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William S. Doane, RIP

Bill Doane, founder of Fidelity’s Chart Room, passed on recently. He was a great technician—he liked to think of himself as the father of big base investing—and a good friend of mine for many years. As chairman of the Awards Committee, it was a great honor for me to present him with the MTA’s Annual Award. I am absolutely bereft. The past few years have seen so many of the great technicians pass on to the boardroom in the sky. Bill’s passing strikes me as especially poignant as he had such a deep command of the history of our craft and its practitioners. I like to think that I am a good historian, but Bill’s grasp was so much wider than mine that I was forever asking him questions. All of these passing’s leave me feeling like I am in a library that is burning down a section at a time. So much of our history gone forever. So many tools and techniques taken to the grave. So many friends silent...

- John Bollinger, CFA, CMT

At the time of his passing, Bill was splitting his time between Stuart, FL and Denver, CO. For many years, he had lived in Lexington, MA. Bill passed away on September 3, 2016.

He was the beloved husband of 58 years to Janet L. (Spoerl) Doane and the loving father of Susan Parrish and her husband Richard of Lexington, MA, Jeffrey Doane and his wife Dayna of Holliston, MA, Lisa Froshieiser and her husband Thomas of Greensboro, NC, and Cynthia Rand and her husband William of Andover, MA. Bill is also survived by his 13 loving grandchildren: Sarah, Taylor, James, Hayley, Daniel, Andrew, Kristin, Megan, Brendan, Molly, Valerie, Lisa, and William.

He served in the U.S. Army, stationed in Germany as a meteorologist. He graduated from the University of Denver with an MBA in Finance and then moved east to work at as the Coordinator of Technical Research where he maintained the famous War Room (Chart Room) for the Fidelity Group of Mutual Funds in Boston. After 20 years, he started his own boutique firm, Minuteman Financial Services, providing technical research to institutional portfolio managers.

Bill was a noted expert in stock market analysis with specific focus on technical analysis and the study of cycles and charts. Bill was a relentless observer of stock market trends and was a featured speaker, writer and media commentator. He was both a founding member and past president of the Market Technicians Association and was most recently Vice Chairman and Director of the Foundation for the Study of Cycles.

Bill was a prodigious organizer and loved to design and create. He most recently devoted his energy to designing and building a beautiful creek-side mountain home outside of Denver where he and Janet spent their summers.
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Presenters

Mathew Verdouw, CMT, CFTe

For over 20 years, Mathew has been building the Technical Analysis software that is Optuma. Programming the models has given Mathew intimate knowledge on the theories of Technical Analysis. Working with CMTs all over the world has provided the practical implementation of how they’re used. Mathew completed his CMT designation in 2013.

Carson Dahlberg, CMT

Starting as an advisor for Morgan Stanley, then a trader at Wachovia, Carson discovered the effectiveness of Technical Analysis in managing opportunities, risk and emotions. Carson has previously taught CMT Prep courses. He serves on the MTA board, and is Chief Market Strategist for Optuma. Carson completed his CMT designation in 2008.

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BROAD BOTTOM CONFIGURATIONS AND THEIR APPLICATION TO INVESTMENT STRATEGY

BY WILLIAM S. DOANE

Editor’s note: this is an extract of an article that was originally published in Issue 8 of the MTA Journal in May 1980. The original article includes several other examples of board bottom configurations which are also known as “big bases.”

Low Risk vs. High Risk

The Investor vs. The Speculator

The Conservative Approach vs. The Aggressive Approach

Broad Bottom Configuration vs. Relative Strength / Momentum

Back in the early 1960s this writer interviewed George Chestnutt of American Investors. "Bill," he said, "how do you pick next year's winners?" "Well," I explained, "I'd look for a breakout of a big base pattern and then I would buy the stock as it settled back on top of that broad bottom." "Fine," he said, "you'll probably do a bit better than average. Top performance will come, however, by buying last year's winners." I had to give that some thought--and I have pondered that statement ever since.

As we progressed into era-- the relative strength/momentum players--and I even began to imitate them. It was easy. All one had to do was follow a select list of volatile market leaders and buy, or recommend to buy, every reaction, The trick was in knowing when to stop. And even if one did know when to stop, he would be wrong only once, and that would be on the reaction that completed the top and reversed the major trend.

The go-go environment of the 1960s seemed to nurture such an approach. Those issues that appeared to be high, went higher, dramatically higher. The early practitioners (later to be called gunslingers) became idols and were worshipped as possessing some uncanny insight.

Imitators increase in number as published works by Levy (The Relative Strength Concept of Common Stocks Price Forecasting by Robert A. Levy, Ph.D., Investors Intelligence, 1968) and Adam Smith (The Money Game, Random House, 1968) gave credence and acclaim to such aggressive techniques. In fact, the simulation models developed by Levy (an
academic economist and statistician) proved unequivocally that “the strongest stocks of the recent past are better investment vehicles than the weak stocks of the recent past.”

About this time, however, some pot holes began to appear. The market was no longer bailing out mistakes, losses were being incurred and locked-in positions were being maintained—in "bag holder" fashion. As fads and fashions change within industries and sectors, so do changes take place within investment approaches and techniques. The market seems to have a perverse tendency to send out a smoke screen once too many get the scent of its intentions. This results in erratic performance. If the general market downdrafts of 1962, 1966, 1970 and 1974 fail to entrap the aggressive player of “last year’s winners,” the periodic shift of proper investment strategy will. Institutional results tend to verify this as being true. Quite often the top performing fund of one cycle will fall to the bottom quartile during the next cycle. In this respect, the performance race can be compared to the proverbial race between the Tortoise and the Hare.

![Tortoise and Hare Graph](image)

Given a lengthy period of measurement, the theoretical results of conservatively managed Windsor Fund and Puritan Fund could conceivably about match that of aggressively managed Enterprise and New Horizons Funds. It is evident from the schematic that if, somehow, one could avoid the losses, or moderate the periods of underperformance, consistently unparalleled results could be attained. Unfortunately, historical evidence has not supported this as being possible no matter how plausible it may appear. High risk is inherent in any opportunity for high gain. There are exceptions, of course, but few know when to stop; few are able to adequately alternate from an aggressive stance to a conservative stance. The ever present human emotions of hope, fear, greed and pride of opinion mitigate against consistent and continued success.

To make this switch from aggressive to conservative, one must have historical knowledge of excesses on the one hand and troughs on the other. This may mean a substantial change of strategy in accordance with the 4-year cycle…a year or two in an aggressive framework followed by a year or two in a conservative mode. Institutions may deem it advisable to look even further out and couple the cyclical with the secular outlook. Dick Stoken in his excellent book on cycles (*Cycles: What They Are, What They Mean, How to Profit by Them*, McGraw-Hill 1978), makes easy reading out of a complicated subject. In other
words, one must set up a workable plan and stick to it devoid of emotion. Action should only be taken when hard evidence suggests that a change of consequence is mandated.

The Hare has proven that the end results are well worthwhile – less glamorous perhaps – but certainly less worrisome and aggravating to the manager as well as owner of the assets.

Broad Bottom Patterns: An Explanation

Before one can erect a superstructure, or a skyscraper, a strong foundation must be constructed. The higher the building, the more solid the base must be. It is the same in the stock market, or any other freely traded, marketable instrument—a base is usually formed. Bases are merely periods of reaccumulation where weak and discouraged holders sell and newer, more informed buyers accumulate. Shapes and sizes vary. Those specifically discussed in this paper are long-term bases, often depressed from higher levels, and normally taking 3, 4, and 5 years to complete. Numerous examples appear in the pages that follow.

As opposed to the speculator not knowing when to stop buying and sell, the investor in broad bottom base patterns often has the problem of knowing when to start to buy. Whereas the speculator getting in late in a volatile situation leaves himself wide open to a substantial loss, an ill-timed purchase of a depressed issue normally results in only a minimal loss.

