

Tom DeMark's Numerology

BY ANTHONY EFFINGER AND KATHERINE BURTON

PHOTOGRAPHS BY RAMONA ROSALES



THE ARIZONA-BASED ANALYST HAS SPENT 40 YEARS DEVELOPING CHARTS THAT CALL THE MARKETS' HIGHS AND LOWS. HEDGE-FUND MOGULS STEVE COHEN AND JOHN BURBANK ARE SUCH FANS, THEY BOUGHT A PIECE OF THE COMPANY.



PAST THE TWO BENTLEYS IN the driveway and beyond the pool and mini water park, the home theater and a sports bar hung with enough memorabilia to equip a basketball team, Tom DeMark has his office—a dark, wood-paneled lair with six computer screens. The office abuts the master bedroom of his Scottsdale, Arizona, home. It has to, DeMark says, because he often gets up after midnight to scrutinize charts of stocks, bonds, commodities and currencies to see if his numerical system for predicting their behavior is working.

Since he started in the investment business in 1971, DeMark has advised some of the biggest names on Wall Street, men such as Paul Tudor Jones and Leon Cooperman. He's a consultant to Steven Cohen, founder of SAC Capital Advisors LP, which manages \$14 billion, and John Burbank, founder of \$3.4 billion Passport Capital LLC. SAC and Passport each own a piece of DeMark's company, Market Studies LLC. DeMark has a phone on his desk that's dedicated to Cohen, whose hedge fund has made money every year save one since 1993.

DeMark's system for predicting where markets will move, divined from four decades of chart gazing, is based partly on the recondite mathematical relationships that devotees see in the design of the Parthenon in Athens and the Great Pyramid of Giza.

Get DeMark's followers talking, and their enthusiasm for his market calls is unbounded. "When I use DeMark's work, I feel like I'm wielding Thor's hammer," says David Goel, managing partner at hedge fund Matrix Capital Management Co. in Waltham, Massachusetts, which manages \$2 billion. In Norse mythology, the thunder god Thor carries a massive mallet with which he can crush mountains.

Burbank of Passport says he has tested DeMark's algorithms and they're much more predictive than any other system he has tried. "Using DeMark indicators is like seeing the market in color, when before you were looking at it in black and white," he says.

Among DeMark's calls: On Sept. 22, 2011, he said the Standard & Poor's 500 Index would soon bottom at 1,076 and then rise 20 percent. The S&P

touched 1,074.77 intraday eight trading days later and had moved up 20 percent by Jan. 10. His system also flashed buy just before a July rally in oil futures and an August surge in silver.

DeMark, 65, is a member of a group of market forecasters who devote their days to poring over price charts, looking for recurring mathematical patterns. Most call themselves technical analysts, as opposed to those who rely on fundamentals like earnings and economic growth. DeMark says fundamentals do matter. He also believes that markets are governed by waves that crest and fall based on a sequence of numbers called the Fibonacci sequence and the closely related golden mean, or golden ratio.

Fibonacci numbers appear in this infinite sequence: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34 ..., where each number is the sum of the previous two. Divide one Fibonacci number by its predecessor, and the quotients will cluster around 1.618—the golden mean, or so-called divine proportion. Technical analysts say that

both can be used to predict a market's direction, and some say they're literally divine. "This mathematics is embedded in the structure of the universe," says Cynthia Kase, who uses wave analysis to compile a weekly forecast for oil and natural gas prices. "It is the language of God."

Technical analysis is in the midst of a post-financial crisis boomlet. Tyler Wood, marketing director at the New York-based Market Technicians Association, says there has been a 30 percent jump in new members in the past two years, pushing its rolls to 4,500 as of mid-October. Interest in DeMark's and other analysts' charts has been boosted by the fact that since 2008, markets have become correlated, meaning that macro events such as the

DeMark in his recently renovated sports bar. His son T.J. is behind the bar.



The Fibonacci Code

THE SEQUENCE IS PRODUCED WHEN EACH NUMBER IS THE SUM OF ITS TWO PREDECESSORS. DeMARK, LIKE MANY ANALYSTS, SAYS IT PREDICTS MOVES IN FINANCIAL MARKETS. AS THE NUMBERS GET LARGER, DIVIDING ONE BY ANOTHER YIELDS 1.618—THE GOLDEN RATIO—ANOTHER NUMBER THAT RECURS IN MARKETS. FOR HIS COUNTS, DeMARK STARTED WITH 8 AND 13; 9 AND 13 WORKED BETTER.

