



**Montréal
Exchange**

Introduction to Options Trading

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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

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What are Derivatives?



- A financial instrument whose value is derived from another underlying asset.
- Options prices are derived from the price of the stock.

Trading vs. Investing



- Investors are interested in owning the companies.
- Traders are focused on profiting from stock moves.

Exchange Traded Funds



- Investment fund traded on stock exchanges.
- Has low management fees and can be bought and sold instantly.
- Many have options, which give investor flexibility to manage.

Options



- Options are independent contracts.
- Require a buyer and seller.
- Price is a derivative of the underlying security.
- Two types of options:
 - Right to buy – Calls
 - Right to sell – Puts



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Options Basics



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

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Call Options



Call Option Buyer	Call Option Seller (writer)
<p>Pays for:</p> <p>Right to buy security</p> <ul style="list-style-type: none">• Specific Price• Specific Time	<p>Gets paid for:</p> <p>Obligation to sell security</p> <ul style="list-style-type: none">• Specific Price• Specific Time

Put Options



Put Option Buyer	Put Option Seller (writer)
<p>Pays for:</p> <p>Right to sell security</p> <ul style="list-style-type: none">• Specific Price• Specific Time	<p>Gets paid for:</p> <p>Obligation to buy security</p> <ul style="list-style-type: none">• Specific Price• Specific Time

Option Contract Basics



- One options contract controls 100 shares.
- Price of the contract listed per share.
- 100 multiplier on quoted price.

Key Variables



Strike Price

- The price at which the option buyer has the right to transact the security

Month

- The month in which the option expires.
- Always expires the 3rd Friday of the month.

Styles of Options



American Style

- Option can be exercised any time.
- Delivers the security.

European Style

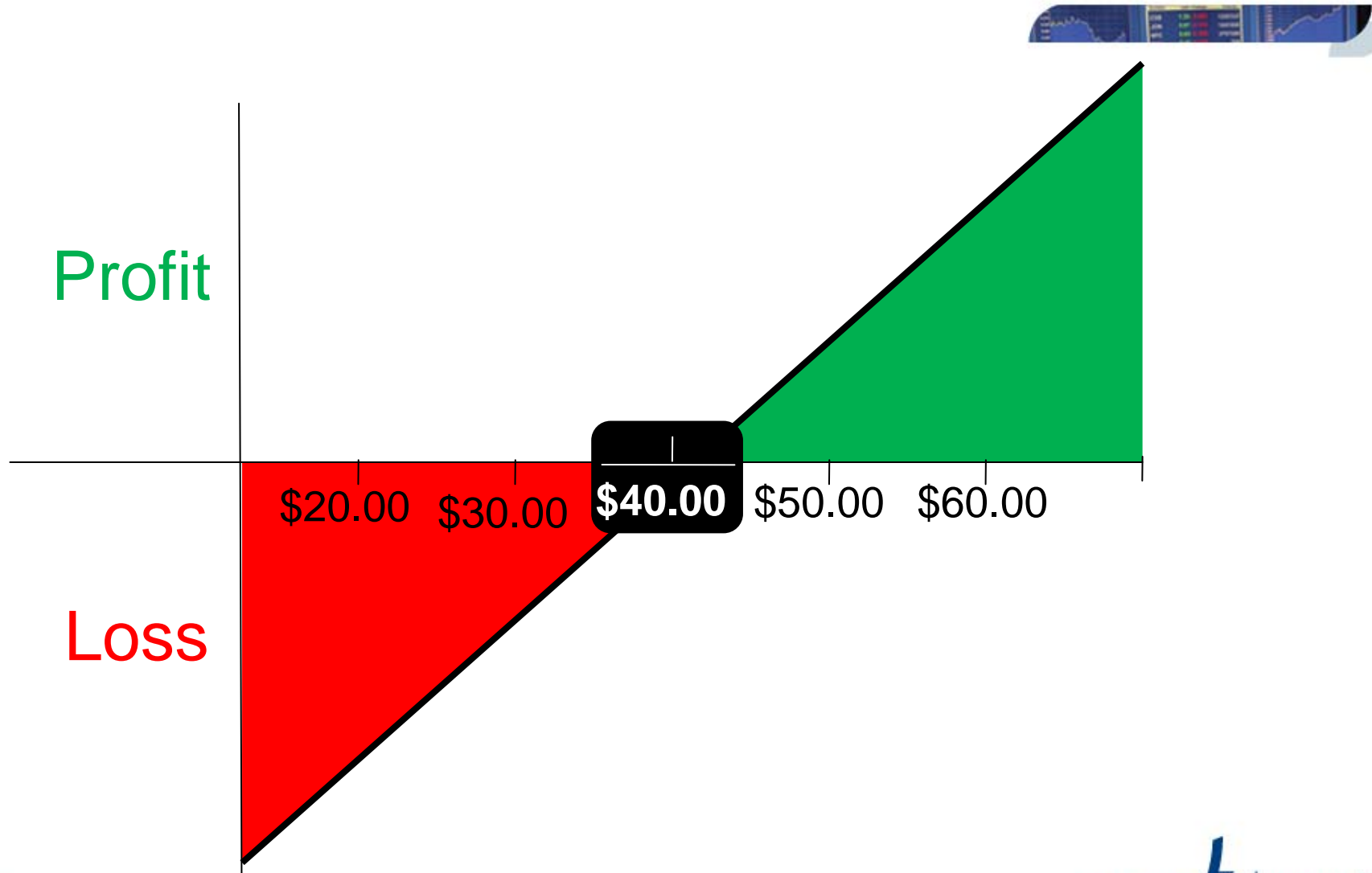
- Option can only be exercised on expiration.
- Cash settled for difference.

Analyzing Risk Graphs

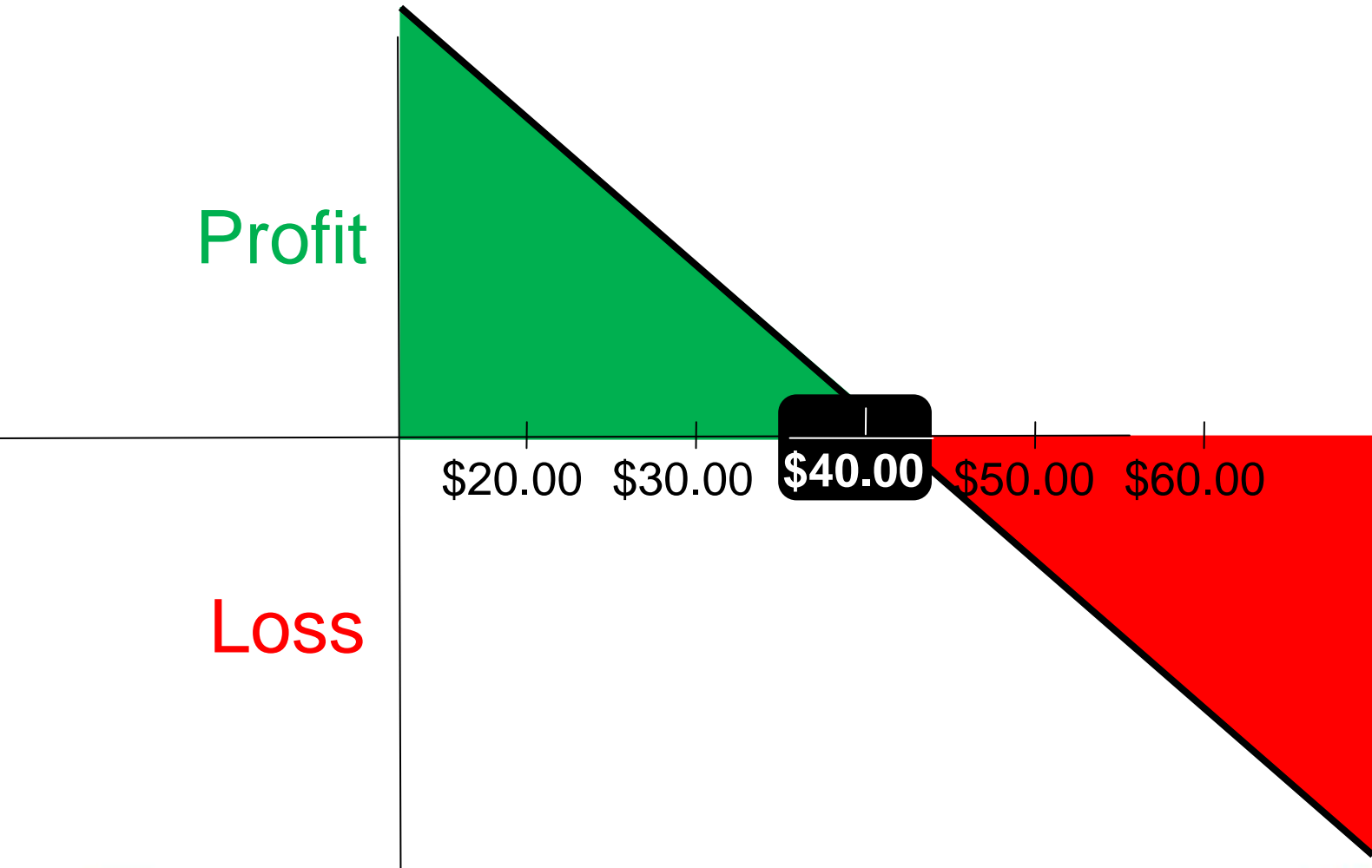


- Give investors ability to visualize the risk and profit potential.
- Stock price along the x-axis
- Profit/Loss along the y-axis

