Using Technical Analysis in Investing

Global Interdependence Center – October 2015

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Our Technical Toolbox

Support & Resistance

- Moving Averages
- Peaks/Troughs
- Fibonacci Levels
- Cloud Model
- Trendlines and Price Patterns

Three Classes of Indicators

- Trend-Following
- Overbought/Oversold
- Relative Strength

Market Internals

- Volume
- Breadth
- Leadership
- Sentiment

Trend-Following

- MACD
- Moving Averages
- Cloud Model

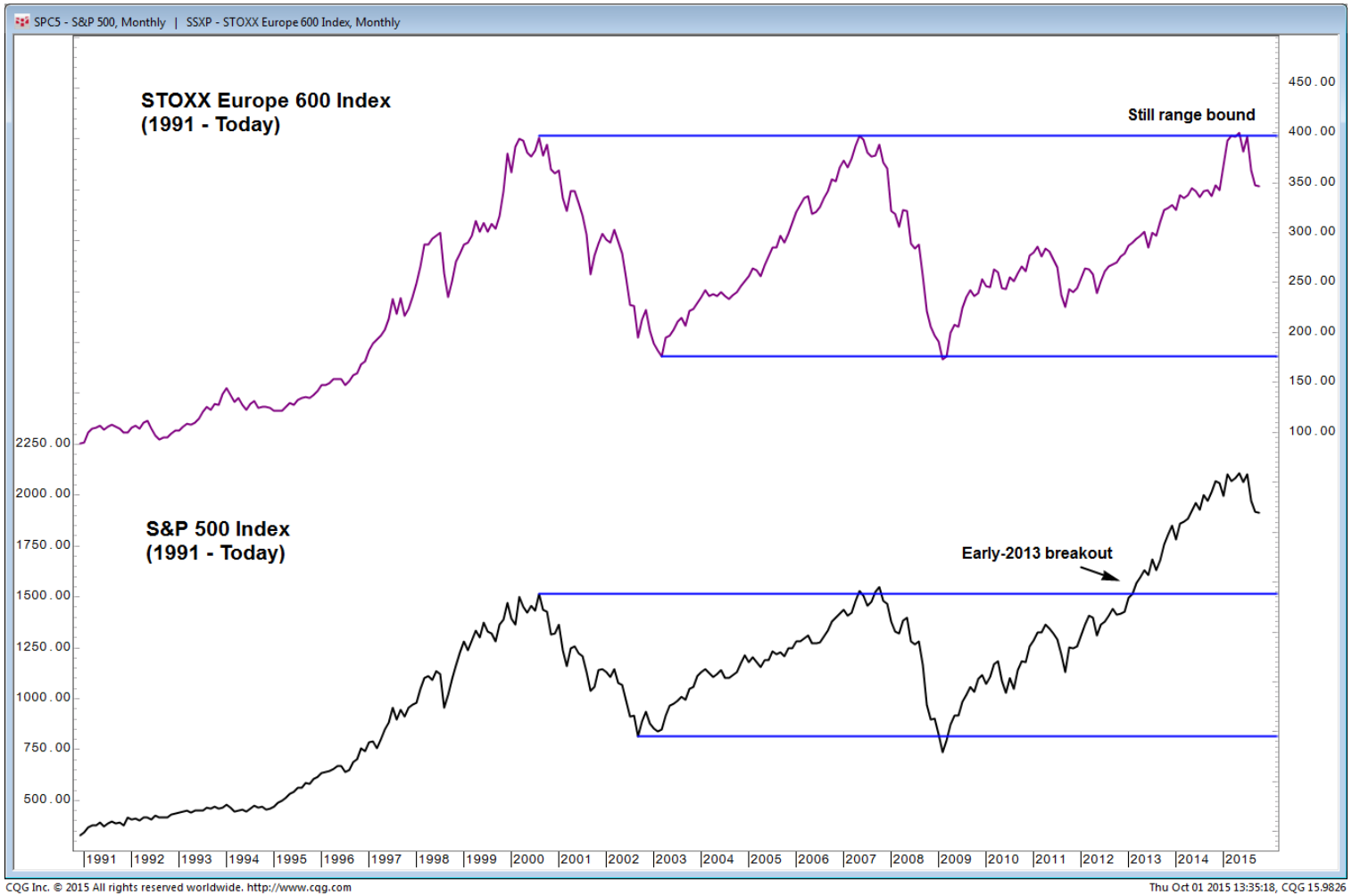
Overbought/Oversold

- Stochastic Oscillator
- DeMark Indicators
  - TD Sequential®
  - TD Combo®
- Divergence Analysis