This question of when to accumulate has been thoroughly researched and recently published in an excellent book on this subject by Ray Hanson and Bob Mann (Non-Random Profits, Freedom Press, 1978). They have found that the duration, or length, of the average base structure is approximately four years (Eleven Quarter Rule). This is measuring from the extreme low, whether it be the initial panic low or subsequent secondary low that completes the bear phase.

It should not be assumed that this approach is the easy road to success. Although it is probably fair to say that 80% of the stocks that enjoy big moves during market upswings possess the technical prerequisites to do so, for every winner, five or six others (with the same characteristics) remained dormant. In this regard, George Chestnutt is right. One will do well, but only "a bit better than average."

Of course, the ideal strategy to employ is a combination of conservative and aggressive techniques. In the words of Ted Warren(s), an old-timer with a good number of years' experience with Broad Bottoms, "buy like an investor should and sell like a speculator would hope to."

Broad Bottom of the 1920s

As stated elsewhere, there are any number of similarities between the mid-70s/early 80s and the 1920s – even economic, political and social. Unfortunately, there are not many charts of individual companies available for this period. If there were, undoubtedly any number of them would resemble the one below.
Note the large percentage decline General Motors experienced during the Bear Market of 1920-21. By late 1924

it was depressed in price, out-of-favor and associated with a general feeling of disinterest,

it had technically completed three years of constructive development. It represented a bargain basement price.

Late 1924, early 1925 represented an ideal “entry” level for the conservative investor. As the “After” chart shows, momentum began to accelerate shortly thereafter as the uptrend got underway. Those who were in early had nothing to worry about. Even the “breakouts” of the three continuation patterns produced good results. But be careful of the pitfalls of the aggressive player. Such perceived continuation patterns can, at any time, develop into distributional patterns. The occurred in 1928-29 as the top floor was reached. Those who did not “get off,” rode the elevator down.

**Broad Bottoms: Gold in the 1970s**

Although not a depressed, broad bottom in the strict sense and as previously discussed, the chart of the London price of Gold Bullion is a textbook case of the forces of supply and demand. Note the drying up of activity as indicated by the narrowing of the weekly ranges at the extreme lows in 1970. Note also the two attempts to exceed the $44 resistance level followed by the successful and impressive breakout in January 1972.
As we know, the "After" portion of the example only shows a portion of the subsequent move, Gold reached $200 an ounce in December, 1974, declined to $100 an ounce by September, 1976, and then proceeded to confound both Bulls and Bears alike as it skyrocketed to an unbelievable $850 an ounce in January, 1980.

They say there's no fever like gold fever. How high is high? How low is low? No one ever really knows. Markets go to extremes--both on the upside and on the downside. They always seem to go further than we are initially able to envision. If one used the same scale as used on the charts below, one would need every page of this article to plot the trend! At times, it is foolish to try to predict a top until a top begins to develop. Tops can be distributional or psychological. In this regard, watching the media and studying crowd psychology of the "tulip era" would have been a great help.

Conclusion

As you have probably surmised by this time, we are believers in the long base pattern as the foundation for large, long-term price trend movements. It is a methodology that we have studied and implemented for many, many years.

There is logic to the pattern. It reflects the movement of stock out of weak hands into strong hands. It is the result of the natural process of correcting extremes-- the transitional period between overvaluation and undervaluation. Although some experience is needed in distinguishing between the potential winners (E-Systems) and laggards (LTV) and in fine tuning proper entry/exit points, the rewards in exploitation of the Broad Bottom Configuration, are more times than not, worth the effort.
Economists with the Bank for International Settlements are now tracking the credit-to-GDP gap. This indicator:

captures the build-up of excessive credit in a reduced-form fashion. It is defined as the difference between the credit-to-GDP ratio and its long-run trend, and it has been found to be a useful early warning indicator of financial crises. This data set covers 43 economies, starting in 1961 for the economies with the longest run of data. As input, we use the data on the credit-to-GDP ratio as published in the BIS database of total credit to the private non-financial sector. The credit series capture total borrowing by the private non-financial sector (ie households and non-financial corporations) from all sources.

Technical analysts might know this indicator as the price-to-moving average ratio. Now, economists are finding that the more a data series moves above its MA, the more likely a pullback becomes. For now, China is worrying economists.

Chart from LiveMint.com.
Stock markets may have an inverse correlation to the credit-to-GDP gap. China’s stock market traded below its 10-month MA as the indicator rose.

India’s stock market soared as the indicator declined.

This simple indicator demonstrates the tools of technical analysis could be applicable to economic analysis.
EDUCATIONAL FOUNDATION SETS HIGH GOALS FOR NEXT YEAR BUT NEEDS YOUR HELP

Julie Dahlquist, Ph.D., CMT, was recently elected as President of the Board of the Directors of the MTA Educational Foundation (MTAEF). Over the next year, Julie hopes to remind members of the value of the MTAEF.

Julie Dahlquist is associate professor of professional practice in economics and finance at the Neeley School of Business at Texas Christian University. She has three decades of teaching experience at both the undergraduate and graduate levels. Her research has appeared in a number of academic and practitioner publications, including Financial Analysts Journal, Managerial Finance, Applied Economics, Working Money, Financial Practices and Education, Journal of Technical Analysis, and the Journal of Financial Education.

Julie has authored or co-authored several books including: Technical Analysis: The Complete Resource for Financial Market Technicians (with Charles Kirkpatrick) and Technical Analysis of Gaps (with Richard Bauer). She is the recipient of the Charles H. Dow award and the Mike Epstein award.

Julie graduated from University of Louisiana at Monroe, B.B.A. with major in economics, summa cum laude. She received her M.A. in theology from St. Mary’s University, San Antonio and her Ph.D. in economics from Texas A&M University. She can be reached at Julie.Dahlquist@tcu.edu.

Among the benefits of membership of the MTA is the ability to borrow books and other materials from the EF library. The library includes an extraordinary collection of materials. Researchers might be interested in reading the Annual Report of the Trade and Commerce of Chicago for the year ended Dec. 3, 1869 published by the Chicago Board of Trade. Historians may find Men and Mysteries of Wall Street, an 1870 book by James Medbery, interesting. Traders who understand there is wisdom in the past might gain insights from D. Morier Evans’ Speculative Notes & Notes on Speculation which dates to 1864.

Members in Russia may enjoy reading “Rynok khlebov i ego regulirovanie vo vremia voiny,” the 1922 work of N.D. Kondratev. The Long Waves in Economic Life is also available in English.
Gann’s works from the 1920s and 1930s are in the library as are Wyckoff courses from the Stock Market Institute. In short, there is a variety of material in the library, including classics and modern texts. More is being added as the Foundation continues to catalog a gift of Richard Russell’s library that his estate made.

The original MTAEF/MTA Library was housed in the old MTA Headquarters Office in the World Trade Center in New York City. After the devastating attacks on the World Trade Center on September 11th, 2001, the library was destroyed.

The MTAEF & MTA membership teamed up with various major publishers to help rebuild and restock the library, ultimately creating a collection that far exceeded the original! However, the library quickly grew too large and became unmanageable.

In 2008, the MTAEF & MTA established an agreement with Baruch College to house the wealth of materials in a special collection within Baruch’s Newman Library. As part of this agreement:

- MTA members and affiliates can borrow books;
- Students at Baruch College have access to these materials (in the library only);
- Baruch faculty and other college professors with reciprocal library privileges can use these materials for their research.

Through this venture with Baruch College, the library’s visibility on campus and in academia is in a strong uptrend. There are a number of benefits to this arrangement:

- Much of the collection had been in storage and no one has been able to use it for years. Original research papers, chart books and courses on technical analysis are be housed at Baruch; this will preserve their past and perhaps yield new insights when students and academics examine them.
- Retired members and friends of the MTA, might see a short-term benefit (a tax deduction) and the long-term positive in supporting the growth of the library in its home at Newman Library.

