

The Nasdaq-100 in Canada: To Hedge or Not to Hedge Currency Exposure

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Why Gain Exposure to the Nasdaq-100?

If you ask almost anyone to name the biggest driver of change today, there is typically one common answer: technology. The pace of innovation has been increasing exponentially for decades. As a result, it is transforming nearly every industry and redefining how we live, work, and play. Companies like Apple, Facebook, Amazon, and Google have not only been changing our everyday lives, but they've been driving the growth of the technology sector for years. And while the names of those in the forefront may change over time, one thing that is highly unlikely to change is the growing dependency on technology by businesses and consumers alike. The Nasdaq-100 Total Return Index (XNDX) captures that theme. Canadian investors can gain exposure to the Nasdaq-100 through both traditional and currency-hedged ETFs. The question remains whether to hedge or not to hedge currency risk.

This research will introduce the Foreign Exchange market and discuss the benefits and drawbacks of currency hedging in different market environments. In addition, it will discuss how the Nasdaq-100 performed both in CAD and on a currency-hedged basis. The purpose of this piece is to give Canadian Investors a broader understanding of what the Nasdaq-100 has to offer compared to competing indexes and how best to gain exposure to the Index.

The Foreign Exchange (FX) Market

Although it is not typically as popular of a talking point as traditional asset classes, such as Equities and Bonds, the Foreign Exchange (forex or FX) market is the largest and most liquid financial market in the world. It is a decentralized or over-the-counter (OTC) global market for the trading of currencies, and was created to facilitate the flow of capital from international trade. The FX market trades 24 hours a day from 5 p.m. on Sunday until 4 p.m. on Friday EST, mostly electronically. Daily trading volume in the forex market tops roughly \$5 trillion¹. The participants include, but are not limited to, commercial banks, investment banks (including FX brokers and traders), central banks, multi-national corporations and hedge funds, as well as small businesses and individual investors.

During the years following the financial crisis, volatility in the FX market was essentially non-existent. Central banks were flooding the bond market with excessive liquidity in order to keep interest rates at record low levels, which also kept the majority of foreign exchange pairs in historically tight trading ranges. The current market environment, however, is much different. During 2018, the volatility in Emerging Market currencies exploded, particularly in Turkey, which saw the Lira devalue by roughly 40% YTD (as of mid-August 2018). A number

¹ <https://www.bbva.com/en/foreign-currency-market-work/>

of factors, including heating global trade tensions, a withdrawal of stimulus from global central banks, and increased market volatility in other markets such as equities and commodities may have caused this rise in the FX market's volatility. The volatility has since returned to a normal level but the takeaway is that heightened volatility in the FX market can occur at any time and can be triggered by various factors.

The Benefits and Drawbacks of Currency Hedging

Whether to currency-hedge or not depends on the future performance of the local currency against the investment currency. Suppose, for instance, that the Canadian dollar depreciated against the U.S. dollar. This would result in a more expensive U.S. dollar for Canadians. However, had an investor in Toronto owned U.S. stock then she would get more money when she sells stock in USD and converts it back to CAD at a higher exchange rate. This is simply because the same amount of USD would be worth more when converting back to CAD. In this case, an unhedged strategy would perform better than its currency-hedged counterpart would. On the other hand, if the CAD strengthens against the USD, then the U.S. dollars that she would receive after selling her stock would be worth less in CAD because the U.S. dollar depreciated against the CAD. This is the fundamental currency risk—which is only one layer of the international investment's total risk—that investors face when entering a foreign market.

The key benefit of currency-hedged strategies is that they provide exposure to the business only. By protecting against currency risk, the underlying stocks provide investors with returns that are solely dependent on the companies' sales, earnings and dividends—regardless of currency fluctuations. Investors can leverage currency-hedged strategies when their local currency is strengthening against their investment's currency. That way, investors will prevent their international stocks from depreciating against their local currency.