Relative Strength

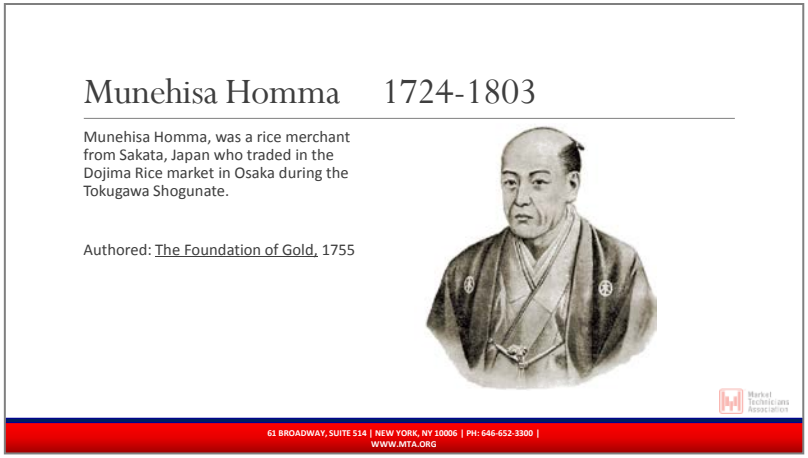
- Comparative Ratios
- Relative Rotation Graphs (RRG)

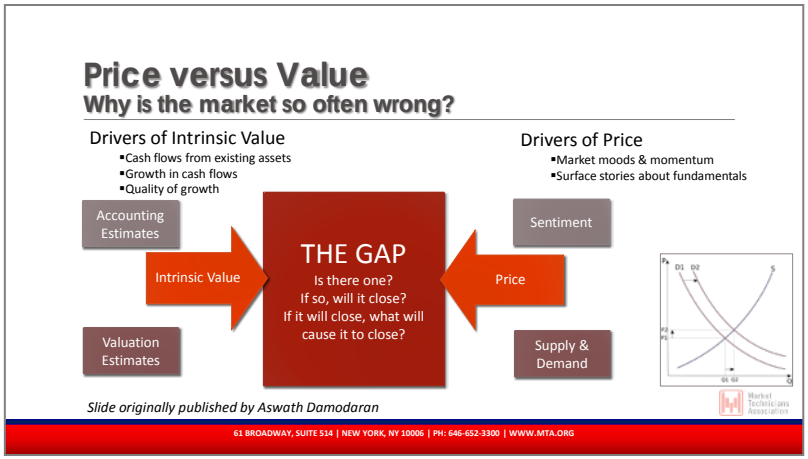
Support and Resistance Levels Matter; Breakouts and Breakdowns Matter



History of Technical Analysis from the MTA

- Technical analysis has roots dating back to the 18th century when Munehisa Homma, a very successful rice merchant from Japan, began recording [price movement/trading activity] with images that evolved into what we now call candlestick charts. In 1755 Munehisa authored the first book to address market psychology.
- So what is technical analysis? The MTA asserts that technical analysis is a complement to fundamental analysis. Technical analysis provides the tools to successfully navigate the gap between an intrinsic value derived from fundamental analysis, and market price through a disciplined, systematic approach to market behavior and the law of supply and demand.





Source: Market Technicians Association

MIT Professor Andrew Lo on Technical Analysis

Andrew W. Lo is the Charles E. and Susan T. Harris Professor at the MIT Sloan School of Management and director of the MIT Laboratory for Financial Engineering. He received his Ph.D. in economics from Harvard University in 1984. Before joining MIT's finance faculty in 1988, he taught at the University of Pennsylvania's Wharton School.[1]

- Initially opposed to the merits of technical analysis, Lo went on to co-author one of the cornerstone publications in defense of the practice, "Foundations of Technical Analysis: Computational Algorithms, Statistical Inference, and Empirical Implementation."
- He concluded "<u>certain technical patterns, when applied to many stocks over many time periods, do provide incremental information, especially for Nasdaq stocks.</u> Although this does not necessarily imply that technical analysis can be used to generate "excess" trading profits, it does raise the possibility that technical analysis can add value to the investment process."[2]

Source: www.time.com

[1]http://alo.mit.edu/biography/
[2]Lo, Andrew, Harry Mamaysky, and Jiang Wang. "Foundations of Technical Analysis: Computational Algorithms, Statistical Inference, and Empirical Implementation." (2000): 1705-1706.