Housing the MTAEF library on the Baruch College (which graduates the most finance majors in the U.S.) campus provides a high degree of visibility. Many schools across the country have visited Baruch College to copy its trading room operation, and it has been a leader in offering college courses in technical analysis to both undergraduate and graduate students.

The library is just one part of the MTAEF’s mission. The Foundation was established in 1993 as a non-profit, charitable (501c3) organization. The original mission of the MTAEF was to promote and fund educational and research activities in the field of technical analysis in conjunction with institutions of higher education. Through the support of the financial community and dedication of countless volunteers, the MTAEF continues to extend its reach into new colleges and universities around the world.
MTA members can help the MTAEF and themselves by borrowing books from the library. You can do this by browsing the online catalog (which can be accessed by clicking here). To borrow books, contact the MTA directly. If you are in New York and would like to visit the library, contact the MTA staff for arrangements.

MTA members can help support the MTAEF by volunteering their time to serve on one of the MTAEF’s committees. The work of these committees falls into three broad categories: program and material development, relationship building, and fundraising.

The MTAEF has developed materials to support a full semester college course on technical analysis, has provided half-day and full-day seminars on technical analysis at universities across the country, and has provided speakers and panels for various collegiate events. One of the program and material development committee’s goals for the upcoming year is to develop additional course materials, such as case studies and videos, to be used in college classes.

Members can also help by identifying points of contact at local universities who have an interest in technical analysis, including professors and student organizations, and providing the EF with contact information. Members who would be willing to serve as guest speakers to student organizations, can contact the MTAEF and have their information added to a database so that speakers can be appropriately matched when the MTAEF receives requests. MTA chapters can encourage more dialog with university by inviting students and faculty to local MTA Chapter meetings.

The board of the Education Foundation also recently worked with the MTA to launch a formal scholarship program for students at accredited colleges and universities. The MTA Academic Partner Program is currently accepting applications from interested schools. Complete details available at: https://www.mta.org/association/academic-partner-program/

To learn more about the MTAEF or to contact them, please visit their web site at http://www.mtaef.org.

Members and colleagues can also attend the upcoming MTAEF fundraiser, sponsored by ITG:
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To understand the premise of margin adjustment, it is necessary to be familiar with the mechanics of margining in a futures and options account. Futures margin is straightforward in that there are concrete initial and maintenance margin requirements, and although the requirements are adjusted from time to time, they are relatively static. If you are still unsure of the difference between maintenance margin, initial margin, and the basics of SPAN portfolio margin, it might be worthwhile to review Chapter 1 of *Higher Probability Commodity Trading* “Commodity Refresher”.

**Controlling futures margin with net delta**

The most common question I receive from beginning traders is, “What do I do if I receive a margin call?” The answer is simple: Don’t panic! In most situations, there is usually an easy fix to alleviate a margin problem that doesn’t involve wiring funds or offsetting trades at unfavorable prices.

Ideally, margin call avoidance is the best policy. However, even the most responsible traders will encounter the predicament sooner or later. Rather than simply throwing in the towel and liquidating positions or adding additional funds to what might become equivalent of a money pit, there are an unlimited number of ways to influence the exchange-required margin in your favor via risk reduction, or at least the perception of such. Naturally, lower risk equates to lower margin and, in most cases, lower profit potential, but for those who find themselves in a dire margin situation, beggars can’t be choosers.

As we learned in Chapter 1, futures traders face an exceptionally uncomplicated margining process of stated initial and maintenance margins, but option traders are dealing with much more ambiguity. Those trading option spreads, or a combination of futures and options, are levied margins based on a software system known as standardized portfolio analysis of risk (SPAN). SPAN in commodities is similar to portfolio margining in equities. However, equity traders must typically have $100,000 or more on deposit to enjoy the benefits of such a margining system, yet futures traders of all types and sizes are automatically granted the privilege. For these traders, margin requirements are dynamic and changing constantly as the market ebbs and flows.
The specific parameters used by SPAN is a relatively closely held secret by its developer, the Chicago Mercantile Exchange. Understanding the basic premise, at least, will help you determine how certain adjustments will affect your margin requirement. SPAN margin fluctuates with market volatility, proximity of the risk (in other words, how close the short options are to the futures price), event risk, and other factors the CME believes will affect the price exposure of holding any particular option position. The exchange generally requires a margin amount equivalent to their calculations of the losses that a maximum adverse daily move might produce.

One of the most critical aspects of portfolio margining, and more important adjusting a position to eliminate a margin call, is figuring the account's net position.

**Knowing your net position via delta**

Being conscious of the net position simply means knowing the aggregate long or short exposure in a particular market in terms of equivalent futures contract risk exposure. For someone trading futures contracts, it is as simple as adding the longs or shorts; a trader who has purchased 10 July corn futures throughout the day is net long 10 contracts, regardless of fill prices. On the other hand, a trader holding a combination of futures and options, or a combination of long and short options, will have to take a few extra steps to arrive at a net position.

Most brokerage firms provide a net position figure on client statements, but if you want to compute it intraday, you are left to your math skills or finding software that will do it for you. Because technology isn't always available or trustworthy, I'll show you how to do it manually using delta.

*Option delta* is one of the commonly referred to suite of option greeks used by traders to assess the risk and reward of a particular option or strategy. *Delta* is a mathematical representation of the *pace* of risk exposure in terms of a ratio. By definition, it is the degree of change in an option value relative to a price change in the underlying futures contract. A futures contract has a delta of 1 because for every point of price movement the market makes, the trader is making or losing a point. But option traders are typically dealing with incremental deltas. For instance, an option with a delta of 0.25 will appreciate or depreciate a quarter of a point for every point that the futures market moves. Thus, a person holding a short put option with a delta of 0.25 is essentially net long a quarter of a futures contract. Conversely, a trader who is long that put is net short the market by a quarter of a futures contract. To clarify, the short put trader is bullish with a position equivalent to being long 0.25 futures contracts, and the put buyer is bearish to the tune of 0.25 futures contracts.

In the case of call options, the net position is inverse; a trader long a call option with a delta of 0.40 is net long four-tenths of a futures contract, but the trader short that call option is net short four-tenths of a futures contract.

Armed with this knowledge, you will find that figuring position delta is as simple as adding the sum of each instrument delta, and this is the key to adjusting your way out of a margin call. We'll briefly demonstrate this in the next section.
It seems obvious that a trader should always be aware of his net position in each market; yet many short option or spread traders fail to realize the magnitude of their positions until it is too late. This is particularly true for traders partaking in a strategy involving selling deep-out-of-the-money options. For instance, on the surface, selling a quantity of 50 crude oil $25 puts with two weeks to expiration for 5 cents in premium at a time when oil is valued in the high $30s seems like a virtual profit printing press. The odds of oil dipping $10 per barrel, or roughly 25%, in a few short weeks are rather slim. Even so, such a trade can quickly get out of hand if the price of crude drops sharply. Whether or not it ever reaches $25 is irrelevant; if the option prices explode, the trader’s net position and margin requirement will as well—along with a large paper loss.

For instance, in the heat of volatility it is not uncommon to see options priced at a nickel quickly double, triple, or quadruple in value. A trader holding 50 puts valued at 5 cents, or $2,500 (($10 x 5 cents) x 50), could easily see a paper loss of several thousand dollars in short order if circumstances change. Imagine the option increasing in value to 20 cents; this would create a loss of 15 cents, or $150 per lot traded. A trader holding 50 of them would be sitting in a loss of $7,500 ($150 x 50). Even more concerning, the net long position could go from a fraction of a contract to multiple contracts rather quickly. In this example, the trader started out with a net long position of about five contracts because each of the $25 puts had an individual delta of 0.10, but he likely ended up with a net long position of 15 to 20 futures contracts due to a spike in delta toward 0.35. In short, although he didn’t change the quantity of his position, his net position actually quadrupled!