The main downside of currency hedging is that it limits gains: by removing the risk of losses due to currency fluctuations, this also has the effect of capping gains. Essentially, if the movement of both the investment and the currency pair work in the investor's favor (stocks rise and the local currency depreciates against the investment currency), a traditional strategy will perform better than its currency-hedged equivalent. Of course, the inverse is also true—if the investment declines and the investment's currency depreciates against the investor's local currency (both movements would hurt the investor), the two negative hits together would magnify losses. Thus, by protecting against currency risk, currency-hedged strategies also limit gains (and losses).

Introducing the Nasdaq-100 Currency Hedged CAD Total Return Index

How does the Nasdaq-100 Currency Hedged CAD Index execute a currency-hedging strategy? This concept, in short, removes currency risk of the Nasdaq-100 index so an investor tracking the index is only subject to the performance of the underlying components. This research article will illustrate how the Nasdaq-100 Currency Hedged CAD Total Return Index behaves against the unhedged version of the Index in CAD vs. USD, as well as against competing indexes. Additionally, it will provide examples that show the benefits and drawbacks of gaining exposure to an Index that has a currency-hedging process implemented into the methodology.

The Nasdaq-100 Currency Hedged CAD Index (the "Hedged Index") is designed to represent returns for the Nasdaq-100 Index (the "Underlying Index") and global investment strategies used on the Underlying Index that involve hedging currency risk, but not the underlying constituent risk. The hedge ratio of the Index is the proportion of the portfolio's currency exposure that is hedged. The Index uses a hedge ratio of 100%. By selling foreign exchange forward contracts, global investors are able to lock in current exchange forward rates, and manage their currency risk. Profits (losses) from the forward contracts are offset by losses (profits) in the value of the currency, thereby negating exposure to the currency.

Equity Exposure: Nasdaq-100 CAD (traditional and currency-hedged) vs S&P/TSX 60 Historical Performance Comparison: January 8, 2010 –January 25, 2019

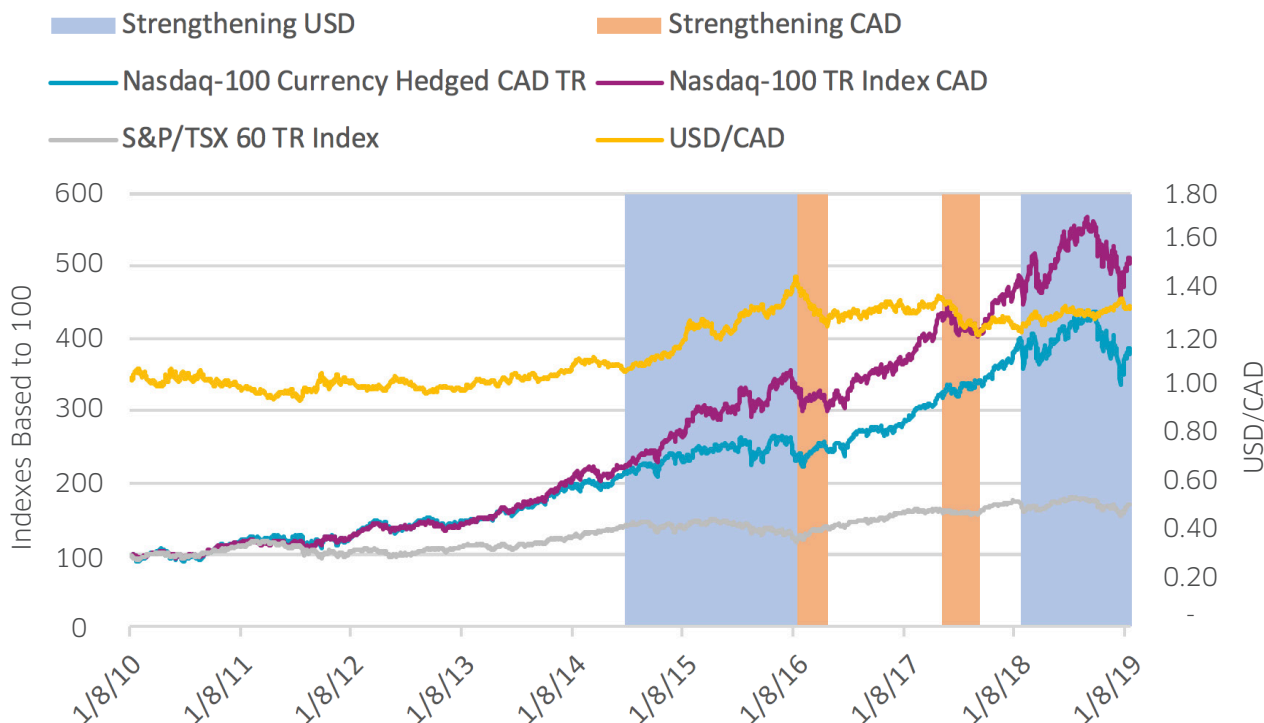
In order to get a better idea of how a foreign exchange rate can influence performance of a particular index, we ran some analysis on the below indexes to help display the benefits of the currency hedging

