DAY TRADING OPTIONS

Profiting from Price Distortions in Very Brief Time Frames

JEFF AUGEN
Instructor, New York Institute of Finance

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Jeff Augen

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On April 12, 1938, six thousand people crowded into Grand Central Station to watch Richard Whitney, former President of the New York Stock Exchange, being escorted off to Sing Sing prison by armed guards…

On June 29, 2009, applause rang out in a Manhattan courtroom as former NASDAQ Chairman, Bernard Madoff, was sentenced to 150 years in prison for engineering the largest Ponzi scheme in history…

This book is dedicated to the thousands of people who, over the years, have lost all their money to investment frauds. Serious investing is both complex and time consuming. There are no shortcuts—including letting others invest for you.

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Acknowledgments

I'd like to thank the team that helped pull the book together. First and foremost is Jim Boyd who provided the opportunity and was willing to publish a new topic with an unusual focus.

Writing is easy. Making charts and tables is also easy. Creating a publication-quality book, however, is a different matter. Once again it has been my pleasure to work with Betsy Harris who was responsible for creating a final edited production document. In that regard I would also like to thank Cheri Clark who read every word and found many subtle and important mistakes.

Finally, I would like to acknowledge the excellent work of the Pearson marketing team and especially Julie Phifer and Laura Czaja who always seem willing to put real thought behind new book concepts.

Writing this book has been a real privilege because it allowed me to focus on controversial topics during a very unique time in financial history. Working with a team of focused professionals made the project possible.

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About the Author

Jeff Augen, currently a private investor and writer, has spent more than a decade building a unique intellectual property portfolio of databases, algorithms, and associated software for technical analysis of derivatives prices. His work, which includes more than a million lines of computer code, is particularly focused on the identification of subtle anomalies and price distortions.

Augen has a 25-year history in information technology. As a cofounding executive of IBM's Life Sciences Computing business, he defined a growth strategy that resulted in $1.2 billion of new revenue and managed a large portfolio of venture capital investments. From 2002 to 2005, Augen was President and CEO of TurboWorx Inc., a technical computing software company founded by the chairman of the Department of Computer Science at Yale University. His books include *Trading Options at Expiration*, *The Option Trader's Workbook*, and *The Volatility Edge in Options Trading*. He currently teaches option trading classes at the New York Institute of Finance.

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Preface

It is only fitting and proper that I write these words with a 1929 Conklin fountain pen—a gift from my wife. Most writers prefer a computer. I suppose that makes sense since it's where the words ultimately end up as a string of ones and zeros, but for me it's the Conklin. This pen has seen it all: the crash of '29, the great depression, World War II, Korea and Vietnam, the first Gulf War, another crash in 1987, Long Term Capital, 9/11 and the recession and war that followed, NASDAQ boom, NASDAQ bust, and most recently, the 2008–2009 banking crisis. I have a high level of respect for this old pen, and I'm always amazed at how smoothly it glides across the page as it undoubtedly did 80 years ago. Maybe there's a message in that effortless glide. Maybe some things never change.

Everyone knows that the market crashed in 1929. Back in those days, the private investor didn't have much of a chance. Big time stock manipulators drove prices into the stratosphere by selling to each other. When the price climbed high enough that the average investor finally jumped in, they dumped their stock, collected the profit, and watched the collapse. As always, the little guy took the hit because he was playing a game that he didn't understand.

Eighty years later, the game remains remarkably unchanged. The recent crash serves as a terrific illustration. Investment banks built high-risk portfolios of mortgage-backed derivatives, money poured in, bonuses

flowed like water, and when it all collapsed the general public picked up the tab. Smart investors who saw the collapse coming and shorted the market lost money as the bubble inflated. Those who stayed in the market watched their money evaporate when the bubble burst. But many private investors—including the author of this book—did just fine. For the most part, they tended to be students of both the economy and the financial markets—active traders armed with a trading platform, charting software, and access to live news feeds.

