peak first. This, then, gives us an indicator to announce the approaching top of the stock market, (perhaps a bell really does ring), or at the very least, a warning signal. Indeed, land prices will already be declining as the stock market makes its final ascent to the top, based as the stock market is on the (increasing at this time in the cycle) earnings of most companies. An excellent study in the 2008 IFTA journal (Desmond, Paul F., An exploration of the Nature of Bull Market Tops) shows clearly that the majority

of stocks have already topped out well before the Dow reaches its absolute bull market peak, research that accords with my own studies and something that also shows up in the prior works of the legendary W.D. Gann. Traders may simply combine this with their new-found knowledge of the real estate cycle, to help identify the stock market peak. On a yearly basis this will not prove particularly hard to do next cycle.

At US real estate market troughs, US stock markets NEVER recover quickly. In fact at every past real estate cycle trough, there has been an absolute minimum two to three years of the stock market working its way sideways at the lows. ▶▶

**Figure 2
Railroad Stock Price Index, 1841-62**



**Figure 3
Index of American Railroad Stocks, 1874-1900**



Gann reportedly first published this chart in 1909, suggesting it was his ‘most important ever discovery’, though he went on to say that about several other things as well. Nevertheless, the discovery involved ‘time’, the first time Gann ever mentioned the fact, and since cycles are time based, perhaps it is worth a look. Study in particular the years as marked with a ‘k’. It was my study of US real estate collapses that first drew me to this Gann table many years ago. 1914, 1933, 1952 and 1970: all major stock market lows, pretty much as forecast. The time table is a fraction out now, as originally published by Gann, but, for reasons I will not go into here, if you replace ‘1989’, with 1991, and count forward, this will give you something VERY interesting to observe over coming years.

Conclusion

The IFTA journal began last year’s issue (2009) quoting Sir Winston Churchill: “The further backward you look the

further forward you see”. Never was a truer word spoken. Churchill knew very well his Ricardian land rent theory: he knew why the massive 1893 land and stock market booms turned to bust, and Churchill did in fact spend the next fifteen years of his political life after the bust explaining Ricardo’s Law of Rent, as expressed at the time by the now not-so-well known US economist Henry George, to anyone who would listen, culminating in his (and Lloyd George’s) historic 1909 people’s budget. Churchill knew that history would indeed continue to repeat, whilst the economic rent of any economy remained ‘enclosed’. The Lords refused his budget. The UK went on to witness continuing boom and bust.

Today, with Russia, China and India furiously selling off more and more of their real estate, (privatising the land rent) and building huge, in fact truly stupendous infrastructure projects, a process that will triple, if not quadruple the land values of each of those nations

over the next two decades – the next real estate cycle will be truly global and astonishing to behold, and worth knowing about. If the major banks once again get back to creating all that credit, as they have done in every past cycle, we are in for some real fireworks at the end of the next cycle. Will you be ready therefore, in 2024, when the next eighteen-year real estate cycle peak, as recorded by its land value, is due? **IFTA**

Bibliography

Desmond, PF, ‘An Exploration of the Nature of Bull Market Tops’ *IFTA Journal*, 2008, pp. 22-25.

Gann, WD, ‘Financial Time Table’ Publisher unknown, 1909.

Harrison, F, *The Power in the Land*, Shephard-Walwyn, London, 1983.

Hoyt, H, *One Hundred Years of Land Values in Chicago*, University of Chicago Press, Illinois, 1933.

Wenzlick, R, *The Coming Boom in Real Estate*, Simon and Schuster, New York, 1936.

Table 1
W.D. Gann’s 1909 financial timetable

1784	1803	1821	1840	1858	1877	1895	1914	1932	1951	1969	1988
1785 A	1804 A	1822 A	1841 A	1859 A	1878 A	1896 A	1915 A	1933 A	1952 A	1970 A	1989 A
1786	1805	1823	1842	1860	1879	1897	1916	1934	1953	1971	1990
1787	1806	1824	1843	1861	1880	1898	1917	1935	1954	1972	1991
1788	1807	1825	1844	1862	1881	1899	1918	1936	1955	1973	1992
1789 B	1808 B	1826 B	1845 B	1863 B	1882 B	1900 B	1919 B	1937 B	1956 B	1974 B	1993 B
1790	1809	1827	1846	1864	1883	1901	1920	1938	1957	1975	1994
1791 C	1810 C	1828 C	1847 C	1865 C	1884 C	1902 C	1921 C	1939 C	1958 C	1976 C	1995 C
1792 D	1811 D	1829 D	1848 D	1866 D	1885 D	1903 D	1922 D	1940 D	1959 D	1977 D	1996 D
1793	1812	1830	1849	1867	1886	1904	1923	1941	1960	1978	1997
1794	1813 E	1831	1850 E	1868	1887 E	1905	1924 E	1942	1961 E	1979	1998 E
1795 E	1814 F	1832 E	1851 F	1869 E	1888 F	1906 E	1925 F	1943 E	1962 F	1980 E	1999 F
1796 F	1815	1833 F	1852	1870 F	1889	1907 F	1926	1944 F	1963	1981 F	2000
1797 G	1816 G	1834 G	1853 G	1871 G	1890 G	1908 G	1927 G	1945 G	1964 G	1982 G	2001 G
1798	1817 H	1835	1854 H	1872	1891 H	1909	1928 H	1946	1965 H	1983	2002 H
1799 H	1818	1836 H	1855	1873 H	1892	1910 H	1929	1947 H	1966	1984 H	2003
1800 J	1819 J	1837 J	1856 J	1874 J	1893 J	1911 J	1930 J	1948 J	1967 J	1985 J	2004 J
1801	1820	1838	1857	1875	1894	1912	1931	1949	1968	1986	2005
1802	1821	1839	1858	1876	1895	1913	1932	1950	1969	1987	2006
1803	1822 K	1840	1859 K	1877	1896 K	1914	1933 K	1951	1970 K	1988	2007 K
1804 K	1823	1841 K	1860	1878 K	1897	1915 K	1934	1952 K	1971	1989 K	2008

LEGEND (compiled by W.D Gann, 1909.) **A:** Extremely low stock prices, strikes, repression, despair and beginning of new business generation for 18 ⅓ years. Four years of rising stock prices and improving business, markets bare of goods, young men becoming prominent. **B:** High stock prices. **C:** Panic. **D:** Low stock prices. **E:** High stock prices. **F:** Panic **G:** Low stock prices. **H:** Very high stock prices, most prosperous year, waste over extravagance, most money in circulation, much speculation. **J:** Major panic, CRASH. Four years of falling prices, business stagnated, breadlines, soup kitchens, despair, unemployment. **K:** Same as A, plus strikes, unemployment, many prominent deaths.

IFTA Certified Financial Technician (CFTe) Program

Internationally Recognised Certification in Technical Analysis

IFTA's Certified Financial Technician credential is recognised worldwide as the professional qualification for Technical Analysts. Candidates for the CFTe designation must successfully complete two exams, CFTe I and CFTe II, which test their range and depth of knowledge in Technical Analysis.

CFTe I This multiple choice exam of 120 questions covers a wide range of technical knowledge and understanding of the principles of Technical Analysis, usually not involving actual experience.

CFTe II This exam incorporates a number of questions requiring short, essay-type answers, which should demonstrate a candidate's depth of knowledge and experience in applying various methods of Technical Analysis. Candidates are required to analyse a number of current charts covering one specific market (often an equity) as though for a Fund Manager.

To Register

Candidates must be members of an IFTA Member or Developing Society to register for the CFTe exams.

Beginning in November 2009, the IFTA CFTe I exam will be offered year round through the Pearson VUE network of testing centers around the world. Check the IFTA website www.ifta.org for details.

The CFTe II exam is offered twice each year, once in April/May and once in October/November. Candidates can access the online registration for the CFTe II exam through the IFTA website.

For more information on the CFTe Program, please visit the IFTA website www.ifta.org/certifications/financial/ or contact the IFTA staff at admin@ifta.org.

Measuring Buy and Sell balance using the VB Chart

by Norinao Wakiya MFTA

Abstract

This paper presents a method of technical analysis based on using the Volume Weighted Average Price (VWAP) in comparison to mainstream technical analyses which is based on closing prices. Incorporating some extensive analysis which is easily readable on the charts, the VWAP technique highlights buy and sell positions, reflecting investor sentiment and the balance within the market.

Introduction

Quite often studies in technical analysis are based on the closing price. This method alone ignores the divergence between the closing price, driven up or down by the transactions immediately before the close, and the average transaction cost for investors.

This paper considers using VWAP (Volume Weighted Average Price). The VWAP is the average of each traded price by trading volume during the trading period. It will be used for various technical analysis studies to more closely reflect the actual trade condition.

Currently, VWAP is used only during the trading hour or a selected time period. If however, we use VWAP for multiple periods, we can calculate the actual average trading costs. Further, based on VWAP for multiple days, a VWMA (Volume Weighted Moving Average), can also be calculated. With this, the flow of average trading costs can be captured and a comparison of the simple moving average (MA) with the VWMA can be performed.

Finally, the methods above are applied to what is called the “VB Chart.” The guiding principle used here is that the chart should be “at a glance” and “reflect investor’s sentiment”. Following this principle “a chart should show the market Buy and Sell balance at a

glance”, and suggests the idea that a chart should enable us to judge the balance of selling and buying on VWAP and VWMA basis. This application is termed the VB Chart (Volume weighted Balances Chart). The VB Chart judges the balance of the market using multiple numbers of VWMA instead of a Simple MA line and compares past prices using Leading VWAP instead of closing prices¹.

More detail is explained later in part 3: Volume weighted Balances Chart: VB Chart.

1 Method

1.1 About VWAP

The “Volume Weighted Average Price: VWAP” is the ratio of the average transaction price in a time period to the total volume traded.

VWAP formula

$$\text{VWAP} = \frac{\text{Sum of (Trading Price x Trading Volume)}}{\text{Sum of Trading Volume}}$$

$$= \frac{\text{Sum of Transaction amount}}{\text{Sum of Trading Volume}}$$

We can determine the transaction amount from the “Time & Sales” of transaction prices and volume.

For example, in Table 1 below, the transaction amount of 300 shares traded at \$28.50 is \$8,550, and of 200 shares traded at \$28.51 is \$5,702.

Table 1
Time & Sales Example 1

Time	Trading price	Trading volume	Transaction amount
9:35	28.50	300	8,550
9:46	28.51	200	5,702

The VWAP is obtained by averaging the transaction amount from the “Time & Sales” by trading volume.

Based on the example explained above, VWAP is calculated at \$28.504.

$$\frac{(28.50 \times 300 + 28.51 \times 200)}{(300 + 200)}$$

The average transaction cost is determined by the above method.

1.2 Why Use VWAP instead of closing prices?

Normally, the data for analysis, such as trend or price oscillation measurements, is based on four prices: Open, High, Low and Close.

The closing price is the most important price among the four and used for calculating the basis value for the trading outside of the trading period. Yet this is merely one price traded during the day: a price determined at one point of the closing.

It is very rare that the trade of a period ends flat. Within a time trading horizon, a trend may emerge, a box range is formed, or a cycle may emerge. A closing price therefore is most often not the average trading price. Analysis based on, or weighted to, the closing price ignores the difference between the closing price (established by many factors shortly before a market close) and the average transaction price of the period considered.

The simple example below illustrates the gap between VWAP and the closing price.

In Table 2, the total transaction amount of \$68,430 is divided by 2,400 shares to arrive at a VWAP of \$28.5125. The reader may observe that the closing price is \$28.53 at 14:42. The gap between the actual closing price and VWAP is only \$0.0175, which in this market is almost two ticks and significant. ▶▶

**Table 2
Time & Sales Example 2**

Time	Trading price	Trading volume	Transaction amount
9:35	28.50	300	8,550
9:46	28.51	200	5,702
10:17	28.50	400	11,400
10:46	28.51	100	2,851
10:54	28.51	200	5,702
12:31	28.50	300	8,550
12:37	28.51	100	2,851
13:28	28.52	200	5,704
14:01	28.53	100	2,853
14:33	28.54	200	5,708
14:42	28.53	300	8,559
Total	2,400	68,430	

Therefore a trader taking a long position at \$28.52 or more, pays a higher-than-the-average cost among the investors who traded on the day. Contrary to taking a long position at \$28.51 or less, a less than average transaction cost.

The trader with a long position at \$28.52 and another trader with long position at \$28.51 have an appraised profit. Under VWAP analysis, the trader with the long position at \$28.51 is in the significantly more advantageous position than the average trader of the day.

With a short entry, the condition is opposite to the long position. Selling at higher than VWAP is advantageous and selling at lower than VWAP is disadvantageous.

We should note that the VWAP changes as transactions take place during the trading period. The transaction balance of the VWAP continues to change from the opening. VWAP was \$28.504 at 9:46 in the first example, and in the second example, it rose to \$28.5125 at 14:42.

In fact, if we have a long position of \$28.51 at 9:46, it was higher than other investors' average cost; it was disadvantageous. As the trading session progressed \$28.51 was cheaper by 14:42, making it the advantageous position. Using the VWAP for long entry positions the trader can look forward to a higher possibility of profit.

As explained above, VWAP is an average price that shows the balance

of sellers and buyers. It is considered that using VWAP, instead of the closing price, for technical analysis, enables us to make an analysis closer to the actual trade condition.

Some exchanges and data providers provide VWAP data using real-time consolidated data streams. If both the transaction prices and volume are given during the day it is a simple calculation derived from the Time and Sales and Volume data.

From August 2007, in the Japanese market, we can obtain the data of VWAP and transaction amounts for the daily market. As it is difficult to get VWAP and transaction amount data of each stock in time sequence, the analysts must calculate and record the VWAP every day.

If you trade the US futures market, example: mini-sized Dow, you can make VWAP data using CBOT official data.ⁱⁱⁱ

1.3 The Effectiveness of Applying VWAP to Price Analysis

What is the difference between the actual closing price and the VWAP on the sequence of data for the Nikkei 225 Large for the current month? As the VWAP is an accumulated value, based on the actual transactions, we will analyse the stock index future that is linked to the index.

The research period is from July 18, 2006 to August 24, 2007. July 18, 2006 is the date the Nikkei 225 Mini started trading. While Nikkei 225 Large is

quoted in ¥10 units, the Nikkei 225 Mini is quoted in ¥5 units. In other words, if the price size is the same, the Mini has twice the number of ticks as the Large does. For example, if the price rises ¥100, it is 10 ticks in the Large and 20 ticks in the Mini. For comparison, Globex on CME (Chicago) and Nikkei Futures on SGX (Singapore) are traded in ¥5 units; the same as the Mini.

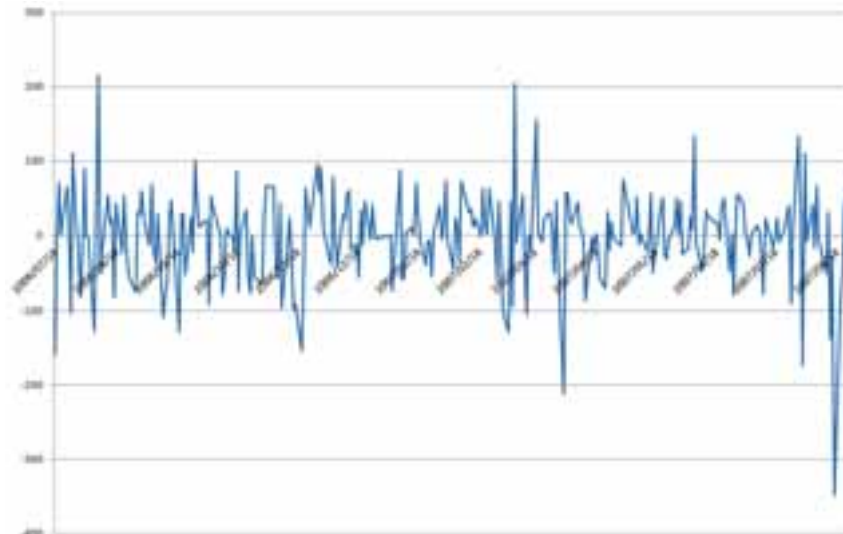
Chart 1 below shows the movement of the data for the “daily closing price minus the daily VWAP”. If the closing price is higher than VWAP, a positive number is recorded. If it is lower than VWAP, a negative number is recorded.

The difference between VWAP and the closing price is almost zero on some days and over ¥100 on other days. During this period, the average difference between the closing price and VWAP was ¥43: An average of four ticks in Large, and 8.5 ticks in Mini or Globex creating a significant difference for these leveraged instruments.

During the same period, the average change from the previous day (the difference between the closing of the previous day and that of today) is ¥131.31 (13 ticks for Large, 26 ticks for Mini), and the high-low difference (the average difference between the high and low of the day) is ¥186 (from 18 to 19 ticks for Large, 37 ticks for Mini).

The average VWAP-Closing Price difference of ¥43 is 32.7% of the average change from the previous day, and 23.1%

**Chart 1
Divergence between Closing Price and VWAP**



of the high-low difference producing the highest volatility of the day.

From this we find that there is a large difference between the closing price and VWAP.

The following examines the intraday movement of VWAP and traded prices.

Chart 2 and Chart 3 show the intraday data for the Nikkei 225 Large over four continuous trading days. Specifically, Chart 2 is for August 16 (Thursday) and 17 (Friday), 2007. Chart 3 is for August 20 (Monday) and 21 (Tuesday), 2007.

The blue dotted line is the traded price (tick), and the green line is the movement of VWAP (VWAP line), and presents the VWAP line highlighting a significant move.

When a position is taken we are sensitive to the entry price, especially immediately after the entry. When we have unrealised profits, which will decrease as the market comes closer to our entry price, we consider realising a small size profit before the market enters into a loss area. In a stop loss case, we try to fix the loss at the minimum size relative to our entry price. The area of entry price reflects and drives investors' sentiment the most.

The VWAP line represents the movement of the average traded price in the market. Even though an investor is not particularly conscious about the value of VWAP, but instead the entry price, the VWAP line becomes a resistance or a support, or forms a trend

as is shown in Chart 2 and Chart 3.

Just like standard support and resistance lines, the function of VWAP as support or resistance changes as the market moves. If the market breaks the VWAP which was functioning as a support, the VWAP changes to resistance. If the market breaks the VWAP which was functioning as a resistance, the VWAP changes to a support.

Another characteristic is that VWAP trends with trading volume. When an up or down trend is formed, volume will increase in the direction of the trend. On the other hand, no matter how much price fluctuates, the VWAP line stays flat if there is no large trading volume.

A trend emerges and is supported by increasing trading volume. Therefore, the higher degree of the angle, the more reliable the direction is, as observed on the second day in Chart 2. Here, the downward angle is sharper in the afternoon session than in the morning session indicating a strong downtrend.

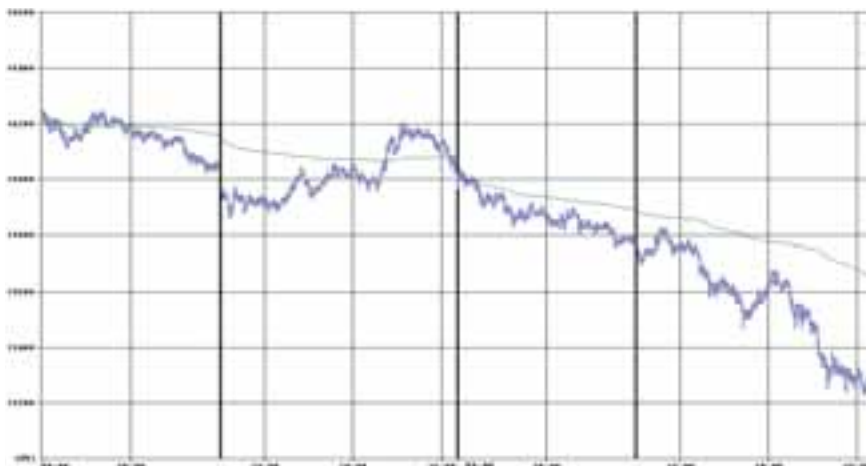
When a strong trend is being formed with a sharp angle, the support/resistance of the VWAP line tends to function more reliably. When the VWAP is moving upward and the market price is higher than the VWAP line, even if the price goes down and approaches the VWAP line, buying-on-dip is likely to come in. In this case, the VWAP functions as a support. When the VWAP line is moving downward and the market price is below the VWAP line, even if the price goes up and approaches the VWAP line, profit-taking from the investors who bought higher is likely to come in. Here, the VWAP line functions as a resistance.

Additionally, it should be noted that the market price tends to regress to the VWAP line when a trend is being formed or the market is flat. The market price tends to regress to the VWAP line representing the buy/sell balance price equilibrium.

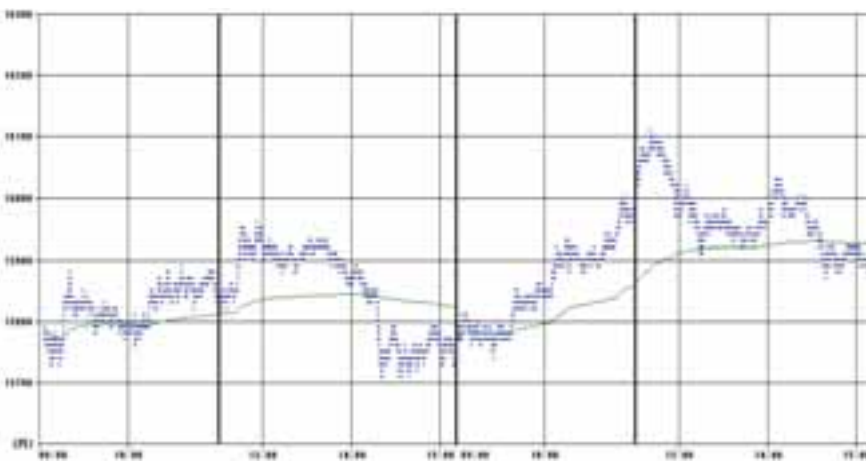
When the market price regresses to the VWAP line, under trending conditions, the VWAP line is likely to function as support or resistance as explained above. On the other hand, when the market is flat, the market tends to form a box range across the VWAP line.

When considered from the long >>

**Chart 2
Intra-day for the Nikkei 225 Futures (Large) with VWAP
(August 16-17, 2007)**



**Chart 3
Intra-day for the Nikkei 225 Futures (Large) with VWAP
(August 20-21, 2007)**



side, if the market rises considerably higher than the VWAP value, some profit-taking is likely. If the market drops considerably lower, some buying-on-dips is likely. On the other hand, if people intend to start from a short position, they may enter when the market goes much higher than the VWAP, and are likely to fix the profit when the market breaks down below the VWAP line.

And further, when the market breaks the box range, the direction is often the same as the direction where the VWAP is going to break. These are the cases when the market becomes somewhat upward or downward from flat. A clear example is seen on the first day on Chart 3. After approximately fifteen minutes from the opening of the afternoon session, the VWAP line moved sharply upward and was raised one step. At this point, we can confirm that the market went up sharply with a large trading volume. Right after that, we can also check that the angle of the VWAP line was nearly flat and lost the rising energy.

The following summarises the VWAP line:

Relative positions of the VWAP line and market price

- **Price is above the VWAP line:**
The buying side is likely to be in profit, and the selling side is likely to be in loss.
- **Price is below the VWAP line:**
The buying side is likely to be in loss, and the selling side is likely to be in profit.
- **Price goes down to the VWAP line:**
The VWAP line is likely to function as a supporting line.
- **Price goes up to the VWAP line:**
The VWAP line is likely to function as a resistance line.

The direction of VWAP line

- **Upward:** The market price is rising with a large trading volume. (Uptrend)
- **Downward:** The market price is dropping with a large trading volume. (Downtrend)
- **Flat:** Even though the price fluctuates, large trading volume is not involved. (Box Range)

2 Volume Weighted Moving Average: VWMA

2.1 Calculation

VWAP is generally used on an intraday basis. However, it is possible to calculate VWAP over a period of multiple days.

Based on a multiple-day VWAP, a moving average can also be obtained. In order to distinguish this moving average from the standard Moving Average (MA), it has been termed the “Volume Weighted Moving Average (VWMA).” The use of the VWMA enables us to capture the movement of the average buy/sell prices of the market participants over multiple days.

In the use of the VWMA, analysis is made on longer-than-daily basis (daily, weekly, monthly, or annually). Thus, the detailed “Time & Sales” of the subject period is not always necessary. We can obtain the VWMA from the time sequence data for the transaction amount and trading volume.

For example, each element of a five-day VWMA (5d VWMA) can be obtained by the following formula:

days. The calculation begins on the fifth day from the beginning of the data collection.

On Day five, sum up the transaction amounts from Day one to Day five. Next, sum up the trading volume from Day one to Day five. On this stock, the total transaction amount on Day one – five is \$8,960,847,454, and the total trading volume is 307,343,300 shares.

If we divide the total transaction amount (\$8,960,847,454) by total trading volume (307,343,300 shares), we obtain the five-day VWMA on Day five of \$29.1558.

