LETTER FROM THE EDITOR

We open this month’s newsletter with a preview of the Annual Symposium. Larry Williams updates the idea of cycles in this article and presented insights into his latest work when he spoke in New York. Also at the Symposium, Larry’s son, Dr. Jason Williams, offered insights into the minds of winning traders. We will offer summaries of the presentations in future issues and many presentations will be online, ensuring all members can access this information even if their schedule didn’t permit them to travel to the event.

We have been celebrating the 40th anniversary of the MTA with a look at its history. No review of the history of technical analysis and the MTA would be complete without a look at the work of Arthur Merrill, CMT. Hewas among the first to publish studies of various market behaviors, like seasonal tendencies in the stock market such as the end-of-month effect. In this issue of Technically Speaking we are reprinting his study of M & W patterns from a 1980 issue of the MTA Journal. Few analysts could duplicate this study today using readily available charting software. Arthur worked with a programmable calculator, “it was designed for [the] T159 programmable calculator, and had 476 instructions,” and chart paper. Other examples of his work can be found in the Journal archives available on the MTA web site.

We also include some analysis of the current market. Keene Little, CMT, combines Gann with Elliott with other techniques in his work. Jonathan Beck takes an equally innovative approach. Both rely on techniques included in the diverse Body of Knowledge of technical analysis. Please let us know what you consider to be the most important topics in the field by emailing us at editor@mta.org.

Michael Carr
LESSONS IN CHART READING
BY LARRY WILLIAMS

When I talk about cycles people usually think about time... perhaps a four-year cycle, two year or even the decennial cycle. What I will be showing you are cycles about price...not time.

That's a big difference.

I'm going to show you that there is a price pattern that cycles in and out. This cycle has nothing to do with time. The advantage of these price cycles is they, will tell you (1) when the market is about to top, (2) when the market is about to bottom, (3) when the market is about to go into a trading range, and finally (4) the market is about to trend. All this can be gleaned by understanding the price cycles that take place every day on our charts.

I'll begin this lesson by showing how you can spot when the markets are about to top out. There is a reliable pattern that I've used for many years which suggests we are getting close to the end of an upside move. This pattern is real; a pattern you will be able to see clearly once I show you, you'll never look at a chart same.

This price cycle can be found on daily charts, weekly charts, and intraday charts of stocks and or commodities throughout the world. I know. I have traded this cycle in most every developed country on the planet.

Some background...
To begin this lesson, I am using a widely followed stock, Google, to illustrate my point. I have marked off the significant highs in this stock and call your attention to peaks in price, when the pattern began. Look closely. What do you see? What I see is closes at or near the high of the day, then, the market peaked.

Notice in each instance the market was closing just about on the high of the day. Chart watchers--- who are often the great uninformed in this business---see that as bullish and hop aboard, only to see exactly what you see above, reversals to the downside.

Let’s take a look now at a commodity, one of my favorites, gold.

Would you just look at that... the same pattern is here; markets stop rallying when they close on the highs. Here’s the critical point, markets do not selloff because a lot of sellers came into the market. Markets sell off because when everyone has become buyers, prices close at highs, and there’s no one left to continue the up move. This high close pattern, to professionals, is a sign to take profits and/or sell short.
Our next chart of gold focuses on a weekly time frame. Here, again we see the same pattern taking place in the close to high relationship. When the week closes just about or on the high for the week the market is most likely bearish and not bullish. When you look at your charts this sign of strength will give you an emotional sense that higher prices should come. That is not usually the case.

Let’s go from the daily weekly charts now to an intraday chart of the S&P E-Mini 500.

There it is again... the big selloffs came following bars that closed at or close to the high of the bar. As you can see, as I promised, this cycle has nothing to do with time, rather the relationship of the close to the high of the bar, be that an intraday tick chart, daily, weekly or you could even take this out to monthly charts. It is a universal cycle that works on all timeframes and all markets I have seen throughout the world.

Larry Williams is the author of eleven books, most on stocks and commodity trading. He has created numerous market indicators including Williams %R, Ultimate Oscillator, COT indices, accumulation/distribution indicators, cycle forecasts, market sentiment and value measurements for commodity prices. Larry won the 1987 World Cup Championship of Futures Trading from the Robbins Trading Company, where he turned $10,000 to over $1,100,000 (11,376%) in a twelve-month competition with real money. Please visit IReallyTrade.com to learn more about Larry.
FOUR TECHNIQUES, ONE CONCLUSION ON THE MARKET TREND
BY KEENE LITTLE, CMT

Editor’s note: this analysis was prepared after the close on March 28, 2013.

They finally did it -- they managed to get the SPX to close above its 2007 closing high (October 9th at 1565.15), hitting a high of 1570.28 just before Thursday's close at 1569.19. The weekend papers should be full of good news about the market and why it should continue much higher. All aboard for DOW 20K! It was a good effort to get a high price for the end-of-month/quarter and we'll have to see how the coming week goes. Keep in mind that those fund managers who are compensated in part by a percentage of AUM (assets under management) have every incentive to max out their AUM before the quarter finished. They won't have the same incentive to keep buying in the coming week.

There was a very nice setup for a reversal that was achieved at the end of the day Thursday. If the bears take advantage of it (I had recommended taking some puts home for the long weekend) we'll have a selloff on Monday and at least the first week of April. If the market doesn't start a selloff within the first 30 minutes on Monday then the recommendation is to give the puts back for a small loss. But as I'll show, the daily chart shows there's more upside potential in the coming week so Monday should provide the clues we need to figure out what the rest of the week should look like.

Reviewing where we are, I see two possibilities for the coming week -- we'll get either a little more upside before selling off or we'll see a selloff start immediately. I'll first start with the idea that we could see a bullish week, or at least the first couple days of the week, and then review the immediately-bearish setup. I think the important takeaway is that we should be looking for an important high, either right here or only marginally higher.