Long Stock Risk Graph



Short Sell of Stock Risk Graph



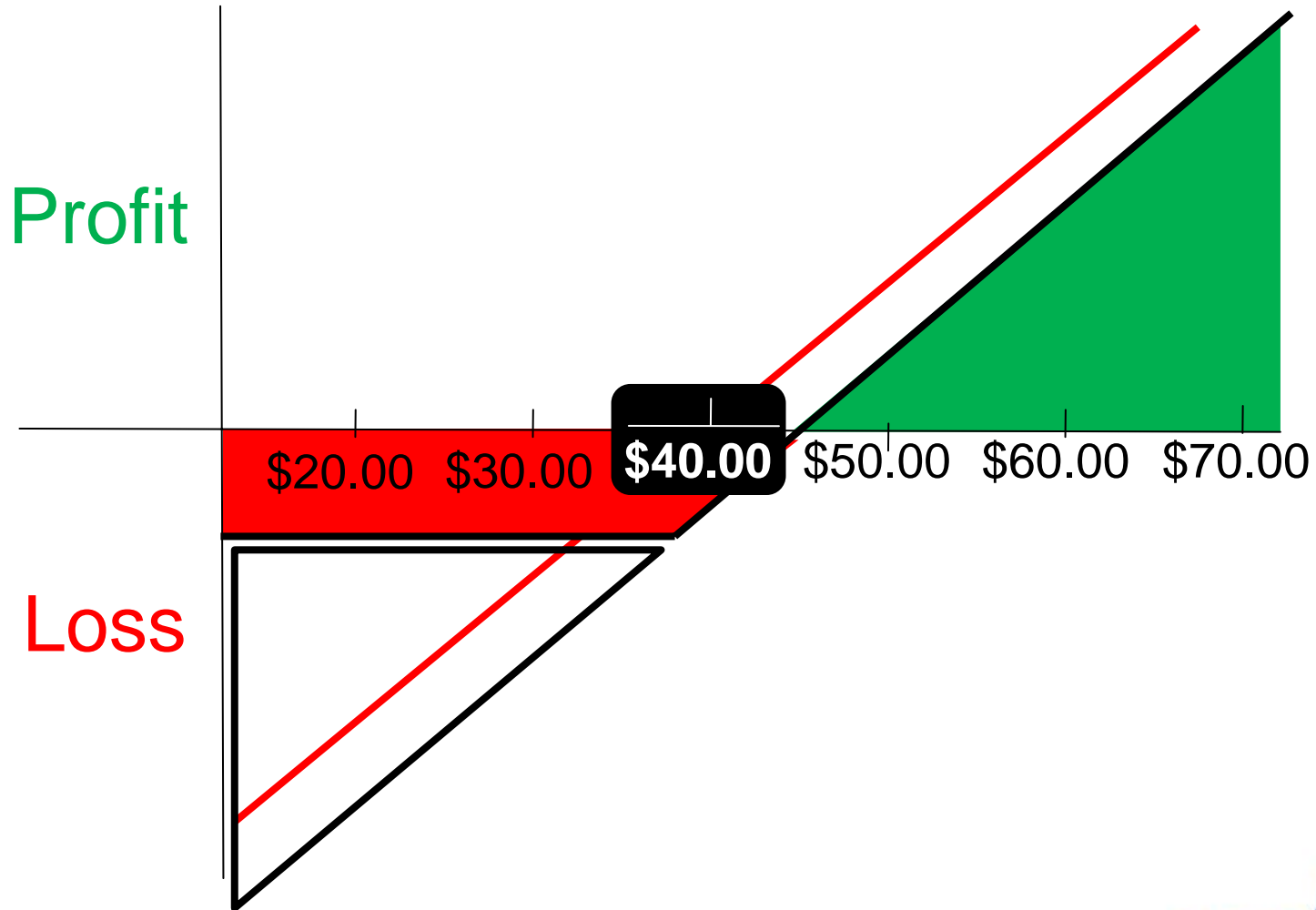
Buying a Call Option



Call buyer has the right to buy the underlying stock.

- Specific Price – Strike Price
- Specific Time - Expiration

Buying the Call Option



Example: Buying a Call Option



- On July 27th, 2011
- Investor intends on making a RRSP contribution in January 2012 of \$20,000.00.
- Investor feels that the market is at a bottom and would like to participate on the upside or a seasonal year end rally.

Example: Buying a Call Option



- SU – Suncor
- \$38.00 Last (July 27, 2011)
- Investor would like to secure the purchase of the Suncor out to January when the RRSP contribution is going to be made.

Example: Buying a Call Option



- Suncor January \$38.00 Call
- \$3.00 Ask (July 27, 2011)
- The Call option gives the investor the right to buy the shares at \$38.00 anytime over the next 6 months.
- Average cost $\$38.00 + \$3.00 = \$41.00$
- Investor buys 5 call options for \$1500.00

Example: Buying a Call Option



- 6 months later:
- Hypothetically: if Suncor was trading at \$46.00 (January 20, 2012)
- Investor can sell the calls for \$8.00 and take the profit, or
- Investor can exercise their right to buy the shares in the RRSP at \$38.00. Result, 500 shares purchased at \$38.00 for \$19,000.00.