We then calculate the five-day VWMA for Day six. From the total transaction amount and trading volume in the above, the transaction amount and trading volume of Day one are withdrawn, and those for Day six are added. In other words, we sum up the transaction amount and trading volume from Day two to Day six. Similarly, to obtain the data of Day seven, we sum up the data from Day three to Day seven. Shifting the day like this, we calculate a five-day VWMA for each day.

Five day VWMA formula

$$5d\ VWMA = \frac{\text{Sum of Transaction amount of 5 days including today}}{\text{Sum of Trading Volume of 5 days including today}}$$

The VWMA calculation is shown in Table 3.

To calculate a five-day VWMA, we need to know the sum of the transaction amounts and trading volume for five

Based on the data in Table 3, a chart of a five-day VWMA (Chart 4) was drawn. For comparison, the standard five-day moving average (5-day MA) is also included in this chart.

**Table 3
Daily Market Data Example**

Day	Opening	High	Low	Closing	Trading volume	Transaction amount	5-day VWMA
1	28.94	28.99	28.44	28.63	55,641,500	1,597,745,673	
2	28.90	29.05	28.26	28.71	76,581,600	2,194,445,748	
3	29.64	30.10	28.92	29.30	72,980,400	2,153,651,604	
4	29.72	30.01	29.21	30.00	52,902,700	1,566,448,947	
5	29.33	29.79	29.05	29.55	49,237,100	1,448,555,482	29.1558
6	29.05	29.54	28.75	29.54	59,533,500	1,735,103,858	29.2326
7	29.45	29.78	28.90	28.96	61,539,700	1,805,574,798	29.4042
8	29.19	29.79	29.02	29.52	47,993,700	1,411,254,749	29.3759
9	28.95	29.55	28.82	29.30	80,011,800	2,335,144,383	29.2832
10	29.71	29.72	28.98	28.99	66,686,200	1,957,239,970	29.2760

The resistance effect of the 5-day MA can be seen on Days seven and eight, portraying the high efficiency of the MA. However, we need to note the movement for both the 5-day VWMA and 5-day MA.

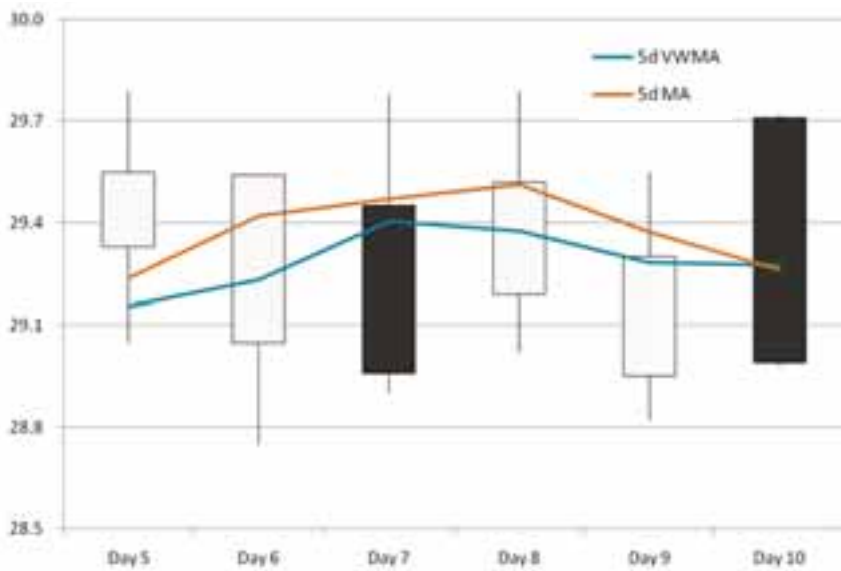
On Day eight, the market closed higher than the closing for the previous

day. While the 5-day MA is rising along with the move, the 5-day VWMA is going down. This indicates that the price rise on Day eight was on low volume, and that the market closed up and above the average traded prices for the past five days and implies that the market

price regressed from high to low toward the VWMA and continued to drop.

In this example, and on the next day (Day nine), the market opened lower, and the closing shows that the 5-day VWMA functioned as a resistance line at the close.

Chart 4
VWMA and MA



2.2 The effectiveness of the VWMA

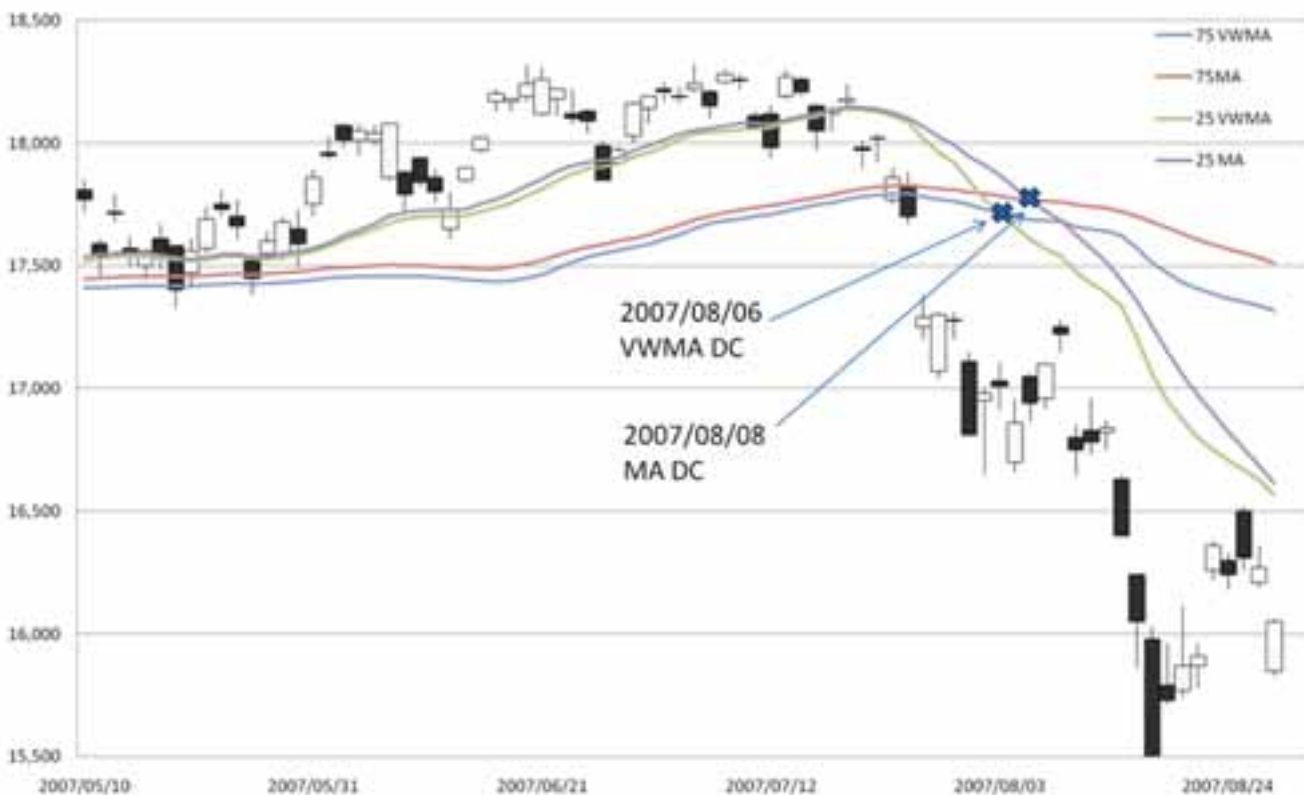
As the VWMA is a moving average, we can also apply it to highly effective analysis methods such as Granville's laws, the Dead-Cross and Golden-Cross methods using long and short moving averages using closing prices.^{iv}

Below is an example of an actual Dead-Cross on the Nikkei Futures with a comparison of the MA and VWMA.

Chart 5 shows the 25-day and 75-day MA and VWMA which are time units commonly used for daily moving average analysis.

Compared with the MA, the VWMA shows a downtrend at a faster rate and greater angle. In this phase, we can observe that a strong decline is taking place with heavy volume and that the average market traded price is dropping sharply. ▶▶

Chart 5
Compare VWMA Dead-Cross and MA Dead-Cross



In this decline phase, both the MA and the VWMA are in a Dead-Cross. We need to note that while a Dead-Cross on the MA appeared on August 8, 2007, a Dead-Cross on the VWMA appeared two days before.

Both the VWMA and the MA are lagging indicators as they use the 25-day and 75-day units. This is a known characteristic and disadvantage of a moving average. The VWMA, however, gives a Dead-Cross signal earlier, reducing the lag and making it an effective leading indicator with the moving averages used.

The next step examines the correlation between the MA and the VWAP over the same day.

For comparison, the same period is used as that for Chart 5, with a 200-day span being the most commonly used in long-term moving averages.

In Chart 6, the 200-day MA and

VWMA appear on the top of the chart, and the divergence between the two (200-day VWMA minus 200-day MA) is shown at the bottom of the chart.

Following the movement in the rise it is apparent that the 200-day VWMA (blue) is higher than the 200-day MA (orange). As they approach the peak, the difference between the two becomes gradually smaller (bottom chart) and breaks down through the zero line on July 25, 2007. Two days after that there is a sharp sell-off phase.

After the zero line was broken, the 200-day VWMA and the 200-day MA kept rising along with the price but, as illustrated before, using the correlation between the MA (price itself) and the VWMA (average market transaction price), it creates a different view point. Looking at the long-term 200-day MA, it shows a very smooth and almost flat movement. In the second

sell-off after the initial price drop, the 200-day MA remains almost flat, and it is the 200-day VWMA indicating the downtrend, working to the investor's advantage as a leading indicator, both from its calculations and visually from the chart.

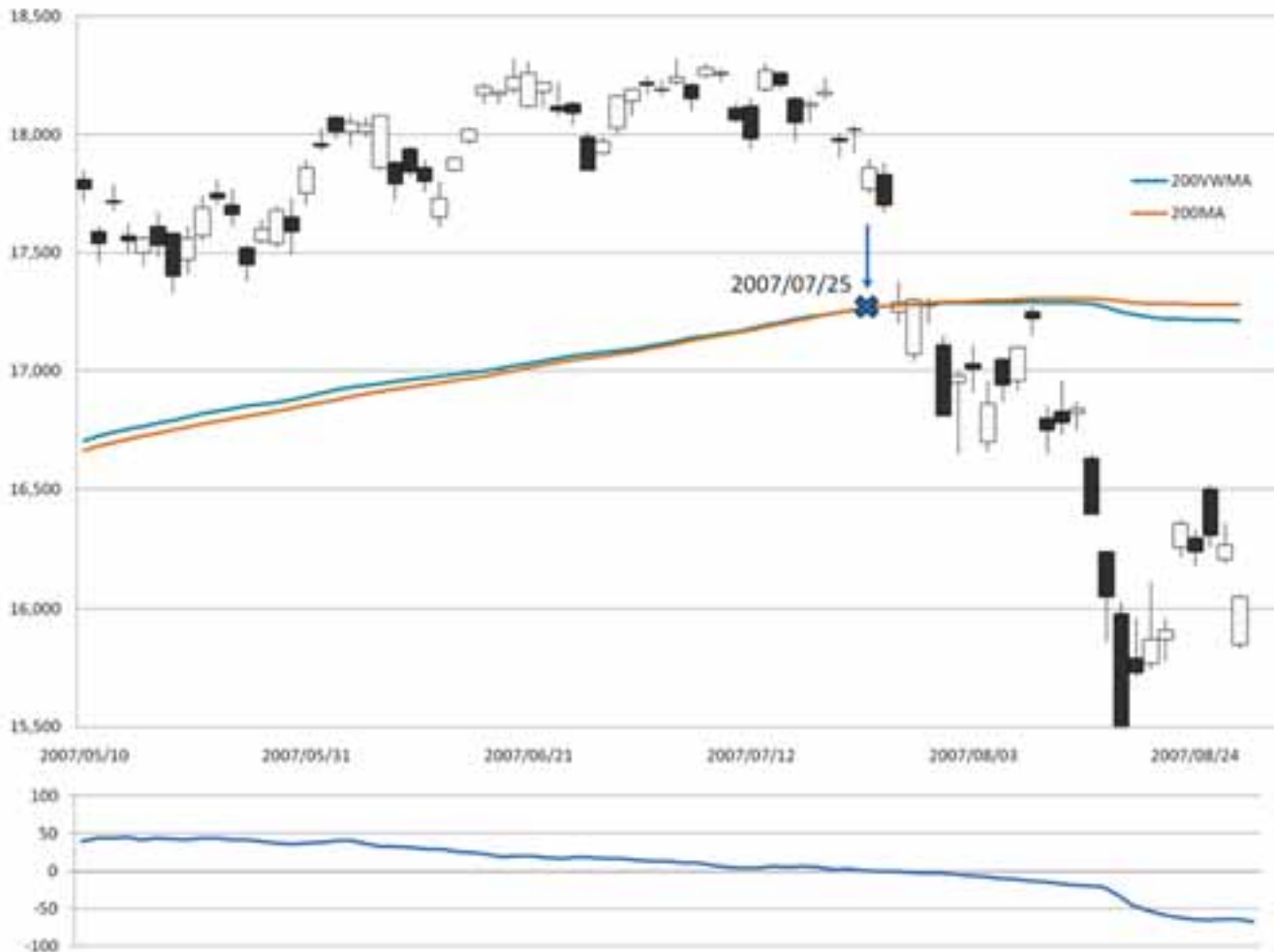
Supplementary 1

It was previously mentioned that the "Time & Sales" is not necessary for VWMA but when available, it helps in short-term trading.

From "Time & Sales", we know the transaction amount and trading volume to calculate the VWMA. If "Time & Sales" is available in real time, an intraday analysis can be performed giving a more detailed analysis, and allowing the investor to react to the market quickly especially during short-term trading.

In the example of the five-day VWMA, the five-day VWMA is an average price

Chart 6
Comparison of the 200-day VWMA and the 200-day MA



for five days: four business days till yesterday and today. As transactions take place and the VWAP of today changes, the value of the five-day VWMA also changes accordingly.

By obtaining the real time “Time & Sales,” we can watch the movement of the average traded price for five days in real time. For example, we can compare the 5-day VWMA and the VWAP line, or the current price, analyse it, and use it for trading.

Supplementary 2

In the calculation of the VWMA, we need to think about how to treat the transactions that are done outside the market.

In this paper, the VWMA is calculated based on the transaction amount and trading volume from “Time & Sales” that took place in the intraday market. In some markets, trading is active outside the market. During the analysis of these markets, it is better to compare the VWAP from the intraday market with a total VWAP that includes transactions outside the market.

If there is a considerable difference between the two VWAP, both should be analysed. If the difference does not change very much from day to day, then only the intraday data needs to be used.

As a reference, the difference in the average VWAP on the Nikkei Futures was less than ¥1. Because it was much smaller than one tick (=¥5) of the Mini 225, only the intraday market data was used to calculate the VWMA.

3 Volume weighted Balances Chart: VB Chart

3.1 The requirements for the VB Chart

The following presents a chart for the application of the buy/sell balance by using VWAP and VWMA.

In the technical analysis of the four price basis, the charts enable us to judge the balance of buying and selling in the current market conditions. Volume is not taken into consideration. (However, when we judge the buy/sell balance, trading volume is an important aspect.)

The concept behind any chart reading is to “show the current Buy/Sell balance at a glance”. This suggests a chart enables us to judge the balance of selling and buying using the VWAP; the Volume

weighted Balances Chart (VB Chart).

The requirements for the VB Chart are:

1. Draw a Candlestick price chart (Bar and Line price charts can be substituted)
2. Draw a multiple number of VWMA (two or more)
3. Draw the VWAP of any day to lead: Leading VWAP (one or more)

The components explained:

Component one – Candlestick chart

Candlestick charts visually display the four prices (opening, high, low, and close).

When the closing price is higher than the opening price, the candlestick color is white. When the closing price is lower than the opening price, the candlestick color is black allowing a graphically clear representation of ascending and descending prices during a day. (This component may be replaced by a Bar chart or Line chart).

Component two – VWMA

Using the VWMA, the buy/sell balance is determined during the designated period. If the candlestick is higher than the VWMA, the market is to the advantage of the buy side. If the candlestick is lower than the VWMA, the market is to the advantage of the sell side.

When the candlestick dips to the VWMA line, the VWMA line is likely to function as a supporting line and alternatively, when the candlestick goes up closer to the VWMA line, the VWMA line is likely to function as a resistance line.

A short-term VWMA is more sensitive to the price action, resulting in noise and false signals. Using a long-term VWMA can avoid this, but it has the disadvantage that wide divergences may occur between the price and the VWMA in some market conditions, suggesting that both the short-term and long-term VWMA be used.

By using a multiple number of short-term and long-term VWMA, signals such as Golden-Cross and Dead-Cross can be observed more readily for buy/sell positions.

Example periods for the VWMA;

- 5-day, 20-day, 25-day, 50-day, 62-day, 75-day, 200-day

This sample is not exclusive and other test periods may be utilised.

Component 3 – Leading VWAP

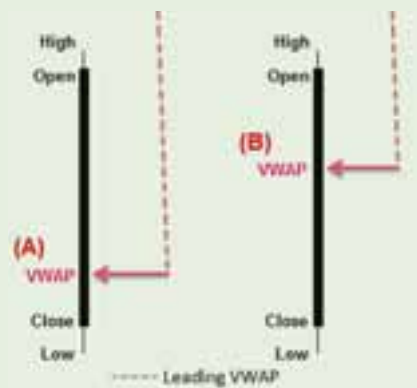
Leading VWAP is a simple line, but the most important line on the VB Chart as it shows whether the price for the day is lower or higher than the previous period average price range.

Leading VWAP can be viewed as an efficient analysis of the relationship in the bull and bear power balance and the VWAP movement compared with the price.

Additionally, by comparing the Candlestick and Leading VWAP, the analysis can judge if the market closes higher or lower than the VWAP.

The following Figure 1 is a sample comparing the Candlestick and the Leading VWAP. Both Candlestick (A) and (B) are the same exhibiting “a day

**Figure 1
Compare Candlestick and Leading VWAP**



of weakness” but the Leading VWAP presents a different picture.

In the case of (A), the VWAP closes “Low” near the “Close” price indicating selling with increased volume participation during the trading session. In (B), however, selling is not accompanied by market volume. The intra-day trading is represented in Figure 2 calculated from the Candlestick and Leading VWAP.

The Leading VWAP provides the actual average for a day and reflects investor’s sentiment while providing a visually historical actual average of each trading session. (See section “1-3: The effectiveness of VWAP”.)

By using the Leading VWAP, there ►►

Figure 2
Comparing the Candlestick and Leading VWAP



is an automatic comparison of the price of today with some days before. Setting a ten-day Leading VWAP can determine whether the price for today is higher or

lower than ten days before the VWAP, at a glance. Other periods may be utilised and tested, for example the one-month period of 20-days.

3.2 VB Chart Example 1 – Buy/Sell Power Balance, Signals and Trend

Chart 7 is an actual VB Chart where a simple time axis is used with a VWMA and the Leading VWAP. The following indicators were applied to the chart:

- **5-day VWMA:** to judge buy/sell balance for 5 days (one week)
- **20-day VWMA:** to judge buy/sell balance for 20 days (one month)
- **62-day VWMA:** to judge buy/sell balance for 62 days (three months)
- **20-day leading VWMA:** to compare VWAP for 20 days (one month) prior with the price for today

A 62-day period was used as the average trading days for three months. In the Japanese markets, there were 248 trading days in FY 2006; dividing 248 by

four to obtain the average number of trading days for three months.

Buy/Sell Power Balance

Chart 7 explores the Buy and Sell balance with the Leading VWAP.

Green territory illustrates price over the Leading VWAP; buy side has advantage.

Red territory illustrates price under the Leading VWAP; sell side has advantage.

With the use of a 20-day Leading VWAP, we can compare the average traded price one month prior with the current price; the strength/weakness of the market can be judged at a glance. When the market price is higher than the Leading VWAP, the market is strong (Green territory). When the market price is lower than the Leading VWAP, the market is weak (Red territory).

At a glance, it is apparent that the sell side currently has the advantage.

Additionally, when the VWAP is measured, a comparison can be made with the candlesticks. For example,

Chart 7
VB Chart: Nikkei 225 Futures (Large), Oct. 2006 – Aug. 2007



comparing the long black candle recorded to the right of the chart in part “A” (Aug.17, 2007) with the 20-day Leading VWAP, it is evident that the closing price is significantly lower than the VWAP and exposes the trend power during the period i.e. whether the closing price is higher/lower than the VWAP.

VWMA also delivers indications on the Buy/Sell power balance. For example, with the five-day VWMA, we can compare the actual average traded price in a five-day period with the current price. When the market price is higher than the five-day VWMA, the market is strong. When the market price is lower than the five-day VWMA, the market is weak.

The Buy and Sell power balance in total can be measured from both the VWMA and the Leading VWAP. The strongest market condition is when the market price is higher than both the VWMA and Leading VWAP. In turn, the weakest market condition is when the market price is lower than both the VWMA and Leading VWAP.

Buy/Sell Signals

In Chart 7, there are three Golden-Crosses (GC: Green) and four Dead-Crosses (DC: Red) using the 5-day VWMA and 20-day VWMA. These GC and DC signals provide a change-over in trend. When GC signals appear, one should go from sell side to buy side. When DC signals appear, one should switch from buy side to sell side.

Normally, these GC and DC signals work well but, in part “B” of Chart 7, the short-term market noise produced false trend signals. Following the signals with a risk management strategy should keep the trader in the unfolding direction of the market.

Market Trend

Part “C” of Chart 7, illustrates a horizontal price movement where the power balance is in a struggle between the Buy side and Sell side over the 62-day (three month) VWMA. This is a Box Range without a trend. When markets are in a Box Range, as is the case in part “B” false signals may be more frequent and the trader may

ignore the GC/DC signals and enter the market only when a strong trend appears supported by additional indicators.

Referring to Chart 7, the 62-day VWMA appeared to trend up during part “C”, suggesting a buy at the end of part “C”. If the VWMA appeared to trend up from horizontal, then a sell signal would be indicated.

3.3 VB Chart Example 2 – Support/Resistance

In Chart 8, a simple time axis was used with the VWMA and the Leading VWAP, adding a 200-day VWMA.

- **5-day VWMA:** to judge buy/sell balance for 5 days (one week)
- **20-day VWMA:** to judge buy/sell balance for 20 days (one month)
- **62-day VWMA:** to judge buy/sell balance for 62 days (three months)
- **200-day VWMA:** to judge buy/sell balance for 200 days (Long-term trend) ▶▶

Chart 8
VB Chart: Nikkei 225 Futures (Large), Mar. – Oct. 2008



- **20-day leading VWAP:** to compare VWAP of 20 days (one month) prior with the price for today

Summary of the VB Chart

Sell side – Weakest Market

Buy/Sell Power Balance:

- Current price exists under 20-day Leading VWAP.
- Current price exists under all of the VWMA (5-day, 20-day, 62-day and 200-day).
- And the Closing price ¥7,620 is under VWAP ¥7930.69 at October 24, 2008.

Signal:

- Sell side remains in place from the Dead-Cross on August 14, 2008 until there is a Golden-Cross.

Market Trend:

- Down, with all VWMA lines trending down.

Support/Resistance functions on the VB Chart

On Chart 8, there are two up-arrows (“A” and “B”) and five down-arrows (“C” to “G”).

A and B: When the market price falls closer to the 20-day VWMA line, it functions as a supporting line. At this time the direction of the 20-day VWMA is up. After the close the market reverses the downward trend around the VWMA and returns to uptrend.

C and D: A prime example of the 200-day VWMA functioning against the downtrend from August 2007. The market reverses from ¥11,610 to ¥14,610 on June 6, 2008, at this time the 200-day VWMA is ¥14,641.95 (“C”). Next, the market reverses again to ¥14,500 on June 18, 2008, when the 200-day VWMA is ¥14,537.46 (D). In the case of C and D, the 200-day VWMA line is functioning as a strong resistance line upholding the strength of the downtrend.

E: The 62-day VWMA is acting as a resistance line forcing a change-over from uptrend to downtrend.

F and G: The 20-day VWMA becomes

major resistance as the degree of the downtrend increases. At this time, the five-day VWMA remains well below the 20-day VWMA, indicating to the trader that the downward trend is likely to continue.