The SPX daily chart below hasn't changed in weeks and continues to show the upside potential to the 1590 area. This is the level where the 5th wave of the move up from November would equal the 1st wave and by the end of the first week of April that projection crosses the trend line running along the highs since late January. That trend line fits well as the top of a rising wedge pattern and a little throw-over above the top of it, near 1582 on Monday, followed by a drop back inside the wedge, would create a good reversal signal. A trend line across the highs from 2000-2007 is a little higher, near 1595. The bearish divergence shown on RSI (same for MACD) is a warning that the 5th wave of the move up from November could end at any time so don’t get complacent assuming that 1590 level will be reached.
Supporting the idea that SPX will make it higher from here can be seen on the Gann Square of Nine chart. The chart below is squeezed down so the numbers are hard to read but you can see the full-size version [here](https://www.capitalmarketvision.com). This is the top left portion of the Sop9 chart and shows 1585 highlighted at the top of the blue vector (1:00 position). This level is 7 squares up from the 2009 low at 666-667. As noted just above 1585, the blue vector is 90 degrees in time from September 14, which was the previous high (September 14, 2012) before a large pullback correction into the November 2012 low. Gann liked this kind of time/price relationship and would suggest caution by the bulls if this level is achieved.

This upside projection can also be supported by the shorter-term pattern shown on the 60-min chart below. The choppy price action since March 15th can be interpreted as an ascending triangle (somewhat of a flat top and rising bottoms), which is a bullish continuation pattern in this location, and the width of the triangle projects price up to 1589. If the triangle is the 4th wave correction in the move up from February 26th, which would have completed at the March 25th low, the 5th wave is underway and it would
equal the 1st wave at 1586.55. The break above the top of the triangle on Thursday is bullish (but lacking volume confirmation so far); it would immediately turn bearish if it drops back below the line at 1563-1564, leaving a head-fake break in its wake. So the 1585-1590 area has a lot of "pull" for some more rally in the coming week as long as the bulls don’t drop the ball on Monday.

Monday and as the past week developed I felt this one had a high likelihood of being correct. The chart below is also a 60-min chart but instead of a bullish ascending triangle we have a bearish rising wedge from the March 19th low. Instead of the 4th wave in the move up from February 26th ending on March 25th, for the ascending triangle, it ended on the first 3-wave pullback on March 19th. This "fits" better since it keeps the 4th wave closer in size to the 2nd wave correction (February 28-March 1 pullback). The wedge looks to have completed at Thursday’s high but it could morph into a higher one with a choppy push higher in the coming week. That possibility would become more probable if we get a choppy pullback from Thursday’s high that holds inside the wedge pattern.

Now let’s move to the other possibility, which calls Thursday’s high the final high for the rally. This interpretation calls for an immediate decline on
Moving in closer to the end of this rising wedge, the 10-min chart below shows the 3-wave move up from Monday, March 25th. As shown on both the 60-min chart above and the 10-min chart below, a 127% extension of the previous decline (the 4th wave pullback, March 15-19) is just above 1570. The 127% extension is often associated with reversals and a good Fibonacci extension to watch. The 10-min chart shows two equal legs up from March 25th is at 1569.65. The c-wave, which is the leg up from March 27th, is a 5-wave move, as it needs to be, and the 5th wave is 62% of the 1st wave at 1570.16. This is another common relationship when the rally is getting tired and especially when the 3rd wave is relatively short, which in this case it was barely larger than the 1st wave. Using MACD to help confirm the wave count you can see the bearish divergence at the 5th wave compared to the 3rd wave (Thursday morning's high). Putting all these pieces together makes it look like 1570 is a key level for the bulls to break, which they were unable to do on a closing basis on Thursday.

A few weeks ago Tom DeMark had called for a top for SPX at 1567.40, which was achieved today. He had mentioned he had a confluence of his daily,
weekly and monthly 13-count indicators, which was a strong warning that the market could be setting up for a reversal in March. The last time he had the same confluence was April 2011 and before that it was October 2007. If you’ll look at a longer-term chart you’ll see those dates were significant market highs.

So we’ve got Mr. DeMark, Mr. Elliott, Mr. Gann and Mr. Fibonacci all in agreement that a high is either right here, right now, or only another 15-20 points higher at 1585-1590. Based on the bearish setup heading into the close on Thursday I felt it was too risky to be holding long over the weekend and a good time to nibble on a short position. Again, we should know quickly on Monday which scenario is the more likely one for the week but in either case, you should have stops on long position very tight now.

Keene Little has been a full-time trader since 2000. In 2003, he became an analyst/writer for an options newsletter posting daily live commentary throughout the trading day and sharing the duties with the other analysts for that site’s nightly market wrap. In February 2009, he began posting nightly analysis of the market on his own blog, Capital Market Vision. In September 2011, the blog morphed into a website offering daily live market commentary and analysis plus nightly market overview and analysis. Keene earned his CMT charter in June 2008.
THE TRADING METHODOLOGIES OF W.D. GANN
BY HIMA REDDY, CMT; REVIEWED BY KEENE LITTLE, CMT

As any trader knows, to trade successfully there need to be clear trading rules to follow. Hima Reddy’s book The Trading Methodologies of W.D. Gann does a very good job of showing the trading rules of one of the best traders there ever was.

Reddy starts by introducing herself as a Gann student who has delved deeply into Gann’s writings, with her favorite being How To Make Profits in Commodities. Reddy then takes Gann’s work and translates the many “don’t do” rules into more positive “do” statements. She says it’s more constructive to remember rules in a positive way instead of feeling like the rules are beating you over the head (I agree).

Reddy also quickly points out that her book is not meant to cover Gann’s forecasting techniques; it is designed to shows his trading techniques and methodologies. When most traders think about Gann, they think about his reputation for making accurate market calls. Reddy cites examples of his calls but this book does not get into Gann’s forecasting techniques. It focuses on his trading discipline. Reddy’s use of recent stock charts to highlight Gann’s trading rules shows that his work is just as relevant today as when Gann wrote his book in 1941.

While traders are in a never-ending search of the Holy Grail for forecasting the market, it’s important to understand that all trading boils down to following a disciplined set of trading rules. Determining entry points can be done by any number of methods but it’s the protection of capital that is most important. This is the focus of Gann’s trading rules.

