

In everyday conversations about investing and gambling, the word **risk** gets tossed around like confetti — vague, colorful, and often misleading. A lot of folks use "risk" to mean "chance of losing money" without considering the critical mathematical backbone: **expected value**.

The sign in front of the number matters. Yes, the sign in front of the number. Expected value tells you whether on average you stand to gain or lose in the long run. But most discussions blur this important dividing line. A prime offender? The new wave of brokerage apps that let everyday investors buy weekly options with a tap, treating what's essentially a negative expected value game like a roll of hopeful dice.

This post breaks down why confusing *risk* with *negative expected value* leads to misunderstanding investing basics — especially when it comes to options trading. We'll cover how expected value shapes the real dividing line between good and bad bets, why broad equity ownership is positive expected value while many short-term options strategies aren't, and why transparency about costs matters.

Investing Basics: Understanding Expected Value and Risk

First things first. Let's get our definitions straight.



Expected Value: More Than Just Odds

Expected value (EV) is a mathematical expectation—a weighted average of all possible outcomes where each outcome is multiplied by its probability. It answers: *On average, how much money do I expect to make or lose per bet if I repeat it many times?*

The sign in front of the number matters massively. A positive EV means you expect to make money long term; a negative EV means you expect to lose. Risk alone doesn't determine this sign.

Risk vs Odds: Why People Confuse Them

People often say things like "that investment is risky" meaning it can go down. But *risk* in the strict sense is uncertainty—not just loss. An outcome with 50% chance to double your money and 50% chance to lose it all is

risky but can have zero or positive EV depending on the payoffs. Meanwhile, a guaranteed slow loss is low risk but negative expected value.

Investors often fixate on the chance of loss rather than which way the **expected value sign** points. This focus on short-term risk gutters serious discussion of sustainable, repeatable returns.

Positive Expected Value: Broad Equity Ownership vs Negative EV in Casino Games

A clear example: broad market investing is generally a positive EV activity. Casino gambling is generally a negative EV activity. Here's why.

Broad Equity Ownership Has Positive Expected Value

Historically, owning diversified stocks via broad market indices has rewarded investors with compound growth over decades. While share prices fluctuate daily (the "risk"), the expected value over a long horizon is positive.

This doesn't mean every individual trade is a sure win—it means that over many years, the weighted probabilities favor gains. The risk is volatility — prices up and down — but the expected return from dividends and capital appreciation tends to exceed inflation and fees.

Casino Games: Negative Expected Value Despite "Risk"

Casinos offer games with a published **return to player (RTP)** strictly below 100%. These games have a house edge baked in. [coast FIRE calculator assumptions](#) That is, the expected value sign is negative for the player. Each dollar bet has a cost hidden in the odds.

Yet people call casino games "risky" mainly focusing on the possibility of big wins or losses, ignoring that every bet is expected to lose money in the long run.

The Brokerage App Example: Weekly Options and Hidden Negative Expected Value

Now, let's zoom in on one specific example: weekly options trading through popular brokerage apps. These apps gamify options, make it easy to buy contracts expiring in days, and promise big payoffs. It looks fun and low risk, but the underlying economics are often negative EV masquerading as daring investing.

Options Mechanics: Theta Decay and Assignment Risk

Options lose value over time because of *theta decay*. If you buy a call or put option, time relentlessly eats away the premium you paid. Weekly options amplify this because expiry is in days, so theta decay accelerates massively.

Buyers must overcome time decay and outpace costs just to break even. Sellers, on the other hand, face *assignment risk* — the obligation to buy or sell the underlying at the strike price if exercised, which can cause large losses if markets move sharply.

The Hidden Costs: Spread and Commission

Many investors don't recognize that the bid-ask **spread** is a hidden cost. You buy at the ask, and the option's market value is closer to the bid. That difference is a loss you absorb immediately.

Commissions and fees, although reduced dramatically in recent years, still exist and compound quickly for frequent traders. Neither spreads nor commissions often get highlighted in flashy app interfaces.

The Net Result: Negative Expected Value

When you factor in theta decay, assignment risk, spreads, and commissions, most weekly options trades have a negative expected value. The sign in front of the number is negative.

But users see confetti animations, social feeds posting big wins, and no upfront "return to player" disclosure. This lack of transparency hides the structural disadvantage.

Transparency Matters: RTP Published vs Hidden Trading Costs

Casinos publish RTP clearly: you know the odds and the expected loss over time. This transparency forces firms to compete fairly. In contrast, trading platforms rarely publish an overall expected value or "house edge" analogue.

Hidden costs lurk in spreads, slippage, and the very design of options contracts. Until investors calculate expected value explicitly, many chase negative EV trades thinking it's merely "risk."



Time Horizon and The Law of Large Numbers

People confuse risk with negative expected value partly because they don't consider time horizon and sample size.

The **law of large numbers** states that average results converge to expected value over many repetitions. So, positive EV investments rewarded over years, decades, and thousands of trades align with reality.

Short-term negative EV trades — like weekly options — may have wins occasionally, but over many trades, losses accumulate. Unfortunately, emotional memory biases make people remember wins more vividly.

Summary: The Sign in Front of the Number is the Real Risk

1. **Risk** is uncertainty and chance of various outcomes, not just "chance to lose."
2. **Expected value** combines probabilities and payoffs to tell if, on average, a bet or investment makes or loses money. The sign in front matters.

3. Long-term broad market investing usually has positive expected value despite volatility.
4. Casinos and many short-term options trades have negative expected value because of built-in edges and costs.
5. Trading apps often hide these costs, making risky, negative EV activities look fun and profitable.
6. The law of large numbers means ignoring expected value sign leads to systematic losses over time.

The real investing basics start with identifying expected value, not just labeling something "risk." If you want to beat the odds, focus on where the **expected value sign** is positive — not just where the vibes feel right.

Further Reading & Tools

- Expected Value (Investopedia)
- Options Basics - CBOE
- Return to Player in Casino Games
- Expected Return - Khan Academy