These investors often believe that they can level the playing field by working hard and staying one step ahead of the market with a combination of the latest software and news sources. They often follow a combination of fundamental and technical indicators that include analyst statements, earnings reports, company news, insider transactions, short interest, and a few different types of price charts. Unfortunately, even the smartest and most diligent traders are further back in the pack than they might think. That is because the pack includes corporate insiders with much better information and institutional investors/analysts with direct access to the companies they invest in. Consider, for example, IBM—a heavily traded blue chip stock followed closely by many analysts and a large investment community. Between January 2008 and the end of May 2009 when these words were written, the average transaction price for IBM stock was $103.21. However, IBM insiders whose trades are publicly disclosed realized an average price of $122.65 in the open market—a 19% improvement.[1]

The difference is surprising because insiders are restricted with regard to when they can sell stock; in this

sense they are disadvantaged and might be expected to realize a lower average selling price. Lifting all restrictions, therefore, might cause the gap to widen even further.

In either case the point is clear. A private investor with some charting software and a few analyst reports is no match for corporate insiders who know considerably more about their own company than the general public. The same private investor must also lose to large institutional analysts who have access to the companies they write about. Analysts routinely visit these companies and meet with key executives before writing their reports. Furthermore, their reports are proprietary and are often made available to a restricted group of subscribers or large clients of a particular brokerage. The playing field cannot be level when all investors do not have access to the same information.

Many investors who realize that they are operating at an information disadvantage avoid strategies that depend on fundamental business analysis and, instead, focus on purely technical approaches. Today's trading platforms accommodate this thinking with very sophisticated analytical tools. Dozens of technical indicators are available in addition to scripting languages that allow investors to create and test their own. Most platforms also allow automatic order entry based on a predefined set of rules. Serious traders can chart information in a variety of time frames and simultaneously analyze this information with different indicators. When a signal appears, their software can instantly place a trade without asking for confirmation. It would seem that such systems might have the potential to level the playing field for the private investor.

Unfortunately, the capability gap between institutional and private investors is even larger on the technical side than it is on the fundamental side; that difference is growing rapidly. During the past few years, computerized algorithmic trading systems have become the dominant force in most financial markets, and their sophistication exceeds anything available to the general public. Technical traders must now compete with supercomputers that process millions of data items each second and make investment decisions at the individual "tick" level. Such systems instantly identify and exploit emerging trends with the effect of extinguishing them almost as fast as they appear. Unfortunately for the private investor, this new dynamic has completely invalidated many approaches to technical analysis that worked well just a couple of years ago.

These changes are a logical evolution of the random walk hypothesis described by Burton Malkiel in his 1973 book entitled *A Random Walk Down Wall Street*. Simply stated, the random walk hypothesis asserts that the evolution of market prices cannot be predicted—that is, the recent price history of a stock does not contain information that can be used to predict its future. The random walk concept is built on an important set of assertions known as the efficient market hypothesis (EMH). EMH predicts that such inefficiencies cannot persist. It was first proposed by Eugene Fama in his Ph.D. thesis at the University of Chicago Graduate School of Business in the early 1960s. Since that time, there have been many debates between proponents of the theory and investors who believe that they can identify chart patterns with predictive power. However, for a chart pattern to have predictive power, it must also be

persistent in the sense that the market cannot learn the pattern and eliminate it. Today's institutional trading systems settle any remaining argument by removing market inefficiencies at the millisecond level. The random walk model described by Burton Malkiel in his book assumes that stock price changes are tantamount to coin tosses. Our discussion will build on that concept by "over fitting" a technical indicator to a randomly generated stock chart and generating a set of rules that produce a surprisingly large return. The discussion is meant to illustrate the ease with which investors can be fooled by randomness.

Despite the disadvantages mentioned above, private option traders can profit in today's environment by entering and exiting the market at very specific times with trades that are structured to capitalize on well-characterized pricing anomalies and distortions. These opportunities exist, in part, because contemporary option pricing models assume continuous trading even though markets are closed over the weekend and from 4:00 PM to 9:30 AM each evening.

An efficient market can be expected to respond to these dynamics with price changes that comprehend the down time. Today's option market does just that by varying the implied volatility priced into option contracts to compensate for the distortions. These variations represent profit opportunity to an option trader and, as we shall see, the opportunity can become very large under certain circumstances. In this regard, we will review new approaches that separately measure overnight, intraday, and traditional volatility. These differences make it possible to capitalize on short-term anomalies where volatility is misrepresented in an

option price. Finally, news events often introduce brief distortions that take many minutes for the market to digest. During these brief time frames the market becomes inefficient and new opportunities arise for the short-term trader. We will capitalize on these opportunities with a new technical indicator that can be used to quantify rising or falling volatility.

