MONTRÉAL EXCHANGE

Cross-Border Investments and FX Risk

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In the global economy of the 21st century, investors are compelled to look across borders in search of investment opportunities. Given the economic relevance of our southern neighbour, Canadian investors have a natural tendency to look at U.S. listed companies when deciding where to allocate part of their investments.

An investor who decides to invest in a U.S. dollar-denominated investment vehicle needs to be aware of the foreign exchange ("FX") risk that this will entail. Currency options allow Canadian investors to implement hedging strategies with the same ease of execution as buying stocks and ETF options.

The Montréal Exchange has listed options on the U.S. dollar (USX)[1] for the purpose of hedging this cross-country currency risk. USX options are explained in further detail[2] in the Education section of MX's website.

A Protective Put Strategy Using USX

A Canadian decides to invest US$100,000.00 in a portfolio of U.S.-listed companies on March 30, 2017. On this date, the USD/CAD rate[3] is 1.3304, which means that the investor would need to fund C$133,040.00 to acquire this foreign currency-denominated portfolio.

Seeking exposure to the broad U.S. market, the investor buys units of an ETF, SPDR® S&P® 500 (SPY), for an amount of US$100,000.00. On March 30, 2017, she pays US$236.29 per unit of the ETF[4] and holds them until September 5, 2017, when she sells them for US$246.06. This transaction generates a profit for the period of 4.13% (US$246.06/US$236.29) in U.S. dollars.

However, the result is not as appealing once the FX variation is taken into account. In fact, over the same period, the U.S. dollar lost 7% (1.2371/1.3304) of its value against the Canadian dollar, with the USD/CAD dropping to a rate of 1.2371.

TABLE 1

Cross-Country Unhedged Investment

	Value of the Investment in the Foreign Currency	USD/CAD Rate	Value of the Investment in the Local Currency
March 30, 2017: Initial date of the investment SPY quote: US$236.29	US$100,000.00	1.3304	C$133,040.00
September 5, 2017: Closing date of the investment SPY quote: US$246.06 (4.13%↑)	US$104,134.75 (4.13%↑)	1.2371 (-7.01%↓)	C$128,825.10 (-3.17%↓)

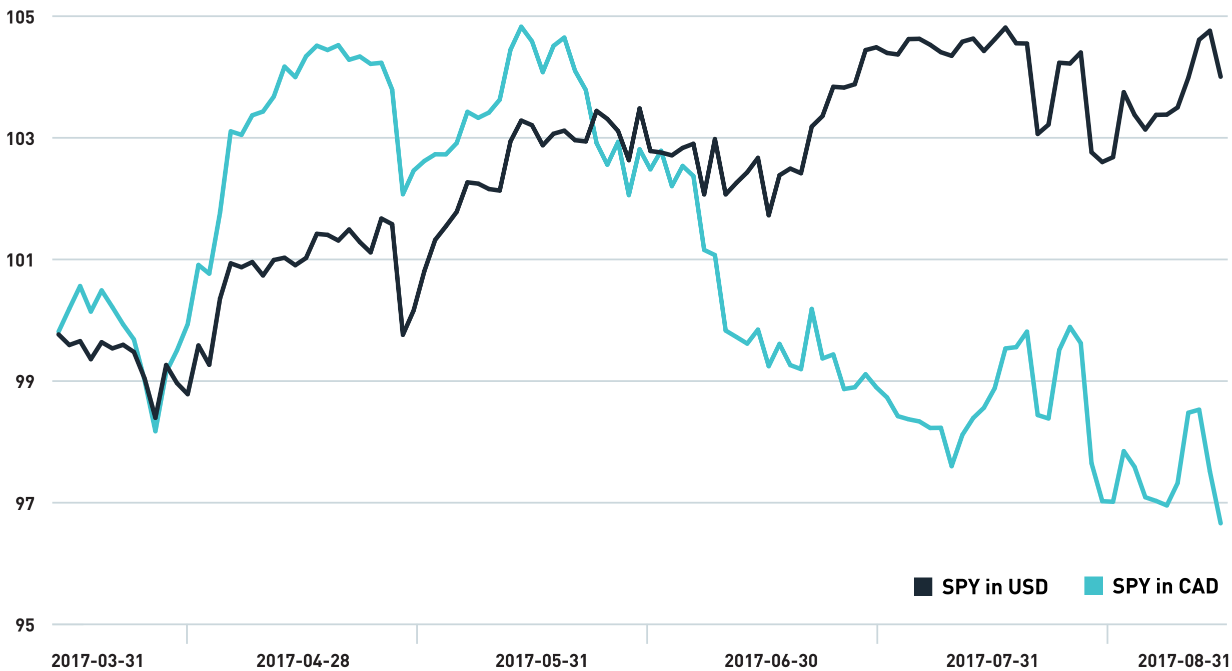
Table 1 shows that, although the investment was profitable in U.S. dollars, when converted to Canadian dollars, it becomes unprofitable (net loss of -3.17%).