1 TO 9

The Setup

It consists of nine straight days with a close higher or lower than four days before.

1 TO 13

The Countdown

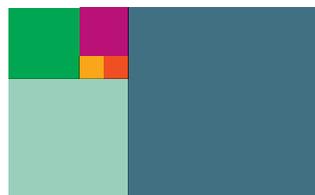
When the setup is finished, the countdown begins. If it produces a 13, a turn is imminent.



LEONARDO FIBONACCI

FIBONACCI AND THE GOLDEN MEAN

Many plants that grow leaves in spirals produce them in **Fibonacci numbers**—in this case, three in one direction and five in the other.

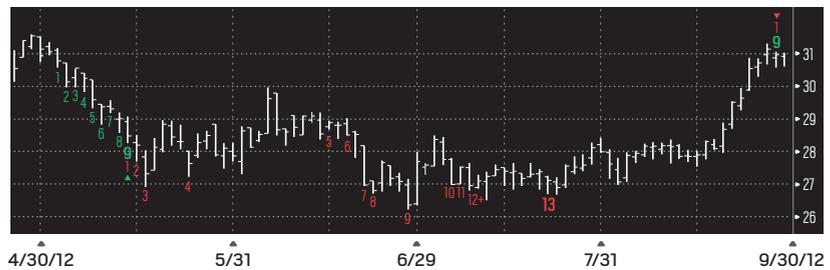


In a **golden rectangle**, the long side is 1.618 times the length of the short one. Take a square out and you get another golden rectangle, to infinity.

Sources: Bloomberg, DeMark, Intrade, Smith College math department

GOOD CALL

SILVER: DeMark's TD Sequential signaled a buy on the metal on July 23, after the price had ratcheted down over three months. An investor who bought silver futures on the day DeMark's chart showed a 13 would have gained 31 percent in 10 weeks.



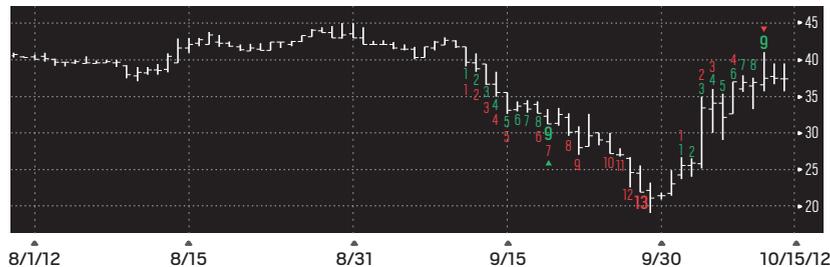
BAD CALL

RIM: DeMark indicators flashed a buy signal on the BlackBerry maker in May, June, July and October 2011, but the company's losing battle for market share with Apple's iPhone pushed its stock price relentlessly down.



PREDICTING POLITICS

ROMNEY: The indicators can make nonfinancial calls. Using the Intrade prediction market—in which one bets on real-world events—DeMark said that the candidate's fortunes were about to turn up a week before many analysts said he triumphed in the first presidential debate.