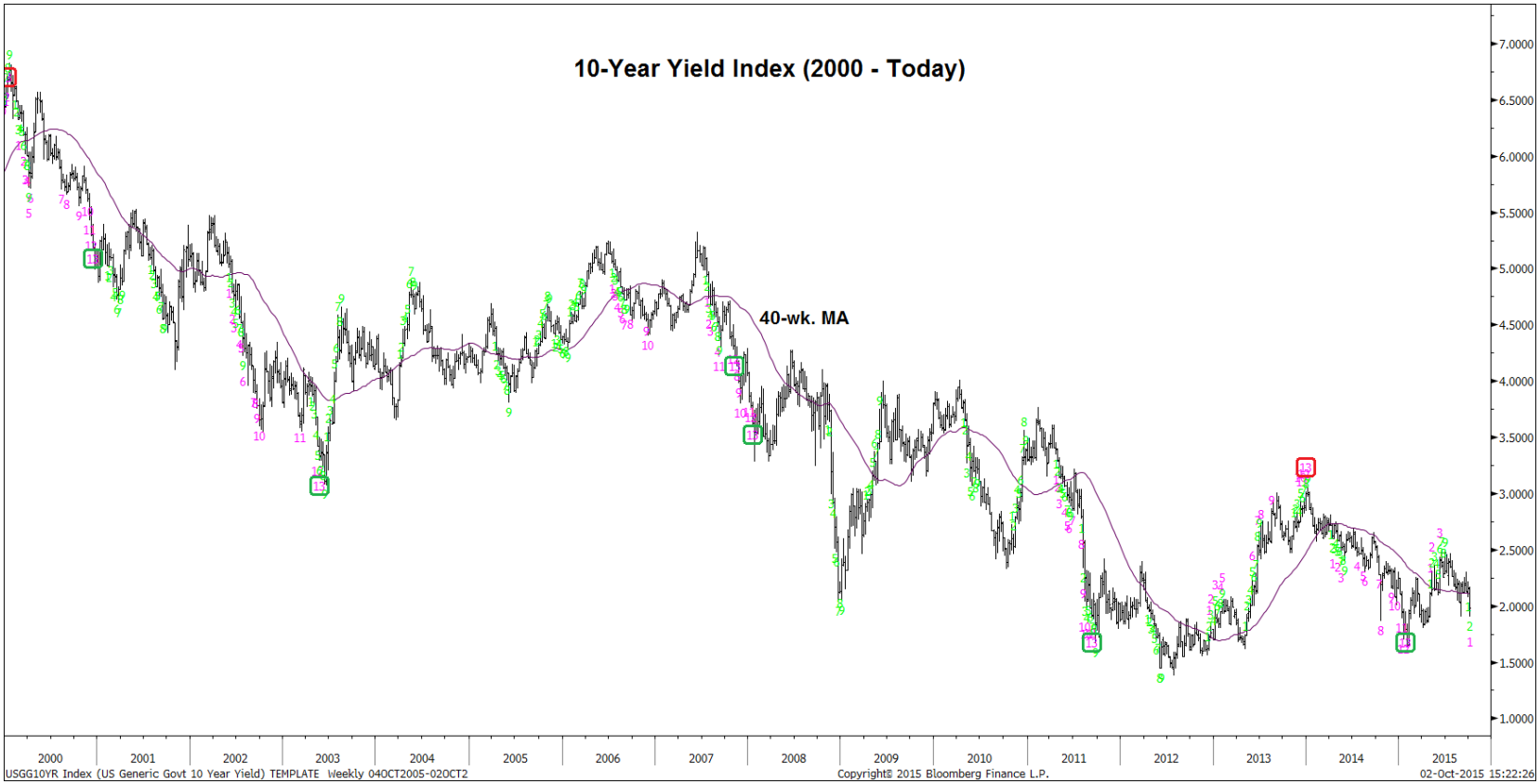
Excerpts From Lo's Paper on the Foundations of Technical Analysis

- **On Eliminating Noise:** "…the general goal of technical analysis is to identify regularities in the time series of prices by extracting nonlinear patterns from noisy data," and as such, "some price movements are significant—they contribute to the formation of a specific pattern—and others are merely random fluctuations to be ignored."
- **On T.A. as Voodoo:** "It has been argued that the difference between fundamental analysis and technical analysis is not unlike the difference between astronomy and astrology. Among some circles, technical analysis is known as 'voodoo finance.' And in his influential book *A Random Walk Down Wall Street*, Burton Malkiel (1996) concludes that '[u]nder scientific scrutiny, chart-reading must share a pedestal with alchemy.'"
- **On Academic Backing:** "However, several academic studies suggest that despite its jargon and methods, technical analysis may well be an effective means for extracting useful information from market prices. For example, in rejecting the Random Walk Hypothesis for weekly U.S. stock indexes, Lo and MacKinlay (1988, 1999) have shown that past prices may be used to forecast future returns to some degree…"[3]

Source: www.cnmeonline.com

[3]Lo, Andrew, Harry Mamaysky, and Jiang Wang. "Foundations of Technical Analysis: Computational Algorithms, Statistical Inference, and Empirical Implementation." (2000): 1705-1706, 1708.

Some Indicators Are *Mysteriously* Helpful (Thank You, Fibonacci?)



Successes as a Practitioner of T.A.

- If is doesn't work, why do people pay for it? I have been gainfully employed as a technical analyst since 1997.
- Among our clients, including hundreds of respected mutual funds and hedge funds, BTIG's technical research has a distribution of about 3500 professionals with average readership of about 25% (this is high!).
- In recent years, my team has helped clients identify SPX correction lows in 2011, 2012 and 2014 (and hopefully 2015).
- Media coverage of technical analysis has grown exponentially in recent years, allowing me to be quoted by respected financial publications (e.g., WSJ) and to log frequent TV appearances on several national and international networks.

