



TMX

**Montréal
Exchange**



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Hedging with SXO 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

Hedging Strategy



- Purchase puts on each individual security.
- As the share value decreases, put value increases.
- Purchase SXO puts on a well-diversified portfolio.

SXO Options



- Options on the S&P/TSX 60 Index
- Advantages
 - Requires no buying or selling of individual stocks.
 - Cash settled at expiration.
 - Substantial reduction in transaction costs.
 - No interruption of dividend streams.
 - No tax disposition of underlying shares.

How Many Index Options to Buy?



$$\text{Number of put options} = \frac{\text{Portfolio Value} \times \text{Beta}}{\text{S\&P/TSX 60} \times 10}$$

Beta



- The amount of variance in the value of a portfolio in comparison to the overall market (S&P/TSX 60)
- Beta absolute value:
 - = 1: Portfolio will move with the market.
 - > 1: Portfolio is more volatile than the market.
 - < 1: Portfolio is less volatile than the market.

Beta

- Market beta is 1.00.
- Market rises by 3.00%.
- Scenario 1: Portfolio beta is 2.00.
 - Portfolio will rise by 6.00%.
- Scenario 2: Portfolio beta is 0.50.
 - Portfolio will rise by 1.50%



Beta



- A negative beta indicates that the portfolio will move in the opposite direction of the market.
- Market beta is 1.00.
- Market rises by 3.00%.
- Scenario 1: Portfolio beta is -3.00.
 - Portfolio will fall by 9.00%.

Portfolio Hedging Example



Company	Weight in Portfolio	Beta
Royal Bank (RY)	0.10	1.31
Potash Corp (POT)	0.10	1.2
Encana (ECA)	0.10	1.1
Barrick Gold (ABX)	0.10	0.6
Manulife Financial (MFC)	0.10	2.18
Canadian Natural resources (CNQ)	0.10	1.78
Goldcorp Inc (GG)	0.10	0.69
Toronto-Dominion Bank (TD)	0.10	1.47
Bank of Nova Scotia (BNS)	0.10	1.35
Research in Motion (RIM)	0.10	2
Average Beta	1.00	1.37

Beta Courtesy of YAHOO FINANCE

Portfolio Hedging Example



- Portfolio value is \$100,000.00.
- Portfolio beta is 1.37.
- S&P/TSX 60 is at 660.00.
- A 2-month 660.00 strike put option is trading at \$19.00.
 - $\frac{\$100,000 \times 1.37}{660.00 \times 10} = 20.76$ contracts.
 - $\$19.00 \times 10 = \190.00 per contract.
 - $\$190.00 \times 21$ contracts = \$3,990.00.

Impact of Hedge



Without the hedge:

- A 10.00% drop in the index would result in an approximate 13.70% drop in the portfolio.
- The drop corresponds to a loss of \$13,700.00.
- The portfolio value is now \$86,300.00.

Impact of Hedge



With the hedge:

- A 10.00% drop in the index results in an approximate 13.70% drop in the portfolio.
- The 660.00 strike put option is worth \$66.00 ($660.00 - 594.00 = 66.00$).
- $\$66.00 - \$19.00 = \$47.00$ profit.
- $\$47.00 \times 10 \times 21$ contracts = \$9,870.00.
- Portfolio value is \$96,170.00 ($\$100,000.00 - 13,700.00 + 9,870.00$)

Settlement



- European style exercise.
- The SXO option holder's trading account would be credited by an amount of \$9,870.00.
- Settlement is based on the opening level of the S&P/TSX 60 on the expiration date.

