

MONTRÉAL EXCHANGE

Cost of Trading: a Cash Market vs Futures Market Comparison



Introduction

An investor wondering which instrument offers the best solution for exposure to the S&P/TSX 60 can readily access two markets: the cash market and the futures market.

This report presents an all-inclusive cost comparison between achieving this exposure through an ETF, iShares S&P/TSX 60 Index ("XIU") or the S&P/TSX 60 Index Standard Futures ("SXF").

Different strategies have different cost structures. As an overview, the Montreal Exchange ("MX") provides the cost breakdown of 3 strategies:

- Fully funded long position
- Leverage short position
- 2x leverage long position

Given the following general assumption and average costs, **SXF is the optimal instrument, presenting a significant cost advantage in most scenarios.**

General Assumptions

Our hypothetical investors want an exposure of CAD 1 million that will be held for a 1-year period starting in January. They should expect two types of costs: transaction costs and holding costs. The following costs and market quotes were observed on November 25, 2019:

Transaction Costs of a Cash Position

An institutional investor pays 0.5 to 2 cents per share traded in the cash market. We assume that our investor's cost is mid-range, so 1.25 cents per share traded. With XIU trading at \$25.70, an exposure of \$1,000,000.00 carries a round-trip cost of approximately \$490.00¹. In basis points ("bps"), an investor using XIU has a trading cost of 9.7 bps.

Market slippage must also be included as a transaction cost. A simple way to define market slippage is as the normalized bid/ask spread of an instrument. This measure, in basis points, indicates how much it would cost to enter and exit a certain position. An amount of \$1,000,000.00 in XIU currently trades with a normalized bid/ask spread of 4 bps.

Transaction Costs of a Futures Position

An institutional investor pays, on average, an all-inclusive cost of \$2.50 per futures contract traded. Given its multiplier of 200x, a \$1,000,000.00 position has a trading cost of \$12.28 using SXF contracts.²

This is a round-trip cost of 0.25 bps, to which market slippage must also be added, as previously discussed. Given an average bid/ask spread of 0.1 index points, an additional 1 bps is added to the total transaction costs of the futures contract.

Moreover, as opposed to the cash market, future contracts periodically expire. Every 3 months, the futures holder who wants to keep his position needs to roll over (i.e. close his front month position and open a back month position) to the next expiration date, generating a new round-trip cost.

Holding Costs of a Cash Position

The management fee represents a linear expense accrued on a daily basis. XIU has an annual Management Expense Ratio ("MER") of 18 bps.³

According to the XIU manager's website: MER includes all management fees and GST/HST paid by the fund for the period, and includes any fees paid in respect of the fund's holdings of other ETFs.

1. $(1,000,000.00/25.70) \times \0.0125

2. $(1,000,000.00/[1018 \times 200]) \times 2.50$

3. <https://www.blackrock.com/ca/individual/en/products/239832/ishares-sptsx-60-index-etf>

Holding Costs of a Futures Position

One central characteristic of a futures contract is the possibility of leverage. With no cash exchange at the beginning of the transaction, an investor only needs to deposit a margin of about 4%⁴ to hold a short or a long position.

A futures contract holder is implicitly paying the seller to replicate the index with the seller's money. Hence, the futures contract's fair value is based on the dividend expectations of the seller and his borrowing cost.

Because this cost becomes more obvious during the roll over period, investors usually refer to this implied borrowing cost as the "roll cost".

When this implied borrowing cost is below (above) the prevalent 3-month (3m) rate, the futures contract is said to be trading "cheap" ("rich").

A fully funded investor holding a long position on the futures contract will outperform (underperform) the reference index by the spread between the implied borrowing cost and the prevalent 3m rate that he can invest (borrow) on the market. This happens because he receives the 3m market rate on his margin deposit and implicitly pays (receives) the 3m + richness (cheapness) on the futures position.