BTIG

Strategy
October 19, 2014

Technical Strategy

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Global Technical Strategy
Friday Brings Hope

Friday's rally helped many stocks avoid confirmed breakdowns last week. The S&P 500 Index (SPX, 1886.76) fell about 4.5% intraweek, bottoming near 1820 before rebounding 1.3% on Friday. The relief rally generated an oversold "buy" signal in the daily stochastics, and it allowed confirmation of short-term DeMark "buy" signals in positively correlated benchmarks like the S&P Small Cap 600 Index and iShares MSCI EAFE ETF. Wednesday's intraday reversal reflected a "shakeout," in hindsight, and we were encouraged by the similarly climactic action in small caps and overseas markets. Our market internal measures remain at extremes that are supportive of a short-term low. Initial resistance for the SPX is now defined by the daily cloud model near 1960 pictured below, and initial support is now defined by the upper boundary of the *weekly* cloud model near 1840 pictured on the following page. A move above cloud-based resistance would signal the resumption of the long-term uptrend, and would set our sights back on our target of 2080. Before resistance is tested, however, we would not rule out a retest of support once the stochastics start to roll.

Please Read: Important disclosures and analyst's certification appear in Appendix

CNBC's *Talking Numbers*: Technical vs. Fundamental Recommendations

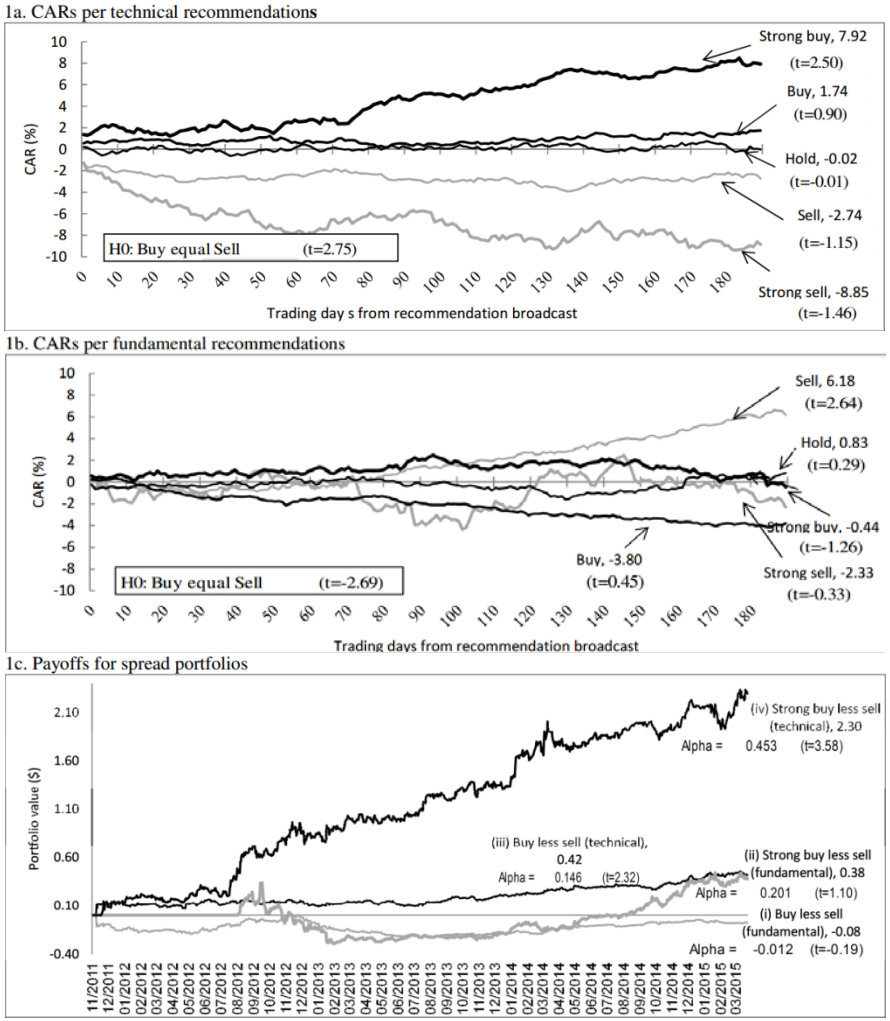
- "*Talking Numbers*: Technical versus Fundamental Recommendations" is a study by Doron Avramov, Guy Kaplanski, and Haim Levy that surveyed the results of technical and fundamental recommendations featured on CNBC's *Talking Numbers*.
- According to the study, the program features "dual recommendations… made by highly experienced analysts representing prominent institutions." As such, "this unique setup featuring synchronized recommendations, multiple assets, and a presence of leading professionals, offers important insights in assessing the value of financial analysis…" that enabled them to observe a "natural experiment to contrast technical and fundamental analyses and gauge a real time value of dual recommendations."[4]

Source: finance.yahoo.com/talking-numbers

[4]Avramov, Doron and Kaplanski, Guy and Levy, Haim. "Talking Numbers: Technical versus Fundamental." (2015): 1.

