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# Currency Option Strategies



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# Agenda



- Currency options
  - USX specifications
- Directional trading
  - Bullish view using calls/puts
  - Bearish view using calls/puts
- Hedging
  - Protect the value of your USD investments
  - Eliminate FX risk at a lower cost

# What is a Currency Option?



- Based on a currency pair value.
- Reflects an “exchange rate”.
- USX reflects USD/CAD.
- U.S. dollar is considered the base currency.
- How much is US\$1.00 worth in Canadian dollars.

# Trading Parameters



- Same trading parameters as an equity option.
  - Calls & puts
  - Strike prices
  - Expiration months
- Expect USD to strengthen
  - Buy a call
- Expect USD to weaken
  - Buy a put

# Contract Size



- How many units of the underlying are controlled by 1 contract?
- Contract size = US\$10,000.00
- Option holder has the right to buy or sell 10,000 units of U.S.currency.

# Settlement



- European-style exercise = exercised only at expiration.
- Cash settled in Canadian dollars.
- Settlement based on Bank of Canada USD/CAD noon rate on the expiration date.



# USD/CAD Daily Chart April 7, 2011



- Expressed in cents per units of foreign currency.
- 100 cents U.S. = 96 cents Canadian.
- Strike prices are expressed in the same way.

1.0150  
1.0100  
1.0050  
1.0000  
0.9950  
0.9900  
0.9850  
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0.9450

# Calculating Costs



$$\text{Premium X} \left\{ \text{US\$10,000 X } \frac{\text{C\$1}}{100 \text{ cents CAN}} \right\}$$

- $3.28 \times (10,000 \times .01) = 3.28 \times 100$
- Premium will cost C\$328.00.
- May be expressed as .0328 with some brokers.
- Simply multiply by 10,000 to arrive at the cost.



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# Directional Trading



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

# Currency Options Strategies



		Forecasted Future USD/CAD Exchange Rate	
S T R A T E G I E S	Higher (↑ USD)	Lower (↓ USD)	
	Buy Calls	Buy Puts	
	Write Puts	Write Calls	



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# Trading a Bullish View



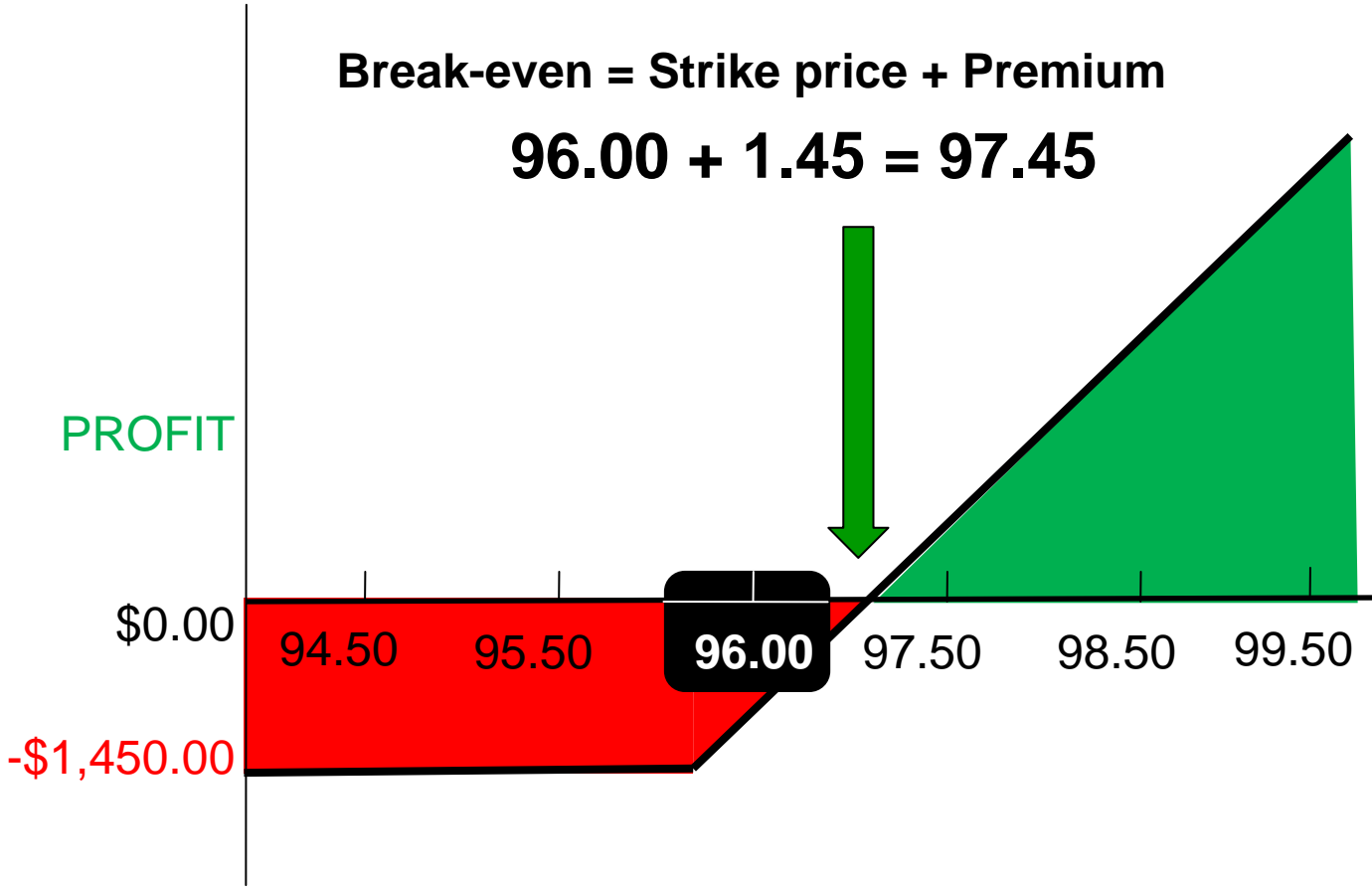
# USD/CAD Daily Chart April 7, 2011



# Bullish on the USD – Buy Calls

- The USD/CAD spot market quote = 0.9600
- USX value would be listed at 96.00.
- Investor believes the USD will strengthen.
- 2-month 96.00 call option premium = 1.45
- 10 call options = \$1,450.00 ( $1.45 \times 100 \times 10$ )