dynamic: Nasdaq-100 Currency Hedged CAD Total Return Index vs. Nasdaq-100 Total Return Index CAD, which does not implement an FX hedging process. We also provided the S&P/TSX 60 Total Return Index to give an indication of how the Nasdaq-100 indexes perform against the barometer for the Canadian Equity Markets. During this time frame, the USD/CAD was up 28% (indicating a strengthening U.S. Dollar) highlighted in yellow below. The top performer was the Nasdaq-100 TR Index CAD, gaining 411% (in purple below), while the Nasdaq-100 Currency Hedged CAD TR Index gained 286% (in blue below). The difference can be attributed to the large depreciation move in the Canadian Dollar.

| | NASDAQ-100 CURRENCY HEDGED CAD TR | NASDAQ-100 TR CAD | S&P/TSX 60 TR | USD/CAD |
|-----------------------|---|-------------------|---------------|---------|
| Cumulative Return | 286% | 411% | 71% | 28% |
| Annualized Return | 16% | 20% | 6% | 3% |
| Annualized Volatility | 18% | 17% | 13% | 8% |

In the graph below, the shaded areas in light blue below indicate a strengthening U.S. Dollar while the areas shaded in orange reflect a strengthening Canadian Dollar. For instance, between July 2014 and late January 2016, the USD/CAD FX rate (in yellow below) increased from 1.06 to 1.45. During that same time, the Nasdaq-100 TR Index CAD (purple)–bolstered by a strong USD–outperformed the currency-hedged Index (blue). Yet this trend reversed immediately after. From late January 2016 to the end of April 2016, the USD/CAD rate decreased to 1.26 from its peak, reflecting a strengthening Canadian Dollar. Meanwhile, the Nasdaq-100 Currency Hedged CAD TR Index advanced 5% while the traditional Nasdaq-100 TR CAD slid -8% for that same period. Nevertheless, note that both the currency-hedged and traditional Nasdaq-100 TR CAD indexes outperformed the S&P/TSX 60 TR Index (gray) by 215% and 340%, respectively, for the entire period studied.

