Binary Options vs. American Options: A Comparative Analysis of Payout Structures and Exercise Rights

Executive Summary

This report provides a detailed comparative analysis of binary options and American options, focusing on their fundamental characteristics, particularly payout structures and exercise protocols. The purpose is to clarify the distinctions between these two types of financial contracts and address the question of whether binary options can be classified as American options. Binary options are defined by their all-or-nothing payout structure, dependent on a yes/no proposition regarding an underlying asset or event at a fixed expiration time, with exercise occurring automatically. American options, conversely, grant the holder the right, but not the obligation, to buy or sell an underlying asset at a set strike price at any time before or at expiration, with exercise being at the holder's discretion and payouts varying with the underlying asset's price movement. The analysis reveals significant differences in exercise flexibility, payout determination, the nature of the rights conferred, and typical market environments. While some binary option platforms offer early closure mechanisms, this differs fundamentally from the early exercise right inherent in American options. Based on these core distinctions, particularly the lack of discretionary early exercise rights and the fixed payout nature, standard binary options are fundamentally different from and cannot be categorized as American options. They represent distinct instruments within the derivatives landscape.

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I. Understanding Binary Options: The All-or-Nothing Proposition

A. Definition and Core Concept

Binary options represent a distinct category of financial derivatives whose value and payout hinge on the outcome of a simple "yes or no" proposition. These propositions typically relate to whether the price of an underlying asset—which could range from stocks and indices to currencies and commodities—will be above or below a specific price level (the strike price) at a predetermined expiration time, or whether a specific event will occur. The name "binary" reflects the two possible outcomes: either the condition is met, resulting in a payout, or it is not, resulting in a loss of the initial investment. Consequently, they are frequently referred to by alternative names such as "all-or-nothing options," "digital options" (a term common in foreign exchange and

interest rate markets), or "fixed-return options" (FROs).²

A critical feature differentiating binary options from traditional options is that they typically do not grant the holder the right to actually buy or sell the underlying asset. Instead, they function as speculative wagers on price movements or event outcomes. The trader is betting on a specific result within a fixed timeframe, rather than acquiring potential ownership or the right to transact the asset itself.

Binary options trading occurs across a spectrum of venues. A portion of the market operates on regulated exchanges or designated contract markets subject to oversight by bodies like the U.S. Securities and Exchange Commission (SEC) or the Commodity Futures Trading Commission (CFTC), such as Nadex-listed options or event futures offered by the Chicago Mercantile Exchange (CME).³ However, a significant portion, arguably the majority, of binary options trading takes place through internet-based platforms, many of which operate outside U.S. jurisdiction and may not comply with applicable regulatory requirements.¹ This prevalence of unregulated platforms has raised concerns about investor protection, potential fraud, and market integrity.¹ Some binary options, particularly those based on the price of a company's securities, may themselves be classified as securities and thus subject to SEC registration requirements.⁵

B. Payout Structure: Fixed Gain or Total Loss

The defining characteristic of a binary option is its payout structure, which adheres strictly to the "all-or-nothing" principle.¹ If the option expires "in the money"—meaning the predefined condition is satisfied at the moment of expiration—the holder receives a predetermined, fixed cash payout.¹ Conversely, if the option expires "out of the money"—the condition is not met—the holder loses their entire initial investment, which is the premium paid to acquire the option.¹ There is typically no middle ground; the outcome is one of these two possibilities.¹

The specific payout amount can be structured in different ways. In some models, particularly on U.S. exchanges like Nadex, options expire worthless (\$0) or settle at a fixed value (e.g., \$100). A trader might buy an option contract for, say, \$40. If it expires in the money, it settles at \$100, yielding a \$60 profit (\$100 - \$40). If it expires out of the money, it settles at \$0, resulting in the loss of the initial \$40 investment. In other models, often seen on international platforms, the payout is expressed as a fixed percentage return on the initial investment if the option expires in the money, commonly ranging from 60% to 95%. For example, a \$100 investment might yield a \$70 profit (70% return) if successful, or a \$100 loss if unsuccessful. Some brokers

might offer a small rebate on out-of-the-money options, but the fundamental binary nature remains.²

This fixed risk and reward profile stands in stark contrast to traditional "vanilla" options (like American or European options). With vanilla options, while the maximum risk is also limited to the premium paid, the potential profit is variable and directly linked to the extent of the underlying asset's price movement beyond the strike price. For a call option, the profit potential can theoretically be unlimited as the asset price rises; for a put option, profits can be substantial as the price falls towards zero. Binary options sever this direct link, offering a fixed payout regardless of how far in the money the option finishes.