# Long Call Risk Graph



# Bullish on the USD – Buy Calls



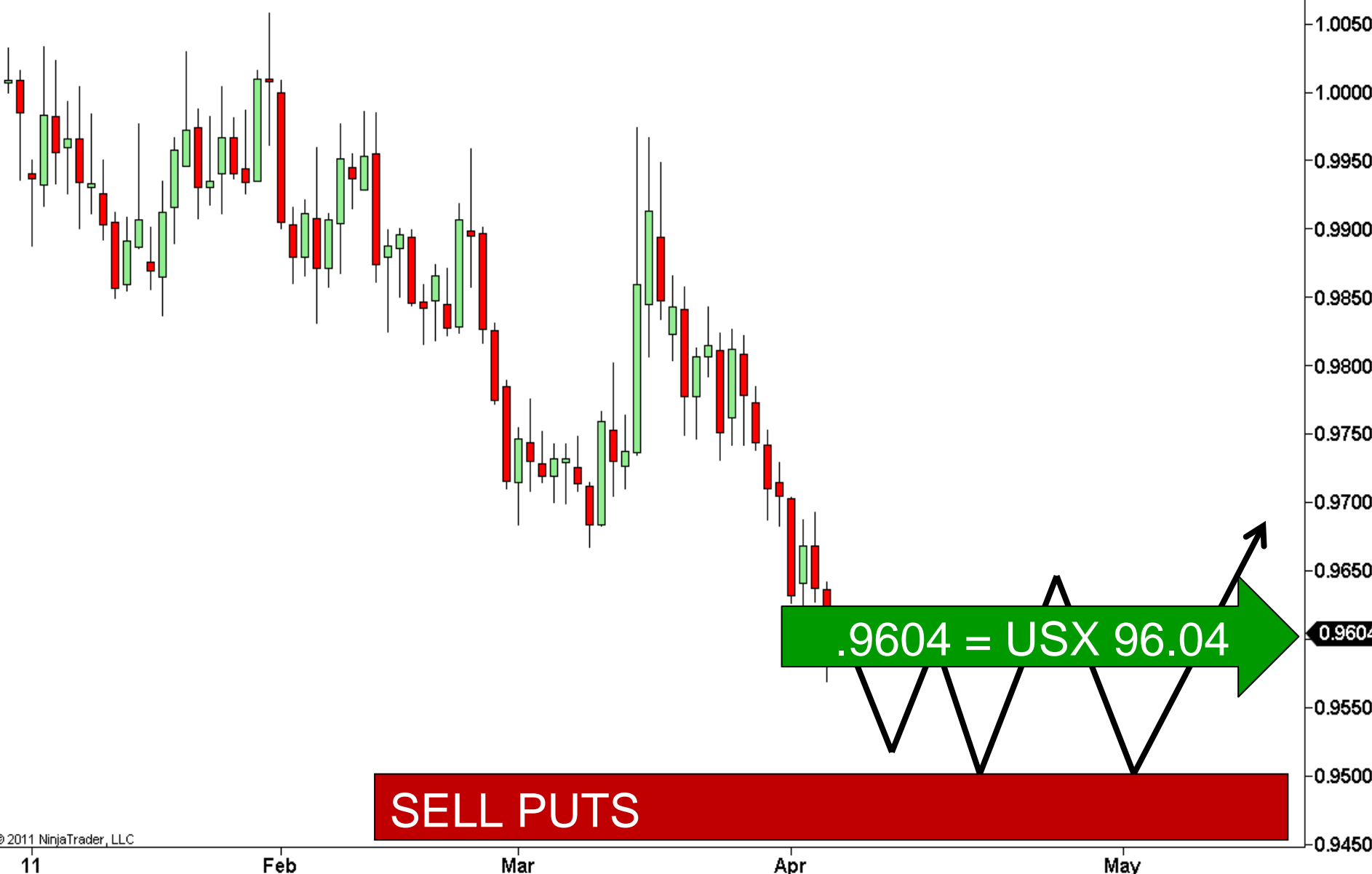
- Assume the USD/CAD is at 1.000 on expiration
  - USX = 100.00
- Credit received: C\$4,000.00
  - $(100.00 - 96.00) \times 100 \times 10$  contracts
- Net profit: C\$2,550.00
  - $\$4,000.00 - \$1,450.00$
- ROI: 175%
  - $\$2,550.00 / \$1,450.00$

# Bullish on the USD – Write Puts



- Investor may be bullish to neutral on the USD/CAD.
- Sell USX put options to collect the premium.
- Limited profit, unidentifiable risk.

# USD/CAD Daily Chart April 7, 2011



.9604 = USX 96.04

**SELL PUTS**

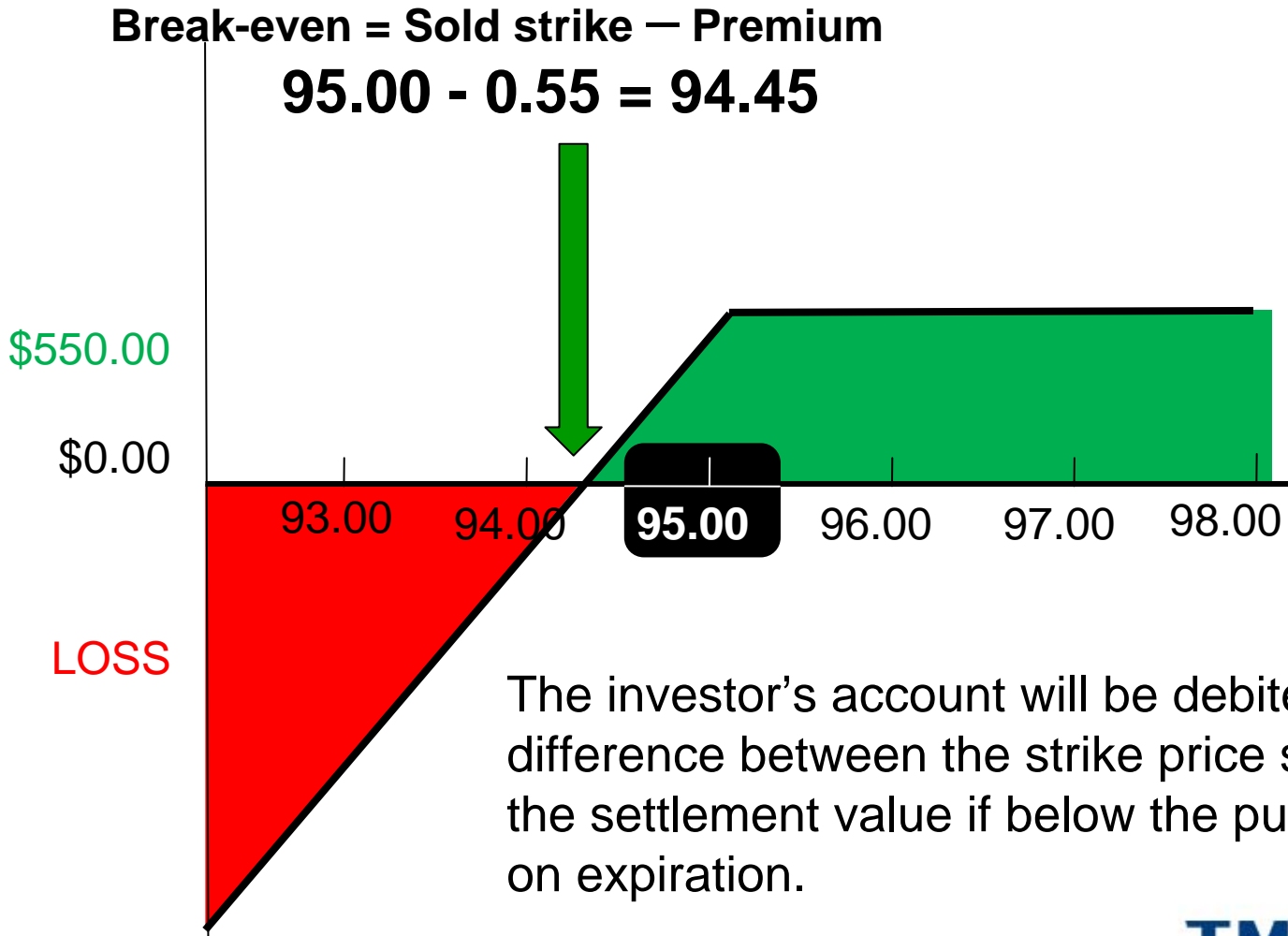
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0.9450

# Bullish on the USD – Write Puts



- The USD/CAD spot market quote = 0.9600
- USX value would be listed at 96.00.
- Investor believes the USD will strengthen or stay the same.
- 1-month 95.00 put option premium = 0.55
- 10 put options = \$550.00. ( $0.55 \times 100 \times 10$ )
- C\$550.00 credit received.

