Steve Meizinger

Greenback vs. Aussie, who will win?

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For the sake of simplicity, the examples that follow do not take into consideration commissions and other transaction fees, tax considerations, or margin requirements, which are factors that may significantly affect the economic consequences of a given strategy. An investor should review transaction costs, margin requirements and tax considerations with a broker and tax advisor before entering into any options strategy.

Options involve risk and are not suitable for everyone. Prior to buying or selling an option, a person must receive a copy of *Characteristics and Risks of Standardized Options.* Copies have been provided for you today and may be obtained from your broker, one of the exchanges or The Options Clearing Corporation, One North Wacker Drive, Suite 500, Chicago, IL 60606 or call 1-888-OPTIONS or visit www.optionseducation.org.

Any strategies discussed, including examples using actual securities and price data, are strictly for illustrative and education purposes and are not to be construed as an endorsement, recommendation or solicitation to buy or sell securities

Simplest approach without options

- Long spot forex
  - **An investor's results will be 100% based on the performance of the spot pair rate without any related options transaction**

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What is the definition of the word option?

- The act of choosing
- The right of the holder of an insurance policy to specify the manner in which payments are to be made or credited to the policyholder
- The exclusive right, usually obtained for a premium, to buy or sell something within a specified time at a set price

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Let’s look more at options

- An **option** is the right, but not the obligation, to buy or sell an asset for a specific period of time for a specified price.

- Keeping it simple, an option is a choice. Buyers can gain control of a foreign currency pair for a limited amount of time for specific price. One of the major advantages regarding options is that if the investor’s forecast is radically wrong, the investor can only lose their initial premium. Purchasers of options have limited risk, sellers have large to unlimited risk.

- Let’s talk about the types of options.

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Calls and Puts

- Call options give the option buyer the right to buy US dollar exchange rate at a certain price for a certain time

- Put options give the option buyer the right the sell the US dollar exchange rate a certain price for a certain time

- Options only exist for a certain period of time. The term of the options is for a finite period. Different expiries can be selected depending on the investor's forecast and their financial goals and their risk tolerances

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Buyers and Sellers

- Options are bought and sold each day at the International Securities Exchange.
- In each trade there is a buyer and a seller in the transaction.
- The ISE FX options are accessible through U.S equity options brokers. The same brokers that you would access IBM, GOOG, MSFT, AAPL and RIMM options or any other equity option.

ISE FX options AUX

- If you are bullish on the USD/AUD you could simply buy AUX calls to implement your bullish USD dollar forecast relative to the Australian dollar

- If you are bearish on the USD/AUD you could simply buy AUX puts to implement your bearish USD dollar forecast relative to the Australian dollar

- ISE FX options use the USD dollar as the base currency in all of the current currency pairs including AUX

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Four positions for options

	Calls	Puts
Long (buyer, also called a holder)	Right to buy	Right to sell
Short (seller, also called a writer)	Obligation to sell	Obligation to buy

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Buyers and sellers

- Buyers receive the limited risk of an option with the large potential gain if the spot rate moves in the anticipated manner.

- Sellers receive premiums, for those premiums the seller receives obligations. Sellers have limited potential profits and the potential for large to unlimited losses.

Which is better buying or selling options?

- There is no inherent advantage for buyers or sellers. The markets balance the risk and rewards each trading day
- Investors should try to learn more about the options terminology and the concept of risk and reward prior to deciding on the appropriate options strategy
- Sellers of options will need to complete margin agreements with their brokerage firms
- Vertical spreads allow investors to trade with limited risk.

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Why options?

- Options allow investors to implement their view of the marketplace with limited risk

- Options allow for the transferal of risk, traders can hedge their exposure to the spot foreign exchange market by purchasing ISE FX options (either calls or puts depending which currency they are hedging, more on that later)

- Options allow more unique tradeoffs to be created. As you learn more about options you can actually sell one option against another option, this type of strategy is frequently called spread trading

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Premiums

- The amount paid by the option buyer to the option seller is called the premium
- Premiums are paid by the buyer to the seller the next business day. Brokers, exchanges, such as the ISE, and the Options Clearing Corporation help in this process
- The premiums are multiplied by $100 determining the aggregate premium (not including the brokerage commissions)
- Option pricing models assist market participants in calculating the fair value prices, ultimately prices are based on supply and demand though
- Ultimately, options can be used to implement your views of the underlying instrument chosen

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Premiums

- The purchaser of an option can lose no more than the initial amount of money invested, the premium
- Buyers must pay for options the next business day in whole therefore they are never subject to margin calls since they paid for 100% of the contract when the trade was initiated