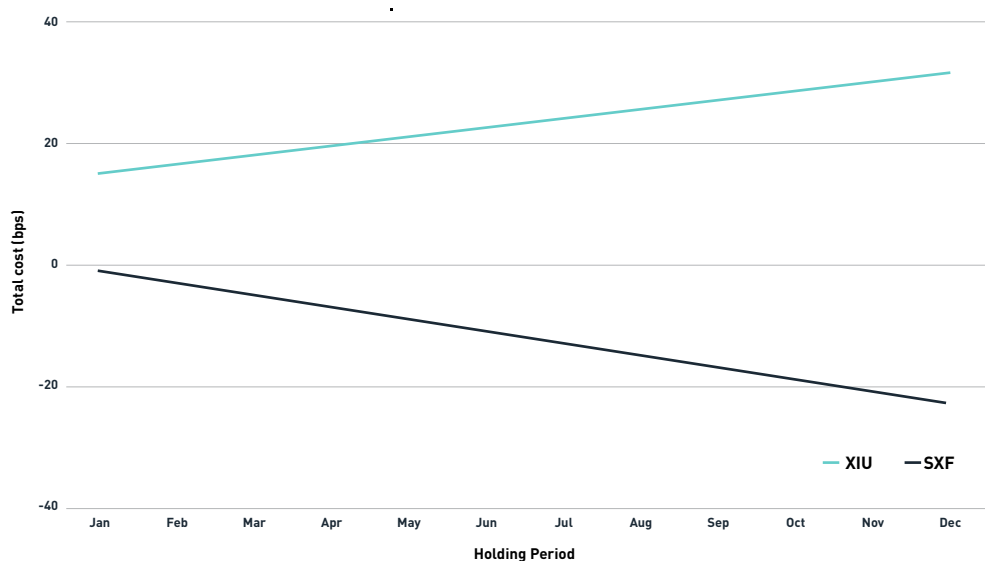
This implied borrowing cost can vary dramatically throughout time due to shifts in supply and demand for futures contracts. Over the last 5 years,⁵ the SXF has consistently traded "cheap" (implying a borrowing cost lower than the prevalent 3m market rate) with an annualized "cheapness" varying from -0.65 to 49.78 basis points. For this comparison, the average 25 bps cheapness is used, which implies that a long position on SXF will outperform its reference index, S&P/TSX 60, by 25 bps per year.

Fully Funded Long Investor

Assuming that the annual costs of a fully funded long position is the sum of transaction cost + holding cost, Chart 1 provides clear evidence of the advantages of using SXF over XIU.

In fact, XIU will underperform the reference index (without considering any tracking error) by about 30 bps annually due to the management fees that are accrued on a daily basis. On the other hand, SXF is expected to outperform the same reference index by about 20 bps due to its cheapness and lower initial transaction costs, creating a spread between the two investment vehicles of almost 55 bps at the end of the year.

Chart 1: Fully Funded Long Position – XIU vs SXF



Source: Montréal Exchange

4. https://reg.m-x.ca/en/regulatory/futures_margins

5. <http://grid.investor.com/PaceOfRoll/en/#/?product=SXF&period=20191202-20191219&date=2019-11-25>

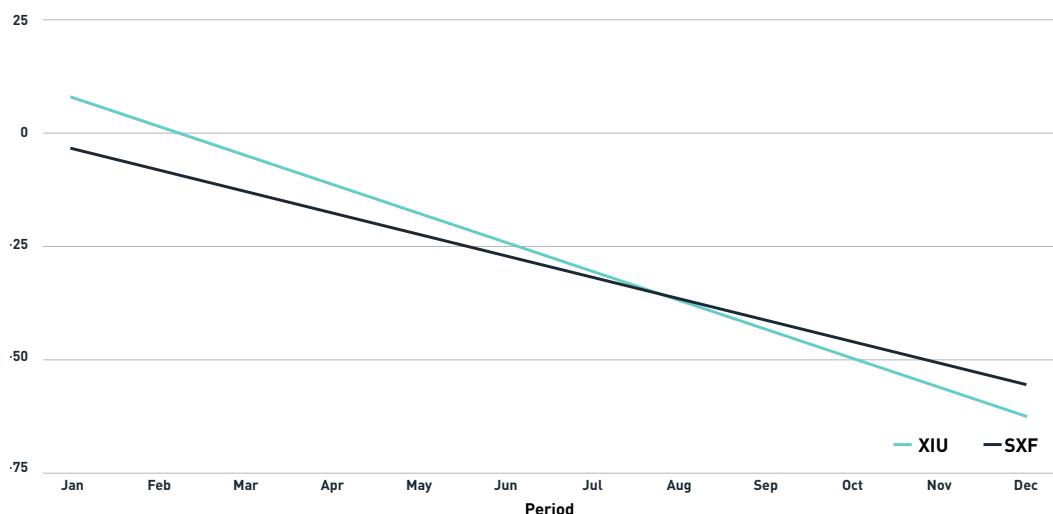
A Leverage Short Position

When an investor decides to short sell an ETF, he is inherently carrying a leverage position on his books. A prime broker will usually demand a deposit between 30% to 50% on top of the full capital received by the selling. Assuming a deposit of 50%, this requirement is effectively generating a 2x leverage effect⁶. Unlike in the case of the long position, the underperformance caused by the management fee plays to the advantage of the seller, partially offsetting his transaction costs. On top of that, two other sources of revenue (costs) need to be considered.