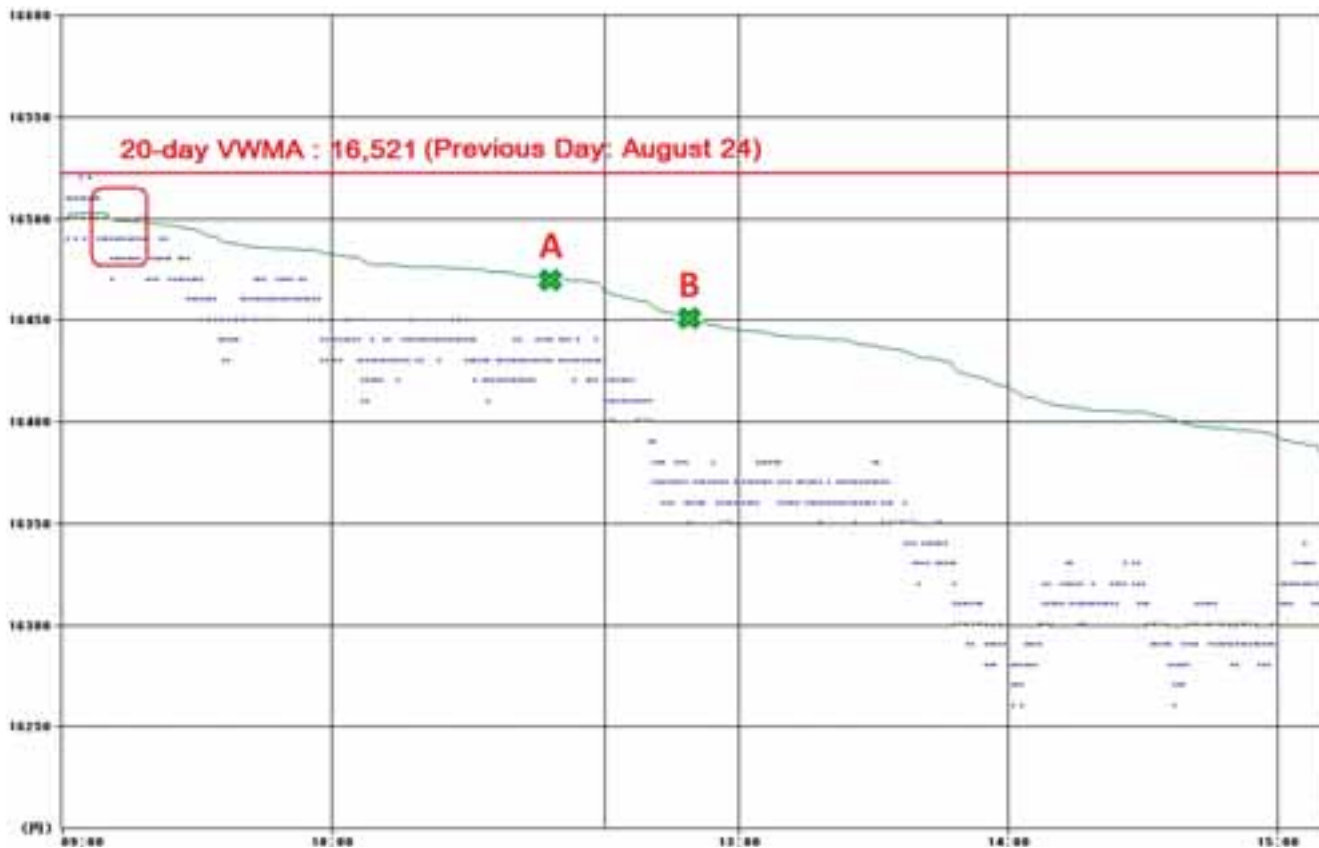
The 5-day VWMA: The five-day VWMA can work as both support and resistance over a short-term period. For example, in Green territory (over Leading VWAP area), the price bounces off the five-day VWMA and in Red territory (under Leading VWAP area), the prices halt after contact with the five-day VWMA.

3.4 Applications for Short-term Trading using the VB Chart

The following example uses Chart 7 for buy/sell judgments using the VB Chart during a short-term trade.

On August 27, 2007, the opening price was ¥16,500. On August 24, the preceding trading day, the 20-day VWMA was ¥16,521; the 5-day VWMA was in uptick and the opening price was ¥16,004 creating a significant

Chart 9
Intra-day of the Nikkei 225 Futures (Large) with the VWAP (August 27, 2007)



price gap. The 20-day VWMA and the 62-day VWMA were in downtick, and the market price was lower than the 20-day leading VWAP. The combination of these indicators suggested that the upside potential was weakening.

The market rose after the opening, but after hitting the high of ¥16,520, it started to go down. A possible strategy would be to enter a new short position or close out an existing long position. The accuracy of the analysis improves if the direction of VWAP line of the day at the same time is checked.

For a cross reference, the intraday movement on August 27, 2007 is shown in Chart 9. The chart highlights the potential for a new short position or (closing a long position) within the red rectangle. A stop loss strategy for the short position could involve using the ¥16,530 level or the 20-day VWMA with a trailing stop using the VWAP.

The examples show that the VB Chart can be applied to real market conditions and trading strategies. It fosters an analysis of Market Prices, the Buy/Sell Power Balance, Support/Resistance lines, the Market Trend and Buy/Sell Signals which can be carried out at a glance.

Conclusion

Applying VWAP-based data to markets is an effective tool and a new point of view which can be incorporated into the field of technical analysis, which may add a new perspective to other technical analysis methods such as trend or oscillator indicators. Application of the VWAP as an indicator may open new methods of chart analysis such as examination by exponential smoothing or regression analysis rather than simple averaging.

Closing prices, upon which much analysis is based, remain important; but VWAP provides additional price information with which we can build effective indicators. This study illustrates that the closing price gives one reference for analysis and trading while the closing price with VWAP adds another dimension and perhaps a more effective Technical Price Analysis. **IFTA**

Reference:

- i First usage of the term Volume Weighted Moving Average (VWMA).
- ii Osaka Securities Exchange, *Nikkei 225 Futures Data*, www.ose.or.jp/e/data/index.html.
- iii Chicago Board of Trade, *Time & Sales*, www.cbot.com/cbot/pub/page/0,3181,829,00.html.
- iv JE Granville, *Granville's New Strategy of Daily Stock Market Timing for Maximum Profit*, Prentice Hall, Inc, New Jersey, 1976.

Bibliography

Granville, JE, *Granville's New Strategy of Daily Stock Market Timing for Maximum Profit*, Prentice Hall, Inc, New Jersey, 1976.

Charts

Nippon Technical Analysts Association, *Analysis of Stock Prices in Japan*, Nippon Technical Analysts Association qualification test system, Nikkei Inc, Tokyo, 2004.

Master of Financial Technical Analysis (MFTA) Program

IFTA's MFTA program is intended to be a rigorous demonstration of professionalism in the global arena of Technical Analysis. The MFTA program is open to all holders of the Certified Financial Technician (CFTe) designation or equivalent, who are members of an IFTA Member or Developing Society.

The MFTA requires an academic style research paper. It is anticipated that most candidates for the MFTA will have some academic background, and this experience should convey the high standard against which these papers will be judged.

MFTA papers must meet the following criteria:

- It must be original.
- It must develop a reasoned and logical argument and lead to a sound conclusion supported by the tests, studies and analysis contained in the paper.
- The subject matter should be of practical application.
- It should add to the body of knowledge in the discipline of international Technical Analysis.

There are two MFTA submission dates per year at the beginning of May and the beginning of October.

For detailed information on the MFTA Program and requirements, please visit the IFTA website at www.ifta.org/certifications/mfta/.

IFTA

International Federation of Technical Analysts

Volume Breadth Index (VBI)[©]

A New Market Breadth Indicator for Analysis of Emerging Markets

by Ayman Bayoumi, MFTA

Abstract

A new market breadth indicator, called VBI (Volume Breadth Index)[®] is presented to capture the authentic status of volume in emerging markets. The indicator solves the problems and limitations technicians face when using traditional market breadth indicators under conditions of illiquidity and other characteristics found in emerging markets. The VBI opens the door for future analysis.

Introduction

Traditional market breadth indicators such as the ARMS Index, or TRIN (Arms), the Advanced Decline Volume line, or the Cumulative Volume Index (CVI), have been developed to predict and measure the strength of the equity market breadth by measuring the total volume of rising stocks compared to the volume of falling stocks. These traditional market breadth indicators, based on absolute volume perform poorly in emerging markets, creating misleading market breadth signals and fail to be useful as predictive and analytical tools in the emerging and less liquid markets.

Traditional volume based indicators fail in emerging markets because they measure the volume as the aggregate number of shares traded in the market instead of measuring volume relative to the number of issued shares. For example, if on a specific day company A (a small capitalised company with few issued shares) has a traded volume of 1000 shares and company B (a larger capitalised company with a larger number of issued shares) has a traded volume of 1000 shares, we have a total market volume of 2000 shares. To capture the true nature of the volume of the market we must consider the “turnover factor” that is, the relation between the daily traded shares and

the number of issued shares on that specific day.

To overcome the shortcomings of traditional market breadth volume based indicators in emerging and illiquid markets, and to capture the volume characteristics of emerging markets, a solution was to create a volume weighted indicator that measures the actual capitalisation of the underlying equities in combination with their liquidity.

For the purposes of this paper, liquidity is defined as the volume of shares traded. This solves a characteristic problem found in some emerging markets that can be a challenge for technical analysis – where the larger companies may be controlled by a few major shareholders. These shareholders do not trade their shares. Further, the information on the free float or shares available for trading, is not readily available. (See Appendix C)

In summary, this new Volume Breadth Index, the VBI, is a market breadth indicator which captures the authentic status of actual traded shares. It is extremely helpful for the analysis of emerging markets based upon characteristics specific to emerging and illiquid markets. The indicator solves the problems and limitations technicians face when using traditional technical breadth indicators in such markets. The VBI proves to be a highly useful indicator to measure the overall health of the market and market breadth.

Testing and analysis also show that the addition of traditional oscillators and pattern recognition tools with the VBI, increases the usefulness under certain conditions. It proves to be useful to analyse and predict future directional market movement. The Kuwait Stock Exchange index (the official Kuwait Index) was used as proxy for emerging markets.

Characteristics of Emerging Markets:

1. Extremely high price range fluctuations:

Low frequency and small trading volumes along with high fluctuations in prices is a characteristic of emerging stock markets. (See Appendix B, Tables 4, 5 and 6).

2. Rapid expansion of market capitalisation:

In recent years, emerging market exchanges have witnessed a large number of new listings which has significantly increased the market capitalisation while at the same time reducing the relative capitalisation weights of already listed companies and increasing the total number of aggregate traded shares. This is not unique to the Kuwait exchange. However, unless stock trading is widespread and deep, as signified by higher volumes, the newly listed companies (which are usually illiquid) will generate misleading signals (See Appendix B, Tables 4, 5 and 6).

3. Small number of instruments attracting large trading interest:

Finally, one of the major characteristics of emerging markets is the condition of “dual equity markets” where a small number of instruments attract large trading interest and volume, while a large number of instruments show low and infrequent trading volumes (See Appendix B, Table 5). This duality prevents the aggregate market indices to properly aid in forecasting future market trends.

Traditional Volume Indicators in Emerging Markets

The logic behind the predictive value of breadth indicators is the ▶▶

observation that in the latter stages of an upward trend, a few large capitalisation stocks can take the market index higher, even though many, if not most, stocks in the broader market have stopped rising in price. This condition is often a precursor for the end of the uptrend in a market index. Thus, an uptrend is healthy while it is broadly supported by rising stocks, but is unhealthy when only a few stocks are taking the market higher. By studying what the broad plurality of stocks are doing through such index measurements, we can therefore obtain an additional insight into the overall market's behaviour.¹

While not a timing tool, this insight is particularly valuable at market tops, as the broad range of stocks often stop rising before the market hits its peak. Their behaviour can therefore constitute a leading indicator for the end of the uptrend. The same feature is unfortunately not often found at market bottoms; when the broad range of stocks tend to turn at best with, and often after, the market index.¹¹

The indicators below quantify the movement (momentum) of the market itself and have a very strong correlation with changes in the stock market; some of these indicators use volume to measure market spread/strength/confirmation, for example:

Advance-Dcline Volume Lineⁱⁱⁱ

The AD Volume Line = 100000 – (Number of Advancing shares – Number of declining shares)

Upside-Downside Volume Index Weekly^{iv}

Is calculated by dividing the volume of advancing issues by the volume of declining issues.

On Balance Volume^v

OBV is calculated as follows: If today's close is greater than yesterday's close, then today's volume is added to yesterday's OBV, and is considered an up volume. If today's close is less than yesterday's close, then today's volume is subtracted from yesterday's OBV and it is considered a down volume. And if today's close is equal to yesterday's close then today's OBV is equal to yesterday's OBV.

Arms Index^{vi}

(Advancing issues/Declining issues)
(Volume of Advancing issues/Volume of Declining issue)

The Climax Indicator "CLX"^{vii}

CLX = (the number of Dow 30 stocks having Upside breakouts in their on-balance volume) – (the number of Dow 30 stocks having Downside breakouts in their on-balance volume OBV)

It is apparent that the CLX is based on the OBV indicator so it will face the same criticisms as the OBV.

Chaikin Oscillator^{viii}

The Chaikin Oscillator is created by subtracting a ten-period exponential moving average of the Accumulation/Distribution Line from a three-period exponential moving average of the Accumulation/Distribution Line.

Accumulation/Distribution Line =

$$\sum \left[\frac{(\text{close} - \text{low}) - (\text{high} - \text{close})}{(\text{high} - \text{low})} \times \text{volume} \right]$$

Accordingly the intervention that takes place at the end of the day will affect the reading of the Accumulation/Distribution Line which in turn will affect the reading of the CHAIKIN OSCILLATOR inducing it to generate a false sell signal.

The Problems of using Traditional Volume Indicators for Emerging Markets

The main problem (criticism) in using

the above indicators is that they all use volume as an absolute and static number which creates a bias to the stocks in emerging markets that have a larger number of issued shares, even if these stocks are relatively inactive. While the feature of these indicators could be logical for mature markets, it fails to capture the reality of the equity float in emerging markets. To understand the difficulty of traditional market breadth indicators, it is important to understand liquidity features in emerging equity markets.

The following examples show some of the characteristics of emerging markets such as the sudden activity on some illiquid stocks, induced by the main shareholder or major investors. This sudden movement could be a result of insider information or even intended brief manipulation in the stock price. This odd, but not always unusual activity, accompanied by relatively high volume will affect the measurement of the current market volume indicators, inducing them to generate unreliable signals of strength in the breadth indicators.

The following chart for "MASK.KW" shows the huge volume which took place once a month or once every two months due to swaps between the major investors. The consequence of this is that, if we tried to get an average traded volume for the stock for one month, the average will be biased to that high value and therefore generate misleading signals for the liquidity of the company.

Figure 1
Daily chart for "Mashaer shows volume spikes once a month or once every two months



Figure 2

Illustrating monthly extreme spikes in volume without a big change in price due to share swaps between major share holders.



Figure 3

November 30 – December 2, 2008. The five minute graph for the Kuwait Stock Exchange Index shows the intervention which took place 30 seconds prior to the market close.

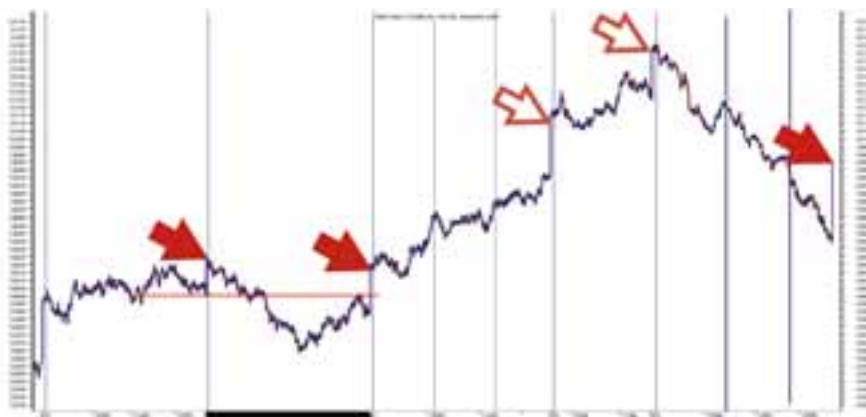


Figure 4

December 2, 2008, the one-minute graph for the Kuwait Stock Exchange Index shows the effect of removing the jump in the prices which occurred during the last minutes.



Another example is “FOOD.KW”, which is considered one of the big caps in the Kuwait stock exchange. The lower redline is the monthly average volume, illustrating monthly extreme spikes in volume.

As explained, stock prices are linked to the demand for stocks, and the extent and depth of trading volumes. Emerging markets have some shares that have low volume and wide price ranges, (See Appendix B, Tables 4, 5 and 6) creating an incorrect reading on the current market status. In emerging capital markets, such as the Kuwaiti stock market, intervention of highly capitalised shares may occur at the end of the daily session. Accordingly, when analysing a market with the traditional volume indicators, such as On Balance Volume (OBV), a false signal is generated, and when this is done it changes the close to a positive close instead of a negative close, so the total volume of the day is calculated with a positive instead of a negative sign.

The daily intervention is shown on the accompanying graphs.

The above characteristics for the emerging markets render traditional volume breadth indicators unreliable analytical tools. Thus, technicians are unable to accurately judge the true liquidity and market status (breadth), or anticipate turning points.

Assessing True Liquidity in Emerging Markets

Many attempts have been made to measure market liquidity in terms of volume, frequency of trading, or turnover. Although volume is considered a measure of liquidity, it is difficult to assess liquidity only with reference to the absolute number of shares traded (volume). A share may have a high volume traded and still experience large price disruption (as this high volume could occur once a month, not on a daily basis). When analysing a market index such as the FTSE or S&P to forecast its direction one must also measure the contribution of the underlying listed companies for a total measure of volume. We have to determine if the total market volume is distributed among the listed companies, or as in our example of the Kuwaiti Stock Index, or only concentrated in ▶▶

the smaller percentage of the index (as shown in Appendix B Table 5). In this table, the analyst sees that 12% of the market companies recorded 67% of the total market volume.

Hence a more accurate measure of liquidity should combine actual volume relative to the total capitalisation. One accurate measure of liquidity is to consider turnover (total number of shares relative to the total issued shares) as a measure of liquidity.

A New Method: The Volume Breadth Index (VBI)[®]

Realising the utility and analytical possibilities with a method that realistically measures the actual trading volume, the Volume Breadth Index (VBI)[®] indicator was created to capture the volume features particular to the emerging markets. For this study, the Kuwait Stock Index was used to create and test the VBI indicator.

For the VBI, the market capitalisation is adjusted by the ratio of the actual traded volume. This captures the actual size of the company in the market, which will accurately reflect its effect on the direction of the market index.

In our methodology, the stock liquidity was determined by using the actual traded volume as a proxy for the free float by comparing the company's traded volume to its outstanding shares. While demanding more data gathering and "ground work" the logic is that to accurately measure a stock's liquidity one must use actual traded volume relative to issued shares rather than a measurement based on published disclosures. In the Kuwait Stock Exchange all transactions are immediately reported to the market. Based on our volume measurement, the stock weight in the index is adjusted automatically according to the trading activities of that stock. The weighting is upgraded as the stock becomes more liquid or downgraded when it becomes less liquid. Dynamic self adjustment to the realities of trading volume is an advantage of the formula. (Appendix D)

Calculating the VBI in Detail

The calculation of VBI starts with calculating the inclusion factor (turnover factor) for each stock by dividing the daily

volume (daily number of shares actually traded) by the total issued shares.

The second step is to sum the daily turnover for one year. One year is measured as 250 trading days, may be variable, and can also be adjusted to reflect the investor horizon. Then we adjust the company's capitalisation by multiplying the turnover value by the company's published capitalisation to get the new adjusted capitalisation to be used for the VBI Index. With this, the company capitalisation is then adjusted by the traded volume.

Finally, we divide the total market adjusted capitalisation (summation of the adjusted cap for all companies) on day X by total adjusted market capitalization on day 0.

With this formula, the weighting is based only on actual traded liquidity, not published capitalisation. For example, a large capitalisation company may have a low weight in the VBI index as it has low volume for reasons explained above. The formula eliminates the dilemma of which companies to select to represent the market (investment universe). The selection and weighting is done automatically as a factor of the trading volume.

The VBI Formula

$$AMC = (\sum (\text{Market Cap} * F) / \text{Devisor}) * 1000$$

$$F = \sum \frac{V}{S}$$

- AMC = Adjusted Market Cap for the market
- X = Number of Companies
- F = Turnover Value
- N = Number of Days
- V = Traded volume at the day
- S = Outstanding Shares At the same day

Why we used daily trading volume to calculate daily turnover

The daily turnover is important to eliminate any distortion in the turnover values due to the change in the issued shares generated from corporate actions (stock split or stock dividends).

The methodology of calculating the turnover provides stability in turnover

Table 1

Sample calculation for the turnover value for "Kuwait finance House" (Appendix D)

Kuwait Financial House					
Date	Close	Volume	Issued Shares	Daily Turnover	Summation of Daily Turnover (250 days)
01/01/2000	0.3076	321422	982798430	0.0327	81.98%
02/01/2000	0.3091	3248434	982798430	0.3295	83.07%
03/01/2000	0.4401	2410260	982798430	0.2452	83.09%
04/01/2000	0.4401	3406591	982798430	0.3466	83.04%
05/01/2000	0.4927	3374837	982798430	0.3437	83.09%
06/01/2000	0.4901	3389389	982798430	0.3449	83.02%
07/01/2000	0.4901	3396350	982798430	0.3451	83.03%
08/01/2000	0.4719	3326370	982798430	0.3386	83.03%
09/01/2000	0.4719	3326370	982798430	0.3386	83.03%
10/01/2000	0.4719	3326370	982798430	0.3386	83.03%
11/01/2000	0.4719	3326370	982798430	0.3386	83.03%
12/01/2000	0.4719	3326370	982798430	0.3386	83.03%
01/02/2000	0.4719	3326370	982798430	0.3386	83.03%
02/02/2000	0.4719	3326370	982798430	0.3386	83.03%
03/02/2000	0.4719	3326370	982798430	0.3386	83.03%
04/02/2000	0.4719	3326370	982798430	0.3386	83.03%
05/02/2000	0.4719	3326370	982798430	0.3386	83.03%
06/02/2000	0.4719	3326370	982798430	0.3386	83.03%
07/02/2000	0.4719	3326370	982798430	0.3386	83.03%
08/02/2000	0.4719	3326370	982798430	0.3386	83.03%
09/02/2000	0.4719	3326370	982798430	0.3386	83.03%
10/02/2000	0.4719	3326370	982798430	0.3386	83.03%
11/02/2000	0.4719	3326370	982798430	0.3386	83.03%
12/02/2000	0.4719	3326370	982798430	0.3386	83.03%
01/03/2000	0.4719	3326370	982798430	0.3386	83.03%
02/03/2000	0.4719	3326370	982798430	0.3386	83.03%

values and prevents sharp changes in its value due to sudden non sustainable activity on the stock. The maximum value for turnover is one. Getting a turnover value greater than one indicates that the stock is highly liquid so we replaced it by one (total capitalisation).

Second stage in calculating the VBI

The second stage in calculating the VBI is to use the turnover factor to adjust the company's capitalisation. This is done by multiplying the turnover factor (from the previous step) by the company's capitalisation. With this, the market capitalisation is adjusted by the traded volume. Then we divide the total adjusted market capitalisation on day X by total adjusted market capitalization on day 0.

The weight of highly illiquid companies will be decreased and the weight of highly liquid companies will be increased reflecting their effect on the market. This is highlighted in the following table where the market capitalisation of GBKK.KW is larger than the market capitalisation of CBKK.KW. However, when we include the turnover factor, we found that the adjusted market capitalisation for CBKK.KW is larger than the market capitalisation of GBKK.KW.

Figure 5
Screen shot from the application developed by Al-Aman Investment Company to calculate the adjusted cap and free float value

Table 2
The change in weight after adjusting the cap by the turnover factor (Appendix D) Source: Al-Aman

Stock Number	Reuters Code	Issued Shares	Close	Market Capitalization	Capitalization Weight	Free Float Factor	Adjusted Market Capitalization	Adjusted Capitalization Weight
101	NBKK.KW	2,047,863,264	2.28	4,609,128,242	8.59%	18%	830,518,500	3.05%
102	GBKK.KW	1,090,305,377	1.9	2,071,560,218	3.81%	21%	437,090,250	1.61%
103	CEKK.KW	1,211,449,853	1.4	1,696,029,794	3.12%	35%	588,656,000	2.16%
104	ABKK.KW	1,007,378,208	1	1,007,378,208	1.85%	9%	90,667,500	0.33%
105	BKME.KW	844,726,807	0.82	692,675,982	1.27%	11%	76,091,900	0.28%
108	KPBL.KW	1,715,341,487	2.9	4,974,490,312	9.16%	28%	1,385,305,350	5.10%
201	KBNV.KW	525,000,000	0.48	252,000,000	0.46%	28%	68,592,800	0.25%
202	FACL.KW	511,203,539	0.57	291,386,017	0.54%	27%	79,537,800	0.29%
203	IFBN.KW	450,000,000	1.08	486,000,000	0.89%	29%	138,834,540	0.51%
204	NBNV.KW	796,357,589	0.78	621,314,919	1.14%	75%	468,536,250	1.73%
206	ABNV.KW	798,722,280	0.275	218,898,627	0.40%	100%	218,898,627	0.80%
207	COAS.KW	521,077,627	0.45	234,484,932	0.43%	78%	181,858,500	0.67%
208	TBK.KW	447,474,500	0.218	97,549,441	0.18%	100%	97,549,441	0.36%
209	SECH.KW	452,088,000	0.7	316,461,600	0.58%	32%	101,382,750	0.37%
210	BCK.KW	409,061,301	0.218	89,175,364	0.16%	100%	89,175,364	0.33%
211	SGCK.KW	255,281,718	0.52	132,747,533	0.24%	100%	132,747,533	0.49%
212	IMCK.KW	375,522,570	0.43	161,474,705	0.30%	73%	117,678,100	0.43%
213	KFCY.KW	440,000,000	0.405	178,200,000	0.33%	100%	178,200,000	0.66%

Additional Advantages of the VBI

Market behaviour measurement:

The VBI evolves from being a tool for measurement to a driver of behaviour. As long as the technical analyst is considering market behaviour, using technical information such as volume, a good and accurate index as a benchmark is vital to his/her work and will materially affect the analysts' expectations for market direction and reversal points.