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Strike price

- A strike price is the price that the contract is based upon, the right to buy or sell the exchange rate value at a certain price
- As an example, February 107 call is an option that gives the buyer the right to buy the certain exchange rate pair at $107 any time until the third Friday of the month.
- The strike price is classified as:
  - In-the money (highest nominal value)
  - At-the money (less nominal value)
  - Out-of-the-money (lowest nominal value), but the out-of-the-money options also have the lowest probability of expiring in the money at expiration. Risk reward remain in balance

Intrinsic value

- Intrinsic value refers to the value of the option which is intrinsic to or contained in the security itself. The value of the option if the expiration were to occur immediately. Only in-the-money options have intrinsic value.
- Calls- If the ISE FX value is greater than the strike price
- Puts- If the ISE FX value is less than the strike price
- Please note the intrinsic value can never be negative

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Extrinsic value

- Extrinsic value is the time value of an option. It is equal to the option price less the intrinsic value of the option. Out-of-the-money options are composed entirely of extrinsic value; they have no intrinsic value
- Calls- If the ISE FX value is less than the strike price
- Puts- If the ISE FX value is greater than the strike price
- Please note that at expiration all extrinsic value is removed from the option
- Volatility plays a substantial role in the extrinsic value

Volatility

- Volatility is very important in options pricing
- Investors should learn more about volatility and its impact on options pricing prior to entering any options transaction

Strike price categories

- In-the-money- Have the highest probability of remaining in-the money, they are also the most expensive in nominal terms. ITM options have intrinsic value
- Out-of-the-money- Have the lowest probability of expiring in the money, lowest cost in nominal terms, OTM have no intrinsic value, all of the premium is extrinsic
- At-the-money- Hybrid between the two extremes, the cost is less than in-the-money, but more expensive than out-of-the-money. ATM options have no intrinsic value but are since they at the strike price, they can move in the money faster than OTM options

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In, at, out of the money examples

Underlying exchange rate value of AUX is 107	**Call**	**Put**
100	In the money	Out of the money
107	At the money	At the money
114	Out of the money	In the money

Options are about risk and return

- Options allow for risk to be transferred from investors looking to reduce risk to those investors willing to tolerate higher risk in search of greater returns. Risk can be transferred at a certain price

- When choosing option strategies each investor must determine their own financial goals and risk tolerances prior to selecting any particular strategies

- Generally, options allow for the either increasing or decreasing of risk. Investors can also use option strategies that target their specific financial goals balancing their own risk tolerances

- Of course, options allow for many types strategies, each strategy offers varying risk reward payoffs

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Option premiums

- Intrinsic value plus extrinsic value equals total option premium.
- Out of the money options contain all extrinsic value.
- In the money options have intrinsic value, the amount of intrinsic value is dependent on how deep in the money the option is.
- At the money options have all extrinsic value but that can change dependent on changes in the spot underlying FX rate.

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Options give investors alternatives

- To reiterate options are:
- Contracts giving the buyer:
  - the right to buy or sell an asset (equity, equity index, exchange traded fund or a foreign currency exchange rate) at a pre-determined strike price, selected for a certain period of time
  - For this right, the buyer pays an option premium to the option seller
- Contracts giving the seller
  - The obligation, but not the guarantee to buy or sell an asset (exchange rate) at a pre-determined strike price, selected for a certain period of time
  - For this obligation the seller receives the option premium from the option buyer

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Buyers have different motives than sellers

- Relating to ISE FX options, call buyers are generally bullish on the USD. They believe not only will the US dollar exchange rate improve, but also enough to earn a profit including the option premium
- Another view could be that the call buyer is hedging another currency by purchasing call options
- Relating to ISE FX options, put buyers are generally bearish on the USD. They believe not only will the US dollar exchange rate worsen, but also enough to earn a profit including the option premium
- Another view could be that the put buyer is hedging US currency risk by purchasing put options
- Buyers are forecasting movement in the exchange rate pair, either up, in the case of calls, or down, in the case of puts
- Buyers of options have limited risk exposure, limited to the debit paid for the initial transaction

Sellers have different motives than buyers

- Relating to ISE FX options, call sellers are generally bearish on the USD. Call sellers are hoping to earn the option premium. Their forecast may be that the underlying will either be unchanged or down
- Relating to ISE FX options, put sellers are generally bullish on the USD. Put sellers are also hoping to earn the option premiums. Their forecast may be that the underlying will either unchanged or up
- Sellers are forecasting low movement in the exchange rate pair, or lower exchange rate values for call sellers or higher exchange rate values for put sellers.
- Sellers of options have substantially more risk if their initial forecast is incorrect. Sellers do not have limited risk; unless they use a hedging strategy such as an option spread

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Expiration

- The date on which the option expires, options have a limited life span
- Expiration occurs each month on the Saturday after the third Friday of the month investors can select the time period that the investor would like to forecast.
- One example is the January expiration
- ISE FX options generally trade until 4:15 EST each day prior to expiration. Trading will ordinarily cease at 12:00 PM eastern time on the business day (usually a Friday) preceding the expiration day.
- FX options can be up to ten months currently
- Generally time and price are directly correlated, the more time, the higher the price of an option

Settlement, what does that mean?