Cumulative Performance



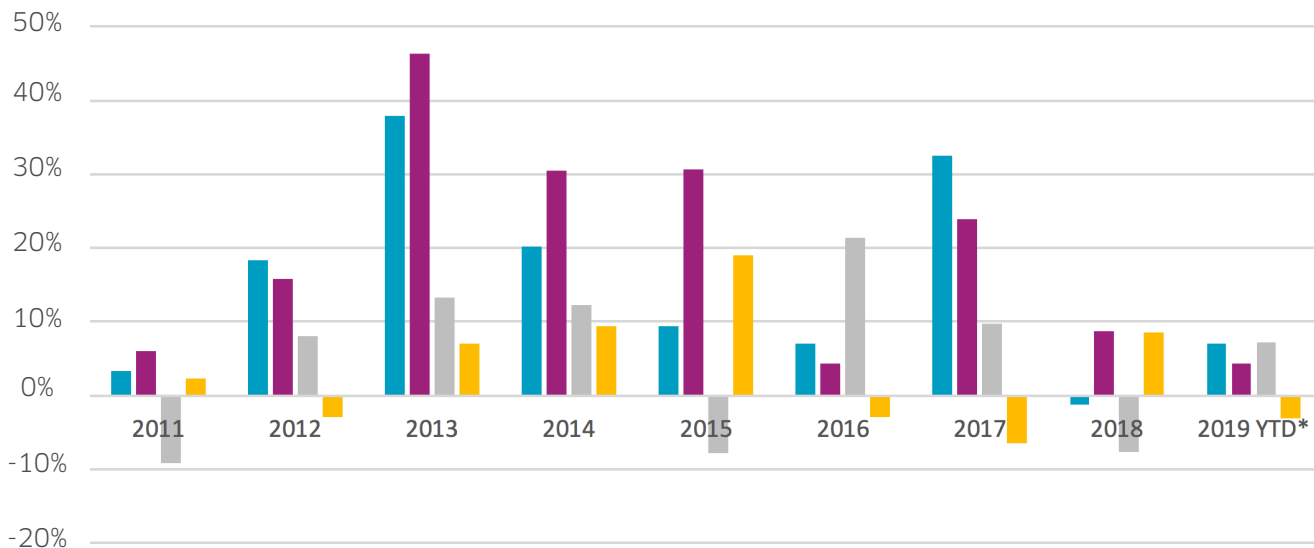
Annual Performance: Calendar Year

The table below breaks down the annual returns, and helps tell the story of the benefits of currency hedging. Notice the three years (2012, 2016, and 2017) which had a declining USD/CAD spot rate all saw the Nasdaq-100 Currency Hedged CAD TR outperform the Nasdaq-100 TR Index CAD. The rest of the years, in particular 2015 all saw a stronger U.S. Dollar, which of course had a negative effect on the Nasdaq-100 Currency Hedged CAD TR due to the short U.S. Dollar hedge.

| | NASDAQ-100 CURRENCY HEDGED CAD TR | NASDAQ-100 TR INDEX CAD | S&P/TSX 60 TR INDEX | USD/CAD |
|-----------|---|----------------------------|---------------------|---------|
| 2011 | 3% | 6% | -9% | 2% |
| 2012 | 18% | 16% | 8% | -3% |
| 2013 | 38% | 46% | 13% | 7% |
| 2014 | 20% | 30% | 12% | 9% |
| 2015 | 9% | 31% | -8% | 19% |
| 2016 | 7% | 4% | 21% | -3% |
| 2017 | 32% | 24% | 10% | -6% |
| 2018 | -1% | 9% | -8% | 8% |
| 1/25/2019 | 7% | 4% | 7% | -3% |

Annual Performance

■ Nasdaq-100 Currency Hedged CAD TR ■ Nasdaq-100 TR Index CAD ■ S&P/TSX 60 TR Index ■ USD/CAD