Investors who believe they have a trading system that consistently beats the market in all circumstances should read no further. This book was not written for them. It was written for investors who are seeking a different approach and are willing to work very hard to perfect new trading strategies. My goal was to find a way to narrow the performance gap that has plagued private investors since financial markets first opened.

Endnotes

1. Volume adjusted prices (VAP) were used to obtain maximum accuracy. Each transaction price was multiplied by the number of shares traded; results were summed and ultimately divided by the volume over the entire time frame. For the public market, each day's volume adjusted price was calculated using the average of the high+low and the day's volume. Insider trades are those reported on SEC form 4 and made available through Edgar Online. These transactions are readily available through many web-based sources including Yahoo! Finance.

Chapter 1

Basic Concepts

The Case for Short-Term Trading

This book is a product of one of the most challenging times in world financial history. Stated bluntly, the world's financial markets have become a gambling casino where equity, bond, commodity, and currency prices have virtually no predictable direction. Stock prices have become particularly unstable in the sense that they have virtually no relationship to the underlying performance of the company they represent. In the very week these words were written, the Dow fell 330 points on Tuesday, rallied 280 points on Wednesday, and fell another 250 points just after the open on Thursday morning. Worse still, the collapse on Tuesday was caused by a sell-off in financial stocks—the very stocks that fueled the rally the following day.

At the time of this writing, trillions of dollars had been lost by both bulls and bears. The markets were often described by both the financial press and national politicians as being in a "meltdown" with no end in sight. Investors who have never experienced a crashing

market often believe that it is easy to generate profits in this environment with short positions. The result has been a new generation of exchange traded funds (ETFs) designed to rise when specific classes of investments fall. There are ETFs that short gold, oil, bonds, indexes, and equities in various sectors. Many are labeled "ultra-short" because they are structured to rise at twice the rate of decline of the underlying instruments. These investments are available to anyone with a brokerage account or an IRA and, unlike with traditional short positions, no margin is required. An investor can readily use these vehicles to short homebuilders, retail stores, banks, or just about any group of stocks, indexes, or financial instruments desired.

Many investors take a more precise approach by simply selling short financial instruments that they expect to decline in value. Markets move in both directions, and experienced investors recognize that money can be made on both sides. In bull markets they own stocks, and in bear markets they are often short the same stocks. Many investors prefer bear markets because the declines are often much steeper than the increases associated with a traditional bull market. Stated differently, markets can crash down but they rarely crash up.

These dynamics could easily lead to the mistaken conclusion that it is relatively easy to profit from a bear market by simply shorting distressed companies, sectors, or broad indexes that were previously overbought. Unfortunately, nothing is ever that simple. The 2008–2009 collapse included single-day bear market

rallies as large as 11%—large enough to destroy virtually any short position. Many investors were fooled into believing that these rallies represented a market bottom and the beginning of a long-term recovery. They often took losses on their short positions by closing them and going long just in time for the next leg down of the market.

The answer lies in reducing market exposure by trading in very brief time frames. This approach flies in the face of conventional "buy and hold" wisdom. However, that approach has failed miserably because, as a group, investors have lost all their profits of the past decade. On January 22, 2009, the S&P 500 traded at its May 15, 1997, level. Subtracting an additional 30% for inflation and dollar devaluation paints an even darker, but more realistic, picture. Unfortunately, far too many investors have taken the wrong approach by remaining in the market with a portfolio of investments whether they were winning or losing. This approach has its own familiar vocabulary built around terms like "value investing," "diversification," and the all-too-familiar "buy and hold." As a group, long-term stock investors have suffered the greatest destruction of wealth in the history of the world.

Commodity traders face similar problems. In the brief time frame of just one year, both bulls and bears lost significant amounts of money as the price gained 50% from January to July 2008 before rapidly falling 72% to close the year below $40. Figure 1.1 traces the price from early January 2007 to early January 2009.