First, the investor is remunerated at the prevalent 3-month market rate on the required 50% deposit. Moreover, to engage on a short position, the investor needs to borrow the stocks from the prime broker, generating a security borrowing cost. Presently, the current net borrowing fee for XIU is about 25 bps per year.⁷

One of the advantages of using a futures contract is the ease with which one can short sell a position. Unlike a cash product, there is no need to borrow the security, thus eliminating the security borrowing cost. On the other hand, the observed “cheapness” of the SXF contract becomes a drag on the short position, generating an underperformance across time. The SXF, like XIU, also receives the 3m market rate on the 50% deposit. Chart 2 presents the annual cost comparison between a short position using XIU and SXF.

Chart 2: 2x Leverage Short Position – XIU vs SXF



Source: Montréal Exchange

Both positions largely benefit from the return generated on the capital invested at the 3m market rate. Although the effect is less pronounced than in the case of a fully funded long position, using SXF to achieve a short exposure is still cheaper than using XIU if the investor plans to hold the position for less than 9 months. After 9 months (i.e. 3 roll overs), due to the drag caused by the cheapness of the SXF contract, the XIU becomes slightly more attractive (i.e. outperforming the SXF position by 7 bps after 1 year).

2x Leverage Long Investor

The investor that decides to use XIU in a leverage scenario needs to borrow 50% of his position from the broker. A prime broker usually offers a line of credit to allow for leverage. Assuming that this line of credit costs 40 bps on top of the 3-month market rate, the cash investor will have the same cost structure as the fully funded one, plus the borrowing cost on half of his position.

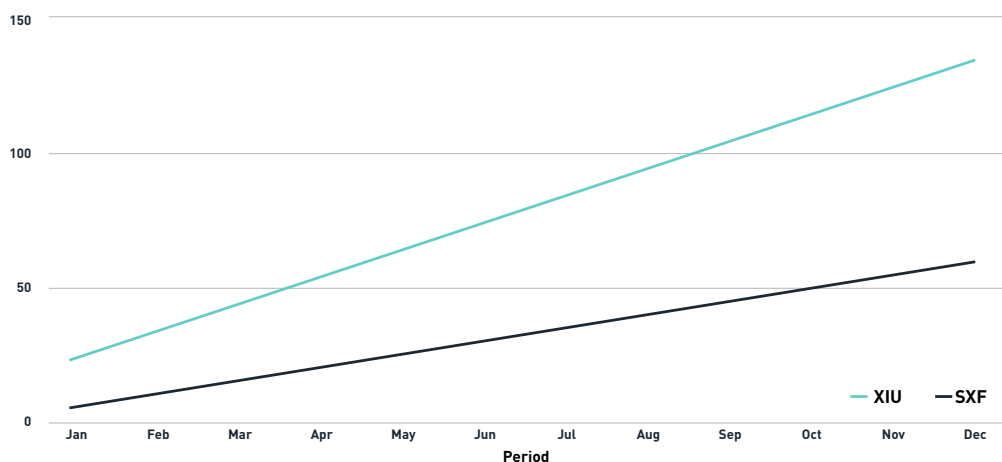
The futures investor, on the other hand, doesn't need to borrow any extra funds. The 50% that he deposits fully covers the margin requirement previously discussed. However, unlike what we see in the fully funded scenario, the investors won't be able to fully offset the implied cost of the futures contract. In fact, the 50% deposit only

6. Our investor will have to deposit \$500,000.00 to short sell a \$1,000,000.00 position.

7. The net borrowing fee is how much the investor pays for the position, considering the borrowing cost minus the remuneration received on capital received minus the remuneration.

covers half of the implied borrowing cost. In practice, the final result is that the 2x leverage long investor that uses a futures contract has the same cost as the fully funded one, with the addition of the interest expense paid on the (missing) 50% deposit.

Chart 3: 2x Leverage Long Position – XIU vs SXF



Source: Montréal Exchange

Chart 3 shows a spread similar to the one found in the first example. As in the fully funded case, SXF consistently outperforms XIU thanks to the lack of management fees and its cheapness. Although the cost of funding on the 50% of the capital borrowed from the prime broker creates a drag on SXF's return, it is still more attractive than the cash solution.

Conclusion

This study does not presume to cover all the cost variations that different investors might face. What's more, the results presented are based on average costs and can vary significantly on a case-by-case basis. However, it should be clear that thanks to its structural cheapness and significantly lower cost of trading, using the SXF contract to achieve an exposure to the S&P/TSX 60 outperforms the use of XIU in the majority of scenarios. The SXF contract offered by the Montreal Exchange is not only the ideal tool to manage risk, but also an optimal vehicle for investors in search of this type of exposure.

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