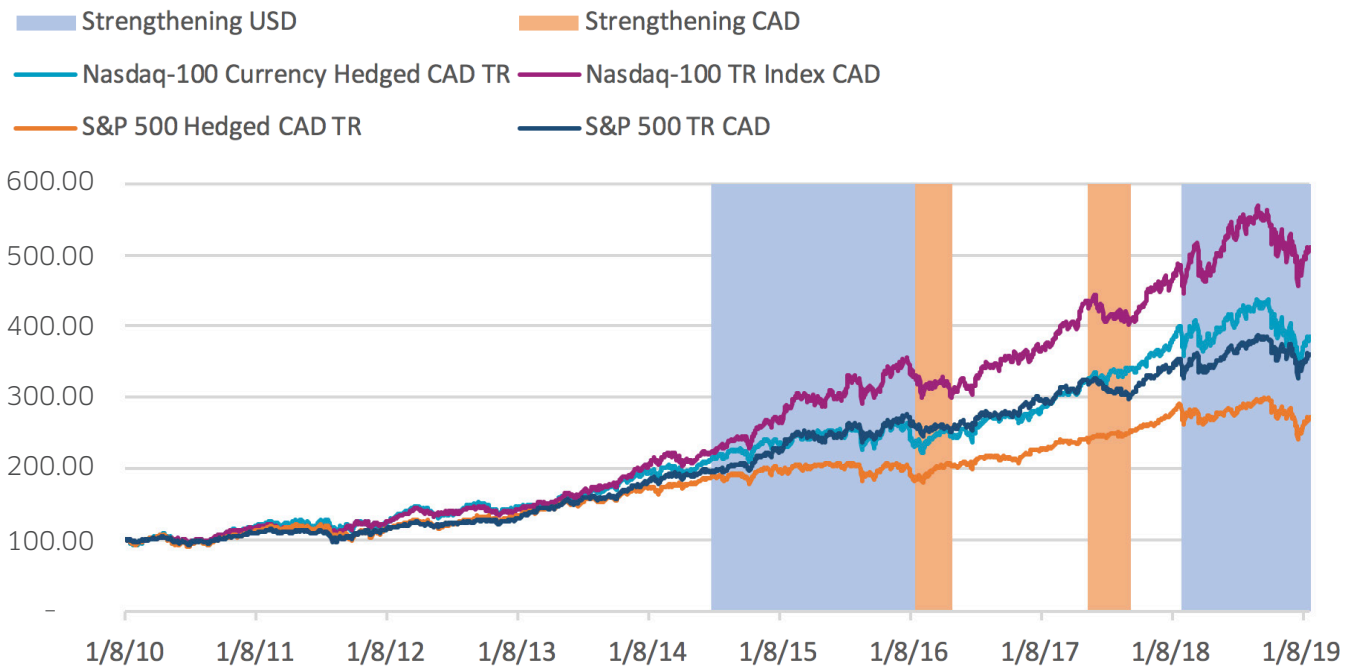


US Exposure: Nasdaq-100 vs S&P 500 Peer Comparison: January 8, 2010 – January 25, 2019

Next, we will take the Nasdaq-100 Currency Hedged CAD Total Return Index, the Nasdaq-100 Total Return Index CAD, the S&P 500 Hedged Canadian Dollar Total Return Index, and the S&P 500 Total Return Index CAD. The Nasdaq-100 TR Index CAD was once again the top performer, followed by the Nasdaq-100 Currency Hedged CAD TR. It is important to note here that in either fashion, a Canadian investor looking for U.S. equity exposure would have been better off choosing a Nasdaq-100 portfolio, irrespective of the decision of choosing to hedge or not to hedge currency exposure.

| | NASDAQ-100 CURRENCY HEDGED CAD TR | NASDAQ-100 TR CAD | S&P 500 HEDGED CAD | SPXTR (CAD) |
|-----------------------|-----------------------------------|-------------------|--------------------|-------------|
| Cumulative Return | 286% | 411% | 172% | 261% |
| Annualized Return | 16% | 20% | 12% | 15% |
| Annualized Volatility | 17% | 16% | 15% | 14% |