C. Exercise Conditions: Automatic at Expiration

Standard binary options are characterized by a fixed expiration date and time, which can range from minutes to hours, days, or weeks.¹ A crucial aspect of their operation is the exercise mechanism. Unlike traditional options where the holder typically decides whether to exercise their right, standard binary options exercise automatically upon expiration.¹

The outcome—the gain or loss—is determined solely by whether the price of the underlying asset or the status of the specified event meets the contract's condition at the precise moment of expiration.¹ If the condition is met, the payout is credited to the trader's account; if not, the investment amount is debited.¹ Critically, once the binary option contract is acquired, the holder makes *no further decision* regarding whether or not to exercise the option.⁵ The process is passive from the holder's perspective at the point of expiry; the market condition dictates the result based on the pre-agreed terms.

D. Implications of Binary Option Characteristics

The design of binary options, particularly their simplicity, presents both appeal and significant drawbacks. The straightforward "yes/no" question, predetermined fixed payout, and automatic exercise mechanism lower the barrier to entry compared to the complexities of traditional options trading, making them accessible and potentially attractive, especially to novice traders. This apparent simplicity, however, comes at the cost of strategic depth. Traditional options offer a wide array of strategies involving strike selection, expiration timing, combinations of options (spreads, straddles, etc.), and active management decisions like early exercise or rolling positions. Binary options, by their nature, largely reduce strategy to predicting

direction over a fixed, often very short, timeframe, stripping away many risk management and strategic nuances.⁴

Furthermore, the structural elements of many binary options—particularly the combination of fixed payouts (often designed with a negative expected return for the trader over time ⁵), the lack of holder agency at expiration due to automatic exercise ⁵, and the prevalence of trading on unregulated or offshore platforms ¹—position them closer to wagering or gambling than traditional investment vehicles in the eyes of many regulators and market observers.² This structure inherently increases the risk of fraudulent practices, such as manipulation of prices or payouts, refusal to credit accounts, or identity theft, which have been widely reported in connection with unregulated platforms.² Consequently, financial regulators in numerous jurisdictions have issued warnings about binary options fraud and have implemented outright bans or severe restrictions on their sale to retail investors, viewing them as high-risk products prone to abuse.²

II. Understanding American Options: Flexibility in Exercise

A. Definition and Core Concept

American options, also referred to as American-style options, are a type of options contract that grants the holder (buyer) the *right*, but critically *not the obligation*, to either buy (in the case of a call option) or sell (in the case of a put option) a specified underlying asset at a predetermined price, known as the strike price or exercise price.¹⁰ The underlying assets commonly include individual stocks, exchange-traded funds (ETFs), and certain other securities.¹¹

The defining characteristic that distinguishes American options from their European counterparts is the timing of exercise. The holder of an American option can exercise their right to buy or sell the underlying asset *at any point in time* from the moment of purchase up to and including the option's expiration date.¹⁰ This contrasts sharply with European options, which permit exercise only on the expiration date itself.¹⁰ It is important to note that the "American" designation pertains exclusively to this exercise flexibility and has no connection to the geographical location where the option is traded or listed.¹¹ The majority of options contracts on individual stocks and ETFs traded on U.S. exchanges follow the American style.¹⁵

B. Exercise Rights: Holder's Discretion Before or At Expiration

The power to decide if and when to exercise an American option rests solely with the *holder* of the contract.¹⁰ This element of choice is fundamental to the nature of