# Selling the Put Option





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# Trading a Bearish View



# USD/CAD Daily Chart April 7, 2011

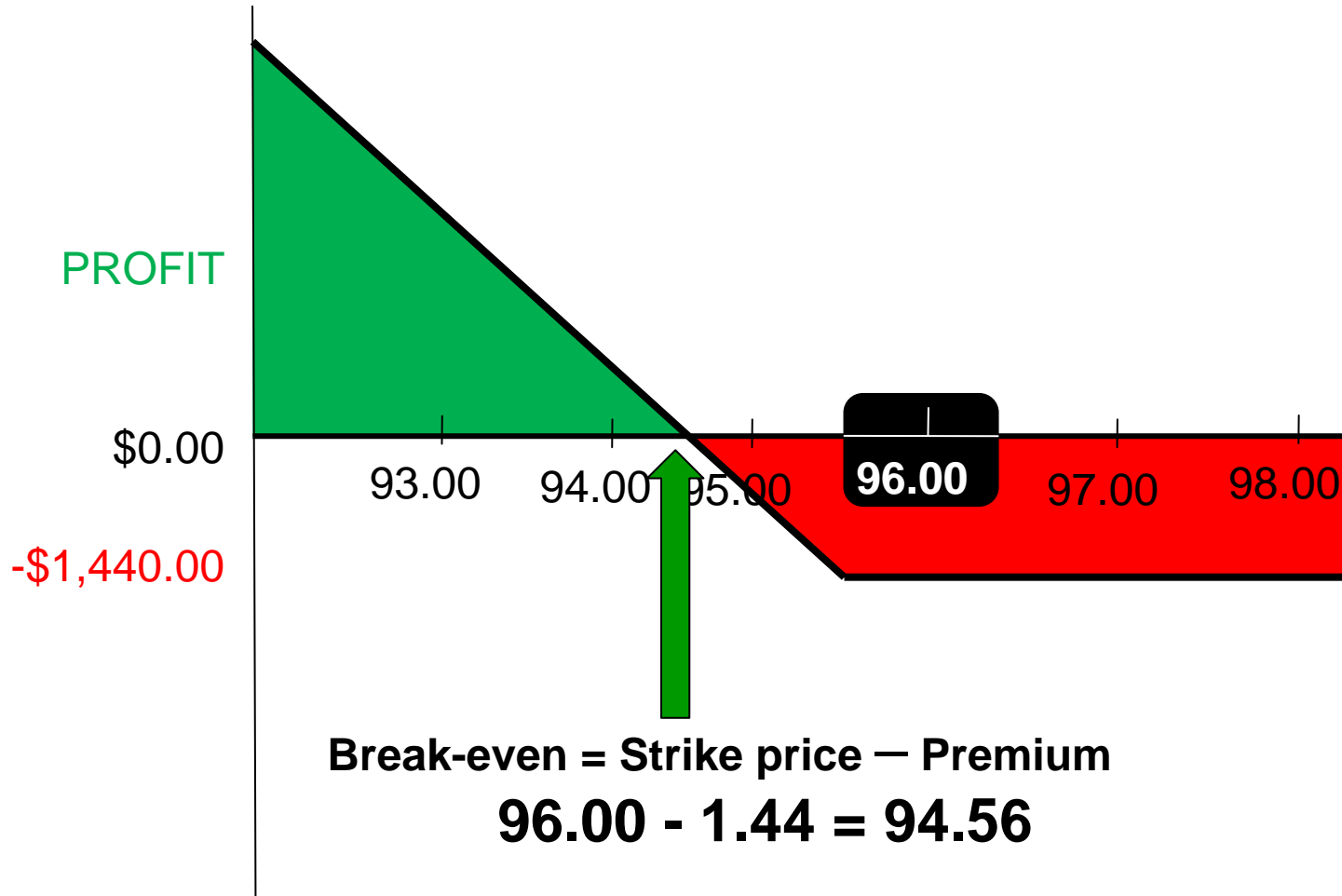


# Bearish on the USD – Buy Puts



- The USD/CAD spot market quote = 0.9600
- USX value would be listed at 96.00.
- Investor believes the USD will weaken.
- 2-month 96.00 put option premium = 1.44
- 10 put options = \$1,440.00. (1.44 X 100 X 10)

# Buying the Put Option



# Bearish on the USD – Buy Puts



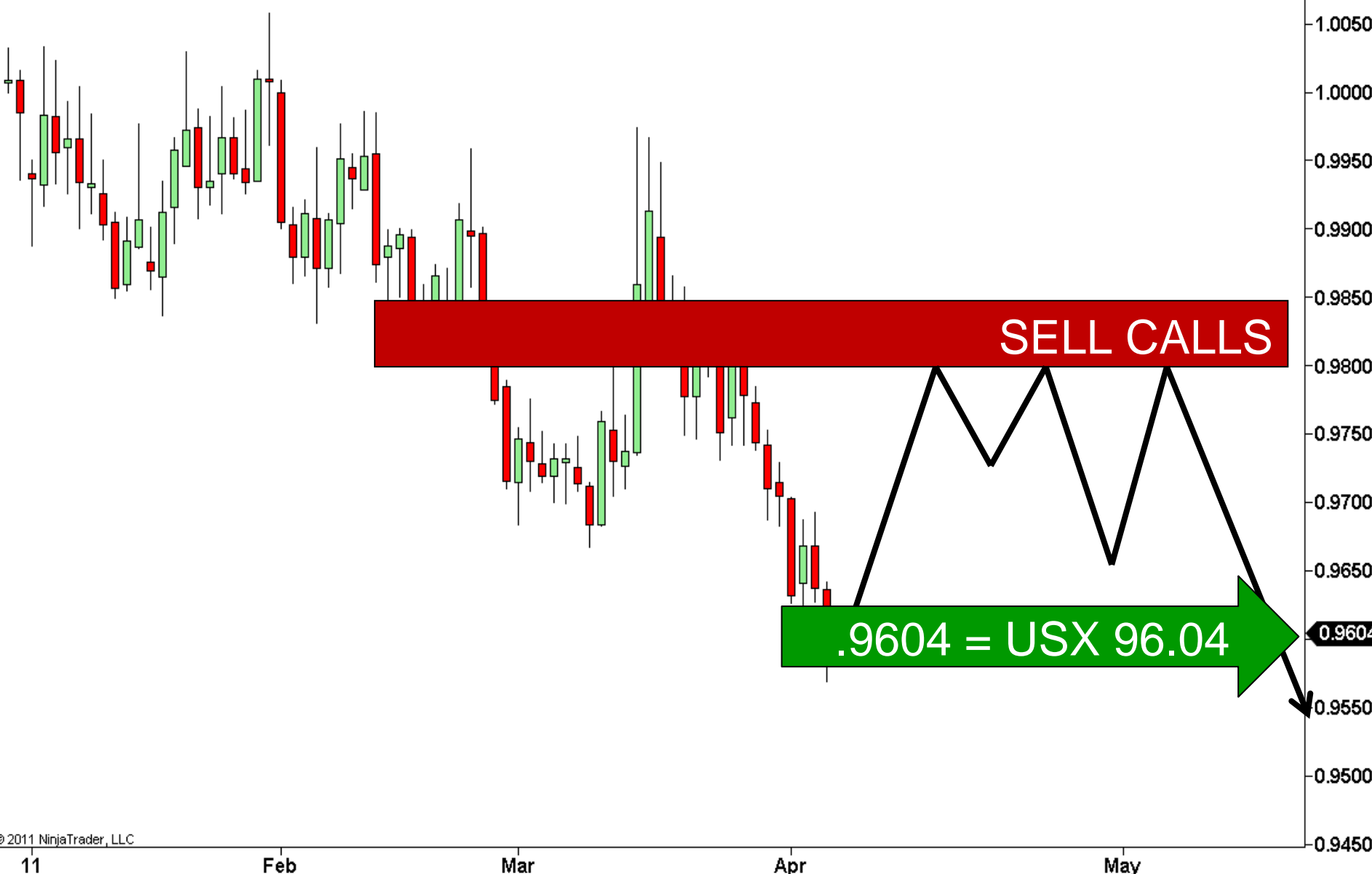
- Assume the USD/CAD is at 0.9300 on expiration
  - USX =93.00
- Credit received: C\$3,000.00
  - $(96.00 - 93.00) \times 100 \times 10$  contracts
- Net profit: C\$1560.00
  - \$3,000.00 – \$1,440.00
- ROI: 108%
  - $\$1,560.00 / \$1,440.00$

# Bearish on the USD – Write Calls



- Investor may be bearish to neutral on the USD/CAD.
- Sell USX call options to collect the premium.
- Limited profit, unidentifiable risk.