Sample Findings from *Talking Numbers* Study

- For the sample period 11/2011-12/2014, they plotted cumulative abnormal returns starting from the recommendation broadcast (panels 1a and 1b) and the cumulative payoffs generated by technical and fundamental spread portfolios: buy-minus-sell and strong buy-minus-sell (panel 1c).
- They concluded: "Consistent with the semi-strong market efficiency hypothesis, the fundamental analysis reveals no ability, whatsoever, to predict future returns on all the assets examined. Surprisingly, <u>technical analysts exhibit significant predicting ability of individual stock returns which could point to market inefficiency even among the universe of the largest and most traded stocks</u>."[5]



[5]Avramov, Doron and Kaplanski, Guy and Levy, Haim. "Talking Numbers: Technical versus Fundamental." (2015): 2, 26, 37.

Efficient Market Hypothesis (EMH) vs. Behavioral Finance

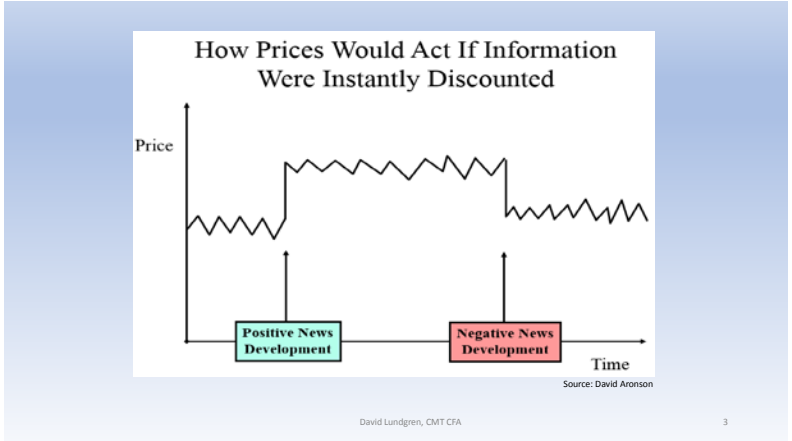
- **EMH:** "In general terms, the ideal is a market in which prices provide accurate signals for resource allocation: that is, a market in which firms can make production-investment decisions, and investors can choose among the securities that represent ownership of firm's activities under the assumption that security prices at any time 'fully reflect' all available information. A market in which prices always 'fully reflect' available information is called 'efficient.'"[6]
- **Behavioral Finance:** "…seeks to provide explanations for people's economic decisions by combining behavioral and cognitive psychological theory with conventional economics and finance. Fueling the growth of behavioral finance research has been the inability of the traditional expected utility maximization of rational investors within the efficient markets framework to explain empirical patterns…. For example, behavioral finance helps explain why and how markets might be inefficient."[7]
- **Adaptive Markets Hypothesis (AMH):** "…is based on an evolutionary approach to economic interactions, as well as some recent research in the cognitive neurosciences that has been transforming and revitalizing the intersection of psychology and economics…. [AMH] can be viewed as a new version of the EMH, derived from evolutionary principles."[8]

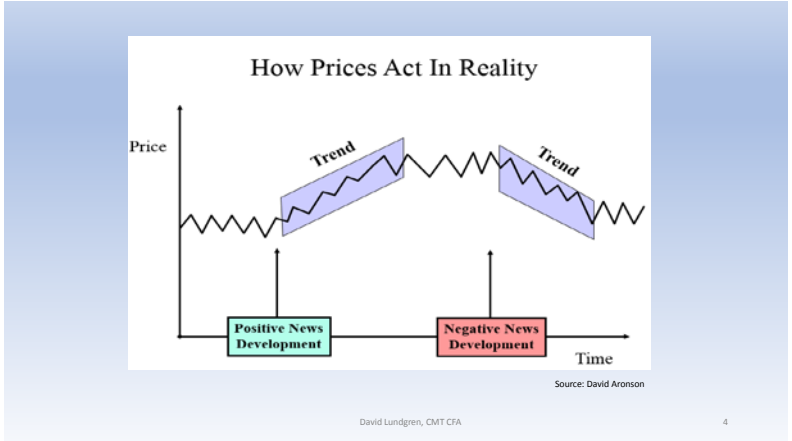
Intelligence is not only the ability to reason; it is also the ability to find relevant material in memory and to deploy attention when needed.

Daniel Kahneman (2002 Nobel Prize winner), *Thinking, Fast and Slow*

[6]Fama, Eugene F. "Efficient Capital Markets: A Review of Theory and Empirical Work." *The Journal of Finance* 25.2 (1970): 383.
[7]Baker, K. H., Nofsinger, J. R. *Behavioural Finance: Investors, Corporations, and Markets*. New Jersey: John Wiley & Sons. (2010): 3.
[8]Lo, Andrew W. "The Adaptive Markets Hypothesis." *The Journal of Portfolio Management Portfolio Management* 30.5 (2004): 1, 18.