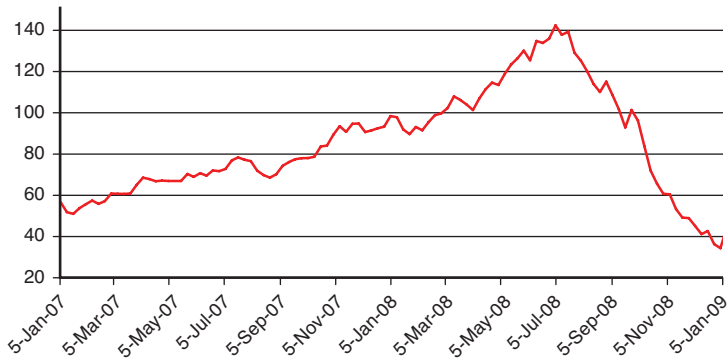

FIGURE 1.1 *Weekly Brent Blend spot price (USD) 2007/01/05 to 2009/01/05. Price is displayed on the y-axis, date on the x-axis. Source: U.S. Department of Energy, Energy Information Agency—http://www.eia.doe.gov.*

As always, timing is everything. But the more important lesson is that blindly hanging on with a bullish or bearish view is a flawed strategy. Every investment has a window of opportunity; unless that window can be identified, leaving the money invested is somewhat like gambling. That said, the window can be relatively long—sometimes spanning months or years.

Option trading in turbulent times can also be difficult. Implied volatilities rise sharply, making simple long put or call positions unreasonably expensive, and the risks associated with naked short positions are simply too large for any conservative investor. Structured positions, such as calendar spreads, ratios, and vertical spreads, are difficult to trade because stocks frequently cross several strike prices in a single month—sometimes in both directions.

Investors can avoid all these pitfalls by entering the market at very specific times and structuring trades that capitalize on well-characterized pricing anomalies and distortions. Option traders can use these distortions to structure positions that are both statistically advantaged and direction neutral. The most popular example being long straddles that have the potential to generate profit from a large price change in either direction. Investors who structure day trades that take advantage of these changes can generate more profit in one day than most experienced investors realize in an entire month—sometimes an entire year.

Unlike other trading strategies that are linked—sometimes in subtle ways—to a specific set of market conditions, options day trading focuses only on the underlying mathematics. It does not rely on any financial predictions, company results, or market direction. In this context a day trader manages ticker symbols and strike prices because the name or business of the underlying stock is mostly irrelevant. But nothing worth doing is ever easy. Trading subtle price distortions in the options market is a complex affair that requires an unusual blend of pricing knowledge and trading skill. Day trading is a mathematical game distinctly different from stock picking. Its potential gains, however, are enormous—far greater than those of any "long-term" strategy.

That said, short-term trading strategies can also be simple. It is often possible to simply trade the news. For example, on March 30, 2009, the president of the United States, Barack Obama, bluntly rejected turnaround plans submitted by General Motors Corp. and

Chrysler LLC, and demanded fresh concessions for long-term federal aid. He also raised the possibility of bankruptcy for either or both of the ailing auto giants. While the content of the speech could not have been known in advance, the fact that the speech was scheduled was announced before the market close on Friday, March 27. In addition, statements made over the weekend by Treasury Secretary Timothy Geithner further underscored investor fear that the financial industry's troubles were far from over. He stated that several banks would likely need considerably more money to survive. Once again the timing of the statement, but not the content, was widely known before the market close on Friday.

A short-term trader who anticipated that these events would have a large impact on the market could have purchased an at-the-money straddle on the Dow using the Diamonds Trust exchange traded fund (ticker: DIA).[1] At the close on Friday, DIA traded for $77.81 and the $78 straddle cost $5.12 ($2.49 call/$2.63 put). Following the negative news on Monday, the Dow fell more than 4% and DIA traded as low as $74.37. At the low, the $78 straddle traded for $5.77 ($1.08 call/$4.69 put)—a 12.7% gain. Had our trader missed the low and held on until the close, he would still have realized a profit by selling the straddle for $5.55.

As we have just seen, options provide a distinct advantage because they allow the construction of direction-neutral positions. This dynamic distinctly changes the character of short-term trading. Option traders can decide that a position is underpriced because it does not adequately represent the risk of an upcoming news

event. This view then forms the basis of a structured position that can profit from a large swing in either direction. In our March 30 example, if the news had not generated a large market swing, we would have risked only a very small amount of weekend time decay in the option premium. This effect is further diminished for trades placed near the closing bell because option prices tend to shrink near the close on Friday as the market discounts weekend time decay into the price—that is, implied volatility tends to decrease on Friday afternoon. In broad terms, the trade was relatively riskless and very brief.

