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THE OPTIONS EDGE

AN INTUITIVE APPROACH TO GENERATING CONSISTENT PROFITS FOR THE NOVICE TO THE EXPERIENCED PRACTITIONER

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The Wiley Trading series features books by traders who have survived the market's ever changing temperament and have prospered—some by reinventing systems, others by getting back to basics. Whether a novice trader, professional, or somewhere in-between, these books will provide the advice and strategies needed to prosper today and well into the future. For more on this series, visit our website at www.WileyTrading.com.

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We would like to thank EZTrade.Com for providing us with historical time series data concerning asset, index and option prices along with the associated implied volatility data used to generate the charts and analysis provided in this book. In addition, economic and interest rate data used came from the Federal Reserve Economic Database (FRED, Research.StLouisFed.Org) provided by the Federal Reserve Bank of St. Louis. Finally, data concerning the energy markets came from The International Energy Agency (IEA, IEA.Org) and the US Department of Energy (DOE, Energy.Gov)

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INTRODUCTION

Options on stocks, indices, and futures often get a bad rap. Journalists, pundits, and casual market observers criticize these derivative financial instruments as too complicated, subject to abuse, and difficult to understand, value, and trade profitably. They go on to claim that they are a structural cause of financial calamities and something should be done to limit their use. Many seasoned investment professionals are unnecessarily intimidated by derivative instruments in general, and options in particular. After all, there are a host of options available to trade on individual stocks, market indeces, bonds, commodities, and other financial assets. With so many choices in standardized exchange-listed options, and an infinite number of bespoke products available over the counter,[i] selecting the best option to satisfy one's investment objectives can be daunting. Complicating the task is their flexibility. Options are customizable and often constructed into unusual-sounding structures. Finally, the mathematics sophisticated practitioners' use to price and hedge options are intimidating to some as well.

If those concerns have prevented you from trading options, you might be surprised to learn that even if you are new to the investment world, even if you have never bought or sold a stock, you have probably bought options without realizing it. If you have purchased airline tickets, property insurance, or life insurance, you have unwittingly bought an option. If you have applied to a number of colleges and received an acceptance letter, you have bought a free option. Options are a part of everyday life, and they are everywhere. Since options are a part of your everyday life, you can improve your standard of living by an awareness of options available all around you when arranging your financial affairs.

[i]Over-the-counter (OTC) or off-exchange trading of derivatives are executed directly between two parties without the supervision of an exchange.

Consider the conventional college acceptance. Once a college applicant is accepted, the person has the option, but not the obligation, to attend. He or she can choose to attend that college, attend another college, or not attend any college at all. The important point is that the college acceptance letter represents a right but not an obligation to attend an institution of higher learning. This is a fundamental characteristic of an option. The terms of the college acceptance letter give the would-be student optionality. There are exceptions to every rule of course. If the acceptance letter is presented in response to a request for "early decision" or "early action" and the college agrees, the applicant is obliged to attend that university. The acceptance letter is no longer an option, but a binding obligation.

How about an airline ticket? When one holds an airline ticket, one has the right, but not the obligation, to travel on a specific flight. When the traveler presents the ticket at the gate, the airline has the obligation to provide a seat. On the other hand, if a ticketholder chooses not to get on the plane or is unable to, the airline cannot compel the person to get onboard or ask for additional money. Most ticket purchasers exercise their option. They do so by actually taking the flight. In short, the ticketholder owns an option to fly or not fly.

Airlines know that some passengers will not exercise their right to take the contracted flight. To maximize profits, they want to be sure there is a passenger in every seat. To fill as many seats a possible, the airline will sell more options (i.e., airline tickets) than there are seats (i.e., naked options) on the designated flight. This places the airline at risk. If more passengers exercise their right to fly than available seats, they must provide additional compensation to the affected traveler. Some airline seat agrements offer full or partial refunds to travelers who do not fly. This option to get one's money back has value and airlines charge a premium for it. Travelers who are uncertain about their travel schedule are willing to pay this cancelation premium by paying a higher ticket price.

There are more than 25,000 flights per day in the United States, giving the traveling public a great deal of choices. Yet if you have ever flown, chances are you were able to sift through all those possibilities to choose the best ticket or at least one that suits your needs. Knowing where you wanted to go and when you wanted to get there, you could select the flight that was right for you. Moreover, you were able to determine whether the price of the ticket was one you were willing to pay without knowing all the costs that the airline incurs to provide that seat. While confronted with a multitude of travel options, you can develop a logical method for optimizing results. This is no different from the world of financial options. While there are a multitude of options to choose from, this book will help you develop a logical method for selecting options that meet your financial goals.