Dave Lundgren's *Efficiently Random Market Hypothesis* (ERMH)





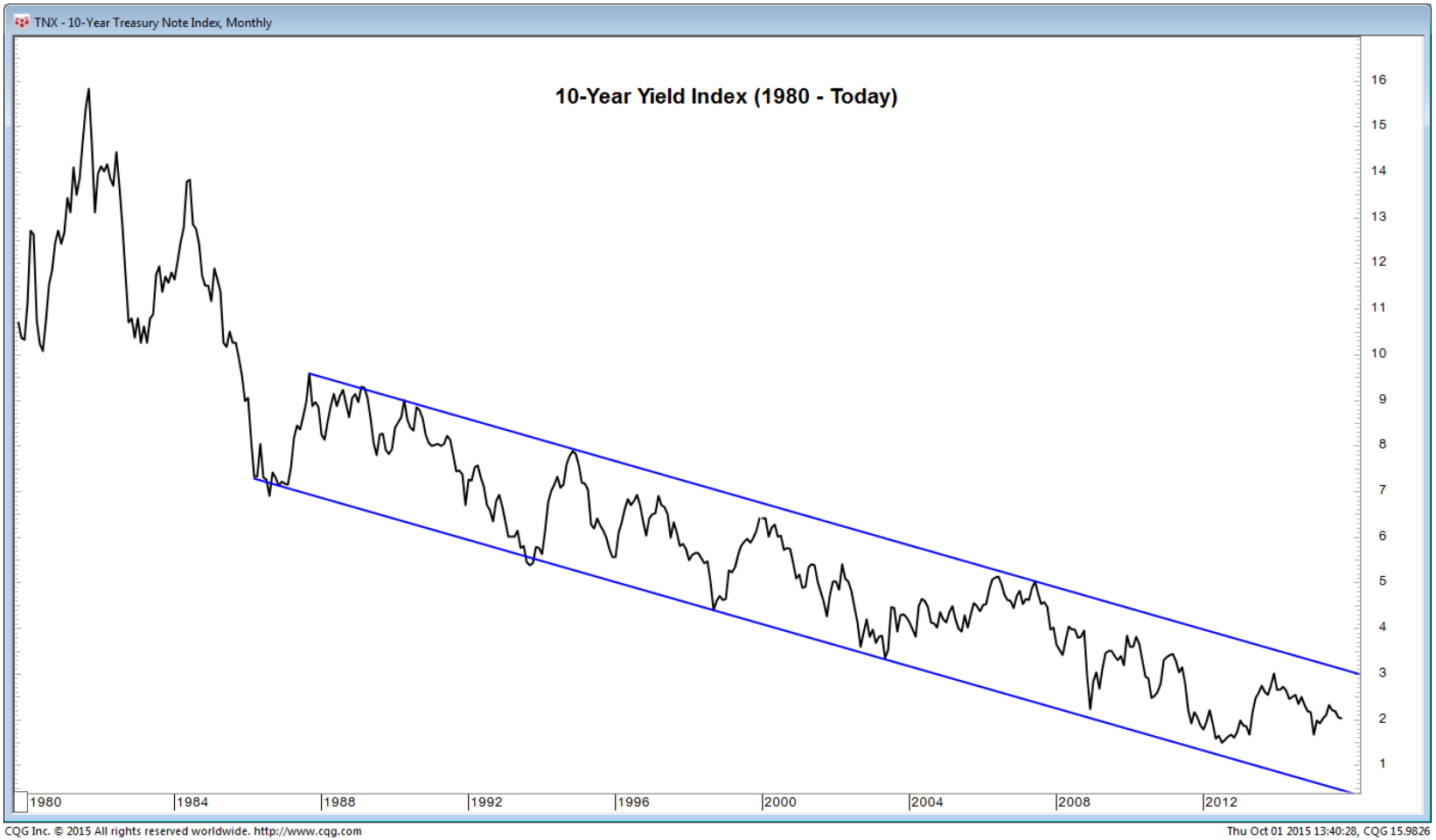
Source: Dave Lundgren, CMT, CFA

- **The Primary Trend ("The Tide")** -- Driven by long-term trends in fundamental and economic data – Measured over years – *Cannot* be influenced by flows and *is not random*

- **The Secondary Trend ("The Waves")** – Driven by economic data *and* investor's *emotional response* to it – Measured over months – *Can be* influenced by flows and *at times* behaves randomly

- **The Minor Trend ("The Ripples")** – Driven purely by emotional impulses of fear and greed – Measured over minutes, days, or weeks – *Is* influenced by flows, and *is completely random*

Trends are Evident in Most Asset Classes, Across Any Time Frame



John Hancock Technical Opportunities Fund – 2015 Lipper Fund Award Winner

This year, Wellington Management portfolio manager Frank Teixeira was given the Lipper Fund Award for Best Fund over 3 years ending 12/31/14 in the Global Multi Cap Growth category.

