SXM S&P/TSX 60 Index Mini Futures Contract

MONTRÉAL EXCHANGE

Trading Strategies

TMX THE FUTURE IS YOURS TO SEE.®

Table of Contents

Why trade the S&P/TSX 60 Index Mini Futures contract

Investors can benefit by trading the S&P/TSX 60 Index Mini Futures contract (hereinafter, "the SXM futures contract") for a number of compelling reasons.

Efficiency

Trading stock index futures is more efficient compared to buying and selling equity securities in the index as SXM futures contracts provide a fast and cost-effective means to get exposure to the broader market with a single transaction.

Flexibility

The ability to employ a variety of trading strategies, such as hedging strategies (to insure a portfolio of stocks against adverse price movements) and spreading strategies (trading one index against another).

Moreover, there are no restrictions for short selling the SXM futures contract to take advantage of a declining market. Hence, investors avoid the complications and costs associated with borrowing stocks in the cash market.

Leverage

The SXM futures contract requires an initial margin deposit that represents a small percentage of the value of the contract. For example, the investor of an SXM futures contract must put up an initial margin deposit ranging anywhere from 4% to 15% of the value of contract—depending on market conditions—freeing up more capital with index futures compared to stocks or exchange-traded funds (ETFs).

Reduced transaction costs

Lower trading costs with index futures, with no management fees, compared to buying mutual funds or ETFs.

Determining the contract value and the value of one tick for the SXM futures contract

Contract value

The value of an SXM futures contract is determined by multiplying the current level of the contract by C$50 (the trading unit or multiplier of the futures contract).

For example, with the SXM futures contract trading at a level of 800 index points, the value of one contract would be C$40,000 (800 index points x C$50 per index point).

Determining the value of one tick (tick value or value of the minimum price fluctuation)

The value of one tick (0.10 index point), which represents the value of the minimum price fluctuation of the SXM futures contract, is C$5 per contract.

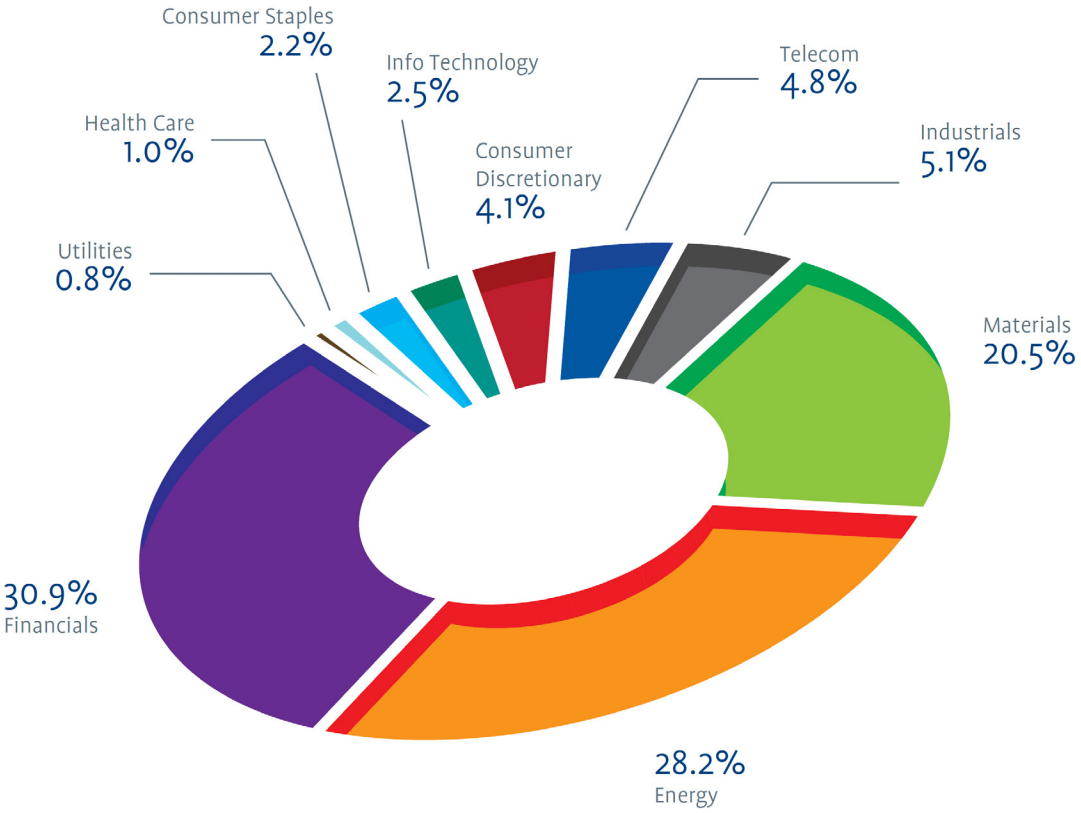
For example, a move of five ticks (representing 0.50 index point) in the SXM futures contract, from 800.00 to 800.50 index points, represents a value of C$25. A long position would be credited C$25 and a short position would be debited C$25.