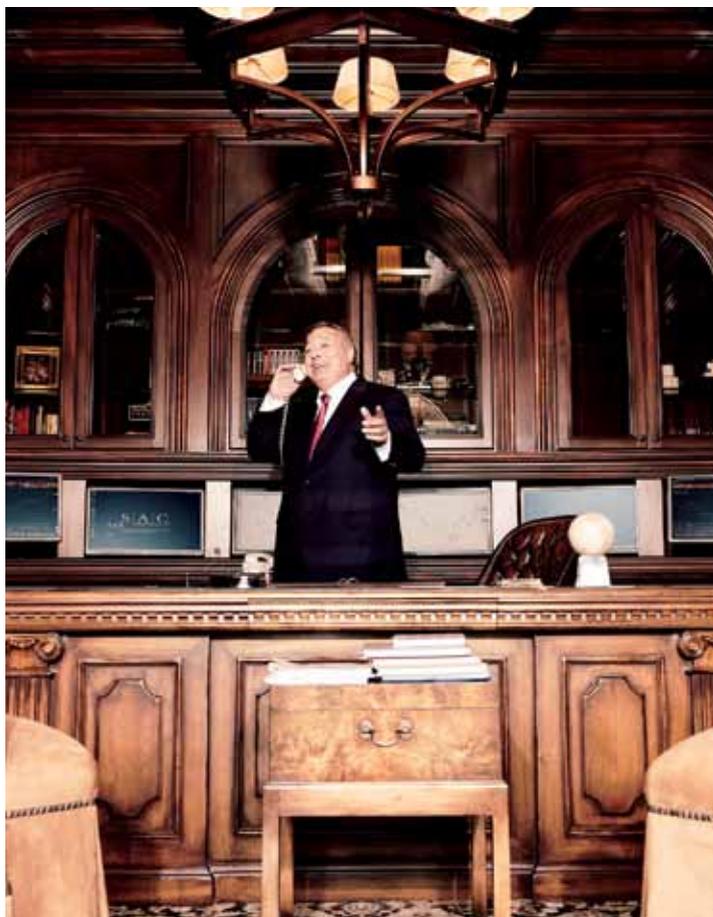
STEFANO BIANCHETTI/CORBIS (FIBONACCI); MICHA PAWLITZKI/CORBIS (PLANT)

European debt crisis can slam shares of weak and strong companies alike. Traders are looking for an advantage, and DeMark's system, which seeks to identify the point at which an up or

down market is "exhausted," offers one, Burbank says. "Any edge you can get in putting on your position and taking it off is paramount," he says.

Jason Perl, an adviser to investment

funds at Zurich-based UBS AG, says the DeMark indicators are crucial in the post-crisis world because so many traders are avoiding making bold moves that might jeopardize their jobs.



DeMark's home office is adjacent to his bedroom so he can check his numerical systems late at night.

"People are managing career risk rather than portfolio risk," Perl says.

Traditional investors who look at fundamentals and managers of quantitative funds can barely hide their contempt for the technicians. "Comparing technical indicators to what we do is like comparing bush medicine to the research performed by drug companies," says Matthew Beddall, chief investment officer at London-based Winton Capital Management Ltd., a quantitative hedge fund staffed by physics and math Ph.D.s.

Technicians who, like DeMark, are believers in Fibonacci numbers and the golden mean are especially annoying to quants. "There's a golden ratio mania, and most of it isn't based on any kind of fact," says George Markowsky, a computer science professor at the University of Maine, who holds a Ph.D. in mathematics. Markowsky wrote a

paper in 1992 rejecting most of the claims of the golden mean believers. "It's amazing to me that adults take this stuff seriously," he says.

Investor Warren Buffett is also dubious of the notion that a stock or index's direction can be predicted merely by studying historical price data. "I realized that technical analysis didn't work when I turned the chart upside down and didn't get a different answer," the Berkshire Hathaway Inc. chairman joked to an audience at Vanderbilt University in 2005. A spokesman says that Buffett stands by the statement.

Oswald Gruebel says he's with the Oracle of Scottsdale, not Omaha, on this one. "I only use his system," says Gruebel, former chief executive of both Credit Suisse Group AG and UBS, Switzerland's two largest banks. A trader by training, Gruebel manages his own portfolio using DeMark's work. "It tells you

when everyone else has sold and you should be buying," Gruebel says. "His system is the best I've seen in 50 years."

DeMark says his indicators can predict everything from the next spike in the price of copper to the outcome of the U.S. presidential election. Using numbers from the Dublin-based In-trade prediction market—in which investors buy and sell shares based on their expectations of how real-world events will turn out—DeMark's charts indicated a week before the first Barack Obama–Mitt Romney debate that Romney's fortunes had bottomed and were about to turn up. They did just that after Obama appeared listless before an invigorated Romney.

Technicians have been trying to mine market intelligence from charts since Charles Dow, who founded the *Wall Street Journal* in 1889, started comparing his industrial and transportation indexes. Robert Prechter has been publishing his *Elliott Wave Theorist* newsletter since 1979, popularizing the ideas of Ralph Nelson Elliott, a Kansas-born accountant who wrote a 1938 book called *The Wave Principle*, which examined how mathematical oscillations determine prices.