# USD/CAD Daily Chart April 7, 2011



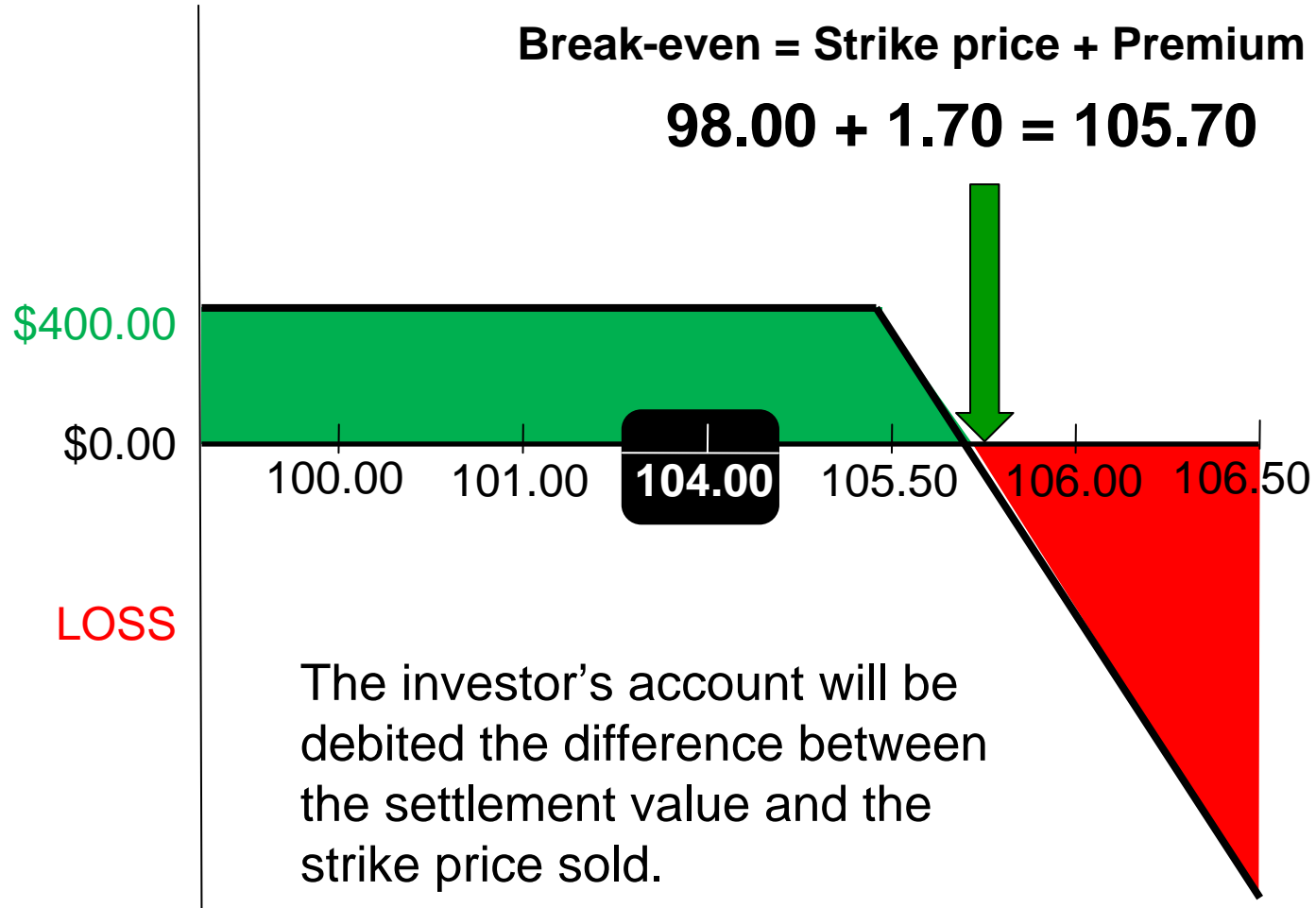
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0.9700  
0.9650  
0.9604  
0.9550  
0.9500  
0.9450

# Bearish on the USD – Write Calls



- The USD/CAD spot market quote = 0.9600
- USX value would be listed at 96.00.
- Investor believes the USD will weaken or stay the same.
- 1-month 98.00 call option premium = 0.40
- 10 call options = \$400.00. ( $0.40 \times 100 \times 10$ )
- C\$400.00 credit received.

# Selling the Call Option





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# Portfolio Hedging



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

# Who Would Use a USD Hedge?



	RISK		HEDGE
Investor Long U.S. Assets	USD/CAD	↓	Buy Puts
Canadian Exporter	USD/CAD	↓	Buy Puts
U.S. Property Purchase	USD/CAD	↑	Buy Calls
Canadian Importer	USD/CAD	↑	Buy Calls

# Portfolio Hedging



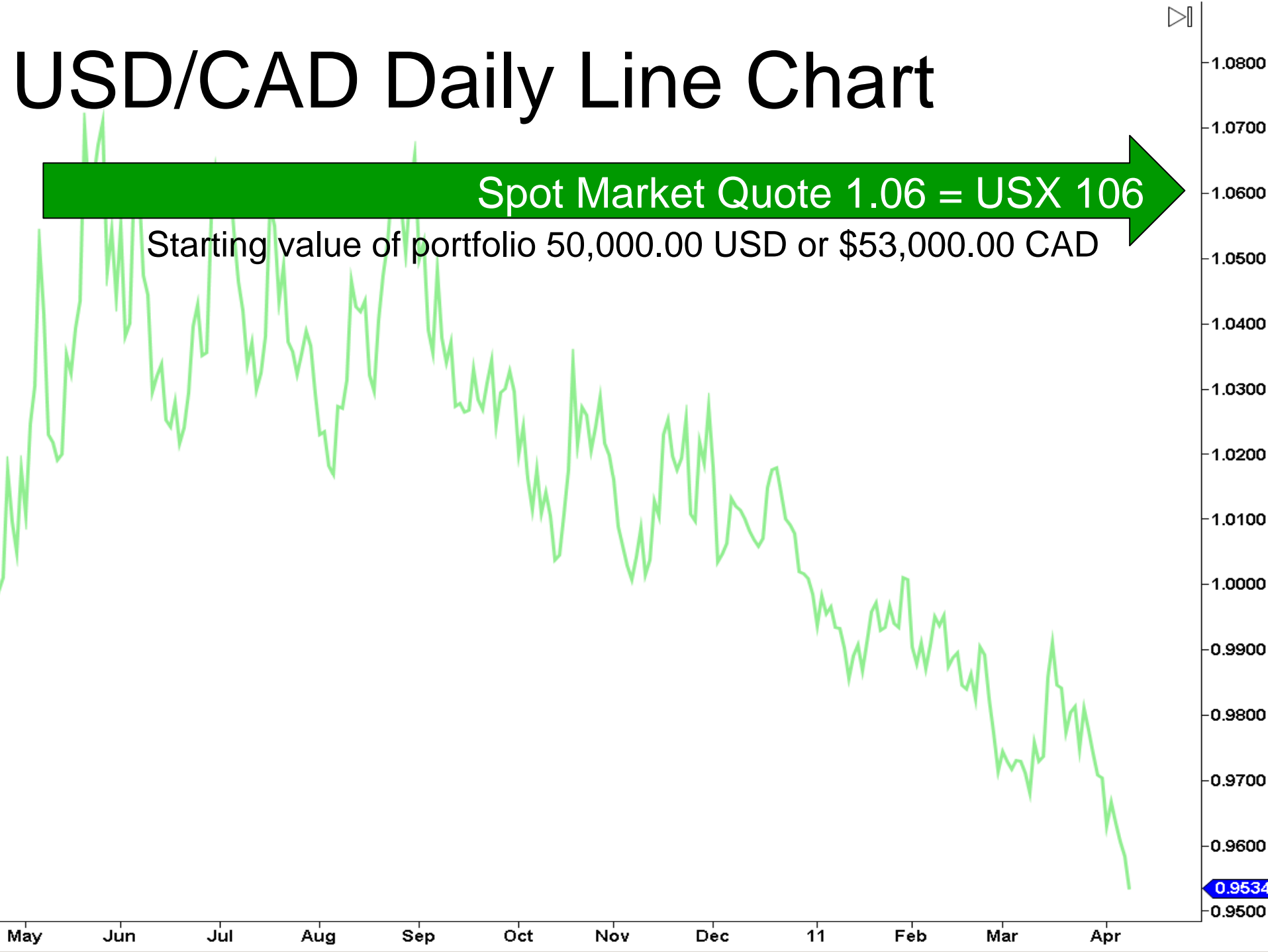
- A Canadian investor may hold \$50,000.00 in U.S securities.
- Loses money if the USD weakens against the CAD.
- Can use a put option to hedge the currency risk.
- Note that an exporter shares the same risk exposure as the investor.