Perhaps the most common option for American consumers involving a major financial transaction is the closed-end auto lease with a buyout provision. When a consumer enters into a closed-end lease, that person gets to use the leased property for a fixed term, and has the right to buy the property for the agreed residual value when the contract expires. This person is not at risk if the market value of the vehicle turns out to be lower than the residual value stated on the initial lease contract. He can simply return the car and the lessor bears the loss in value if any. If the market value of the car turns out to be higher than the residual value (i.e., strike price) the consumer can purchase the car at the contractually stated residual value and keep it or sell it. Any gain enjoyed by purchasing the car at the residual value and selling it at market value accrues to the lessee. In short, it represents a purchase option (call) on the car leased.

These examples show that options in the real world have benefits to both the buyer and seller. Buyers get the flexibility they need and sellers get to capture the business revenue they desire. Both market actors are made better off showing that options are not necessarily a zero sum game. Properly employed, one participant does not have to gain at the other's expense. The same holds true for options in the financial markets. Both hedgers and speculators are made better off by trading options.

These examples show that people buy and sell options and are unaware that they are doing so. This is often the case in finance as well. While some might trade listed options explicitly, many investors trade options without ever intending to get involved with derivatives. If we take a deeper look into finance theory, we will recognize that there are options in financial instruments where none are advertised.

Finance is concerned with the dynamics of how money and financial assets are managed, and how corporations and governments raise debt and equity capital to finance their operations. While many might believe that finance is a hard science, it is in fact a social science peppered with a fundamental truth. At its core, finance is based on the concept of the time value of money. Time value of money suggests that money today is worth more than the same amount of money tomorrow. This intuitively makes sense, not only because of the potentially dilutive effects of inflation, but because someone can invest her money in a bank certificate of deposit, earn interest, and have more money in the future. The factor that equates currency today with currency tomorrow is the interest rate earned. Reflexively, to determine the value of money today, we discount the value of currency owed sometime in the future by some rate of interest. Based on this foundation, investment finance aims to price assets today.

What makes finance a social science is choice and how people go about making a selection among the choices presented to them. Another way of thinking about choice is that choices represent options. When investing in capital, you have the option of investing in a low-risk asset like a CD, which pays a low rate of interest, or investing in a more risky asset such as a corporate bond, which pays a higher rate of interest. The corporate bond is more risky because there is the possibility of losing money if the lender defaults. The investment challenge is filled with a multitude of options. If you want to take even more risk with the hope of making an even higher rate of return, you could allocate capital to common stocks or emerging market government bonds. At the end of the day, investment finance is primarily a social science, as it is concerned with how people make decisions under uncertainty characterized by risky outcomes.

The choices do not stop there. In the investment world, there are host of financial and real assets from which to choose as a means of growing capital. You could invest in any of the assets mentioned above, or in foreign currencies, commodities, private companies, or real estate, for example. Within each of these asset classes there are subcategories to consider. You could invest in growth stocks or value stocks. Alternatively, you could invest in commercial real estate, apartment buildings, or single-family homes, for example. The next step requires drilling down even further. What particular stock should you buy—or should you just invest in a mutual fund? Although you might be confronted with an unlimited amount of choices, what is attractive about these options is that they are free. You do not have to pay a premium to get these choices, and they generally do not expire. Free options have value, and one should seek them out and exercise them if and when it is advantageous to do so.

Options provide a way of assessing and managing risk. As you select from the universe of investment choices, the outcome of the investment is indeterminate in advance. What makes investment finance a particularly challenging endeavor is that people have to make decisions (exercise options) under uncertainty. This is what ultimately makes investment a social science. Option pricing theory helps investors understand how to value uncertainty and the volatility of potential outcomes. This is true because the level of risk and uncertainty of potential outcomes is a major component of the value of an option.