Cumulative Performance

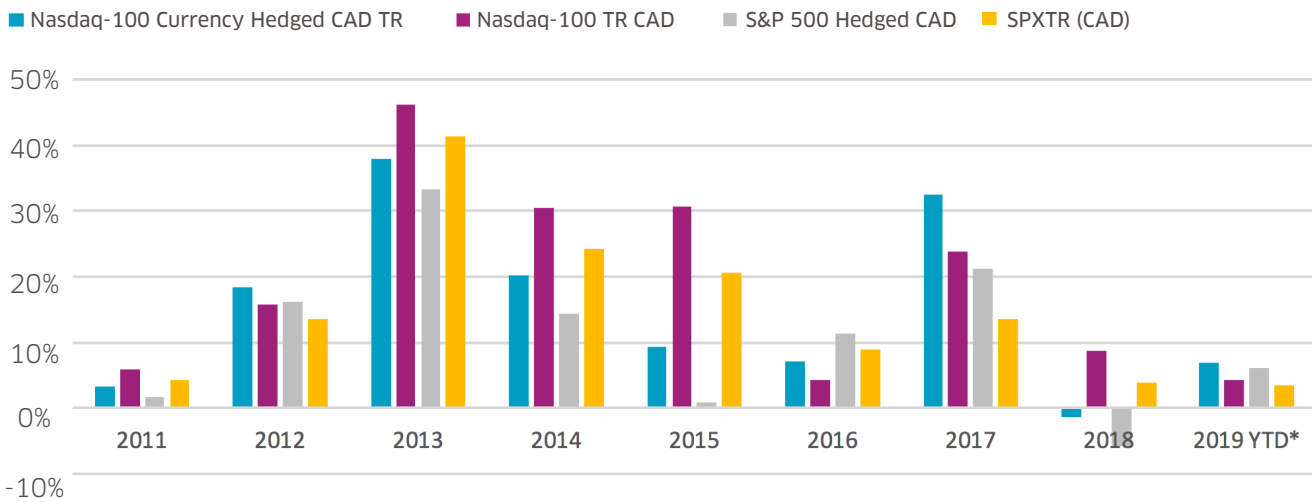


Annual Performance: Calendar Year

The table below breaks down the annual returns for the above-mentioned indexes.

| | NASDAQ-100 CURRENCY HEDGED CAD TR | NASDAQ-100 TR CAD | S&P 500 HEDGED CAD | SPXTR (CAD) |
|-----------|--|--------------------------|-------------------------------|--------------------|
| 2011 | 3% | 6% | 2% | 4% |
| 2012 | 18% | 16% | 16% | 14% |
| 2013 | 38% | 46% | 33% | 41% |
| 2014 | 20% | 30% | 14% | 24% |
| 2015 | 9% | 31% | 1% | 21% |
| 2016 | 7% | 4% | 11% | 9% |
| 2017 | 32% | 24% | 21% | 13% |
| 2018 | -1% | 9% | -6% | 4% |
| 1/25/2019 | 7% | 4% | 6% | 3% |