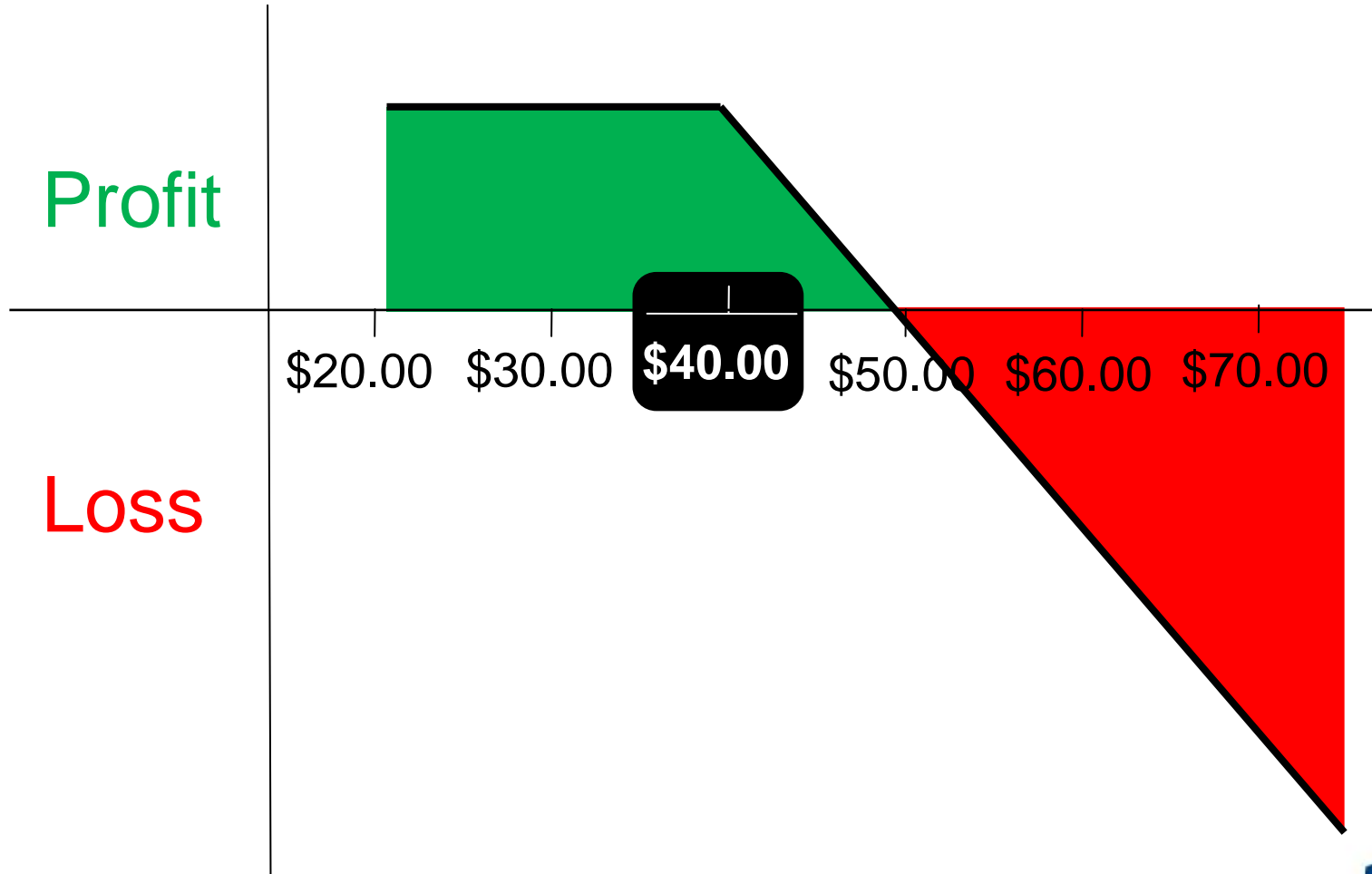
Selling a Call Option



Call seller has the obligation to sell the underlying stock.

- Specific Price – Strike Price
- Specific Time - Expiration

Selling the Call Option



Selling a Covered Call Option

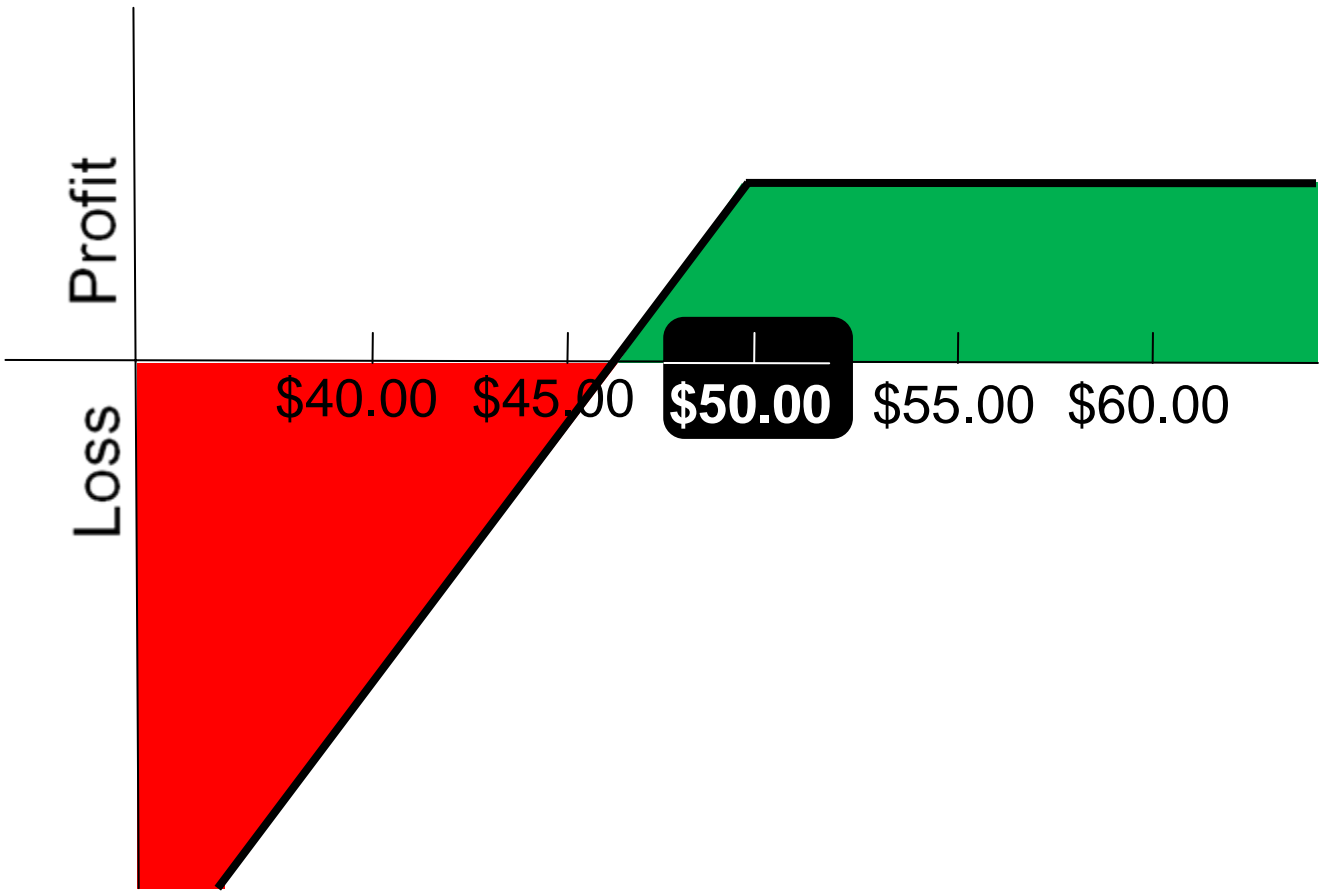


Investor physically owns the stock.

Call seller has the obligation to sell the underlying stock.

- Specific Price – Strike Price
- Specific Time - Expiration

Covered Call



Example: Covered Call



- On July 27th, 2011
- Investor feels that the stock market will have a few months of choppy price action.
- Would like to make a fixed cash flow return.

Example: Covered Call



- TD Bank
- \$77.50 Last (July 27, 2011)
- Investor would like to buy the shares and create an income.

Example: Covered Call



- TD: TD Bank September \$78.00 Call
- \$2.10 bid (July 27, 2011)
- Investor buys 200 shares of TD for \$15,600.00
- Investor sells 2 Sep \$78.00 Calls for \$2.10 or \$420.00 cash flow income.
- 2.79% cash flow for 53 days.

Example: Covered Call



- Investor makes 2.79% (\$420.00)
- Obligated to sell the stock at \$78.00 if the call buyer exercises the call option.
- If it is never exercised, the investor continues to own the shares.
- It is the process of winning with base hits rather than home runs.