To calculate her gain on the investment in the foreign currency base, the investor only needs to look at the increase in the value of SPY units. However, since the investor intends to convert her investment back to CAD, she needs to adjust the final value of her portfolio (US$104,134.75) by the FX rate on the day of conversion (1.2371) to arrive at the value of her portfolio in CAD (US$104,134.75 X 1.2371 = C$128,825.10).

Instead of a gain of 4.13%, the investor ends up incurring a loss of 3.17% (C$128,825.10/C$133,040). Chart 1 shows why it is paramount to take FX risk into consideration when making cross-country investments.

1 m-x.ca/usx
2 https://m-x.ca/f_publications_en/currency_options.pdf
3 https://www.bankofcanada.ca/rates/exchange/daily-exchange-rates/
4 https://web.tmxmoney.com/quote.php?locale=en&qm_symbol=SPY:US

CHART 1
SPY return in USD vs. SPY return in CAD



Now let us say that the same investor, aware of the risk of incurring a loss due to FX fluctuations, decides to use USX as a hedging tool. There are different methodologies for deciding how many contracts of an FX option the investor needs to buy to hedge her currency exposure. A simple method takes into consideration the size of the portfolio and divides it by the notional (i.e. the trading unit) of the option contract. Given the notional of her position and the size of the USX contract[5], the investor needs to buy 10 puts (US$100,000.00/US$10,000.00) if she wants to fully hedge her exposure.

To completely neutralize the FX risk, an investor would be required to buy "at-the-money" (ATM) USX options. Given the natural fluctuations in the FX market and to avoid overspending on options with a high premium cost, she concludes that she is willing to bear up to 2% of the FX risk.

At the current rate of 1.3304, a 2% drop means that the investor would be looking to buy the USX put "out-of-the-money" (OTM) closer to 1.3038 (i.e. 1.3304 x (100%-2%) = 1.3038).

The investor knows that in September she will need to withdraw her investments to pay off some debt. She concludes that the best period to close her position is by mid-September, hence she decides to buy 10 put contracts of USX 170915P130.00 quoted at 1.36 Canadian cents per U.S. dollar, at a cost of C$1,360.00 (10 contracts x 1.36 per contract x US$10,000 × C$1/100 Canadian cents)[6] and expiring on September 15, 2017.

On September 5, when the investor decides to close her position (SPY + USX puts), the put is quoted at 6.150 Canadian cents per U.S. dollar. Selling her USX position generates a gain of C$4,790.00 (C$6,150.00-C$1,360.00), completely offsetting the FX losses. By increasing her initial investment cost by 1% (C$1,360.00/C$133,040.00), the investor managed to offset her FX risk.

5 https://m-x.ca/produits_options_devises_en.php
6 For more detailed information on how to calculate the cost of a USX option, see page 4 of the USX manual at: https://m-x.ca/f_publications_en/currency_options.pdf

TABLE 2

Cross-Country Hedged Investment

	Value of the Investment in the Foreign Currency	USD/CAD Rate	Value of the Investment in the Local Currency	USX Premium	Value of the Investment Hedged Using USX
March 30, 2017: Initial date of the investment SPY: US$236.29	US$100,000.00	1.3304	C$133,040.00	C$1,360.00	C$134,400.00
September 5, 2017: Closing date of the investment SPY: US$246.06 (4.13%↑)	US$104,134.00 (4.13%↑)	1.2371 (-7.01%↓)	C$128,825.10 (-3.17%↓)	C$6,150.00 (352.20%↑)	C$134,975.00 (0.43%↑)

Table 2 presents the results of adding a protective put to the investor's SPY position.

Conclusion

Instead of losing 3.17% due to FX fluctuations on her long SPY position, the savvy investor who decides to use an OTM USX to construct a protective put position ends up making 0.43% on her investment, a positive difference of 3.60%. This result is possible without sacrificing any potential upside of her SPY position, thanks to the "optionality" characteristic of a protective put strategy. In the event that the USD/CAD rate had become more favourable to her, she would fully benefit, limiting her loss on the USX position to her initial invested capital (i.e. C$1,360.00).

This example demonstrates the mechanics of hedging a cross-currency exposure with USX. Such a hedge is accessible to any investor willing to delve deeper into the world of derivatives.

For more information

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