- The difference between the strike price and the exchange rate value creates the ultimate value at expiration, the intrinsic value
- At expiration, options are worth their intrinsic value, if they are in the money, or they worth zero, if they are out of the money at expiration
- ISE FX options are cash settled at expiration
- For cash settled delivery options - Options settle into cash, if a call or put is in the money at expiration the investor long the option will receive the appropriate proceeds into the account. If the option has no intrinsic value at expiration that option will have no value and will expire worthless

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Exercise and assignment

- Investors that have purchased options as an opening transaction, either calls or puts are considered long the options Investors that have sold options as an opening transaction are considered short the options
- Only investors that are long options have the rights and can exercise options and only investors that are short options have obligations and are subject to assignment
- Due to ISE FX options being cash settled, all open positions that have intrinsic value will be settled into US dollars at expiry
- As an example, if an investor held an option until expiry and the option was in-the-money by one dollar, the investor’s account would be credited by one dollar or $100. Only options that are-in-the money have value at expiry, the out-of-the-money options would be worthless

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Clearing and assignment

- The Options Clearing Corporation clears all exchange traded options. The OCC has a triple A credit rating, ensuring that the contracts will be handled properly

- The OCC is the largest clearing organization in the world for options and was the first clearing house to receive a 'AAA' credit rating from the Standard & Poors Corporation

- The OCC substantially reduces the counterparty risk aspect of trading securities options as the OCC requires that every buyer and every seller have a clearing member and that both sides of the transaction are matched.

Options have an exercise style

- Options are either traded as American style or European style
- American style options can be exercised at any time up to expiration, US equity options are American style
- European style options can only be exercised at expiration
- Options can be physically settled (equity options or ETF’s) or cash settled (indexes or foreign currencies)
- Since ISE FX options are cash settled, meaning that their positions are settled in cash at expiration (if they weren’t already closed out), there is no need to worry about having to deliver foreign currencies or have them delivered to you
- European style options cannot be exercised early but they can always be closed out any time until expiration if the investor changes their view of the FX market

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Options can be closed out or cash settled

- Options do not have to be held until expiration, if an investor would like to close the position prior to expiration they can just enter the reverse trade from their initial position and close the position out rather than waiting until options expiration and options settlement

- If ISE FX options are not closed out and have intrinsic value at expiration the option will settle into cash. The OCC settles all accounts and pays and receives the appropriate monies based on settlement exchange rate value on expiration at 12:00 noon EST

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How is the cost determined?

- The cost of an option depends on many factors, but the difference between the strike price and the foreign exchange pair value is an important one. The option premium is the total cost of the option. The premiums are dynamic, they vary depending on many factors

- Other important factors are: time until expiration, the interest rate differential between the two currencies in the ISE pair, and the volatility of the FX pair

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Option pricing models

- Options pricing models are helpful tools that enable investors to have reasonable expectations on how the option price should change based on various assumptions

- Ultimately, supply and demand factors change the options prices

- Simply stated, the more buyers of options drives prices up, the more sellers of options drives prices lower

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Alternative strategies for options

- Straight option purchases can be used to implement your exchange rate forecasts with limited pre-defined risk for option buyers
- Spread strategies allow investors to create unique payoffs by using multiple legged option strategies
- Options can also be used to hedge exchange rate risk
  - Calls can be bought to hedge foreign (relative to the US) exchange risk exposure
  - Puts can be bought to hedge US dollar exchange risk relative to a foreign currency

Option pricing is based on probabilities

Options models give investors clues on what the values “should” be based on certain assumptions, helping investors form their own trading expectations

- Strike price - the exchange rate that can be bought or sold
- FX value
- Time left until expiration
- Interest rates- The interest rate differential
- Volatility of the FX pair- The greater the volatility, the greater the extrinsic value

Volatility

- The foreign exchange price movement, also known as the volatility of the FX pair, is an important input for options pricing
- The more volatile the FX pair, generally the higher the option premiums
- Volatilities are dynamic, they change each day and they must be considered prior to entering any options transaction
- The pricing of financial risk occurs with each trade in the options markets at the International Securities Exchange

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Leverage, what is it?