Annual Performance

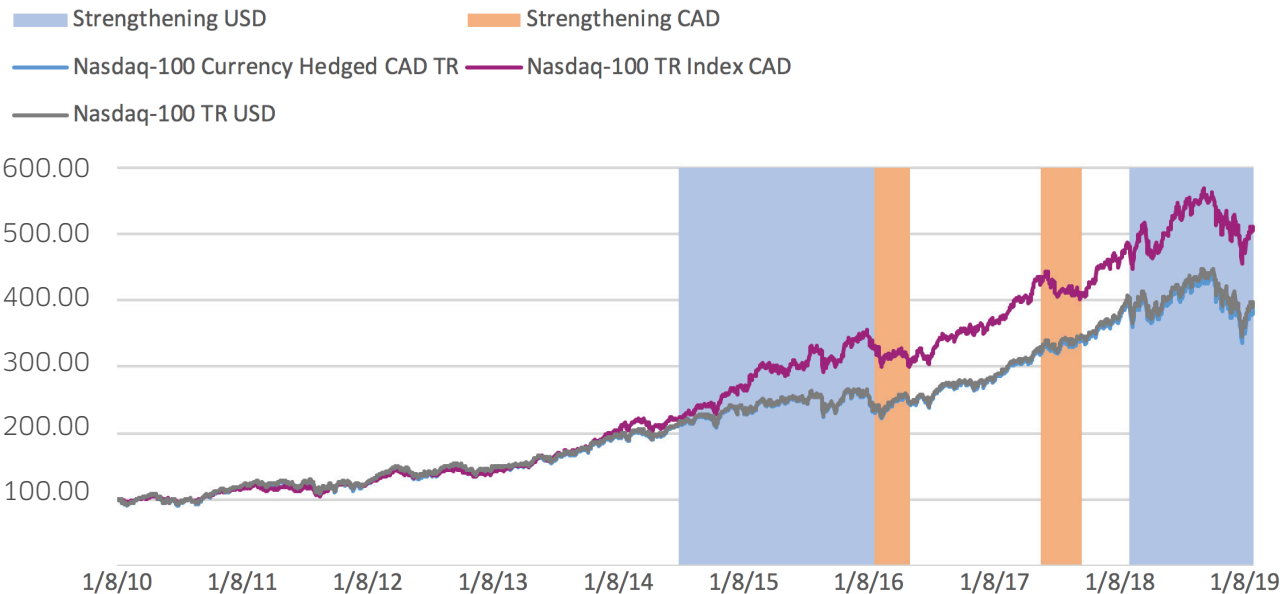


**Nasdaq-100: in USD, in CAD, currency hedged to CAD
Final Comparison: January 8, 2010 – January 25, 2018**

To complete our analysis, we have added in the Nasdaq 100 Total Return Index in USD against both the Nasdaq-100 TR Index CAD and the Nasdaq-100 Currency Hedged CAD TR. The point to show here is how similar the standard Nasdaq-100 Total Return Index in USD performed in relation to the currency hedged CAD version of the Index—looking at the table and chart below on a cumulative basis, the indexes clearly perform very much in-line.

| | NASDAQ-100 CURRENCY HEDGED CAD TR | NASDAQ-100 TR CAD | NASDAQ-100 TR USD |
|-----------------------|-----------------------------------|-------------------|-------------------|
| Cumulative Return | 286% | 411% | 298% |
| Annualized Return | 16% | 20% | 16% |
| Annualized Volatility | 18% | 17% | 17% |