Gann found "buying points" and "selling points" and then created a set of rules around each of these trades. Reddy deftly explains these points as well as Gann's methodologies. She writes, "In How To Make Profits Trading in Commodities, the following always jumped out to me in the Foreword, written by Gann himself: 'I do not believe in gambling or reckless speculation, but am firmly convinced, after years of experience, that if traders will follow rules and trade on definite indications, that speculation can be made a profitable profession.' Right there we have the keys -- follow the rules and trade on definite indications. . . .The chapters ahead explore those rules and tenets."

As Reddy pointed out, Gann's forecasting techniques might have made him famous but it was his use of trading rules that made him money. She writes, "Forecasting tools cover when to invest. But trading methodologies cover how to invest." So Reddy’s book presents Gann’s rules, her interpretations, and examples of recent stock moves. She combines the use of some technical analysis to show how it can all be brought together to help a trader.

In addition to Gann’s 28 trading rules, Reddy highlights his nine "Buying and Selling Points" which include "safer" and "safest" points (realizing that the
nine selling points are essentially inverse versions of the buying points makes them easier to remember). Combining these buying/selling techniques with the trading rules provides a powerful trading plan, especially for those who might be starting out or struggling with their existing plan. Reddy also simplified Gann's time and price considerations for buying or selling a commodity/stock, adding a concise list for easy reference in the back of the book.

Some of Gann's forecasting work can be difficult to grasp but his trading methodologies are straightforward and Reddy broke these down into bite-size pieces, making them easy to digest. After spending years studying Gann and focusing on his forecasting methodologies, I was pleased to learn more about his trading methodologies. And as an Elliott Wave Theory (EWT) technician, I was pleased to learn a few trading techniques from Reddy's book that work very well with EWT.

While the book may be especially useful to newer traders I think all traders can profit from a "tune-up" and Reddy's book does just that. As with any book, conference or seminar -- your time/money is well spent if you learn just one thing that makes you a better trader. Reddy does a very good job of explaining many things from Gann, who is someone definitely worth listening to. This book deserves a spot in your trading library.

Hima Reddy was first introduced to technical analysis, and to the works of W.D. Gann, during her high school years by her father, who has had a passion for trading and the markets since the early 1980s. However, it wasn’t until after she completed an undergraduate degree in Finance at Indiana University's Kelley School of Business, and returned to her home state of New York in 2001, that she immersed herself in the markets. She simultaneously volunteered as the sponsorship coordinator for several Market Technicians Association conferences, traded equity and commodity futures under the tutelage and guidance of her father, and completed the Chartered Market Technician certification. In 2006, she joined Informa Global Markets, an independent financial research firm providing live, 24-hour market analysis. As Senior Technical Analyst, she was responsible for producing timely and accurate short-term technical analysis and trading strategies for fixed income and FX markets. With analysis ranging through multiple timeframes, her team also prepared written updates covering longer-term trends. Hima's "guru" has always been Gann—the first market analysis book she ever studied in-depth was How to Make Profits in Commodities—and to this day that is her go-to guide to the markets.

In 2011, she returned to trading independently and began work on her first book, The Trading Methodologies of W.D. Gann: A Guide to Building Your Technical Analysis Toolbox, published by FT Press. She also shares market analysis in her blog "Skinny on the Mini", exploring the E-mini S&P 500 Futures lead contract, blending long-term and short-term points of importance into cohesive, concise reports. For more information, please visit Hima’s web page or her blog, Skinny on the Mini.
HAVE GOLD MINING STOCKS BOTTOMED? A VERY BRIEF LOOK AT THE MARKET VECTORS GOLD MINERS ETF (GDX)
BY JONATHAN BECK

Note: This report was originally prepared in early March and was updated at the end of the month with this observation:

As I mentioned in my March 7th 2013 report on Gold and Gold Miners, GDX may still have unfinished business to the downside if it can’t begin to stabilize near the bottom of its Sep. 2012 downtrend line. As I also alluded to, the March 6th, 2013 positive outside day pattern, which was forming at the time of my going to press, could be signaling such stabilization. Recent absolute and relative improvements are also helping to firm up a technical bottom. HOWEVER, continue to use caution as it will take a move above key resistance in this 40-41 area to claim a that a bottom has been put in place. Until then the technical view on a 1-3 month and 6-12 month views are still bearish. The ability to clear this resistance will likely alter the outlook.

This white paper digs into the recent decline in both Gold and Gold Mining stocks via the Market Vectors Gold Miners ETF (GDX). Is it too late to profit from these precipitous declines or is further downside left?

It appears that GDX still has unfinished business to the downside as suggested by the large head and shoulders top breakdown. Near-term attempts to stabilize need to be proven healthy and not just temporary by a period of backing and filling that helps to repair its technical damage. Gold on the other hand is in the midst of a large high-level consolidation pattern that is still developing. Resolution of this pattern could occur as early as 1H 2013 and will likely guide the next sustainable trend.

Is it too late to profit from the precipitous declines in gold and gold miners?

The Market Vectors Gold Miners ETF (GDX) has so far led its counterpart commodity to the downside, dropping 36% (peak to trough) since its September 2012 peak, while Gold has declined a relatively modest 13% since its October 2012 high. The questions now remain whether or not the easy money has been made and if the trend in gold’s relative outperformance will continue. Well, there are three stories here to tell: 1) Despite an oversold condition GDX looks to have unfinished business to the downside; 2) Gold is still working its way through a very large consolidation pattern and its resolution will likely drive the next sustainable move; and finally 3) relative underperformance of GDX vs. Gold should continue at least in the foreseeable future.

The steady decline in GDX has again approached the bottom of its Sep. 2012 downtrend channel. This coupled with an oversold condition and the 3/6/13 positive outside day suggests some kind of oversold rally is due. Please keep in mind that an oversold rally is by definition not sustainable and it can go as high as the top of the downtrend channel and the 50-day moving average without altering this bearish near-term outlook. A weak technical bounce and a violation of the bottom of the trend channel could set into motion the next down leg.
Chart 1: It will be the integrity of this technical oversold rally that counts

The intermediate-term outlook for GDX also plays a determining factor as the recent violation of a large head and shoulders top pattern points to additional technical weakness in the months to come.