The S&P/TSX 60™ Index

Sector classification and index sector weights

The S&P/TSX 60 Index provides a diversified exposure to the different sectors of the Canadian stock market. Constituent stocks of the S&P/TSX 60 are classified by the Global Industry Classification Standard (GICS®). Standard & Poor's indices provide geographic and economic balance across the 10 GICS® Sectors. These sectors, consistent across all Standard & Poor's indices, are:

- Consumer discretionary
- Consumer staples
- Energy
- Financials
- Health care
- Industrials
- Information technology
- Materials
- Telecommunication services
- Utilities



Source: Standard and Poor's

Strategies for the SXM futures contract

Although futures contracts are not for everyone, many investors should consider them when determining their investment objectives. You should also make sure you understand the concepts underlying the trading of futures, know the risks and advantages of the investment strategy you choose, and understand how you can manage your portfolio based on changes in the market. The Montréal Exchange recommends that you consult your financial advisor accordingly.

Gaining Market Exposure

Using the SXM futures to gain market exposure

An investor is expecting a large cash infusion due to sale of an investment property. The investor wishes to invest the profits from the sale (approximately $40,000) in blue chip stocks when the transaction closes in three months. The investor is very bullish near term for the outlook of stock prices; however, the investor does not have the capital to construct an equity portfolio to take advantage of his view.

The investor seeks to implement a cost-efficient strategy today that supports his bullish outlook for stock prices while waiting for the cash inflow to buy stocks in three months. Specifically, the investor is considering two alternatives that will allow him to take advantage of the leverage offered by either:

1. buying SXM futures contracts, or
2. buying index tracking exchange-traded fund units (ETFs) on margin.

The investor decides to use the SXM futures contract as it provides more leverage with an initial capital outlay (margin required is generally 4% to 15% of the value of the futures contract) that is considerably lower compared to buying ETFs on margin (minimum margin required of 30% of the value of the ETFs).

This strategy is less costly and more efficient than buying index tracking ETFs. If the market rises before the investor receives the $40,000, the futures would also rise, allowing the investor to participate in the advance. Three months later, the investor could purchase the ETFs. The higher price that he would pay for the ETFs would be offset by the profit generated in the SXM futures contract.

If the prices of the index tracking ETFs (and the S&P/TSX 60 Index) decline, the futures contracts would decline in value as well. However, if the investor still wishes to invest in a portfolio of ETFs, the cost of doing so would be lower as well.

The investor, in effect, "locks in" a price for the ETFs using SXM futures contracts, and is able to participate in the market changes with less capital and more efficiency than if he had purchased the ETFs.

Scenario

The investor can either buy one SXM futures contract trading at 800 or buy 2,000 index tracking ETF units at a price of $20 per unit to gain market exposure.

	SXM FUTURES CONTRACT	INDEX TRACKING ETF
Price	800 SXM futures is trading at 800.	$20 per ETF unit
Contract value	$40,000 Trading unit of the SXM futures ($50) X Index price of the SXM futures (800)	$40,000 2,000 ETF units X $20 per ETF unit (market price of ETF unit)
Margin requirements[1]	$1,500 Minimum margin per futures contract required by the clearing house.	$12,000 30% minimum margin required by the broker (30% X $40,000)

Outcome

The SXM futures contract climbs to 840 and the price of the index tracking ETF unit climbs to $21. The investor realizes the same profit using index futures with significantly less capital compared to investing in the index tracking ETF, resulting in a much larger percentage return on capital (133% return on capital by using SXM futures compared to a 17% return using index tracking ETFs).