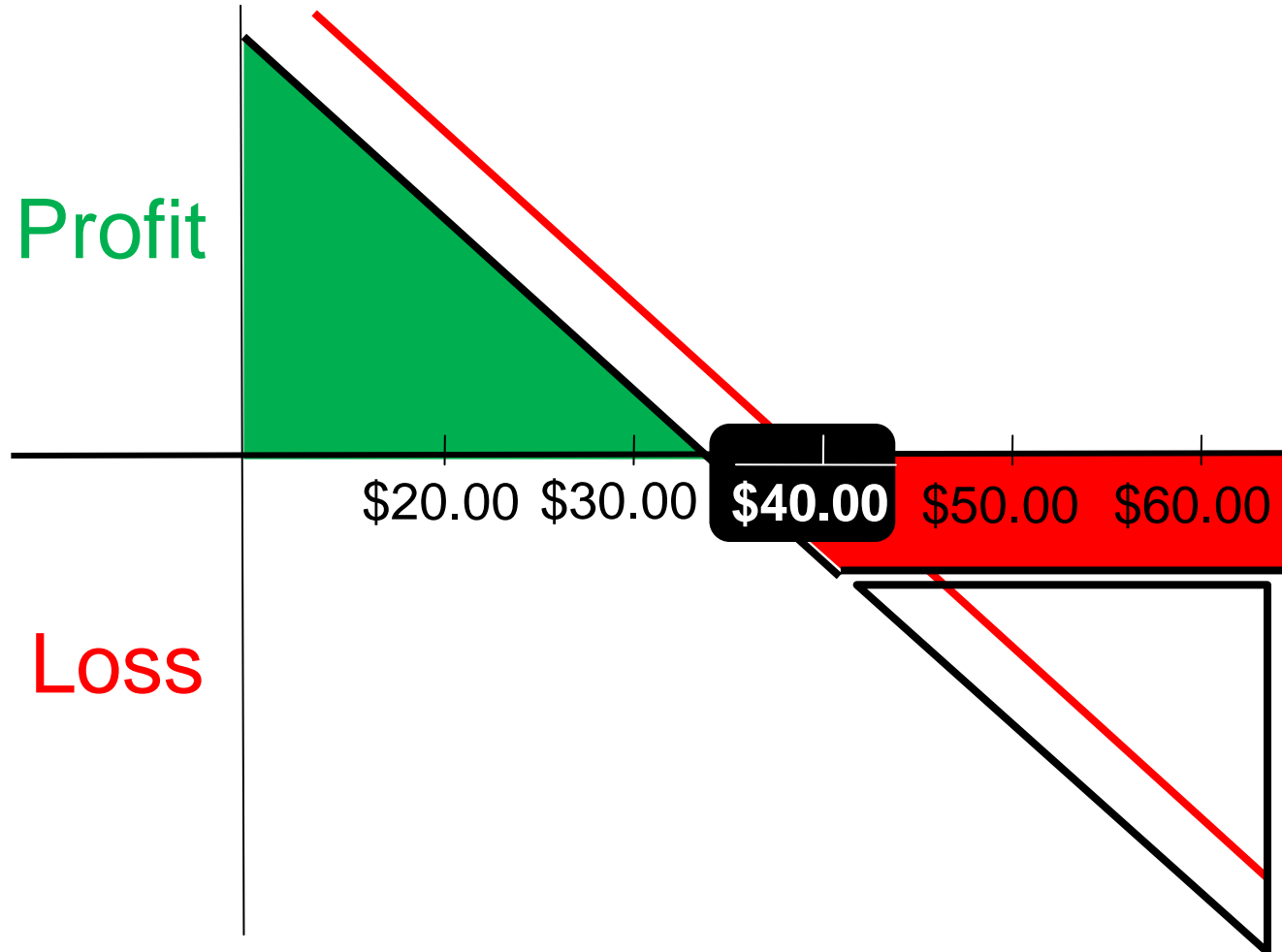
Buying a Put Option



Put buyer has the right to sell the underlying stock.

- Specific Price – Strike Price
- Specific Time - Expiration

Buying the Put Option



Example: Buying a Put Option



- On July 28th, 2011
- Investor believes the stock market will seasonally decline into September.
- Investor would like to use an option to participate.

Example: Buying a Put Option



- XIU – S&P/TSX60
- \$18.67 Last (July 28, 2011)
- Investor would like to participate on a downside forecast of the market.

Example: Buying a Put Option



- XIU Sep \$18.50 Put
- \$0.40 Ask (July 28, 2011)
- The put option gives the investor the right to sell the XIU at \$18.50.
- Investor buys 10 put options for \$400.00

Example: Buying a Put Option



- 2 months later:
- If XIU is trading at \$17.50 (Sep 20, 2011)
- Investor can sell the put for \$1.00 at a profit.
- Alternatively if the investor could buy 1000 shares at \$17.50 and exercise the right to sell them at the \$18.50 strike price for a \$1.00 profit.

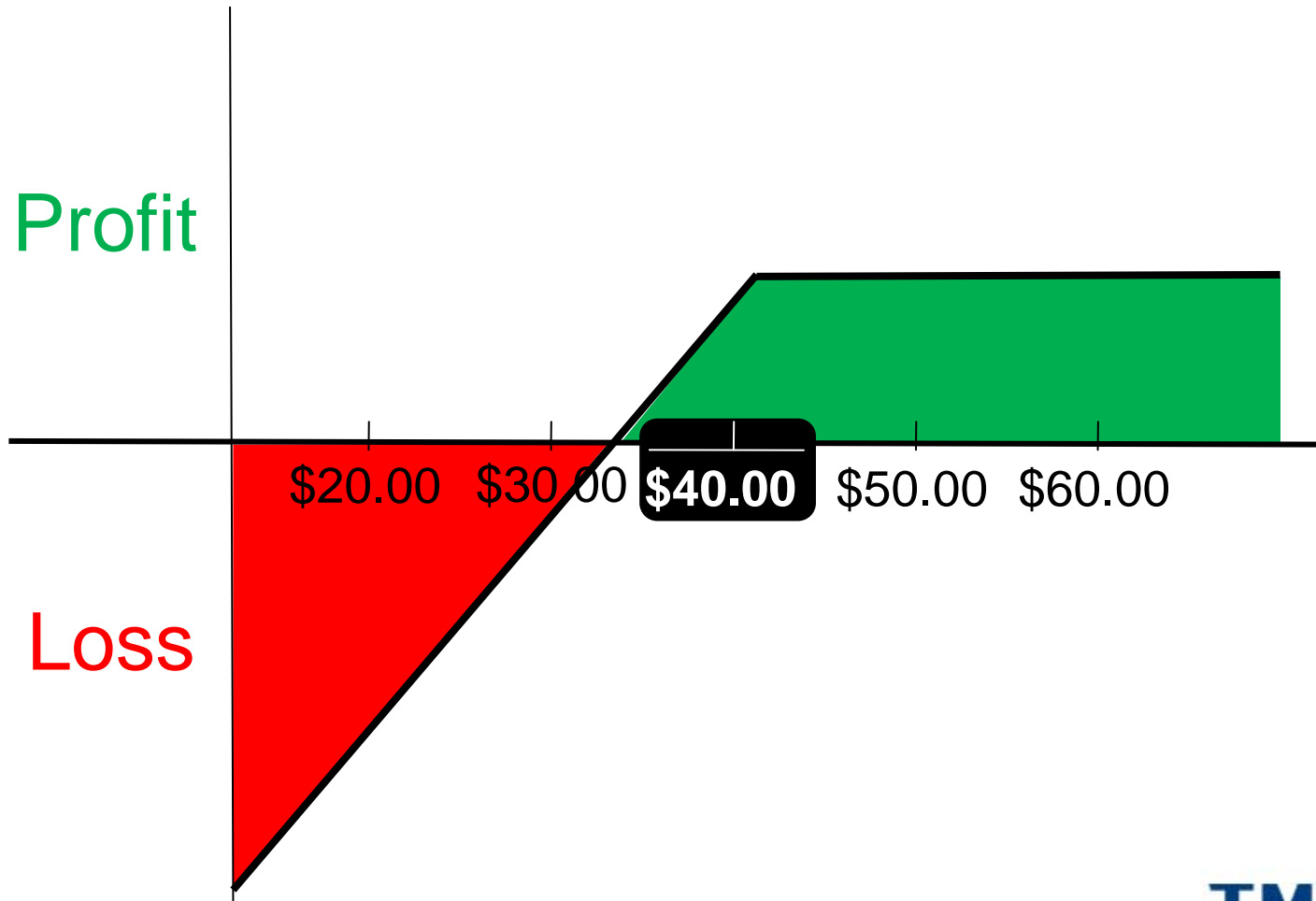
Selling a Put Option



Put seller has the obligation to buy the underlying stock.

- Specific Price – Strike Price
- Specific Time - Expiration

Selling the Put Option



Example: Selling a Put Option



- On July 28th, 2011
- Investor feels that the stock market has gone too far to the upside to buy now.
- Investor would like to make some money while waiting for a buying opportunity.

Example: Selling a Put Option



- THI – Tim Hortons
- \$45.85 (July 28, 2011)
- Investor would like to make some money while waiting for the stock to weaken for a buying opportunity.

Example: Selling a Put Option



- Tim Horton's September \$44.00 Put
- \$0.65 Bid (July 28, 2011)
- By selling the put, the investor obligates themselves to buy Tim Horton's shares at \$44.00 over the next 52 days.
- If assigned, ACB $\$44.00 - \$0.65 = \$43.35$
- Investor sells 5 put options for \$325.00 income (1.48% cash flow)

Example: Selling a Put Option



- 2 months later:
- Tim Horton's declines 10% and is trading at \$42.00 (September 20, 2011)
- Investor is assigned the shares at \$44.00 for a \$22,000 purchase.
- Investor made the \$0.65 income. The average cost of the shares is \$43.35.
- (Alternatively if the stock never declined, the investor made the \$325.00 income.)

Time & Expiration



All Options have:

- 1 month expiry – Front Month
- 2 month expiry – Next Month

When front month expires, the next month series is created.

Time & Expiration



In addition all options are assigned a quarterly cycle.

Cycle 1	January	April	July	October
Cycle 2	February	May	August	November
Cycle 3	March	June	September	December

LEAPS



Some stocks have LEAPS

- Long-term Equity Anticipation Security.
- Priced like all options.
- Terms: 1 and 2 years out.

Variables in Option Pricing



- Option Pricing Models consider the following variables:
 1. Price
 2. Strike
 3. Time
 4. Volatility
 5. Dividend
 6. Interest

Variables in Option Pricing



- Option Pricing Models consider the following variables:

- 1. Price**

2. Strike

3. Time

4. Volatility

5. Dividend

6. Interest

The simplest variable to understand is the price. As the price of the stock increases or decreases, the option will change.

Variables in Option Pricing



- Option Pricing Models consider the following variables:

1. Price

2. Strike

3. Time

4. Volatility

5. Dividend

6. Interest

The strike price is the price at which option is exercisable.