# USD/CAD Daily Line Chart

**Spot Market Quote 1.06 = USX 106**

Starting value of portfolio 50,000.00 USD or \$53,000.00 CAD



# How many options to buy?


$$\frac{\text{Amount in USD to hedge}}{\text{Contract size of the option}} = \frac{\$50,000.00}{\$10,000.00}$$
$$= 5 \text{ put contracts}$$

- Investor would buy 5, 2-month 106 put contracts.
- Cost per contract is 2.10 or C\$210.00
- Investor pays  $\$210.00 \times 5 = \text{C}\$1,050.00$



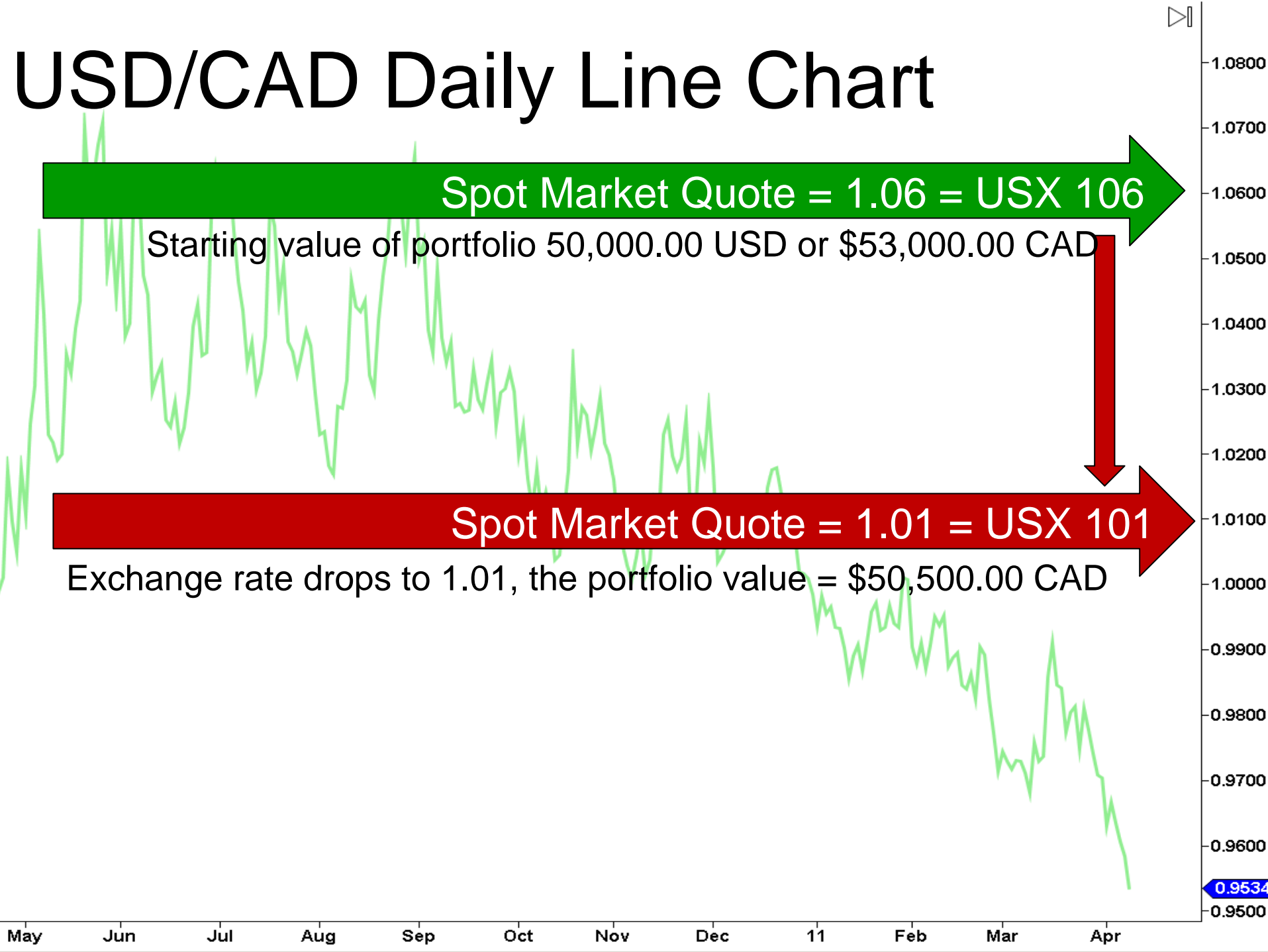
# USD/CAD Daily Line Chart

**Spot Market Quote = 1.06 = USX 106**

Starting value of portfolio 50,000.00 USD or \$53,000.00 CAD

**Spot Market Quote = 1.01 = USX 101**

Exchange rate drops to 1.01, the portfolio value = \$50,500.00 CAD



# Portfolio Value



Based on US\$50,000.00 = C\$53,000.00 @ 1.06

USD/CAD	Portfolio P/L	Put Settlement	Net Result CAD
1.0100	<b>-\$2,500.00</b> \$50,500.00CAD	<b>\$1,450.00</b> \$2,500.00 - \$1,050.00	<b>\$51,950.00</b>
1.0600	<b>\$0.00</b> \$53,000.00CAD	<b>-\$1,050.00</b> option cost	<b>\$51,950.00</b>
1.1200	<b>\$3,000.00</b> \$56,000.00CAD	<b>-\$1,050.00</b> option cost	<b>\$54,950.00</b>

**\$1,050.00 = cost of puts**



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# Hedging a Property Purchase



# Property Purchase



- A Canadian investor is buying a property in the United States.
- They wish to remove the risk of an increasing U.S. dollar.
- Retain the benefit of being able to pay less if the U.S. dollar decreases in value.
- Note that a Canadian importer shares the same risk exposure.

# USD/CAD Daily Chart April 7, 2011



# Hedging The Exchange Rate



Example:

- USD/CAD @ 0.9600
- Investor to pay for the property in 3 months.
- Amount due: US\$500,000.00 = C\$480,000.00

# Cost of the USX Call Hedge



- Investor may purchase 50, 3-month 96.00 call contracts.

$$\frac{500,000.00 \text{ USD}}{10,000.00 \text{ USD}} = 50 \text{ call option contracts}$$

- Cost per contract is 2.45 or C\$245.00.
- Investor pays \$245.00 X 50 = C\$12,250.00.