American options. If the holder decides to exercise, they must typically notify their brokerage firm, which then initiates the process through the clearinghouse (like the Options Clearing Corporation - OCC) to execute the transaction at the agreed-upon strike price. For a call option, exercising means buying the underlying asset at the strike price; for a put option, it means selling the underlying asset at the strike price. 14

The flexibility to exercise early provides potential strategic advantages. Holders might choose to exercise early for several reasons:

- Capturing Intrinsic Value: If an option is significantly "in the money" (meaning the market price is favorable relative to the strike price), the holder might exercise to realize the profit immediately.¹⁰
- Capturing Dividends: Holders of call options on dividend-paying stocks might exercise just before the stock's ex-dividend date to become shareholders of record and receive the upcoming dividend payment, as option holders themselves do not receive dividends.¹⁰
- **Utilizing Capital (Puts):** Holders of deep in-the-money put options might exercise early to receive the cash proceeds from selling the stock at the strike price sooner, allowing those funds to be redeployed elsewhere.¹⁰

However, despite possessing the right to exercise early, holders often find it more financially advantageous *not* to do so. Exercising an option captures only its intrinsic value (the difference between the strike price and the current market price). By contrast, selling the option contract itself back to the market before expiration allows the holder to potentially capture not only the intrinsic value but also any remaining *extrinsic value* (or time value), which reflects the possibility of further favorable price movements before expiration.¹⁰ Nevertheless, the *right* to exercise early remains a key feature and source of value for American options.

C. Payout Structure: Variable, Linked to Underlying Asset Price

Unlike the fixed, binary payout of binary options, the profit or loss realized from an American option position (whether through exercise or by selling the contract) is *variable*. It is directly dependent on the relationship between the underlying asset's market price and the option's strike price at the time of exercise or sale, adjusted for the initial premium paid to acquire the option.¹

Consider these examples:

 American Call Option: An investor buys a call option with a \$100 strike price. If they exercise the option when the underlying stock is trading at \$150, they buy the stock at \$100 and can immediately sell it at \$150, realizing a gross profit of \$50 per share (\$150 - \$100). The net profit is this amount minus the premium initially paid for the option. If the stock price rises further, the potential profit increases accordingly.

• American Put Option: An investor buys a put option with a \$150 strike price. If the underlying stock price falls to \$90 and they exercise the option, they have the right to sell the stock at \$150, realizing a gross profit of \$60 per share (\$150 - \$90). The net profit is this amount less the initial premium. The profit potential increases as the stock price falls further below the strike price.

This direct linkage between the option's value and the underlying asset's price movement allows for profit potential that can be substantial and, in the case of call options, theoretically unlimited, albeit still constrained by the initial cost (premium) which represents the maximum possible loss. This variable payout potential fundamentally distinguishes American options from the capped, predetermined outcomes of binary options.

D. Implications of American Option Characteristics

The structure of American options imbues them with distinct characteristics and implications for traders. The core value proposition stems from the *optionality* itself—specifically, the flexibility granted to the holder regarding the timing of exercise. This ability to choose when, or if, to exercise before expiration is a valuable right. Even if the holder ultimately chooses not to exercise early, the existence of this right provides strategic advantages, such as the ability to react to unforeseen market events or capture dividends. This added flexibility is recognized in the market, typically resulting in American options commanding a higher premium compared to otherwise identical European options, reflecting the economic worth of this timing choice. In

Furthermore, the combination of discretionary exercise and a variable payout structure intrinsically ties American option strategies to the holder's comprehensive view of the underlying asset. Effective trading requires analyzing not just price direction, but also factors like volatility, the rate of time decay (theta), interest rates, and potential dividend payments. The decision of when, or whether, to exercise, or alternatively when to sell the option contract, involves weighing these complex variables. This necessitates a deeper level of market analysis and strategic planning compared to the relatively straightforward directional bet placed with a binary option. Additionally, the fact that exercising an American option results in a position in the underlying asset (either buying or selling shares) allows these instruments to be

integrated seamlessly into broader investment portfolios for purposes such as hedging existing positions, generating income, or engaging in complex speculative strategies.¹¹ This contrasts markedly with binary options, which generally offer no path to ownership and whose outcome is detached from the nuanced performance and characteristics of the underlying asset beyond the binary condition at expiry.¹