Profit[2]	$2,000 = 50 X (840 – 800)	$2,000 = 2,000 X (21 – 20)
Profit as a percentage of margin requirement (leverage effect)	133%	17%

1 Margin requirements for SXM futures contracts are subject to revisions depending on market conditions.

2 Excludes transactions costs and interest on margin loan for buying ETFs.

Portfolio Insurance

Hedging a portfolio of high dividend paying stocks

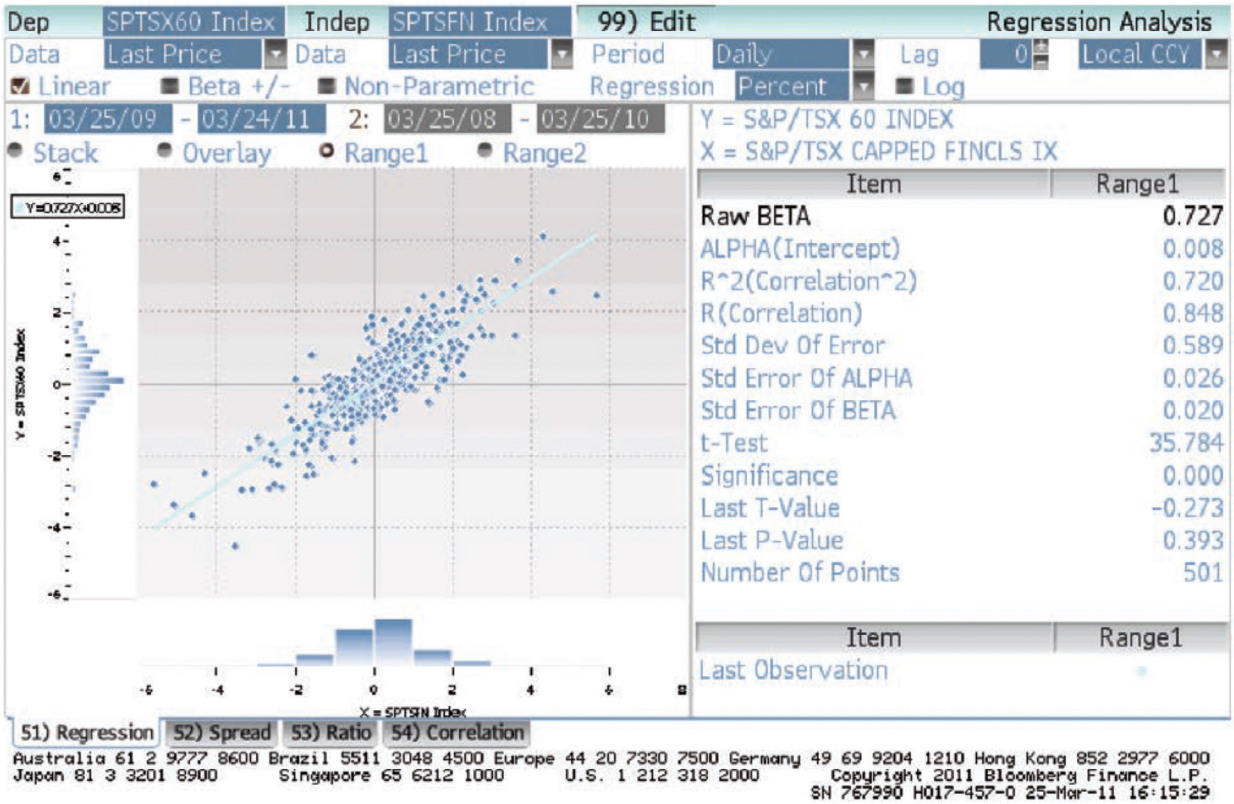
An investor holds a portfolio comprised of high dividend paying Canadian financial stocks with a market value of C$1,200,000. Since the investor expects considerable uncertainty in the Canadian equity markets in the coming months due to heightened global credit concerns, the investor wants to reduce the risk of the portfolio without having to forego dividend income, incur the transaction costs to sell any part of the portfolio and for tax implications. However, the investor does not want to risk relinquishing the potential for a considerable price appreciation in the portfolio should the market continue to rise. Hence, the investor decides to use a low-cost and efficient strategy by hedging (to insure) 60% of the portfolio using stock index futures.

Based on data gathered by the investor showing that the S&P/TSX 60 Index will be closest in terms of correlation to a portfolio of high dividend paying Canadian financial stocks, the investor decides to use SXM futures contracts to hedge the portfolio.

In addition, the investor obtains data confirming that the portfolio of high dividend financial stocks has a beta (sensitivity to the market) of 0.727 relative to the benchmark S&P/TSX 60 Index.

The SXM futures contract is trading at a level of 805 index points and one index point is worth C$50 (for example: a move of one index point from 800 to 801 represents C$50 per contract).