The fund's stated goal and strategy:
"To seek long-term capital appreciation. When the subadvisor determines that its technical criteria are attractive, the fund will invest in equity and equity-related securities of companies located throughout the world, including the United States and emerging countries, and denominated in any currency. The subadvisor employs an unconstrained investment approach driven by technical analysis. The fund may invest in cash and other liquid short-term fixed income securities within a wide range (0%-100% of net assets) when the subadvisor believes that the fund could benefit from maintaining a higher cash exposure, including for temporary defensive purposes."[9]


THOMSON REUTERS

LIPPER FUND AWARDS 2015

United States

John Hancock Technical Opportunities Fund

John Hancock Group

Best Fund over

3 Years

Global Multi-Cap Growth Funds

Ranjit Tinaikar
Managing Director, Asset Management

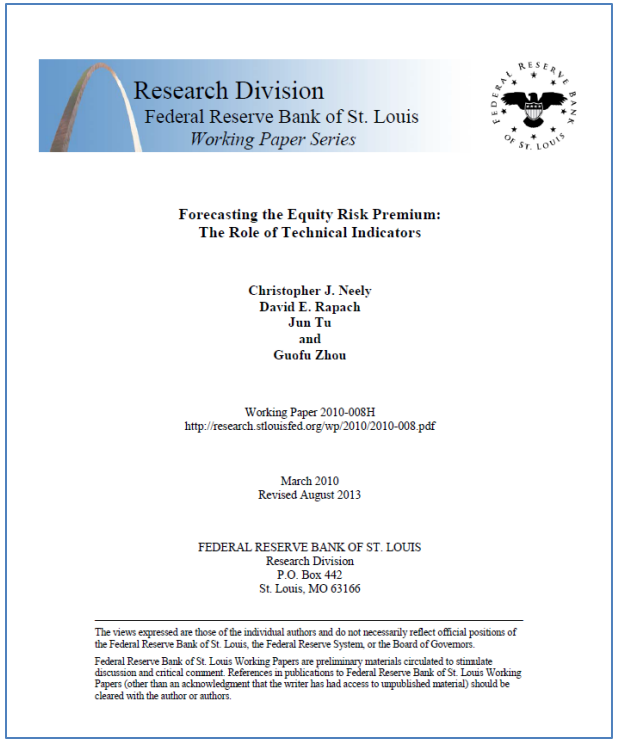
Lars Asplund
Managing Director, Lipper

[9]http://alo.mit.edu/biography/

These Days, We Are At a Disadvantage if We *Don't* Track the 200-day MA

Other Academic Research Regarding T.A.

- **On Technical Indicators:** The conclusion from "Forecasting the Equity Risk Premium: The Role of Technical Indicators," a Working Paper from the Federal Reserve Bank of St. Louis states: "Our results show that technical indicators exhibit statistically and economically significant in-sample and out-of-sample forecasting power for the monthly equity risk premium, clearly on par with that of well-known macroeconomic variables from the literature."[10]
- **Critique of EMH:** In another working paper from the Federal Reserve Bank of St. Louis, "Technical Analysis in the Foreign Exchange Market," they state: "Evidence has steadily accumulated that suggests that financial markets are not as efficient as had once been believed. For example, stock prices display short-term momentum over periods of six months to a year and longer-term mean reversion (De Bondt and Thaler (1985), Chopra, Lakonishok and Ritter (1992) and Jegadeesh and Titman (1993))…. Behavioral models that depart from the standard assumption of rationality are able to account for such anomalous price patterns."[11]



Research Division
Federal Reserve Bank of St. Louis
Working Paper Series

Forecasting the Equity Risk Premium:
The Role of Technical Indicators

Christopher J. Neely
David E. Rapach
Jun Tu
and
Guofu Zhou

Working Paper 2010-008H
http://research.stlouisfed.org/wp/2010/2010-008.pdf

March 2010
Revised August 2013

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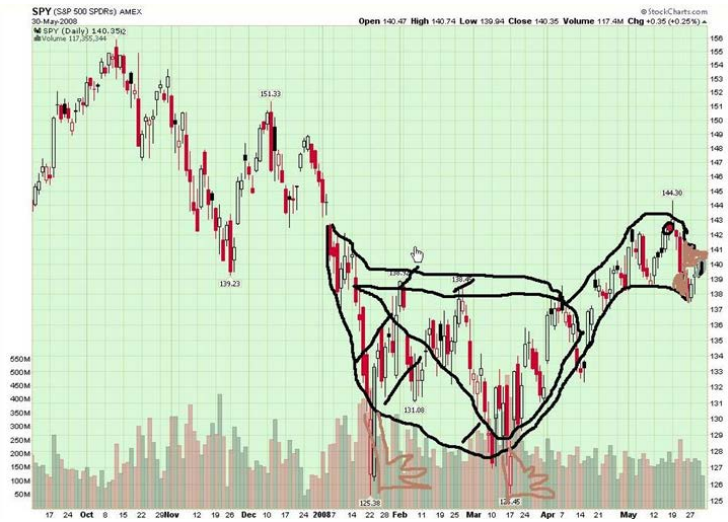
[10]Neely, C.J. and Weller, P.A., Technical Analysis in the Foreign Exchange Market. Federal Reserve Bank of St. Louis Working Papers. (2011): 18.
[11]Neely, C.J., D.E. Rapach, J. Tu, and G. Zhou. Forecasting the Equity Premium: The Role of Technical Indicators. Federal Reserve Bank of St. Louis Working Papers. (2011): 26.