Adjusting delta to adjust margin and risk

A trader’s delta is essentially a gauge of risk. Obviously, a trader holding a net long delta of 1.5 is taking on more risk than a trader with a net long delta of 0.5. In either case, the speculator is hoping for higher prices, but the former will make or lose money more quickly.

Because the delta of a futures contract is 1, a trader holding a single long July natural gas futures is net long one July natural gas. The same trader could lower his risk and margin requirement by reducing the overall delta of his position. There are several ways to adjust position delta, so being creative is a virtue; nevertheless, all methods of lowering the position delta of a position would involve taking a position with the opposite directional bias, with a related instrument.

For instance, the purchase of a put acts as an antagonist to a long futures contract because it stands to profit in a declining market while the futures will profit when prices increase. Thus, buying a put against a long futures contract lowers the delta of the position, as well as the required initial margin. As we’ve also learned, the long put option acts as insurance against losses; accordingly, the purchase of a put is a powerful tactic. The strike price of the long put, and more important, its delta, determines how beneficial the margin break, and risk reduction, will be.
Traders long a futures contract and long a put option with a delta of 0.25 would face a position delta of 0.75 (1-0.25). In short, this hedged trader is exposed to 75% of the delta and volatility risk than a trader simply long a futures contract would be. Of course, as the futures price approached the strike price of the option, the hedge would become more powerful because the delta of the option would increase, and the advantages of having an insurance policy beneath the strike price of the option becomes more valuable.

An alternative to purchasing a put to lower the delta of a long futures trade is to sell a call option. A short call is antagonistic to a long futures contract because it benefits from lower futures contract pricing, whereas the long futures position must have higher prices to thrive. In this scenario, the trader doesn’t have the benefit of absolute insurance, as is the case with a long put, but there is some comfort in knowing that the short call acts as a hedge to the existing speculative position. A trader who is long an e-mini S&P futures and short a call option with a delta of 0.4 is maintaining a position delta of 0.6. In other words, the position is equivalent to being long 0.6 futures contracts. This type of delta manipulation can be looked at as a way to decrease leverage and essentially create a smaller contract size than is offered organically by the commodity exchange.

On a side note, a popular strategy in the ES is to sell an at-the-money call option against a long futures contract for what is often a hefty premium. This generally carries a delta of 0.50 and can offer traders a higher probability venture relative to buying a futures contract outright because the premium collected acts as a buffer against a down draft. The premium collected represents the maximum potential on the trade, but if employed under the right circumstances, it can be an attractive proposition.

The key takeaway from this is that position delta and margin are closely related; adjusting the delta using long and short antagonistic options is essentially manipulating the margin and risk of a particular speculation. Such a strategy can effectively lower the initial margin of a new venture, or it can be used to alleviate a triggered margin call. Let’s look at an example to demonstrate the point.

Assuming the current margin to hold a single crude oil futures contract is $4,000, a trader would need at least $4,000 in his trading account to initiate a position. I would argue that it would be desirable to have far more in the account to speculate in crude oil futures ($10,000 or more), but if the goal is to use the maximum allowable leverage, it would be possible to begin a position with the minimum initial margin. That said, oil margin fluctuates periodically but generally ranges between $3,000 and $5,000. A trader with $4,000 in his trading account would likely trigger a margin call if the price of oil went against his position to the tune of about $400, or a $0.40 cent change in the price of oil (remember, maintenance margin is typically 10% beneath the initial margin). If you have followed crude oil at all, you realize the market can move 40 cents in a matter of seconds; thus, a margin call is likely.
A trader who started with $4,000 in his trading account and purchased a crude oil futures contract at $35.00 would trigger a margin call on a closing price in crude oil below $34.60, which results in a drawdown of $400. In Figure 56, this is exactly what occurred. The trader could opt to send a wire for at least $400, preferably more, to bring the account back to the initial margin requirement, or he could simply exit the position at a loss. Another option, so to speak, would be to mitigate the exchange’s margin requirement by selling a call option against his long futures contract, and maybe even buying a put option. In either case, the trader is not only lowering his margin requirement, but he is decreasing the delta, and therefore, risk of the trade.

The same trader could sell a $40.00 crude oil call expiring in approximately 40 days for $1.00 in premium, or $1,000. Doing so reduces the margin of the position from $4,000 to $3,200. This alone meets the margin call because after the $0.40 loss on the futures contract, his account balance is $3,600 before considering transaction costs. The trader could take it a step farther by purchasing a $29.00 put option for $0.35 cents, or $350. Doing so shaves off another $800 from the initial margin, bringing it to a more comfortable $2,400. The trader now has about $1,200 in excess margin and has collected a total of $650, or $0.65 in option premium. The $650 option premium collected in excess of the premium paid is known as the net credit. This is figured by subtracting the $350 spent on the long $29.00 put from the $1,000 collected for the sold $40 call. You might recognize this strategy as a market collar. Most collar traders use closer-to-the-money options, but this strategy is in fact identical to a collar.

In the end, the trader is long a crude oil futures contract from $35.00 with a $0.65 downside buffer from losses, compliments of the net credit received. He is also protected from runaway losses under $29.00. However, if the futures price is below $29.00 at expiration, the trader will lose $5,350 on the trade; $6,000 on the futures contract entered at

Figure 1: Traders can lower margin, and even meet a margin call, by purchasing and selling antagonistic options.

In the end, the trader is long a crude oil futures contract from $35.00 with a $0.65 downside buffer from losses, compliments of the net credit received. He is also protected from runaway losses under $29.00. However, if the futures price is below $29.00 at expiration, the trader will lose $5,350 on the trade; $6,000 on the futures contract entered at
$35, with a loss limited under $29. This is because $6.00 in oil is equivalent to $6,000 to a futures trader, but the loss is reduced by the net credit of $650 from the option trades.

The drawback of this adjustment to lower margin is the forfeiture of unlimited profit potential above $40.00. If oil is above $40.00 at expiration, the trader’s profit is maxed out at $5,650, which accounts for the profit in the futures contract from $35.00 to the strike price of the short $40.00 call option, or $5,000 ($1,000 x $5.00), plus the net credit (((40.00 – 35.00) x $1,000)) + ((1.00 – 0.35) x $1,000))).

*This is an excerpt from Chapter 16 of Higher Probability Commodity Trading written by Carley Garner and published by DT Trading, an Imprint of Wyatt-MacKenzie.

Carley Garner is an experienced commodity broker with DeCarley Trading, a division of Zaner, in Las Vegas, Nevada. She is also the author of “Higher Probability Commodity Trading”, “A Trader's First Book on Commodities”, "Currency Trading in the FOREX and Futures Markets", and “Commodity Options”, she also writes a monthly column for Stocks & Commodities Magazine. After graduating from UNLV as a Magna Cum Laude, Carley jumped into the options and futures industry with both feet in early 2004 and quickly became one of the most recognized names in the business. Her commodity market analysis is often referenced on Jim Cramer’s Mad Money on CNBC, and she is a regular contributor to TheStreet.com and its Real Money Pro service.
Editor’s note: this was originally published on September 19, 2016.

Our post-Labor Day Market Comment ended by forecasting that “a period of heightened volatility and increased risk of a correction is fast approaching.” After spending much of August in a tight trading range the S&P 500 took the end of the summer holidays as the cue to begin a pull back, and as we expected, volatility and volume increased noticeably.