- Leverage in finance is defined as using given resources in such a way that the potential positive or negative outcome is magnified
- Hence the phrase, “Leverage is a double edged sword.”
- Normally the greater the leverage, the greater the risk

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Leverage in options

- In-the-money- The least leverage due to the highest nominal cost. “ITM” options have the highest probability of remaining in the money
- At-the-money- Moderate leverage with moderate nominal cost. “ATM” options have more potential for moving in the money by expiration relative to OTM options
- Out-of-the-money- The most leverage with lowest nominal cost. “OTM” options have the lowest probability of expiring in the money at expiration

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Underlying instrument

- All options are based on an underlying instrument
- ISE FX options are based on the foreign exchange value of the US dollar relative to the foreign currency
- Options are currently available for:
  - USD/JPY YUK USD/JPY *1 100.04
  - USD/CAD CDD USD/CAD*100 98.76
  - USD/EUR EUI USD/EUR*100 63.95
  - USD/GPB BPX USD/GBP*100 49.11
  - USD/AUD AUX USD/AUD*100 106.20
  - USD/CHF SFC USD/CHF*100 100.40

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ISE FX options are based on per US$

- Using the ISE FX options trading convention, the U.S. dollar is listed first, the valuation is expressed as the number of the units of the other currency per U.S. dollar.

- Think of it as “What is a dollar worth?”

Features Of ISE FX Options

- Options on exchange rates
- U.S. dollar based
- .50 strike prices
- Premium quoted in U.S. dollars
- European Exercise
- Cash-settled
- Noon Settlement/Option Friday
- Noon Buying Rate FRB of NY
- Available in conventional equity brokerage accounts
- Continuous Two-Sided Quotes
- Trading Hours 9:30 – 4:15

ISE FX pairs (prices as of 3-14)

- EUI- 63.95 U.S. Dollar/Euro
- BPX- 49.11 U.S. Dollar/British Pound
- YUK- 100.04 U.S. Dollar/Japanese Yen
- CDD- 98.76 U.S. Dollar/Canadian Dollar
- AUX – 106.20 U.S Dollar/Australian Dollar
- SFC- 100.40 U.S. Dollar/Swiss Franc

AUX

- AUX- US dollar/Australian dollar*100

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Example

- In the following examples I will use the USD/AUD pair, the ISE symbol is AUX
- This is the relationship of the USD relative to the Australian dollar, or how many Australian dollars one US dollar purchases.
- Please remember the relationship is multiplied by 100 to create a trading value that is currently very close to 107
- For my example I will use the value of AUX at 107, of course this may change each trading day at the ISE as the FX markets receive new information regarding the US dollar and the Australian dollar

Why buy calls?

- An investor would rather have a limited pre-defined amount of money invested in a particular market forecast instead of being “long” the underlying fx pair
  - Long “spot” USD/AUD at $106.20
  - Long 1 month $107c at $1.70
  - 107 strike call

At expiry	Long asset	Long call P&L
100	**6.20**	**1.70**
107	0.70	1.70
114	7.80	5.30

Calls

- Calls (the right to buy the US exchange rate) provide leverage, the higher the strike price the greater the leverage although with the less likelihood of success

- Options investments require precision of the forecasts in the appropriate time and magnitude. If correct, the leverage allows for greater rewards, if incorrect an investor can lose their entire debit paid

Why buy puts?

- An investor would like to forecast lower exchange rate value's but does not want the entire risk of shorting the US dollar/Australian dollar. A put can provide a limited pre-defined risk for the investor
  - Short "spot" (USD/AUD) 106.20
  - Long 1 AUX put @2.00
  - 107 strike put

At expiry	short asset	Long put P&L
100	6.20	5.00
107	0.80	2.00
114	**7.80**	**2.00**

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Puts

- Puts (the right to sell the US exchange rate) provide leverage, the lower the strike price the greater the leverage although with the less likelihood of success

- Options investments require precision of the forecasts in the appropriate time and magnitude. If correct the leverage allows for greater rewards, if incorrect an investor can lose their entire debit paid

Hedging USD/AUD with ISE FX options

- ISE symbol is AUX
- The nominal amount of the contract is USD/AUD *100 *100 i.e. 1.0620*100*100 or $10,620
- Suppose an Australian citizen has $100,000 USD exposure in the U.S stock market and would like to hedge it
  - Portfolio size/contract size (contract size is dynamic)
  - 100,000/10,620 or 9.42 contracts, so 9 or 10 puts
  - An investor can choose to buy an in-the-money, at-the-money or out-of the-money put with differing risk reward profiles
  - Also differing maturities offer different risk reward situations

