Building Blocks of BINARY OPTIONS

Binary options allow for a specific yet simplified approach to trading and maintain a unique place in the futures industry. A binary option is a type of option with a payout that is a fixed amount or nothing at all. Traders may limit their exposure to the premium they pay to buy or sell the option. That premium should reflect the marketplace-determined probability that the contract will finish in-the-money and the remaining time to expiration. For the first time, members can open an account directly with a regulated exchange and utilize the unique characteristics of binary options in the commodity futures, FX and equity index futures markets.

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BUILDING BLOCKS – **SYMMETRICAL STATE**

Every binary trade strategy starts with two basic building blocks consisting of two states which are very similar to a long call or long put position.

• A long position is taken when the trader believes that an event will occur.

• A short position, when the trader believes that the event will not occur.

A binary trade occurs when the two parties agree on a price and a quantity for a particular contract.

Although the concept of binaries is simple, there is an important distinction.

• When shorting traditional put and call options, the premium paid by the buyer is received by the option seller.

• The seller of a binary option, however, does not receive premium but instead pays a premium to participate in the short market position with the known potential risk and reward of that position.

Example

Shorting traditional option vs. binary option, assume both have an $80 trade price.

• Traditional options: receive the $80 premium, maximum profit potential $80, unlimited risk to adverse market movement.

• Binary options: pay $20 premium, with a maximum profit potential of $80 ($100 payout – $20 premium), with a corresponding risk to adverse market movement that is limited to the $20 premium.

Binary Options - Unique Payout Characteristics

Binary options are structured with an all-or-nothing payout mechanism.
By holding a position until expiration, only two possible payout outcomes can occur.

• If your market prediction is correct, you will receive the full $100 payout per contract, less any exchange fees.

• If your market prediction is incorrect, you lose the entire premium paid to initiate the trade plus exchange fees.

• Binary option positions may be liquated any time prior to expiration to take a profit or cut losses.

By holding a position until expiration only two possible payout outcomes can occur

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It's all about the Predictability

At expiration, binaries are fairly straightforward. A calculated HedgeStreet Expiration Value is going to be either greater than the strike price or not, winner takes all. But it is the time period preceding the expiration that can have electrifying swings in binary pricing relative to the underlying price.

To sum it up, a binary market is a predictive market. Factors affecting the binary pricing are the perceived volatility, the length of time to expiration, the underlying price relative to the strike and the market bias or skew.

When the underlying market is trading at the same level as the strike price, the binary pricing will be approximately 50. At this point in time the odds are similar to a coin toss, 50/50. The market has determined that the binary option has just as much chance to have an expiration value in favor of the buyer as the seller.

Binary options have a distinctive property that makes them exciting to trade.

As expiration nears, the outcome of the binary option may become more predictable, all other things being equal. As the underlying price trades further from the strike price level, either above or below, the binary option becomes more predictable. Eventually the binary pricing should trade to one of the extremes; priced near $0 the binary seller has the odds in his favor and priced near $100 the binary buyer has the odds in her favor.

An interesting aspect to binary options can be seem when the underlying is trading near the strike level approaching expiration. A small price move in the underlying can cause the binary pricing to catapult to the extreme due to the biary contract's unique payout characteristics.

Please refer to the payout graph below showing the binary payout at expiration compared to a traditional long call payout.

Binary vs. Standard Call Prior to Expiry

Assume: Gold Binary and Call struck at K=700

$

200

100

Gold Price

700 710 720

2.

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BASIC STRATEGIES

1. Directional View

Some binary option strategies can offer significant leverage with limited risk. As the initial cost of a binary trade (that is, the amount at risk) increases, the maximum profit at expiration decreases by an equivalent amount. By trading cheaper binaries, the likelihood of a correct market prediction decreases but so does the amount of capital at risk. Note the potential profit will increase as your initial binary cost decreases.

Given the choices of strike price levels with associated premium probabilities, one can build a payout structure to fit the desired risk/reward payout levels.

For example, if a bullish trend in the underlying has developed with some key technical resistance levels above the market, a trader may determine that, if the underlying market continues to trend higher, there is a good possibility that large buy stops will be elected, pushing the underlying market up even further.

Possible Strategy:
Buy a strip of binary strikes coinciding with this directional view; Choose the out of the money binary strikes to coincide with the anticipated upside move from the buy stops.

Traders may limit their exposure to the premium they pay to buy or sell the option.