III. Comparative Analysis: Exercise Rights and Flexibility

A. Direct Comparison of Standard Exercise Rules

The most fundamental divergence between standard American options and standard binary options lies in their respective exercise protocols. American options empower the holder with the *choice* to exercise their right to buy or sell the underlying asset at the strike price at any time prior to or at the expiration date.¹⁰ The decision rests entirely with the holder, based on their market assessment and strategic goals.

In stark contrast, standard binary options operate on an automatic settlement mechanism.¹ The outcome—payout or loss—is determined algorithmically based on whether a predefined market condition is met at the exact moment of expiration. The holder makes no active decision regarding exercise at expiry; the contract simply settles based on the observed market state relative to the contract's terms. Therefore, the American option holder possesses a valuable timing *right* regarding exercise, which the standard binary option holder fundamentally lacks.

B. Implications of Exercise Differences for Holders

These contrasting exercise mechanisms have significant implications for option holders regarding control, strategy, and risk management:

- **Control:** The holder of an American option maintains active control over the decision to exercise throughout the life of the contract.¹⁰ This allows for tactical responses to changing market conditions, including potentially exercising early (though often selling the contract is preferred for capturing time value) or allowing the option to expire if unfavorable. The binary option holder, having placed the initial trade, essentially relinquishes control over the final outcome determination, which becomes solely dependent on the market satisfying the binary condition at the precise expiration moment.⁵
- Strategic Depth: The exercise flexibility inherent in American options unlocks a range of sophisticated trading strategies that are simply not possible with standard binary options. Examples include strategies centered around capturing dividends by exercising calls early ¹⁰, or considering early exercise for deep

- in-the-money puts to optimize capital usage.¹⁰ Binary option strategies, lacking this exercise dimension, primarily revolve around forecasting whether the binary condition will be met at expiry.⁴
- Risk Management: While both option types involve risk limited to the initial premium for the buyer, the American option structure offers more dynamic risk management possibilities before expiration. The holder can choose to sell the option contract in the secondary market to lock in profits or cut losses based on price movements occurring before the expiration date.¹⁰ For the standard binary option holder, the risk profile is typically fixed until the moment of expiration, unless the specific platform allows for early closure of the position (a feature distinct from exercise, discussed in Section IV).

C. Deeper Implications of Exercise Mechanism Differences

The difference between discretionary, holder-initiated exercise (American) and automatic, condition-triggered settlement (Binary) transcends mere procedural variation; it represents a fundamental divergence in the financial philosophy underpinning each instrument. American options emphasize holder control, agency, and the ability to strategically interact with the underlying market dynamics up until expiration. They function as tools for active market participation, allowing holders to adapt their positions based on evolving information and objectives. Standard binary options, conversely, embody a more passive approach from the holder's perspective post-purchase, focusing on a single, predefined event outcome at a specific future point in time, akin to a wager on a future state. This core mechanical difference in how the contract's rights (or lack thereof regarding exercise choice) are resolved is a primary reason why these instruments belong to distinct categories.

This structural difference in exercise protocols also contributes to the distinct market ecosystems and participant profiles associated with each option type. American options, predominantly traded on established, regulated exchanges ¹, naturally attract participants, including institutional investors and sophisticated retail traders, who engage in complex hedging, income generation, and speculative strategies requiring careful analysis of the underlying asset, volatility, and time decay.¹¹ The need for discretionary exercise decisions aligns with this analytical approach. Binary options, particularly those offered on newer, internet-based, and often less regulated platforms ¹, tend to appeal more to traders seeking simplicity, rapid turnover, and the potential for high (though inherently risky) fixed returns over short timeframes.¹ The automatic exercise and simple payout structure cater to this demographic, sometimes blurring the lines with online gaming or gambling activities.² The exercise mechanism, therefore, is not just a technical feature but is symptomatic of, and reinforces, the

broader divergence in market environments, target audiences, and regulatory postures surrounding these two types of options.

