Trading Options: Allure vs. Reality

In the past decade, the allure of options trading has captivated the imagination of millions of new investors. Stories of life-changing sums being made overnight have contributed to options trading's new reputation as a pathway to instant wealth, yet the reality is far less rosy. In this chapter we dismantle the romanticized image of options trading that has become popular and present a professional's view of what successful options trading looks like.

Key Takeaways:

1. Easy access to trading platforms and online trading communities has created a boom in retail options trading.
2. Amateur options traders favor buying cheap call options due to two natural human biases: aversion to extreme losses and overestimation of low-probability events.
3. These cheap options almost always expire worthless, creating a headwind that is difficult for even the most sophisticated investors to overcome.
4. The professionals' path to successful options trading is to sell options for small yet consistent profits.

The Retail Option Explosion

Opening a brokerage account in 1990 to trade options required a physical visit to a brokerage office. A well-dressed gentleman (they were almost always men) would hand you a paper application several pages in length, which you'd have to fill out by hand. This form would ask for personal identification information, financial details, investment experience, and your understanding of the risks associated with trading options.

Brokerages in 1990 would have been particularly stringent about ensuring that you understood the products you intended to trade. You might have taken a questionnaire required to demonstrate a certain level of knowledge about options, option strategies, the risks involved, and financial markets in general.

Given the risks associated with options trading, brokerages would have also required proof of your financial situation, including your net worth, liquid net worth, income, and investment objectives. They would assess this information to determine whether options trading was suitable for you and which level of options trading you'd be authorized to engage in.

After submitting your application, the approval process would likely have taken several days or even weeks. Unlike today's near-instant online approvals, a team at the brokerage firm would review your application. You had no guarantee of approval—or realistic appeal process if denied.

Even after approval, trading options in 1990 would have been a broker-assisted process. You'd place trades over the phone by speaking directly with a broker, who would execute the trades on your behalf. This process was not nearly as immediate as clicking a button on a trading platform. During times of high market volatility, it could be stressful and time-consuming. It was also expensive. Option commissions often included a base commission per trade of $30–50

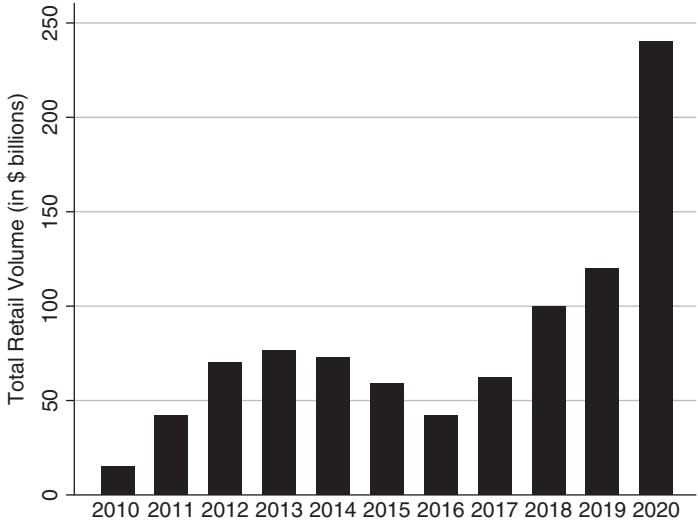
(over $100 today if inflation-adjusted) and a "per contract" charge of $2. Total commission on a $100 trade could easily exceed $50, discouraging small traders from participating and encouraging the purchasing of longer-dated options.

But today, options trading access is entirely different. One can open an options trading account in minutes without net worth or investment experience requirements. Brokerage houses have pursued options traders aggressively, reducing commissions on options (in many cases to "free") and making margin accounts easier to open than ever.

Figure 1.1 from a recent study on the success of retail options traders (de Silva, So, and Smith, 2023) demonstrates the recent boom in retail options trading. This data only covers Nasdaq exchanges (it turns out to be quite tough to access options trading data that discerns retail traders explicitly), but this should nicely represent the boom in retail trading seen across all options exchanges.

Social media has also played a massive role in this retail option boom, as anyone with an internet connection can claim to be an options trading guru. Online platforms are awash with individuals showcasing astronomical trading profits, complete with screenshots of their six-figure accounts. However, it's crucial to remember that these snapshots do not indicate consistent success but are often the result of high-risk strategies that could just as easily have led to catastrophic losses.

Figure 1.1 Retail Options Trading Volume on Nasdaq Options Market and Nasdaq PHLX



A shining example of the impact of social media was the meme stock craze between 2020 and 2021. "Meme stocks" refers to stocks that gained rapid popularity through social media platforms and forums like Reddit, particularly the subreddit r/wallstreetbets. GameStop (GME) and AMC Entertainment (AMC) were prime examples of such stocks.