Spot EUR/USD is trading at 1.3142
1hr 47minutes remain before 2:00pm expiration

	Cost (Potential Loss)	Potential Profit
Buy 1 2:00pm $100 EUR/USD > 1.3150 @ 45		55
Buy 1 2:00pm $100 EUR/USD > 1.3175 @ 30		70
Buy 1 2:00pm $100 EUR/USD > 1.3200 @ 10		90

Total cost to buy all strikes = $85 plus exchange fees

P & L Graph at Expiry

$
215
115
15
0
-85
-100
1.3130 40 51 60 70 80 90 00 1.3210
EUR/USD Price

2:00pm Expiration Value for EUR/USD > 1.3200
All three binary option strikes finish in the money.
Profit: $300 payout - $85 cost = $215 less exchange fees

OR

2:00pm Expiration Value for EUR/USD < 1.3150 _
All three binary option strikes finish out of the money.
Loss: $0 payout - $85 cost = -$85 and exchange fees

3.

2. Short Volatility

As discussed earlier, when initiating binary trades, the premium paid is inherently the approximate probability, or odds, that the binary outcome will have a favorable payout. In essence, as the cost of the binary increases, the probability the contract will finish in the money increases. A short volatility strategy attempts to capture the higher probability of success by paying higher premiums.

Weighing your expectation of volatility, time to expiration and market direction will impact the effectiveness of this trade strategy. Using this strategy, your position is already in the money so you want time decay to accelerate and volaitlity to remain low.

Assume the GBP/USD gains 1% in European sessions on comments from BoE members regarding the need to further tighten monetary policy. By late day in New York, GBP/USD intraday volatility has dropped and price action is consolidating. You anticipate the GBP/USD market will remain stable.

Possible Strategy:
Buy an in-the-money binary option that is expected to remain in-the-money through expiration; Choose a strike comfortably below the current underlying market price.

Example:
Spot GBP/USD is trading at 1.5625
1hr 30minutes remaining before 3.00pm expiration

Buy 1 3:00pm $100 GBP/USD > 1.5580 @ 83

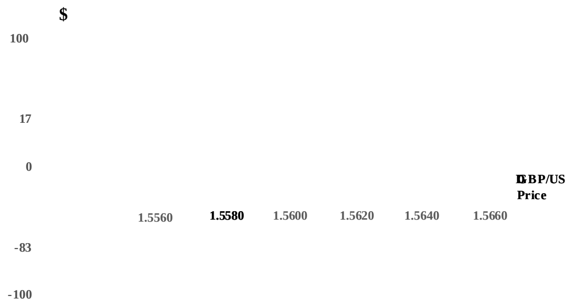
Initial cost = $83 plus exchange fees

Expiration Value >1.5580 Maximum Profit = $17 less exchange fees
Maximum Profit Percent return before fees 20.48%

Expiration Value < 1.5580 Maximum Loss = -$83 and exchange fees

Buy 1 3:00pm $100 GBP/USD > 1.5580 @ 83
Potential Loss = $83; Potential Profit = $17

P & L Graph at Expiry



Note: Binary pricing implies approximately an 83% likelihood of the price staying above 1.5580 and a 17% chance of the price closing at or below 1.5580.

3. Hedging a spot Forex Position

Binaries can be used to partially hedge an outright spot FX position similar to a traditional stop loss order. When using a traditional stop loss order, the trader’s position is flat once his stop is elected, leaving no additional exposure to adverse market movements.

Using a binary as a partial hedge, the trader’s protection is limited to a fixed dollar amount ($100 payout minus the cost of the binary contract) and the trader will still maintain his spot FX position even after the binary option has expired.

This strategy is time-dependent, requiring the Expiration Value to be in the money at expiration. HedgeStreet’s binary options are not one-touch options, and therefore are not “elected” like a stop loss order.

Let’s assume a trader establishes a short spot EUR/USD at 1.3000 with a strategy to stay with that short spot position unless the market reverses to trade above 1.2950 price levels. The trader anticipates a small correction and decides to capitalize on this view while maintaining the short spot EUR/USD position.

The trader may decide to use one or all of the available binary strikes below to have a possible fixed dollar payout from a small rally in the underlying market.