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Another view of protective puts

- An investor would like to hedge (insure) their US dollar position for a certain period of time at a certain price. AUX puts can hedge US dollar weakness
- 106.20 and put cost of 2.00
- 107 strike put

At expiry	Option hedge less cost of hedge	Long AUX	Long put and asset P&L
100	5.00	6.20	1.20
107	2.00	0.80	1.20
114	2.00	7.80	5.80

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Another view, protective calls

- An investor would to like hedge (insure) their Australian dollar position for a certain period of time at a certain price. AUX calls can hedge Australian dollar weakness
- 106.20 call price is 1.70
- 107 strike

At expiry	Option hedge less cost of hedge	Short AUX	Long put and asset P&L
100	1.70	6.20	4.50
107	1.70	0.80	2.50
114	5.30	7.80	2.50

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Spot compared to options

	Spot	Options AUX
USD/AUD	Each day the entity that is long this pair will pay interest to counter-party	Calls and puts reflect the interest rate differential. The interest rate effect is not charged daily but priced into the FX options marketplace
		Calls will be priced higher relative to puts due to the interest rate differential
		Regulated by SEC and completely transparent

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Options as protection

- An investor that would like to hedge their asset price risk can insure their position for a cost.
- Hedging costs money, investors must decide if the additional costs make economic sense based on the risks and rewards of the transaction
- ISE FX puts can protect US dollar investments, ISE FX calls can protect “foreign” currency investments
- ISE FX calls can protect foreign currency investments, currently the ISE offers options in Yen, Canadian dollars, euros, British pounds Swiss Francs and Australian dollars. An investor looking to hedge those currencies could use ISE call options to hedge those investments

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Options are dynamic

- Premiums change each trading day based on the asset value (exchange rate), time left until expiration, volatility of the pair and the (cost of money) interest rate differential

- In the specific case of AUX (USD/AUD) the calls reflect the large interest rate differential between the American dollar and the Australian dollar. According to finance this interest differential assumes that the Australian dollar should fall by the amount of the interest rate differential in one year

- Please note this is based on academic theory, in practice the supply and demand of the FX markets will create the actual market prices

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Leverage is determined by the strategies selected and the strike price chosen

- Options give investors many alternatives
- Each investor can select the appropriate risk reward tradeoffs
- Leverage can be chosen by each individual investor based on their own financial goals and their risk tolerances

Debits

- Investors who purchase options pay premiums to the option sellers. Buyers are forecasting a dramatic move in their desired direction
- The premiums are also called debit transactions
- Buyers risk the debit paid to the seller
- Buyers of options desire the limited risk of options

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Credits

- Investors who sell options receive premiums from the option buyers
- The premiums are also called credit transactions. Sellers have substantial risk depending on the strategy implemented
- Sellers of options received credits in their accounts in exchange for obligations. Due to risk/reward considerations, these obligations carry significant to unlimited risks

Options offer alternatives

- Options allow for the transferal of risk from those investors that would like to reduce risk to those who would willing to increase risk.

- Efficient markets assume risk and reward are inherently linked. If investors desire higher rates of return they normally will have to take more risk to achieve the higher rates of return.

Review of ISE FX Options

- Allow for the ability to manage (transfer) risk more efficiently than spot foreign currency trading
- Give the right to buy or sell a foreign exchange rate
- Cash settled- No physical delivery of foreign currencies required
- Dollar based- If you feel the US dollar will increase in value buy calls, if you feel the US dollar will weaken buy puts

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Review of ISE FX Options

- Premiums are multiplied by 100 i.e. a $1.50 premium translates to $150
- ISE FX Options are based on what $1 is worth in another currency
- Settlement values are calculated by the difference between the strike price and the exchange rate at expiration (12:00 noon ET)
- Investors can trade out of their positions, if they choose, anytime prior to 12:00 ET on expiration Friday

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Review of ISE FX Options

- ISE FX Options can be accessed from your equity brokerage accounts

- Various strategies can be implemented including: purchasing calls or puts, or even more complicated option strategies such as credit or debit spreads, or even more complex strategies such as straddles, strangles, condors or butterfly positions

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Summary of ISE FX options terms

- After understanding the basic options terminology, and how it pertains to ISE FX options, investors will have a better grasp of ISE foreign exchange options market

- Investors can select from many option strategies after comprehending the basic terms

- All investments are based on the concept of risk and reward, once an investor understands the risk and reward considerations each investor can select the risk/reward tradeoffs that make sense for them based on their own risk tolerances and their own financial goals

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