Use as a breadth indicator:

An additional advantage of the VBI is accurately detecting the turning points in the market trend by working as a breadth indicator. The formula for calculating the VBI shows it to be the most logical and preferable solution solving liquidity/capitalisation measurement dilemmas facing fund managers and technicians in analysing emerging markets.

A Benchmark Measurement Tool:

Benchmarks are an essential part of the investment strategy of any institutional investor and help both to define expectations and to set targets for the fund manager. A good benchmark is objective. The VBI can be a purely objective technical benchmark for capturing the actual volume and liquidity features of emerging markets.

The VBI appropriately weights the companies in the market, to reflect their effective weight as it is not biased to the larger cap illiquid companies.

An Investment Universe:

A dilemma facing the investment manager is selecting the companies that meet specific liquidity criteria to add to his investment universe. As determined by earlier attempts, there was no practical utility creating an investment universe using official statistics on volume and capitalisation. However, using the VBI, a useful and applicable investment universe can be created.

The innovative calculation methodology of VBI based on technical indicators covers all listed equities and clearly identifies companies that are appropriate for investment. With the VBI the investment manager has an objective dynamic technical tool to create his index or investment universe.

Technical-Based Allocation Tool:

The VBI has advantages over other allocation methods, with its unbiased assessment of market conditions. When the investment manager applies the passive investment strategy, (indexing investment) to reduce the risk, they face the problem of stock liquidity.

In some markets, and especially the emerging markets, we find that market indices contain some large illiquid companies, and any small change in volume or price strongly affects the market index. The investment managers will not be able to invest in these companies which will affect their risk and return characteristics also even if they tried to solve this problem by using a free float adjusted index, the problem still exists. The free float indices use the disclosed information which (as demonstrated) is not reliable or significant to measure the material volume or liquidity. ▶▶

While the free float adjusted index is based on subjective judgment, the technical index tool is based on actual data (adjusted daily volume) rather than subjective data. The weights of the companies in the VBI index are not biased either to capitalisation or to price. The allocation of each company, therefore, is applicable and material to the true technical condition of the overall market.

Performance and risk Measurement Tool:

Due to the characteristics of emerging markets the investment managers need an accurate performance measurement tool. The VBI can represent that tool for the market movement. It is more accurate as compared to other indices which are price weighted, cap weighted or even free float adjusted as previously attempted by MSCI.

Trading Signals:

According to the methodology of VBI there are two major categories of signals which can be generated: relative signals and absolute signals.

Relative Signals: Divergence Signals with the VBI

Divergence signals are relative and are generated from comparing the performance of the VBI relative to the performance of the overall market index. This type of signal can also be divided into:

Buy Signals

The buy signal occurs when there is a positive divergence between the VBI and the market index; when the market index records a new low while the VBI fails to confirm the movement by moving either sideways or upward. This happens as the market is biased to the sharp fall in the prices of small untraded companies; those companies will not be able to affect the market for too long, as experienced in the Kuwait Stock Exchange (See Figure 6 period 2). Or when the VBI starts to record a higher high while the market index does not concur with higher highs. This means that the larger liquid companies started to move up and this movement is usually expected to extend itself.

Sell Signals

The sell signal occurs when there is a negative divergence between the VBI and the market index. For example, in the case where the market index records a new high while the VBI fails to confirm this new high, indicating that the current market movement has been caused by the smaller untraded companies. These companies will have a limited affect on the market, for example, the Kuwait Stock Exchange (See Figure 8).

Another sell signal is given when the VBI starts to record lower lows or sideways movements, while the market index is still moving up. This means that the market is losing momentum and the current market movement is due to the move of small illiquid companies.

Absolute Signals: Standard TA Indicators with the VBI

The second category of trading signals, are the signals that are related to the VBI itself.

As the VBI indicator captures the true activity of the market, we can use all the standard TA Indicators against the VBI such as:

- Trend line analysis (see Figure 9)
- Continuation formations (see Figure 9)
- Reversal formations (see Figure 9)

Conclusion

The VBI captures the authentic status of volume in emerging markets. It is a highly useful market breadth indicator to measure the overall health of the market and is useful to predict future market movement. The VBI is designed for the analysis of emerging markets based upon characteristics specific to emerging and illiquid markets.

Testing as illustrated shows that the addition of traditional oscillators and pattern recognition tools increases the usefulness of the VBI. The indicator solves the problems and limitations technicians face when using traditional technical breadth indicators in such markets, and opens the door for future analysis. **IFTA**

References

- i Insight Trader, *Breadth Indicators and their Implementation*, retrieved 28 August 2005, <www.insighttrader.com.au>.
- ii *ibid*, p. 2.
- iii Wall Street Courier, *Advance Decline Indicators*, <www.wallstreetcourier.com>.
- iv Wall Street Courier, *loc. cit*.
- v Investopedia, *Introduction to On Balance Volume*, <www.investopedia.com/articles/technical/100801.asp>.
- vi Investopedia, *Arms Index-TRIN*, <www.investopedia.com/terms/a/arms.asp>
- vii BNET Australia, *The Climax and Net Field Indicators*, <www.findarticles.com/p/articles/mi_qa4037/is_200201/ai_n9031777>
- viii SB Achelis, *Technical Analysis from A to Z*, Mc Graw Hill, New York, 2000, reproduced on-line in Equis International, *Trading Resources*, <www.equis.com/Customer/Resources/TAAZ/>

Bibliography

Al-Aman Investment Company, Oman ETF Conference, Muscat, 2008.

Arms, R, *The Arms Index*, Marketplace Books Inc, Maryland, 1996.

Baks, K & C Kramer, *Global Liquidity and Asset Prices: Measurement, Implications and Spillovers*, IMF Working paper No. 99/168, Emory University – Department of Finance and International Monetary Fund (IMF) retrieved <www.papers.ssrn.com/sol3/papers.cfm?abstract_id=880823>.

Blake, D & A Timmerman, 'Performance Benchmarks for Institutional Investors: Measuring, Monitoring and modifying Investment Behaviour' in J Knight & S Satchell, *Performance Measurement in Finance: Firms, Funds and Managers*, Butterworth-Heinman, Oxford, 2002, Chapter 5.

MSCI Barra, November 2008, <www.msci.com/methodology/meth_docs/MSCI_Nov08_GIMIMethod.pdf>.

Nicholson, C, *Breadth Indicators and their implementation*, interview cited in *Insight Trader, Breadth Indicators - Advance-Decline line and New*, 2005, <www.insighttrader.com.au>.

Reuters, <www.knowledge.reuters.com/Views/Company/Ownership/Insiders.aspx?Issuers=100506118>

Appendix A

Relative Signals (Divergence and Convergence)

Divergence Periods

Period one: 19/12/2005 – 12/2/2006

In the second half of the period (Figure 6), from the double top formation, a negative divergence was created between the market index (the upper

chart) and the VBI (the lower chart) as the index was achieving higher lows while the VBI was moving sideways. The divergence here indicates that the current bullish movement is unreliable as it is built on the move of small cap companies or large cap non-traded companies, leading to the conclusion that the sideways movement is most probably a reversal formation not a continuation formation.

In Figure 7, the VBI proves helpful as

a leading indicator for the Kuwait Stock Market Index. The traditional volume indices such as On Balance Volume and the Arms Index failed to predict the market movement.

Period two: 17/12/2006 – 10/2/2007

During this period there is a positive divergence, as the market is making lower lows while the VBI failed to confirm this movement and moved sideways indicating that, most of the market leaders are stable and ending the down movement. The down trend exists due to the move of small cap companies or large un-traded companies leading to the conclusion that the market is about to reverse the trend.

In this period the traditional volume indices were moving with the market index and recorded lower lows and failed to generate a leading buy signal, while the VBI generated a leading buy signal with positive divergence.

Period three: 11/07/2007 – 25/10/2007

A negative divergence occurred during this period as the market index recorded a new high while the VBI moved sideways. Following this, the market moved down sharply. The traditional volume indices failed significantly as lead indicators for the market only replicating the index movement without insight on the market status. The key reason for this is that, the activity that took place on the illiquid stocks was accompanied by a sharp price movement.

Period four: 23/3/2008 – 25/6/2008

In period four there was an obvious negative divergence as the price index moved up to record new highs, while the VBI moved down, indicating that the market was losing its momentum and about to correct. The correction which followed was severe. The divergence came as a result of a sharp bullish movement in the illiquid companies. The illiquid companies (either big caps or small caps) would have a very low weighting in the VBI and therefore would not generate the same effect, hence the divergence.

Again, traditional volume and breadth indices failed to act as leading indicators for the market as they replicated the index movement instead of giving insight into the true market status. ▶▶

Figure 6
Comparing the performance of traditional market volume indicators along with the VBI

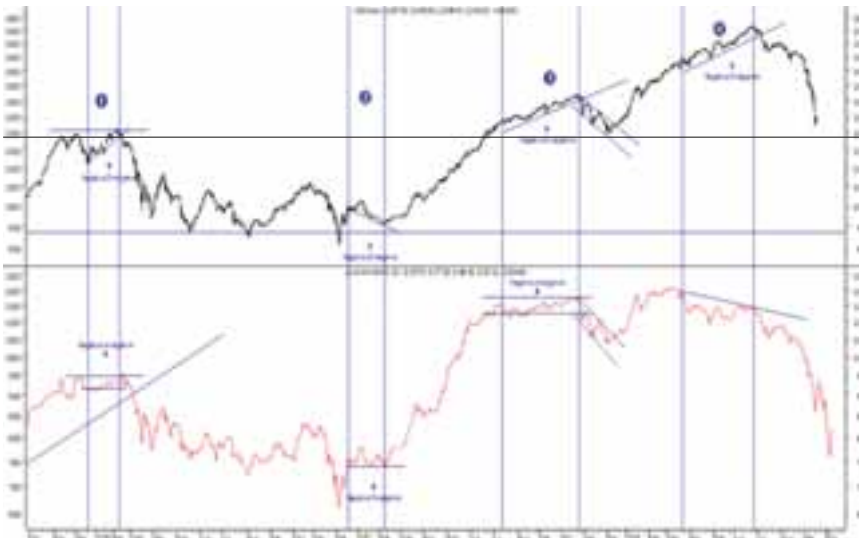


Figure 7
A chart comparing the performance of traditional market volume indicators along with the VBI

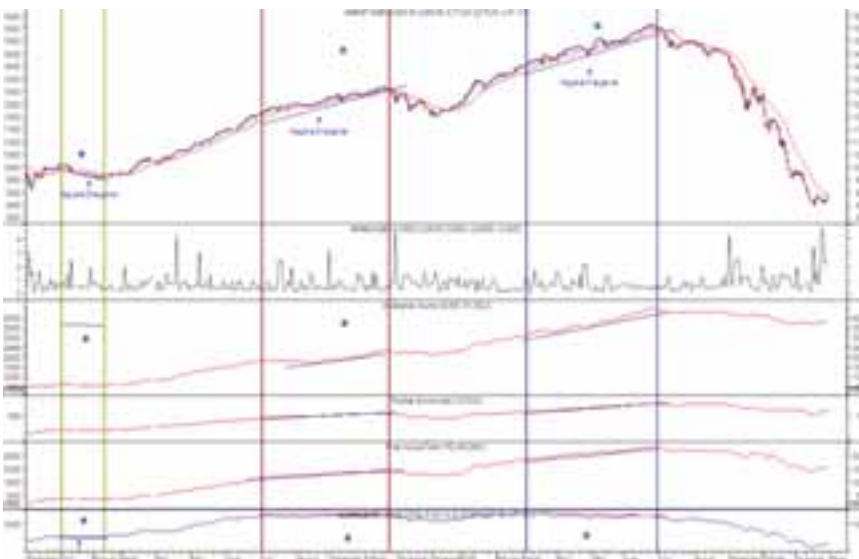


Figure 8
Performance comparison of the Kuwait Market Index, the VBI and the market Blue Chips

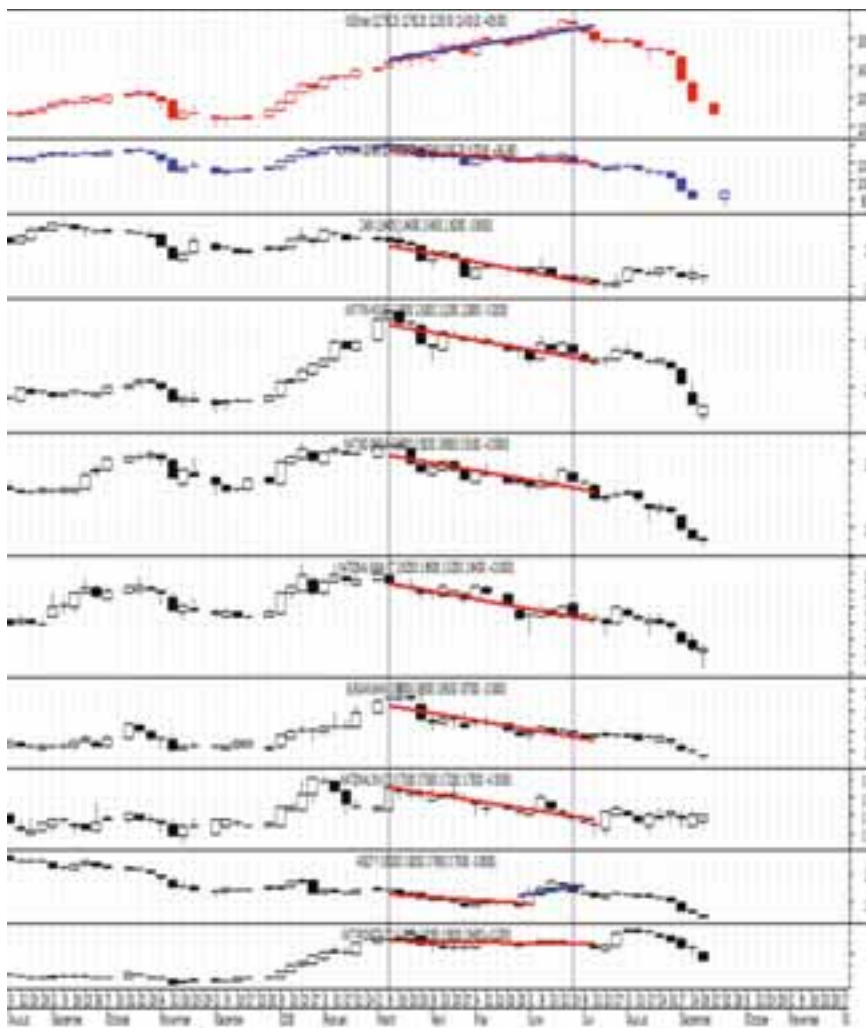


Figure 8 shows a comparison between the Kuwaiti market index (KSE), the VBI (referred to as the Al-Aman General Index) and the major Blue Chips companies in the Kuwait Stock Exchange. The graph shows the KSE index was moving up while the major companies were moving down. This was due to a sharp up movement in the small cap illiquid companies and was misleading. The VBI Index, however, conveyed the true weakness in the market.

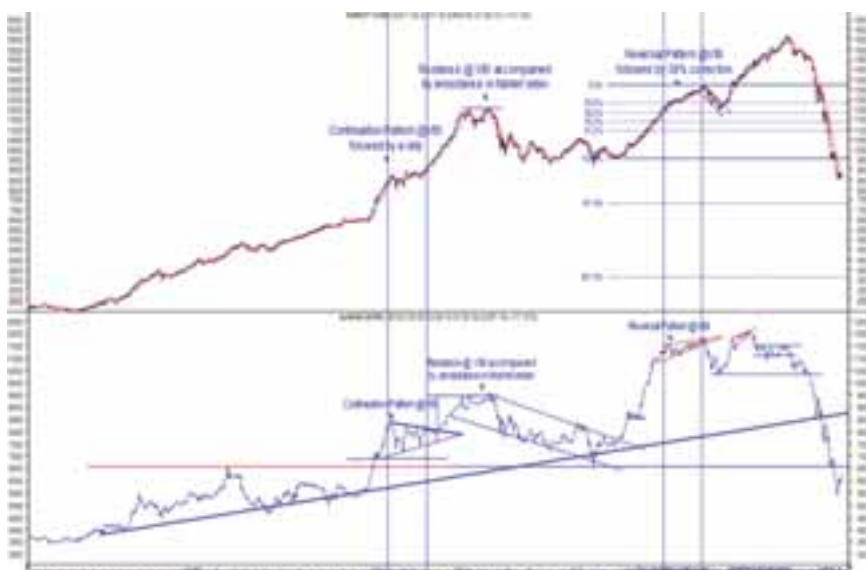
Convergence Periods

The chart (Figure 8) also shows that, when the trend in the market index was confirmed by a similar trend in the VBI the trend continued to move and progress in the same direction. With this we had confirmation, or convergence.

Absolute Signals (Use of Standard TA Formations with the VBI)

Figure 9 shows that we can use standard technical analysis such as trend line analysis, continuation formations and reversal patterns in the analysis of trend and reversal points in the VBI. This allows analysis of the VBI itself, creating a guide for its future movement, which would then flow into the interpretation for the future market movement.

Figure 9
Chart showing the application of traditional technical analysis tools to detect the changes and the continuation in the VBI trend.



The STA Home Study Course[©]

The STA Home Study Course[©] (HSC) has been developed by the Society of Technical Analysts to allow students of technical analysis the opportunity to study for the STA Diploma exam in the comfort of their own home or work place.

The HSC is in CD ROM format containing separate units designed to cover all aspects of the STA's internationally recognised STA Diploma syllabus. The units have been compiled using contributions from many of the world's most respected professional technical analysts. Each unit contains a series of multiple choice questions to test the student's understanding and also advice on further reading and reference texts. More information on the HSC and its contributors is available on the STA's website.

The STA Diploma Exam

The STA Diploma exam is designed to test professional analysts engaged in the production and publishing of technical analysis research.

The STA has been teaching technical analysis since the 1980's and the STA Diploma is internationally recognised as a leading benchmark in the accreditation of professional technical analysis.



Home Study Course Units

- Introduction and Chart Types
- Point and Figure
- Candlesticks
- Dow Theory and Market Breadth
- Moving averages
- Momentum Indicators and Oscillators
- Cycles
- Elliot Wave
- Gann
- Market Profile
- Market psychology

Special IFTA Price of £495 only
(Offer lasts until 30th November 2009)

Home Study Course Purchase Details

The HSC can be purchased online at the STA Website www.sta-uk.org

Normal Price: £695 - Including one year Associate Membership* of the STA.

*Associate Membership benefits include monthly lectures on technical analysis, access to the STA's extensive library, entitlement to receive the STA's Market Technician Journal and access to IFTA events and publications as well as many other benefits and discounts.

Society of Technical Analysts
Dean House
Vernham Dean
Hampshire SP11 0JZ

Email: info@sta-uk.org Tel: 0845 003 9549 Tel +44 20 7125 0038

Website: www.sta-uk.org

In-Yo Psychological Line

by Masayoshi Noguchi, MFTA

Abstract

The psychological line represents the psychological status of the market participants in a simple manner with an aim to gauge the strength or weakness of the market and to seek selling/buying opportunities. The purpose is to use market psychology actively and effectively using a simple calculation to formulate an indicator with set parameters whereby the area of 75% or above is designated as the “selling zone”, and the area of 25% or below is designated as the “buying zone”.¹

In the psychological line, a “win” or “loss” status is decided by a plus or minus reading versus the previous day. The value is obtained by setting the full duration as denominator and the rising period as numerator. In this way, the dynamics of buying energy versus selling energy is represented in numeric terms. When the value is over 50%, buying energy is dominant. When the value is below 50%, selling energy is dominant. When the value is moving around 50%, it is interpreted that the dynamics of the buying and selling energy is balanced and that the market does not have a clear direction.

However, the actual market sometimes opens high; falls due to selling pressure then closes slightly above the previous close. In this case, the majority of the intra-day energy is considered to be on the selling side. However, since it is still a positive change from the previous day, it is treated the same as on a day when the real buying power existed. Likewise, a small rise and a sharp rise are treated equally. The standard levels of “above 75%” and “below 25%” are set to indicate over-bought or over-sold conditions. However, they are too approximate for timing trades and a better assessment of the buying/selling energy relationship is required to

identify trading timing more accurately.

Drawing the psychological lines by *In-sen* (black candlesticks) and *Yo-sen* (white candlesticks) based on *Rosoku-ashi* (candlestick) analysis instead of plus or minus changes from the previous day appears as a better assessment tool using variations to the psychological lines based on the price range movement. The psychological line is determined by using the *In* and *Yo* (black or white) to represent selling or buying power of the day and the price range to represent the strength or weakness of the market.

Introduction

Discovering a chart which is “simple and easy to understand” is like finding a road map with clear directions. In the psychological line, we find a chart which is easy to produce with clear buy and sell signals, a simple road map.

The method requires identifying the status of *In* or *Yo* (the drop or rise) over the past twelve days. This was simply represented on the psychological line as plus or minus from the previous close.

Some of the challenges encountered by this method:

1. A positive change from the previous day is shown as “○”. However, it represents ¥1 rise and ¥500 rise equally.
2. In a one-day movement, when a stock opens high, falls under selling pressure, then closes slightly above the previous close, it is also shown as “○”. Though it makes an *In-sen* which indicates strong selling pressure for the day, it appears as “○” just like a bullish day which produces a *Yo-sen*.
3. In this method, buy/sell timings are indicated as “within buying zone” or “within selling zone”, which is merely an approximate indication.

In order to solve these questions and problems, different ways to illustrate the price range were tested to show the buying/selling energy accurately and to identify selling/buying timing more precisely, relying on the psychological line as a basis.

Solving the problems

In order to follow the basic idea to create a chart that is “simple and easy to understand”, easy for anyone to prepare and one which contributes to the judgment process at a glance, the three problems above must be solved.

First, the style of representation can be set in different ways. The psychological line generates the same symbol of “○” to any rise regardless of the size (¥1 or ¥500 for example). Therefore, standards were set for between 1% and 3% with different symbols (△, ○ and □ for a rise and ▲, ● and ■ for a fall) depending on the size of the rise or fall.

In *Rosoku-ashi* analysis, multiple *Kyoku-sens* (aka Koma; which literally means spinning head, where both the real line and shadows are short) in a row, long *Yo-sen* or long *In-sen* often indicates a change in the market and resetting the standards for the psychological line may express these changes to some extent.

While the price range varies depending on the market and the country, 1% and 3% for standards were chosen as in *Rosoku-ashi*, a movement of 1% or smaller can be interpreted to be “*Kyoku-sen*” and that of 3% or greater be “*Dai Yo-sen* (long white candlestick)”. These 1% and 3% standards can be replaced with other numbers but daily market observations tend to suggest that these are appropriate levels.

Based on the size of the rise or fall, standards were set at 1% and 3%. A rise of 1% or less is one point and shown as “△”, a rise of 1-3% is two points ▶▶

and shown as “○” and a rise of 3% or greater is three points and shown as “□”. Likewise for the negative change; a drop of -1% or smaller is minus one point and shown as “▲”, a drop of -1 to -3% is minus two points and shown as “●” and a drop of -3% or greater is minus three points and shown as “■”.

The next problem is that the psychological line does not place emphasis on the intra-day movement as long as the change from the previous day is positive. Therefore, it was considered that incorporating *In* or *Yo* (negative or positive) between opening and closing would more effectively indicate whether the selling or buying power was stronger during the day.

The psychological line merely specifies the selling zone and buying zone; it does not clearly identify investment timings. In order to indicate trading timings accurately and appropriately, the movement of the daily market and a moving average line were incorporated. The total number of points for twelve days is shown as a positive or negative number. A positive number means that there was an uptrend for the twelve days and a negative number indicates a downtrend. A five-day average was calculated to capture any major flows. By observing the daily movements in relation to such a flow, one may be able to identify the market trend as well as the buy/sell timing.

For examples, the Nikkei Average, the New York Dow and the Hang Seng Index have been selected, with favourable results. The correlation between the movement of the twelve-day total points and that of the five-day average identifies buy/sell timings. Additionally, the negative or positive status of the twelve-day total points and the five-day average enable us to judge if the market is in uptrend, downtrend or flat.

Comparison with a Relative Strength Index (RSI) focusing on the size of the rise or fall

The RSI is an indicator which is an advanced version of the psychological line.