Hedge funds and other institutional investors had heavily shorted many of these stocks due to poor fundamentals. Shorting stock involves borrowing shares from other investors and selling them with the hope of buying them

back at lower prices in the future. If a company's stock has been heavily shorted, it means that finding shares to borrow or buy can be challenging. Recognizing that collective action could create "short squeezes" that would require these investors to rush to buy back their positions due to risk limits, groups of retail investors, with the aid of social media platforms, gathered to go long these stocks and force a squeeze of the institutional shorts.

Other retail traders, bored in their homes and sitting on COVID-19 pandemic stimulus checks, came out en masse. These new investors focused on options due to their lower cost of entry and limited (or "capped") loss potential compared to buying stocks outright. The options could also provide significant leverage, as traders can effectively control a large number of shares for a relatively small amount of capital. If the stock price increases, the call options can increase in value rapidly, potentially leading to significant profits.

This scheme delivered wins for the earliest retail investors and dealt serious blows to several hedge funds. When these hedge funds saw these positions move against them, they initially tried to increase their short positions, sensing an opportunity. As the retail option buyers piled in, however, the hedging needs of the option market makers selling these options began to drive increased buying of the underlying assets. As the share prices appreciated, another buyer in the form of passive index funds began to buy. GameStop,

for example, briefly became the largest stock in the Russell 2000. After selling roughly 18MM shares at an average price of approximately $1.00 in the panic of spring 2020, Vanguard bought just under 4MM shares at an average price of $41.00 per share in the subsequent quarters. As the price rose and rumors of distress spread, other institutions joined the fray, buying more shares.

Unfortunately, without a grounding in either options or fundamentals, most retail investors ended up losing as institutional traders came in and exploited the opportunity. Years later, Twitter and other social media sites continue to be haunted by the painful echoes of this experience.

The Natural Biases of New Traders

Despite the plethora of resources now available via the Internet, investors typically enter the market with only a cursory understanding of options. Their approach is then naturally built around intuition over science, which is easily affected by behavioral biases. Let's break down the two critical behavioral factors that drive retail options trading, so we can ultimately construct a better trading system for beginning options traders.

- Loss Aversion

  The human tendency to avoid catastrophic losses is one of our most central evolutionary traits. We avoid

significant risks, focused on avoiding our demise, in every serious decision.

In options trading, catastrophic loss can only happen when we sell options. Conversely, when we buy options, our maximum loss is fixed. We'll review the payoff diagrams to demonstrate this in Chapter 2.

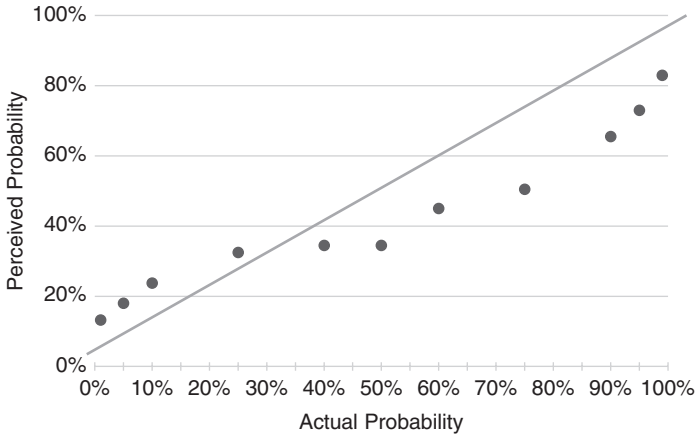
Additionally, our loss aversion bias leads us to prefer low-price options over more expensive ones.

- Overstating Likelihood of Big Moves

  Humans have a well-documented tendency to overestimate the probability of extreme events occurring (Gonzalez and Wu, 1999). The inflated expectation of low-probability events that can significantly impact prices—such as a company's stock price dramatically increasing due to a favorable earnings report or a groundbreaking new product—drives traders to buy cheap options that are unlikely to be exercised profitably.

  Figure 1.2 shows empirical data on the probabilities humans associate (y axis) with events of known probabilities (x axis), as documented by several well-known scientific teams, including the godfathers of Prospect Theory, Kahneman and Tversky. If humans could estimate the probabilities of an event correctly, their guesses would match up with the solid line: a perfect alignment between perceived and actual probabilities. Instead, we see that humans consistently overestimate

Figure 1.2 Human Perception of Probability at Various Levels of Known Probability



the probabilities of low-likelihood events (dots above the solid line) and underestimate the probability of very likely events (dots below the solid line).