IV. Exploring Variations: Early Exit and Exercise Nuances

A. Early Closure Mechanisms in Some Binary Options

While standard binary options automatically settle only at expiration, it is important to acknowledge that *some* platforms or specific types of binary contracts offer a mechanism for *early closure* or *early exit* before the scheduled expiration time. This feature is notably available on regulated U.S. platforms like Nadex.

When early closure is permitted, it typically involves the trader selling their binary option contract back into the market or directly to the broker/platform at its prevailing market price.³ This market price fluctuates continuously before expiration, primarily based on the market's perception of the probability that the option will ultimately finish in the money.³ For instance, if a trader bought a binary option for \$44.50 predicting an asset price would be above a certain level, and the asset price moves strongly in that direction well before expiry, the market value of the binary option contract might rise (e.g., to \$70). The trader could then sell the contract at \$70, locking in a profit before the official expiration.³ Conversely, if the asset price moved unfavorably and the option's market value dropped to \$30, the trader might choose to sell it at that price, accepting a smaller loss (\$14.50 in this example) rather than risking the loss of the entire initial investment (\$44.50) should the option expire out of the money.³

However, this early closure capability is not a universal feature of all binary options or platforms. Some regulated venues offering binary-like products, such as the event futures contracts on the Chicago Mercantile Exchange (CME) or options previously listed on the Choe, explicitly *do not* permit early exit; positions must be held until expiration.³ The availability of early closure is thus highly dependent on the specific trading venue and contract specifications.

B. Distinction: Early Closure vs. American Option Early Exercise Right

It is crucial to differentiate the "early closure/exit" feature sometimes available for binary options from the *early exercise right* inherent in American options. They are fundamentally different actions with distinct economic implications:

• Early Closure (Binary Option): This involves liquidating the *binary option* contract itself by selling it at its current market price before expiration.³ The value

- realized depends on the market's assessment of probabilities at that moment. It does *not* involve executing the underlying proposition (e.g., buying or selling the asset at the strike price).
- Early Exercise (American Option): This involves the holder enacting the *right* defined within the contract that is, actually buying or selling the underlying asset at the predetermined strike price. The value realized is based on the intrinsic value (difference between strike and market price of the underlying) at the time of exercise.

The economic outcomes differ significantly. Early closure of a binary option captures the contract's fluctuating market value based on perceived probabilities. Early exercise of an American option crystallizes the value based on the direct relationship between the strike price and the underlying asset's price at that specific moment.

C. American-Style Digital Options

Further complicating the terminology, there exists a specific, less common variant known as "American-style digital options". These instruments, while being a form of digital (binary) option, possess a unique exercise characteristic. According to some sources, these options are structured to exercise *automatically* the instant they become in-the-money (ITM), even if this occurs well before the scheduled expiration date. The holder would theoretically receive the fixed payoff immediately upon the ITM condition being met.

This automatic ITM exercise feature makes American-style digital options distinct from *standard* American options. In standard American options, becoming ITM does *not* trigger automatic exercise; the decision to exercise remains entirely at the *discretion* of the holder until they choose to act or until expiration.¹⁰ The existence of this niche product underscores the diversity within option types but does not alter the fundamental differences between standard binary options and standard American options.

D. Deeper Implications of Variations and Terminology

The availability of early closure on certain binary option platforms represents a significant feature enhancement for traders using those specific venues, offering a degree of risk management flexibility absent in basic binary contracts. However, its platform-dependent nature contrasts sharply with the early exercise right of American options, which is a fundamental, standardized feature inherent to the *contract type itself*, irrespective of the specific trading platform. Treating a variable platform

feature (binary early closure) as equivalent to a core contract right (American early exercise) would be inaccurate. The former is an attribute of certain trading environments, while the latter defines a whole class of options.