Security	TSX	TSX 60	MID	SMALL	GOLD	FIN	ENGY	IT
11) TSX	1.000	0.992	0.876	0.800	0.245	0.699	0.793	0.277
12) TSX 60	0.992	1.000	0.809	0.736	0.231	0.720	0.779	0.274
13) MID	0.876	0.809	1.000	0.928	0.255	0.524	0.724	0.246
14) SMALL	0.800	0.736	0.928	1.000	0.325	0.418	0.653	0.188
15) GOLD	0.245	0.231	0.255	0.325	1.000	0.027	0.100	0.004
16) FIN	0.699	0.720	0.524	0.418	0.027	1.000	0.437	0.196
17) ENGY	0.793	0.779	0.724	0.653	0.100	0.437	1.000	0.183
18) IT	0.277	0.274	0.246	0.188	0.004	0.196	0.183	1.000



Item	Range1
Raw BETA	0.727
ALPHA(Intercept)	0.008
R^2(Correlation^2)	0.720
R(Correlation)	0.848
Std Dev Of Error	0.589
Std Error Of ALPHA	0.026
Std Error Of BETA	0.020
t-Test	35.784
Significance	0.000
Last T-Value	-0.273
Last P-Value	0.393
Number Of Points	501

Item	Range1
Last Observation	

Source: Bloomberg L.P.

The investor calculates the number of SXM futures contracts required to hedge 60% of the portfolio of high dividend paying Canadian financial stocks as follows:

$$\text{Number of Futures} = \frac{\textbf{Value of Portfolio Exposure}}{\textbf{Value of Futures Contract}}$$

$$\text{Number of Futures} = \frac{\textbf{-Degree of Hedge} \times \textbf{Portfolio Value}}{\textbf{Index Futures Level} \times \textbf{Contract Multiplier}} \times \textbf{Beta}$$

$$\text{Number of Futures} = \frac{\textbf{-0.60} \times \textbf{\$1,200,000}}{\textbf{805} \times \textbf{50}} \times \textbf{0,727}$$

Number of Futures = **-13 contracts**

Hence, the investor needs to sell 13 SXM futures contracts to hedge 60% of the portfolio of Canadian financial stocks.

Index Arbitrage

Deviations from fair value of the SXM futures

A trader observes that the level of the S&P/TSX 60 Index is at 808.20 index points and calculates that the fair value of the SXM futures contract is 805.45 index points. Ahead of an important central bank announcement, the SXM futures contract rises abruptly to 806.50 cutting through several large buy stop orders, while the underlying index remains unchanged at 808.20. As a result, the SXM futures contract is trading 1.05 point above its theoretical fair value price.

	SPOT INDEX LEVEL	FUTURES (ACTUAL TRADING PRICE)	THEORETICAL FUTURES PRICE	FAIR VALUE	DIVIDENDS (IN INDEX POINTS)
S&P/TSX 60	808.20	806.50	805.45	-2.75	4.48
Risk free rate: 0.93 %					
Days to expiration of the SXM futures contract: 84 days					

Source: Montréal Exchange Research Department

To profit from the overpriced SXM futures contract, the trader borrows funds to finance an investment in the underlying stocks of the S&P/TSX 60 Index and sells the overpriced SXM futures. The trader decides to take advantage of the mispriced futures by selling 100 SXM futures contracts at 806.50 and simultaneously buying a basket of stocks that are constituents of the S&P/TSX 60 Index with their corresponding index weighting at a cost reflecting the index spot level of 808.20 index points. The trade is carried until the expiration of the SXM futures contract when the trade is unwound as follows:

Cash leg of the arbitrage trade

With the index levels of the S&P/TSX 60 spot index and SXM futures converging at 820.05 index points at expiry, the trader sells the S&P/TSX 60 Index basket at the spot level of 820.05 for a profit of 14.60 index points (820.05 minus the fair value of 805.45). The fair value of the index reflects the cost of buying the basket of S&P/TSX 60 Index stocks (at a cost that reflects the original index level of 808.20) less the cost of carrying the stocks until the expiration of the futures contract 84 days later (2.75 index points).

Futures leg of the arbitrage trade

The SXM futures contract is cash settled at expiry at a level of 820.05 index points, for a loss of 13.55 index points (the price of 806.50 of the SXM futures contract today minus the price of 820.05 at the expiration of the SXM futures contract).