While the choices we make are simply a manifestation of the process for exercising an option, every investment vehicle has some element of an option imbedded in it. When one lends money to another entity, the borrower has the option to "pay as agreed" and perform on the loan or default on it. By electing to default, a borrower exercises the right to put the collateral pledged against the loan to the lender and walk away from the obligation. In this case, the loan has a put option imbedded in it. A put option gives the holder of that option the right but not the obligation to sell an asset to the seller of the option. The seller of a put option has the obligation to perform a promised task if the owner of the option chooses to exercise it. In the case of a loan, if the value of the underlying asset (i.e., collateral of the loan) falls below the face value of the loan, the borrower is better off defaulting on the loan and putting the collateral to the lender. If the value of the collateral remains above the value of the loan, the borrower is better off servicing the loan.

Another way of looking at this relationship is to view it from the standpoint of the borrower. The borrower is someone who owns the underlying asset and holds equity. If someone chooses to buy stock in a company, that investor owns a call option on the value of the company's assets. In the financial world, the owner of a call option has the right but not the obligation to buy an asset. The seller of the option has the obligation to perform should the owner of the option exercise this right. We can think of common stock as a call option on the company's assets. If the value of the company's assets rises, the shareholder can exercise the call option by selling the asset and repaying the loan. The amount of the loan represents the strike price of the call option. The common stockholder enjoys all the gains represented by the difference between the asset value and the loan's amount. If, on the other hand, the value of the company's assets falls below the value of the loan, the shareholder can let the call option expire worthless, and the stockholder walks away empty-handed. The lender takes over the asset and the relationship between the lender and the shareholder terminates.

In this book, we will take you through the educational process necessary to develop expertise in trading listed options and exposing options where you would never expect to find them. We will start with a crawl by covering the basics by defining and discussing the characteristics of options from a qualitative point of view. This will be followed with a discussion of options math approached from a practitioner's point of view.

To keep the concepts accessible, we will introduce the math and work through examples for clarity. This way, you can repeat these calculations on your own so you can later make them a part of your decision-making process. Options analytics is perfectly suited for the application of financial technology. For those who want to delve deeper, we provide access to decision support systems delivered over the web. With that foundation, we will discuss how investors can take advantage of shifts in volatility as part of their risk-management process. With the theoretical aspects of option trading under our belt, we move into the real world and examine the historical returns provided by options on the S&P 500. Success in option trading depends, in part, on using the right strategy at the right time. We cover basic option strategies that are commonly used by individuals and institutions alike. From there, we blend option strategies with historical performance to present alternatives to the traditional strategies that will put the odds on the side of the hedger and speculator. Finally, we take a close look at some investment professionals that have done well and others who failed miserably. We discuss how successful traders used options in unique and insightful ways to produce outsized gains over time. This is followed by examples of how very intelligent and sophisticated investors misused options or traded securities with option characteristics without knowing it. Our ultimate objective is to educate the reader. We want everyone who trades options to successfully meet their investment objectives. To that end, those who read and understand this book should become better traders and investors by understanding how options are priced and how they perform with changing market conditions as a foundation for risk management. It is also important to recognize hidden options wherever they may exist, particularly if they are free. The following is one such example.

Options are about choice.

Choice is good, and everybody in this world wants choice. Wealthy people have the most choice of all. They have the financial wherewithal to buy the things they want, like expensive houses, cars, boats, and so on, and the super wealthy can travel in luxury with the purchase of a private jet. They have the funds to do the things they want, such as traveling to exotic destinations and dining at the finest restaurants. With a big enough wallet, people can buy almost anything.

But what if you want the finer things in life and do not have the resources to pay for them? How do you get choice? The simple answer is . . . buy or create an option. Options are about choice. Pay a fee today, and have choices tomorrow. To minimize that fee, buy an out-of-the-money option and hope for the best. But how do you find an option that has the potential to deliver the lifestyle you want? You could try your luck at the lottery. The lottery ticket is the ultimate deep-out-of-the-money option. But let's get real; the chance of winning the "Mega Millions" lottery is 258.9 million to one. Not to worry, the chance of winning the "Powerball" lottery is much better at 175.2 million to one. But let's face it; these options are so far out of the money that they are virtually assured to expire worthless. Outside of a lottery ticket, we cannot simply buy an option on living the good life. Or can we?