Chart 2: Violation of a key Fibonacci retracement confirms longer-term weakness

So what is the upside? The upside will be for GDX to build a base and help to repair some of the technical damage that has been caused. This recent positive outside day pattern may be the beginning, but time will tell. What is also kind of interesting and potentially helpful will be for GDX to maintain support above the 61.8% Fibonacci retracement of the 2008-2011 rally (35.37). The violation of this support would signal a major long-term trend reversal and perhaps even a complete retracement of the rally.

How does gold weigh in?

In comparison, Gold has yet to decline below even the first major Fibonacci retracement level (38.2%) of its 2008-2011 rally. The test to determine if the recent selloff in Gold is just part of an extensive high level consolidation will be whether the buyers return as it approaches its “line in the sand” near 1525 or the 2011 low. A move below this support could trigger a selloff and
even a change of the intermediate-term technical outlook to a more
defensive position. The reason being is that this level corresponds to a
neckline support of a large descending triangle pattern.

Chart 3: Patience is need as gold works its way through this pattern

As these patterns tend to resolve themselves about 2/3 to 3/4 of the way
towards their apex, it seems that an outcome could be reached as early as
1H 2013.

Gold has the upper hand for now

Finally, from a relative perspective, this chart below suggests that if you
have to choose, then owning gold will provide a higher return than investing
in this gold miners ETF. There is a caveat to this call which will be
worthwhile to heed: GDX is approaching a support level corresponding to
the 2008 bottom and should this support hold and Gold violate its neckline
support mentioned above, the some kind of reversal may begin to develop.

Chart 4: The dominant trend remains in favor of Gold over GDX

Source: MetaStock XENITH and J. Beck Investments

So how low is low? The violation of this support targets a worst case
scenario near 1140, which is interestingly near its 61.8% Fibonacci
retracement of the 2008-2011 rally. **With that said, these patterns are
consolidation patterns, which can be of either the continuation or reversal
variety. It is therefore recommended that investors await confirmation of
a directional break** as a move above the top of this pattern, currently near
1740/50, will signal the resumption of the structural bull trend that began in
earnest back in 2002.

Source: MetaStock XENITH and J. Beck Investments
Conclusion

Although some near-term signs of a basing effort are shaping up for GDX it is still premature to call for a sustainable recovery. At best, it is likely that some sort of backing and filling needs to occur in order to repair the technical damage. The intermediate-term technical outlook is still pointing to lower prices as evident by the large head and shoulders top breakdown. Gold, on the other hand, remains in the midst of a large high level consolidation that requires resolution before calling for the next sustainable trade. If you need exposure to one over the other, gold currently has the upper hand.

Jonathan Beck is the founder of J. Beck Investments, an independent provider of technical research for Exchange Traded Funds. Additional examples of Jonathan Beck’s research can be found at the firm’s web site or on LinkedIn.
**Investment Courses For Professionals**

A sample of a growing list of fundamental and technical courses is shown below. The courses are associated with global destinations and dates, both for open and private client formats. They are produced by various knowledge vendors throughout the world. Details can be provided by contacting NYIF.COM, or John Palicka (palicka@pipeline.com).

*Taught by John Palicka CFA CMT*

<table>
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<tr>
<th>Course Name</th>
<th>Description</th>
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<tr>
<td>FUSION ANALYSIS-</td>
<td>This is a professional approach that blends fundamental, technical, behavioral and quant strategies.</td>
</tr>
<tr>
<td>EQUITY PORTFOLIO MANAGER-</td>
<td>Serious managers will utilize this course to analyze leading Wall Street valuation models and investment strategies for equities using fundamental, behavioral/technical and quant approaches, and then study how these are modified by the best performing equity portfolio managers to produce risk-adjusted excess returns.</td>
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<tr>
<td>INVESTMENT FUND SELECTION-</td>
<td>This is a must attend course for all professionals involved in the selection and management of third-party investment managers.</td>
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<tr>
<td>TECHNICAL ANALYSIS CMT 1-</td>
<td>A must attend course for investment professionals wishing to gain the CMT Level I professional qualification in Technical Analysis from the Market Technicians Association (MTA).</td>
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<tr>
<td>INTRODUCTION TO STEALTH TRADING USING FUSION, ALGORITHMS, AND DERIVATIVES FOR PROFESSIONALS-</td>
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Today, portfolio managers increasingly must use stealth trading in order to disguise their intentions and thus benefit from best execution.

**ADVANCED CAPITAL MARKETS ANALYSIS**

Spot, forwards, futures, swaps, options, and statistical issues are discussed in dynamic capital market strategies.

**STRATEGIC GOLD INVESTING**

Gold has been one of the very few assets to have created wealth in the past several years. Gold offers investment opportunities for investors, traders, and financial engineers.

**GLOBAL SMALL CAP INVESTING**

Global small cap stocks offer investors the ability to participate in the world’s future big winners.

**PORTABLE WEALTH INVESTING**

Portable Wealth (PW) management offers investment opportunities for wealthy investors and their advisors. PW can generate attractive risk-adjusted excess returns to traditional and alternative investments.

Instructor John Palicka CFA CMT is a top-ranked portfolio manager of Global Emerging Growth Capital (WWW.GLGEGC.COM) with over 30 years experience of managing $ billions. He has doubled client money, on average, every 4 1/2 years since 1980*. His high course ratings from major investment firms reflect clear interpretations and practical applications of complex topics; knowledge applied to examples and cases found in the current worldwide and GCC marketplace; his experience with specific situations actually encountered in his career and consulting contracts that parallel the learning topics. John has an MBA from Columbia University and also teaches these courses for leading training institutions, including The New York Institute of Finance (WWW.NYIF.COM).

* Past performance is no guarantee of future results.
M&W WAVE PATTERNS
BY ARTHUR MERRILL, CMT

This was originally published in issue 7 of the MTA Journal in February 1980.

Aim: Consider the zigzag movements of stock prices, ignoring minor fluctuations. Pick any five consecutive turning points. If the first of the four swings is upward, the pattern forms an - M. If the first swing is downward, the pattern is a - W.

Are some of the four swing patterns bullish? Are some bearish? How big was the swing following the pattern?