Profit/loss of the arbitrage trade

Hence, the realized profit is 1.05 index point, reflecting the gain of 14.60 index points on the cash basket (cash leg of the trade) and a loss of 13.55 index points on the index futures (futures leg of the trade).

Details of the arbitrage transaction

Profit / Loss from the Combined Cash Leg and Futures Leg of the Arbitrage Trade

CASH-AND-CARRY TRANSACTION	AMOUNT (IN INDEX POINTS)	REMARKS
Gain on the cash leg of the arbitrage trade	14.60 index points	
Loss on the futures leg of the arbitrage trade	13.55 index points	
Net gain on the combined cash leg and futures leg of the arbitrage trade	14.60 – 13.55 = 1.05 index point	Difference between the gain on the cash leg of the arbitrage trade and the loss on the futures leg of the arbitrage trade

Note

Since each index point for a SXM futures contract is worth C$50 and the number of futures contracts transacted as part of the cash-and-carry arbitrage strategy is 100 contracts, the trader realizes a profit of C$5,250 (1.05 index point X C$50 per index point X 100 contracts) excluding transaction costs.

Cash Leg of the Arbitrage Trade

BASKET OF S&P/TSX 60 INDEX STOCKS TRANSACTION	AMOUNT (IN INDEX POINTS)	REMARKS
Purchase basket of S&P/TSX 60 Index stocks	808.20 index points	Borrow funds to finance the purchase of the basket of stocks at the spot level of the S&P/TSX 60 Index
Financing costs until the expiration of the SXM futures contract	808.20 x (0.0093 x 84/365) = 1.73 index point	Financing costs to fund the purchase of the basket of stocks: Short-term financing rate X Number of days/365
Dividends received	4.48 index points	Dividend income received from the basket of S&P/TSX 60 Index stocks during the holding period
Cost of the cash-and-carry trade (theoretical fair value)	808.20 + 1.73 – 4.48 = 805.45 index points	Investment + Financing - Income
Sale of the basket of S&P/TSX 60 Index stocks 84 days later	820.05 index points	Unwinding of the cash leg of the trade at the spot level of the S&P/TSX 60 Index 84 days later
Gain / Loss Cash leg of the arbitrage trade	820.05 – 805.45 = 14.60 index points	Proceeds from the sale of the basket of stocks at the expiration of the SXM futures contract less the costs incurred to purchase the stocks and hold them until the expiration of the SXM futures contract

Futures Leg of the Arbitrage Trade

INDEX FUTURES TRANSACTION	AMOUNT (IN INDEX POINTS)	REMARKS
Sell SXM futures contracts	806.50 index points	Sell overpriced SXM futures contract that is priced at 1.05 index point above its theoretical price
Buy SXM futures contracts	820.05 index points	Unwinding of the futures leg of the arbitrage trade at the cash settlement price of the SXM futures contract at expiration 84 days later
Gain / Loss Futures leg of the arbitrage trade	820.05 – 806.50 = 13.55 index points	Difference between the initial futures position and the offsetting futures position

Advantages of exchange-traded products

The Montréal Exchange offers a complete index product line that will allow you to implement any of the above strategies. When considering these alternative venues, investors should fully appreciate that the exchange mechanism offers some unique advantages. The clearing corporation's rigorous margining system, which settles cash flow and obligations on a daily basis, is the primary safeguard that ensures that profitable positions will, in fact, realize the gains that they are due. Because the clearing corporation effectively serves as the buyer to all sellers and the seller to all buyers, the risk of counterparty default is eliminated.

Aside from the credit risk considerations, the concentration of trading activity in standardized exchange contracts generally translates to better liquidity, tighter bid-ask spreads, lower transaction costs and unquestionably greater price transparency than will be the case with the over-the-counter alternatives.

Canadian Derivatives Clearing Corporation (CDCC)

The Canadian Derivatives Clearing Corporation (CDCC) acts as the central clearing counterparty for exchange-traded derivative instruments listed on the Montréal Exchange. CDCC also clears over-the-counter financial instruments through its Converge® clearing service.

CDCC requires each clearing member to maintain margin deposits to cover the risk associated with each participant's position. The risk assessment is based on a set of well-defined criteria established by CDCC. Margins are collected daily or more frequently during periods of high market volatility.

As a central clearing counterparty, CDCC ensures the integrity and stability of the canadian derivatives market by assuming the related obligations of a defaulting clearing member towards other clearing members. To ensure its ability to fulfill its obligations, CDCC maintains a rigorous risk management process.

For more information

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