# USX Call Value On Expiration



$$\frac{(100 - 96) \times \text{US\$}10,000}{\text{US\$}1} \times \frac{\text{C\$}1}{100 \text{ cents CAN}}$$

$$= (100 - 96) \times 100$$

$$= \text{C\$}400.00$$

- \$400.00 X 50 contracts = C\$20,000.00
- \$20,000.00 – \$12,250.00 (option cost) = \$7,750.00

# Property Purchase Hedge



Based on US\$500,000.00 = C\$480,000.00 @ 0.9600

USD/CAD	Conversion P/L	P/L at Settlement	Net Conversion Cost CAD
1.0000	<b>-\$20,000.00</b> \$500,000.00CAD	<b>\$7,750.00</b> \$20,00.00 - \$12,250.00	<b>\$492,250.00</b>
0.9600	<b>\$0.00</b> \$480,000.00CAD	<b>-\$12,250.00</b> option cost	<b>\$492,250.00</b>
0.9100	<b>\$25,000.00</b> \$455,000.00CAD	<b>-\$12,250.00</b> option cost	<b>\$467,250.00</b>

**\$12,250.00 = cost of calls**



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# Offsetting the Hedge Cost

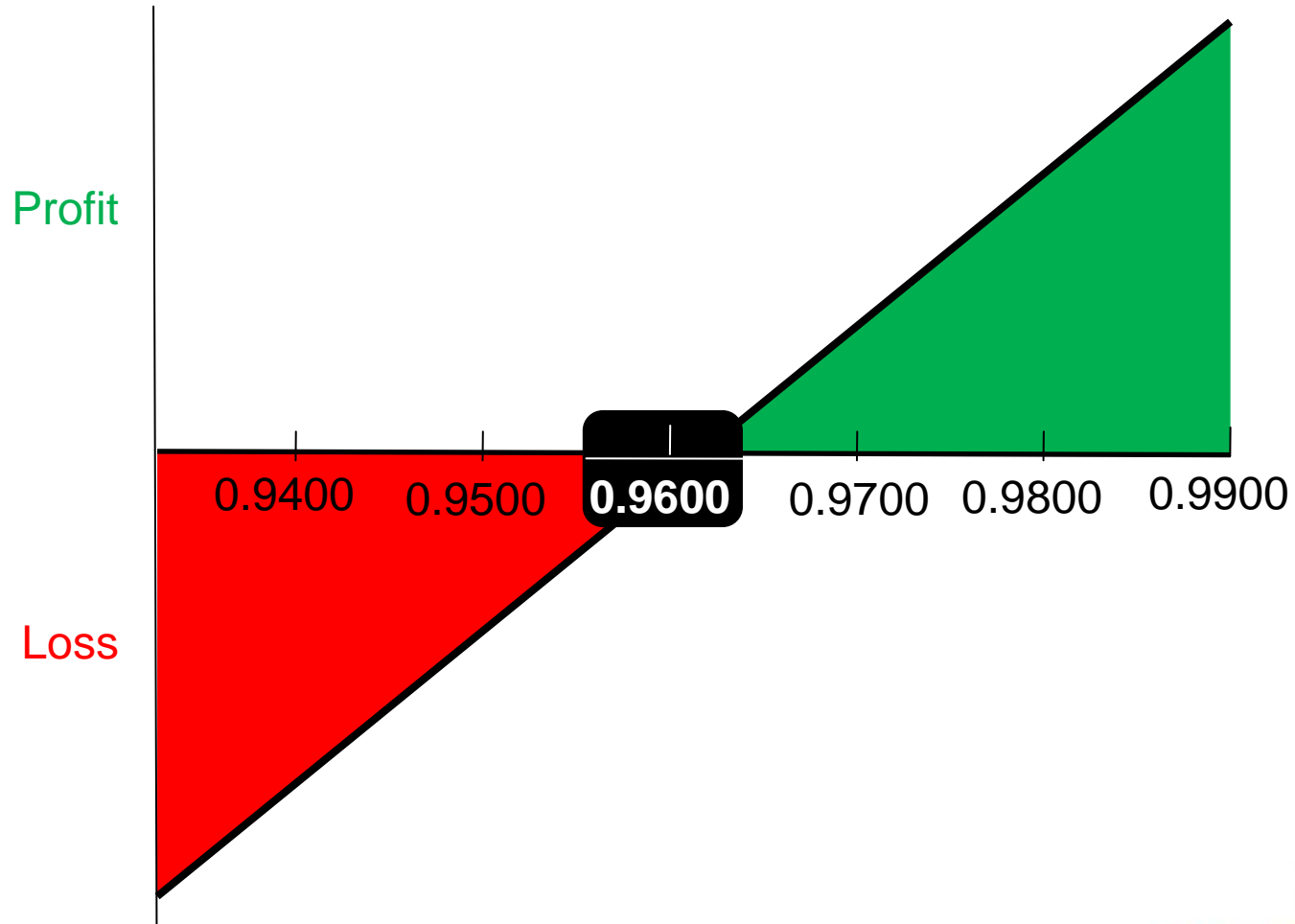


# USX Collar Strategy

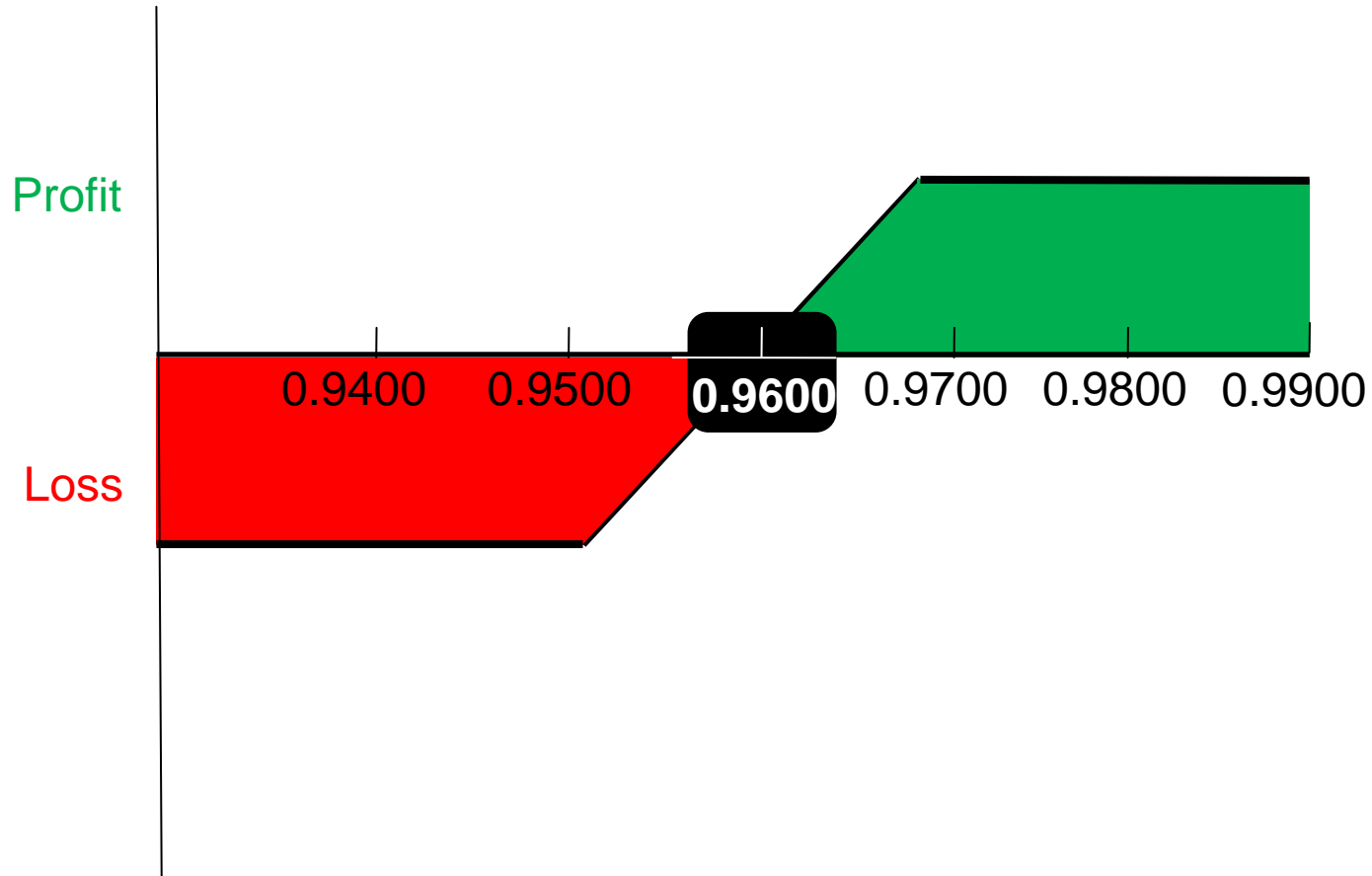


	<b>RISK</b>	<b>COLLAR</b>
<b>Investor Long U.S. Assets</b>	USD/CAD ↓	Long Puts / Short Calls
<b>Canadian Exporter</b>	USD/CAD ↓	Long Puts / Short Calls
<b>U.S. Property Purchase</b>	USD/CAD ↑	Long Calls / Short Puts
<b>Canadian Importer</b>	USD/CAD ↑	Long Calls / Short Puts