The closer the stock is to the strike, the more premium will be reflected in the option.

Variables in Option Pricing



- Option Pricing Models consider the following variables:
 1. Price
 2. Strike
 - 3. Time**
 4. Volatility
 5. Dividend
 6. Interest

The more time that there is on the option, the more expensive it will be.

Variables in Option Pricing



- Option Pricing Models consider the following variables:

1. Price
2. Strike
3. Time
- 4. Volatility**
5. Dividend
6. Interest

The more volatile a stock is, the more expensive the premium will be to reflect the risk of sudden rapid price change.

Variables in Option Pricing



- Option Pricing Models consider the following variables:

1. Price
2. Strike
3. Time
4. Volatility
- 5. Dividend**
6. Interest

All known dividends are discounted into the price to ensure accurate pricing.

Variables in Option Pricing

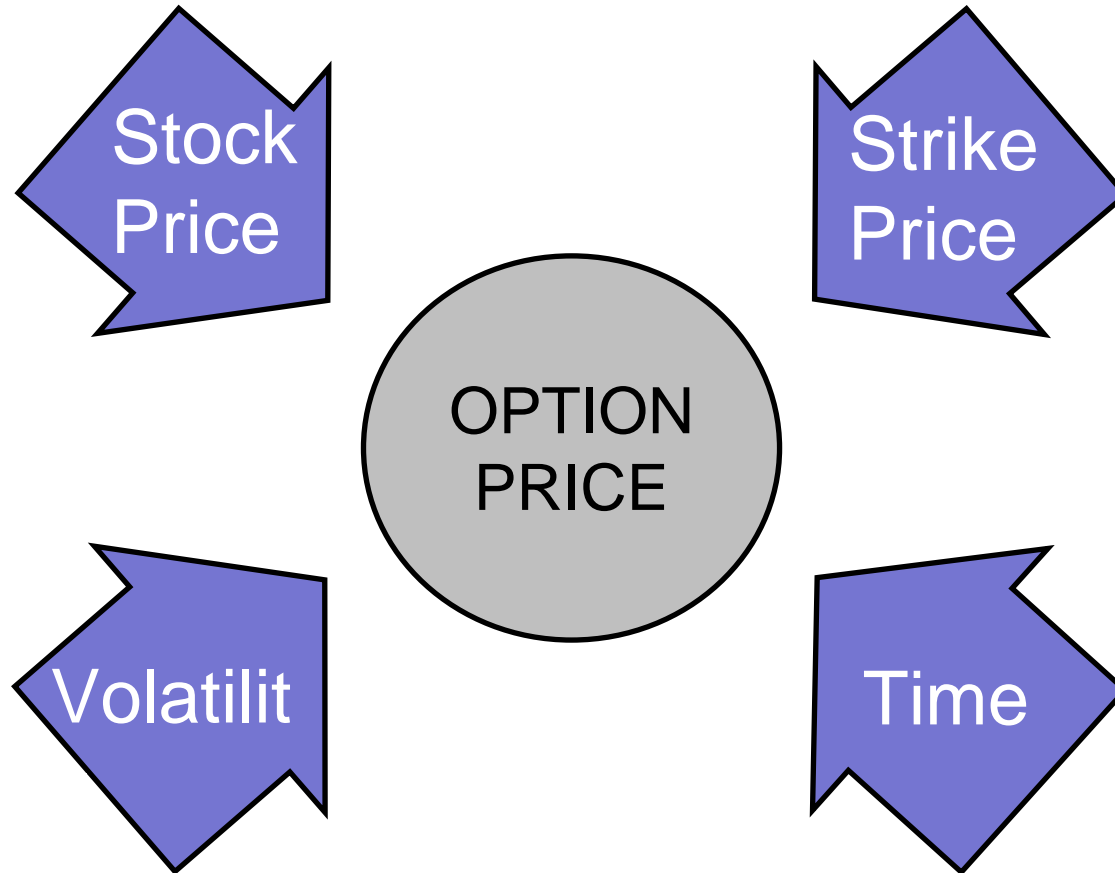


- Option Pricing Models consider the following variables:

1. Price
2. Strike
3. Time
4. Volatility
5. Dividend
- 6. Interest**

The risk free rate of interest is factored into the price of an option.

The Complexities of Option Prices



Implied vs. Historical Volatility



- Historical Volatility – past realized volatility. Measured by average deviation from the average price.
- Implied Volatility – markets expectation for future volatility.

Why Volatility is Important

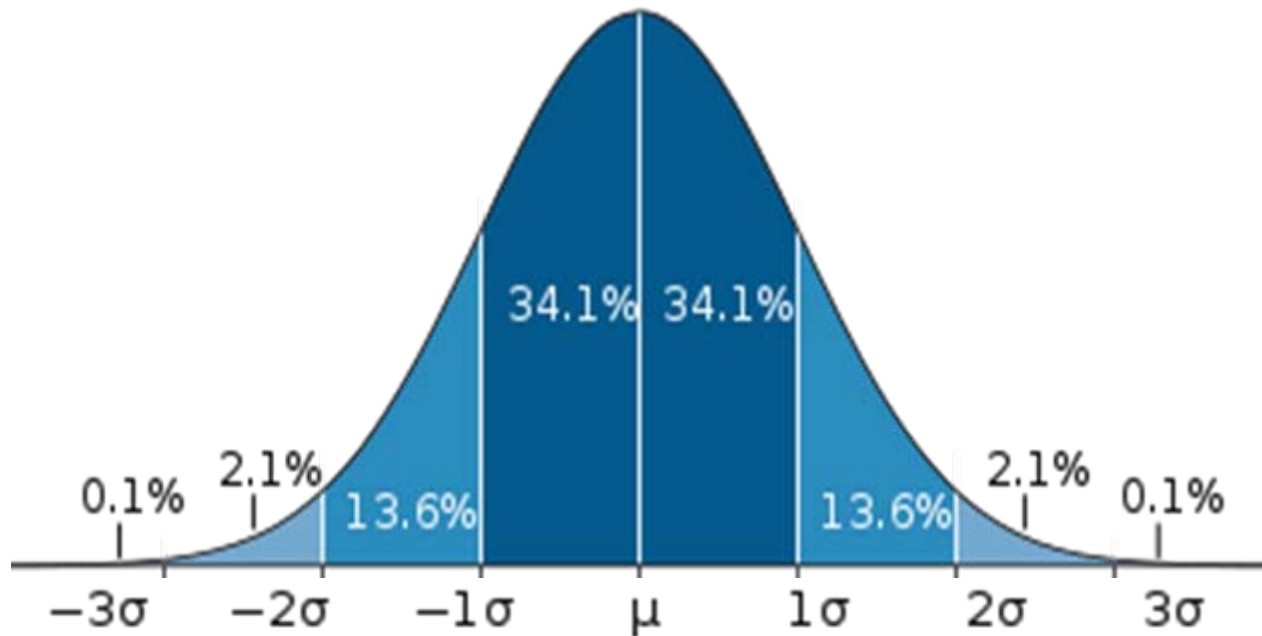


- Volatility is the adjustment for risk.
- Implied volatility will change on any new information and adjusts for things like:
 - Company earnings.
 - Pending announcements or mergers.
 - Economic/market environment.