Robert Levy has attacked this problem for individual stocks'. He measured the performance in the 4, 13 and 26 weeks following each pattern. The paper which follows considers the market as a whole, as measured by the Dow Jones Industrials, ignoring swings of less than 5%. The extent of the swing following each pattern was measured and averaged.

Classification: Levy, in a July 1971 Journal of Business article titled "Predictive Significance of Five Point Chart Patterns, “suggested identifying the pattern by ranking the five points from highest to lowest, then reading the ranks from left to right.” In the example above, the W pattern is number 15342; the M pattern is 41325. We have separated the 32 possible patterns into 16 M patterns and 16 W patterns.

Method: The data source is "Filtered Waves, Basic Theory", which lists all D.J. Industrial turning points, using a 5% filter, from March 25, 1898. There are 688 turning points in the span to February 28, 1979, forming 342 complete M and 342 W patterns.

A computer program was designed to identify the patterns and to measure the extent of the swing following each pattern. It was designed for T159 programmable calculator, and had 476 instructions. This program was applied to the 688 turning points.

Geometric averages were calculated for the extent (percent rise or percent decline) of the swing following each pattern classification.

In addition, the patterns were identified at the top of all bull markets and at the bottom of all bear markets since 1989.

Results: The average extent of the swing following the various patterns is noted in the chart which follows. These rankings may be interesting but should not be considered conclusive, since only the M1 average is far
enough from the overall average to rate a good significance score (for M1: t = 2.50, deg. of freedom = 27).

The patterns at the top of bull markets and at the bottom of bear markets are noted on the following pages.

In the pages which follow,

\[ n = \text{the number of times the pattern was found in the 342 M or 342 W patterns since March 25, 1898.} \]

\[ \% \text{ rise: this is the percent rise average (geometric) in the swing immediately following an M pattern, or the percent decline in the swing following a W pattern. It is compared with the overall average of all swings, using a 5\% filter.} \]

M1 \[ n=28 \] (no. of occurrences: the total for the M patterns is 3.42)
**Aver. rise** (swing following pattern): 13.89% This is the highest of all the M patterns, and is the only one that has a truly significant difference for the overall average.

**Bear market bottoms**: This pattern appeared at the end of seven of the fifteen bear markets since 1898.

The fifth point of the pattern was the low point of the bear. Is this a confirmation of the selling climax idea? It certainly indicates an oversold condition.

**Bull market tops**: This pattern appears at the top of four bull markets, initiating the new bear with a sharp downtrend.

**M2 n=16**

**Aver. rise**: 9.69% This is one of the lowest.

**Bear market bottoms**: two

**Bull market tops**: none

This is a downward zigzag followed by an upward zigzag. These reversals of zigzags have been called "head and shoulders". Several patterns exhibit this reversal.

**M3 n= 43** This is the second most popular of the M patterns.

**Aver. rise**: 9.08% This is below the overall average.

**Bear market bottoms**: four

**Bull market tops**: three (including the 1929 top)

This is a downtrend, but not as steep as M1.

**M4 n= 16**

**Aver. rise**: 11.12% This is close to the average.

**Bear market bottoms**: three

**Bull market tops**: none

This is another reversal from a downward zigzag to an upward zigzag.

**M5 n=13**

**Aver. rise**: 9.94% This is below average.

**Bear market bottoms**: one
Bull market tops: none

This is a "broadening formation". The swings get larger from left to right.

M6  n=6 This one of the rarest of the patterns.

Aver. rise: 11.86% This is the third best.

Bear market bottoms: one

Bull market tops: none

Bear market bottoms: none

M8 n=4

Aver. rise: 10.65% This is average.

Bear market bottoms: none

Bull market tops: none

This is a downward zigzag followed by a sharp rise and decline.

M7 n=28

Aver. rise: 9.29% One of the lowest.

Bear market bottoms: two

Bull market tops: three

This is an upward trend followed by a steep downswing, breaking through the preceding low point.

Bull market tops: six This is tied with M15 for the most tops.

This pattern begins with a sharp rise followed by a downward zigzag.

M9 n=15

Aver. rise: 9.24% This is one of the lowest.

Bear market bottoms: one

Bull market tops: three

M10 n=18

Aver. rise: 9.55% This is one of the lowest.
Bear market bottoms: one

Bull market tops: one

This is another downward zigzag followed by an upward zigzag. It occurred recently; March 1, 1978 was the third point of this pattern.

M11 n=20

**Aver. rise:** 9.95% This is low.

Bear market bottoms: eight This ties with M15 for the highest frequency.

Bull market tops: one

Another downward zigzag followed by an upward zigzag.

M12 n=15

**Aver. rise:** 9.80% This is below average.

Bear market bottoms: one

Bull market tops: three

A sharp rise which changed into a downward zigzag.

M13 n=12

**Aver. rise:** 12.79% This is the second best of the M patterns.

Bear market bottoms: one

Bull market tops: none

This is a triangle with upward breakout.

M14 n=24

**Aver. rise:** 10.12%

Bear market bottoms: one

Bull market tops: four (including 1929)

This pattern begins with a promising uptrend, but concludes with a bad break.

M15 n=44 This is the most frequent of the M patterns.

**Aver. rise:** 11.15% This is close to average.
**Bear market bottoms:** eight This is tied with M 11 for maximum frequency.

**Bull market tops:** six This is tied with M16 for top frequency.

This pattern occurred recently. February 28, 1979 was the fifth point of this pattern. It’s a fine uptrend.

M16 n=40 This is the third most frequent.

**Aver. rise:** 11.50% This is the fourth best.

**Bear market bottoms:** four

**Bull market tops:** one

This is a sharp uptrend. Compare it to M15.

W1 n=28
**Aver. decline**: 9.53% This isn't far from the overall average.

**Bear market bottoms**: two

**Bull market tops**: seven This is tied with M16 for top frequency. This pattern can be found at the 1929 peak. The sharp downtrend initiated the super bear market.

W2 \( n=43 \) This is the second most frequent pattern.

**Aver. decline** 11.06% One of the deepest.

**Bear market bottoms**: three

**Bull market tops**: six

This is a downtrend, but not as steep as W1.