Lenny Dykstra is an interesting character, and he found a way of buying an option on living the life of the rich and famous. Lenny Dykstra was born in 1963 and grew up in Southern California. His professional baseball career started in 1981 when the New York Mets drafted him in the thirteenth round. Lenny quickly became a star in the minor leagues. In 1983, for example, he led the Carolina League in at-bats, runs, hits, triples, batting average, and stolen bases. With a batting average of .358, 8 home runs, 105 stolen bases, and 105 walks, Lenny could get on base and score runs. Lenny played ball with Billy Beane, who later became general manager of the Oakland Athletics and was made famous outside the world of baseball when his story was told in a book and movie called *Money Ball*. Billy once said that Dykstra was "perfectly designed emotionally" to play baseball and had "no concept of failure." Lenny was destined to have a great career in baseball, and he debuted in the "Bigs" in 1985 at the age of 22. Lenny played in 1,278 games and achieved a lifetime batting average of .285 with 404 RBIs. His post-season batting average was even better, at .321. As a three-time all-star and MVP, Lenny commanded big bucks and earned a salary that exceeded $24 million over his career.

Lenny was famous for living the big life, and by the time he retired in 1996, it is said that he had saved just $5 million. With his lifestyle, this cash would not last forever. After retirement, he entered the business world, where he purchased a string of car washes. In addition, he had a partnership with Castrol called "Team Dykstra" Quick-Lube Centers in the Los Angeles area. He also had ownership interests in a ConocoPhillips fueling center, a real-estate development company, and finally, a venture to develop several "I Sold It on eBay" stores. His younger brother Kevin ran his business enterprise for him. Business was good, and Lenny's take from payroll was \$1 million a year. Lenny spent his free time playing golf, signing autographs, and making media appearances. Last but not least, he managed his personal portfolio of stocks and he wrote a column for TheStreet.Com.

While this income and lifestyle is attractive to most of us, it was not good enough for Lenny. Mr. Dykstra had a bigger-than-life persona and enjoyed the nickname "Nails" during his Major League days. Mets fans gave him this nickname because of his hardnosed personality and fearless play. With greater ambitions in mind, Lenny sold his business interests in 2006 for over \$50 million. After repaying \$20+ million in debts and capital gains taxes, Lenny's net worth had increased nicely.

While Lenny was wealthy, he was not "super-wealthy." So how could he live far beyond his means by giving the appearance that he was living within his means? The short answer is, buy an option on the lifestyle. Options come in many different flavors. The options that investors are most familiar with are those traded on exchanges. One can buy an option on a stock and have the option to take ownership of that stock by exercising the option and paying the seller the strike price. Hard to see how this will help him live the big life. This only works if one picks the right options on the right stocks and makes a boatload of money. There is a second variety of option called the *synthetic option,* and these can be configured in ways only limited by one's imagination. A synthetic option can be constructed in such a way as to give the owner of the option all the rights, responsibilities, and privileges of owning an asset, without actually paying for it. You can live in the house, upgrade it to your liking, and sell it, if you so choose. As you are about to see, it is very important for the asset to hold its value, to keep the option alive. So you are required to spend some money along the way and perform regular maintenance to keep your assets in good shape.

Most of us buy synthetic options without really realizing it. When you buy a house and borrow money to do so, you are buying an option to use and keep the house. All you have to do is pay your option premium called a mortgage payment. The following should make this concept a bit clearer. Let's say you want to buy a house for \$1 million. People traditionally put 20 percent down to buy a house. So you go to the bank, get a mortgage for \$800,000, and show up to the closing with \$200,000 and take ownership of the house, or at least you think you did. What actually took place economically is that you bought an option on a \$1 million house and paid an up-front premium to get it. That option has a strike price equal to the face value of the mortgage, or \$800,000. The time value of that option is paid over time. So long as the value of the house stays above \$800,000, you are economically incented to make your mortgage payment and keep the ownership rights. With the ownership rights, you can keep it, or sell it, repay the mortgage, and keep the difference.

You can achieve the same lifestyle at a lower cash cost by making a smaller down payment. If you can find a lender that will let you buy the house with nothing down, you do not have to pay any premium up front. All you have to do is pay a higher ongoing option premium represented by a higher mortgage payment. This, of course, changes the strike price of your option. It is now an at-the-money option with a strike price of \$1 million. So long as the price of the house does not fall below \$1 million, you have the economic incentive to continue paying the option premium (i.e., the mortgage) to maintain the ownership rights. If the market price of the house falls to \$900,000, for example, you have an incentive to stop paying the mortgage, let the option expire worthless, and allow the bank to repossess the house. Thought of another way, the owner of the house owns a put option. In exercising their option, the homeowner puts the house to the lender who must buy the house at the strike price of the option, which is equal to the face value of the mortgage.