“The aim of the RSI is to measure which is stronger; uptrend or downtrend, on a closing price basis

in a certain period. In other words, the purpose of an RSI is to assess the degree of upward change within the entire change calculated on a closing price basis.”

“RSI sums the changes at each point during the latest period (n) on a closing price basis. In other words, the RSI sums the cumulative size of the rise and fall and assesses the percentage of the cumulative size of the rise.”

While the psychological line does not take the price range into consideration, the RSI appropriately covers the change in the price range versus the previous close. RSI moves from zero to 100 to identify an over-bought or over-sold status. It is an oscillator index which has mean reversion at the median

level of 50. However, the RSI does not precisely express a day when the market closes with a positive change from the previous day with a negative intra-day movement, which forms an *In-sen*.

Compared with the psychological line, the RSI represents the size of changes and identifies buy/sell timing by combining values over a different number of days. These characteristics solve some of the questions concerning the psychological line but the fact that the RSI treats any day that had a positive change from the previous day as positive, even if the intra-day movement was negative, leaves part of the question unsolved. The answer may lie with using the *In-sen* and *Yo-sen* of *Rosoku-ashi* and finding the *In/Yo* status.

Table 1

Presentation of In-Yo in the Nikkei Average (daily) and the twelve-day total points (The same method is used for other markets)

Date (2008)	Opening	High	Low	Closing	1% and 3% standard	12-day total points	5-day average points
Oct 9	9,168.16	9,443.45	9,100.93	9,157.49	▲	-18	-12.2
Oct 8	10,011.64	10,011.64	9,159.81	9,203.32	■	-16	-10
Oct 7	10,328.54	10,363.14	9,916.21	10,155.90	●	-11	-8
Oct 6	10,817.27	10,839.50	10,374.38	10,473.09	■	-10	-7.2
Oct 3	11,052.10	11,099.73	10,938.14	10,938.14	●	-6	-6
Oct 2	11,423.13	11,452.39	11,143.79	11,154.76	●	-7	-5.6
Oct 1	11,396.61	11,456.64	11,314.28	11,368.26	▲	-6	-4.2
Sep 30	11,565.70	11,565.70	11,160.83	11,259.86	●	-7	-3.6
Sep 29	11,883.25	12,062.67	11,721.05	11,743.61	●	-4	-3.2
Sep 26	12,026.34	12,082.64	11,788.73	11,893.16	●	-4	-3.8
Sep 25	11,925.71	12,025.41	11,835.28	12,006.53	△	0	-5.2
Sep 24	12,031.98	12,115.03	11,904.60	12,115.03	△	-3	-7.4
Sep 22	12,037.89	12,263.95	12,037.89	12,090.59	△	-5	-8.8
Sep 19	11,631.60	11,920.86	11,615.20	11,920.86	○	-7	-9.4
Sep 18	11,576.94	11,577.88	11,301.46	11,489.30	▲	-11	-9.2
Sep 17	11,737.62	11,880.03	11,708.70	11,749.79	△	-11	-7.6
Sep 16	12,028.45	12,028.45	11,551.40	11,609.72	■	-10	-6
Sep 12	12,256.78	12,277.57	12,059.09	12,214.76	▲	-8	-4.4
Sep 11	12,237.52	12,259.02	12,081.51	12,102.50	●	-6	-4
Sep 10	12,249.14	12,404.67	12,159.97	12,346.63	△	-3	-3.4
Sep 9	12,529.96	12,529.96	12,335.74	12,400.65	●	-3	-3.6
Sep 8	12,359.93	12,671.76	12,352.35	12,624.46	○	-2	-3.2

Represents a 5-day average of 12-day total points. The total In-Yo points from Sep 17 to Oct 3 is -6 (● = -2, ▲ = -1, △ = 1, ○ = 2).

Verification method

In Table 1 the psychological line judges the ○ or ● (up or down) status based on the change from the previous day. In this verification, *In* and *Yo* or opening and closing are used to judge the ○ or ● status. Based on the size of the rise or drop, the standards of 1% and 3% were used. A rise smaller than 1% is one

point and shown as △, a rise from 1% to 3% is two points and shown as ○ and a rise 3% or larger is three points and shown as □. A drop smaller than -1% is minus one point and shown as ▲, a rise between -1% and -3% is minus two points and shown as ● and a rise -3% or larger is minus three points and shown as ■.

Based on this rule, the points during the past twelve days were added and exhibited the total points on the column of the latest day. Additionally, the five-day average was calculated within the twelve-day total and detailed in the column of the latest day.

The total of the twelve-day points being positive indicates an up trend, and negative a downtrend.

The same rules were applied to the New York Dow and the Hang Seng Index in an exercise to express the strength or weakness of the selling or buying energy and the size of price changes more accurately.

Additionally, by taking points that change on a daily basis and a five-day average, the positioning correlation between the two values enabled us to identify accurate trading timing.

Figure 1 highlights the differences over the nine-day, twelve-day and eighteen-day periods, with the twelve-day presenting the most accurate results.

Verification

Figures 2 and 3 illustrate the comparison between the psychological line movement and the *In-Yo* psychological line movement and the Nikkei Average daily chart from July 25, 2008 until mid-March 2009. The movements are similar with the circled areas highlighting the periods of divergence.

While the 50% area of the psychological line indicates that the market lacks direction, the *In-Yo* psychological line indicates a similar flat condition when the value is moving around zero. Additionally, the *In-Yo* psychological line indicates an uptrend when the value is positive and a downtrend when the value stays in the negative area.

When the market is over-sold according to the psychological line, the *In-Yo* psychological line also indicates an over-sold condition accurately.

The drop below 20% on the RSI in Figure 4 and the drop below minus ten on the twelve-day total points for the *In-Yo* psychological (Figure 5) occurred almost at the same time.

Similarly, when the RSI is around 70% the *In-Yo* psychological line rises beyond plus five at almost the same time, indicating that the *In-Yo* psychological line is alerting the trader to an

Figure 1
Comparison: results for twelve days, nine days and eighteen days

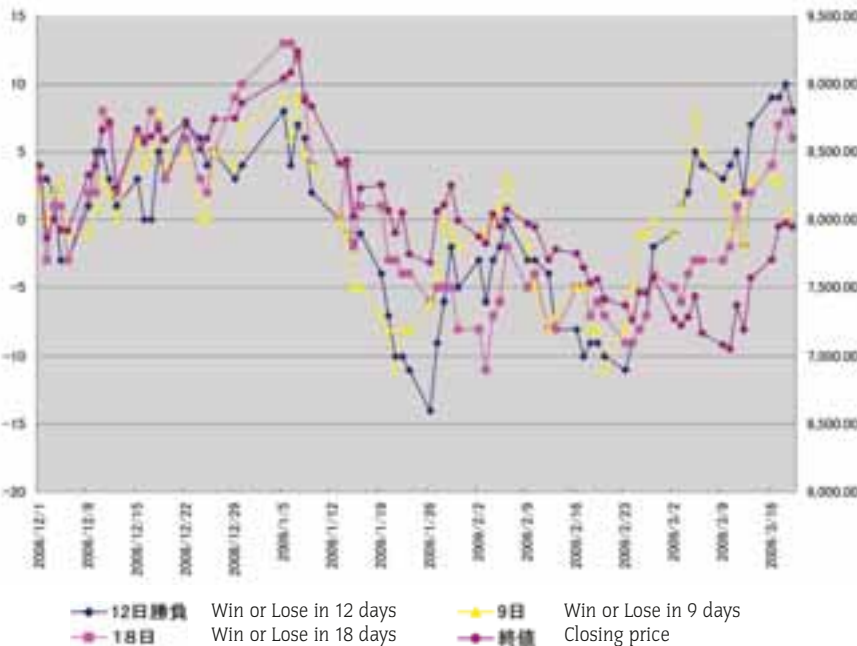
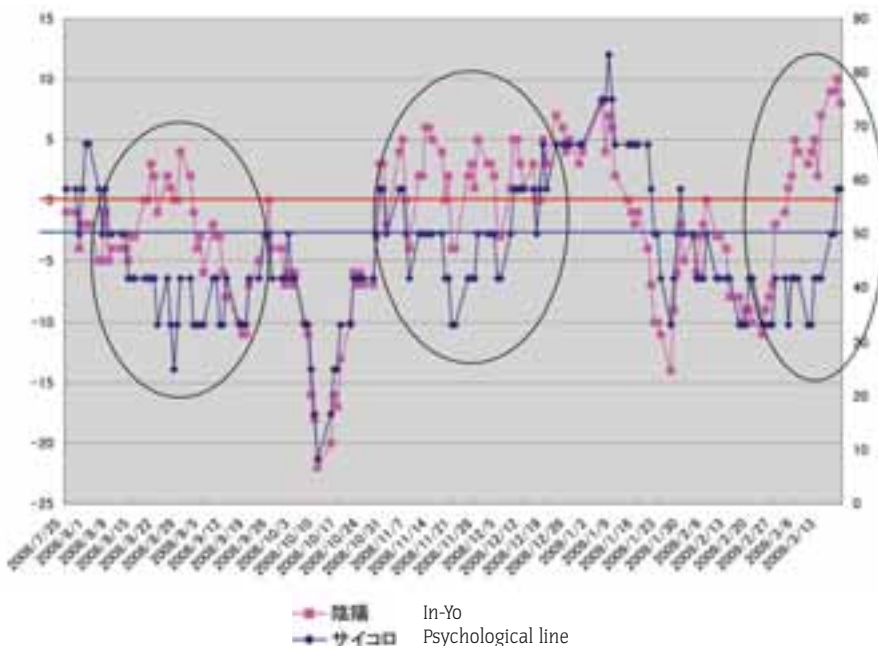


Figure 2
Comparison of the Psychological Line with the In-Yo Psychological Line



over-sold or over-bought condition in line with the RSI.

Further, the *In-Yo* psychological line indicates an uptrend or downtrend by the positioning relative to zero more clearly than the RSI does.

In Figure 6, the lines represent the twelve-day total points (pink) and the five-day average (yellow) and the closing price of the Nikkei Average (dark blue).

In the area above zero, the line representing the twelve-day total points

is pushing down the line for the five-day average. When the level falls below zero, the Nikkei Average follows forming a downtrend.

Notably, in the area where the twelve-day total points line falls from over five to below zero, a clear downtrend is formed and alternatively in the area where the twelve-day total points line goes up from minus five to beyond zero, an uptrend is formed.

When the twelve-day *In-Yo* psychological line drops below the five-day average, as long as it stays above zero, the Nikkei Average closing price remains in uptrend. When the twelve-day average line moves back and forth between zero and five, it is considered to indicate a top-heavy condition even though an uptrend is still in place.

If the five-day average as well as the twelve-day total points drops below zero, the market is in a downtrend and if the twelve-day total points moves between zero and five, support is functioning even though a downtrend remains.

The market is considered to be in a flat movement without forming a trend when both the twelve-day total points and the five-day average are oscillating around zero.

Observing the correlation between the twelve-day total points line and the five-day average line we find that when the twelve-day total points is above the five-day average, it indicates that the market is rising. The opposite condition indicates that the market is going down. Especially, when the lines are going up from the negative zone into the positive, the market is forming an uptrend. In the opposite case where the lines are moving from the positive area to the negative area, the market is forming a downtrend.

When the lines rise from minus five to over plus five, the trend is very likely to change especially when the lines reach over the plus ten level. On the other hand, when the lines fall from over plus five to below minus five, then the trend is very likely to change as well and particularly when the lines go below minus ten. As explained above, the movements are active when the twelve-day total points line is moving between minus five and plus five and in the area above plus five or below minus five a trend shift is likely.

Figure 3
Nikkei Dow Jones

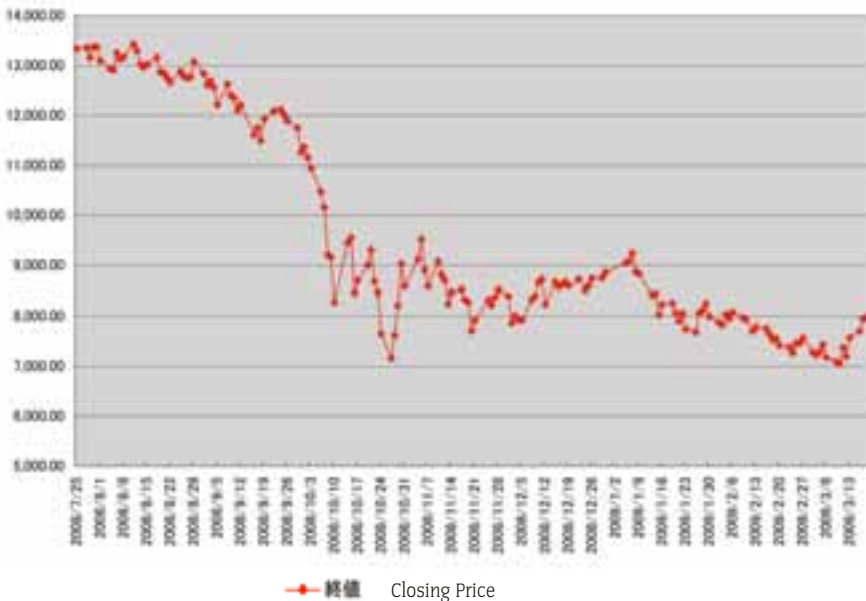
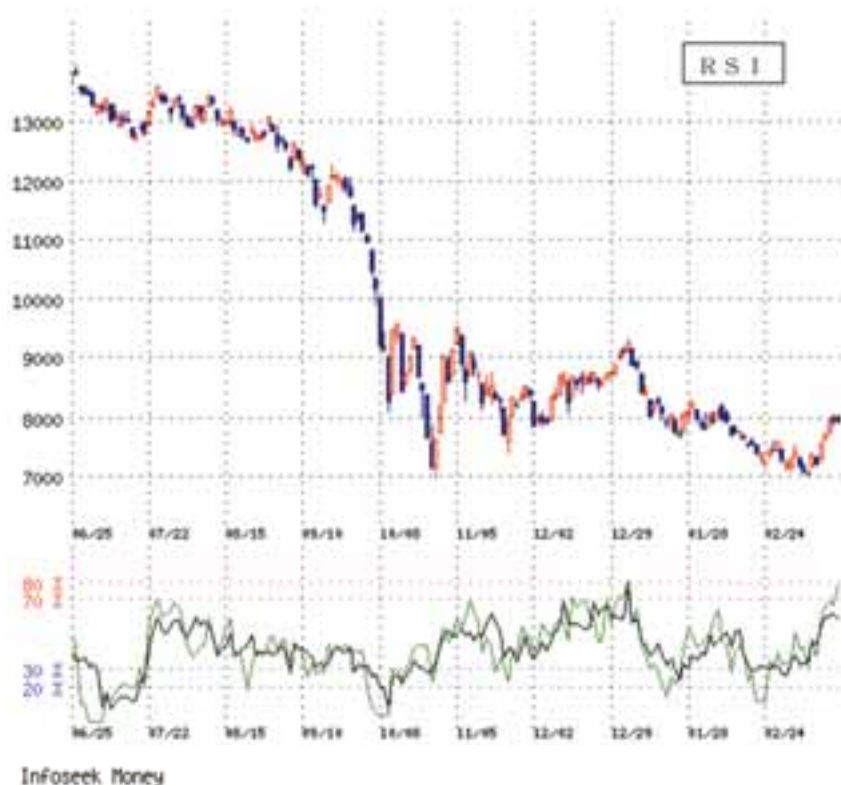


Figure 4
Comparison of the In-Yo Psychological Line with the RSI (Nikkei Average daily)



In Figure 7, as with the chart for the Nikkei Average, in terms of the relative positioning of the twelve-day total points line with the five-day average line, we find that when the former is positioned above the latter, it indicates that the market is rising. The opposite case indicates that the market is falling.

For the New York Dow, the twelve-day total points line frequently moves

between minus five and plus five. In the area outside the zone, it can be observed that trend turnings are taking place. When the line stays between zero and plus five, even though there is an uptrend, the market stays in a trading range. In this case, the five-day average never falls below zero.

And in the same way as for the Nikkei Average, a downtrend forms as the lines

fall from over plus five to below zero. In the below minus five area, a trend shift is indicated when the twelve-day total points line breaks the five-day average line in a bottom-up direction.

As with both the Nikkei Average and the New York Dow, the relative positioning of the twelve-day total points line and the five-day average line, indicates a rising market when the former is positioned above the latter. The opposite case indicates that the market is dropping.

With the Hang Seng Index (Figure 8), it can be observed that the movement of the In-Yo psychological line is active in the negative zone or below zero implying that the market is in a downtrend. The twelve-day total points line spends the majority of its time between minus ten and plus five. A trend shift takes place when the line moves outside of the range, and when the positioning of the twelve-day total points and five-day average is reversed and most notably when the lines move from beyond the plus ten or minus ten levels and across the zero line.

In Figure 9 the market is clearly forming an uptrend when both the twelve-day total points line and the five-day average line are moving above zero. However, after that point, there is an area where the index does not drop even though the twelve-day total points and the five-day average are below zero but shortly after, the market is led into a substantial downtrend. The gap between the movement of the *In-Yo* psychological line and the index, was a guide to the index's movement after that point.

On the weekly chart, as for the daily chart, the market forms a downtrend when the values of those lines change from positive to negative. And conversely, when the values change from negative to positive, the market is forming an uptrend. Additionally, the relative positioning of the twelve-day total points line and the five-day average line indicates that, when the value of the former is larger, the market is in an uptrend; when it is smaller, the market is in a downtrend.

When the twelve-day total points line is moving between minus ten and plus ten and the line moves from the negative zone to the positive, it can ▶▶

Figure 5
The In-Yo Psychological Line and the RSI over the same period

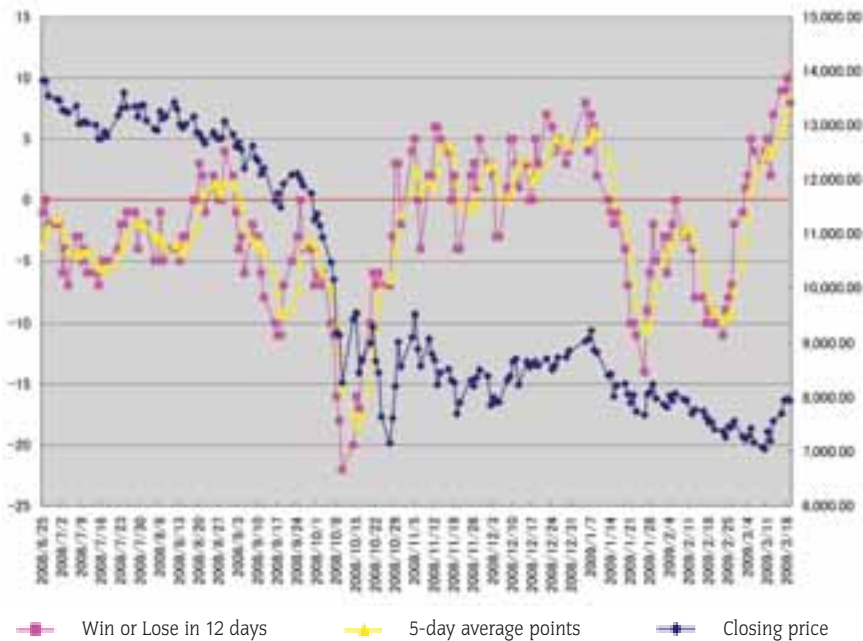
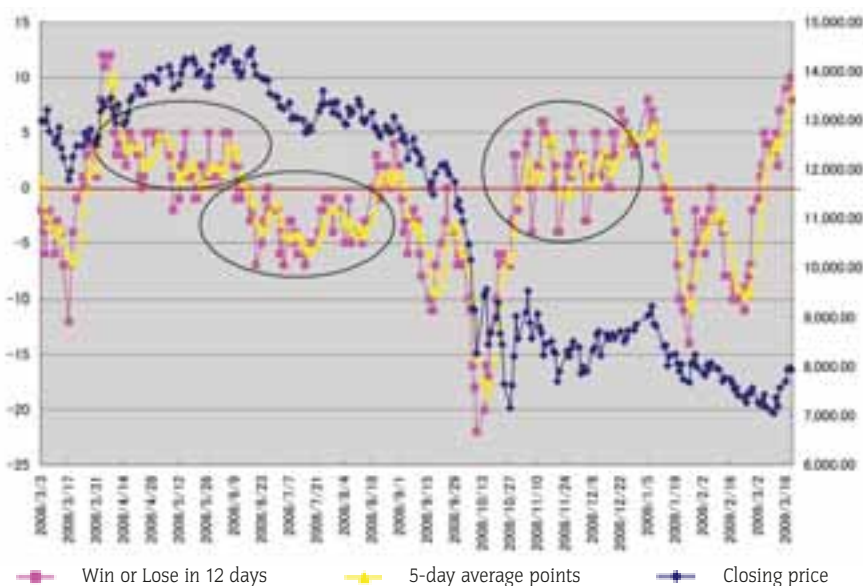


Figure 6
Verification of the twelve-day In-Yo Psychological Line on the Nikkei Average (daily)



be observed that the market is forming a clear trend.

As for the daily and weekly charts for the Nikkei Average, a trend shift occurs from the relative positioning of the twelve-day total points and the five-day average and we find that on the monthly chart (Figure 10) the value of the line is moving between minus twenty and plus fifteen. It is apparent from this that the greater the observation period, the larger the range in points.

Results

The tests performed on the three markets; the Nikkei Average, the New York Dow and the Hang Seng Index produced similar results.

Incorporating the idea of *In-Yo* (down or up) into intra-day movement illustrated the selling/buying energy of the day. Setting the standards of 1% and 3% in the price range made it possible to identify the different degrees of selling/buying energy over the period.

The observation of the relative positioning of the twelve-day total points and the five-day average clarified the formation of trends. For example, when the twelve-day total points is positioned above the five-day average, an uptrend is being formed and when the former is positioned below the latter, a downtrend is being formed.

Generally, on the shorter-term charts, the twelve-day total points line and the five-day average oscillate around zero with normal movements between minus five and plus five. However, when the lines depart from the range, especially when the positioning of the two lines is reversed, it often indicates a trend reversal and can be used for buying or selling signals to trade. In this way the *In-Yo* psychological line is able to indicate over-sold or over-bought conditions.

Also we found that when the five-day average is positioned in a positive zone, it indicates that an existing uptrend is still in place and when the five-day average is in a negative zone, it indicates that an existing downtrend will continue. Further, we found that a trend shift is likely to occur when the line departs from the standard zone, minus five to plus five, or shifts from the positive to the negative, or vice versa.

However, when the line does not break zero, the existing trend does not change but serves to adjust the speed of the trend.

Figure 7

Verification of the In-Yo psychological line with the New York Dow (daily)

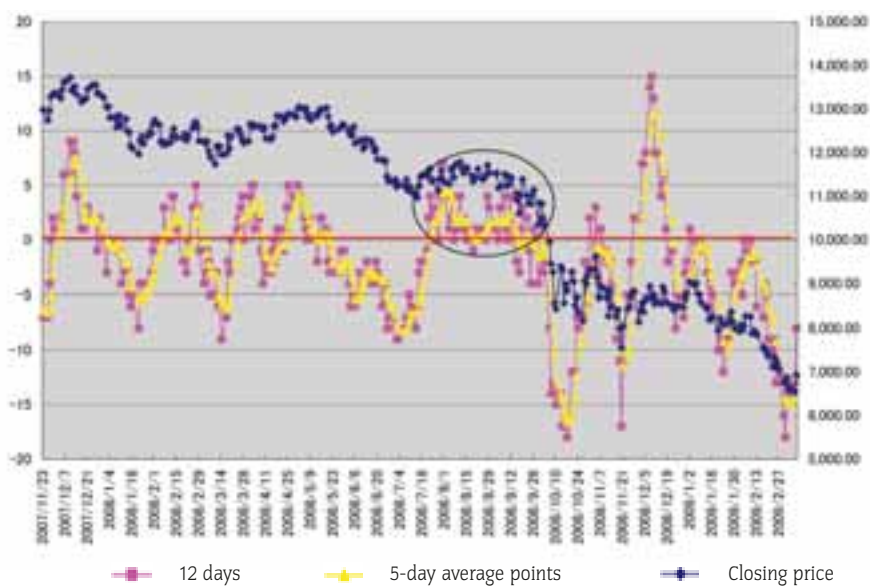
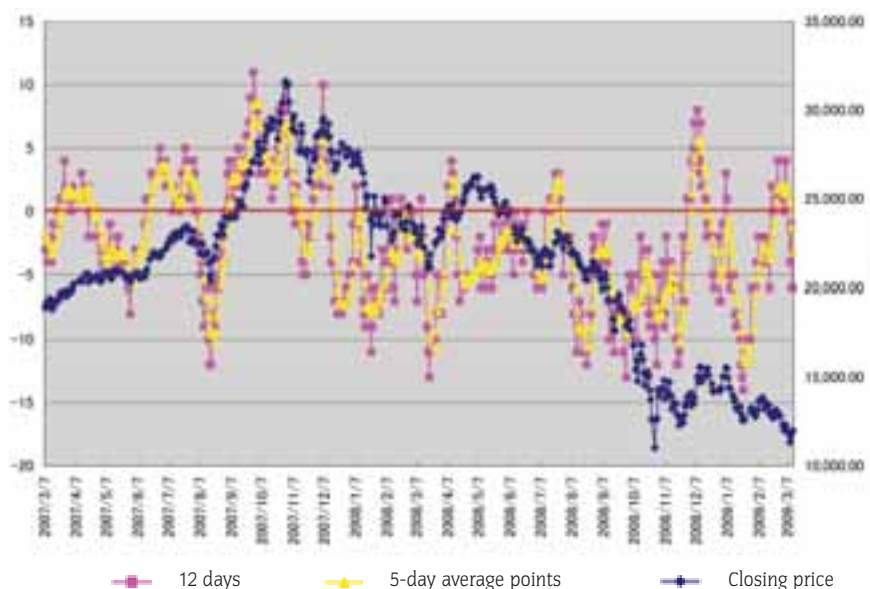


Figure 8

Verification of the In-Yo psychological line with the Hang Seng Index, (daily)



Conclusion

The aim was to present “a chart simple and easy to understand” to monitor the psychological status of the market participants in a simple manner with the intention of gauging the strength or weakness of the market and to seek selling/buying opportunities.