W3 \( n=17 \)

**Aver. decline**: 10.65% This is deeper than average.

**Bear market bottoms**: two

**Bull market tops**: three

This pattern begins with a sharp drop but ends with an uptrend.

W6 \( n=16 \)

This is a downtrend which ends in a steep rise. It occurred at the March 1, 1978 bottom.

W4 \( n=9 \)

**Aver. decline**: 11.09% This is one of the deepest.

**Bear market bottoms**: one

**Bull market tops**: none

This is a triangle with downward breakout.

W5 \( n=21 \)

**Aver. decline**: 10.07% Close to average.

**Bear market bottoms**: three

**Bull market tops**: none

This pattern begins with a sharp drop but ends with an uptrend.
Aver. decline: 10.17% Close to average.

Bear market bottoms: none

Bull market tops: four

This is an upward zigzag followed by a downward zigzag.

W7 n=17

Aver. decline: 11.22% This is one of the deepest.

Bear market bottoms: none

Bull market tops: three (including 1929)

This is another upward zigzag followed by a downward zigzag.

W8 n=24

Aver. decline: 8.31% This is the best of the W averages.

Bear market bottoms: six

Bull market tops: one

W9 n=10

Aver. decline: 11.23% This is one of the deepest.

Bear market bottoms: none

Bull market tops: three

Wide fluctuations were followed by a very weak rally.

W10 n=19

Aver. decline: 9.94% This is close to average.

Bear market bottoms: one

Bull market tops: two

A sharp downswing followed by a strong upward zigzag.

W11 n=3 This is the rarest of the W patterns.
**Aver. decline:** 10.77% This is below average, but the number is low.

**Bear market bottoms:** none

**Bull market tops:** none.

**W12 n=16**

**Aver. decline:** 9.92% This is average.

**Bear market bottoms:** two

**Bull market tops:** one

There is a broadening formation, with the swings increasing in magnitude from left to right.

**W13 n=22**

**Aver. decline:** 10.54% This is deeper than average.

**Bear market bottoms:** none

**Bull market peaks:** four

This is another upward zigzag followed by a downward zigzag.

**W14 n=36** This is the third highest in frequency.

**Aver. decline:** 9.67% This is better than average.

**Bear market bottoms:** two

**Bull market tops:** five

This is a fine uptrend. It occurred recently. March 1, 1978 had this pattern.

**W15 n=13**

Average decline: 8.47% This is second best.

**Bear market bottoms:** one

**Bull market tops:** two

A strong upward zigzag is followed by a minor downward zigzag.

**W16 n=48** This is the most frequent W pattern.

**Aver. decline:** 8.97% This is the third best.
Bear market bottoms: seven

Bull market tops: seven (including 1929)

This uptrend is steeper than W14.

Editor’s notes:

1. Additional details on M and W waves can be found at the Bollinger on Bollinger Bands web site. John Bollinger, CFA, CMT, has worked with these patterns extensively and offers a chart demonstrating how the M and W waves can be correlated to traditional chart patterns.

2. John R. McGinley, CMT, worked with Arthur Merrill for a number of years and recently offered the following insight into the state of the current market: A little more statistical research from Arthur Merrill’s book Filtered Waves which shows that half of bull markets have peaks greater than 195%, the median. This current bull market has lasted 48 months from 3/9/2009. That is considerably above the median bull market of 30 months. In Filtered Waves, Arthur also shows that a market which has doubled in 48 months can be expected to grow another 35% (DJIA 19,200!) in eight more months.

Additional information about this work or other research done by Arthur can be obtained from John R. McGinley, CMT, who is the editor of Technical Trends, a newsletter founded by Arthur. He can be contacted at www.facebook.com/jmcgoo or 203-762-0229.
INTERVIEW WITH MUKUL PAL, CMT
BY AMBER HESTLA-BARNHART, CMT

Editor’s note: Several editorial errors were made in last month’s issue when we originally included this interview. I apologize for those errors and this month we present the answers Mukul Pal provided previously.

How would you describe your job?

1. Study fascinating patterns which repeat in nature and stock markets
2. Look for cues from a history of overlapping research from sciences to economics to psychology.
3. To simplify market complexity and build market solutions around it, and continuing on Garfield Drew approach that 'Simplicity is the single most undermined investment approach.

What led you to look at the particular markets you specialize in?

I started as a derivatives strategist building option payoff strategies. It did not take me much time to realize that the underlying was more essential than the instrument. This led me to forecasting and systems. Today we operate across assets and build portfolio management and risk management solutions for different regions and markets including US.

Do you look at any fundamental or economic inputs to develop your opinions?

We have filed for a patent on our proprietary approach, which is more linked with broad data innovation rather than just stock market data. This is why for our market models use fundamental and economic data inputs. The systems query for signal ideas from a universe of crude or processed stock market data.

What advice would you have for someone starting in the business today?

First; capital market research and advisory is an "all in" process, till you don't think of yourself doing something else, don't start a business. Second; understand that leverage kills and non leveraged solutions increase holding period for both business and clients. Leverage should be addressed as a small part of the overall portfolio rather than otherwise. Third; there is a clear shift from conventional technicals towards fusion systems, which involve statistics, fundamentals, technicals and higher math. The only way for a new business is to innovate and differentiate.

What is the most interesting piece of work you've seen in technical analysis recently?

Richard Rodes work on intermarket back testing and money management systems was interesting and I always learn from Richard. I had an opportunity to party also with him during our CSTA conference in Oct 2011. Overall I think intermarket is the most interesting work from technical analysis. John Murphy, Martin Pring and Sam Stovall have added to the body of knowledge significantly.
What research area do you think offers the greatest potential in technical analysis at this time (something like an indicator, charting technique or trading tool)?

We at Orpheus combine statistical stationarity to generate performance cycles. These cycles are nested fractalised performance periodicities. This indicator, which we also refer to as Jiseki performance cycles or time cycles, allow investors to not only look at a performance stamp for multiple holding periods at a single point in time but also anticipated future entry and exits.