When All Else Fails, There is Always the Black Swan Formation

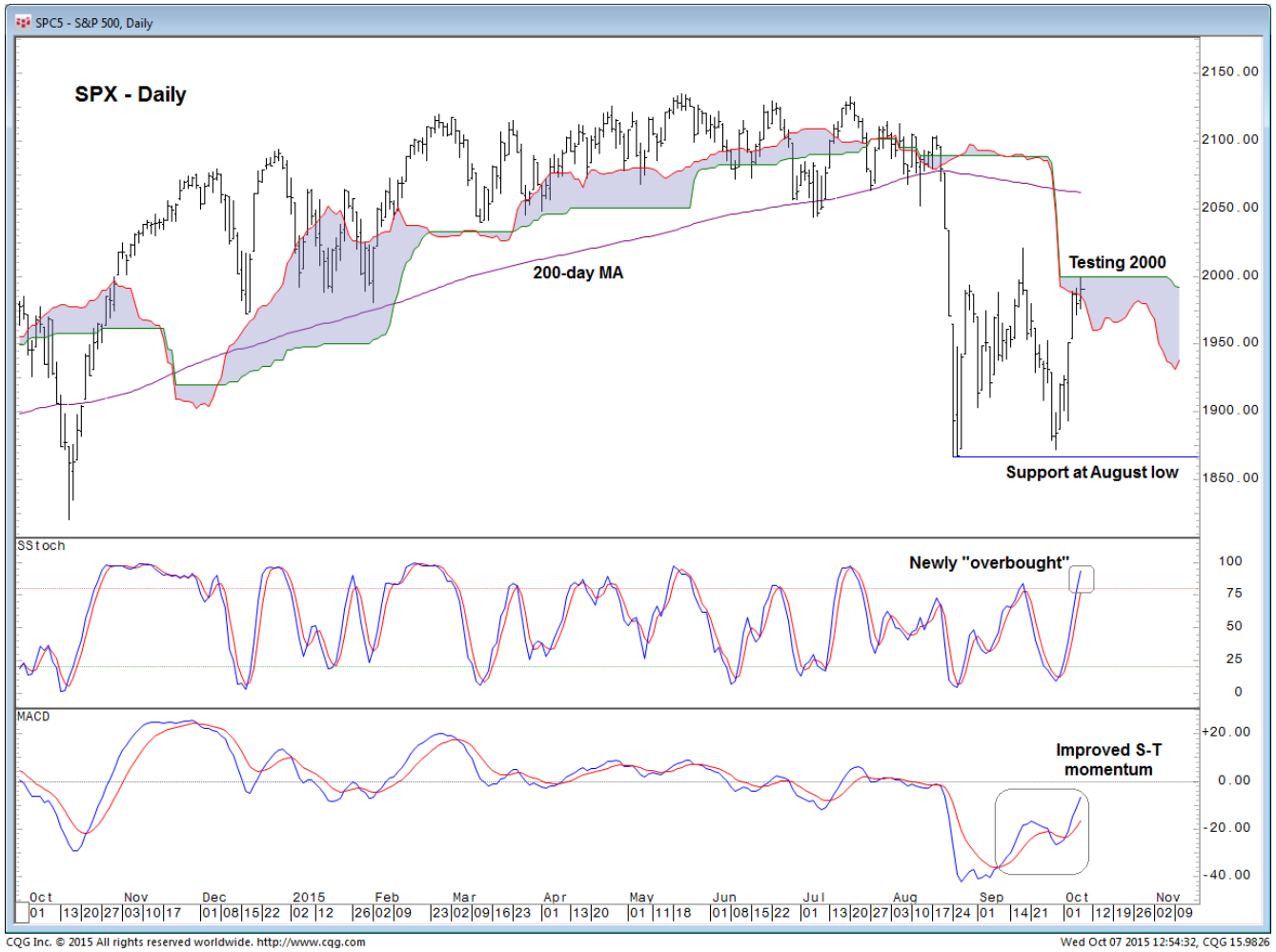
- **A Matter of Miscommunication:** An important point brought up by Lo, et al. is that technicians have erected "linguistic barriers between technical analysts and academic finance." They note "language barriers underscore an important difference between technical analysis and quantitative finance: technical analysis is primarily visual, whereas quantitative finance is primarily algebraic and numerical."
- **It's Art, Not Science:** Despite the terminology used, accepted or ridiculed, Lo, et al. concluded that technical analysis has persisted, "perhaps because its visual mode of analysis is more conducive to human cognition, and because pattern recognition is one of the few repetitive activities for which computers do not have an absolute advantage (yet)."[12]



Source: www.joetaxpayer.com

[12]Lo, Andrew, Harry Mamaysky, and Jiang Wang. "Foundations of Technical Analysis: Computational Algorithms, Statistical Inference, and Empirical Implementation." (2000): 1706.

These Are Interesting Times, For Sure



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Stocks in coverage as of the end of the most recent calendar quarter (September 30, 2015): 175

The percentage of Investment banking services is calculated as of September 30, 2015. Distribution of investment Banking Relationships: BUY: 88% NEUTRAL: 6% SELL: 6% after the ratings distribution.

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