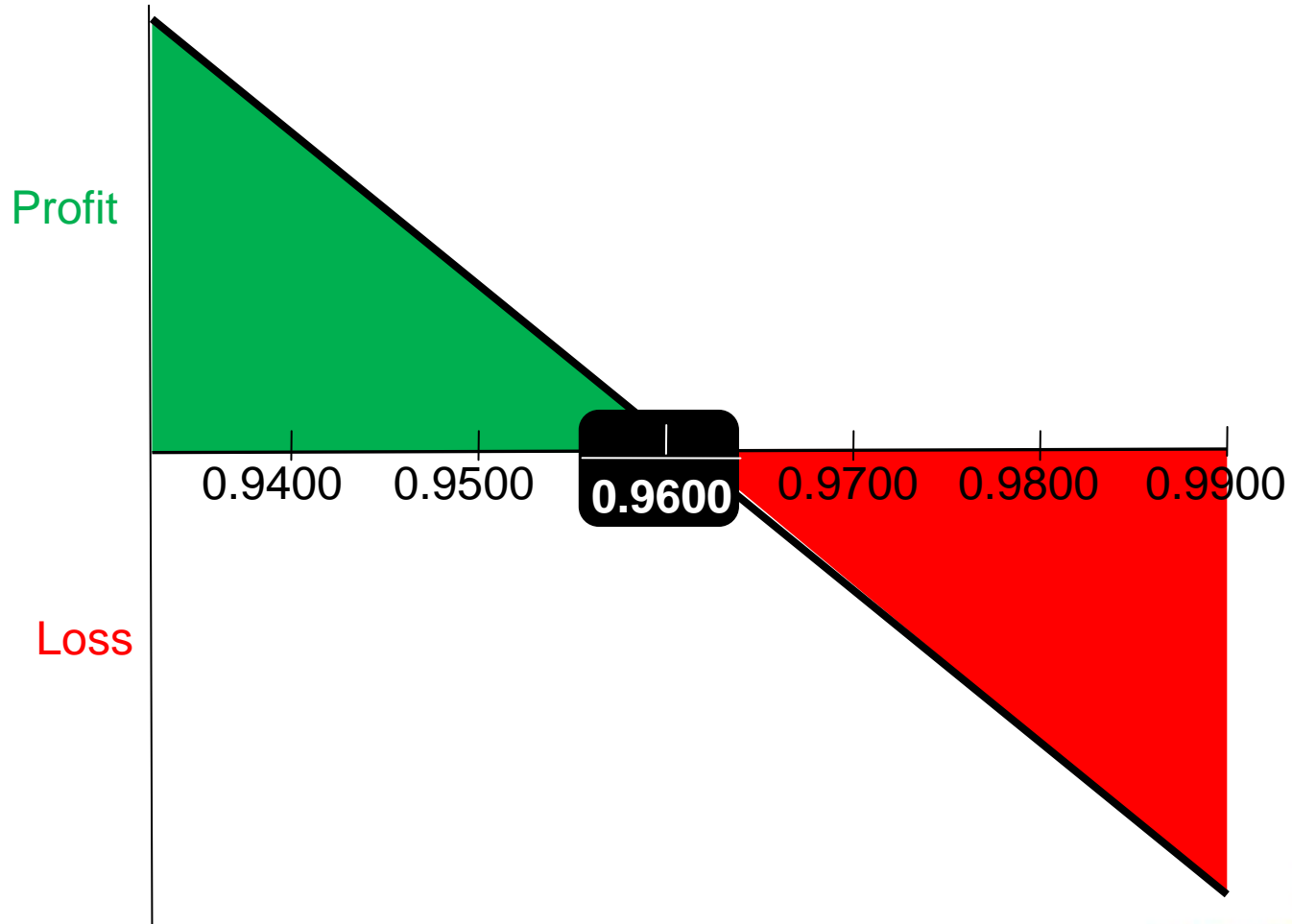
# Currency Risk - Investor / Exporter



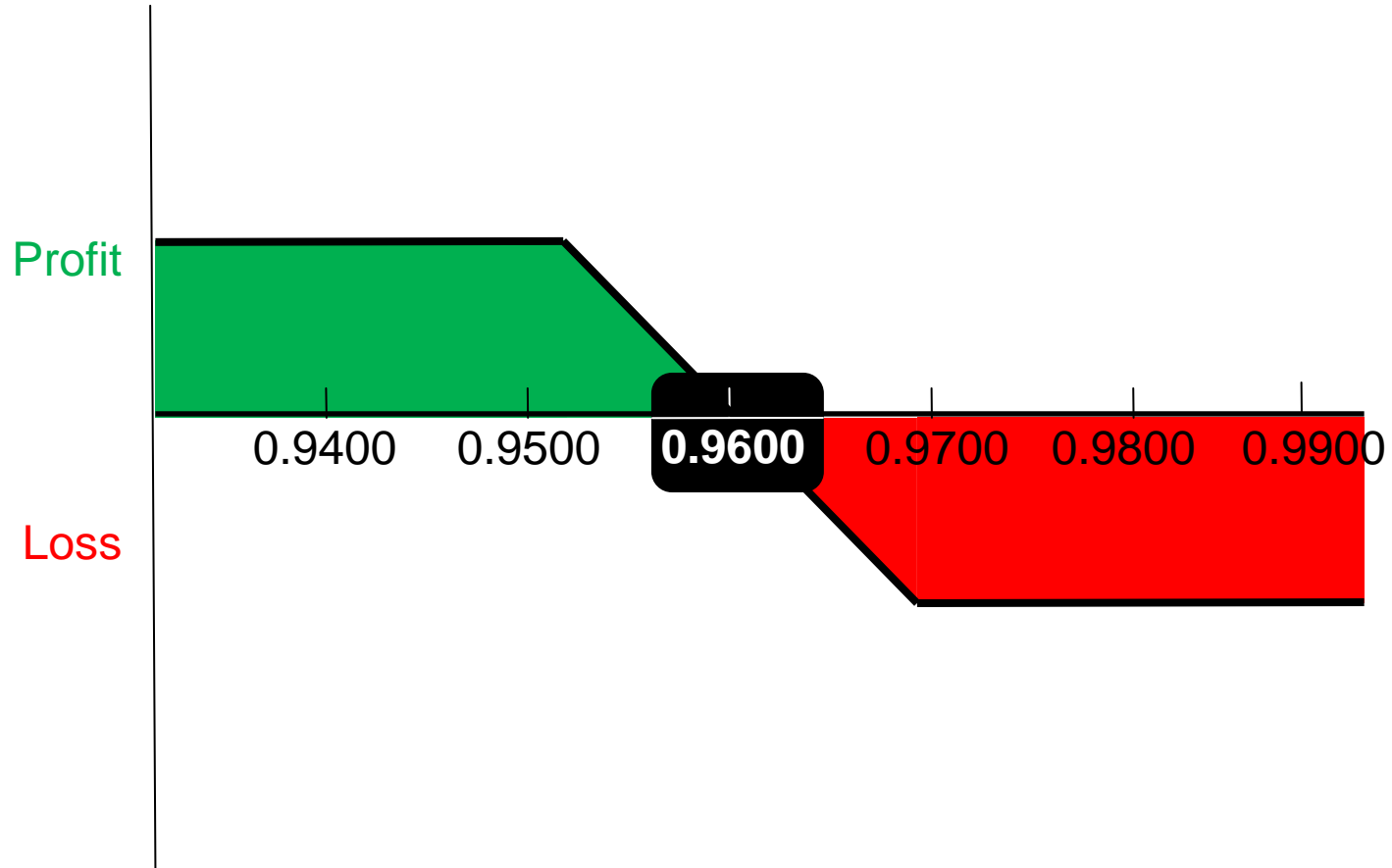
# Collar – Investor / Exporter



# Currency Risk – Property / Importer



# Collar - Property / Importer



# U.S Property Purchase



- Investor is purchasing a property in the United States.
- Deal closes in 3 months.
- Concerned that the USD/CAD will increase by then and wishes to hedge the risk.
- Note that a Canadian importer could take advantage of this strategy.