Cumulative Performance

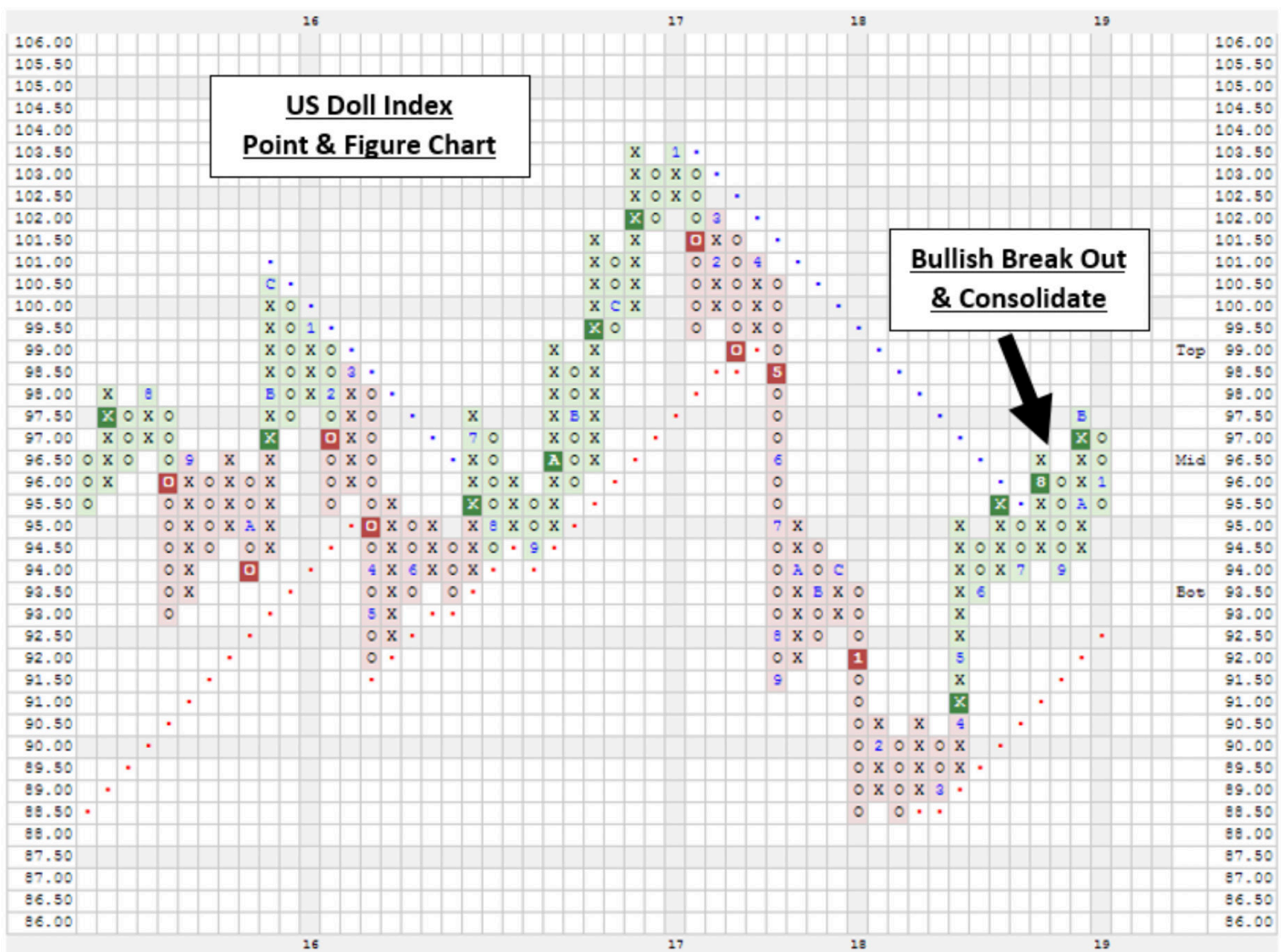


Is there anything going on in the U.S. dollar that would give an indication of which version of the Nasdaq-100 is poised to outperform?

US Dollar Index: Point & Figure Chart

Let’s take a quick look at a Point & Figure chart of the US Dollar Index to see if anything notable is present. Recent technical developments are currently favoring further upside on the U.S. Dollar. The Point & Figure chart has confirmed three constructive signals with the move above 97.00: a double top break-out and also a break above the bearish resistance line, which had been in place for a fair amount of time. A move below 93.00 would negate the double top buy signal and be a red flag in the short-term. In the report above, we displayed the impacts FX single rates can have on a given Index performance. If the current consolidate resolves itself to the upside, as the Point & Figure chart signal currently suggests (indicating a strengthening U.S. Dollar), it would have a negative effect on the currency-hedged Index and would favor the Nasdaq-100 TR Index CAD. However, if the upside break-out fails and the signal reverses below 93.00, the hedging effect would help limit the declines.

Bullish Price Obj: 107.500 Bullish Reward to Risk: 3.99



Point & Figure chart as of January 22, 2019

Conclusion:

Since the financial crisis, the majority of FX pairs saw a massive decline in volatility for a number of years. However, as we mentioned earlier, 2018 was a far different story, particularly in volatility among emerging market interest rate pairs. This could be due to a number of outside factors including trade tensions, a withdrawal of stimulus from global central banks, and increased market volatility in other markets such as equities and commodities. Tying the FX market discussion back to Canadian investors, this research piece covered the Nasdaq-100 in great detail in a number of facets. To start, it is worth highlighting that technology is advancing at an inexorable pace and companies in the Nasdaq-100 Index are poised to capture this growth. Investors around the globe can tap into these innovative companies by gaining exposure to the Index though different vehicles. Specifically, Canadian investors can gain exposure to the Index through both the traditional Nasdaq-100 Index priced in CAD and the currency-hedged Nasdaq-100 Index to CAD. The currency-hedged Index performed better during periods of strengthening CAD against the USD while the unhedged Index performed better during periods of weakening CAD. The decision between choosing to hedge or not to hedge currency exposure should hinge upon the expected local currency performance against the investment currency. If the local currency were expected to strengthen, then

hedging for currency risk would yield a higher return; if the local currency were to depreciate in the future, then a traditional strategy would be the best option.

This research article discussed the basic methodology and some historical performance statistics of currency hedging and how that has historically impacted the Nasdaq-100 Index. The biggest takeaway from a performance perspective across all indexes shown in the piece is that the Nasdaq-100, in any of the versions shown herein, historically outperformed the S&P/TSX 60, the S&P 500 in CAD and S&P 500 Hedged Canadian Dollar Indexes. To try and give an indication of the current moves in the USD to help with the decision of choosing to hedge or not hedge currency exposure, we gave a brief overview of some recent developments that have occurred on the Point & Figure Chart of the US Dollar Index. The chart points to a rising U.S. dollar, and that could ultimately favor the Nasdaq-100 CAD Index over the currency-hedged Index.

Investors can gain exposure to the Nasdaq-100 and Nasdaq-100 Currency Hedged Indexes in Canada via ETFs.

Sources: Nasdaq, Bloomberg

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