Lenny Dykstra was very clever, or at least he thought so, by using this technique to buy an option on an extremely privileged lifestyle. In his pursuit for something bigger, he sold his \$4 million house and purchased one in Thousand Oaks, California, for \$18.5 million. Giving this piece of real estate even more cache, he bought the house from Wayne Gretzky, arguably the best professional hockey player to ever take the ice. *Money* magazine reported that his monthly payment was \$120,000. The average interest rate on a 30-year fixed-rate mortgage in 2007 was 6.34 percent. This implies that Lenny put virtually nothing down. Said another way, he bought an at-the-money call option to use and own the house.

Run-of-the-mill rich people fly first class. The mega rich have their own private jet. In 2007, Lenny bought a Gulfstream jet for \$2 million and spent an additional \$500,000 to upgrade the interior. Anyone who has ever looked into owning a private jet or taking a fractional ownership in a jet knows that the FAA has very strict maintenance rules. The electronics and structure must be regularly examined and maintained and the engines have to be periodically rebuilt or replaced. Since he chose to buy an older model, it was a fuel hog making it expensive to fly. Jet aircraft are hard assets and one can borrow against hard assets. Anyone can create a synthetic option to use and own a jet aircraft by pledging it as collateral against the loan.

In 2008, Lenny started a magazine called *Players Club. Players Club* was a luxury magazine aimed at professional athletes. Articles were written to show players how to spend their vast incomes while holding onto their wealth. He wanted to help his colleagues make smart financial decisions and avoid the pitfalls of so many athletes who came before him. Professional athletics is riddled with players who made millions and ended up bankrupt in retirement. The concept had possibilities because the magazine would have a core readership of high-profile individuals, but it takes millions of readers to make a magazine financially successful. Option traders recognize equity in a business as an option on company assets. If the company does well, the option goes wildly in the money and the equity investors win big. If the company fails, the option expires worthless and the lenders eat the losses. With an uncertain value, Lenny unwittingly bought an out-of-the-money option on the success of a magazine. But that did not matter. The magazine gave Lenny the perfect excuse to live the lifestyle. What better way to appeal to the mega wealthy than to show them how to do it?

When you try to keep up with the mega rich, any car will not do. Lenny drove a Maybach, which sell for a minimum of $360,000, and with the appropriate configuration can cost far more. Furthermore, Maybachs are expensive cars to drive, maintain, and insure. "Keeping Living the Dream" was the *Players Club* tag line, but living that dream is an expensive endeavor. The magazine was destined to fail because expense control was not part of Lenny's business plan. He published *Players Club* from midtown Manhattan where rent ran $17,000 a month and each issue began with an Ode to Lenny. It was status that mattered, and well it should. If you want to buy out-of-the-money call options and you want the lenders to think they are selling out-of-the-money put options, image and perception matter. To sell those options, you have to have assets to borrow against, and Lenny borrowed wherever he could. When he could not leverage those assets any further, he borrowed from his credit cards, friends, employees, and relatives.

While all this was going on, Lenny fancied himself an investment and options guru. He used his notoriety to start an investment advisors service called "Nails Investments," where he claimed to have superior stock-picking skills that would help individuals substantially outperform the market. After he found a stock to endorse, he would recommend that they buy deep-in-the-money call options to take a position. This is one thing Lenny essentially got right. We show in Chapter 4, that deep-in-the-money options statistically outperform at-the-money or out-of-the-money options on a risk-adjusted basis. His idea was not based on statistical analysis, however. His assertion was that deep-in-the-money options is a "stock replacement" strategy. The price action of deep-in-the-money options is very similar to the price action of the underlying stock. But why make 10 percent when you can make 20 percent? The advantage of the stock replacement strategy is that you do not have to pay full price for the underlying stock. If you want to buy a $100 stock, buy a call with a $75 strike price. This way, one only has to put up $26 to $30, depending on time to expiration and implied volatility, instead of $100. This allows the investor to either take more positions or take bigger positions, or both. What was truly remarkable is his track record. To this day, his website says that he has had 389 wins and only one loss since he started making recommendations. True? False? You decide.

By late 2008, the jig was up. His magazine closed and the financial crisis decimated the value of everyone's assets, including Lenny's. Lenny had to start liquidating assets where his call options were in the money. Where liens exceeded the value of assets, he let the options expire worthless. At the end of the day, the house,