# Hedging a USD/CAD Increase



Example:

- USD/CAD @ 0.9600
- Investor to pay for the property in 3 months.
- Amount due: US\$500,000.00
- Long 50, USX, 3-month calls, 96.00 @ 2.45
- Short 50, USX, 3-month puts, 96.00 @ 2.25

# Cost of Collar



- Long 50 calls, 96.00 @ 2.45
  - $50 \times \$245.00 = \text{C}\$12,250.00$  DEBIT
  
- Short 50 puts, 96.00 @ \$2.25
  - $50 \times \$225.00 = \text{C}\$11,250.00$  CREDIT
  
- Total cost = C\$1,000.00

# Collar Performance



US\$500,000.00 - 3 months later

USD/CAD	Currency P/L	96.00 Calls P/L	96.00 Puts P/L	Net Cost of Hedge
1.0000	-\$20,000.00	\$7,750.00 \$20,00.00 - \$12,250.00	\$11,250.00 options expire	-\$1,000.00
0.9600	\$0.00	-\$12,250.00 option cost	\$11,250.00 options expire	-\$1,000.00
0.9100	\$25,000.00	-\$12,250.00 option cost	-\$13,750.00 \$25,000.00 - \$11,250.00	-\$1,000.00

\$12,250.00 = cost of calls / \$11,250.00 = cost of puts

# Hedging a USD/CAD Decrease



Example: Investor / Exporter

- USD/CAD @ 1.0500
- Investor wishes to hedge for a 3-month period.
- Amount to hedge = US\$1,000,000.00
- Long 100, 3-month puts, 105.00 @ \$2.85
- Short 100, 3-month calls, 105.00 @ \$2.55



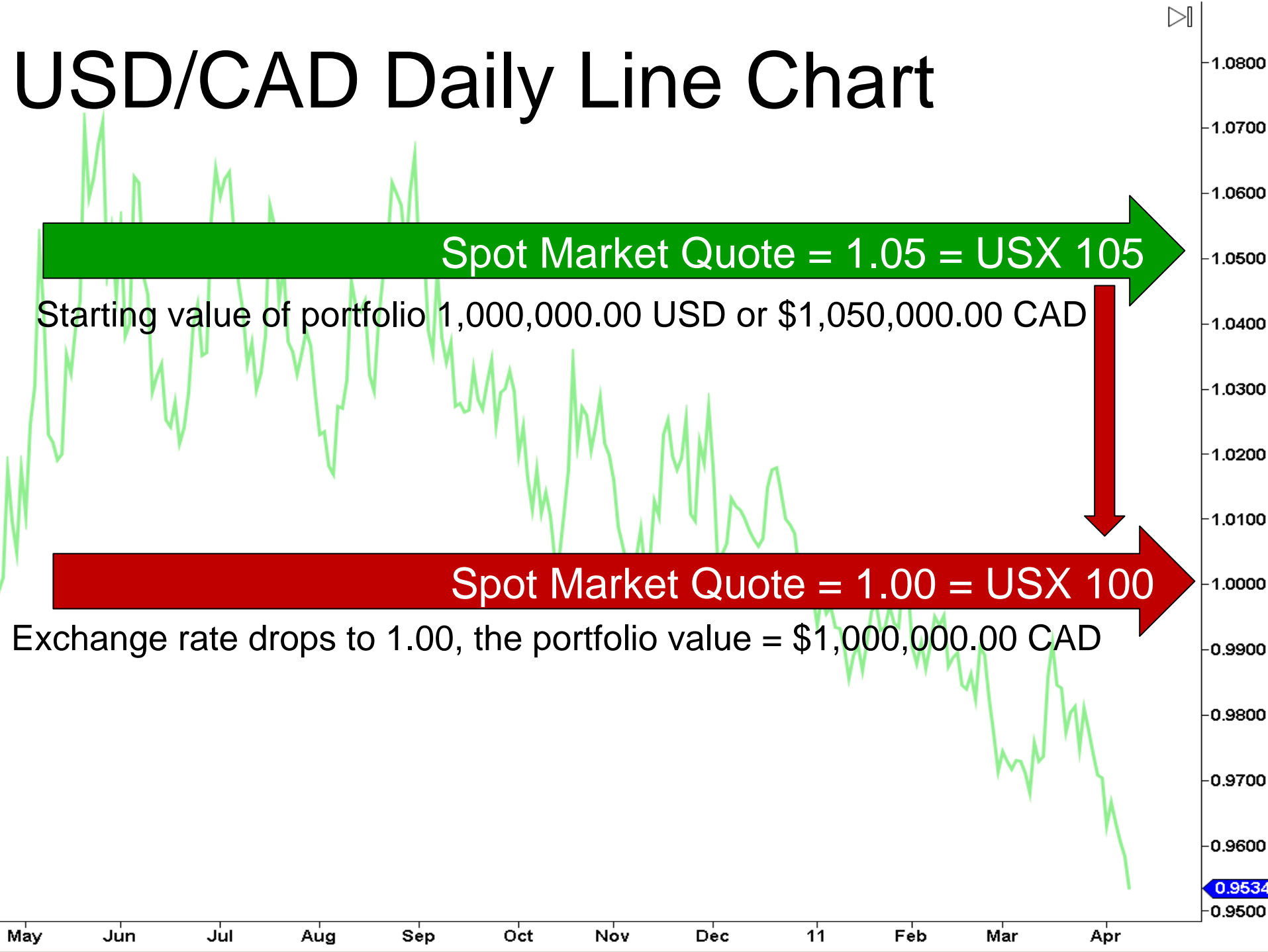
# USD/CAD Daily Line Chart

**Spot Market Quote = 1.05 = USX 105**

Starting value of portfolio 1,000,000.00 USD or \$1,050,000.00 CAD

**Spot Market Quote = 1.00 = USX 100**

Exchange rate drops to 1.00, the portfolio value = \$1,000,000.00 CAD



# Cost of Collar



- Long 100 puts, 105.00 @ \$2.85
  - $100 \times \$285.00 = \text{C}\$28,500.00$  DEBIT
- Short 100 calls, 105.00 @ \$2.55
  - $100 \times \$255.00 = \text{C}\$25,500.00$  CREDIT
- Total cost = C\$3,000.00

# Collar Performance

US\$1,000,000.00 – 3 months later



USD/CAD	Currency P/L	\$105.00 Calls P/L	\$105.00 Puts P/L	Net Cost of Hedge
1.1000	\$50,000.00	-\$24,500.00 \$50,000 - \$25,500	-\$28,500.00 option cost	-\$3,000.00
1.0500	\$0.00	\$25,500.00 options expire	-\$28,500.00 option cost	-\$3,000.00
1.0000	-\$50,000.00	\$25,500.00 options expire	\$21,500.00 \$50,000 - \$28,500	-\$3,000.00

\$25,500.00 = cost of calls / \$28,500.00 = cost of puts

# Summary



- Find USX quotes & options chains at [www.m-x.ca](http://www.m-x.ca).
- Use any USD/CAD FX chart.
- Multiply the spot market value by 100.
- Accessible through most standard brokers.