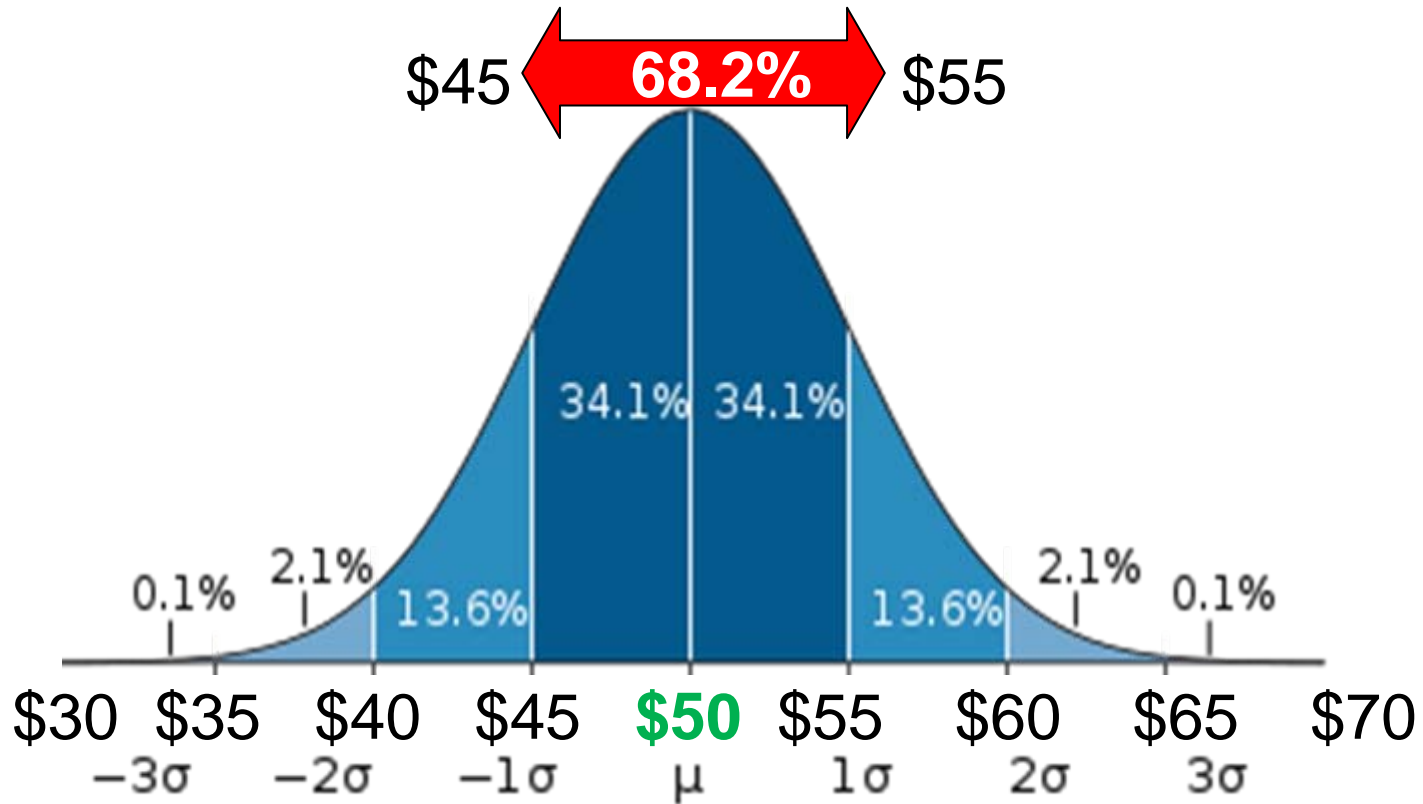
Implied Volatility



- Creates a probability distribution curve.



Normal Distribution Bell Curve

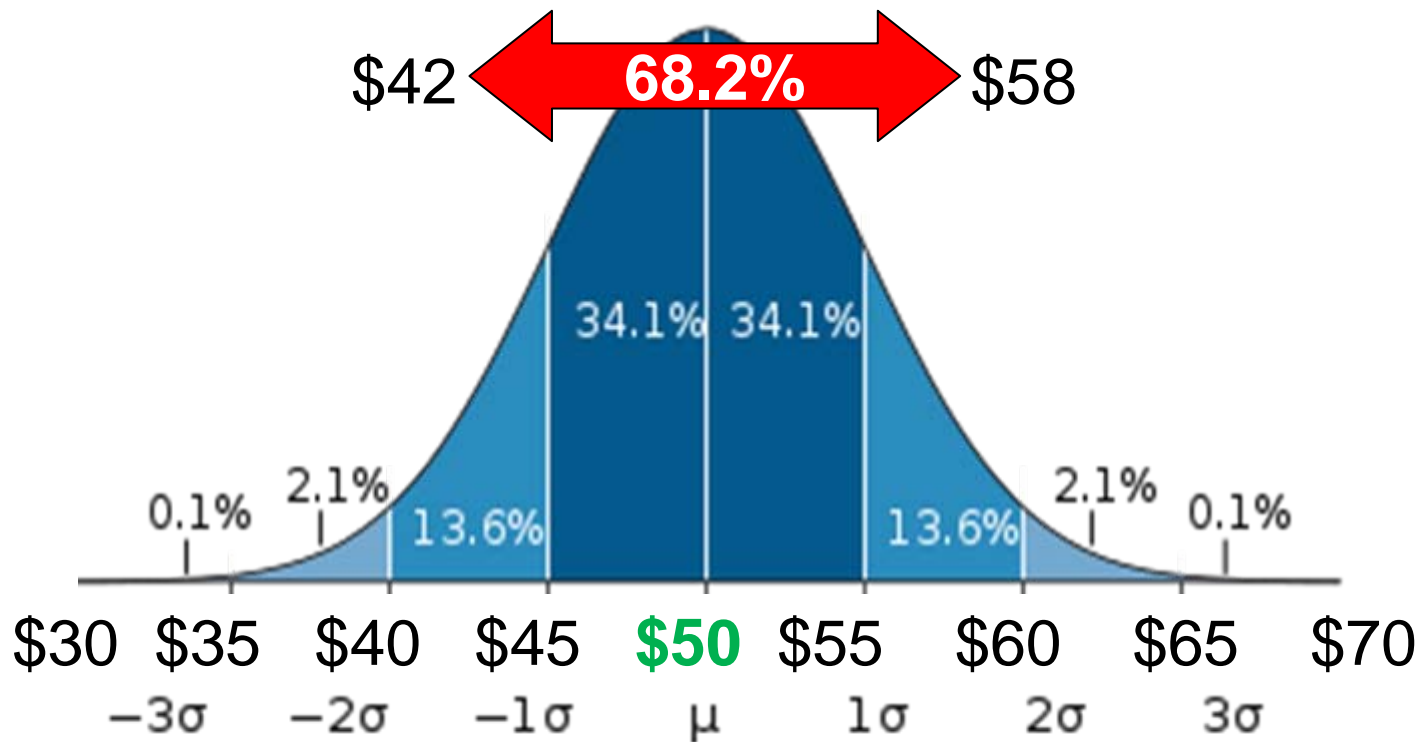


Expanding Implied Volatility



- The environment changes creating a period of high volatility.
- The volatility will expand adjusting the price of options.
- Rate of change measure called the Vega.

Expanding Implied Volatility

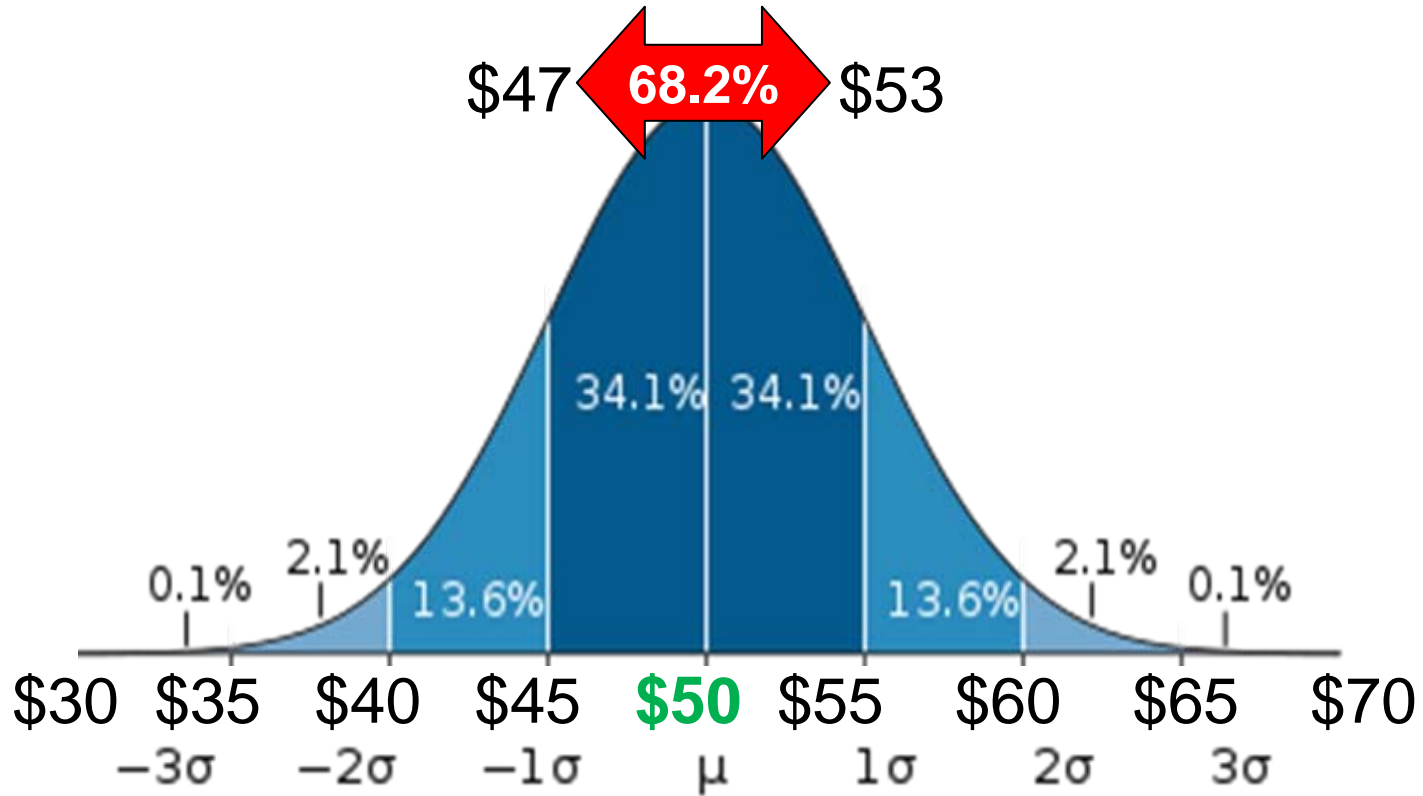


Contracting Implied Volatility



- The environment changes creating a period of less volatility.
- The volatility will contract adjusting the price of options.
- Rate of change measure called the Vega.