The presentation of the twelve-day total points and symbols such as ○ and ● provide visual representation of the market movement. An observation of the values of the twelve-day total points and the five-day average can provide a guide to the market trend with important information gained from their relative positioning.

To summarise: In the positive zone, when the twelve-day total points is greater than the five-day average, it

indicates the formation of an uptrend. In the negative zone, when the twelve-day total points is greater than the five-day average, it indicates a recovery phase in a downtrend. In the negative zone, when the twelve-day total points is smaller than the five-day average, a downtrend is being formed. In the positive zone, if the twelve-day total points is smaller than the five-day average, it is a correction phase within an uptrend.

The buy/sell opportunities can be identified when the positioning of the twelve-day total points and the five-day average are reversed.

Finally, we can observe from these results that the *In-Yo* psychological line is a useful tool for trend determination and for generating buy and sell signals over any time frame. **IFTA**

References

- i Nippon Technical Analysts Association, *The Complete Japanese Technical Analysis*, Nihon Keizai Shinbun-sha, Tokyo, August 2004.
- ii *ibid.*

Bibliography

Elder, A, *Trading for a Living: Psychology, Trading, Tactics, Money Management*, John Wiley, USA, 1993, trans. Pan Rolling Inc, Tokyo, 2000.

Nippon Technical Analysts Association, *The Complete Japanese Technical Analysis*, Nihon Keizai Shinbun-sha, Tokyo, 2004.

Figure 9
Verification of In-Yo psychological line with the Nikkei Average (weekly)

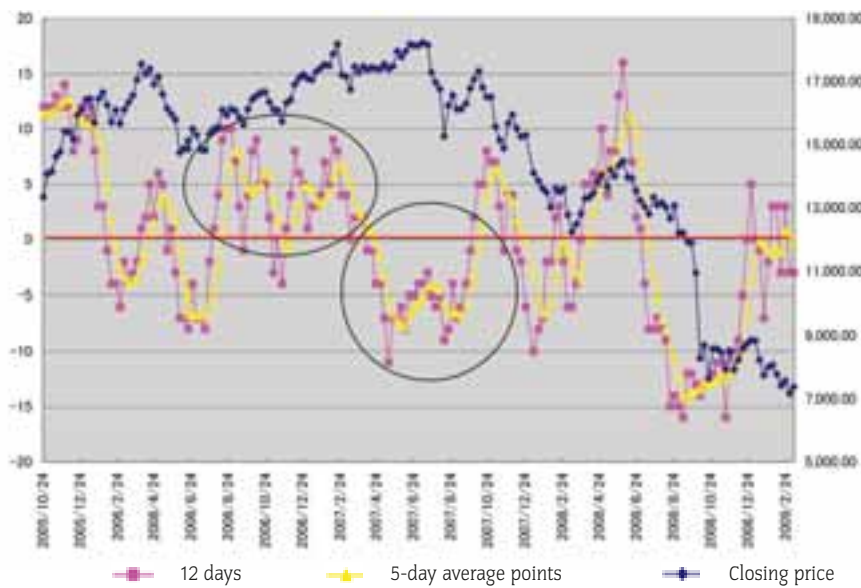
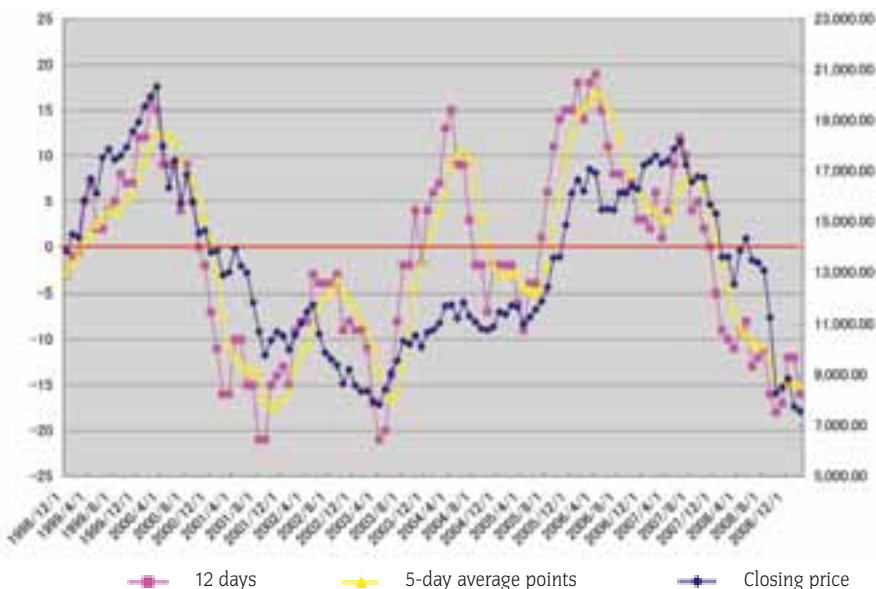


Figure 10
Verification of In-Yo psychological line with the Nikkei Average (monthly)



Appendix

Figure 11

A method to forecast relative positioning of the twelve-day total points and the five-day average for the following day

Date (2009)	1% and 3% standard	Win or Lose in 12-day	5-day average points
19 Mar	▲	8	8.6
18 Mar	▲	10	7.4
17 Mar	○	9	6.4
16 Mar	△	9	5.4
13 Mar	□	7	4.2
12 Mar	●	2	3.6
11 Mar	○	5	4.2
10 Mar	▲	4	3.6
9 Mar	●	3	3.0
6 Mar	●	4	2.2
5 Mar	○	5	1.0
4 Mar	○	2	-1.4
3 Mar	△	1	-3.4
2 Mar	●	-1	-5.4

Forecast for the market on 20 March

1% and 3% standard	Win or Lose in 12-day	5-day average points
□	9	9.0
○	8	8.8
△	7	8.6
▲	5	8.2
●	4	8.0
■	3	7.8

On March 18, the 12-day total points is ten (Figure 11), which indicates an overheated condition in the market. However, for forecasting the market on March 20, even if the market rises 3% or greater, which is the size of the rise represented by □, the calculated values of the twelve-day total points and the five-day average are the same. When the rise is 3% or smaller, the twelve-day total points is smaller than the five-day average in all cases indicating the potential for the market to turn up.

Technical Tools and Equity Selection: A Reward/Risk Rating Indicator for the Stock Market Components

by Francesco Caruso MFTA

Abstract

This paper focuses on three issues. First, the analysis of which technical concepts can be considered as the main qualifiers for determining the trend of a stock. Emphasis is applied to an integrated approach that takes into account four different elements: trend direction, trend quality, trend potential and relative strength. Second, is the definition of each one of these elements through adequate technical tools – both traditional and new. Third, the compounding of these tools into a technical rating model, in order to examine if it is possible – through the use of technical analysis – to create an indicator for weighting the different reward/risk degrees present in the stock market. The indicator has been subsequently applied to four homogeneous sets of stocks and the consistency of its indications verified, with simple but strict rules, for a multi-year period. This technical indicator has been called “Reward/Risk Rating” (abb.: RRR), and forms the basis of this work. The Reward/Risk Rating indicator, in its inception, is a technical measure created to give a simple and clear value to the theoretical probability of success and/or over-performance for a long – new or existing – equity position. The results of the empirical analysis will demonstrate that there is a direct correlation between this Reward/Risk Rating indicator and the probabilities that a stock will trade, in the future, at higher prices and/or out perform its benchmark and its lower-rated peers.

Introduction

“More zeal and energy, more fanatical hope and more intense anguish have been expended

over the past century in efforts to ‘forecast’ the stock market than in almost any other single line of human action.”¹

Now, more than seventy years after Skinner’s pronouncement, the zeal and energy are still clearly visible in the inexhaustible search for forecasting techniques to indicate what and when to buy and sell.

In particular, every stock market participant; investor, analyst, money or fund manager is obviously interested in understanding which stocks are going to be the winners and which ones the losers. If the investor already has a position, his/her desire is to understand if these positions should be held or if they have to be sold or switched. If, instead, the investor is going to open a new position, he/she wants to know where to concentrate their attention and investments.

One of the most important tools of technical analysis is to move the statistical odds in one’s favour during the decision process and the trading activity. In fact, one of the basic assumptions of technical analysis is that the market itself generates, through prices, enough information regarding the actual situation and the future perspectives of each single component. In the previous decades, the world of technical analysis has had various attempts to extrapolate forms and concepts of technical ranking, but the majority of professionals and investors remain convinced that ranking a stock or a sector as a “buy”, a “sell” or a “hold” is quite exclusively a matter for fundamental analysis. But a simple look at the statistics regarding the average profitability of fundamental calls during the past decade proves that

this conviction is not supported by the numbers. The distribution of the rate of success of fundamental calls on single stocks decreases so dramatically during periods of high volatility and trend change, that in the long run they have, on average, not much more probability of success than the bet on a coin flip.

This seems to be a very good argument in favour of the third, more academic school that really denies the validity of both technical and fundamental analysis. This school holds that stock price variations act like “random walk” movements and believes that the future is unpredictable by any known method. Most simply, the theory of random-walk implies that stock price changes have no memory and that the past history of the series cannot be used to predict the future in any meaningful way. It means that even the most accurate of analysts who can consistently and reliably project economic events have no chance of earning extraordinary profits in the market and that the technical analysts using past price data would not succeed in determining future price trends. The academic challenge, as technical analysts, is to contrast this last affirmation.

Background and methodology

This paper originates mainly from considerations on the works of different authors. It also represents a tentative connection between different concepts and methods, through personal implementations. Therefore, it is dutiful to mention at least the three most influential authors, with reference to their contribution:

- Ian Notley, for his methodological construction and for the many concepts utilised in this work: ▶▶

the division of the trend in stages, the importance of the momentum in defining these stages, the concept of cyclical dominance and the practical application of the stock selection to a portfolio;

- Martin J. Pring, for the works on the stages of the economic cycle and their definition;
- Welles J. Wilder, for the technical studies on relative strength and for the Directional Movement concept and application.

In particular, the analysis tries to examine if better results, in the ranking process for a group of stocks, can be obtained through application of technical analysis only. As DeMark evidenced, filtering markets through quantitative and statistical methods implies, with or without a direct will, an attempt to move technical analysis, or at least some of its parts, towards the stature of a science. This attempt, it is thought, remains hard and somewhat dangerous, in part due to the utmost importance of psychology in market behaviour, and in part because it should be considered that if the term “science” means a direct and constant correlation between cause and effect, then neither technical nor fundamental analysis should be called a science. Technical analysis is fed from many other disciplines. Its problems and limits in being defined a “science” are the same as can be found within other fields of human activity (i.e. medicine, engineering) where both objectivity, that is, statistics, data, quantitative methods etc. and subjectivity, in that a decision’s quality, must ultimately live and give their contribution together.

The author’s conviction is that, apart from the possibility of defining technical analysis as a science or not, the quantitative way is the correct one to approach markets. As some of the most brilliant minds of past decades; Wilder, Kaufman, DeMark, Notley and others, have demonstrated with their work, that the real plus for technical analysis derives not from its subjective parts and methods, but from an adequate and statistical treatment of price and market action, quantitative analysis, and from its capability to give

concrete answers to operative problems. In other words, the main difference that should separate technical analysis from other market approaches lies not in the fact that it analyses prices or graphics instead of economic/fundamental data, but in its strong and natural mathematical relation with the “here-and-now” activity of the market flows that means trading, money/asset management and real applications.

It is suggested that the aim of moving statistics in one’s favour does not pertain only to traders and investors, but also to equity/fund managers. The real difference between these categories lies in their respective goals and limits: the trader has the main objective to take home trading profits and for the most part has a very short (even flexible) time horizon, while the manager’s action could have different and less linear goals. The optimum goal for equity and fund managers, is to beat a benchmark: but a fund manager certainly has more limits than a trader and, on average, a much longer-term horizon to measure his results (usually year by year).

Direct experience reveals that to beat a benchmark is often as much, if not more difficult than to gain in absolute terms. The proof comes from the widespread statistics about equity funds: each year, only a slight minority beat the benchmark. That means that their managers have great difficulty in creating enough “Alpha” or added value. Further investigation clarifies that, in most cases, this inability to beat the benchmark has three main roots: costs (that obviously have no relation with this research), money management and the equity selection process: the latter is the key point of this presentation.

The following process consists in four parts. The first part regards the choice of the model, with specific reference to the technical nature and to the components of the trend (direction, quality and potential). The second part analyses the choice and the application of the technical indicators. The third part explains the construction of the rating indicator (RRR). The fourth part shows the results of a monthly back testing of the indicator on four different stock aggregates, over a period of five years.

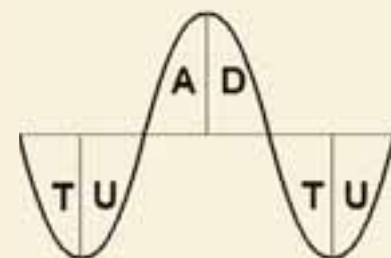
Choice of the model: Technical nature and components of the trend

The investigation of the nature and the components of the trend, as qualifiers for the formation of the technical rating for an item, takes origin from two methodologies:

- Notley’s bell-shaped curve model and the classification in four cyclical stages, defined by a momentum oscillator;
- Pring’s division of the economic cycle in six stages and the methodology used for defining the position of each component.

In Notley’s methodology, one of the key concepts is the determination of the cyclic position in each time frame, in relation to a momentum oscillator. There are four possible cyclical positions (see Figure 1):

Figure 1
**The four cyclical positions
according to Notley’s
methodology**



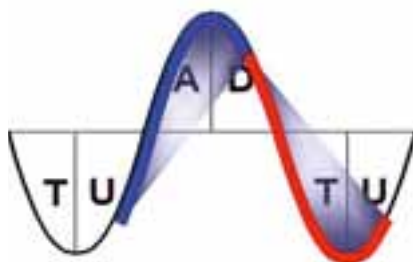
- | | | |
|---------------------------|---|-----------------|
| 1. below zero + rising | → | Up (U) |
| 2. above zero + rising | → | Advancing (A) |
| 3. above zero + declining | → | Down (D) |
| 4. below zero + declining | → | Terminating (T) |

Each stock universe is screened and results are expressed in a percentage of the total for each cyclical position.

This is extremely useful when used in conjunction with a Notley characteristic: the concept of “extension”. An extension, in the momentum model, takes place in only two cases: when momentum reverses on the upside from T to U and then returns in phase T (downside extension); or when momentum reverses on the downside from A to D and then returns in phase

A (upside extension). The experience shows that many big moves, especially the tails of a trend in both directions, take place as momentum extensions. The consequence is that the “profitability cycle” of the momentum model somewhat differs from the cycle of momentum itself, and indicates that momentum is often leading the profitability trend in both directions. Figure 2 shows the difference between the two cycles, momentum and profitability (profitability areas are shaded).

Figure 2
The four cyclical positions and the profitability areas



Obviously, profitability is not a constant: and this is a key point moving towards the consideration that the momentum position cannot be the only technical qualifier for trend potential. Notley himself forged the concept of “cyclical dominance”, to limit the potential damage of a simplified utilisation of this model. Simply stated, the cyclical dominance is defined by calculating which of the near sections has the prevailing summed percentage.

Prevailing T+U → bottoming dominance

Prevailing U+A → bullish dominance

Prevailing A+D → topping dominance

Prevailing D+T → bearish dominance

The concept of the temporal intersection of the various components of a trend (in this case, the economic trend) and the concept of a trend leading another, can be found in Pring’s model. The model divides the economic cycle in six stages and establishes “that there is a chronological sequence to the business cycle in which the bull and bear markets of bonds, stocks and commodities are continually rotating. Because there are three markets, and each experiences a

peak and a trough, it follows that there are six majors turning points. These may be used to break the cycle into six phases or stages. Each stage has a specific environmental characteristic.”¹¹

The action of the different components (stock market, economic indicators, interest rates, commodities) follows a similar rhythm, but with a displaced temporal sequence. Each stage is qualified by a different mix of situations, different degrees of reward/risk for each asset class and consequently a different optimal asset allocation. The definition of each stage is not subjective, but linked to the position of a set of indicators.

The integration of Notley’s momentum model and Pring’s model of economic stages, led to the consideration that there is a sequence that can be observed in the three main technical components of the trend cycle at each different time level, and that it resembles in its many points the sequence of the components for the economic cycle. Amplifying Notley’s concept of four momentum stages and extending them to six stages relating to profitability, two more stages were added to better qualify the two critical phases of accumulation and distribution and to relieve the problem represented from the extensions. In particular, it has been observed that momentum is often

leading/coincidental with the reversal of the trend, while classical trend indicators, such as moving averages or Directional Movement are often lagging. This is clearly not always the case; or a new concept by itself. The dilemma between leading and lagging indicators in the choice of market signals has been widely treated by technicians and researchers and may not be clearly solved without integrating different time frames, as in Notley’s model. The argument, here, is to structure a model that takes into consideration the different combinations of the technical components of the trend. These components are related to the concept of profitability and ultimately to a rating that could represent the actual expression of the potential reward/risk ratio for a position in the future. The resulting scheme and the division of the reward/risk cycle in six stages is shown in the following Figure 3:

The process of defining the position of each stage, takes into account three factors: one trend direction and two trend quality, which together form the technical trend; and three momentum. The logic is that momentum often anticipates/leads the technical trend and that deterioration in the quality of the technical trend often anticipates, in both directions, corrections and inversions. ▶▶

Figure 3
The six stages of the reward/risk cycle and its components

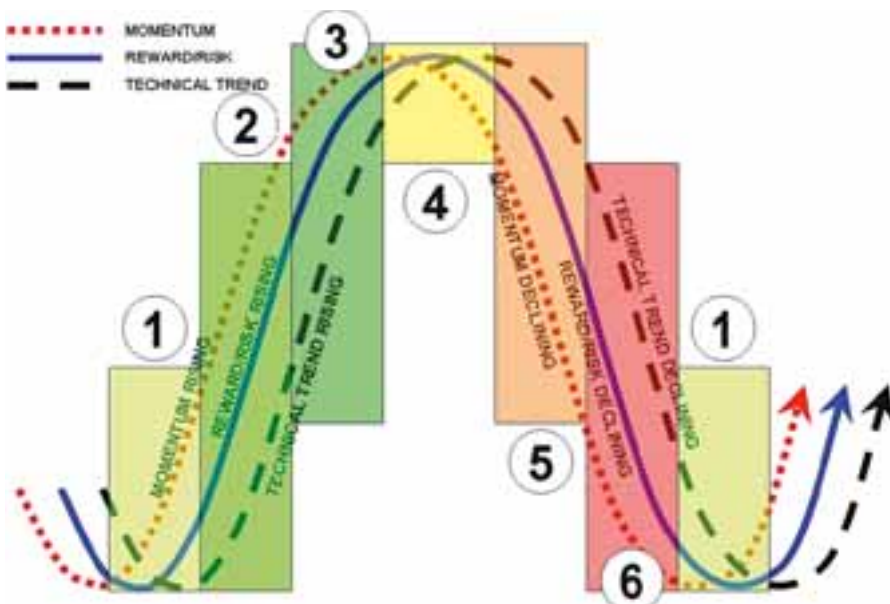


Table 1
The six stages of the trend and their characteristics

Stage	Technical Characteristics	Definition	Average Reward/Risk
1	Momentum → NEUTRAL TO POSITIVE Technical Trend → NEGATIVE TO NEUTRAL	ACCUMULATION	MEDIUM → HIGH
2	Momentum → POSITIVE Technical Trend → NEUTRAL TO POSITIVE	EXPANSION	HIGH
3	Momentum → POSITIVE TO NEUTRAL Technical Trend → POSITIVE	SPECULATION	HIGH → MEDIUM
4	Momentum → NEUTRAL TO NEGATIVE Technical Trend → POSITIVE TO NEUTRAL	DISTRIBUTION	MEDIUM → LOW
5	Momentum → NEGATIVE Technical Trend → NEUTRAL TO NEGATIVE	CONTRACTION	LOW
6	Momentum → NEGATIVE TO NEUTRAL Technical Trend → NEGATIVE	CAPITULATION	LOW → MEDIUM

This is even more the case and less deceptive as Notley sustained when analysing a universe of equities with a bottom-up approach (i.e. grouped by sectors). Summarised in the scheme above (Table 1) are the stages of the trend, their technical characteristics and the connected theoretical profitability in retaining/opening long positions:

The scheme represents the model for the construction of the rating concerning the trend and momentum components. The subsequent sections of the paper are devoted to recognising the technical tools to be used for specifically defining each component and the correspondent weight to be ascribed.

Choice and application of technical indicators

Four technical factors have been selected to compose the rating for each stock:

1. Trend direction
2. Trend quality
3. Momentum direction
4. Relative strength

The first three factors derive from the concepts examined in the previous section. Relative strength is a qualifier only applicable when a benchmark is present. Each factor has been defined and rated through an adequate technical tool.

Trend direction

Trend direction and trend quality

represent the technical trend. Trend direction has been defined through the combination of Wilder's Directional Movement and weighted moving averages. The trend is qualified "positive" and weighted plus one (+1) with the concurring of three factors:

- Diplus(5) is above Diminus(5)
- Six period weighted moving average of the stock is above the twelve period weighted moving average of the stock
- Six period weighted moving average of the stock is above its own six period weighted moving average

When the opposite is true, the trend is qualified "negative" and weighted minus one(-1). All the remaining situations are qualified as "neutral" and weighted zero (0). As the model works on a monthly time frame each coefficient choice is in consequence.

Trend direction - Metastock formula = $\text{If}(\text{PDI}(5) > \text{MDI}(5) \text{ AND } \text{Mov}(\text{C},6,\text{W}) > \text{Mov}(\text{C},12,\text{W}) \text{ AND } \text{Mov}(\text{C},6,\text{W}) > \text{Mov}(\text{Mov}(\text{C},6,\text{W}),6,\text{W})), 1, \text{If}(\text{PDI}(5) < \text{MDI}(5) \text{ AND } \text{Mov}(\text{C},6,\text{W}) < \text{Mov}(\text{C},12,\text{W}) \text{ AND } \text{Mov}(\text{C},6,\text{W}) < \text{Mov}(\text{Mov}(\text{C},6,\text{W}),6,\text{W})), -1, 0)$

Trend quality

Essentially, trend quality is represented by directionality. Therefore, it has been ranked as trend direction (as defined above), plus a qualifier that is represented by the ADX(5), that must be above its three periods weighted moving

average to be defined "directional". A trend that is qualified "positive with quality" is weighted plus one (+1); a trend that is qualified "negative with quality" is weighted minus one (-1). All other occurrences are weighted zero (0).

Trend quality - Metastock formula = $\text{If}(\text{PDI}(5) > \text{MDI}(5) \text{ AND } \text{Mov}(\text{C},6,\text{W}) > \text{Mov}(\text{C},12,\text{W}) \text{ AND } \text{Mov}(\text{C},6,\text{W}) > \text{Mov}(\text{Mov}(\text{C},6,\text{W}),6,\text{W}) \text{ AND } \text{ADX}(5) > \text{Mov}(\text{ADX}(5),3,\text{W})), 1, \text{If}(\text{PDI}(5) < \text{MDI}(5) \text{ AND } \text{Mov}(\text{C},6,\text{W}) < \text{Mov}(\text{C},12,\text{W}) \text{ AND } \text{Mov}(\text{C},6,\text{W}) < \text{Mov}(\text{Mov}(\text{C},6,\text{W}),6,\text{W}) \text{ AND } \text{ADX}(5) > \text{Mov}(\text{ADX}(5),3,\text{W})), -1, 0)$

At first glance, this could appear as a reiteration of the same concept. In fact, the sum of the two concepts – trend direction and trend quality (directionality) divides the technical trend in five degrees (Table 2):

Table 2

The five degrees of the technical trend and their weight

Trend positive and directional	+2 (+1, +1)
Trend positive and not directional	+1 (+1, 0)
Trend neutral	0
Trend negative and not directional	-1 (-1, 0)
Trend negative and directional	-2 (-1, -1)

Momentum

While the definition of trend direction and trend quality as the “technical trend” is intuitive, a more articulated problem is represented by momentum. The reason for this is that momentum as shown in the model’s construction is decisive not only for the calculation of the rating, but also to define the position in the trend cycle. Consequently, the model needed a momentum oscillator that was at the same time stable enough to avoid the trend noise, but would remain reactive to the trend change, at least in the majority of occurrences. To meet these criteria, a new oscillator, called Composite Momentum (abb.: CM) was created. CM is a slightly smoothed simple average between two other oscillators that have the same band width but different behaviours, called XTL (lagging/coincidental) and Key (leading).