The existence of terms like "early closure," "early exercise," and "American-style digital options" ²⁰ highlights the potential for semantic confusion when comparing option types. Features might superficially appear similar (e.g., exiting a position before expiry), but the underlying mechanics and economic consequences can be vastly different. This underscores the critical importance of relying on precise definitions that focus on the core mechanics: Who holds the decision-making power regarding action before expiry? What specific action is taken (liquidating the contract vs. exercising the right on the underlying asset)? Is the action discretionary or automatic? Answering these questions reveals the fundamental distinctions between standard binary options and standard American options, preventing conflation based on potentially misleading terminology.

V. Conclusion: Synthesizing the Differences – Are Binary Options American Options?

A. Recap of Key Distinctions

The analysis presented in this report reveals fundamental and irreconcilable differences between standard binary options and standard American options across several critical dimensions:

- Payout Structure: Binary options feature a fixed, predetermined "all-or-nothing" payout contingent on meeting a specific condition at expiry.¹ American options offer a variable payout directly linked to the difference between the underlying asset's market price and the strike price at the time of exercise or sale, less the initial premium.¹⁰
- Exercise Control and Timing: Standard binary options exercise automatically at expiration based on predefined conditions, with no further decision required from the holder at that point. American options grant the holder the discretionary right to choose if and when to exercise at any time before or at expiration. 10
- Nature of the Right: Binary options typically represent a wager on a price movement or event outcome and do not confer the right to own the underlying asset. American options explicitly grant the holder the right (though not the obligation) to buy or sell the actual underlying asset. 10
- **Flexibility and Strategy:** Standard binary options offer limited strategic flexibility beyond the initial prediction, with the outcome fixed at expiry. American options provide significant strategic flexibility due to the holder's control over exercise

timing, enabling various approaches like dividend capture or early profit-taking/loss-cutting via exercise (or, more commonly, selling the option). While early closure features on some binary platforms offer a degree of pre-expiry risk management, this mechanism (selling the contract) is fundamentally distinct from the American option's right to exercise (act on the underlying at the strike price).

B. Comparative Table: Binary vs. American Options

The following table summarizes the core differentiating features:

Feature	Standard Binary Option	Standard American Option
Core Concept	Yes/No wager on price/event ¹	Right (not obligation) to buy/sell underlying asset ¹¹
Payout Structure	Fixed amount or nothing (All-or-Nothing) ¹	Variable, based on Strike vs. Market Price ¹⁰
Exercise Control	Automatic at expiration (No holder decision) ⁵	Holder's discretion (Choice to exercise) ¹⁰
Exercise Timing	Only at expiration (outcome determined) ¹	Anytime up to or at expiration
Early Exit/Exercise	Maybe early <i>closure</i> (sell contract) on some platforms ³ ; Not exercise	Early <i>exercise</i> right (act on underlying) inherent ¹⁰
Underlying Ownership	Typically no right to own underlying ¹	Right to buy/sell underlying asset ¹⁰
Risk Profile	Fixed maximum loss (premium paid) ¹	Fixed maximum loss (premium paid) ¹¹
Profit Potential	Fixed maximum profit (predetermined payout) 1	Variable (potentially large, linked to price) ¹

Typical Regulation	Often traded on unregulated platforms ¹	Traded on regulated exchanges ¹
	piationiis	exchanges

C. Definitive Answer to the User's Core Question

Based on the comprehensive comparison of their core characteristics, standard binary options cannot be classified as American options. The fundamental differences in payout determination (fixed vs. variable) and, most critically, the exercise mechanism (automatic settlement at expiry vs. discretionary exercise anytime before or at expiry) place them in distinct categories.

The defining feature of an American option is the holder's right to choose the timing of exercise prior to expiration. This right, which carries significant strategic and economic value, is fundamentally absent in standard binary options. While variations like early closure features on some binary platforms exist, they do not equate to the intrinsic early exercise right of an American option. Therefore, despite both being types of options contracts, their mechanics, risk/reward profiles, strategic applications, and typical market environments diverge substantially. Binary options and American options represent separate and distinct instruments within the broader landscape of financial derivatives.

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