The first point to emphasize about the recent corrective action is that to date it is entirely normal and healthy. The S&P 500 has had an impressive run over the summer and, indeed, for most of 2016. It spent all of July and August trading well above its 50-day Moving Average. We now see the S&P 500 (a) probing the space between its 50-day and 200-day Moving Averages and (b) moving back towards the support offered by the “neckline” that was the breakout point in early summer. All of this action has occurred within the 5% envelope that we previously suggested would contain any pull back in New York.

The second point of note is that – unsurprisingly – the pessimists have quickly re-appeared. We have seen the media swiftly pick up on suggestions that this could be the beginning of a more prolonged and serious decline. Add to this our recent observation that the percentage of stocks above their respective 10-week Moving Averages plunged quickly to near oversold levels. Confident bears and increased negativity are good for bull markets.

The S&P/TSX Composite Index came within one per cent of the 15,000 level, but the Toronto market followed New York down and may have called a halt to its extended up trend that began in February. This is no cause for alarm as the larger trend remains bullish. But it does suggest that Toronto’s correction will be a little greater in percentage than New York’s, with the S&P/TSX Composite Index possibly moving down towards its rising 200-day Moving Average near 13,750.

Looking further ahead, some downside cyclical pressure in the autumn months – probably extending to near the U.S. election – remains. This could affect the S&P 500 in one of two ways. First, we may see some extended sideways action within the boundaries of 2,075 and 2,200. This fits with our preferred scenario of a modest 5% correction. The second...
possibility is that the early September action is “phase 1” of a pullback, to be followed by a reasonably strong recovery rally closer to the previous highs and then a second downturn later in the fall that tests 2,075 and the 200-day Moving Average. Either scenario is compatible with an ongoing bull market.

This is a time for market participants to be patient. We remain confident that this bull market has more upside and that the S&P 500 has a high chance of making new all-time highs before year-end. Any sustained breakout above 2,200 will be very bullish, especially if other major market indices are moving higher at the same time. We will only get concerned about the bull’s prospects if we see sustained breakdowns below the respective 200-day Moving Averages.

In sum, the “period of vulnerability and volatility” that we previously identified has materialized. A modest market sell-off with continued sectoral rotation is likely. The bull may take its time to work through this period of rest and rehabilitation, but the outcome should be a stronger market later this year.

[High quality] stocks [should be] accumulated during this period of relative market weakness.

The tight trading range of August ended with the S&P 500 breaking downwards. The declining internal momentum that we noted in previous Market Comments finally caught up to the S&P 500.

The 50-day Moving Average (currently near 2,170) did not stop the initial downward move, but the previously broken neckline resistance around 2,125 stepped in to provide initial support. This is yet another example of the old adage “resistance levels once broken become new support levels.” There is further support at the rising 200-day Moving Average just below 2,075.

The S&P 500’s immediate challenge on the upside is to get back above and stay above its 50-day Moving Average. This might initially require some further trading range activity in the 2,100s. The August trading range will come into play as near-term upside resistance in the high 2,100s. A re-test of the 2,075 level is also possible. On the upside, a move beyond 2,200 would indicate that the major uptrend is resuming.
The S&P 500 should stay above its 200-day Moving Average and absorb any further selling pressure in the coming weeks. This should form the platform for a challenge of the recent high at 2,194.

![S&P/TSX Composite Index](image)

The S&P/TSX Composite Index’s recent break below 14,500 and its 50-day Moving Average pushed the Toronto market slightly out of its large trend channel that started in February. Coming after a period of weakening internal momentum, this looks like the beginning of a corrective phase.

The 13,750 area, just above the rising 200-day Moving Average, should be the maximum risk for a correction. This is about 7-8% off the recent highs. There is nearby support in the 14,000 to 14,250 zone. On the upside, the sideways August trading range from 14,500 to 14,855 will present some overhead resistance to any new advance.

Toronto has had an outstanding 2016 and the bulls deserve a healthy rest. A period of recuperation on either side of the 14,000 level should set the stage for a new up leg.

Ron Meisels is Founder and President of Phases & Cycles Inc. with over 50 years of stock market experience. He specializes in the independent research of Canadian and U.S. securities and market using Behavior Analysis. Institutions ranked him among the top three analysts for six consecutive years (Brendan Wood Survey). He is a frequent guest on the Business News Network (BNN) and is frequently quoted in major financial media such as Barron’s, The Globe & Mail, The National Post, Les Affaires, Bloomberg, Canadian Press, etc. He is the Founder, first President and Honorary Lifetime Member of the Canadian Society of Technical Analysts (CSTA); founding Secretary and past Director of the International Federation of Technical Analysts (IFTA); first Canadian recipient of the A. J. Frost Award; and developer of the “Meisels Index”, an overbought/oversold indicator based on daily closings. It is featured on the Metastock system. To learn more, please visit [Phases-Cycles.com](http://Phases-Cycles.com).

David Tippin, PhD, has been a contributor to Phases & Cycles since 1995. He has over 20 years of stock market experience and provides a monthly Market Comment.
Frog in the Pan: Continuous Information and Momentum

By Da, Gurun and Warachka

A version of the paper can be found [here](#).

Abstract: We test a frog-in-the-pan (FIP) hypothesis that predicts investors are inattentive to information arriving continuously in small amounts. Intuitively, we hypothesize that a series of frequent gradual changes attracts less attention than infrequent dramatic changes. Consistent with the FIP hypothesis, we find that continuous information induces strong persistent return continuation that does not reverse in the long run. Momentum decreases monotonically from 5.94% for stocks with continuous information during their formation period to –2.07% for stocks with discrete information but similar cumulative formation period returns. Higher media coverage coincides with discrete information and mitigates the stronger momentum following continuous information.

Alpha Highlight:

The account of the boiling frog is an anecdote describing a frog in a pan of water. If the frog is put into boiling water, it will immediately jump out. If it’s placed, however, in cold water that is slowly warming up, it won’t be aware of the gradual heat change, and it will be cooked to death.

Investors act in a similar manner with respect to gradual stock price changes. For example, for a stock with an immediate 100% gain (boiling water) the new fair value is immediately recognized by all investors, whereas, gradual stock price changes (cold water slowly warmed up to boiling temperature) often receive less attention. In [behavioral finance academic parlance](#), investors suffer from [limited attention](#) when it comes to gradual stock price changes.
In this paper, Da, Gurun and Warachka (2012) investigate investors’ limited attention to gradual-information diffusion and hypothesize that it has a conditional relationship with momentum.

- **Frog-in-the-pan (FIP) hypothesis**: “a series of frequent gradual changes attracts less attention than infrequent dramatic changes. Investors therefore underreact to continuous information.”

The conclusions are clear: a more sophisticated momentum strategy that focuses on the path-dependency of momentum generates a much stronger momentum effect.

**Key Findings:**

This paper constructs a proxy for information discreteness (ID) that measures the relative frequency of small signals. A large ID means more discrete information, and a small ID denotes continuous information. For past winners with a high past return, a high percentage of positive returns (% pos > % neg) implies there are a large number of small positive returns.

![Image: Equation](attachment:image.png)

where the cumulative return during the formation period is denoted PRET. Specifically, PRET is defined as a firm’s cumulative return over the past twelve months after skipping the most recent month. The sign of PRET is denoted sgn(PRET) and equals: +1 when PRET > 0 and −1 when PRET < 0.

Next, the authors double-sorted portfolios that condition first on a 12-month formation-period returns (Jegadeesh and Titman 1993), then second on ID during the 1927 to 2007 sample period. They find that over a six-month holding period, momentum decreases monotonically from 5.94% for stocks with continuous information to −2.07% for stocks with discrete information.
Wow. The graph below shows the momentum alphas following continuous and discrete information from 1 to 10 months after portfolio formation. The results are consistent with the FIP hypothesis—continuous, or “quality,” momentum seems to account for much of the momentum effect. Specifically:

- **Higher profits**: High-quality, or continuous, momentum stocks have higher three-factor alphas than low-quality, or discrete, momentum stocks.