I think statistical research has a lot of steam left, because statistical modeling on markets has not been explored by market technicians. I foresee development of 3D indicators, topological surfaces for risk and return based on something as basic as momentum indicators and prices. These new age tools could open up a new age for technicians and for the global investment business.

Mukul Pal, CMT, is the founder of the Orpheus Group of companies. He has more than a decade of capital market experience dealing with derivatives and global assets. He has worked for Bombay Stock Exchange, multinational Banks and brokerage houses in leading research positions before starting on his own in 2005. Mukul is currently the President of the MTA Central and Eastern European Chapter.

Orpheus group of companies provide global alternative research, data analytics, risk management solutions, and other analytical products. The company publishes research reports internationally on Reuters, Thomson, Capital IQ, FactSet, Research and Market platforms and Finalaya. The research coverage includes 10,000 global assets and non-capital market data. The services include forecasts, cycles, strategies, analytics, risk management and Indices.

These questions and answers have been compiled by Amber Hestla-Barnhart, a writer specializing in option for profitabletrading.com. If you'd like to participate in a future interview, please contact her at amzhondacbr@yahoo.com
HOW STATIONARY IS MY ECONOMIC NORTH STAR? THE STUDY OF DRIFT IN ECONOMIC BENCHMARKS
BY WELLS FARGO SECURITIES, LLC. ECONOMICS GROUP

Editor’s note: In his interview, Mukul Pal mentioned that his firm combines statistical stationarity to generate performance cycles. He applies this technique to find cycles that are nested fractalled performance periodicities. This report, which is available along with other research on wellsfargo.com/economics and on Bloomberg WFRE, demonstrates how stationarity is applied to economic data.

Effective economic decision making, in both the public and private sector, starts with a sense of benchmarks or guidelines to frame a view of the future. Yet, how reliable are these benchmarks.

In fact, are they really benchmarks at all? Unfortunately, many decision makers suffer from an anchoring bias in making strategic decisions, and will set their expectations for the future based on what they perceive was true about the past. For instance, a common practice by today’s decision makers is to assume that a data series will continue to grow at its average rate over the past couple of decades, and that any deviation from trend growth will only be temporary. In other words, many decisions are based on the idea that today’s economic data are mean-reverting.

What if the data are not mean-reverting? There are two essential elements of a decision making process: modeling and forecasting. Both of these processes assume the underlying dataset is mean-reverting, and if the data series is not mean-reverting, then the results, and therefore the decisions deduced from modeling and forecasting, would be spurious. So, if a decision maker is trying to forecast a series that is not mean-reverting, any results gained from the models will not be reliable or useful.

In this report, we examine the patterns of five benchmark economic series, demonstrating both mean-reversion and non-mean-reversion. Furthermore, we describe how forming decisions based on past trends may have led to inaccurate predictions and improper decisions. We use an econometric technique known as the Augmented Dickey-Fuller test to identify both the character of the change and the source of any diversion.

Benchmarks: Economic Growth and the Labor Market

In this report we focus on two broad areas of the U.S. economy: economic growth (output) and the labor market. The Great Recession produced the largest losses in terms of output (as measured by GDP) and jobs (nonfarm payrolls) in the post-World War II era. After experiencing such deep and severe losses, we are left questioning whether we will ever get back to the “normal” level. Will we see mean-reversion? Specifically, we test the behavior of U.S. GDP and industrial production to proxy output in the economy, and three indicators of the labor market: the U-3 unemployment rate, the U-6 unemployment rate and nonfarm payrolls.

Testing, Not Assuming, Economic Values
Fortunately for decision makers, econometric techniques are available to determine whether a series is mean-reverting. The process to quantify whether a series is mean-reverting is known as unit root testing. One standard test, and the one which we employ, is known as the Augmented Dickey-Fuller (ADF) test. The null hypothesis of the ADF test is that the underlying series is not mean-reverting (non-stationary) and the alternative hypothesis is therefore that the data series is mean-reverting (stationary). If a series is non-stationary, then the behavior or change from one period to another is random. That is, the future values are unpredictable. For a forecaster, using a non-stationary dataset, and assuming that the series is stationary, would result not only in a misleading forecast, but also an inaccurate forecast interval.

So, how do we analyze the results? The goal of the forecaster is to predict the movement of data over time. To evaluate the movement of a time series, the decision maker can employ OLS regression analysis, which will provide the estimated mean value of the time series. However, because stationarity of the data, or constant variance, is a critical assumption of OLS regression, we use the ADF unit root test to evaluate whether we can take the mean as given or if the results are spurious. If the ADF test proves the data to be non-stationary, then we have violated an underlying assumption of OLS regression analysis and cannot draw any conclusions from the results. However, if the ADF test proves the data to be stationary, the next step is to define the stationary behavior of the data. There are three possibilities when it comes to stationarity. A data series can be zero-mean, which identifies the mean of the data series as zero; single-mean, which defines the data series as having a constant mean that is not zero; and trend growth, meaning that the data series does not have a constant mean over the time period, but follows a consistent time trend with finite error terms. Examining the time series in chart form is often very helpful in determining the form of stationarity of that data series.

Our Benchmark for Real GDP Growth

Over the sample period, Q1-1982 to Q4-2012, the average annualized growth rate of real GDP in the United States was 2.75 percent, as illustrated in Figure 1 and confirmed with the OLS analysis in Table 1. Is this a reasonable benchmark to guide our expectations? The results in Table 1 show no evidence of a shift, or long-term deviation from the long-run average rate of GDP growth. Therefore, the GDP data series appears stationary and exhibits mean-reversion back to its 2.75 percent value.

In the Augmented Dickey-Fuller unit root test illustrated in the top portion of Table 1, we can reject the null hypothesis of mean-diversion or non-stationary growth of GDP at the 5 percent significance level. While Table 1
demonstrates the possibility of zero-mean, single-mean and trend growth, we identify the series as single-mean using the value of the mean from the OLS analysis. The OLS analysis finds that a mean of 2.75 percent is significant, and the chart also confirms our suspicions of a mean-reverting data series around 2.75 percent.