Contracting Implied Volatility



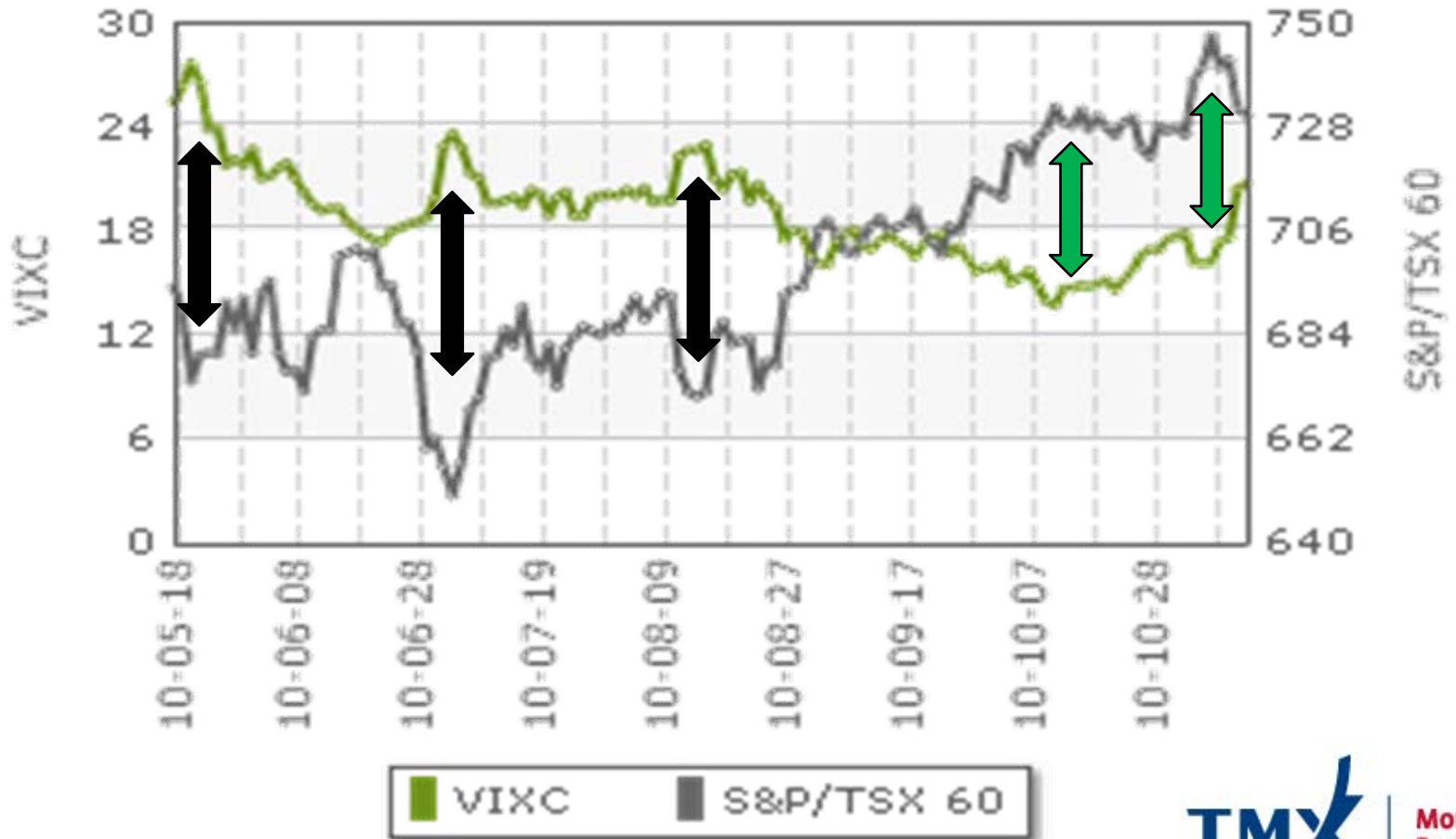
S&P/TSX 60 VIX Index (VIXC)



- Estimates Volatility of the S&P/TSX 60 Index as implied by near term/next term.
- Has a historically negative correlation to the market.
- Proxy for investor sentiment for the Canadian Market.

VIXC – S&P/TSX 60 VIX Index

VIXC – S&P/TSX 60

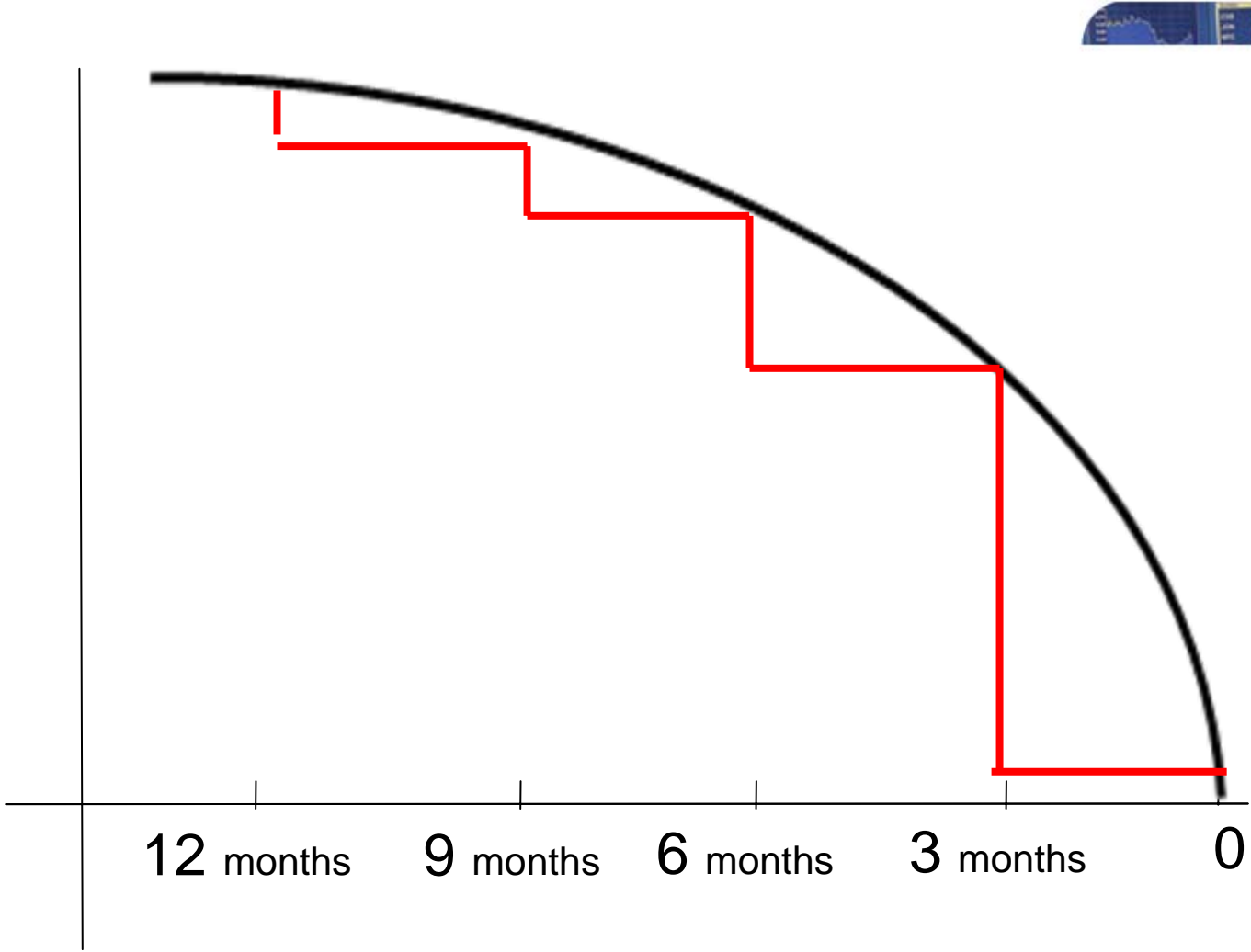


Impact of Time



- Time value is a function of unpredictability.
- More time until expiration the higher premium.
- Uncertainty decreases as expiration approaches.