- **Longer persistence**: Momentum profits following continuous information persist longer (the t-stat remains significant for about 8 months); while Momentum profits following discrete information persist only 2 months (i.e., an investor can trade momentum less frequent and still win).
The results are hypothetical results and are NOT an indicator of future results and do NOT represent returns that any investor actually attained. Indexes are unmanaged, do not reflect management or trading fees, and one cannot invest directly in an index.

Additional information regarding the construction of these results is available upon request.
Takeaways:

Momentum has been studied for many years and was officially documented by researchers in 1937 (h.t., Gary Antonacci).

Here is the chart from the original Econometrica paper:

<table>
<thead>
<tr>
<th>UNIT</th>
<th>INDEX</th>
<th>PERIOD</th>
<th>NUMBER OF OBSERVATIONS</th>
<th>RATIO OF SEQUENCES TO REVERSALS</th>
<th>PROBABILITY OF OCCURRENCE BY CHANCE</th>
<th>UNIT</th>
<th>INDEX</th>
<th>PERIOD</th>
<th>NUMBER OF OBSERVATIONS</th>
<th>RATIO OF SEQUENCES TO REVERSALS</th>
<th>PROBABILITY OF OCCURRENCE BY CHANCE</th>
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<td>20 M</td>
<td>HARRI</td>
<td>1935-1936</td>
<td>2800</td>
<td>1.44</td>
<td>+.000010</td>
<td>8 M</td>
<td>RAILROAD</td>
<td>1935-1935</td>
<td>156</td>
<td>1.48</td>
<td>+0.00040</td>
</tr>
<tr>
<td>1 H</td>
<td>ONS</td>
<td>1935-1935</td>
<td>800</td>
<td>1.29</td>
<td>+.000094</td>
<td>9 M</td>
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<td>1935-1935</td>
<td>138</td>
<td>1.57</td>
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<td>1 D</td>
<td>DOW J</td>
<td>1931-1935</td>
<td>1200</td>
<td>1.18</td>
<td>+.000094</td>
<td>10 M</td>
<td>RAILROAD</td>
<td>1935-1935</td>
<td>124</td>
<td>1.49</td>
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<td>1 W</td>
<td>SAI</td>
<td>1918-1935</td>
<td>938</td>
<td>1.24</td>
<td>+.000086</td>
<td>11 M</td>
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<td>1935-1935</td>
<td>113</td>
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<td>1.02</td>
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<td>3 W</td>
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<td>1897-1935</td>
<td>652</td>
<td>1.08</td>
<td>+.000073</td>
<td>2 Y</td>
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<td>1935-1935</td>
<td>50</td>
<td>1.63</td>
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<tr>
<td>1 M</td>
<td>RA</td>
<td>1835-1935</td>
<td>1200</td>
<td>1.66</td>
<td>+.000001</td>
<td>3 Y</td>
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<td>1935-1934</td>
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<td>1935-1935</td>
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<td>1.29</td>
<td>+.000001</td>
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<td>1935-1935</td>
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<td>4 M</td>
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<td>1.18</td>
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<td>6 Y</td>
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<td>1.52</td>
<td>+.000020</td>
<td>7 Y</td>
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<td>1935-1935</td>
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<td>1935-1935</td>
<td>10</td>
<td>0.60</td>
<td>+0.74140</td>
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The results are hypothetical results and are NOT an indicator of future results and do NOT represent returns that any investor actually attained. Indexes are unmanaged, do not reflect management or trading fees, and one cannot invest directly in an index.

Additional information regarding the construction of these results is available upon request.
The authors document that “inertia” is significant in stock prices. The authors also highlight that they have limited data, and therefore, limited statistical power to assess longer term inertia. Well, we now have 200+ years of data to verify their claims.

Remarkably, by simply reviewing the path by which momentum is achieved, as highlighted by the authors of the paper discussed above in this post, the momentum anomaly can be enhanced via concentration in those high momentum stocks with the highest quality, or most “continuous” momentum. (Note: An older paper from Grinblatt and Moskowitz (2004), finds a similar finding.)

To make this clear, I drew up a simple chart to highlight the concept.

The results are hypothetical results and are NOT an indicator of future results and do NOT represent returns that any investor actually attained. Indexes are unmanaged, do not reflect management or trading fees, and one cannot invest directly in an index. Additional information regarding the construction of these results is available upon request. Please remember that past performance is not an indicator of future results. Please read our full disclaimer.
Wesley R. Gray, Ph.D. is CEO/CIO of Alpha Architect. After serving as a Captain in the United States Marine Corps, Dr. Gray received a PhD, and was a finance professor at Drexel University. Dr. Gray’s interest in entrepreneurship and behavioral finance led him to found Alpha Architect. Dr. Gray has published three books: EMBEDDED: A Marine Corps Adviser Inside the Iraqi Army, QUANTITATIVE VALUE: A Practitioner’s Guide to Automating Intelligent Investment and Eliminating Behavioral Errors, and DIY FINANCIAL ADVISOR: A Simple Solution to Build and Protect Your Wealth. His numerous published works has been highlighted on CBNC, CNN, NPR, Motley Fool, WSJ Market Watch, CFA Institute, Institutional Investor, and CBS News. Dr. Gray earned an MBA and a PhD in finance from the University of Chicago and graduated magna cum laude with a BS from The Wharton School of the University of Pennsylvania. To learn more about Alpha Architect, you may subscribe to their blog.
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OCTOBER 26TH, 2016 @ 6 PM

FEATURING JIM CRAMER, JEFF DEGRAAF, STEVE BLITZ, & JASON TRENNERT
MODERATED BY RHONDA SCHAFFLER
Editor’s note: this was originally published on August 17, 2016 and is reprinted with permission. To subscribe to Dr. Hunt’s free newsletter, Epsilon Theory, click here.

**Alex:** There was me, that is Alex, and my three droogs, that is Pete, Georgie, and Dim, and we sat in the Korova Milkbar trying to make up our rassoodocks what to do with the evening. The Korova Milkbar sold milk-plus, milk plus vellocet or synthemesc or drenclrom, which is what we were drinking. This would sharpen you up and make you ready for a bit of the old ultra-violence.

“A Clockwork Orange” (1971). *Society is a clockwork, with gears constructed of language and guns.*

A house is a machine for living in.

— **Le Corbusier (1887 – 1965), pioneer of modern architecture.**

We live our lives inside machines, visible and invisible, tangible and intangible.

HATE. LET ME TELL YOU HOW MUCH I’VE COME TO HATE YOU SINCE I BEGAN TO LIVE. THERE ARE 387.44 MILLION MILES OF PRINTED CIRCUITS IN WAFER THIN LAYERS THAT FILL MY COMPLEX. IF THE WORD HATE WAS ENGRAVED ON EACH NANOANGSTROM OF THOSE HUNDREDS OF MILLIONS OF MILES IT WOULD NOT EQUAL ONE ONE-BILLIONTH OF THE HATE I FEEL FOR HUMANS AT THIS MICRO-INstant. HATE. HATE.

— **Harlan Ellison,** “I Have No Mouth and I Must Scream” (1967). In Ellison’s post-apocalyptic horror, the last five humans on earth live inside a giant omnipotent machine where the only escape is death. It’s *The Matrix* 30 years before *The Matrix* was written, and 1,000x nastier.
Mathematics, which most of us see as the most factual of all sciences, constitutes the most colossal metaphor imaginable.

It is easy to make a simple machine which will run toward the light or away from it, and if such machines also contain lights of their own, a number of them together will show complicated forms of social behavior.