Example
Current position: Short 1 spot EUR/USD contract at 1.3000

Spot EURO/USD trading @ 1.2781

BINARY STRIKE choices below expiring in 3hours
3.00pm $100 EUD/USD > 1.2900 quoted 05bid/09offer
3.00pm $100 EUD/USD > 1.2880 quoted 09bid/13offer
3.00pm $100 EUD/USD > 1.2860 quoted 15bid/20offer

In this example if the underlying spot does rally and the 3:00pm EUR/USD has an Expiration Value greater than 1.2900 then a buyer of all three binary strikes would finish in the money on each of them.

Scenario 1: Buy the 3pm EUR/USD > 1.2860 at 20

Total cost/ Maximum Risk -$21 ($20 + $1 exchange fee/contract)
Net Payout at Expiration
Expiration Value > 1.2860: $78 ($100 - $21 - $1 exchange fee/contract)
Expiration Value < 1.2860: $0 (incur $21 loss for initial cost)

RISK/ REWARD -$21 / +$78

Scenario 2: Buy the 3pm EUR/USD > 1.2880 at 13

Total cost/ Maximum Risk -$14 ($13+ $1 exchange fee/contract)
Net Payout at Expiration
Expiration Value > 1.2880: $85 ($100-$14 -$1 exchange fee/contract)
Expiration Value < 1.2880: $0 (incur $14 loss for initial cost)

RISK/ REWARD -$14 / +$85

Scenario 3: Buy the 3pm EUR/USD > 1.2900 at 09

Total cost/ Maximum Risk -$10 ($9+ $1 exchange fee/contract)
Net Payout at Expiration
Expiration Value > 1.2900: $89 ($100-$10 -$1 exchange fee/contract)
Expiration Value < 1.2900: $0 (incur $10 initial loss for initial cost)

RISK/ REWARD -$10 / +$89

5.

4. Vertical Spreads

The vertical spread strategy (payoff diagram similar to short strangle) can be constructed by purchasing the lower strike/ selling the higher strike of the binary with the same underlying and expiration. This strategy is used when anticipating the contract underlying will finish trading within the chosen range at the contract expiration.
When initiating a vertical spread strategy, wider strike intervals result in a higher cost, obviously reflecting the increased probability the underlying will finish within a wider strike range. One benefit of this strategy is that, if you correctly predict that the underlying market will finish within the range of the strikes, you will receive a double payout, i.e. a $200 total payout per spread.

Underlying spot EURO at 1.2760

Contracts	Expires	Bid	Ask
3PM EUR/USD > 1.2880 (D)	2h 19m	2.00	6.00
3PM EUR/USD > 1.2860 (D)	2h 19m	6.00	10.00
3PM EUR/USD > 1.2840 (D)	2h 19m	11.00	15.00
3PM EUR/USD > 1.2820 (D)	2h 19m	18.00	22.00
3PM EUR/USD > 1.2800 (D)	2h 19m	27.00	32.00
3PM EUR/USD > 1.2780 (D)	2h 19m	37.00	43.00

Let’s compare strategies of purchasing the binary vertical spread vs purchasing outright binary positions using the contract table.

3PM EUR/USD > 1.2760 (D)	2h 19m	49.00	54.00	Assume that you expect the market to trend higher, consolidate and finish above 1.2780 by 3.00pm EST.
3PM EUR/USD > 1.2740 (D)	2h 19m	60.00	66.00	
3PM EUR/USD > 1.2720 (D)	2h 19m	71.00	76.00	
3PM EUR/USD > 1.2700 (D)	2h 19m	80.00	84.00	

VERTICAL SPREAD

Buy the 3pm EUR/USD 1.2780 at 43 and sell EUR/USD 1.2800 at 27 (seller pays 73)

Total cost of trade - $118 ($43 + $73+ $2 exchange fee/ contract)

Net Payouts

Expiration value < 1.2780 - $19 loss ($100 payout-$1 fee-$118 cost /contract)

Expiration value > 1.2800 - $19 loss ($100 payout-$1 fee-$118 cost /contract)

Expiration value between > 1.2780 and < 1.2800 _

+ $80 profit ($200 payout-$2 fee-$118 cost /contract)

RISK/ REWARD -$19 / +$80

OUTRIGHT BINARY POSITION

Buy the 3pm EUR/USD > 1.2780 at 43

Total cost/ Maximum Risk - $44 ($43+ $1 exchange fee/contract)

Net Payout at Expiration

Expiration Value > 1.2780 + $55 ($100-$44 -$1 exchange fee/contract)

Expiration Value < 1.2780 $0 (incur $44 initial cost)

RISK/ REWARD -$44 / +$55

Comparing the **two risk/reward scenarios**, the vertical spread strategy has a greater potential payout with a smaller potential loss than the outright binary position; however, it is less likely that the vertical spread strategy will finish in the money – i.e., that the Expiration Value will be between the strikes – than that the outright position will finish in the money.