Some finance scholars take the broad field of technical analysis very seriously. Andrew Lo, a professor of finance at the Massachusetts Institute of Technology, wrote a book on the topic in 2009 called *The Heretics of Finance*. "One of the strengths of technical analysis is that it captures sentiment," says Lo, citing such emotions as fear and greed. "That's not something that quantitative analysis or fundamental analysis pays attention to." He says technical analysis is often used by currency traders because fundamental data that affect currencies, like inflation, hardly change from day to day. "Any currency trader, even if they don't believe in technical analysis, will look at it because so many people do," he says. Lo is chairman and chief investment strategist of AlphaSimplex Group LLC, a derivatives-based hedge fund.

Market Studies makes money by charging traders for access to its indicators. It collects “several million” dollars from SAC Capital each year, DeMark says. It also sells subscriptions to the indicators on the Bloomberg Professional service for \$500 a month. Bloomberg LP, the parent of Bloomberg News, takes a percentage. DeMark has a similar arrangement with Thomson Reuters Corp. DeMark won't say how many subscribers he has.

DeMark's interest in technical analysis was sparked in the early 1970s when he worked as a securities analyst in the

The Wisconsin native works from his walled Scottsdale compound, which he bought for \$4.6 million in 2003 from Adam and Cindy Bronfman, members of the Seagram liquor clan. His 37-year-old son T.J.—one of his six children—supervises 13 employees at a nearby office park.

DeMark says he's obsessive by nature. As a kid, he played as many as 81 holes of golf a day during the summer on the way to becoming Wisconsin state champion among players 13 and under. One year, he ate spaghetti in red sauce 60 consecutive nights. “I go to extremes,” he says.

During a flight home from London in 2009, DeMark listened to a single song—Coldplay's “Viva la Vida”—for 11 hours and 20 minutes. He says he was captivated by both the tune and the message: that a respected king—or a brilliant market forecaster, in his case—can see his world turned upside down by a single mistake.

DeMark is equally obsessive about his charts—and he takes his preoccupation with him on his annual vacation to Hawaii. “He works the whole time,” his wife, Nancy, complains. “His life calling is figuring out the market. He always says, ‘When I solve it, I'll die.’”

The Market Studies system consists of more than 100 indicators. One of the most widely used is TD Sequential. The software takes a normal bar chart showing prices rising and falling and, if conditions are right, starts two sequences of numbers. The first is a nine-day count called the “setup” (green numbers). The second is a 13-period “countdown” (red numbers).

DeMark likes to show off a recent one-year chart for silver futures because it worked so well. On July 23, TD Sequential flashed a buy signal on the

DeMark says he's obsessive. He once listened to a Coldplay song for 11 straight hours.

metal. The sequence of silver price changes that took it there started on May 2, when silver set for delivery in December fell 28.7 cents to \$30.77 an ounce. That was lower than the closing price four trading days earlier—a key comparison for DeMark—so TD Sequential, running on the Bloomberg Professional service, put a green 1 below the bar for that trading day. The next day, silver closed at \$30.13, lower than the close four trading days earlier than that, on April 27. A 2 appeared.

Silver repeated the pattern nine times, resulting in a green 9 under the trading bar for May 14. Now, countdown could start. The required sequence for countdown is different: in this case, a close below the intraday low two days earlier. That happened 13 times through July 23, when silver closed at \$27.12. A red 13 appeared, suggesting, in DeMark shorthand, that silver was about done falling.

The metal's price dipped again the next day and then started rising, touching \$35.45 on Oct. 1. Had you bought silver on the 13th day of the countdown, you would have made a gain of \$8.33 an ounce, or 31 percent, in 10 weeks.

DeMark's indicators don't always work so well. Shares of Research in Motion Ltd., the Waterloo, Canada-based BlackBerry maker, for example, hit \$70.54 on Feb. 18, 2011, and then started to drop. TD Sequential flashed a 13 buy signal in May and then again in June, July and October. The stock rose in August and then kept dropping. It closed at \$7.80 on Oct. 9 of this year, driven relentlessly down by RIM's disastrous fundamentals: falling revenue and losses as Apple Inc. ate its lunch in the smartphone market.



Cynthia Kase at her New Mexico home. She says the math that drives the markets is the language of God.

investment unit of NN Corp., owner of Northwestern National Insurance. One day, a colleague came to him with a stack of stock charts and told him they held the key to successful trading. It would be their secret, the man said. “Back then, technical charts were like *Playboy* magazine in the monastery,” DeMark says. “You had to hide them in your desk.”