We can conclude that GDP growth is mean-reverting. For decision makers, the benchmark for strategic thinking is that growth will more likely be 2.75 percent over time and therefore divergent views from this growth rate are less than an even bet. This is especially true for outlooks beyond the next two years where such outlooks really reflect the longer-term trend of growth and in this case, the trend is more likely to fall around 2.75 percent rather than values such as 4 percent plus or a drop to zero growth. Finally, the evidence, so far, does not suggest a fundamental downshift in economic growth in recent years even though the average growth rate has been below 2.75 percent for several years. There is just not enough evidence to suggest a fundamental, statistically significant, shift in the growth rate of GDP.

Industrial Production: Another Case of Stationary Behavior

In a similar way, the OLS regression analysis estimates an average quarterly annualized growth rate of 2.29 percent for industrial production over the sample period. The unit root test demonstrates that industrial production data is stationary; therefore, we can validate the long-run average growth of industrial production to remain around 2.29 percent. As can be seen in Figure 2, industrial production growth demonstrates a cyclical pattern—falling during recession and bouncing back during the early phases of recovery. However, these expected deviations from the long-run mean are temporary in nature. Therefore, a decision maker can expect industrial production to continue to grow around its long-term trend.

Unemployment Rate U-3: A Surprising Result of Stationarity

Surprisingly, the unemployment rate, measured by the U-3 definition\(^v\) that is commonly reported in the media as well as serving as a benchmark for stress testing suggested by the Federal Reserve, displays stationarity. These results may be surprising to some, especially given the persistently high, and seemingly outsized, unemployment rates since the latest recession. The results in Table 3 suggest that the official unemployment rate is mean-reverting around a long-term average rate of 6.37 percent. The long-run average is surprisingly close to the Federal Reserve’s guidepost of 6.5 percent for raising the federal funds rate and, unfortunately, is higher than what is perceived as full employment by some commentators who are subject to an anchoring bias looking at the past. Understanding that this

<table>
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\(^v\) Unemployment rate U-3 definition:

\[ U_3 = \frac{U}{L + U} \]

where U is the number of unemployed and L is the labor force.

\[ U_3 = \frac{U}{L + U} \]

\[ U_3 = \frac{U}{L + U} \]
unemployment series is stationary, and thereby does not exhibit any drift in the values over time, suggests that while perceptions that the long-term level of unemployment has shifted upward since the Great Recession, so far there is no statistical evidence of a fundamental shift in this series.

**Unemployment Rate U-6: A Rising “Gray” Labor Market?**

Our view for many years has been that the labor market of the 21st century is behaving in a way that is different from prior years. This differential behavior reflects the ways in which the actual behavior of the labor market may deviate from the perfectly competitive marketplace that forms the basis for models that may frame decision making in both the public and private marketplace.

While the U-3 measure of unemployment proved to be stationary and mean-reverting around a long-run average, the U-6 measure of unemployment, a much broader view of the labor market, shows a different picture. The U-6 measure of unemployment includes those unemployed that are captured in the U-3 measure plus those marginally attached to the labor force and those that are employed part time for economic reasons. In short, the U-6 measure of unemployment captures the fuller view of the labor market. The evidence suggests that the U-6 measure of unemployment series is not stationary, unlike the U-3 measure. As shown in Table 4, we cannot reject the null hypothesis of a unit root, and therefore, the mean value of the U-6 unemployment rate provided by the OLS estimation is not valid. Furthermore, looking at Figure 4, it appears that the mean value of this measure of unemployment is rising. This is consistent with the sentiment about what has been happening in the economy in recent years. There appears to be a developing gray area in unemployment that does not fit our historical view of the operation of the labor market. There is a growing part-time character to the labor market that suggests less attachment to the model of the full-time job. Decision makers should not rely heavily on the idea that the labor market will return to previous behavior.
The previous examples using different definitions of the unemployment rate demonstrates the changing face of the labor market, and suggests unemployment may not be mean-reverting, especially using the broader measure. However, we find that the growth in payrolls is surprisingly stationary. Public impressions today fall prey to the recency bias that assumes that the most recent experience is a signal of the future that is distinct from the past. Yet, the evidence suggests that the annualized quarterly growth rate of nonfarm employment is actually a stationary series that is mean-reverting. The average growth rate is estimated at 1.28 percent over the Q1-1982 to Q4-2012 period. In Q4-2012, payrolls were growing at a 1.64 annualized rate, above the long-term trend.

Conclusion: For Some, Not Likely to Go Back to the Good Ol’ Days

Often, in the decision making process, we utilize time series data to model and forecast a picture of the future. One of the key assumptions behind forecasting is that the dataset is stationary (mean-reverting). Decisions are based on the idea that a series will move around its long-run mean and that fluctuations from the mean are temporary. This assumption has serious consequences, especially if the series are not mean-reverting (non-stationary). In the case of non-stationary data, the modeled results would not be reliable, and thus, any decisions based on those expectations may prove inaccurate. Therefore, it is important to be familiar with the long-term behavior of the data and insure stationarity before making decisions.
AUTHOR GUIDELINES

The Market Technicians Association serves a global community and the organization’s publications strive for articles that can be easily understood by readers around the world. To meet that objective, all submissions to Technically Speaking should be in English and minimize the use of vernacular phrases and references. This is necessary to improve the readability for international members who may not understand phrases commonly used in one region but unknown in most of the world.

In Technically Speaking, we want to publish articles that use simple language whenever possible. Specific terms associated with financial analysis in general and technical analysis specifically should be defined unless they are found in the MTA’s Body of Knowledge. The editors may have to make changes to any work that is published for clarity and consistency.

Please send any material you would to have considered for publication before the 20th of the month. We will work to include anything received by that date in the next issue.

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iv The value of Pr < Tau of the ADF test will identify whether we accept or fail to accept the null hypothesis of non-stationarity. In this report we use the 5 percent significance level, therefore any probability value less than 0.05 identifies a significant relationship, implying that the series is stationary and therefore we can progress with the OLS regression model.

v The U-3 measurement of the unemployment rate counts the total number of unemployed persons as a percent of the civilian labor force. This is the official unemployment rate.

vi See Romer, David. Advanced Macroeconomics, McGraw-Hill Irwin, Boston, Chapter 9 in particular.