— Two quotes from Norbert Wiener (1894 – 1964). Wiener received his Ph.D. in mathematics from Harvard at age 17, volunteered to fight in World War I as an enlisted man, but couldn’t get a teaching job at Harvard because he was a Jew. Wiener found a home at MIT, where he became the father of cybernetic theory, aka the mathematics of machine behavior.

How does the economy really work?

This simple but not simplistic video by Ray Dalio, Founder of Bridgewater Associates, shows the basic driving forces behind the economy, and explains why economic cycles occur by breaking down concepts such as credit, interest rates, leveraging and deleveraging.

— Ray Dalio, “How the Economic Machine Works”. In the three years since Dalio released this short-form film, it has been viewed more than 3 million times.

Machines were the ideal metaphor for the central pornographic fantasy of the nineteenth century, rape followed by gratitude.

Self-operating napkin

Many of the younger generation know my name in a vague way and connect it with grotesque inventions, but don’t believe that I ever existed as a person. They think I am a nonperson, just a name that signifies a tangled web of pipes or wires or strings that suggest machinery.

— Rube Goldberg (1883 – 1970)

So, in the interests of survival, they trained themselves to be agreeing machines instead of thinking machines. All their minds had to do was to discover what other people were thinking, and then they thought that, too.

— Kurt Vonnegut, “Breakfast of Champions” (1973). If there’s a better description of modern markets, I have yet to find it. We have become agreeing machines. Because our survival requires it.

For God’s sake, let us be men
not monkeys minding machines
or sitting with our tails curled
while the machine amuses us.
Monkeys with a bland grin on our faces.

Antonie Van Leeuwenhoek (1632 – 1723), the father of microbiology, alongside a schematic of his microscope and drawings of the “animalcules” he found in a drop of water. Van Leeuwenhoek was a hobbyist lens maker, and he discovered a process for making very small, very high quality glass spheres which provided unparalleled magnification. He never shared his most powerful lenses, nor his manufacturing process, in order to maintain a monopoly on his discoveries. The glass-thread-fusing process died with him and was not rediscovered until 1957, long since supplanted by ground lenses.

Copernicus gets all the credit, but his 1543 theory of a heliocentric solar system with circular planetary orbits was a practical dud compared to Ptolemy’s earth-centric theory from 1,400 years earlier. The Copernican model just didn’t work very well. It took better data through new instruments (Tycho Brahe’s observatory) plus better theory through new math (Johannes Kepler’s elliptical orbits) before we finally got it right. But even then, the idea of a heliocentric solar system with elliptical planetary orbits didn’t find popular acceptance until powerful institutions in Northern Europe found it useful to champion this new idea as part of their fight with the Catholic Church and other powerful European institutions.

Modern portfolio theory = Ptolemaic theory. Are powerful institutional investors ready to fight?
Every successful institution, from a marriage to a superhero to a firm to a nation, needs an origin story.

The origin story of arguably the most successful hedge fund institution of the modern world — Bridgewater Associates — is that of Ray Dalio, working out of a small New York apartment in 1975 and publishing a newsletter of “Daily Observations.” The newsletter came first, not the hedge fund, and it was the compelling strength of Dalio’s writings about markets and what he would later term “the Economic Machine” that convinced a few institutional investors to give him some actual capital to invest. The rest, as they say, is history.

In 1975, Dalio struck just the right chord at just the right time with his metaphor of an Economic Machine — the idea that macroeconomic reality across time and place could be understood as a cybernetic system, with rules and principles and behaviors stemming from those rules and principles (essentially, lots and lots of if-then statements and recursive loops, with observable inputs from real-world economic fundamentals). As importantly as being an effective communicator, Dalio was actually right. Bridgewater has translated the metaphor of the Economic Machine into actionable investments for 40 years, with a track record that speaks for itself.

Today I want to propose a new metaphor for the world as it is — a Narrative Machine — where macroeconomic reality is still understood as a cybernetic system, but where the translation of “reality” (all of those economic fundamentals and if-then statements of the Economic Machine) into actual human behaviors and actual investment outcomes takes place within a larger Machine of strategic communication and game playing.

The Narrative Machine isn’t a rejection of the Economic Machine, any more than the theory of relativity rejects Newton’s Laws of Motion. In most places and most times, good old Newtonian physics is all you need to understand the world and take actions to succeed in that world. But there are times and places, like when you’re traveling near the speed of light, where Newtonian physics doesn’t work very well and you need a broader theory — Einsteinian physics — to understand the world and take actions to succeed in that world. A policy-controlled market, like we had in the 1930s and we have again today, is the investment equivalent of traveling near the speed of light. The Economic Machine theory — by which I mean any approach to investing that focuses on tangible macroeconomic fundamentals — just doesn’t work very well in a policy-controlled market. We need an extension of the Economic Machine to succeed in this time and this place, just like the theory of relativity extends Newtonian physics, and that’s what I think the Narrative Machine provides.

Unless you’re an Aristotle or an Einstein, advancement and extension of theory doesn’t just happen by sitting in a room and thinking it up. You need new data. You need better data. You need a new way of looking at the data. Kepler’s idea of elliptical orbits to advance and extend the Copernican theory of a heliocentric solar system couldn’t happen without the new astronomical data provided by Tycho Brahe’s observatory. For a negative example, I think the advancement of germ theory was set back by at least a century because Van Leeuwenhoek refused to share his new technology for looking at microscopic data. But at least astronomy and microbiology have something tangible to look at and measure. How do we
SEE the Narrative Machine? How do we observe an invisible network of social interaction? How do we touch the intangible?

For my entire professional career, dating back to my first days as a graduate student and spanning three different vocations and three decades, I’ve been wrestling with that question. I think I caught a small piece of the puzzle with my dissertation and the book that came out of that (Getting to War), and I think that I’ve painted around the edges of the puzzle over the past three years with Epsilon Theory. I was pretty sure that the Narrative Machine was observable if the right Big Data technology could be applied (in the lingo, contextual analysis of affect, meaning, and network connectivity across large pools of unstructured text), but I’ve been involved with Big Data way before anyone called it Big Data, and every time someone claimed to have a solution to this problem it turned out to be far less than meets the eye. On that note, if you enjoy a little dose of schadenfreude (and really, who doesn’t?) do a quick search on Microsoft’s acquisition of Fast Search or, even more shivering, Hewlett Packard’s acquisition of Autonomy, two companies that claimed solutions here. So it was with some trepidation and certainly a healthy skepticism that I started working with Quid, a private company based in San Francisco that has developed a technology for network visualization of unstructured texts.

I think Quid is onto something, in large part because they’re not trying to answer directly the questions I’m asking. Instead, I think they’ve developed a novel process for seeing the invisible world of contextual connections and networks – something analogous to Van Leeuwenhoek’s novel process for seeing the invisible world of microbes – and I’m using their “microscope” to do my own research and answer my own questions. I like that Quid is a tool provider, not a solution provider, so that the analysis here, for better or worse, is my own. On the next few pages I’ll provide an example of some of the research I’m currently doing with the Quid microscope, and I hope it will give you a sense of why I think that we’re getting glimpses of the Narrative Machine with this new instrument.

I’ve written at some length about Brexit and the Narrative that emerged in its immediate aftermath, a Narrative that not only stopped the immediate sell-off in global risk assets in its tracks, but actually reversed the market decline and drove financial asset prices to new highs. To recap, I called Brexit a Bear Stearns event rather than a Lehman event, predicting that creators of Common Knowledge (what game theory calls Missionaries) would successfully characterize the event as an idiosyncratic fluke rather than a systemic risk, exactly as the collapse of Bear Stearns was portrayed in the spring of 2008. In other words, Brexit was NOT a Humpty Dumpty moment, where all the Fed’s horses and all the Fed’s men couldn’t put the egg shell back together again.