XTL is the first component. It is simply the three period moving average of a classical (5,3) stochastic. This oscillator is smooth enough to follow the development of the trend but has many false signals in presence of linear trends and sometimes lacks reactivity in presence of sudden trend changes. For its mathematical construction, “XTL” is an oscillator that works within a [-100/+100] band. It is the lagging/coincidental part of our Composite Momentum oscillator.

XTL - Metastock formula

$$= (\text{Mov}(\text{Stoch}(5,3),3,S)) * 2 - 100$$

The “Key” oscillator is the second component. It derives from research aimed at finding a tool that could be sensitive not only to cyclical moves, but that could react also in trading ranges; to better understand the development of running/horizontal corrections. Its aim is to show both waves of buying/selling and overbought/oversold situations that are somewhat hidden by the price action and by the strength/weakness of the trend. For example, the horizontal corrections in linear or semi-linear trends. It is constructed from the difference between Diplus and Diminus at five (5) periods, where Diplus and Diminus are calculated not directly

on price, but on a momentum oscillator based on the difference between two simple moving averages at three and nine periods.

The basic formula is:

$$\text{Key} = [\text{Diplus}(\text{Mov}(3,\text{Mov}(9),5)) - \text{Diminus}(\text{Mov}(3,\text{Mov}(9),5))]$$

This construction appears linear as it was originally programmed in a totally different software environment (CompuTrac in DOS) and suffered complicated transposition into MetaStock language.

Key oscillator - Metastock formula =

$$\begin{aligned} \text{MOM} &:= \text{Mov}(\text{Mov}(\text{C},3,\text{S}) - \text{Mov}(\text{C},9,\text{S}),1,\text{E}) / \text{Mov}(\text{C},3,\text{S}) \\ &* 100; \text{Mov}((\text{Ref}(\text{Sum}(\text{If}(\text{MOM} > \text{Ref}(\text{MOM},-1), \\ &\text{MOM} - \text{Ref}(\text{MOM},-1),0),5),-1) - (\text{Ref}(\text{Sum}(\text{If}(\text{MOM} \\ &> \text{Ref}(\text{MOM},-1),\text{MOM} - \text{Ref}(\text{MOM},-1),0),5),-1)/5) \\ &+ \text{If}(\text{MOM} > \text{Ref}(\text{MOM},-1),\text{MOM} - \text{Ref}(\text{MOM},-1),0)) \\ &/ (\text{Ref}(\text{Sum}(\text{Abs}(\text{MOM} - \text{Ref}(\text{MOM},-1),5),-1) - \\ &(\text{Ref}(\text{Sum}(\text{Abs}(\text{MOM} - \text{Ref}(\text{MOM},-1),5),-1)/5) \\ &+ \text{Abs}(\text{MOM} - \text{Ref}(\text{MOM},-1))) * 100) - \\ &\text{Abs}(((\text{Ref}(\text{Sum}(\text{If}(\text{MOM} < \text{Ref}(\text{MOM},-1),\text{MOM} - \\ &\text{Ref}(\text{MOM},-1),0),5),-1) - (\text{Ref}(\text{Sum}(\text{If}(\text{MOM} < \text{Ref}(\text{MOM},-1), \\ &\text{MOM} - \text{Ref}(\text{MOM},-1),0),5),-1)/5) + \\ &\text{If}(\text{MOM} < \text{Ref}(\text{MOM},-1),\text{MOM} - \text{Ref}(\text{MOM},-1),0)) \\ &/ (\text{Ref}(\text{Sum}(\text{Abs}(\text{MOM} - \text{Ref}(\text{MOM},-1),5),-1) - \\ &(\text{Ref}(\text{Sum}(\text{Abs}(\text{MOM} - \text{Ref}(\text{MOM},-1),5),-1)/5) + \\ &\text{Abs}(\text{MOM} - \text{Ref}(\text{MOM},-1))) * 100)), 3, \text{E}) \end{aligned}$$

For its mathematical construction, “Key” is an oscillator that works within a [-100/+100] band. The Key oscillator is the leading part of the CM oscillator.

The CM oscillator is a smoothed average of the two. It is applied in the ranking model in two different explorations and defines both momentum direction and momentum position. Momentum is ranked “positive” and weighted plus one (+1) when the Composite Momentum is rising and vice versa.

Momentum direction - Metastock formula and weight =

$$\text{CM} := \text{Mov}((\text{Fml}(\text{"Key"}) + \text{Fml}(\text{"XTL"}))/2,2,\text{E}); \text{If}(\text{CM} > \text{Ref}(\text{CM},-1)), 1, \text{If}(\text{CM} < \text{Ref}(\text{CM},-1)), -1, 0)$$

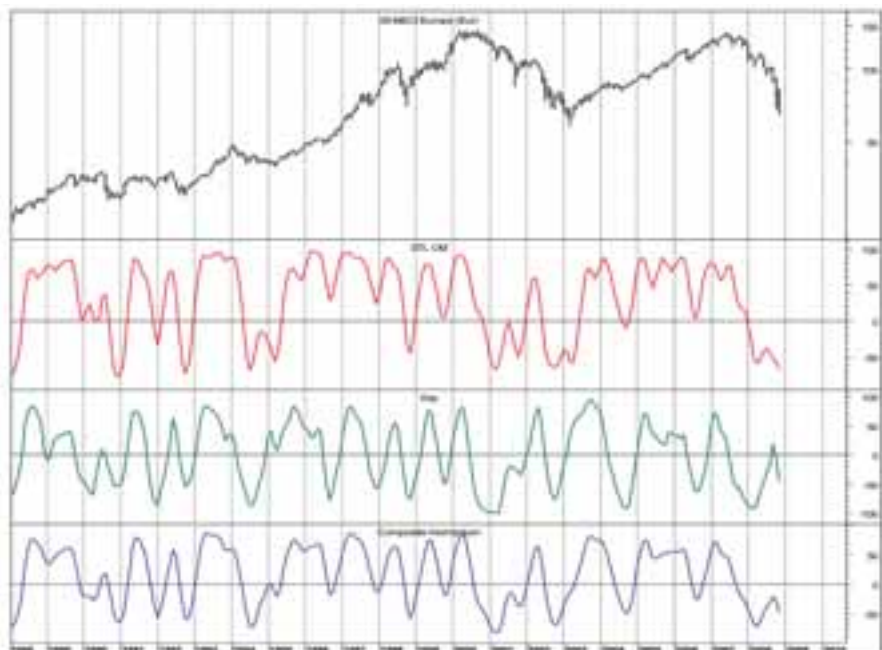
Momentum position - Metastock formula = CM :=

$$\begin{aligned} &\text{Mov}((\text{Fml}(\text{"Key"}) + \text{Fml}(\text{"XTL"}))/2,2,\text{E}); \text{If}(\text{CM} < 0 \\ &\text{AND CM} > \text{Ref}(\text{CM},-1), 1, \text{If}(\text{CM} > 0 \text{ AND CM} > \text{Ref}(\text{CM},-1), 2, \\ &\text{If}(\text{CM} > 0 \text{ AND CM} < \text{Ref}(\text{CM},-1), 3, \text{If}(\text{CM} < 0 \text{ AND CM} < \text{Ref}(\text{CM},-1), 4, 0))) \end{aligned}$$

The different behaviour between the three oscillators: the two components and the Composite Momentum is highlighted in the chart below (Figure 4). The chart exhibits the alternating cyclical and linear moves in the monthly trend for the MSCI Europe Index. ▶▶

Figure 4

MSCI Index Europe (monthly data): comparison between the behaviour of the Composite Momentum oscillator and its two components XTL and Key.



With the contribution of the Key oscillator, the Composite Momentum works particularly well in identifying stages one and four (the 2002 and 2007 periods), as well as low risk buying junctures in linear or semi-linear trends (the period 1996-1999 and the two junctures in 2004 and 2006). Simply

stated, the Composite Momentum brings together the qualities of its two components.

Relative strength

Market action and statistics indicate that many widely diffused market timing and stock selection tactics (i.e. to

buy, at least for a part of the portfolio, the most oversold/less overbought stocks, or the stocks that have the better average fundamental rating) not only does not imply a better performance, but often exactly the opposite. Much better results are obtained through a disciplined strategy of continuously positioning and overweighting stocks which can be defined as “strong”, showing superior relative strength. This is a well known and widely applied tactic, present in hedge funds strategies and even in long-only funds, particularly regarding the over/underweighting of a sector. For the purpose of this paper, relative strength is the value resulting from the division (ratio) between each stock's monthly closing price and the index/benchmark's monthly closing price. Experience and statistics reveal that relative strength trends are often much clearer, linear and persistent than the price trends of the underlying stocks. In the model's construction, relative strength is defined through the evaluation of the ratio over six months. Within the six-month time frame, two distinct periods have been taken into account: the whole period for the longer term (LT RS); and the prior three month period, for the short term (ST RS). Two operations follow. The first is to screen the actual position of the ratio within its last six periods' range and then dividing the LT Relative Strength into five categories as seen in Table 3:

The operation gives the structural (strategic) position of the relative strength for each item. The second operation consists in screening the actual position of the ratio, over the last three periods (ST Relative Strength). This provides a further qualifier for neutral situations and some more clues about tactical divergences and potential impending changes in the trend of the relative strength. The results of this screening are divided into three categories (Table 4):

Matching the weight of the two temporal degrees of relative strength, leads to a range of combinations that vary from plus three (+3) to minus three (-3) and mathematically defines every relative strength situation. The combinations are applied in the rating model.

Table 3

Long Term Relative Strength – classification and weight

LT RS classification	LT RS definition	LT RS Weight
Very Strong	Actual ratio is the highest of the last 6 periods	+2
Strong	Actual ratio is in the upper third of the last 6 periods' high-low range	+1
Neutral	Actual ratio is in the central third of the last 6 periods' high-low range	0
Weak	Actual ratio is in the lower third of the last 6 periods' high-low range	-1
Very Weak	Actual ratio is the lowest of the last 6 periods	-2

Table 4

Short Term Relative Strength – classification and weight

ST RS classification	ST RS definition	ST RS Weight
Strong	Actual ratio is in the upper third of the last 3 periods' high-low range	+1
Neutral	Actual ratio is in the central third of the last 3 periods' high-low range	0
Weak	Actual ratio is in the lower third of the last 3 periods' high-low range	-1

Table 5

Reward/Risk Rating calculation: components, tools and weight range

Component	Technical tool	Weight range
Trend direction	Weighted Moving Averages and Directional Movement	From +1 to -1
Trend quality	Weighted Moving Averages, Directional Movement and ADX	From +1 to -1
Momentum	Composite Momentum oscillator	From +1 to -1
Relative Strength	Sum of LT and ST Relative Strength positions against benchmark	From +3 to -3

Figure 7

The Eurostoxx50 Index (blue line) and the Reward/Risk Rating average of its components (histogram)



RRR average of its components, during the 2003-2008 period.

In this example there is a non-confirmation signal (hidden distribution) that took place in 2007, the two tops of the bull market were not confirmed by the RRR, as an expression of the decreasing “inner quality” in the trend of its components. The divergence is clearly shown during the September-October 2007 rally; the rise on the index was not sustained by sufficient inner breadth, indicated by the negative readings of the RRR indicator. This is a typical example of a stage four pattern, as discussed above. During the latest data explorations from December 2008 there was a negative reading of -2.52 for the average RRR of the Eurostoxx50. This is one of the lowest historical readings on the database. There is a dual interpretation which can be derived from the basics of the model. First, the selling pressure is still extremely strong and there is no sign of a positive divergence or accumulation: the majority of the stocks are still positioned in stage five and will pass into stage six only if there is a rebound sharp enough to lower the negative directionality. Second, in absolute terms, the reading of -2.52 is very low indicating that the odds for a technical rebound, big or long enough to take the average RRR toward the zero (neutrality) level after a prolonged period

in negative territory, become exponentially higher month by month.

Test And Empirical Results

The Reward/Risk Rating is an indicator, not a trading system. Often the limits to the utilisation of technical indicators is that there are few hints about their real efficiency. Here, the test and the empirical analysis have been performed to verify whether this indicator is efficient or not. The analysis has been conducted on four different aggregates of stocks, over a five-year time frame (September 2003 – mid November 2008).

Software and Database

The model and the indicator have been programmed on Metastock and Excel: Metastock explorations have been transferred to Excel spreadsheets and then elaborated through algorithms. All Metastock and Excel formulas and explorations are shown, directly in the paper or in separate files, as well as the month-by-month detailed results of the tests.

The database is end-of day and comes from an official Italian data provider (ADB). It has been integrated, where necessary, with Bloomberg data. Monthly compression has been used to achieve results that were coherent with the logic of the model, to systematically filter trend noise and simplify the

comprehension and evaluation of the results.

The test has been conducted on four different aggregates:

- the Eurostoxx50 index and its 50 actual components
- the Italian S&P MIB index and its 40 actual components
- the Swiss SMI index and its 20 actual components
- the S&P 500 Ishares and the ten Ishares within its sector components

The term “actual” is used as during the period under examination (2003-2008), the indices had some changes in their inner composition. The more recent composition was utilised for the test for two reasons. First, the changes regarded only a few stocks and did not impact substantially on the results; second, the stocks that were substituted during the test period were, in most cases, weaker than the rest of the market and would not have been considered by the model for long positions.

If a stock does not have enough data to be tested, it is simply removed for the previous periods from the database. This only affected a very limited number of stocks and only two aggregates (S&P MIB and SMI) and the overall results were not affected.

Test Rules and Constraints

The coefficients of the indicator and its components are fixed. The model is not optimised. The first operation is the calculation of the Reward/Risk Rating indicator for each stock, at the close of each month. Trading rules are then established as follows:

- I. Buy, at the open of the first trading day of each month, those stocks that, at the close of the previous month, have the highest Reward/Risk Rating.
- II. Sell every long established position at the close of each solar month.
- III. Proceed again operating rule I.

Constraints:

- The portfolio is always fully invested (even in the most negative period, there is always due to relative strength diversification, a group of

“best candidates”).

- Stocks are equally weighted.
- No stop loss or stop profit action is taken.
- A slippage/commission rate of -0.20% for each month is considered.
- When a group of stocks has equal rating, the discriminating factor is the momentum position.

The rules and constraints are simple, and while not trying to maximize the results they endeavour to determine the efficiency of the Reward/Risk Rating indicator. Following these rules and constraints, the next step was to extrapolate for each group of stocks three baskets compounded by the best rated 10%, 20% and 30% and then compare the results with the benchmark and with the arithmetic average of the same group of stocks.

Test Results

The results of the test on the selected baskets are evaluated through the following methods:

- total return
- average monthly return
- average yearly return
- rolling twelve months return
- % of positive months
- % of months better than benchmark
- tracking Error
- information Ratio

Tables 6 to 9 show the test results for each group of stocks.

Evaluation of the Results

The test was conducted over a period characterised by intermediate and major trend changes and by a strong sector rotation. The four stock aggregates that have been used, have very different characteristics:

- the number of their components;
- the currency;
- the inner composition, by capitalisation and by sector weight;
- the volatility, both for the benchmarks and the components.

Table 6

Eurostoxx50 – test results and total return chart

	Best 10%	Best 20%	Best 30%	Euro-stoxx50	Avg stock
total return	129.70%	47.81%	15.15%	3.12%	-1.35%
avg monthly return	2.06%	0.76%	0.24%	0.05%	-0.02%
avg yr return	24.70%	9.11%	2.89%	0.59%	-0.26%
avg rolling 12m return	28.74%	14.89%	9.41%	8.41%	8.60%
% positive months	74.6%	65.1%	63.5%	60.3%	61.9%
% months > bmk	76.2%	68.3%	55.6%	=	=
Tracking error	2.81%	2.18%	1.61%	=	=
information ratio	0.72	0.33	0.12	=	=

Table 7

S&P MIB – test results and total return chart

	Best 10%	Best 20%	Best 30%	S&P MIB	Avg stock
total return	194.47%	68.48%	16.72%	-15.94%	-3.67%
avg monthly return	3.09%	1.09%	0.27%	-0.25%	-0.06%
avg yr return	37.04%	13.04%	3.18%	-3.04%	-0.70%
avg rolling 12m return	49.54%	21.08%	12.32%	4.74%	6.53%
% positive months	76.2%	63.5%	57.1%	55.6%	55.6%
% months > bmk	82.5%	69.8%	60.3%	=	=
Tracking error	4.20%	2.58%	2.02%	=	=
information ratio	0.80	0.52	0.26	=	=

Table 8

SMI – test results and total return chart

	Best 10%	Best 20%	Best 30%	SMI	Avg stock
total return	146.60%	89.51%	46.72%	10.22%	13.62%
avg monthly return	2.33%	1.42%	0.74%	0.16%	0.22%
avg yr return	27.92%	17.05%	8.90%	1.95%	2.59%
avg rolling 12m return	31.90%	21.46%	13.63%	6.79%	9.30%
% positive months	68.3%	61.9%	58.7%	57.1%	55.6%
% months > bmk	73.0%	61.9%	58.7%	=	=
Tracking error	4.12%	3.00%	2.33%	=	=
information ratio	0.53	0.42	0.25	=	=

The diversity between them helps to evaluate if the indicator can be applied, without losing consistency, to different situations. The empirical

results have been positive with the samples extracted through the indicator obtaining total returns better than their benchmarks. ►►

Table 9
ishares, Sectors and S&P500 – test results and total return chart

	Best 30%	S&P500	Avg sector
total return	10.00%	-11.05%	6.64%
avg monthly return	0.16%	-0.18%	0.11%
avg yr return	1.90%	-2.10%	1.26%
avg rolling 12m return	9.68%	4.61%	8.70%
% positive months	58.7%	61.9%	58.7%
% months > bmk	63.5%	=	=
Tracking error	2.09%	=	=
information ratio	0.16	=	=

Figure 8
Eurostoxx50 Index and selected RRR samples: total return chart

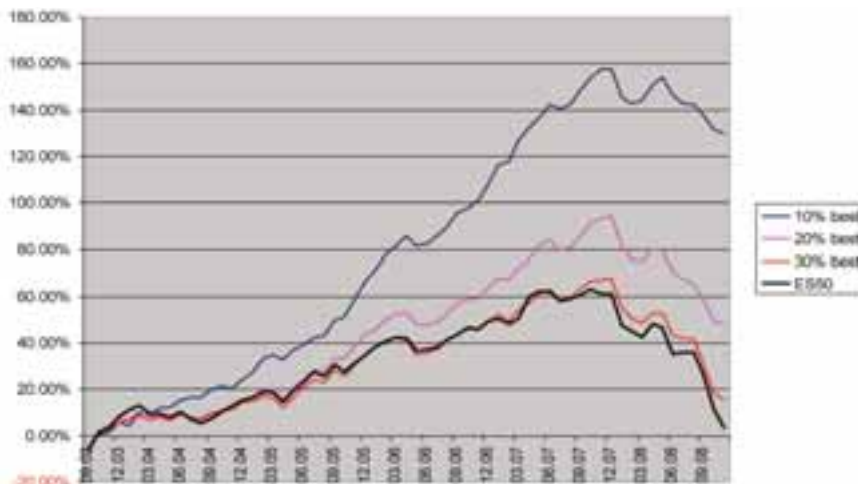
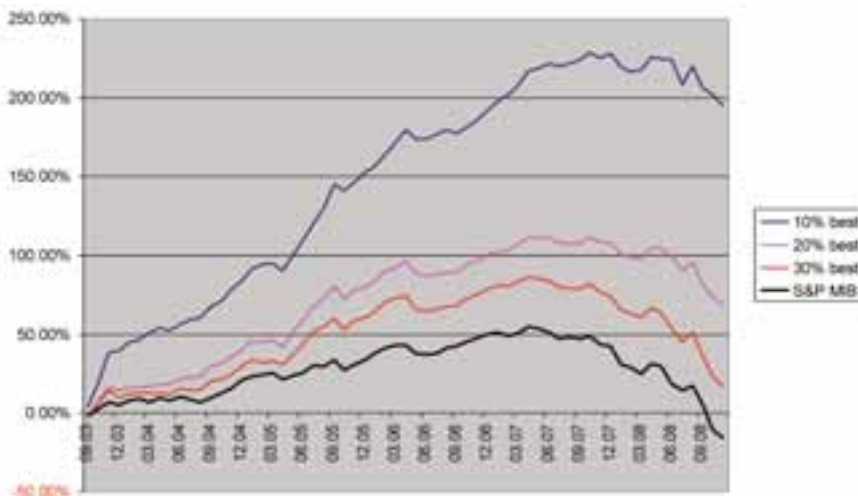


Figure 9
S&P MIB Index and selected RRR samples: total return chart



Even more important, the results have a coherent and solid distribution: the “10% best” samples have higher returns than the “20% best” ones and so on. The same applies to all the other methods of evaluation: average monthly and yearly return, average rolling twelve months return, the number of positive months and the number of months better than the benchmark (this last comparison has the exception of the sectors versus the S&P i-shares test: but this failure can be explained by the restricted sample – only ten elements). The tracking error and information ratio show readings that confirm the solidity of the results. In absolute terms, the return of the upper sample (10% best) compared with the benchmark is remarkable, as can be seen in the following exhibits (Figures 8, 9, 10, 11).

Another interesting consideration is the correlation between the average profitability and the six stages of the trend. As per the definition stated previously, each stage of the trend is characterised by a combination of trend direction, trend quality and momentum position. Consequently, in each of the six stages the indicator has a defined oscillation range (between the highest and lowest possible level) and an average level, as shown in Table 10.

It can be observed that the average Reward/Risk Rating is positive only in two stages (2 and 3), while it is negative in the three descending stages and neutral in stage one. This contrasts with the commonly accepted concept that stock selection is the panacea to escape negative market phases. Statistically, if seen through the lens of the RRR model, stock selection has concrete probabilities to create positive returns and alpha when the average market is in stages two and three, while in the other stages a benchmark tracker has a better reward/risk.

Conclusions

The paper focuses on the creation, using technical tools exclusively, of a rating indicator that can be helpful to identify the different reward/risk degrees present in the stock market. The result has been a technical indicator called “Reward/

Figure 10

SMI Index and selected RRR samples: total return chart

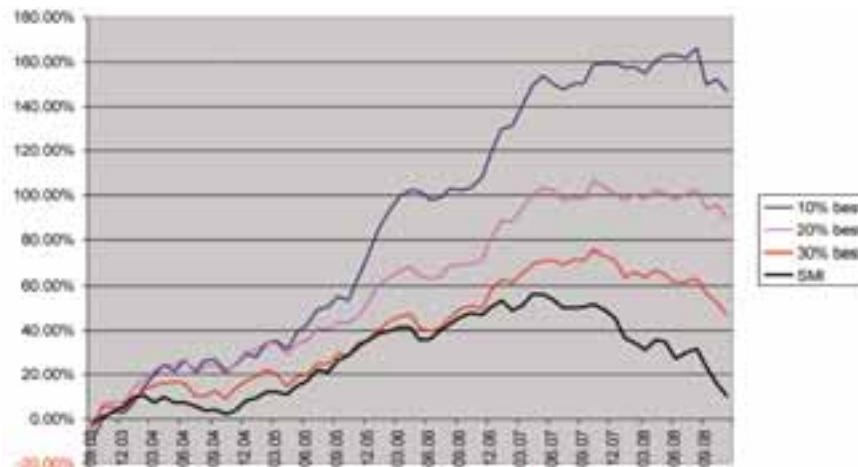


Figure 11

S&P500 Index i-share and selected RRR sample: total return chart



Table 10

The Reward/Risk Rating range in each stage

Stage	Technical Characteristics	Reward/Risk Rating Range
1	Momentum → NEUTRAL TO POSITIVE Technical Trend → NEGATIVE TO NEUTRAL	Max → +4 Min → -4 Avg → 0
2	Momentum → POSITIVE Technical Trend → NEUTRAL TO POSITIVE	Max → +6 Min → -2 Avg → +2
3	Momentum → POSITIVE TO NEUTRAL Technical Trend → POSITIVE	Max → +4 Min → -3 Avg → +0.5
4	Momentum → NEUTRAL TO NEGATIVE Technical Trend → POSITIVE TO NEUTRAL	Max → +3 Min → -5 Avg → -1
5	Momentum → NEGATIVE Technical Trend → NEUTRAL TO NEGATIVE	Max → +2 Min → -6 Avg → -2
6	Momentum → NEGATIVE TO NEUTRAL Technical Trend → NEGATIVE	Max → +3 Min → -4 Avg → -0.5

Risk Rating”, with four components: trend direction, trend quality, momentum and relative strength. In the examination of its consistency it was found that there is a strict and direct correlation between the Reward/Risk Rating indicator and the probabilities that a stock will trade in the future at higher prices and/or out-perform its benchmark and its lower-rated peers and is particularly the case when considering a basket of upper rated stocks. The indicator is also useful in breadth analysis in the identification of the internal divergences between the average Reward/Risk Rating of a group of stocks (as the components of an index) and the index itself. Nevertheless, some limitations were found. Because of its basic trend-following nature, this indicator gives its best during established or sideways trends, and clearly identifies the group of leading stocks but it tends to fail during quick reversals, both on the upside and the downside. The first month of a counter-trend correction is often the worst case scenario for this type of indicator and its signals, as corrections tend also to reverse the whole set of conditions of the previously prevailing trend, relative strength included. Apart from these limits, the results have been confirmed by all methods of evaluation and seem sound enough to escape any charge of randomness: instead, they seem to confirm one of the basic statements of technical analysis; that prices contain enough information to allow a correct identification of the more profitable and/or less risky situations.