Option day traders can also profit from implied volatility swings—a distinct advantage unique to the options world. An excellent example arose just as these words were being written. The April 2009 expiration week began on Easter Sunday and the market was closed on the preceding Friday—Good Friday. The long weekend was very significant because it represented three of the remaining seven days in the expiration cycle. Option buyers were predictably hesitant to overpay for contracts that were about to lose a significant amount of value while the market was closed. The result was persistently falling implied volatility from the open to the close on Thursday, April 9. For example, implied volatility for at-the-money options on Research in Motion (ticker: RIMM) declined steadily from 65% at the open to 50% at the close. This decline was entirely predictable; it exactly offset the weekend time decay so that a return to 65% implied volatility on Monday just restored option prices to their closing values on Thursday. As a result, investors who purchased

RIMM call options at the close on Thursday were not penalized for the three days that the market remained closed.

This efficiency of the market represented a tremendous trading opportunity because it condensed three days of time decay near the end of an expiration cycle into a single trading day. A simple structured position consisting of 10 long $60 calls and 20 short $65 calls returned more than 80%—the trade cost $0.89 at the open and sold for $1.61 at the close with the stock price nearly unchanged (the stock opened at $63.99 and closed at $64.18—a move of just $0.19). Day trading the stock would have been very difficult because it would have required precise timing to capitalize on intraday price changes. Day trading the option was simple; it required nothing more than opening a position in the morning and closing it in the afternoon. Moreover, the trade generated a steadily growing profit throughout the day as implied volatility collapse followed a straight path with a steep slope of 2.3% per hour. An aggressive investor who understood the phenomenon could have generated more profit in a single day than most skilled traders realize in an entire year with no overnight risk and very limited market exposure. We will return to a more detailed discussion of this phenomenon in Chapter 5, "Special Events."

Recent Changes in the Options Market Support Day Trading

Until recently, day trading options was difficult because bid-ask spreads were large, and contract liquidity was

often limited. Those dynamics have changed dramatically. The markets have deployed penny pricing programs that all but eliminate bid-ask spreads, and options volume has soared in recent years. Heavily traded stocks typically have enough options volume to support even the wealthiest private investors creating multimillion-dollar positions. Additionally, improvements in trading platforms have completely leveled the playing field between large institutions and private day traders. An individual sitting at his or her desk at home can experience the same rapid execution and instant price updates as the largest institutional investor on the floor of the exchange. Contemporary trading platforms also provide access to sophisticated charting tools as well as the level II trading queue. This level of access allows a private investor to view the activities of individual market makers trading on different exchanges, and to take advantage of subtle and fleeting changes in bid-ask spreads. For example, near the end of a brief but significant rally, buyers often become less aggressive and lower their bid prices, causing the bid-ask spread to widen. This change is often a better indicator that a rally is ending than any identifiable chart pattern. Savvy day traders who watch the level II queue often capitalize on this opportunity to sell options that quickly lose value if the stock reverses direction and corrects slightly downward.

Private investors trading relatively small numbers of contracts also have an advantage because their trades are usually executed using the "best" bid and ask prices. They typically outperform institutional investors who place very large trades that cannot be filled from the top

of the queue. The difference affects both pricing and execution. A private investor sitting in front of a computer can open and close small trades consisting of just a few contracts with the simple click of a mouse. His institutional counterpart trading thousands or tens of thousands of contracts does not have that luxury.

The distance between strike prices is also important to option traders. Traditionally the spacing has been set at $2.50 for stocks under $25; $5.00 when the strike price is between $25 and $200; and $10.00 for strikes over $200. Each of the exchanges is currently experimenting with $1.00 spacing for stocks up to $50 and $2.50 spacing for stocks up to $75. Increasing the number of strikes and reducing the spacing makes it easier for option traders to precisely calibrate their position structures. These changes are particularly important to day traders as they attempt to structure positions that profit from relatively small underlying price changes. Long straddles are an excellent example because they should be initiated only with the stock trading close to a strike price where put and call deltas are equal. Day traders seeking to launch long straddles must often wait for the right conditions to avoid placing trades with a directional character. Closer strike price spacing helps solve this problem by increasing the probability of a stock trading at a relatively delta-neutral price.

Unstable Markets Provide Unique Advantages to Option Traders

Excessive market turmoil has also changed the dynamics of option pricing in three specific ways:

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