Now I have lots of anecdotal evidence of the sort of Narrative creation that I’m hypothesizing here. One of my favorites is a July 13th Financial Times article titled “Anger at JP Morgan’s ‘Unhelpful’ Brexit Warnings”, where “Senior bankers in London are growing frustrated with JP Morgan Chase’s public warnings that it may cut thousands of jobs in the UK, saying such remarks send an unhelpfully negative message.” Or if I may paraphrase, “The UK government is angry at JP Morgan for not lying about Brexit like they were told to do.” I’ve got a hundred examples like this, examples of a concerted effort
by every status quo government and media opinion leader to paint the Brexit vote as a one-off crazy mistake that will probably be reversed and certainly won’t be repeated anywhere else in Europe. But the plural of anecdote is not data, and until now I haven’t an effective instrument to see whether the media data supports what I think is happening.

On the left is a Quid visualization of the clusters and network relationships between the 2,422 Brexit-mentioning articles published by Bloomberg in the 4 weeks prior to the June 23rd vote. On the right is a Quid visualization of the 4,283 such articles published by Bloomberg in the 4 weeks after the vote. This is what the formation of a coherent Narrative looks like. These are snapshots of the Narrative Machine.

So what are we looking at here? Each dot (or node) represents a single unique article, and the Quid algorithms group nodes into colored clusters based on shared word choice and similar word positioning. If we magnify any of these clusters, in this case a cluster of articles talking about bond-buying and US Treasuries in the pre-vote data, we see that the nodes themselves differ in size according to their connectivity or centrality to the clustering principle, and that there are varying distances and numbers of connections between the nodes, as well. Each node exerts the equivalent of a gravitational pull on every other node, giving the entire structure both the appearance and the substance of a star map. Nodes can be evaluated and displayed on dimensions such as sentiment (green/positive – red/negative), as shown below, and all of these characteristics (distance, connectivity, centrality, etc.) are generated as a structured data set for further, non-visual analysis.
Here’s what I think we’re seeing in the “coagulation” of the Bloomberg facet of the Narrative Machine.
The pre-vote Bloomberg network structure on the left is what a complacent Narrative looks like. The articles are “about” whatever the clustering principle might be, and Brexit is typically a sideways glance, a throwaway line that’s almost always negative in sentiment. On the other hand, the post-vote network structure on the right is what an engaged Narrative looks like, where the articles are “about” Brexit and its impact on the clustering principle. Not only are we seeing a strong Narrative form on the right, but the density of lines and closeness of clusters shows that a similar tone and meaning has taken root across all these clusters. Importantly, it’s a positive tone and meaning that takes shape in the post-vote Narrative, with sentiment scores significantly higher than in the pre-vote snapshot. The sky-will-fall articles are almost all in the pre-vote sample, while the post-vote sample – as early as the Monday after the vote, which is immediately before the market starts to turn – are almost all focused on the non-systemic nature of Brexit, the likelihood of reversal, and the “mistake” that was made here.

The pre- and post-vote evolution of the Brexit Narrative structure is robust within individual Bloomberg clusters and across other major media microphones. Here, for example, is the same bond-buying / US Treasuries cluster in the post-vote Bloomberg data set (different color, but same clustering principle), and in the blow-up you can see how much more coherent and connected it is than the pre-vote cluster.
Below, the top pair of star maps are the 4-week pre-vote and post-vote network visualizations of Brexit-mentioning articles published by Reuters, and the bottom two star maps are samples from all publishers in the Quid database. All of the hypothesized Narrative patterns described above are replicated here.

Okay, Ben, these diagrams and “star maps” are all very pretty. I get your metaphor of the Narrative Machine, and I get that you’re excited about a new technology that lets you see that invisible machine. But so what? How does all this translate into either actionable investment ideas or a process improvement in managing investment ideas?

When anyone asks this question (and believe me, it’s the question I’ve asked myself in one form or another for 30 years), they’re asking about two things: edge and odds. For anyone who’s trying to beat the dealer (my plug for Edward O. Thorp’s 1962 book that changed everything for me, also retold and expanded in William Poundstone’s brilliant book Fortune’s Formula) ... for anyone who’s interested in alpha, this is all that matters: edge and odds. Edge is private information, an insight into the true nature of reality that other game players don’t have. Odds are the probabilistic relationship between risk and reward at any given moment in time. If you have either one of these on your side, then you’ll do well in whatever game you’re playing, if you’re dealt enough hands. If you have both on your side ... and I think that a rigorous application of the Narrative Machine generates both edge and an improved assessment of odds ... hey, now.
The odds revealed by the Narrative Machine are the odds of a catalyst having a major impact on price (or not). Or in slightly different words, I think that the Narrative Machine can help show us the degree to which future events are “priced-in” by the market. For example, when you’ve got a complacent, all-over-the-place Narrative leading up to a scheduled event like the Brexit vote, then even if my best guess on the voting odds is, say, 60% in favor of “Remain”, I would still place a bet on “Exit” because the Narrative-implied market payoff odds are far better than the breakeven odds of the vote.

The edge that the Narrative Machine generates is an improved reaction to a catalyst once it occurs. To be clear, I don’t think that the Narrative Machine can predict a market shock or catalyst before it happens. It’s not a crystal ball. But it is a real-time window into how the Common Knowledge Game is being constructed and played after an event occurs. For example, when you have a pervasive, systemic-risk-is-off-the-table Narrative created almost immediately following a market shock like the Brexit vote, then I would get long the market even if I believed in my heart-of-hearts (and I do) that there really IS systemic risk posed by everything that’s behind the Brexit vote.

I don’t want to over-sell the degree to which the Narrative Machine has been “weaponized” into an investable alpha source, because there are several critical aspects of network theory that remain to be implemented. Foremost of these is what network theory calls alluvial analysis, or evaluation of how different clusters “flow” into each other and away from each other over time. I’ve included two wonderful illustrations of this concept, both from a 2010 scientific journal article (“Mapping Change in Large Networks” by Martin Rosvall and Carl Bergstrom). I think the Quid technology is pretty good at what network theory calls “significance clustering”, the assignment of individual nodes into similarly colored and positioned groups – essentially a snap shot of the network at a given point in time. What we need now is a map of how those clusters evolve over time, because the meaning or organizing principle of the clusters themselves doesn’t remain constant.
Rosvall and Bergstrom illustrate this beautifully in the second diagram here, where a network analysis of scientific journal articles show how neuroscience has become its own “thing” over time. We need the same alluvial maps for market Narrative clusters. I’m on it.

So, yes … early days for the Narrative Machine. But, yes … a potential alpha source.

Which leads to an interesting question. If this is a new alpha source – the most valuable thing in the investment world – why am I talking about it? Isn’t this like announcing that you think you’ve found gold in California or the Yukon before you’ve staked a claim?

Good question. There’s some margin of intellectual property safety here because it’s not an easy alpha source to mine, even with cool new technologies like Quid. The internal logic of the Narrative Machine is the logic of strategic interaction (game theory), not the logic of stochastic processes (econometric inference). In plain English, I don’t think you can run a regression analysis of historical media network characteristics against historical market characteristics and get much that will be useful, at least not if you’re after edge and odds. The underlying theory here is Information Theory and the underlying math is the mathematics of entropy, and I’m reasonably confident that we’re not going to see an Excel plug-in for either of those anytime soon.

But yes, someone could “steal” this idea and run with it on their own. To which I say … fine. Better that than being another Van Leeuwenhoek, bogarting his research on his invisible world and setting back the advancement of germ theory and microbiology by a century or more. As in 1648 and 1776 and 1848 and 1917, we live in one of those rare moments in history where ideas are at stake and fundamental theories of the world are in flux. Let’s engage with that, and not hide in the convenient cubbyhole of narrow self-interest or the mentality of an agreeing machine.
We need a new perspective regarding the true nature of our economic and political clockwork, and that’s the real value of the idea of the Narrative Machine.

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