

# Disclaimer



The views and opinions expressed in this presentation reflect those of the individual authors/presenters only and do not represent in any way Bourse de Montréal Inc.'s (the "Bourse") opinion or any of its affiliates. The presentation is not endorsed by the Bourse or its affiliates. The information provided in this presentation, including financial and economic data, quotes and any analysis or interpretation thereof, is provided solely on an information basis and shall not be interpreted in any jurisdiction as an advice or a recommendation with respect to the purchase or sale of any derivative instrument, underlying security or any other financial instrument or as a legal, accounting, tax, financial or investment advice. The Bourse and its affiliates do not endorse or recommend any securities referenced in this presentation. The Bourse recommends that you consult your own advisors in accordance with your needs. Although care has been taken in the preparation of these articles, the Bourse and/or its affiliates do not guarantee the completeness of the information contained in this presentation, and are not responsible for any errors or omissions in or your use of, or reliance on, the information. The Bourse reserves the right to amend, review or delete, at any time and without prior notice, the content of this presentation. The Bourse, its affiliates, directors, officers, employees and agents will not be liable for damages, losses or costs incurred as a result of the use of any information appearing in this presentation.

"S&P ®" and "Standard & Poor's ®" are registered trademarks of The McGraw-Hill Companies, Inc. and "TSX" is a trademark of TSX Inc. ("TSX"). The products mentioned in this presentation are not sponsored, endorsed, sold or promoted by S&P or TSX; and S&P and TSX make no representation, warranty or condition regarding the advisability of investing in them.





**TMX**

**Montréal  
Exchange**



**TMX** | **Montréal  
Exchange**



**Montréal  
Exchange**

# Introduction to Currency Options



Toronto Stock Exchange | TSX Venture Exchange | **Montréal Exchange** | Natural Gas Exchange | Montréal Climate Exchange | Boston Options Exchange

Canadian Derivatives Clearing Corporation | TMX Datalinx | Equicom | PC Bond | Shorcan

# The Foreign Exchange (FX) Market



- Largest and most liquid market.
- Trades 24 hours except weekends.
- Average daily turnover estimated at 3.2 trillions.
- Driven by macroeconomic factors and international monetary flow.

# Trading Convention



- USD/CAD
  - Number of CAD equal to 1 USD
- USD = Base currency
- CAD = Quoted currency

# What is a Currency Option?



- Based on a currency pair value.
- Reflects an exchange rate.
- USX reflects USD/CAD.
- The value of \$1.00 U.S in Canadian dollars.
- U.S. dollar is considered the base currency.

# USX Trading Unit



- U.S.\$10,000.00
- 1 USX option contract gives the holder the right to buy or sell US\$10,000.

# USX Quote



- Spot Market Currency Quote
  - $\text{USD/CAD} = 1.0609$
- USX Quote
  - Expressed in cents per unit of foreign currency.
  - 100 U.S. cents = 106.09 Canadian cents



# How is a Currency Option Used



- Directional trading
  - Buying calls or puts
  - Shorting calls or puts
  - Straddle or strangle
- Hedging
  - U.S. portfolio
  - Cash flow for importers and exporters

# USX Trading Parameters



- Same trading parameters as equity options.
  - Option types
  - Strike prices
  - Expiration months
  - Pricing variables

# USX Option Types



- USD/CAD to increase
  - Buy a call
- USD/CAD to decrease
  - Buy a put

# USX Strike Prices



- Strike prices are listed in .50 penny intervals.
  - USD/CAD is at 105
  - Call option example:

Strike Price	Spot Market Interpretation	1-Month Premium	Cost per Contract
104.00	1.0400	\$2.45	\$245.00
104.50	1.0450	\$2.20	\$220.00
105.00	1.0500	\$1.85	\$185.00
105.50	1.0550	\$1.70	\$170.00

# USX Expiration Months



- Nearest three months
- Next two months in the designated quarterly cycle
  - March, June, September and December

<b>March</b>
March
April
May
June
September

# USX Pricing Variables



- Value of the underlying
- Strike price
- Time until expiration
- implied volatility
- Risk free rate of interest

# Calculating Premium



- Premium X  $\left\{ \text{US\$10,000} \times \frac{\text{C\$1}}{100 \text{ cents CAD}} \right\}$
- $10,000.00 \times 0.01 = 100$
- $2.45 \times 100 = \$245.00$
- Premium may be expressed as .0245
  - Multiply by 10,000.00 to obtain premium cost

# Settlement



- European style exercise
- Cash settled in Canadian dollars.
- Settlement based on Bank of Canada USD/CAD noon rate.
- If the option does not have intrinsic value on expiration, it will expire worthless.



# Settlement Example – Call Option



- USX is 110 at expiration.
- Call option strike is 105.
- Settlement Value = USD/CAD noon rate - Call Strike
- $110 - 105 = 5.00$  points per contract

# Settlement Example – Call Option



- To determine the settlement value:
  - $5.00 \text{ points} \times \$100.00 = \$500.00$
  - The USX call option holder will receive a credit \$500.00 Canadian dollars.
  - The USX Call option writer's trading account will be debited by C\$500.00.
  - No shares are delivered, the position is cash settled.

# Settlement Example – Put Option



- USX is 101 at expiration.
- Put option strike is 105.
- Settlement Value = Put Strike – USD/CAD noon rate
- $105 - 101 = 4.00$  points per contract

# Settlement Example – Put Option



- To determine the settlement value
  - $4.00 \text{ points} \times \$100.00 = \$400.00$
  - The USX put option holder will receive a credit C\$400.00.
  - The USX put option writer's trading account will be debited by C\$400.00.
  - No shares are sold, the position is cash settled.