The contribution of this and similar works, relating to technical analysis, is to give further consideration to the most valuable part of our discipline, going toward a continuative research of methods and applications as objective and useful as possible to help investors at any level. **IFTA**

References

- i RD Skinner, *Seven Kinds of Inflation*, McGraw Hill, New York, 1937, Chapter 1.
- ii MJ Pring, *The All Season Investor*; Wiley & Sons, New York, 1992, p. 159.

Bibliography

Appel G, *The Advanced Time-Trend-Momentum Intermediate Term Trading System*, Scientific Investment Systems, Toronto, 1982.

DeMark T, *The new science of technical analysis*, Wiley & Sons, New York, 2000.

Herbst AF, *Commodity Futures*, Wiley & Sons, New York, 1986.

Kaufman PJ, *The new commodity trading systems & methods*, Wiley & Sons, New York, 1987.

Lane GC, 'Using Stochastics, Cycles and RSI to the moment of decision', *Technical Analysis*, May/June 1982.

Murphy J, *Technical analysis of the futures markets*, New York Institute of Finance, New York, 1986.

Notley I, *Global perspective of investment: cycle and trend analysis - Methodology*, Yelton Fiscal, Ridgefield, 1988.

Pring MJ, *The All Season Investor*, Wiley & Sons, New York, 1992.

Pring MJ, *Analisi tecnica dei mercati finanziari*, McGraw Hill, Milano, 2003.

The Market Cycle- Background Theory and Methodology, presentation, Ian Notley, IFTA Conference, Paris, 1994.

Wilder WJ, *New concepts in technical trading systems*, Trend Research, New York, 1978.

Educated Investor

Ground Floor, 500 Collins Street, Melbourne 3000 Australia
+ 61 (0)3 9620 0885 info@educatedinvestor.com.au

www.educatedinvestor.com.au

Australia's only specialist investment bookshop

Established in 1998 to meet the needs of the investor and trader, we specialise in books on all asset classes, as well as software.

- Technical Analysis
- Derivatives
- Getting Started
- Superannuation
- Property
- Business
- Fundamental Analysis
- Foreign Exchange
- Trading
- Software



We are pleased to offer a **10% discount on books to all IFTA members**, please contact us for details.

Book Reviews

The Heretics of Finance

Conversations with Leading Practitioners of Technical Analysis

by Andrew W. Lo and Jasmina Hasanhodzic – reviewed by Regina Meani

The path to *The Heretics of Finance* began over two decades ago, from studies into the Random Walk Theory, which hypothesizes that past prices cannot be used for forecasting future price changes. The authors were surprised by the findings which rang the death knell for the “Random Walk” and directed them to investigate technical analysis. They decided that the course of their investigation should be to interview those at the heart of the subject; the practitioners. The outcome is insightful conversations with some of the most highly successful investors and traders in world markets. Numbering thirteen, these esteemed technicians, in interview style, are asked the same questions with an amazingly candid kaleidoscope of answers.

The process begins with Ralph Acampora, a technician with over 40 years experience, one of Wall Street’s most respected market analysts, and a ground breaker in technical analysis. Ralph was a founder and the first chairman of IFTA. He suggests that what distinguishes his style is his background in, and love of history.

Laslo Birinyi Jr believes that technical analysts shouldn’t market themselves as they tend to make dramatic predictions when in a marketing mode. In 1999 he was inducted into the Wall Street Week Hall of Fame and in 2004 was named in SmartMoney’s Power 30 list as one of the most influential market players.

“Whenever you think that you’ve got the key to Wall Street, somebody comes along and changes the lock”! Walter Deemer began his career in 1963 as a research trainee, quickly moving to become a full-time market analyst. He is a founding member of the Market Technicians Association and appears as the chosen guru of their field in *Dean Le Baron’s Treasury of Investment Wisdom*. Deemer uses what he calls “anticipatory analysis”.

The Lowry Research Corporation is the oldest technically driven investment advisory firm in the United States and Paul Desmond is its President and a recipient of the Charles H Dow Award. In his interview Paul says that he is confident that he will never be caught in a major bear market and will never miss a major bull market either, relying on the value that he places on technical analysis and his supply/demand analysis.

The first of the two females interviewed, Gail Dudack is chair emeritus of the SIFMA’s Securities Industry Institute and a founding member of IFTA. Gail is a strategist who mixes the technical with fundamentals and economics. She likes numbers and will look at anything that moves and says that she learned as much from black and white art classes as she did from her economics degree, calling her style eclectic.

Robert Farrell created Wall Street’s first report on longer-term theme and sector changes in the markets and in 1993 was inducted into the Wall Street Week Hall of Fame. The mistake which has taught him the most was his failure to learn how to cut losses and using fundamental analysis as an excuse for the failure of the technicals, purporting that it was a sound stock, therefore not a fault of the technical analysis. Realising his mistake, Farrell turned to sector analysis as a more effective form of analysis rather than general market analysis.

Besides being a world-class squash champion, Ian McAvity is a world-class champion of technical analysis renowned for his timely and unusual graphic presentations. He has been publishing *Deliberations on World Markets* since 1972, providing technical analysis for world equity, bond, forex and metals markets. He thinks of himself as a graphic, visual artist and a storyteller and scorns the over use of computers, preferring to let them just generate the data for him to interpret.

In 1992 John Murphy received the first award for “outstanding contribution to ▶▶

global technical analysis” from IFTA. His books on technical analysis are considered as standard references along with his unparalleled inter-market analysis. Murphy believes in the creativity of technical analysis, but it is not something that you can teach someone else. When he teaches he provides the rules and gives examples, but feels that everyone has to find their own way of connecting the dots.

“Being wrong in forecasting a market does not mean you have made a mistake. This is a probability business.”ⁱⁱ These are the words of Robert Prechter Jr, the founder and president of Elliott Wave International, the world's largest independent financial forecasting company. His mentor was the esteemed Richard Russell from the Dow Theory Letters, whom he wished to emulate. One of the most important principles he discovered was the subtle and remarkable characteristics of waves, and the propensity for quantitative relationships between them.

Linda Bradford Rashke is presented as the second female interviewed and had experience as her mentor, which she believes is the ultimate master and the best teacher. She is a director of the American Association of Professional Technical Analysts (AAPTA) and a past president. In her analysis Linda favours the Average Directional Index (ADX) as an indicator for consolidation, accumulation or distribution using it as a gauge to when a market reaches and moves away from an equilibrium point in a measure of the supply and demand imbalances.

Separating his emotions from technical analysis is one of the most important things which Alan Shaw learned through his trading experience. He believes that technical analysis can take the emotion out of the equation if one lets it and prevents us from holding a position for the wrong reasons. Shaw spent 46 years on Wall Street as a specialist in technical analysis before his retirement in 2004. In 1999 he received an honorary doctor of laws (LLD) degree from Susquehanna University in recognition of his Wall Street accomplishments and has appeared in *Who's Who in America* since 1988.

For Anthony Tabell, technical analysis was a hereditary thing. His father, Edmund Tabell started work with his wife's uncle Richard Wyckoff in the 1930s and in 1954 the family tradition continued when Anthony joined his father at Walston and Co. Tabell apportions a large part of his success to the use of Point and Figure charts.

The lucky thirteenth on the list is Stan Weinstein, president and founder of *Global Trend Alert* which provides intermediate and long-term outlooks for global markets. Before his retirement in 2000 he was one of Louis Rukeyser's Wall Street Week elves. Following the stock market from a young age and using fundamentals, Weinstein decided that after losing his bar mitzvah money, there had to be a better way. He found it after reading what is often called the “Bible” of charting: *Technical Analysis of Stock Trends* by Robert Edwards and John Magee. Finding out that one of the things he required most was discipline, Weinstein developed a system which he called the “forest-to-the-trees” approach which forced him to look at the big picture first.

Lo and Hasanhodzic state that all the technicians they interviewed “came across as highly intelligent, rational, and open-minded individuals with a deep understanding of the markets... the most successful of them are well aware that much of the prejudice against them can be countered by careful communication”ⁱⁱⁱ

About the authors: Jasmina Hasanhodzic has a PhD from MIT's department of Electrical Engineering and Computer Science and develops quantitative investment strategies in her role as a research scientist at AlphaSimplex Group, LLC, a quantitative investment management company. She is recognised for proposing new methods for the automisation of technical analysis. Andrew W Lo is a professor of finance at the MIT Sloan School of Management and is the director of MIT's Laboratory for Financial Engineering. Andrew is the founder and chief scientific officer of the AlphaSimplex Group, LLC. He has also written: *The Econometrics of Financial Markets, A Non-Random Walk Down Wall Street and Hedge Funds: An analytical Perspective*. **IFTA**

The review text was provided courtesy of Bloomberg Press, New York (see back cover advertisement)

References

- i AW Lo and J Hasanhodzic, *The Heretics of Finance*, Bloomberg Press, New York, p. 25.
- ii *ibid*, p. 75.
- iii *ibid*, p. xix.

Book Reviews

Breakthroughs in Technical Analysis

New Thinking from the World's Top Minds

edited by David Keller – reviewed by Regina Meani

In his introduction, David Keller states: “Market participants today are using technical analysis more than ever before, and most of them are struggling to identify which techniques they should be applying to their markets of interest”ⁱ

To help satisfy this problem, David Keller has created an easy to read book which brings together the methodologies of some of the leading Technical Analysts, chapter by chapter. This technique allows the novice and more experienced technician alike to “meet” these experts as they relay some of their expert insights.

Beginning with Ted Hearne, an active trader and student of the markets for over two decades, we are brought into the world of the Drummond Geometry. The theories and methodology which Hearne presents are based on the writings of Charles Drummond, the legendary Canadian trader. Hearne guides us through the three main components of the Drummond Geometry.

In Chapter two, Tom DeMark coins the phrase: “the trend is your friend, unless the trend is about to end”ⁱⁱ and introduces us to his unique trend analysis style using the TD Combo. DeMark, president of Market Studies Inc, is well known through the investment community for his systems and indicators. He is the author of three TA books.

Nicole Elliot and Yosuke Shimizu use traditional Japanese techniques to provide useful insights into market and trend behaviour. Nicole is acknowledged for her expertise with Ichimoku charts and Shimizu for his practical technical analysis techniques.

Our next author, Constance Brown, renowned for TA teaching methods, brings together Gann analysis, Fibonacci numbers and her own unique indicators, notably the Composite index, for a sophisticated style of trading. David Bowden, another TA trainer, also uses Gann analysis and the importance of time and price.

Options and other derivatives are a large part of today's markets, as fund managers leverage and manage risk. Bernie Schaeffer demystifies options trading, using volatility for profit. He is the recipient of the 2004 Traders' Library Traders' Hall of Fame Award for his contributions to the field of trading.

Point and Figure charts have long been identified as one of the most useful forms of charts and Jeremy du Plessis, with over 25 years experience with a focus on P&F charting and TA software, is controversial in his application of traditional TA indicators to P&F charts.

The bell curve is well known form of representing the end-of-day price action. Robin Mesch, a leading expert on Market Profile™, discusses price spreads and pairs trading using this method.

Finally, Robin Griffiths who has been in print for forty years, a former chairman of IFTA and a fellow of the STA, is considered to be one of the world's most highly regarded technical analysts, gives us his ten commandments for trading.

These ten notable technical analysts have all shared with us something unique from their individual forms of trading and analysis.

The editor David Keller is a highly regarded lecturer in technical analysis and is a technical analysis application specialist for Bloomberg L.P. in New York. [IFTA](#)

The review copy was provided courtesy of The Educated Investor Book Shop, Melbourne Australia (see advertisement page 21)

References

- i D Keller, *Breakthroughs in Technical Analysis*, Bloomberg Press, New York, 2007, p. xiii.
- ii *ibid*, p. 21.

Author Profiles

Unfortunately, the use of the word “test” by Wyckoff adherents has come to specify different aspects of market behaviour. The intent to “prove” or “disprove” something remains true, but the nuance of usage is sufficiently disparate that confusion often results. Definition, illustrations and classification can aid all market technicians and traders, not just devotees of the Wyckoff Method.

Pruden p.16

Today, with Russia, China and India furiously selling off more and more of their real estate, (privatising the land rent) and building huge, in fact truly stupendous infrastructure projects, a process that will triple, if not quadruple the land values of each of those nations over the next two decades – the next real estate cycle will be truly global and astonishing to behold, and worth knowing about.

Anderson p.25

Quite often studies in technical analysis are based on the closing price. This method alone ignores the divergence between the closing price, driven up or down by the transactions immediately before the close, and the average transaction cost for investors... The VWAP is the average of each traded price by trading volume during the trading period.

Wakiya p.27

Phil Anderson

Phil Anderson is Managing Director of Economic Indicator Services (EIS), an economic forecasting service operating out of London and Melbourne. EIS is the world's foremost authority in the area of business, real estate and commodity cycles providing a range of services including education on the movements of these cycles in the economy, with a focus towards real estate and its cycles. Phil's book, *The Secret Life of Real Estate* was published in the UK in 2008. More information on Phil's services can be found at <http://www.businesscycles.biz>

Ayman Bayoumi

Ayman Bayoumi works as an executive manager in the Asset Management department at Al-Aman Investment Company in Kuwait and is responsible for managing client's portfolios in the Kuwait Stock Exchange and GCC markets. Ayman is the founder of the Kuwait Technical Analysts Association (KWTA). He has a Bachelor Degree of Science in Accounting and a Post Graduate Diploma in Finance and Investment from the Ein Shams University in Cairo. He has a Bookkeeping License from MCS (Misr for Clearing Settlement and Central Deposit), and a Stock broking license from the Egyptian Capital Market Authority and is a Certified Valuation Analyst, (IACVA).

Ayman lectures in technical analysis for the Institute of Banking Studies, Saudi Arabia, the Kuwait University, and the Institute of Business Education, Kuwait and the Technical Analysis Seminar Faculty of Economic and Political Science in Egypt.

Francesco Caruso

With a degree in Economics from the Bocconi University, Francesco Caruso has provided technical analysis within several financial institutions in Italy and Switzerland as a currency/bond trader,

fund manager, chief of research, chief of the financial area and as an active member of investment committees. A former Vice-President of the Italian Society of Technical Analysts (SIAT), Francesco is in his third mandate as President of the SIAT Control Committee. He was the winner in 1998 and 1999 of the International Award: “Leonardo of the Financial Research” for technical analysis and the Special Prize for the originality of the research. Francesco has presented talks for the 1998 and 2006 International Federation of Technical Analysts (IFTA) Conferences, is a teacher of technical analysis, and is a regular in the Italian and Swiss media.

Elaine Long Knuth

Elaine Long Knuth has been a registered Commodity Trading Advisor since 1995, and a member of the New York Cotton Exchange from 1997. Until 2003, she was a principal and program manager with the U.S. Commodity Trading Advisory, Sequoia Trading, Inc., which specialised in commodity trading methods and research. She is the Managing Director of the Alternative Investment Advisory, AQ Capital AG, Zürich, Switzerland. Additionally, she is the principal partner of ACRE Advisors, LCC, an advisory of Managed Futures programs for institutional and qualified individual investors. Elaine is the current President and Chairman of the International Federation of Technical Analysts (IFTA).

Claude Mattern

Prior to joining BNP Paribas in 1989, as a technical analyst in the Foreign Exchange markets, Claude Mattern was an economist at the Banque Fédérative du Crédit Mutuel in Strasbourg. Claude has a DESS (Master's degree) in International Economics and Financial Management from the University of Louis Pasteur, Strasbourg and has been awarded a Master of Financial Technical Analysis (MFTA) by IFTA.

He is the Chairperson of the Education and Body of Knowledge Committee for IFTA and he is a member of the board for the French Technical Analysis Society (AFATE).

Regina Meani

With over 29 years experience in world markets, Regina worked as technical analyst and Associate Director for Deutsche Bank before freelancing. She has presented internationally and locally and lectured for the Financial Services Institute of Australasia (FINSIA), Sydney University and the Australian Stock Exchange and written "Charting, An Australian Investor's guide". She is Vice President of the Australian Professional Technical Analysts (APTA) and a Director and Committee Chair of the IFTA Journal. Regina has regular columns in the financial press and appears in other media forums. Her freelance work includes market analysis, private tutoring and larger seminars, training investors and traders in Market Psychology, CFD and share trading and technical analysis. Regina is a member of the Australian Technical Analysts Association (ATAA) and has belonged to the Society of Technical Analysts, UK (STA) for over twenty years.

Masayoshi Noguchi

Masayoshi Noguchi has been a broker for individual investors for the former Wako Security, Co. (now known as Mizuho Security, Co.) for over 24 years. He was initiated into charting techniques and technical analysis by Mr Yukiharu Abe's Technical Analysis. Since then he has become an experienced teacher in Stock Class and developed his investment management research and reporting skills. Masayoshi's current position is as a financial planner in Chuo-Mitsui Trust Bank.

Irfan Polimac

Before becoming involved in the finance markets as a trader, Irfan Polimac was an executive manager of a private company and served as ambassador for Bosnia and Herzegovina in the European Youth Parliament. His trading and analysis are focused on US equity options and in risk-minimizing the potential of combining charting and quantitative price interpretations with logically meaningful market events external to price. On a freelancing basis, he provides

limited independent research.

Irfan is the founding member and president of the newly established and Sarajevo based, Society for Market Studies. The Society is dedicated to furthering the understanding of technical analysis and market dynamics in a wider cross-disciplinary context. It is open to the trading, academic and general financial communities in South-East Europe. Irfan is also an associate member of the Society of Technical Analysts, UK (STA).

Prof. Henry (Hank) Pruden

Henry Pruden is a leading technical analyst with more than twenty years of active trading experience. He is currently Executive Director of the Institute of Technical Market Analysis and President of the Technical Securities Analysts Association of San Francisco (TSAASF). Hank is a professor at Golden Gate University in San Francisco, where he has taught technical analysis for thirty years. He has also served on the board of directors of the Market Technicians Association (MTA) and serves as vice chair of the Americas for the International Federation of Technical Analysts. Hank is a member of the American Association of Professional Technical Analysts, USA (AAPTA).

Norinao Wakiya

As a new recipient of the Master of Financial Technical Analysis (MFTA) award, Norinao received his technical analysis education through the Nippon Society (NTAA) and has had many years trading the markets, most particularly with derivatives. He began his career in 1998 with Microsoft Corporation where he filled various roles including the overseeing of the Exchange server, analysing mission critical issues faced by leading companies; environmental research work such as network configurations and server designs, dump analysis, and examining the source codes for Exchange, Windows, and Office. He devised patch programs for product-related errors and remodelled Exchange Server database engines at the head office Development Division in the United States. His current position is as the Now-Tech Research representative, coordinating activities ranging from the examination of business system-related issues to the preparation of custom software programs. **IFTA**

Traditional volume based indicators fail in emerging markets because they measure the volume as the aggregate number of shares traded in the market instead of measuring volume relative to the number of issued shares... One accurate measure of liquidity is to consider turnover (total number of shares relative to the total issued shares) as a measure of liquidity.

Bayoumi p.39, 42

Discovering a chart which is "simple and easy to understand" is like finding a road map with clear directions. In the Psychological Line, we find a chart which is easy to produce with clear buy and sell signals, a simple road map.

Noguchi p.49

One of the most important tools of technical analysis is to move statistical odds in one's favour during the decision process and the trading activity. In fact, one of the basic assumptions of technical analysis is that the market itself generates, through prices, enough information regarding the actual situation and the future perspectives of each single component.

Caruso p.57

"Whenever you think that you've got the key to Wall Street, somebody comes along and changes the lock"

Walter Deemer

Directors and Board

The International Federation of Technical Analysts, Inc.

The International Federation of Technical Analysts, Inc.

9707 Key West Avenue
Suite 100, Rockville
MD 20850 USA

Email: admin@ifta.org
Telephone: +1-240-404-6508
Fax: +1-301-990-9771

Executive Committee

Elaine Long Knuth (SAMT), Switzerland
Chairperson

Henry Pruden (TSAASF), USA
Vice-Chairperson – The Americas

Axel Rudolph (STA), United Kingdom
Vice-Chairperson – Europe

Shigetoshi Haneda (NTAA), Japan
Vice-Chairperson – Pacific Region

Aymen Waked (ESTA), Egypt
Vice-Chairperson – Middle East & Africa

Peter Pontikis (STANZ), New Zealand
Treasurer

Bruno Estier (SAMT), Switzerland
Secretary

Core Business Committee Chairs

Henry Pruden (TSAASF), USA
Academic Interface

Larry Lovrencic (ATAA), Australia
Accreditation

Claude Mattern (AFATE), France
Education and Body of Knowledge

Timothy Bradley (TSAASF), USA
Ethics

Veronique Lashinski (AAPTA), USA
Information Management

Regina Meani (ATAA, STA), Australia, United Kingdom
Journal

Administrative Committee Chairs

Timothy Bradley (TSAASF), USA
Conference Advisory

Simon Warren (STA), United Kingdom
Finance

Alex Douglass (TASS), Singapore
Membership & New Development

Directors at Large

Gregor Bauer (VTAD), Germany
Gerald Butrimovitz (TSAASF), USA
Julius de Kempnaer (DCTA), Netherlands

Marc Michiels (AEAT), Spain
Maurizio Milano (SIAT), Italy
Saleh Nasser (ESTA), Egypt
Taichi Ohtaki (NTAA), Japan

Hiroshi Okamoto (NTAA), Japan

Antonella Sabatini (SIAT), Italy

Ulf Sandberg (VTAD), Germany

Bill Sharp (Immediate Past


Chairman)(CSTA), Canada

Adam Sorab (STA), United Kingdom

Max von Liechtenstein (STAF),

Scandinavia

Wang Tao (TASS), Singapore



**"I trade one way.
My way."**

Years of learning and experience have taught you to trade the right way – your way. Now there's a brokerage dedicated to giving you the confidence you need to trade by your rules, with the sophisticated tools and comprehensive data you need. So if you're serious about trading your way, go with the broker that's serious about helping you get there – TradeStation.

800.265.4139 | TradeStation.com/9247

Find out about our special offer
for new accounts.

Your money. Your rules.™



TradeStation® Securities

THE LEADER IN RULE-BASED TRADING™

Member NYSE, FINRA, NFA and SIPC

IMPORTANT INFORMATION: No offer or solicitation to buy or sell securities, securities derivatives or futures products of any kind, or any type of trading or investment advice, recommendation or strategy, is made, given or in any manner endorsed by TradeStation Securities, Inc., or any of its affiliates. Past performance, whether actual or indicated by historical tests of strategies, is no guarantee of future performance or success. Active trading is generally not appropriate for someone with limited resources, limited investment or trading experience, or low risk tolerance. Please visit our website for relevant risk disclosures. System access and trade placement and execution may be delayed or fail due to market volatility and volume, quote delays, system and software errors, Internet traffic, outages and other factors. All proprietary technology in TradeStation is owned by TradeStation Technologies, Inc., an affiliate of TradeStation Securities, Inc. The Leader in Rule-Based Trading tagline is based on industry awards and reviews. © 2009 TradeStation Securities, Inc. All rights reserved.

Bloomberg



MARKETS FROM EVERY ANGLE

Bloomberg is the leading source of market data, news, and analytics for financial and legal professionals, corporations, media organizations and private individuals around the globe. The BLOOMBERG PROFESSIONAL® service and Bloomberg's media services provide real-time and historical pricing, indicative data, reporting, research, estimates, analytics, portfolio-management tools, electronic-trading and order-management systems, multimedia events, and electronic communications to Bloomberg users in more than 150 countries, 24 hours a day.

For more information about Bloomberg, contact a Bloomberg Sales representative or visit www.bloomberg.com.

London +44 20 7330 7500

New York +1 212 318 2000

Tokyo +81 3 3201 8900

©2008 Bloomberg Finance L.P. All rights reserved. 31227433 0908