Time Decay is not Linear



Components of an Option Price



Option Price	
Time Value	<ul style="list-style-type: none">• The cost.• Time decays.
Intrinsic Value	<ul style="list-style-type: none">• Realizable equity value based on stock price.• Does not decay.

Intrinsic Value



Call = (Current stock price) – (strike price).

Put = (Strike price) – (current stock price).

Categories of Options



- Options are categorized to identify their current state.
- This changes as the stock changes.

Category
In-the-money
At-the-money
Out-of-the-money

Categories of Options - Calls

TLM – Talisman Energy Inc.



Last update: July 28, 2011 13:00 Montréal time - (DATA 15 MINUTES DELAYED)

Refresh | Print

▼ Last Price: **18.050** Net Change: **-0.700** Bid Price: **18.050** Ask Price: **18.060** 30-Day Historical Volatility: **28.65%**

Calls

Month / Strike	Bid Price	Ask Price	Last Price	Impl. Vol.	Vol.
+ 11 AU 14.000	4.000	4.150	4.900	49.88	0
+ 11 AU 15.000	3.000	3.150	3.900	45.76	0
+ 11 AU 16.000	2.070	2.180	2.910	38.01	0
+ 11 AU 17.000	1.190	1.290	1.970	33.40	0
+ 11 AU 18.000	0.520	0.600	0.400	30.16	39
+ 11 AU 19.000	0.160	0.220	0.160	28.98	87
+ 11 AU 20.000	0.030	0.080	0.210	30.18	0
+ 11 AU 21.000	0.000	0.050	0.070	N/Av	2
+ 11 AU 22.000	0.000	0.030	0.050	N/Av	0
+ 11 AU 23.000	0.000	0.030	0.040	N/Av	0
+ 11 AU 24.000	0.000	0.030	0.040	N/Av	0

ITM

ATM

OTM

Categories of Options - Puts

TLM – Talisman Energy Inc.



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▼ Last Price: **18.050** Net Change: **-0.700** Bid Price: **18.050** Ask Price: **18.060** 30-Day Historical Volatility: **28.65%**

Puts

Month / Strike	Bid Price	Ask Price	Last Price	Impl. Vol.	Vol.
+ 11 AU 14.000	0.000	0.050	0.040	55.04	0
+ 11 AU 15.000	0.010	0.060	0.050	45.21	0
+ 11 AU 16.000	0.030	0.100	0.100	37.05	0
+ 11 AU 17.000	0.150	0.220	0.180	32.54	10
+ 11 AU 18.000	0.470	0.500	0.560	29.28	107
+ 11 AU 19.000	1.090	1.180	1.280	29.67	25
+ 11 AU 20.000	1.970	2.040	2.180	30.25	25
+ 11 AU 21.000	2.900	3.050	2.310	27.48	0
+ 11 AU 22.000	3.850	4.000	3.300	N/Av	0
+ 11 AU 23.000	4.850	5.000	4.300	N/Av	0
+ 11 AU 24.000	5.850	6.000	5.300	N/Av	0

ITM

ATM

OTM

Order Entry



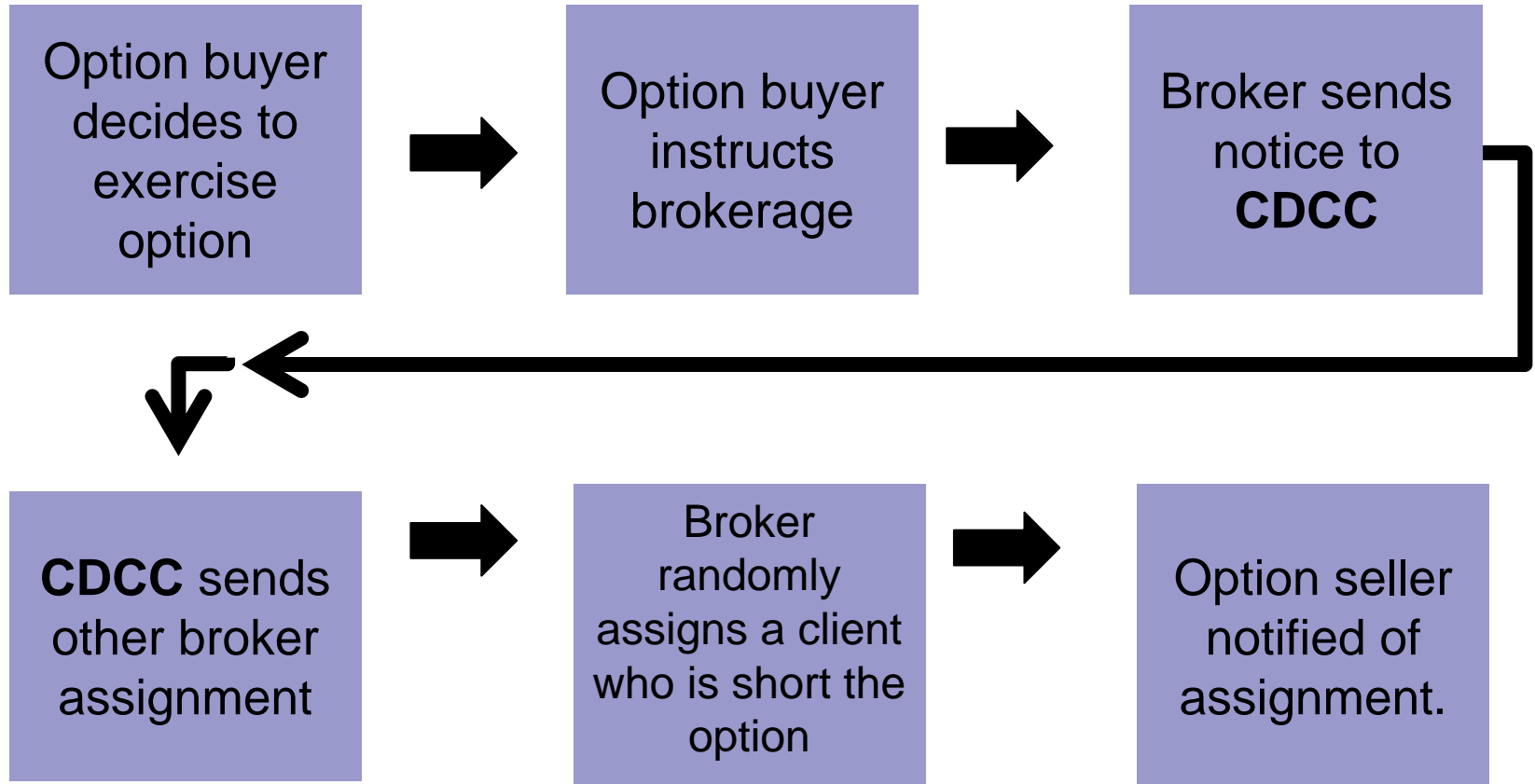
Buy or Sell – The Action

Open or Close – Is it going into your account or is it leaving your account?

CDCC

- Canadian Derivatives Clearing Corporation.
- Wholly-owned subsidiary of the Montreal Exchange.
- Acts as the central clearing counterparty for exchange traded derivatives.
- Guarantees every side of the transaction to protect the integrity of the system.

CDCC Assignment Process



Alternatives to Exercise



- Prior to any exercise or auto assignment, investor can:
 - Close position.
 - Roll position.

Rolling a Covered Call



- Royal Bank at \$53.77
- Investor has Feb \$52.00 covered call from several months earlier.
- Feb \$52.00 call asking \$2.05.
- Mar \$52.00 call is bidding \$2.50.

Rolling a Covered Call

- Investor does a buy-to-close for the Feb \$52.00 call asking \$2.05.
- Investor does a sell-to-open for the Mar \$52.00 call is bidding \$2.50.
- Investor makes a \$0.45 net credit for extending the option to March.

Primary uses for Options



Options have been incorrectly stereotyped as speculative. Educated investors use options for:

- Leverage with managed risk.
- Protection for stock positions.
- Income – Absolute returns.