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Building Blocks ofBINARY OPTIONS

5. Time / Horizontal Trade

With an array of durations from multiple intraday contracts, daily and weekly contracts, binary contracts allow a trader to customize a trading strategy for expected market moves within specific time intervals. Using a Horizontal Time Spread strategy, one can capitalize on certain market conditions early and in essence have a free call option with the remaining long dated binary position.

Possible scenario:

Assume the Fed Open Market Committee is expected to make a rate announcement today at 1:15pm or the Fed Chairman is scheduled to give a speech at 2:00pm, which is anticipated to weaken the dollar.

In either scenario, you may expect the market to be very quiet and to consolidate before the rate announcement or speech.

Using a Horizontal time spread you could buy a EUR/USD binary with odds in favor expiring **prior to the late day news.**

With the expected net payoff, match the dollar amount with a purchase of a longer dated out of the money EUR/USD binary that expires after the speech.

Example:

Buy 1 10:00am $100 EUR/USD > 1.3200 at 80

Buy 1 3:00pm $100 EUR/USD > 1.3260 at 12

Total cost of spread - $94 ($80 + $12+ $2 exchange fees)

Net Payouts

Expiration value > 1.3200 @ 10:00am $5 gain ($100 payout -$1 fee - $94 cost)

Expiration value < 1.3260 @ 3:00pm $0 ($0 payout)

Net Payouts

Expiration value > 1.3200 @ 10:00am $5 gain ($100 payout - $1 fee - $94 cost)

Expiration value > 1.3260 @3:00pm $99 gain ($100 payout - $1 fee)

Maximum payout if both contracts finish in the money = + $104
Maximum loss if both contracts finish out of the money = - $94

Note that the shorter duration binary can be liquidated prior to its expiration to compensate against adverse market conditions to cut losses.

P & L Graph at Expiry

$

104

5

0

1.3190 **1.3201** 1.3210 20 30 40 **1.3251** 60 70 80 90 1.3300 **EUR/USD Price**

-94

-100

7.

6. Strangle Spread -Buying the wings

The strangle spread strategy can be constructed by purchasing a higher strike binary contract and selling a lower strike binary contract with the same underlying and expiration. This strategy may be used when anticipating that the underlying will have an Expiration Value outside of the chosen range at expiration.
When initiating a strangle spread strategy, wider strike intervals will result in lower cost, obviously reflecting the decreased probability the underlying will finish outside of the wider strike range.

For this strategy, only one leg can qualify to receive the maximum $100 payout if the expiration value is outside the two strike range.

This strategy can be effective if you are undecided on market direction but anticipate a big move. Such things a FOMC rate announcement or a well publicized major technical formation can be ideal.

Strangle Spread Strategy

Buy 12pm $100USD/YEN > 118.50 at 20

Sell 12pm $100USD/YEN > 118.25 at 60

(Seller pays $40)

Spot USD/YEN trading at 118.30

P & L Graph at Expiry

$

100

40

0

117.75 118.00 118.25 **118.51** 118.75 119.00 119.25 **USD/YEN Price**

-60

-100

Total cost of trade	-$62 ($20+ $40 + $2 exchange fee /contact)
Net Payouts	
Expiration value > 118.50	$37 ($100-$62-$1 exchange fee /contract)
Expiration value < 118.25	$37 ($100-$62-$1 exchange fee /contract)

Expiration value between > 118.25 and < 118.50 _
- $62 loss ($0 payout-$62 initial cost /contract)

PAYOUT DIAGRAM

Price at Expiry	Buy USD/YEN > $118.25	Sell USD/YEN >$118.50	Spread cost	Total P&L
118.1	100	0	-60	**40**
118.2	100	0	-60	**40**
118.25	100	0	-60	**40**
118.3	0	0	-60	**-60**
118.4	0	0	-60	**-60**
118.5	0	0	-60	**-60**
118.51	0	100	-60	**40**
118.6	0	100	-60	**40**

Excluding exchange fees

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