DeMark says a weekly TD Sequential RIM chart works better. A steep drop in RIM shares in 2008 also told him that any rally off a 13 would be limited, he says.

However improbable it seems to mathematicians, DeMark supporters insist his system works. "Tom is one of the most brilliant, creative minds in

one, and as you move up the sequence, the quotient will converge on 1.618. Divide it by the following one, and you get 0.618. DeMark says variations of the number recur in the waves of the market. For instance, the S&P 500 closed at a high of 1,527.46 on March 24, 2000, and then dropped to an intraday low of 944.75 on Sept. 21, 2001. That low was

which it did on June 21. For Kase, reading the waves of the markets is a spiritual experience. "It's one of the reasons I believe in God," she says.

DeMark is no less passionate about his own 9s and 13s. He trades a bit in his own account, he says, and he and son T.J. are discussing starting their own hedge fund using the DeMark indicators. For now, though, he makes much of his living advising SAC. "We have used the DeMark Indicators for many years and found them to be an excellent tool in helping to identify market trends," Cohen said in a written statement.

T.J. DeMark says the wealth his father has accumulated doesn't mean much to him. "My dad has never been motivated by making money," T.J. says. "This is his avocation and his vocation."

Wandering through his rambling, Tuscan-style house, DeMark does seem strangely detached from the luxury. He looks puzzled when the spouts in the mini water park won't come on, and he says he doesn't drink wine despite having a lavish collection of it in a room off the bar. He is happiest, his son says, in that dark room staring at the lines and numbers that have earned him the scorn of mathematicians and the applause of some of the most successful investors on the planet.

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the history of technical analysis," says Peter Borish, former director of research at Paul Tudor Jones's Tudor Investment Corp., where DeMark worked from 1988 to 1990 developing trading systems.

DeMark can't explain why his system successfully marks the highs and lows. "I don't know why it works," he says. "Ask God." He isn't a mathematician. He has a Master of Business Administration from Marquette University in Milwaukee. He developed his system through trial and error, he says, starting with two Fibonacci numbers for his counts: 8 and 13. He ended up using the non-Fibonacci number 9 for the TD Sequential setup because it worked better.

Fibonacci numbers are named for Leonardo of Pisa, dubbed Fibonacci, from *son of Bonacci* in Latin, by a 19th-century biographer. Leonardo described the numerical sequence in his *Book of Calculation*, a tome published in 1202 that introduced Europe to modern arithmetic. Leonardo used the sequence to answer the question: How many pairs of rabbits are created by one pair in a year? The answer was a Fibonacci number: 377.

Today, almost all technical analysts agree that Fibonacci numbers can be used to predict a market's direction.

The so-called golden mean, also known by the Greek letter phi, is closely related to Fibonacci numbers. Divide a Fibonacci number by the previous

61.85 percent of the March 2000 high.

"Twenty years ago, people thought technical analysis was voodoo, like reading chicken entrails," says Kase, who runs Kase & Co. from an adobe house laden with Spanish colonial art near Santa Fe, New Mexico. She leases popular software that looks at the wave patterns generated by rising and falling prices and predicts future prices based on the confluence of those waves.

Kase, 60, has also developed her own brand of bar chart. Normal bar charts display a new bar based on a time interval: one minute, 10 minutes, one day. During periods when such prices are static, the charts create a lot of insignificant signals, she says. Kase bars can be customized so that they appear after a specified change in price, which gives clearer signals of future movements, she says. In early June, Kase used her system to correctly predict that oil would fall below \$80 a barrel from \$85,

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FINDING TECHNICAL INDICATORS

For information about Tom DeMark's indicators, type **DEMARK <Go>** on the Bloomberg Professional service. To find out more about Cynthia Kase's trading tools, type **KASE <Go>**. Type **TECH <Go>** to use the Technical Study Browser function to find studies. To analyze the profitability of various technical strategies, type **BTST <Go>** for the Basic Backtesting function. To subscribe to the Bloomberg Brief newsletter *Technical Strategies*, type **BRIEF <Go>**, scroll down to the listing for the publication and click on the box to the left of **Subscribe** so that a check mark appears. **JON ASMUNDSSON**