For example, if we look at events with known probability of occurrence of 10%, we see that humans generally perceive the likelihood of that event to be approximately 24%. And if you keep going left on the horizontal axis the relative overestimation gets worse and worse. Events with 1% probability of occurrence are typically estimated at around 13% likelihood, a whopping 13× overestimation. It is this

type of gross overestimation of probabilities that can really trip up traders running on pure instinct.

In summary, loss aversion drives traders into buying (not selling) options to avoid risks of unknown loss, and of course, the lower the risk, the better; hence, cheap options appeal to this bias. Then, we layer in the overestimation of low-probability events (e.g., market crash or massive earnings beat). These are situations where the cheapest options are likely the most effective, again pushing the trader into buying the cheapest options.

If this joint bias isn't intuitive, look to your local corner store and check out the latest Powerball or Mega Millions values. These cheap options offer a similar profile to lottery tickets, except outcomes aren't truly random, and the payoffs don't approach 300 million to one.

And those random social media accounts with huge reported profit & loss (P&L) mentioned earlier add fuel to this fire, inspiring new traders to believe that these cheap, high-payoff trades can be profitable in just a few rolls of the dice.

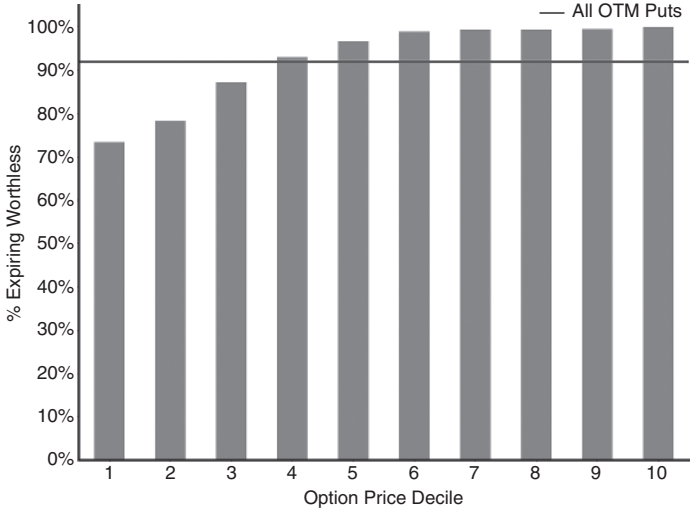
The Amateur Trap

The reason buying cheap options is such a bad idea is that most of them expire worthless. To intuit why, it helps to remember that options are financial instruments with an expiration date. Buying an option is like betting that a

specific event will happen within a particular timeframe. If BOTH don't occur, the bet and the money paid to make the bet are lost. In the case of buying stock options, the event is the stock price moving far enough in your favor during the timeframe before the option expires.

Figure 1.3 shows the fraction of 4-week put options at different starting costs (decile 1 being the most expensive and decile 10 being the cheapest) that expire worthless. The horizontal line is the average across all starting costs,

Figure 1.3 Percent of Worthless 4-Week SPY Puts at Expiry at Various Starting Price Deciles; Data from January 2013 to August 2023



a whopping 92%. If you lose 92% of the time, then just to break even, you need to make slightly more than 12× on your wins (1 divided by 8%). This is challenging.

The situation gets worse for traders looking for low price options to "hit it big." Due to both loss aversion and overestimation of low-probability events, new traders are biased toward cheaper options (think deciles 3 to 7); on average 95% of the options in this cost range expire worthless, requiring winning trades to earn 20× to break even (1 divided by 5%). Following this strategy with smart risk management results in slowly losing money over time. But the inflated probability assigned to these outsized events often makes traders bet more than they should. And instead of slowly losing money, one can lose their money quickly.

We will leave you with a Warren Buffett observation: "Only buy something that you'd be perfectly happy to hold if the market shut down for 10 years." Since an option derives much of its value from time (we'll discuss this in more detail in Chapter 2), buying options cannot meet this good advice.

An Intuitive Conclusion

These factors culminate in a simple fact: the professional trade is to sell options for small, consistent profits. You're taking the reverse side of the typical retail option trade, small income with the potential for large drawdowns—not

the most intuitive profile, but the strategy that turns out to be the winning one in most situations. Pursuing the high-probability path, while managing risk, is the focus of this book. In Chapter 3, we will widen our lens to the full options ecosystem to show that selling options is still the optimal path to success, even when considering professional traders on the long side of options.

The allure of options trading is powerful, fueled by tales of overnight riches and financial freedom. However, the reality is that successful options trading requires a comprehensive understanding of the market's intricacies, a solid strategy that tempers our most natural human biases, and meticulous risk management. In subsequent chapters, we will delve deeper into these components to equip you with the knowledge and tools you need for successful options trading.